City of Charlotte
NPDES MS4 Permit Program

Stormwater
Management Program Plan

CHARLOTTE SM

Permit Number NCS000240

Fiscal Year 2018

Updated January 2018

Table of Contents

Section 1 **Introduction** 1

Section 2 **Background Information** 3

Section 3 **Public Education and Outreach Program** 8

Section 4 **Public Involvement and Participation Program** 13

Section 5 **Illicit Discharge Detection and Elimination Program** 18

Section 6 **Construction Site Stormwater Runoff Control Program** 24

Section 7 **Post-Construction Stormwater Management Program** 30

Section 8 **Pollution Prevention/Good Housekeeping Program** 36

Section 9 **Industrial Facilities Evaluation and Monitoring Program** 47

Section 10 **Water Quality Assessment and Monitoring Program** 52

Section 11 **Total Maximum Daily Load (TMDL) Program** 57

Appendices 71

<u>Acronyms Used In This Document:</u>

BMP:	Best Management Practice
CFR:	Code of Federal Regulations
CMCSI:	Charlotte-Mecklenburg Certified Site Inspector
CMSWS:	Charlotte-Mecklenburg Storm Water Services
CW:	Charlotte Water Department
DEMLR:	NCDEQ - Division of Energy, Mineral, and Land Resources
EPM-SWS:	Engineering and Property Management Department-Storm Water Services Division
ETJ:	Extra Territorial Jurisdiction
GIS:	Geographic Information System
IDDE:	Illicit Discharge Detection and Elimination
MEP:	Maximum Extent Practicable
MS4:	Municipal Separate Storm Sewer System
NCAC:	North Carolina Administrative Code
NCDEQ:	North Carolina Department of Environmental Quality
NCGA:	North Carolina General Assembly

NOV:	Notice of Violation
NPDES:	National Pollutant Discharge Elimination System
PCSO:	Post-Construction Stormwater Ordinance
SARA:	Superfund Amendments and Reauthorization Act
SCM:	Stormwater Control Measure
SPPP:	Stormwater Pollution Prevention Plan
SSO:	Sanitary Sewer Overflow
SWAC:	Storm Water Advisory Committee
SWIM:	Surface Water Improvement & Management Program
SWMP:	Stormwater Management Program
TMDL:	Total Maximum Daily Load
TSS:	Total Suspended Solids
WLA:	Waste Load Allocation
WWTP:	Wastewater Treatment Plant

Section 1: Introduction

On November 1, 1993, the City of Charlotte began operating under National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) Permit Number NCS000240. This permit has subsequently been renewed for a 5-year permit term on three occasions and is currently in its 4th permit cycle effective March 1, 2013 through February 28, 2018. The City submitted a permit renewal application to the North Carolina Department of Environmental Quality (NCDEQ) - Division of Energy, Mineral, and Land Resources (DEMLR) during August 2017 and is awaiting a new permit.

This document provides the Stormwater Management Program Plan (SWMP) required by Part I, paragraphs 1 and 7 of the NPDES MS4 permit. The objective of the SWMP is to protect receiving stream water quality by reducing the discharge of pollutants from Charlotte's MS4 to the maximum extent practicable (MEP) through the implementation of the six minimum measures stipulated in the Federal NPDES regulations. The SWMP plan details the program elements to be implemented under the City's NPDES MS4 permit program, and includes: the best management practices (BMPs) that are intended to fulfill the program requirements; frequency of each BMP; measurable program goals; implementation schedules; and responsible positions.

The City of Charlotte-Engineering and Property Management Department-Storm Water Services Division (EPM-SWS) is the primary agency responsible for managing the City's NPDES MS4 stormwater permit, the MS4 system and the SWMP. Implementation of the requirements within the permit and SWMP activities are coordinated with other applicable City departments as necessary. In addition, coordination is conducted with the NPDES MS4 permit programs for the jurisdictions in Mecklenburg County adjacent to the City where appropriate and feasible. This coordination is conducted to help ensure uniformity between the local NPDES MS4 stormwater permit programs and jurisdictions.

Staff of EPM-SWS, under the direction of the City's Water Quality Program Manager, is responsible for the fulfillment of most of the activities discussed in this SWMP. Exceptions to this include the City's Engineering and Property Management Department-Land Development Division, which is the primary agency responsible for Development and Redevelopment Plan Review and Construction Site Stormwater Runoff Control. In addition, the City's Department of Transportation-Street Maintenance Division and Solid Waste Services Department have responsibility for routine maintenance of certain portions of the MS4, in coordination with EPM-SWS. Funding for the BMPs specified in the SWMP is provided by local stormwater utility fees, except where noted.

The SWMP includes the following core NPDES stormwater permit programs:

1. Public Education and Outreach Program – This program provides the general public and businesses with information on general water quality, pollution prevention, and reporting problems, as well as specialized information on various activities that have the potential to cause pollution and harm water quality. This information is delivered through a wide range

of methods including print, web, radio, social media, television, presentations, and public events.

2. Public Involvement and Participation Program – This program provides the general public and businesses the opportunity to participate in various programs within the City's SWMP. Charlotte-Mecklenburg government maintains a Storm Water Advisory Committee (SWAC), which is an appointed citizen panel to review and comment on the City's and County's stormwater programs. In addition, public volunteer opportunities are available with City/County programs such as Storm Drain Marking, Adopt-a-Stream, and the annual Big Spring Clean event.

3. Illicit Discharge Detection and Elimination Program – This program is designed to protect water quality by detecting and eliminating pollution sources such as improper sewage or wastewater connections; illegal discharges of chemicals, paint, or oil; and accidental discharges from sewer lines and vehicle accidents. As part of this program, the City enforces the "City of Charlotte - Stormwater Pollution Control Ordinance", which prohibits the discharge of pollutants to the storm drain system and receiving streams. The City relies on reports from the public, various monitoring programs, and a wide range of other activities to assist in identifying and eliminating these sources of pollution.

4. Construction Site Stormwater Runoff Control Program – This program maintains the City's delegated erosion and sediment control program to control sediments and other pollutants from construction sites. As part of this program, the City enforces the "City of Charlotte - Soil Erosion and Sedimentation Control Ordinance", which requires suitable erosion control on project sites. The City conducts routine inspections of construction sites and issues violation notices and fines when necessary to ensure compliance with the ordinance.

5. Post-Construction Stormwater Management Program – This program is designed to control the discharge of pollutants in stormwater runoff from new development and redevelopment projects. As part of this program, the City enforces the "City of Charlotte – Post-Construction Stormwater Ordinance", which requires structural stormwater controls for applicable new development and redevelopment projects as defined in the ordinance. The program involves review and approval of project plans as well as site inspections and maintenance activities to ensure that treatment practices are properly operated and maintained.

6. Pollution Prevention/Good Housekeeping Program – This program focuses on ensuring that City facilities and field operations are managed in a way that minimizes stormwater pollutant discharges. Stormwater Pollution Prevention Plans and Spill Response Plans are maintained for applicable facilities that conduct activities with the potential for stormwater pollutant discharges. The City conducts inspections and training sessions at these facilities to ensure that requirements are being met. Field operations are evaluated for impacts on stormwater quality and best management practices are developed and implemented in order to minimize those impacts.

7. Industrial Facilities Evaluation and Monitoring Program – This program focuses on industrial facilities that discharge stormwater to the City's MS4 and receiving streams. Inspections are conducted at these facilities on a rotational basis to review site operations and materials handling practices. In addition, if the facility has a stormwater permit, it is reviewed to ensure that permit conditions are adhered to.

8. Water Quality Assessment and Monitoring Program – This program maintains a water quality monitoring plan designed to monitor major streams to determine water quality conditions and assist in evaluating the effectiveness of various stormwater management programs. The program is also used to assist in locating illicit discharges and connections where possible.

9. Total Maximum Daily Load (TMDL) Program – This program maintains a TMDL watershed plan designed to address applicable TMDL pollutants of concern by implementing best management practices (BMPs) within the six minimum NPDES stormwater permit measures. These BMPs are designed to reduce the TMDL pollutant of concern within the Permittee's assigned MS4 NPDES regulated waste load allocation to the maximum extent practicable (MEP), and to the extent authorized by law.

Section 2: Background Information

2.1 Population Served

The SWMP covers the jurisdictional area, including the incorporated area and extra territorial jurisdiction (ETJ), for the City of Charlotte, as applicable and defined by the NPDES MS4 permit. **Table 2-1** provides the population for the City of Charlotte based on the 2000 and 2010 US census. This census data was obtained from the following website of the US Census Bureau:

https://www.census.gov/quickfacts/table/PST045216/3712000,00

Table 2-1: Population and Growth Rate for the City of Charlotte.

2016 Population (estimated)	2010 Population	2000 Population	Average Annual Percent Change (2000-2010)
842,051	731,424	540,828	3.5%

2.2 Growth Rate

Table 2-1 shows the population growth rate represented as an "Average Annual Percent Change" for the City of Charlotte. This growth rate was calculated by dividing the overall percent change between the 2000 and 2010 Census data by the 10-year interval period.

2.3 Jurisdictional and MS4 Service Areas

The jurisdictional and MS4 service area for the City is provided in **Table 2-2**. The location of this area within Mecklenburg County and corresponding watershed areas is provided in **Figure 2-1**. The source of this information is the City of Charlotte Planning Department, which updates jurisdictional and geographical boundaries as annexations occur.

Table 2-2: Jurisdictional and MS4 Service Area for the City of Charlotte.

Incorporated Area (Sq. Miles)	ETJ (Sq. Miles)	Total Jurisdiction (Sq. Miles)
307	69	376

2.4 MS4 Conveyance System

The existing MS4 serving the City is composed of curbs, gutters, catch basins, culverts, pipes, ditches, and outfalls that collect and convey stormwater for discharge to receiving streams. Currently, there are an estimated 6,238 outfalls, 3,546 miles of storm drain pipe and 163,751 catch basins and drop inlets within the City's MS4. Pipe systems are typically 15 inches or larger in diameter and are designed for the ten-year storm event. Outlet energy is commonly dissipated through the use of end-walls or flared end sections with riprap aprons. Although the natural alignment of many receiving streams has been altered over the past century, many of the stream banks remain mostly vegetated as a result of the City's stormwater management philosophies. Stream banks that were armored with riprap as a result of previous stabilization efforts are currently allowed to re-vegetate naturally, and new projects incorporate "soft" methods involving tree plantings and other vegetation.

Maintenance and improvements to the MS4 system are funded by stormwater utility fees collected within the City. Maintenance activities include cleaning inlets of debris and sediment, maintaining channels to reduce erosion and maximize pollution reduction capabilities, and the removal of blockages. Improvements to the MS4 system include solving infrastructure problems, channel stabilization, safety improvements, stream habitat enhancement, water quality enhancement, and resolving flooding problems associated with stormwater generated from public streets.

2.5 Land Use Composition Estimates

The number of square miles and percentage of the MS4 service area under residential, commercial, industrial and open space land use categories are provided in **Table 2-3**. These percentages include the incorporated area and ETJ for the City. **Figure 2-2** provides a map of these land use areas. Land use estimates are derived from Mecklenburg County land parcel geographic information system (GIS) data (2015).

Table 2-3: Percentage of Land Uses in the City of Charlotte (including ETJ).

Land use Category	Number of Square Miles	% of Land Use within City of Charlotte
Residential	132	35
Commercial	56	15
Industrial	13	4
Open Space	98	26
Institutional	20	5
Transportation/Other	54	14
Lake Water/Open Space	3	1

FIGURE 2-1
Charlotte Jurisdictional Area and Watersheds

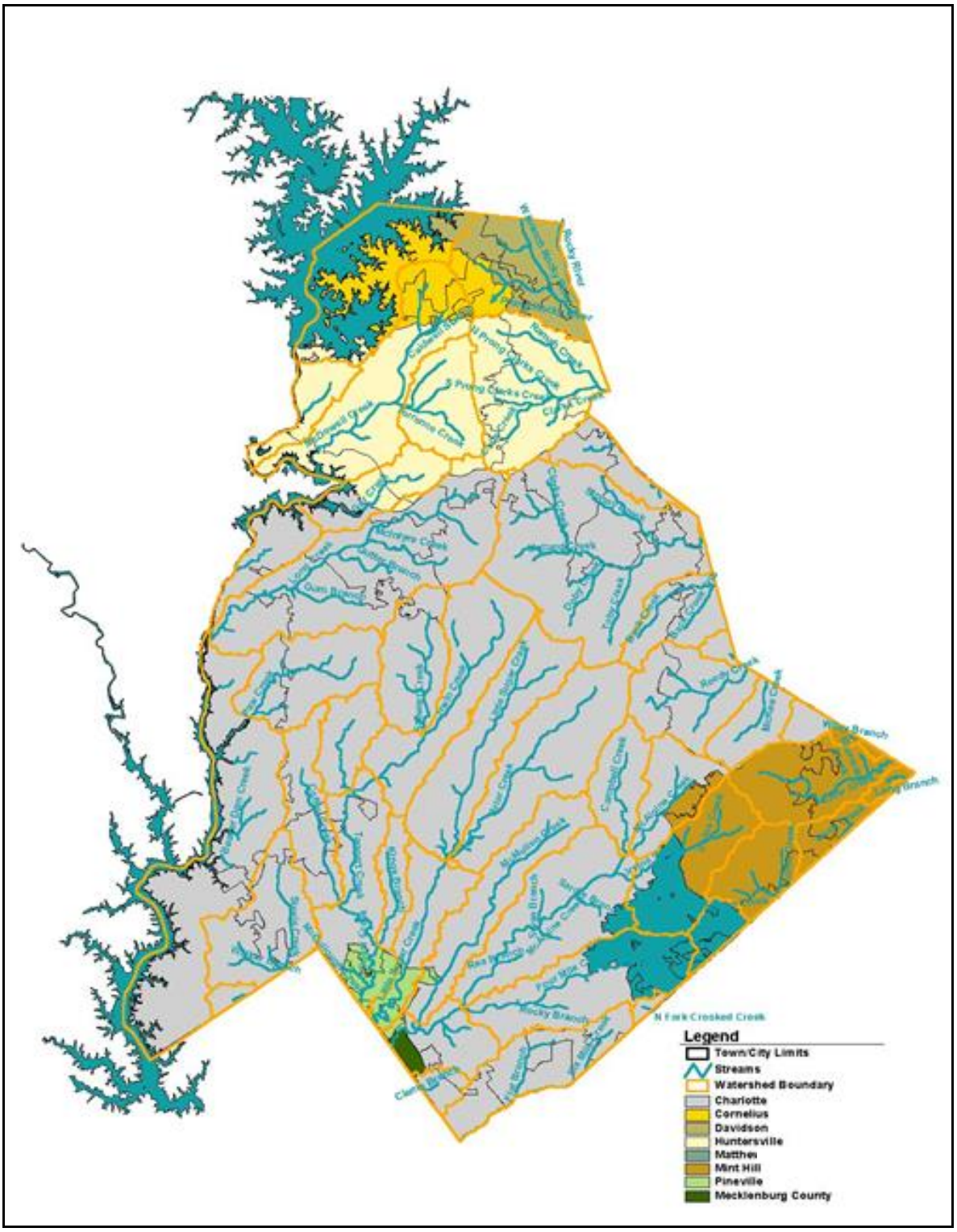
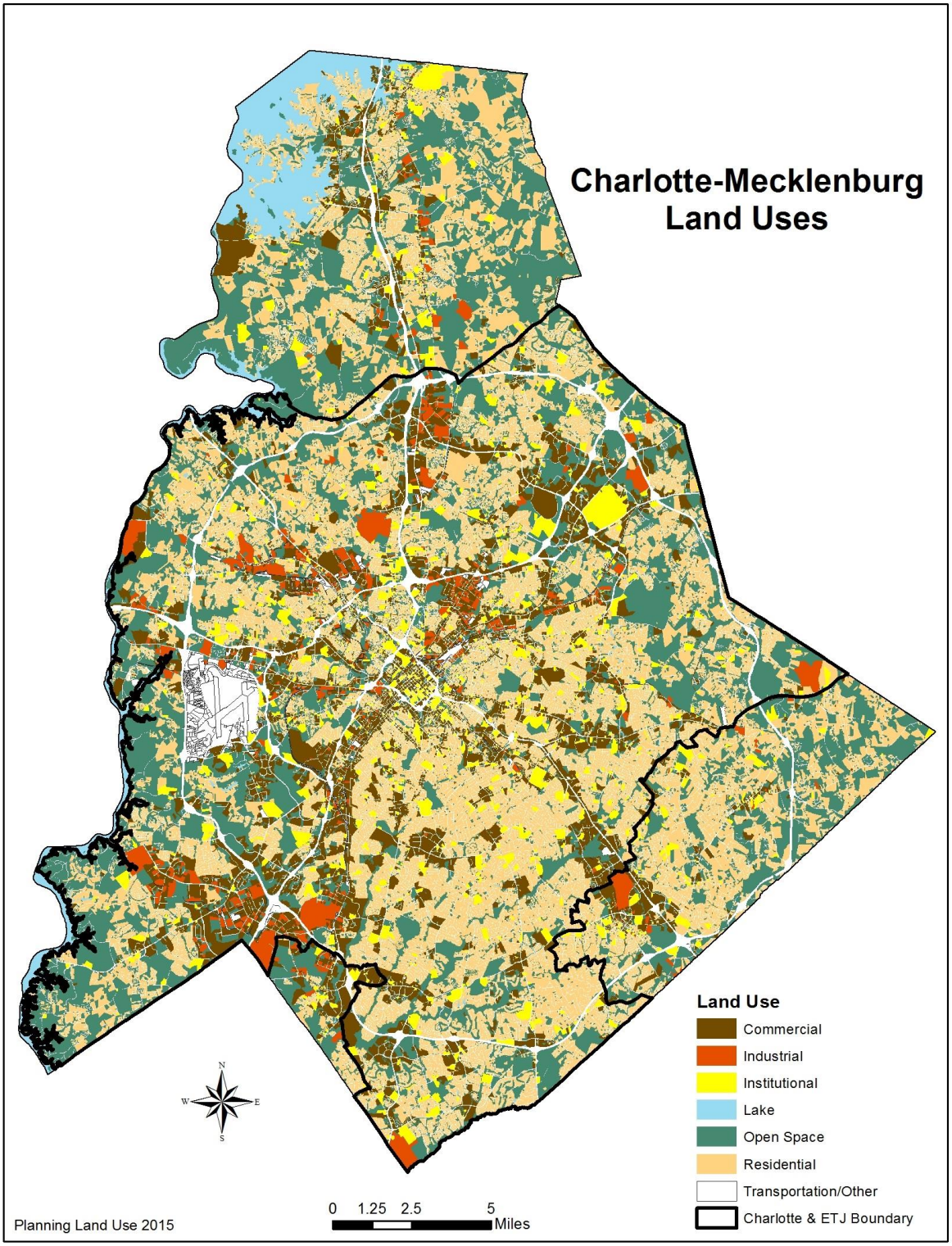


FIGURE 2-2


Charlotte-Mecklenburg
Land Uses
Land Use
Commercial
Industrial
Institutional
Lake
Open Space
Residential
Transportation/Other
Charlotte & ETJ Boundary
N
W
E
S
0 1.25 2.5 5
Miles
Planning Land Use 2015

Section 3: Public Education and Outreach Program

The City will continue to implement the Public Education and Outreach Program to distribute educational materials to the community and conduct outreach activities focused on the impacts of stormwater discharges on water bodies. The following sub-sections explain:

- The BMPs intended to meet program requirements;
- Target audience and pollution sources;
- Outreach strategy; and
- Measures of success.

3.1 BMP Summary Table

Table 3-1 provides information concerning the BMPs intended to meet the Public Education and Outreach Program requirements.

Table 3-1: BMP Summary Table for the Public Education and Outreach Program.

BMP	BMP Description	Schedule (yrs)					Responsible Position
		1	2	3	4	5	
Describe target pollutants and target pollutant sources	Describe the target pollutants and target pollutant sources the permittee's public education program is designed to address and why they are an issue.	X	X	X	X	X	Water Quality Program Manager
Describe target audiences	Describe the target audiences likely to have significant stormwater impacts and why they were selected.	X	X	X	X	X	Water Quality Program Manager
Informational Web Site	The permittee shall promote and maintain an internet web site designed to convey the program's message.	X	X	X	X	X	Water Quality Program Manager
Distribute public education materials to identified user groups.	Distribute general stormwater educational material to appropriate target groups as likely to have a significant stormwater impact. Instead of developing its own materials, the permittee may rely on state-supplied Public Education and Outreach materials, as available, when implementing its own program.	X	X	X	X	X	Water Quality Program Manager
Promote and maintain Hotline/Help line	Promote and maintain a stormwater hotline/helpline.	X	X	X	X	X	Water Quality Program Manager
Implement a Public Education and Outreach Program.	The permittee's outreach program, including those elements implemented locally or through a cooperative agreement, shall include a combination of approaches designed to reach the target audiences. For each media, event or activity, including those elements implemented locally or through a cooperative agreement the permittee shall estimate and record the extent of exposure.	X	X	X	X	X	Water Quality Program Manager

3.2 Target Pollutants and Sources

Table 3-2 provides the current specific pollutants and sources targeted for the public education program as well as a description as to why the sources are important for protecting water quality in the City.

Table 3-2: Target Pollutants and Sources for the Public Education and Outreach Program.

Target Pollutant	Pollution Source	Issue
Bacteria	Improper Waste Disposal Sanitary Sewer Overflows Pet Waste	Improper handling and disposal of wastes can result in the discharge of a variety of pollutants to the storm drainage system, causing increases in harmful bacteria. Discharges of food wastes such as fats, oils, and greases to the sanitary sewer system can result in line blockages that cause sewer overflows. Improper disposal of pet waste can also cause discharges of bacteria to the storm drain system.
Sediment	Construction Erosion Stream Bank Erosion	Improper erosion control practices at construction sites can result in sediment discharges to the storm drainage system. In addition, uncontrolled volumes of stormwater runoff can cause scouring of stream banks resulting in increased sediment volumes in streams.

3.3 Target Audience

The City's public education and outreach program reaches a fairly broad representation of the city's population through various methods as explained in section 3.4 with the goal of reaching certain target audiences for particular reasons as explained below. These are evaluated with each annual SWMP update and as part of the development of the SWMP plan following permit renewal.

Multi-Family Residential Apartment Complexes: This target audience has been selected because private sanitary sewer systems at apartment complexes are often not well-maintained and have been found to be significant contributors to SSOs in the municipal sewer system due to improper disposal of grease and other items by apartment residents.

Construction Industry: This target audience has been selected because it has the greatest potential for affecting erosion and sedimentation control at construction sites, which can be a significant contributor of sediment to the City's waterways.

Commercial Sectors: Various commercial sectors are targeted for education each year due to the significant negative impacts they can have on water quality by improperly handling and disposing of wastes and practicing poor housekeeping at their facilities. Each year an evaluation of previous pollution service requests, illicit discharges, and notices of violation is conducted to determine which commercial sectors are commonly demonstrating non-compliance. Based on that evaluation, education and outreach efforts are focused on particular sectors for a certain time period, typically a fiscal year.

School-aged Children: Children are very important when it comes to protecting surface waters. They play in creeks and lakes and, therefore, want to protect them. They bring home what they learn and encourage their parents to adopt positive behaviors for protecting water quality. Lessons about surface water quality and stormwater pollution often fit into and enhance science learning principles required by school curricula. Also, teaching children instills a sense of responsibility for the environment that carries forward and grows into their adult lives. For these reasons, the City's public education program focuses significant resources on teaching students at various grade levels.

The City is also exploring ways to educate an even more diverse representation of our population. A research and strategizing phase is underway to establish priorities and determine effective methods for sharing water quality messages with various audiences and getting more of them involved in volunteering and advocating for protection of water resources.

3.4 Stormwater Public Education and Outreach Program

The City's Stormwater Public Education and Outreach Program provides water quality and pollution prevention messages to educate residents about the ways they can help protect water quality and get involved to help reduce stormwater pollution. The program provides these messages through the following activities:

- Mass Media;
- Social Media;
- Hotline Promotion;
- School Presentations;
- Public Presentations and Events;
- Website; and
- Public Education Materials.

Mass Media: The City uses mass media channels to communicate water quality and volunteer program messages to a wide variety of audiences that may not be reached through its other public education and outreach activities. This may include using newspaper, television, and radio advertising.

Social Media: Social media has become an important way to provide information on and engage audiences in a variety of subjects. The City uses various social media platforms to educate citizens and provide them with information about the program.

Hotline Promotion: The City, in cooperation with Mecklenburg County, operates a joint customer service hotline to receive information about a variety of concerns. Citizens can dial 311 any time of the day (24/7/365) to report pollution, flooding, blockages to the drainage system as well as request other City/County services. The City promotes this hotline throughout all of the activities provided as part of the Stormwater Public Education and Outreach Program.

Messages focus on helping residents understand how to recognize and report stormwater pollution.

School Presentations: School presentations are provided to students from first grade through senior in high school. These presentations are customized to the grade level and provide lessons that focus on the water cycle, local watersheds, non-point versus point sources of pollution, water conservation, and pollution prevention.

Public Presentations and Events: Public presentations are provided upon request to a variety of audiences such as civic clubs, home owner associations, and commercial sectors. Public events such as community fairs and other events are attended by staff that set up information tables, provide activities, and distribute brochures and promotional products.

Website: A wide variety of pollution prevention, water quality, and volunteer information is maintained on the Charlotte-Mecklenburg Storm Water Services (CMSWS) website http://charmeck.org/stormwater/Pages/default.aspx. This website is promoted through the promotional and educational materials produced by the City's Stormwater Public Education and Outreach Program.

Public Education Materials: A wide variety of print media and promotional materials about water quality and pollution prevention is maintained and provided to the public. This includes brochures, fact sheets, postcards, booklets and promotional materials such as pens, pet waste bags, etc. Print media and promotional products are distributed during responses to citizen requests for service, public events, presentations, and/or through direct mail.

3.5 Measurable Goals

Table 3-3 describes the various Public Education and Outreach BMPs and the Measurable Goals for each BMP by permit term year.

Table 3-3: BMP Measurable Goals for the Public Education and Outreach Program.

BMP	BMP Description	Measurable Goals (by permit term year)				
		1	2	3	4	5
Describe target pollutants and target pollutant sources	Describe the target pollutants and target pollutant sources the permittee's public education program is designed to address and why they are an issue.	Identify target pollution sources utilizing monitoring and service request data	Review and update target pollution sources as necessary. (On-going, years 2 – 5)			
Describe target audiences	Describe the target audiences likely to have significant stormwater impacts and why they were selected.	Identify target audiences to adopt desired water quality improvement behaviors	Review and update target audiences as necessary. (On-going, years 2 – 5)			
Informational Web Site	The permittee shall promote and maintain an internet web site designed to convey the program's message.	Continue to maintain an informational website to provide program information to the public. (On-going, years 1 – 5)				
Distribute public education materials to identified user groups.	Distribute general stormwater educational material to appropriate target groups as likely to have a significant stormwater impact. Instead of developing its own materials, the permittee may rely on state-supplied Public Education and Outreach materials, as available, when implementing its own program.	Distribute educational materials at public events, workshops and presentations. (On-going, years 1 – 5)				
Promote and maintain Hotline/Help line	Promote and maintain a stormwater hotline/helpline.	Maintain a hotline that receives information from the public 24 hours a day. (On-going, years 1 – 5)				
Implement a Public Education and Outreach Program.	The permittee's outreach program, including those elements implemented locally or through a cooperative agreement, shall include a combination of approaches designed to reach the target audiences. For each media, event or activity, including those elements implemented locally or through a cooperative agreement the permittee shall estimate and record the extent of exposure.	Continue to implement a plan to conduct education & outreach activities, including a media campaign, that address target pollutants and audiences. (On-going, years 1 – 5)				

3.9 Program Assessment

The overall success of the Public Education and Outreach Program is evaluated through the successful implementation of the components of the program and reported with each NPDES MS4 annual report. In addition, success is also typically evaluated by the following:

- Number of public events attended;
- Number of presentations conducted;
- Number of website inquires;
- Results from program assessment surveys;
- Results from using mass media channels of communication, including reach and frequency; and
- Number of public hotline requests.

Section 4: Public Involvement and Participation Program

The City will continue to implement the Public Involvement and Participation Program. The following sub-sections explain:

- The BMPs intended to meet program requirements;
- Target audience;
- Volunteer opportunities; and
- Measures of success.

4.1 BMP Summary Table

Table 4-1 provides information concerning the BMPs intended to meet the Public Involvement and Participation Program requirements.

Table 4-1: BMP Summary Table for the Public Involvement and Participation Program.

BMP	BMP Description	Schedule (yrs)					Responsible Position
		1	2	3	4	5	
Volunteer community involvement program	The permittee shall include and promote volunteer opportunities designed to promote ongoing citizen participation.	X	X	X	X	X	Water Quality Program Manager
Establish a Mechanism for Public involvement	The permittee shall provide and promote a mechanism for public involvement that provides for input on stormwater issues and the stormwater program.	X	X	X	X	X	Stormwater Division Manager
Establish Hotline/Help line	The permittee shall promote and maintain a hotline/helpline for the purpose of public involvement and participation.	X	X	X	X	X	Water Quality Program Manager
Public Review and Comment	The permittee shall make copies of their most recent Stormwater Plans available for public review and	X	X	X	X	X	Water Quality Program

	comment.						Manager
Public Notice	Pursuant to 122.34 the permittee must, at a minimum, comply with State, Tribal and local public notice requirements when implementing a public involvement/ participation program.	X	X	X	X	X	Water Quality Program Manager

4.2 Volunteer Involvement Program

4.2.1 Target Audience

The primary target audience for the Public Involvement and Participation Program currently includes homeowners between the ages of 25 and 55 due to their likelihood to take an interest in their community and become involved in volunteer activities. The program also actively involves all potentially effected stakeholder groups, such as commercial and industrial facilities, trade associations, environmental groups, homeowners associations, civic groups and educational organizations.

4.2.2 Storm Drain Marking Program

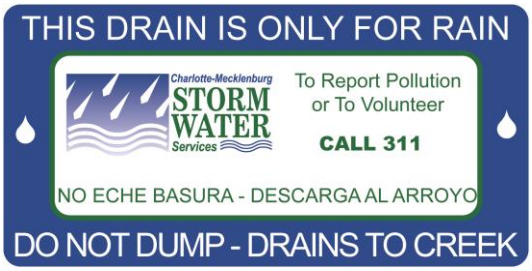


Figure 4-1: Storm Drain Marker

The City provides volunteers the opportunity to help educate their community about stormwater pollution through the Storm Drain Marking Program. This program enables volunteers to adhere vinyl printed markers to storm drains (**Figure 4-1**). The City provides the decals, adhesive, safety vests and information forms for completion by the groups. Following the completion of storm drain marking activities, the group submits a completed information form that includes the street names and number of drains that were marked, information concerning the condition of storm drains, and whether any pollutants or other problems were detected. Staff records the storm drains that have been marked and ensures pollutants and problems reported receive follow-up investigations.

4.2.3 Adopt-A-Stream Program

The City provides citizens the opportunity to adopt a segment of a stream under this program with volunteers conducting stream clean-ups, at a minimum, twice per year at adopted sites. Activities involved in providing this program include:

- The promotion of the program;
- Maintenance and distribution of materials needed for clean-ups;
- Coordination of volunteer groups; and
- Maintenance of a database that tracks the adoption status of stream segments among other program data.

4.3 Public Involvement Mechanism

The City of Charlotte and Mecklenburg County established a citizen Storm Water Advisory Committee (SWAC) during 1994 in conjunction with the development of their stormwater utility (CMSWS).

SWAC members are nominated and subsequently appointed by the Mecklenburg Board of County Commissioners, Charlotte City Council, Charlotte Mayor and Town Boards. SWAC includes residents from the City of Charlotte. SWAC serves as the City's stormwater management citizen advisory panel for the purpose of involving the public in the development and implementation of the permit program. The SWAC reviews:

- Capital and operational programs;
- Appeals;
- Stormwater program policies;
- Long-range plans; and
- Budgets.

These reviews assist SWAC to make recommendations or offer comments to the City Council and the Board of County Commissioners on program matters and annual budgets. The committee also adjudicates appeals for erosion control violations, pollution control violations, service charges, credits and adjustments.

4.4 Public Hotline/Help Line

The City, in cooperation with Mecklenburg County, operates a joint customer service hotline to receive information about a variety of concerns. Citizens can dial 311 any time of the day (24/7/365) to report pollution, flooding, blockages to the drainage system as well as request other City/County services. EPM-Storm Water Services works with the 311 customer service group to make sure calls are directed to appropriate personnel and/or are handled in a timely manner.

4.5 Public Review and Comment Opportunities

The City involves the public in the development and implementation of its permit through various methods including public advertisement, website, and interactions with the Charlotte Mecklenburg Storm Water Advisory Committee (SWAC), as necessary. The SWMP plan is maintained on the City's website and available to the public for review and comment at any time. The City considers comments received in the ongoing implementation of the permit and SWMP. The general public is also actively involved in the ongoing implementation of the SWMP through participation in volunteer programs.

4.6 Public Notice

At a minimum, the City will solicit public review comments via publicized legal notice for permit renewal applications and major revisions to the SWMP.

4.7 Measurable Goals

Table 4-2 describes the various Public Involvement and Participation Program BMPs and the Measurable Goals for each BMP by permit term year.

Table 4-2: BMP Measurable Goals for the Public Involvement and Participation Program.

BMP	BMP Description	Measurable Goals (by permit term year)				
		1	2	3	4	5
Volunteer community involvement program	The permittee shall include and promote volunteer opportunities designed to promote ongoing citizen participation.	Continue to maintain a public involvement and participation program that outlines campaigns and tools to encourage public involvement. (On-going, years 1 – 5)				
Establish a Mechanism for Public involvement	The permittee shall provide and promote a mechanism for public involvement that provides for input on stormwater issues and the stormwater program.	Maintain the Stormwater Advisory Committee. (On-going, years 1 – 5)				
Establish Hotline/Help line	The permittee shall promote and maintain a hotline/helpline for the purpose of public involvement and participation.	Maintain a hotline that receives information from the public 24 hours a day. (On-going, years 1 – 5)				
Public Review and Comment	The permittee shall make copies of their most recent Stormwater Plans available for public review and comment.	Maintain an informational website which includes the SWMP available for review and comment. (On-going, years 1 – 5)				
Public Notice	Pursuant to 122.34 the permittee must, at a minimum, comply with State, Tribal and local public notice requirements when implementing a public involvement/ participation program.	Comply with State and local public notice requirements when making major changes to the stormwater program and/or applying for permit renewals. (On-going, as needed)				

4.8 Program Assessment

The overall success of the Public Involvement and Participation Program is evaluated through the successful implementation of the components of the program and reported with each NPDES MS4 annual report. In addition, success is also evaluated by the following:

- Number of storm drain marking program volunteers;
- Number of storm drains marked;
- Number of SWAC meetings conducted;
- Number of Adopt-A-Stream volunteers; and
- Number of Adopt-A-Stream clean-ups conducted.

Section 5: Illicit Discharge Detection and Elimination (IDDE) Program

The City will continue to implement a multi-faceted Illicit Discharge Detection and Elimination Program, with a primary component being the use of surface water quality monitoring data. Some integral components of the IDDE program include:

- Maintenance of the surface water quality monitoring program that accurately assesses existing water quality conditions and identifies trends;
- Use of "Action" levels established for specific surface water quality parameters to automatically trigger follow-up field screening activities;
- Use of short-term monitoring activities to identify specific pollution sources as a component of the follow-up field-screening program;
- Response to citizen requests for service concerning surface water quality problems;
- Administration and enforcement of the City's stormwater pollution control ordinance;
- Use of public participation efforts such as the Storm Drain Marking and Adopt-A-Stream programs;
- Identification and mapping of stormwater outfalls that discharge to waters of the State;
- Use of stream walking and dry weather flow screening;
- Training of employees about illicit discharges and how to prevent and report them;
- Operation of a public reporting mechanism; and
- Coordination with other local government agencies to identify and eliminate failed septic systems and sanitary sewer overflows.

The following sub-sections explain:

- The BMPs intended to meet program requirements;
- Integral components of the IDDE program;
- Education strategy; and
- Measures of success.

5.1 BMP Summary Table

Table 5-1 provides information concerning the BMPs intended to meet the IDDE Program requirements.

Table 5-1: BMP Summary Table for the Illicit Discharge Detection and Elimination Program.

BMP	BMP Description	Schedule (yrs)					Responsible Position
		1	2	3	4	5	
Maintain appropriate legal authorities	Maintain adequate ordinances or other legal authorities to prohibit illicit connections and discharges and enforce the approved IDDE Program.	X	X	X	X	X	Water Quality Program Manager
Maintain a Storm Sewer System Base Map	The permittee shall maintain a current map showing major outfalls and receiving streams.	X	X	X	X	X	Stormwater Inventory Manager
Inspection / detection program to detect dry weather flows at MS4 outfalls	Maintain written procedures and/or Standard Operating Procedures (SOPs) for detecting and tracing the sources of illicit discharges and for removing the sources or reporting the sources to the State to be properly permitted. Written procedures and/or SOPs shall specify a timeframe for monitoring and how many outfalls and the areas that are to be targeted for inspections.	X	X	X	X	X	Water Quality Program Manager
Employee Training	Conduct training for appropriate municipal staff on detecting and reporting illicit connections and discharges.	X	X	X	X	X	Water Quality Program Manager
Maintain a public reporting mechanism	Maintain and publicize reporting mechanism for the public to report illicit connections and discharges. Establish citizen request response procedures.	X	X	X	X	X	Water Quality Program Manager
Documentation	The permittee shall document the date of investigations, any enforcement action(s) or remediation that occurred.	X	X	X	X	X	Water Quality Program Manager

5.2 Ordinance Administration and Enforcement

The City adopted its Stormwater Pollution Control Ordinance on January 30, 1995 for the initial NPDES MS4 permit term. The ordinance was subsequently updated and amended on March 22, 2004 and most recently on June 9, 2008, as detailed in **Appendix B**. This ordinance is enforced as part of the NPDES MS4 permit and SWMP. Detailed administration and enforcement procedures are maintained for the ordinance, including guidelines on when a notice of violation (NOV) is issued and the proper sections of the ordinance to be cited. These procedures also include the template files to be completed for the issuance of written NOVs and other enforcement measures as well as the required supervisor approval process. Procedures also describe the proper documentation to be maintained for penalty enforcement purposes and provide a digital template file for development of an enforcement package. Appeals to NOVs and penalty enforcements issued under the ordinance are heard by the SWAC.

5.3 Stormwater System Inventory

The City maintains and updates the inventory of its MS4 using GIS which includes data for major outfalls. Field staff collects stormwater infrastructure data using smart phone applications and Global Positioning System units, which is entered into the GIS database. New stormwater infrastructure is also entered into the database as digital information is supplied for new development projects. Inventory data is stored and maintained digitally. Hard copy maps showing major outfalls and receiving streams can be produced as needed.

5.4 Illicit Discharge Detection and Elimination Program

An effective illicit discharge detection and elimination program is essential to the success of the SWMP. Such a program has been in place in the City of Charlotte since the beginning of the NPDES MS4 permit program and is reviewed and updated as necessary. To establish a solid approach for identifying and eliminating illicit discharges, the City relies on techniques proven to be successful through prior implementation of the IDDE program. These techniques are summarized below and are described in detail along with other program information in an IDDE Procedures Manual.

Outfall Inspections/Inventory – Monitoring of dry weather flows detected during field inventory data collection efforts and stream walks. If dry weather flows are observed, samples are collected to determine if the flow is a pollution source and immediate follow-up field screening activities are initiated to identify and eliminate pollution sources. Additionally, a "hotspot" outfall inspection and dry weather flow monitoring program is implemented. Hotspots are areas with a higher potential for illicit discharge activities based on various criteria such as: monitoring data; previously identified illicit discharges; age of sewer infrastructure; and commercial land use density.

Water Quality Monitoring – Water quality monitoring is conducted for the purpose of identifying illicit connections and discharges, determining general water quality conditions and targeting water quality problem areas for additional follow-up actions. IDDE monitoring includes ambient and fixed interval stream monitoring activities aimed at improving capabilities for identifying and eliminating pollution problems and tracking long and short-term water quality trends. The City uses established water quality "Action" levels as part of the monitoring program. These "Action" levels include State water quality standards and, for those parameters with no standard, historical data is used to identify problem pollutant levels. The data is reviewed in order to identify priority areas for follow-up field screening, with an overall goal of identifying and eliminating pollution sources.

Illicit Discharge Elimination Program – This specialized program is implemented as a means to quickly assess field conditions and identify illicit discharges in priority stream basins, otherwise known as hotspots. Priority basins are selected based on numerous factors, and personnel inspect outfalls, business corridors and multi-family private sewer systems within those basins. Personnel drive to selected locations during base flow conditions and use visual observation, sensory cues, and quick field tests to determine if abnormal conditions exist. This method allows

for numerous quick assessments that can be conducted more frequently throughout the year. When compared to previous methods of conducting sampling at numerous locations within a basin, the program has shown to be just as effective at identifying illicit discharges and more effective in terms of time and cost.

Industrial Facilities – Industrial facilities are identified as a potential source of illicit connections/discharges and stormwater pollution in general to City streams. An inspection and monitoring program for industrial facilities is implemented as a means to identify and eliminate pollution sources. The primary focus is on facilities with NPDES Stormwater permits; however, some inspections are conducted at non-permitted facilities in instances when they have been found to have as much pollution generating activity as permitted facilities. Stormwater monitoring at select facilities is conducted to provide better information about site conditions and help guide follow-up activities and selection of best management practices.

General Public, Municipal Employee, and Business Community Outreach/Involvement –The City focuses its public and employee outreach campaign, in part, on informing these groups of what to look for and how to report illicit discharges so they can report suspected pollution problems. All reported pollution problems are recorded as a "citizen request for service" and immediately assigned to staff for follow-up to identify and eliminate pollution sources. Specific commercial businesses are also targeted for education and outreach, with special emphasis on pollution prevention and the implementation of best management practices.

Sanitary Sewer Overflows and Septic Systems – The City implements a program to reduce sanitary sewer overflows including preventative maintenance, inspections, rehabilitation, cleaning, education/training, mapping, monitoring, data analysis, and rapid response/cleanup. A "Sewage Spills Matrix" detailing procedures and responsibilities for responding to sewage found in surface waters is followed by appropriate field personnel.

The City MS4 program works with the Charlotte Water Department (CW) on a consistent basis to identify and eliminate chronic problems within the sanitary sewer collection system that contribute to sanitary sewer overflows (SSOs). CW has developed and implemented high-level efforts aimed at reducing overflows and discharges from sanitary sewer system. The City MS4 program complements CW's efforts and work with their staff to target chronic problem areas and sources.

The City of Charlotte also works with Mecklenburg County Groundwater and Wastewater Services to reduce discharges from septic systems. The County conducts permitting, inspections, education and enforcement activities while the City works with them to address impacts from septic failures to surface waters.

5.5 Employee Training

Target employee groups are educated about common illicit discharges, associated environmental and health hazards, pollution prevention practices, problem reporting methods, and the requirements of the Stormwater Pollution Control Ordinance. Various education methods are

used as appropriate to reach the target groups. An employee training plan has been developed to set goals and direct the actions of the program. The plan identifies and prioritizes target groups of employees.

5.6 Public Reporting Hotline

The City, in cooperation with Mecklenburg County, operates a joint customer service hotline to receive information about a variety of concerns. Citizens can dial 311 any time of the day (24/7/365) to report pollution, flooding, blockages to the drainage system as well as request other City/County services. EPM-SWS works with the customer service group to make sure that calls are directed to appropriate personnel and handled in a timely manner. Citizen request response procedures are updated as necessary as part of the overall IDDE program discussed in Section 3.4 above.

5.6.1 Public Education and Outreach

The City maintains a public education and outreach program to inform businesses and the general public about illicit discharges and improper waste disposal and how they impact the environment. This education and outreach program includes instructions regarding the proper method for reporting illicit discharges. Public education and outreach items for the IDDE Program are included as a component of the Public Education and Outreach Program described in Section 3 above.

5.7 Documentation

The City will maintain electronic and hard copy files as necessary to document activities conducted under the Illicit Discharge Detection and Elimination Program, including Citizens Requests for Service, investigations and enforcement actions.

5.8 Measurable Goals

Table 5-2 describes the various Illicit Discharge Detection and Elimination program BMPs and the Measurable Goals for each BMP by permit term year.

Table 5-2: BMP Measurable Goals for the Illicit Discharge Detection and Elimination Program.

BMP	BMP Description	Measurable Goals (by permit term year, as applicable)				
		1	2	3	4	5
Stormwater Pollution Control Ordinance	Maintain and enforce the City's Stormwater Pollution Control Ordinance to prohibit illicit connections and discharges.	Continue administration and enforcement of the Stormwater Pollution Control Ordinance and IDDE Program. (On-going, years 1 – 5)				
Stormwater System Inventory	Maintain an inventory mapping capability which, at a minimum, shows major stormwater system outfalls and receiving streams.	Continue to maintain the stormwater system inventory mapping capability in GIS and update the inventory to show additional outfalls as data is collected. (On-going, years 1 – 5)				
Illicit discharge detection and elimination program	Maintain a program to identify and eliminate illicit connections and illicit discharges to the City's MS4. Maintain written procedures to guide the IDDE program.	Maintain the IDDE program and activities to identify and eliminate illicit connections and illicit discharges. Update written procedures as necessary to guide program activities. (On-going, years 1 – 5)				
Employee Training	Conduct training for appropriate municipal staff on detecting and reporting illicit connections and discharges.	Maintain an employee training program and conduct employee training for appropriate municipal staff on detecting and reporting illicit connections and discharges. (On-going, years 1 – 5)				
Public reporting mechanism and response procedures	Maintain and publicize a reporting mechanism for the public to report illicit connections and discharges. Maintain citizen request response procedures.	Maintain the 311 hotline available to receive reports and information from the public at all times (24/7/365). Publicize the hotline through the media outreach campaign and various additional efforts through the Public Education Program. Maintain and follow citizen request response procedures as specified in the IDDE program procedures. (On-going, years 1 – 5)				

5.9 Program Assessment

The overall success of the Illicit Discharge Detection and Elimination Program is evaluated through the successful implementation of the components of the program and reported with each NPDES MS4 annual report. In addition, success is also typically evaluated by the following:

- Number of stream miles assessed;
- Number of inspections conducted;
- Number of dry weather flows evaluated;
- Number of citizen requests addressed and resolved;
- Number of illicit discharges and connections detected and eliminated; and
- Number of employees and businesses educated.

Section 6: Construction Site Stormwater Runoff Control Program

The City will continue implementation of its delegated local Erosion and Sedimentation Control Program under authority granted by the North Carolina Sedimentation Commission as described in North Carolina General Statute 113A-60 - Local Erosion Control Programs. Land disturbing activities performed in the City, including its ETJ, are regulated by this local program. The following sub-sections explain:

- The BMPs intended to meet program requirements;
- Integral components of the program;
- Education strategy; and
- Measures of success.

6.1 BMP Summary Table

Table 6-1 provides information concerning the BMPs intended to meet the requirements of the Construction Site Stormwater Runoff Control Program. Funding for the BMPs in this section is covered by local land development fees.

Table 6-1: BMP Summary Table for the Construction Site Stormwater Runoff Control Program.

BMP	BMP Description	Schedule (yrs)					Responsible Position
		1	2	3	4	5	
Erosion and Sediment Control Program	The permittee has a delegated Sediment and Erosion Control Program. As such, to the extent authorized by law, the permittee is 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	X	X	X	X	X	Land Development Division Manager

	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.						
Develop requirements for construction site operators	The NCG010000 permit establishes requirements for construction site operators to control waste such as discarded building materials, concrete truck washout, chemicals, litter, and sanitary waste at the construction site that may cause adverse impacts to water quality.	X	X	X	X	X	Land Development Division Manager
Public information and reporting	The permittee shall provide and promote a means for the public to notify the appropriate authorities of observed erosion and sedimentation problems. The permittee may implement a plan promoting the existence of the NCDENR, Division of Land Resources "Stop Mud" hotline to meet the requirements of this paragraph.	X	X	X	X	X	Land Development Division Manager
Plan reviews	Implement construction site plan reviews as part of the Permittee's delegated program. For new development and redevelopment projects to be built within the permittee's planning jurisdiction by entities with eminent domain authority, the permittee shall, to the maximum extent practicable, coordinate the approval of the construction site runoff control with the Division of Land Resources of DENR.	X	X	X	X	X	Land Development Division Manager

6.2 Erosion and Sediment Control Program

The City will continue implementation of the soil erosion and sediment control program, which is currently a delegated Sediment and Erosion Control Program under authority granted by the North Carolina Sedimentation Commission. As such, to the extent authorized by law, the City is responsible for compliance with the Sediment Pollution Control Act of 1973 and Chapter 4 of Title 15A of the North Carolina Administrative Code. The program serves to provide added protection to surface water resources in the City by ensuring that builders and developers follow minimum standards for erosion and sediment control per State and Local guidelines.

The Charlotte Soil Erosion and Sedimentation Control ordinance amended and adopted by council in 2008, serves as the backbone of the program **(see Appendix C)**. Ordinance highlights include the following requirements:

- An approved soil erosion and sediment control plan for all qualifying land disturbances of one acre or greater;
- An on-site preconstruction conference prior to the installation of any measures or commencement of land disturbing activities;
- Issuance of a grading permit prior to the commencement of land disturbing activities;

- Weekly inspections at a minimum by the permit holder of erosion control measures depending on sensitivity of receiving waters;
- Inspections by the permit holder of measures after any rainfall event totaling one-half inch or greater;
- Documentation and maintenance of inspection records performed by the permit holder;
- Maintenance and optimal performance of all measures for the life of the project performed by the permit holder;
- Requirements for controls to minimize erosion and prevent offsite sedimentation; and
- Enhanced local erosion control requirements which were deemed essential for protecting sensitive environmental features and were developed based on years of field experience and observations.

The ordinance also provides City staff with the following:

- Authority to issue NOVs for practices and/or impacts contravening ordinance requirements; and
- Authority to issue civil penalties for violations of the Soil Erosion & Sedimentation Control Ordinance.

6.2.1 Inspection and Enforcement Procedures

All construction sites requiring a preconstruction meeting and approved plan are logged, filed and placed in the queue for regular inspections. Staff goals are to visit and inspect every logged site utilizing a scheduled inspection process. Sites that generate citizen complaints, have had a history of non-compliance, or are in close proximity to a critical area (e.g. sites adjacent to water features or within a water-supply watershed) are considered a priority for additional inspections and follow-up.

6.3 Construction Site Requirements

The program requires that all land disturbing activities comply with ordinance requirements for controlling erosion and sediment on site. As an additional requirement, and in compliance with NPDES regulations, all construction sites one acre or greater must have an approved soil erosion and sediment control plan designed specifically for the site as required by NPDES General Permit NCG010000 for Construction Related Activities. After plan approval, responsible parties are required to follow the approved plan for all phases of construction, as well as maintain measures in a state that ensures optimal performance throughout the duration of construction activities and until final site stabilization is achieved. Regular self-inspections are a requirement for optimal performance and all sites must employ a competent person to conduct those inspections and maintain logbooks and documentation for ready-review by local or state representatives.

6.4 Public Information and Reporting

The City's Erosion Control Program maintains a website to assist with the dissemination of information to the development community and the general public. The City also maintains an information/help line and citizens can dial 311 any time of the day (24/7/365) to report problems. The help line serves as a clearinghouse for general information and ensures that erosion control related issues are directed to appropriate staff for resolution. Information sharing and inter-department training between City and County agencies also ensures that problems, questions, or requests for information from the general public can be processed and resolved quickly. The City's erosion control webpage can be viewed at:
http://charlottenc.gov/ld/Pages/default.aspx

6.4.1 Education and Training Materials

The City maintains an education and training program for developers, contractors and other interested parties within the region. Although program policies and procedures dictate that self-inspectors maintain a level of competence necessary to ensure compliance, the City takes a proactive role in providing local training and handout materials for affected parties.

In a cooperative effort with Mecklenburg County, the City of Charlotte currently maintains the *Charlotte-Mecklenburg Certified Site Inspector* (CMCSI) training program, which has to date provided training to over five thousand (5,000) individuals since its inception in 2003. CMCSI is a full day training course that provides attendees with an understanding of the importance of water resources to our community, the local and state requirements for controlling construction site runoff, principles of erosion control, common site problems, recommendations for conducting effective inspections, and a certification exam. The CMCSI program is typically offered four times per year. When requested, the program is conducted for private parties who meet certain requirements with regards to number of attendees and provision of materials and meeting space.

In addition to the CMCSI education program, all developers, builders and responsible parties receive handouts and materials at the preconstruction meeting and at other times as necessary to explain ordinance requirements, minimum standards and other relevant information for the financially responsible party and/or site operators.

6.5 Plan Reviews

Any land disturbing activity consisting of one acre or greater is required to obtain approval of a soil erosion and sediment control plan prior to scheduling a preconstruction conference. When plans are submitted by design engineers, erosion control staff conduct the review and approval of the erosion control portion of the plans. Plans are reviewed for suitability of selected measures and to ensure that design parameters and calculations are appropriately employed and minimum standards are achieved. All local erosion control staff members are required to obtain and maintain status as a Certified Professional in Erosion and Sediment Control, which provides accreditation for plan design and review.

6.6 Measurable Goals

Table 6-2 describes the various Construction Site Stormwater Runoff Control BMPs and the Measurable Goals for each BMP by permit term year.

Table 6-2: BMP Measurable Goals for the Construction Site Stormwater Runoff Control Program.

BMP	BMP Description	Measurable Goals (by permit term year)				
		1	2	3	4	5
Erosion and Sediment Control Program	The permittee has a delegated Sediment and Erosion Control Program. As such, to the extent authorized by law, the permittee is 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.	Continue to implement the delegated Sediment and Erosion Control program and enforce the City ordinance. (On-going, years 1 – 5)				
Develop requirements for construction site operators	The NCG010000 permit establishes requirements for construction site operators to control waste such as discarded building materials, concrete truck washout, chemicals, litter, and sanitary waste at the construction site that may cause adverse impacts to water quality, as part of the Permittee's delegated program.	Continue requirements for BMPs and waste control through issuance of General Construction Permit NCG010000. (On-going, years 1 – 5)				
Public information and reporting	The permittee shall provide and promote a means for the public to notify the appropriate authorities of observed erosion and sedimentation problems. The permittee may implement a plan promoting the existence of the NCDENR (now NCDEQ) Division of Land Resources "Stop Mud" hotline to meet the requirements of this paragraph.	Continue to maintain reporting hotline and website. (On-going, years 1 – 5)				
Plan reviews	Implement construction site plan reviews as part of the Permittee's delegated program. For new development and redevelopment projects to be built within the permittee's planning jurisdiction by entities with eminent domain authority, the permittee shall, to the maximum extent practicable, coordinate the approval of the construction site runoff control with the Division of Land Resources of DENR.	Continue plan reviews to ensure program requirements are met. Coordinate with NCDEQ – DEMLR as necessary. (On-going, years 1 – 5)				

6.7 Program Assessment

The overall success of the Construction Site Stormwater Runoff Control Program is evaluated through the successful implementation of the components of the program and reported with each NPDES MS4 annual report. In addition, success is also typically evaluated by the following:

- Number of education workshops conducted;
- Number of plans reviewed;
- Number of citizen requests addressed and resolved; and
- Number of inspections conducted.

Section 7: Post-Construction Stormwater Management Program

The City will continue to implement the Post-Construction Stormwater Management Program in accordance with the NPDES and Stormwater Management requirements contained in North Carolina General Assembly (NCGA) Session Law 2006-246, as promulgated in North Carolina Administrative Code at 15A 02H Sections .0126, .0150 - .0154 (NPDES) and at 15A 02H Section .1000 (Stormwater Management). The goal of this program is to address water quality impacts from post-construction stormwater discharges through the use of both structural and non-structural best management practices (BMPs). The program includes the enforcement and management of the Post Construction Stormwater Ordinance to address stormwater runoff from new development and redevelopment projects that disturb one acre or more, including projects less than one acre that are part of a larger common plan of development or sale. The following sub-sections explain:

- The BMPs intended to meet program requirements;
- Integral components of the program;
- Education strategy; and
- Measures of success.

7.1 BMP Summary Table

Table 7-1 provides information concerning the BMPs intended to meet the requirements of the Post-Construction Stormwater Management Program. Funding for the BMPs in this section is covered by local stormwater utility fees and land development fees.

Table 7-1: BMP Summary Table for the Post-Construction Stormwater Management Program.

BMP	BMP Description	Schedule (yrs)					Responsible Position
		1	2	3	4	5	
Post-Construction Stormwater Management Program	Maintain an ordinance (or similar regulatory mechanism) and program to address stormwater runoff from new development and redevelopment.	X	X	X	X	X	Water Quality Program Manager

Strategies which include BMPs appropriate for the MS4	Maintain strategies that include a combination of structural and/or non-structural BMPs implemented in concurrence with ordinance above. Provide a mechanism to require long-term operation and maintenance of structural BMPs. Require annual inspection reports of permitted structural BMPs performed by a qualified professional. A qualified professional means an individual trained and/or certified in the design, operation, inspection and maintenance aspects of the BMPs being inspected, for example, someone trained and certified by NC State for BMP Inspection & Maintenance.	X	X	X	X	X	Water Quality Program Manager
Deed Restrictions and Protective Covenants	The permittee shall provide mechanisms such as recorded deed restrictions and protective covenants so that development activities maintain the project consistent with approved plans.	X	X	X	X	X	Water Quality Program Manager
Operation and Maintenance Plan	The developer shall provide the permittee with an operation and maintenance plan for the stormwater system, indicating the operation and maintenance actions that shall be taken, specific quantitative criteria used for determining when those actions shall be taken, and who is responsible for those actions. The plan must clearly indicate the steps that shall be taken and who shall be responsible for restoring a stormwater system to design specifications if a failure occurs and must include an acknowledgment by the responsible party. Development must be maintained consistent with the requirements in the approved plans and any modifications to those plans must be approved by the Permittee.	X	X	X	X	X	Water Quality Program Manager
Educational materials and training for developers	Provide educational materials and training for developers. New materials may be developed by the permittee, or the permittee may use materials adopted from other programs and adapted to the permittee's new development and redevelopment program.	X	X	X	X	X	Water Quality Program Manager

7.2 Post-Construction Stormwater Management Program

The City began development of its Post-Construction Stormwater Ordinance & Management (PCSO) program in 2004 with participation in a Charlotte-Mecklenburg Stormwater Stakeholders Group. The group consisted of representatives from the development and environmental communities as well as local government staff. The stakeholders were charged with making recommendations to the City and County for the development of their respective post-construction stormwater ordinances. During 2006-2007, the City worked to develop the ordinance, which was approved by City Council on November 26, 2007, effective July 1, 2008. In October 2011, the City Council approved revisions to the ordinance that resulted in the following:

- A mitigation fee for redevelopment where no increase in impervious coverage occurs;
- Required minimum buffers for all projects; and
- Minor text changes that did not affect the governance of the ordinance.

In October 2014, City Council approved an additional time extension of October 2011 revisions until December 31, 2017. On July 1, 2016, part of the ordinance was revised to include a modified version of this redevelopment mitigation option and removed the sunset date in the ordinance.

The ordinance and post-construction program are designed to meet the stormwater management and water quality protection requirements of NCGA Session Law 2006-246, as promulgated in North Carolina Administrative Code at 15A 02H Sections .0126, .0150 - .0154 (NPDES) and at 15A 02H Section .1000 (Stormwater Management) to address post-construction stormwater runoff from new development and redevelopment projects as required by the NPDES MS4 permit program and as specified and defined in the City's Post-Construction Stormwater Ordinance (**see Appendix D**). The ordinance covers the entire jurisdictional area of the City. An administrative manual has been developed to ensure successful implementation of the program.

7.3 Post-Construction BMP Strategies

BMP strategies for the City's Post-Construction Stormwater Management program consist mainly of structural stormwater control measures (SCMs) such as sand filters, wet ponds, wetlands, and bioretention areas. SCMs and design procedures are detailed in a local manual developed by the City and County. SCMs are required on projects that have 24% or greater built upon area as defined by the program. This threshold is reduced to 10-12% built upon area for developments disturbing more than an acre and/or adding more than 20,000 sf of built upon area in sensitive watersheds as defined by the ordinance. In addition, SCMs must be designed to:

- Remove 85% of Total Suspended Solids (TSS) for the runoff volume generated from the first 1-inch of rainfall;
- Control the runoff volume from the 1-year – 24 hour storm event; and
- Control the peak flow from the 10 and 25-year storm events for residential and commercial development.

The program also requires proper operation, maintenance, and inspection of SCMs as discussed in later sub-sections. Green infrastructure practices such as rain gardens, pervious pavements, vegetated conveyances, and rain water harvesting are allowed, depending on development needs. Undisturbed natural areas and natural resource protection as well as tree preservation requirements are part of the program. Additional requirements include:

- 70% Total Phosphorus removal in certain watersheds;
- Various buffer requirements and widths from 30 – 200 feet based on stream jurisdictional determination; and

- Design standards depending on watershed location and sensitivity.

All of these requirements combine to make a much more sound and protective ordinance and program (**see Appendix D** for more detail).

7.4 Deed Restrictions and Protective Covenants

As part of the PCSO program, the City requires deed restrictions and protective covenants to ensure that development projects remain consistent with approved plans. Streams and buffer boundaries are required to be specified on all surveys and record plats. An operation and maintenance agreement for SCMs is required to be referenced on record plats and recorded in deeds. In addition, a maintenance easement is required to be recorded to provide access to structural SCMs.

7.4.1 Setbacks for Built-Upon Areas

The PCSO program requires a minimum of 30-foot buffers on all perennial and intermittent streams draining less than 50 acres, and incrementally increase required buffer widths up to 100-feet for streams draining 640 acres or more. A special provision in the program requires 200-foot buffers on all perennial streams and 100-foot buffers on all intermittent streams in the Six Mile Creek watershed due to the potential presence of the federally endangered species, Carolina Heelsplitter (*Lasmigona decorata*).

7.5 Operation and Maintenance Plan

The PCSO program requires an operation and maintenance agreement executed by the responsible party (owner) of each stormwater control measure (SCM). As part of the program, the owner is required to:

- Conduct annual inspections of SCMs;
- Maintain proper records documenting operation and maintenance activities; and
- Submit inspection reports to the City.

In the case of single family residential projects, at the request of the homeowner's association the City may assume the responsibility for operating, maintaining, and inspecting required SCMs after an initial two-year period for SCMs that are constructed and functioning properly.

7.6 Education and Training Program

The City implements an education and training program designed to provide developers and designers with the information necessary to comply with the City's Post-Construction Stormwater Ordinance. Training includes information on:

- Overall ordinance requirements;
- Review processes;

- Land development and SCM design requirements;
- Deed restrictions and protective covenants;
- Buffer requirements; and
- Operation, maintenance, and inspection requirements for SCMs.

Education and training is accomplished by providing the following:

- Website information;
- Individual meetings with developers and designers;
- Presentations at public meetings;
- Periodic seminars and training sessions; and
- Training City design staff.

7.7 Measurable Goals

Table 7-2 describes the various Post-Construction Stormwater Management Program BMPs and the Measurable Goals for each BMP by permit term year.

Table 7-2: BMP Measurable Goals for the Post-Construction Stormwater Management Program.

BMP	BMP Description	Measurable Goals (by permit term year)				
		1	2	3	4	5
Post-Construction Stormwater Management Program	Maintain an ordinance (or similar regulatory mechanism) and program to address stormwater runoff from new development and redevelopment.	Maintain the City's Post- Construction Ordinance (PCSO) and implement and enforce the ordinance. (On-going, years 1 – 5)				
Strategies which include BMPs appropriate for the MS4	Maintain strategies that include a combination of structural and/or non-structural BMPs implemented in concurrence with (a) above. Provide a mechanism to require long-term operation and maintenance of structural BMPs. Require annual inspection reports of permitted structural BMPs performed by a qualified professional. A qualified professional means an individual trained and/or certified in the design, operation, inspection and maintenance aspects of the BMPs being inspected, for example, someone trained and certified by NC State for BMP Inspection & Maintenance.	Continue PCSO program and ensuring proper BMP operation, maintenance, and annual inspections. (On-going, years 1 – 5)				
Deed Restrictions and Protective Covenants	The permittee shall provide mechanisms such as recorded deed restrictions and protective covenants so that development activities maintain the project consistent with approved plans.	Continue to implement Deed Restrictions and Protective Covenants through administration of the PCSO Program. (On-going, years 1 – 5)				
Operation and Maintenance Plan	The developer shall provide the permittee with an operation and maintenance plan for the stormwater system, indicating the operation and maintenance actions that shall be taken, specific quantitative criteria used for determining when those actions shall be taken, and who is responsible for those actions. The plan must clearly indicate the steps that shall be taken and who shall be responsible for restoring a stormwater system to design specifications if a failure occurs and must include an acknowledgment by the responsible party. Development must be maintained consistent with the requirements in the approved plans and any modifications to those plans must be approved by the Permittee.	Continue to implement BMP operation, maintenance, and inspection plan and procedures. (On-going, years 1 – 5)				
Educational materials and training for developers	Provide educational materials and training for developers. New materials may be developed by the permittee, or the permittee may use materials adopted from other programs and adapted to the permittee's new development and redevelopment program.	Continue to provide and update education/ training tools for developers. (On-going, years 1 – 5)				

7.8 Program Assessment

The overall success of the Post-Construction Stormwater Management Program is evaluated through the successful implementation of the components of the program and reported with each NPDES MS4 annual report. In addition, success is also typically evaluated by the following:

- Number of plans reviewed;
- Number of SCMs installed;
- Number of SCM inspections conducted; and
- Number of training sessions conducted.

Section 8: Pollution Prevention/Good Housekeeping Program

The City will continue to implement a comprehensive Pollution Prevention and Good Housekeeping Program for municipal facilities and operations. This includes the following components:

- Facility inspection and training programs to reduce stormwater pollutant runoff to the maximum extent practicable;
- Establishment and monitoring of standard operating procedures and best management practices for municipal field operations; and
- Inspection and maintenance of municipal SCMs.

The following sub-sections explain:

- The BMPs intended to meet program requirements;
- Integral components of the program;
- Employee education and training; and
- Measures of success.

8.1 BMP Summary Table

Table 8-1 provides information concerning the BMPs intended to meet the requirements of the Pollution Prevention/Good Housekeeping Program.

Table 8-1: BMP Summary Table for the Pollution Prevention/Good Housekeeping Program.

BMP	BMP Description	Schedule (yrs)					Responsible Position
		1	2	3	4	5	
Operation and maintenance program for municipal facilities and operations.	Maintain and implement an operation and maintenance program for municipal facilities owned and operated by the permittee that have been determined by the permittee to have significant potential for generating polluted stormwater runoff that has the ultimate goal of	X	X	X	X	X	Water Quality Program Manager

	preventing or reducing pollutant runoff.						
Site Pollution Prevention Plans for municipal facilities and operations.	Maintain and implement Site Pollution Prevention Plans for municipal facilities owned and operated by the permittee that have been determined by the permittee to have significant potential for generating polluted stormwater runoff that has the ultimate goal of preventing or reducing pollutant runoff.	X	X	X	X	X	Water Quality Program Manager
Inspection and evaluation of municipal facilities and operations.	Maintain an inventory of municipal facilities and operations owned and operated by the permittee that have been determined by the permittee to have significant potential for generating polluted stormwater runoff, including the MS4 system and associated SCMs, conduct inspections at facilities and operations owned and operated by the permittee for potential sources of polluted runoff, the stormwater controls, and conveyance systems, and evaluate the sources, document deficiencies, plan corrective actions, implement appropriate controls, and document the accomplishment of corrective actions.	X	X	X	X	X	Water Quality Program Manager
Spill Response Procedures municipal facilities and operations.	Maintain spill response procedures for municipal facilities and operations owned and operated by the permittee that have been determined by the permittee to have significant potential for generating polluted stormwater runoff.	X	X	X	X	X	Water Quality Program Manager
Prevent or Minimize Contamination of Stormwater Runoff from all areas used for Vehicle and Equipment Cleaning	Describe measures that prevent or minimize contamination of the stormwater runoff from all areas used for vehicle and equipment cleaning, including fire stations that serve more than three fire trucks and ambulances. Perform all cleaning operations indoors, cover the cleaning operations, ensure wash water drains to the sanitary sewer system, collect stormwater runoff from the cleaning area and providing treatment or recycling, or other equivalent measures. If sanitary sewer is not available to the facility and cleaning operations take place outdoors, the cleaning operations shall take place on grassed or graveled areas to prevent point source discharges of the wash water into the storm drains or surface waters. Where cleaning operations cannot be performed as described above and when operations are performed in the vicinity of a storm drainage collection system, the drain is to be covered with a portable drain cover during cleaning activities. Any excess standing water shall be removed and properly handled prior to removing the drain cover. Facilities that serve three or fewer fire trucks and ambulances and that cannot comply with these requirements shall incorporate structural measures	X	X	X	X	X	Water Quality Program Manager

	during facility renovation.						
Streets, roads, and public parking lots maintenance	The permittee shall evaluate BMPs to reduce polluted stormwater runoff from municipally-owned streets, roads, and public parking lots within the corporate limits. Within 12 months of permit issuance, the permittee must update its Stormwater Plan to include the BMPs selected.	X					Water Quality Program Manager
Streets, roads, and public parking lots maintenance	Within 24 months of permit issuance, the permittee must implement BMPs selected to reduce polluted stormwater runoff from municipally-owned streets, roads, and public parking lots identified by the permittee in the Stormwater Plan.		X	X	X	X	Water Quality Program Manager
Operation and Maintenance (O&M) for municipally-owned or maintained SCMs and the storm sewer system (including catch basins, the conveyance system, and structural stormwater controls).	Within 12 months of permit issuance, the permittee shall develop and implement an operation and maintenance program for SCMs and the storm sewer system (including catch basins, the conveyance system, and structural stormwater controls).	X	X	X	X	X	Water Quality Program Manager
Staff training	Maintain and implement a training plan that indicates when, how often, who is required to be trained and what they are to be trained on.	X	X	X	X	X	Water Quality Program Manager

8.2 Operation and Maintenance Program

The City provides an extensive network of municipal operations designed to serve its citizens and keep vital infrastructure functioning properly. A number of these operations impact the storm sewer system directly, such as storm sewer system maintenance and street sweeping, and indirectly, such as landscape management and municipal building maintenance. The cumulative impact of all these operations on the storm sewer system can potentially be significant, so it is important to maintain operation and maintenance programs to minimize impacts to the storm sewer system.

EPM-SWS works with various municipal operations to implement best management practices to minimize negative impacts to the storm drain system. This is accomplished through a process of:

- Observing field operations;
- Updating best management practices and SOPs; and
- Training employees.

Operation and maintenance of municipal facilities is managed through implementation of Stormwater Pollution Prevention Plans (SPPPs) and a municipal facility inspection program. Those programs are discussed below in sub-sections 8.3, 8.4, 8.5 and 8.9.

8.3 Facility Stormwater Pollution Prevention Plans

SPPPs for all facilities listed in **Table 8-2** below are reviewed and updated with all documentation kept in the SPPPs, including a site map. The SPPPs are used as an implementation guide for maintaining good housekeeping and reducing stormwater pollution. All appropriate topics are covered in the SPPPs including:

- Best management practices;
- Facility inspections;
- Facility monitoring;
- Employee training;
- Spill prevention/response;
- Vehicle/equipment cleaning and fueling; and
- Preventative maintenance.

Table 8-2: Municipal Sites Included in the Pollution Prevention/Good Housekeeping Program.

Facility	Physical Address
Charlotte-Douglas International Airport	5501 Josh Birmingham Pkwy., Charlotte, NC 28208
CATS Bus Maintenance Operations Facility	3145 S. Tryon St., Charlotte, NC 28217
CATS Transit Maintenance Operations Center	901 N. Davidson St., Charlotte, NC 28202
CATS Transit Center	310 E. Trade St., Charlotte, NC 28202
CATS Light Rail Maintenance Facility	3305 Pelton St., Charlotte, NC
CDOT - Traffic Engineering Operations Center	3701 Craig Ave., Charlotte, NC 28211
CDOT – Street Maintenance Division - Northwest District	4411 Northpointe Industrial Blvd., Charlotte, NC 28216
CDOT – Street Maintenance Division - Northeast District	6001 General Commerce Dr., Charlotte, NC 28213
CDOT – Street Maintenance Division - Southwest District	4600 Sweden Rd., Charlotte, NC 28273
Charlotte Water - Irwin Creek WWTP	4000 Westmont Dr., Charlotte, NC 28217
Charlotte Water - Mallard Creek WWTP	12400 Hwy 29 N, Charlotte, NC 28262
Charlotte Water - McAlpine Creek WWTP & Zone 3 Field Operations	12701 Lancaster Hwy, Pineville, NC 28134
Charlotte Water - McDowell Creek WWTP	4901 Neck Rd., Huntersville, NC 28078
Charlotte Water - Sugar Creek WWTP	5301 Closeburn Rd., Charlotte, NC 28210
Charlotte Water - Franklin WTP	5200 Brookshire Blvd, Charlotte, NC 28216
Charlotte Water - Lee S Dukes WTP	7980 Babe Stillwell Rd., Huntersville, NC 28078
Charlotte Water - Vest WTP	820 Beatties Ford Rd., Charlotte, NC 28216
Charlotte Water – Zone 1 Field Operations	11609 Hord Dr., Huntersville, NC 28078
Charlotte Water – Zone 2 Field Operations	5730 General Commerce Dr., Charlotte, NC 28213

Facility	Physical Address
Charlotte Water – Zone 4 Field Operations	4100 W. Tyvola Rd., Charlotte, NC 28208
Charlotte Water – Catawba Pump Station	12548 Pump Station Rd., Charlotte, NC 28216
Management & Financial Services - Heavy Equipment Shop	4600 Sweden Rd., Charlotte, NC 28273
Management & Financial Services - Heavy Truck Shop / Central Yard Truck Wash	829 Louise Ave., Charlotte, NC 28204
Management & Financial Services - Light Vehicle Shop	1031 Atando Ave., Charlotte, NC 28216
Management & Financial Services - Small Engine Repair Shop	701 Tuckaseegee Rd., Charlotte, NC 28208
Management & Financial Services – 12th Street Vehicle Garage	900 W 12th St, Charlotte, NC 28206
CFD - Fire Logistics	1200 Otts St., Charlotte, NC 28205
CMPD - Animal Control Shelter	8315 Byrum Dr., Charlotte, NC 28217
Police and Fire Training Academy	1770 Shopton Rd., Charlotte, NC 28217
Solid Waste Services - Street Sweeper Facility	829 Louise Ave., Charlotte, NC 28204
Solid Waste Services - Sanitation Packer Lot	1100 Otts St., Charlotte, NC 28205
Landscape Management Operations	701 Tuckaseegee Rd., Charlotte, NC 28208

8.4 Facility Inventory and Site Inspections

All parcels of land owned or operated by the City are examined to determine whether they are included in the Municipal Facilities Inventory within the Pollution Prevention/Good Housekeeping Program. A Standard Administrative Procedure is followed when evaluating parcels for this inventory. Once included in the inventory, facilities receive:

- Preparation and implementation of a SPPP;
- Regular inspections; and
- Annual employee training.

These facilities are evaluated through inspections on a priority basis. Inspections include the following:

- Thorough assessment of facility operations and maintenance activities;
- Evaluation of waste disposal and storage methods;
- Evaluation of the stormwater drainage system, including catch basin inlets, structural best management practices and outfalls;
- Review of spill response and clean up procedures with recommended revisions as appropriate;
- Evaluation of housekeeping practices with recommended revisions as necessary to eliminate potential pollution sources;

- Evaluation of outdoor storage areas and recommendations for elimination of potential pollution sources;
- Identification and elimination of dry weather discharges;
- Review of the SPPP, where applicable, including effluent monitoring (if required by permit); and
- Completion of a written report documenting findings and recommendations.

Follow-up inspections, communication and meetings with appropriate personnel are conducted as necessary to eliminate potential pollution sources. The supervisor and management personnel of each facility participate in inspections and are responsible for implementation of SPPPs and best management practices.

8.4.1 NPDES Stormwater Permitted Municipal Facilities Review

Twelve (12) City facilities, which are listed in **Table 8-3,** have been issued NPDES Stormwater permits (*Note: The airport's permit is a combined stormwater/wastewater individual permit).

Table 8-3: Municipal Operations That Have Been Issued NPDES Stormwater Permits

Municipal Operation	Permit Number	Certificate of Permit Coverage Number	Address
CATS Transit Maintenance Operations Center	NCG080000	NCG080029	901 N. Davidson Street
CATS Bus Maintenance Operations Facility	NCG080000	NCG080710	3145 S. Tryon Street
Heavy Truck Shop, Truck Wash & Street Sweeper Yard	NCG080000	NCG080822	829 Louise Avenue
Heavy Equipment Shop	NCG080000	NCG080840	4600 Sweden Road
Light Vehicle Maintenance Shop	NCG080000	NCG080879	1031 Atando Avenue
12th Street Vehicle Garage	NCG080000	NCG080063	900 W 12th St.
Charlotte-Douglas International Airport*	NC0083887	Not applicable	5501 Josh Birmingham Parkway
Irwin Creek WWTP	NCG110000	NCG110008	4000 Westmont Drive
Mallard Creek WWTP	NCG110000	NCG110114	12400 Highway 29 North
McAlpine Creek WWTP	NCG110000	NCG110010	12701 Lancaster Hwy
McDowell Creek WWTP	NCG110000	NCG110011	4901 Neck Road
Sugar Creek WWTP	NCG110000	NCG110012	5301 Closeburn Road

Annual inspections are conducted at each facility listed in Table 8-3. The same inspection items listed above in sub-section 8.4 are reviewed at these facilities. Emphasis is placed on elimination of illicit discharges, good housekeeping improvements, and compliance with permit and SPPP requirements, including inspections, monitoring and training. The SPPPs are reviewed and updated annually as required. Environmental personnel at the airport and wastewater treatment plants are responsible for updating the SPPPs at their facilities, while staff of EPM-SWS review and update SPPPs for the other facilities listed in Table 8-3.

8.5 Municipal Spill Response Procedures

Numerous activities conducted by City employees, both in the field and at facilities, have the potential to generate spills that may enter the MS4 and contaminate surface waters. Because of that potential, Spill Prevention and Response Procedures are maintained for all facilities (and associated field operations) listed in **Table 8-2**. These procedures are incorporated into the facility SPPPs. The procedures and proper implementation of them are evaluated as part of annual inspections. Items that are evaluated and incorporated into the procedures include the following:

- Product storage tanks/containers, exposure, and secondary containment;
- Flow path and potential for entry into the MS4;
- Spill history, response to those spills, and documentation;
- Activities that may generate spills;
- Operating procedures to prevent spills;
- Spill response procedures;
- Spill response equipment and other counter-measures; and
- Employee training.

In addition, as part of the overall IDDE program, CMSWS maintains a 24-hour emergency response team that responds to environmental emergencies, including spills. Members of this team act in an advisory role to the Charlotte Fire Department's Hazmat Unit. Once Hazmat secures a scene and contains the spill, the team works with the responsible party to ensure that spills are cleaned up properly and have minimal impacts to the environment. The team's actions are guided by a set of written emergency response protocols.

8.6 Vehicle and Equipment Cleaning Operations

The City recognizes the negative impacts that vehicle and equipment wash water runoff can have on stormwater and, ultimately, surface waters. Municipal employees wash the majority of vehicles and equipment at commercial or municipal vehicle wash facilities that drain to the sanitary sewer. Vehicle and equipment washing at municipal facilities is assessed during annual inspections at all facilities listed in Table 8-2. In cases where washing may be found to not be in accordance with the City's permit, corrective actions are implemented as appropriate to the conditions at each facility.

8.7 Streets, Roads, and Public Parking Lots Maintenance

Streets and parking lots can be a significant source of stormwater pollution. In previous years, the City has implemented various BMPs to address these pollutants within the MS4 such as cleaning catch basins. The City has evaluated additional types of BMPs that are considered to best address polluted stormwater runoff from these sources. As a result of the evaluation, the City implements the following non-structural BMPs:

- Street Sweeping Program;
- Adopt-A-Street Program;
- Leaf and Yard Waste Collection Program;
- Trash Receptacles along downtown Streets;
- Trash Receptacles and Litter Control activities at Park and Ride Parking Lots; and
- Public Education to address polluted stormwater runoff from municipally-owned streets and public parking lots.

8.8 Municipal SCMs and MS4 System Operation and Maintenance

The City maintains an inventory of municipal SCMs and inspects these at various frequencies based on the type of SCM. Maintenance is conducted as needed based on inspection results. Standard inspection forms are used to conduct and document inspections with this information maintained in a database.

The City's Street Maintenance Division, through a contract with EPM-SWS, conducts cleaning of the MS4 system. Services include, but are not limited to:

- Catch basin cleaning (manually and with vacuum trucks);
- Storm drain top cleaning;
- Curb and gutter cleaning; and
- Culvert cleaning.

Crews conduct routine and hotspot cleaning within assigned areas. Crews also respond to citizen service requests for cleaning of the MS4 system. All work is recorded and maintained in a database.

The EPM-SWS Design Management Team's primary work involves maintenance and repair of the MS4 system. Their work continues to evolve throughout the permit term and beyond. Investigators respond to and evaluate citizen service requests determining qualification and priority based on a written SOP. Highest priority is assigned to the most severe conditions, such as living space and street flooding, public safety hazards, and blowouts near roads and houses. Examples of other issues that qualify for service include headwall/pipe outlet repair, channel blockage, and channel erosion.

8.9 Employee/Staff Training

Training is conducted for employees at the facilities listed in Table 8-2. The goal of training is to inform employees of the actions necessary to reduce the discharge of pollutants from their facilities/operations and protect water quality. Some of the topics included in the training are:

- Description of common pollutants, their sources and water quality impacts;
- Description of the actions that each facility should take to reduce discharges of pollutants, with an emphasis on good housekeeping;

- Description of effective spill prevention measures that should be employed at each facility;
- Discussion of typical pollution sources at municipal operations and specific actions that should be taken to eliminate these sources and protect water quality;
- Review of the Stormwater Pollution Prevention Plan where applicable;
- Explanation of the potential negative consequences of failing to control pollutants at facilities; and
- Overview of IDDE Program and how to report observed water quality problems.

8.10 Measurable Goals

Table 8-4 describes the various Municipal Pollution Prevention/Good Housekeeping Program BMPs and the Measurable Goals for each BMP by permit term year.

Table 8-4: BMP Measurable Goals for the Pollution Prevention/Good Housekeeping Program.

BMP	BMP Description	Measurable Goals (by permit term year)				
		1	2	3	4	5
Operation and maintenance program for municipal facilities and operations.	Maintain and implement an operation and maintenance program for municipal facilities owned and operated by the permittee that have been determined by the permittee to have significant potential for generating polluted stormwater runoff that has the ultimate goal of preventing or reducing pollutant runoff.	Review and update Operation and Maintenance programs as necessary. Continue operation and maintenance activities per established procedures. (On-going, years 1 – 5)				
Site Pollution Prevention Plans for municipal facilities and operations.	Maintain and implement Site Pollution Prevention Plans for municipal facilities owned and operated by the permittee that have been determined by the permittee to have significant potential for generating polluted stormwater runoff that has the ultimate goal of preventing or reducing pollutant runoff.	Review and update facility SPPPs as necessary. Continue implementation of SPPPs. (On-going, years 1 – 5)				
Inspection and evaluation of municipal facilities and operations.	Maintain an inventory of municipal facilities and operations owned and operated by the permittee that have been determined by the permittee to have significant potential for generating polluted stormwater runoff, including the MS4 system and associated structural SCMs, conduct inspections at facilities and operations owned and operated by the permittee for potential sources of polluted runoff, the stormwater controls, and conveyance systems, and evaluate the sources, document deficiencies, plan corrective actions, implement appropriate controls, and document the accomplishment of corrective actions.	Review and update inventory of facilities for inspection. Conduct inspections of applicable facilities and make corrective actions where necessary. (On-going, years 1 – 5)				
Spill Response Procedures municipal facilities and operations.	Maintain spill response procedures for municipal facilities and operations owned and operated by the permittee that have been determined by the permittee to have significant potential for generating polluted stormwater runoff.	Review facility spill response procedures and update as necessary. Continue implementation of procedures. (On-going, years 1 – 5)				
Prevent or Minimize Contamination of Stormwater Runoff from all areas used for Vehicle and Equipment Cleaning	Describe measures that prevent or minimize contamination of the stormwater runoff from all areas used for vehicle and equipment cleaning, including fire stations that serve more than three fire trucks and ambulances. Perform all cleaning operations indoors, cover the cleaning operations, ensure wash water drains to the sanitary sewer system, collect stormwater runoff from the cleaning area and providing treatment or recycling, or other equivalent measures. If sanitary sewer is not available to the facility and cleaning operations take place outdoors, the cleaning operations shall take place on grassed or graveled areas to prevent point source discharges of the wash water into the storm drains or surface waters.	Review procedures for vehicle and equipment cleaning operations and update as necessary. Ensure that corrective actions are implemented where operations are found to not be in compliance with the permit. (On-going, years 1 – 5)				

	Where cleaning operations cannot be performed as described above and when operations are performed in the vicinity of a storm drainage collection system, the drain is to be covered with a portable drain cover during cleaning activities. Any excess standing water shall be removed and properly handled prior to removing the drain cover. Facilities that serve three or fewer fire trucks and ambulances and that cannot comply with these requirements shall incorporate structural measures during facility renovation.			
Streets, roads, and public parking lots maintenance	The permittee shall evaluate BMPs to reduce polluted stormwater runoff from municipally-owned streets, roads, and public parking lots within the corporate limits. Within 12 months of permit issuance, the permittee must update its Stormwater Plan to include the BMPs selected.	Evaluate various types of BMPs that would best address polluted stormwater runoff from municipally-owned streets and parking lots and select BMPs based on the evaluation by Feb 28, 2014.	None (years 2 – 5)	
Streets, roads, and public parking lots maintenance	Within 24 months of permit issuance, the permittee must implement BMPs selected to reduce polluted stormwater runoff from municipally-owned streets, roads, and public parking lots identified by the permittee in the Stormwater Plan.	None	Implement BMPs selected from year one evaluation by Feb 28, 2015.	Continue to implement selected BMPs. (On-going, years 3 – 5)
Operation and Maintenance (O&M) for municipally-owned or maintained structural SCMs and the storm sewer system (including catch basins, the conveyance system, and structural stormwater controls).	Within 12 months of permit issuance, the permittee shall develop and implement an operation and maintenance program for structural SCMs and the storm sewer system (including catch basins, the conveyance system, and structural stormwater controls).	Continue to implement structural SCM operation, maintenance, and inspection program. Continue operation and maintenance program for the MS4 system. (On-going, years 1 – 5)		
Staff training	Maintain and implement a training plan that indicates when, how often, who is required to be trained and what they are to be trained on.	For facilities included in the municipal facility inspection program, conduct staff training on SPPPs and Spill Response Procedures according to the Training Plan. (On-going, years 1 – 5)		

8.11 Program Assessment

The overall success of the Pollution Prevention/Good Housekeeping Program is evaluated through the successful implementation of the components of the program and reported with each NPDES MS4 annual report. In addition, success is also typically evaluated by the following:

- Number of parcels inventoried;
- Number of facility inspections conducted;
- Number of problems discovered and resolved;
- Number of training sessions conducted; and
- Number of employees trained.

Section 9: Industrial Facilities Evaluation and Monitoring Program

The City will continue to implement the Industrial Facilities Program to evaluate and monitor discharges to the City's MS4 from applicable industrial facilities. This includes inspection and monitoring programs to evaluate facilities that may contribute or have the potential to contribute substantial pollutant loads to the MS4. The following sub-sections explain:

- The BMPs intended to meet program requirements;
- Integral components of the program; and
- Measures of success.

9.1 BMP Summary Table

Table 9-1 provides information concerning the BMPs intended to meet the requirements of the Industrial Facilities Program.

Table 9-1: BMP Summary Table for the Industrial Facilities Program.

BMP	BMP Description	Schedule (yrs)					Responsible Position
		1	2	3	4	5	
Maintain an Inventory of Industrial Facilities	Maintain an inventory of permitted hazardous waste treatment, disposal, and recovery facilities, industrial facilities that are subject to Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA), industrial facilities identified with an industrial activity permitted to discharge stormwater to the permittee's MS4, or as identified as an illicit discharge under the IDDE Program. For the purposes of this permit, industrial activities shall mean all permitted industrial activities as defined in 40 CFR 122.26.	X	X	X	X	X	Water Quality Program Manager
Inspection Program	Identify priorities and inspection procedures. At a minimum, priority facilities include those	X	X	X	X	X	Water Quality Program

	identified above in subsection II.H.2.a.						Manager
Evaluate Industrial Facilities discharging stormwater to the City's MS4	The Permittee is required to evaluate control measures implemented at permitted hazardous waste treatment, disposal, and recovery facilities, industrial facilities that are subject to Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA), industrial facilities identified with an industrial activity permitted to discharge stormwater to the permittee's MS4, or as identified as an illicit discharge under the IDDE Program. For permitted facilities, the municipality shall establish procedures for reporting deficiencies and non-compliance to the permitting agency. Where compliance with an existing industrial stormwater permit does not result in adequate control of pollutants to the MS4, municipality will recommend and document the need for permit modifications or additions to the permit issuing authority. For the purposes of this permit, industrial activities shall mean all permitted industrial activities as defined in 40 CFR 122.26. For the purpose of this permit, the Permittee is authorized to inspect the permitted hazardous waste treatment, disposal, and recovery facilities as an authorized representative of the Director.	X	X	X	X	X	Water Quality Program Manager

9.2 Industrial Facility Inventory

An inventory of facilities has been developed showing those facilities that discharge to the City's MS4 and have the potential to discharge significant pollutant loads. The inventory is used to select each year's facilities for inspection and monitoring. Facilities included in the inventory fit into one or more of the following categories:

- Hazardous waste TSD facility;
- SARA Title III facility (TRI reporter);
- NPDES Stormwater permitted facility;
- Stormwater No Exposure Certificate facility;
- Industrial Wastewater Pre-Treatment permitted facility; and
- Facilities identified as having an illicit discharge under the IDDE Program.

9.3 Industrial Facilities Inspection Program

The purpose of the Industrial Facilities Inspection program is to evaluate activities at industrial facilities that may impact stormwater discharges, and then work with problem facilities to reduce identified stormwater pollution. To effectively accomplish the goals of the program, an

Industrial Facilities Inspection and Monitoring Procedures Manual is utilized. The manual objectives are as follows:

- Provide instructions and guidance on how to select facilities for inspections , prepare for and conduct industrial inspections and monitoring, collect vital information, write reports and conduct follow-up activities;
- Provide consistency in how the program is implemented as a means of quality assurance and control; and
- Provide forms, templates and examples to aid in implementation of the program.

The manual also details the inspection process. Listed below are general tasks conducted as part of an industrial inspection:

- Thorough assessment of facility operations and maintenance activities;
- Evaluation of waste disposal and storage methods;
- Evaluation of the stormwater drainage system, including catch basin inlets, structural best management practices and outfalls;
- Review of spill response and clean up procedures;
- Evaluation of housekeeping practices with recommended revisions as necessary to eliminate potential pollution sources;
- Evaluation of outdoor storage facilities and recommendations for elimination of potential pollution sources;
- Identification and elimination of dry weather discharges;
- Review of Stormwater Pollution Prevention Plan implementation where applicable, including effluent monitoring (if required by permit);
- Sampling/monitoring of site stormwater runoff and/or dry weather flows;
- Evaluation of monitoring data results; and
- Completion of a written report documenting findings and recommendations.

Follow-up inspections are conducted as necessary to ensure the elimination of identified pollution sources. The main contact at each facility is involved in the entire inspection process and provided with a copy of the written report.

Monitoring of stormwater runoff and dry weather discharges is used as a tool to complement the overall inspection process. Stormwater monitoring results are often a good general indicator of facility housekeeping, and may indicate the existence of pollution sources that may not be observed or identified during an inspection. Sampling of dry weather flows provides information about potential impacts that a particular discharge may have on receiving waters. Twenty (20) percent of facilities inspected are monitored annually. Those facilities with the worst problems or conditions as observed during inspections are selected as priority monitoring sites.

9.4 Evaluation Measures

As discussed in sub-section 7.7.3, the appropriate evaluation measures that are implemented to reduce polluted discharges to the City's MS4 are industrial inspections and monitoring. Inspection letters note that the inspection is being conducted to satisfy both State requirements and requirements contained in the City's NPDES MS4 permit. As pollution sources are identified through the inspection and monitoring program, the City works with NCDEQ and facility personnel to eliminate the pollution sources. If violations of illicit discharge prohibitions and other applicable regulations are identified, appropriate enforcement measures are implemented.

9.5 Measurable Goals

Table 9-2 describes the various Industrial Facilities Program BMPs and the Measurable Goals for each BMP by permit term year.

Table 9-2: BMP Measurable Goals for the Industrial Facilities Program.

BMP	BMP Description	Measurable Goals (by permit term year)				
		1	2	3	4	5
Maintain an Inventory of Industrial Facilities	Maintain an inventory of permitted hazardous waste treatment, disposal, and recovery facilities, industrial facilities that are subject to Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA), industrial facilities identified with an industrial activity permitted to discharge stormwater to the permittee's MS4, or as identified as an illicit discharge under the IDDE Program. For the purposes of this permit, industrial activities shall mean all permitted industrial activities as defined in 40 CFR 122.26.	Maintain and update the industrial facility inventory as needed. (On-going, years 1 – 5)				
Inspection Program	Identify priorities and inspection procedures. At a minimum, priority facilities include those identified above in subsection II.H.2.a.	Update current Industrial Inspection and Monitoring Procedures and develop an inspection prioritization strategy. (On-going, years 1 – 5)				
Evaluate Industrial Facilities discharging stormwater to the City's MS4	The Permittee is required to evaluate control measures implemented at permitted hazardous waste treatment, disposal, and recovery facilities, industrial facilities that are subject to Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA), industrial facilities identified with an industrial activity permitted to discharge stormwater to the permittee's MS4, or as identified as an illicit discharge under the IDDE Program. For permitted facilities, the municipality shall establish procedures for reporting deficiencies and non-compliance to the permitting agency. Where compliance with an existing industrial stormwater permit does not result in adequate control of pollutants to the MS4, municipality will recommend and document the need for permit modifications or additions to the permit issuing authority. For the purposes of this permit, industrial activities shall mean all permitted industrial activities as defined in 40 CFR 122.26. For the purpose of this permit, the Permittee is authorized to inspect the permitted hazardous waste treatment, disposal, and recovery facilities as an authorized representative of the Director.	Conduct inspection activities based on established procedures and prioritization strategy at 50 facilities for years 1 and 2; and 40 facilities in years 3 -5. Conduct stormwater runoff monitoring at 10 facilities for years 1 and 2; and 8 facilities in years 3 -5.				

9.6 Program Assessment

The overall success of the Industrial Facilities Program is evaluated through the successful implementation of the components of the program and reported with each NPDES MS4 annual report. In addition, success is also typically evaluated by the following:

- Number of facility inspections conducted;
- Number of facilities monitored; and
- Number of problems discovered and resolved.

Section 10: Water Quality Assessment and Monitoring Program

The City will continue to implement the Water Quality Assessment and Monitoring program to monitor and assess the quality of streams within the City as required by the NPDES MS4 permit. Information gained from the program is used to:

- Help identify and eliminate sources of pollution and illicit discharges;
- Identify short-term and long-term trends, where possible; and
- Gauge the effectiveness of stormwater management efforts and programs.

The following sub-sections explain:

- The BMPs intended to meet program requirements;
- Integral components of the program; and
- Measures of success.

10.1 BMP Summary Table

Table 10-1 provides information concerning the BMPs intended to meet the requirements of the Water Quality Assessment and Monitoring Program.

Table10-1: BMP Summary Table for the Water Quality Assessment and Monitoring Program

BMP	BMP Description	Schedule (yrs)					Responsible Position
		1	2	3	4	5	
Water Quality Assessment and Monitoring Plan	Maintain a Water Quality Assessment and Monitoring Plan. The Plan shall include a schedule for implementing the proposed assessment and monitoring activities.	X	X	X	X	X	Water Quality Program Manager
Water Quality Monitoring	Maintain and implement the Water Quality Assessment and Monitoring Plan submitted to DWQ.	X	X	X	X	X	Water Quality Program Manager

10.2 Water Quality Assessment and Monitoring Plan

The City has been conducting water quality monitoring of streams and stormwater discharges since the inception of its NPDES MS4 Permit Program in 1992. Initially, the monitoring program focused mainly on identifying illicit discharges and sewer overflows and included sampling for fecal coliform bacteria. Data was used to identify and eliminate these illegal discharges to the MS4 and surface waters and proved to be highly successful. While current water quality monitoring efforts continue to be used for this purpose, the program has been expanded over the years to include a wider array of water quality parameters with the additional goal of identifying short-term and long-term water quality trends and gauging overall program effectiveness.

The City implements the Water Quality Assessment and Monitoring Plan developed during the previous permit term. The plan specifies water quality monitoring activities to be performed on a quarterly basis at a total of 15 stream sites within the major watersheds in the City. Monitoring is conducted for chemical and physical parameters on a fixed interval monitoring basis.

Table 10-2 provides a list of the water quality parameters sampled at the monitoring sites. **Figure 10-1** shows a map of the Charlotte monitoring sites and **Table 10-3** contains a description and location of the 15 monitoring sites within the monitoring plan.

Table 10-2: Water Quality Monitoring Parameters.

Parameter	Sample Type	Frequency
Fecal Coliform	Grab	Quarterly
E-Coli	Grab	Quarterly
Total Phosphorus	Grab	Quarterly
Nitrite + Nitrate	Grab	Quarterly
Total Kjeldahl Nitrogen	Grab	Quarterly
Ammonia Nitrogen	Grab	Quarterly
Total Suspended Solids	Grab	Quarterly
Turbidity	Grab	Quarterly
Copper	Grab	Quarterly
Zinc	Grab	Quarterly
Chromium	Grab	Quarterly
Lead	Grab	Quarterly
Dissolved Oxygen	Grab	Quarterly
Temperature	Grab	Quarterly
Conductivity	Grab	Quarterly
pH	Grab	Quarterly

FIGURE 10-1
Charlotte Water Quality Monitoring Sites

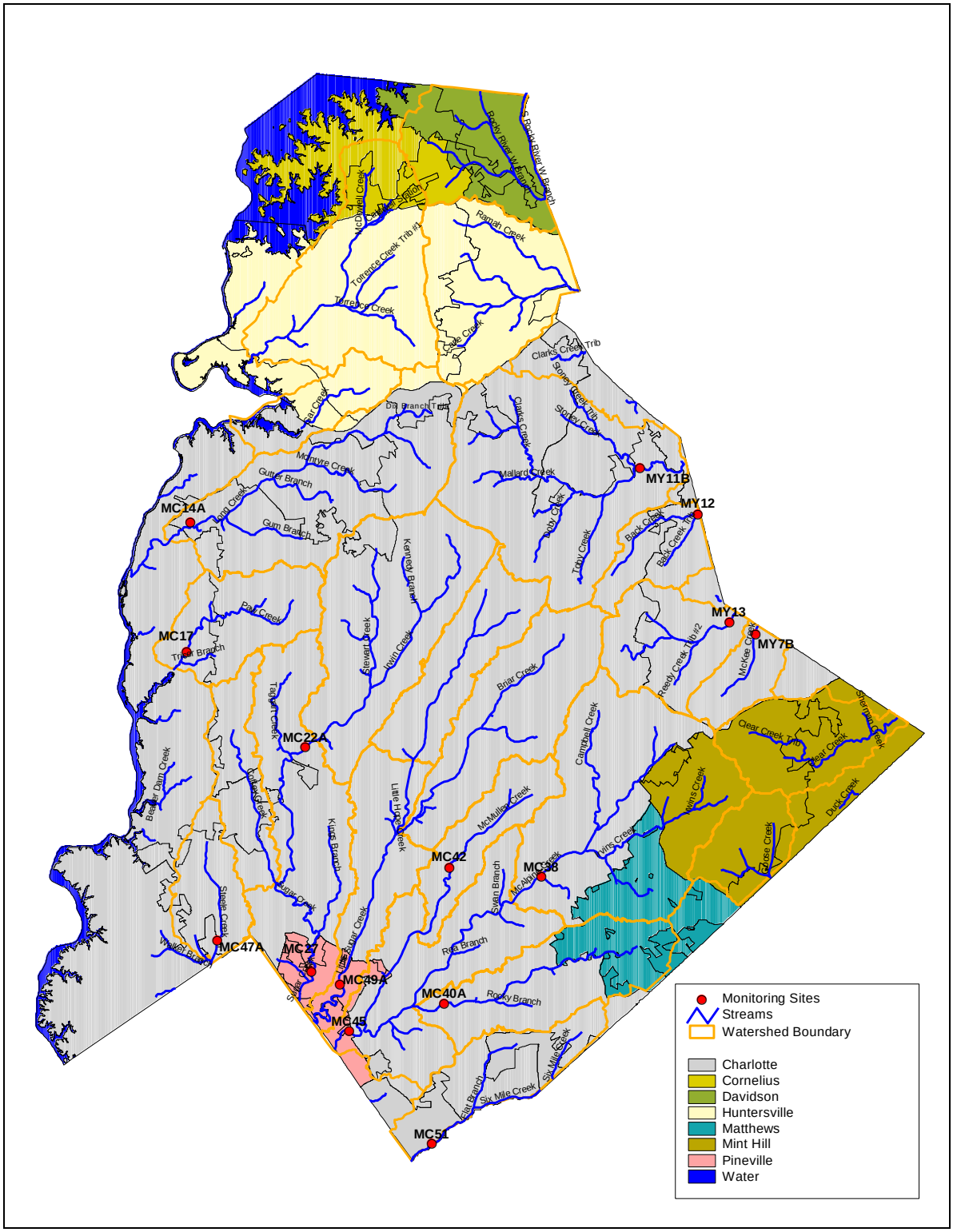


Table 10-3: Description of City of Charlotte Water Quality Monitoring Sites.

Site #	Stream	Location
MY11B	Mallard Creek	Pavilion Blvd Bridge, S. of US Hwy 29
MY12	Back Creek	Caldwell Rd. Culvert, S. of Harrisburg & Hwy 29
MY13	Reedy Creek	Reedy Creek Rd. Bridge, S. of Plaza Rd. Ext.
MY7B	McKee Creek	Reedy Creek Rd. Bridge, S. of Harrisburg Rd.
MC14A	Long Creek	Pine Island Dr. at End of Street at Golf Course
MC17	Paw Creek	Hwy 74 Culvert, Between Sam Wilson & Little Rock Rd.
MC22A	Irwin Creek	Westmont Dr. Bridge, at Irwin Creek WWTP
MC27	Sugar Creek	Hwy. 51 Bridge, E. of Downs Rd.
MC38	McAlpine Creek	Sardis Rd. Bridge, Between Sardis Ln. & Sardis Rd. N.
MC40A	Four Mile Creek	Elm Ln. Bridge, S. of Hwy. 51
MC42	McMullen Creek	Sharon View Rd. Bridge, Between Sharon Rd. & Colony Rd.
MC45	McAlpine Creek	McAlpine Creek WWTP
MC47A	Steele Creek	Carowinds Blvd. Culvert, W. of Carowinds Amusement Park
MC49A	Little Sugar Creek	Hwy. 51 Bridge, W. of Carolina Place Mall
MC51	Six Mile Creek	Marvin Rd. Bridge, S. of Wade Ardery Rd. & N. of Joe Kerr Rd

10.3 Water Quality Monitoring Implementation

The City implements the plan to conduct quarterly fixed interval monitoring at the 15 specified monitoring sites. Following completion of monitoring activities at the end of each permit reporting year (June 30th), monitoring data is analyzed to assess whether water quality trends can be detected, which may help gauge the effectiveness of certain programs such as Illicit Discharge Detection and Elimination.

10.4 Water Quality Assessment and Monitoring Plan Revisions

The City reviews the monitoring program annually as part of the data analysis and annual report process to determine if any revisions to the plan are necessary based on the past year's assessment and monitoring activities. If revisions are necessary, the City revises the monitoring plan and submits the revisions to the NCDEQ- DEMLR for review and approval.

10.5 Measurable Goals

Table 10-4 describes the various Water Quality Assessment and Monitoring Program BMPs and the Measurable Goals for each BMP by permit term year.

Table 10-4: BMP Measurable Goals for the Water Quality Assessment and Monitoring Program.

BMP	BMP Description	Measurable Goals (by permit term year)				
		1	2	3	4	5
Water Quality Assessment and Monitoring Plan	Maintain a Water Quality Assessment and Monitoring Plan. The Plan shall include a schedule for implementing the proposed assessment and monitoring activities.	Maintain the WQ Assessment & Monitoring Plan and update as necessary. (On-going, years 1 – 5)				
Water Quality Monitoring	Maintain and implement the Water Quality Assessment and Monitoring Plan submitted to DWQ.	Maintain and implement the monitoring plan and conduct WQ assessment and monitoring activities per the plan. (On-going, years 1 – 5)				

10.6 Program Assessment

The overall success of the Water Quality Assessment and Monitoring Program is evaluated through the successful implementation of the components of the program and reported with each NPDES MS4 annual report. In addition, success is also typically evaluated by the following:

- Number of stream sites monitored;
- Number of samples collected;
- Number of parameters analyzed; and
- Number of problems discovered and resolved.

Section 11: Total Maximum Daily Load (TMDL) Program

The City will continue to fulfill the NPDES MS4 permit requirements regarding the TMDL Program by implementing the following BMPs within the six minimum NPDES MS4 permit measures. The BMPs are designed to reduce the TMDL pollutant of concern within the TMDL assigned MS4 NPDES regulated waste load allocation to the maximum extent practicable (MEP) within the impaired water bodies in the City's jurisdiction that are subject to approved TMDLs.

The following sub-sections explain:

- The BMPs intended to meet program requirements;
- Integral components of the program; and
- Measures of success.

11.1 BMP Summary Table

Table 11-1 provides information concerning the BMPs intended to meet the TMDL Program requirements.

Table 11-1: BMP Summary Table for Total Maximum Daily Load (TMDL) Program

BMP	BMP Description	Schedule (yrs)					Responsible Position
		1	2	3	4	5	
Identify, describe and map watershed, outfalls, and streams	Within 24 months the permittee shall prepare a plan that: • Identifies the watershed(s) subject to an approved TMDL with an approved Waste Load Allocation (WLAs) assigned to the permittee, • Includes a description of the watershed(s), • Includes a map of watershed(s) showing streams & outfalls • Identifies the locations of currently known major outfalls within its corporate limits with the potential of contributing to the cause(s) of the impairment to the impaired segments, to their		X	X	X	X	Water Quality Program Manager

	tributaries, and to segments and tributaries within the watershed contributing to the impaired segments and • Includes a schedule to discover and locate other major outfalls within its corporate limits that may be contributing to the cause of the impairment to the impaired stream segments, to their tributaries, and to segments and tributaries within the watershed contributing to the impaired segments.						
Existing measures	Within 24 months the Permittee's plan : • Shall describe existing measures being implemented by the Permittee designed to achieve the MS4's NPDES WLA and to reduce the TMDL pollutant of concern to the MEP within the watershed to which the TMDL applies; and • Provide an explanation as to how those measures are designed to reduce the TMDL pollutant of concern. • The Permittee shall continue to implement the existing measures until notified by DWQ.		X	X	X	X	Water Quality Program Manager
Assessment of available monitoring data	Within 24 months the permittee's plan shall include an assessment of available monitoring data. Where long-term data is available, this assessment should include an analysis of the data to show trends.		X	X	X	X	Water Quality Program Manager
Monitoring Plan	Within 36 months the permittee shall develop and submit to the Division a Monitoring Plan for the permittee's assigned NPDES regulated WLA as specified in the TMDL. The permittee shall maintain and implement the Monitoring Plan as additional outfalls are identified and as accumulating data may suggest. Following any review and comment by the Division the permittee shall incorporate any necessary changes to monitoring plan and initiate the plan within 6 months. Modifications to the monitoring plan shall be approved by the Division. Upon request, the requirement to develop a Monitoring Plan may be waived by the Division if the existing and proposed measures are determined to be adequate to achieve the MS4's NPDES WLA to MEP within the watershed to which the TMDL applies.			X	X	X	Water Quality Program Manager
Additional Measures	Within 36 months the permittee's plan shall: • Describe additional measures to be implemented by the permittee designed to achieve the permittee's MS4's NPDES WLA and to reduce the TMDL pollutant of concern to the MEP within the watershed to which the TMDL applies; and • Provide an explanation as to how those measures are designed to achieve the permittee's MS4's NPDES regulated WLA			X	X	X	Water Quality Program Manager

	to the MEP within the watershed to which the TMDL applies.						
Implementation Plan	Within 48 months the permittee's plan shall: • Describe the measures to be implemented within the remainder of the permit term designed to achieve the MS4's NPDES WLA and to reduce the TMDL pollutant of concern to the MEP and • Identify a schedule, subject to DWQ approval, for completing the activities.				X	X	Water Quality Program Manager
Incremental Success	The permittee's plan must outline ways to track and report successes designed to achieve the MS4's NPDES regulated WLA and to reduce the TMDL pollutant of concern to MEP within the watershed to which the TMDL applies.				X	X	Water Quality Program Manager
Reporting	The permittee shall conduct and submit to the Division an annual assessment of the program designed to achieve the MS4's NPDES WLA and to reduce the TMDL pollutant of concern to the MEP within the watershed to which the TMDL applies. Any monitoring data and information generated from the previous year are to be submitted with each annual report.		X	X	X	X	Water Quality Program Manager

11.2 TMDL Watershed Plan

During February 2015, the City developed a TMDL watershed plan for the applicable identified watersheds that are subject to an approved TMDL within the City's jurisdiction as defined in Part II, Sec J.1 and J.2 within the City's current NPDES MS4 permit. The plan utilizes BMPs as outlined in the permit within the six minimum NPDES MS4 permit measures that are designed to reduce the TMDL pollutant of concern within the TMDL assigned MS4 NPDES regulated waste load allocation to the MEP. In addition, per Part II, Sec J.3 within the City's current NPDES MS4 permit, the plan addresses the pollutant of concern for approved TMDLs that do not assign a waste load allocation for the pollutant of concern to the municipal stormwater system by evaluating strategies and tailoring BMPs within the scope of the six minimum permit measures to address the pollutant of concern to the MEP in the watershed(s) to which the TMDL applies. The plan is available for view at the City's website, see: http://charlottenc.gov/StormWater/SurfaceWaterQuality/Documents/CLT%20NPDES%20MS4%20TMDL%20Watershed%20Plan%20Updates%20-%20Feb%202017%20-%20FINAL.pdf

11.2.1 TMDL Watershed Identification

Section 303(d) of the federal Clean Water Act requires States to identify and establish a priority ranking for water bodies that do not meet applicable water quality standards (303(d) list), establish TMDLs for the pollutants causing impairment of these water bodies, and submit the list of impaired waters and TMDLs to the U.S. EPA. The TMDL process establishes the allowable loadings of pollutants or other quantifiable parameters for a water body based on the relationship between pollution sources and in-stream water quality conditions. The TMDL process is used by

States to establish water quality based controls to reduce pollutants from point and non-point sources and restore and maintain the quality of the water resources in compliance with applicable standards. In addition to the 303(d) list, the federal Clean Water Act requires States to submit a report describing how well water bodies support designated uses (e.g. swimming, aquatic life support, water supply), as well as likely causes and potential sources of impairment (305(b) list).

For this sub-section, the North Carolina Assessment and Impaired Waters List (2014 303(d) List) was used to identify the use support ratings of the water bodies in the City as well as those water bodies not meeting applicable water quality standards and requiring TMDL development. This information is summarized in **Tables 11-2, 11-3, and 11-4**. A total of 17 streams with watershed areas partially or fully in the City and/or City ETJ are identified on the 303(d) list as impaired and not meeting established water quality standards. **Figure 11-1** identifies the locations of these impaired stream sections in the City. **Table 11-2** and **Figure 11-2** show the surface waters with an approved TMDL.

Table 11-2: City of Charlotte Streams with Approved TMDLs

Receiving Stream Name	WQ Classification	TMDL Approved	TMDL Pollutant of Concern
Irwin Creek	C	March 2002	Fecal Coliform
Irwin Creek	C	February 2005	Turbidity
Irwin Creek	C	February 1996	Dissolved Oxygen
Lake Wylie	WS-IV, B, CA	February 1996	Total Phosphorus, Total Nitrogen
Little Sugar Creek	C	March 2002	Fecal Coliform
Little Sugar Creek	C	February 2005	Turbidity
Little Sugar Creek	C	February 1996	Dissolved Oxygen
Long Creek	C	February 2005	Turbidity
McAlpine Creek	C	March 2002	Fecal Coliform
McAlpine Creek	C	February 2005	Turbidity
McAlpine Creek	C	February 1996	Dissolved Oxygen
McKee Creek	C	August 2003	Fecal Coliform
Steele Creek	C	May 2007	Fecal Coliform
Sugar Creek	C	March 2002	Fecal Coliform
Sugar Creek	C	February 2005	Turbidity

Source: 2017 NCDEQ – Division of Water Resources website:
http://deq.nc.gov/about/divisions/water-resources

FIGURE 11-1
Charlotte Impaired Streams

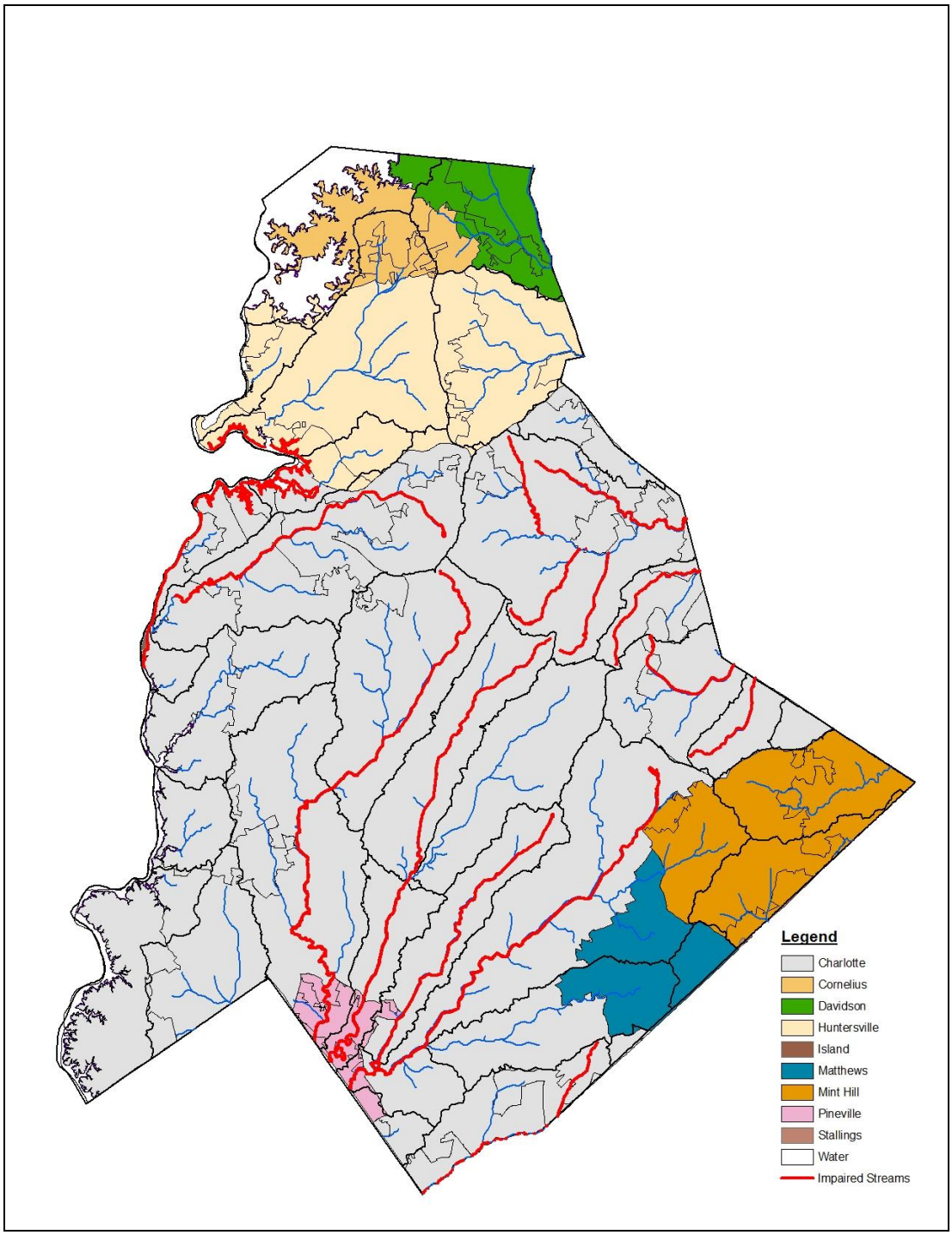
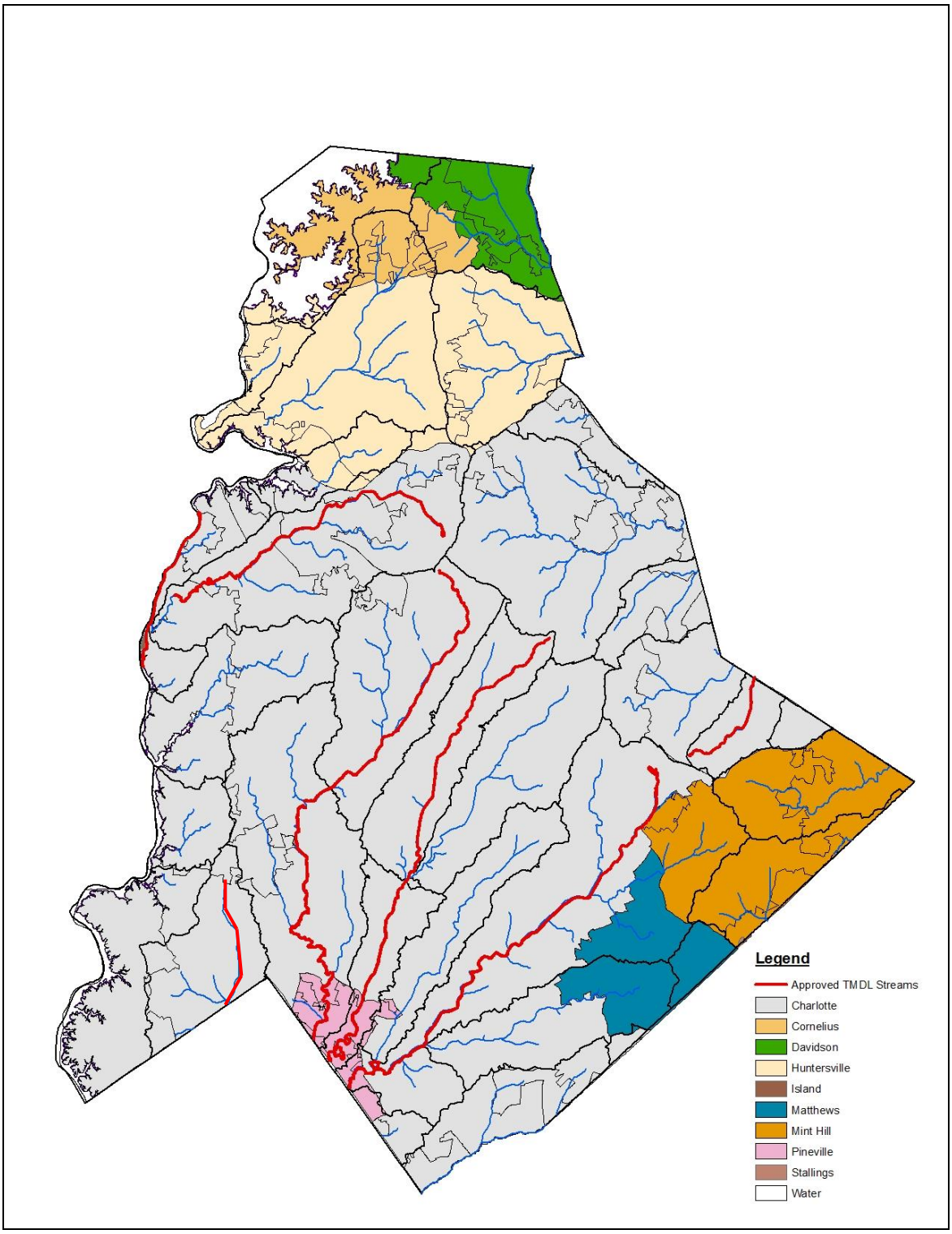


Figure 11-2
Charlotte Approved TMDL Streams



Approximately two-thirds of the City of Charlotte land area drains west in the Catawba River Basin while the remaining one-third drains east in the Yadkin-Pee Dee River Basin. MS4 receiving stream information by river basin is provided in **Table 11-3** (Catawba) and **Table 11-4** (Yadkin-Pee Dee). The information for the development of these tables was obtained from the 2014 Category 5 303(d) List. The location of the watershed areas in the City of Charlotte is illustrated in Section 2, **Figure 2-1**.

Table 11-3: Catawba River Basin Streams

Receiving Stream Name	Stream Segment Index #	WQ Classification	Use Support Rating	WQ Issues (303(d) Listing)
Catawba River (Mountain Island Lake below elevation 648)	11-(114)	WS-IV, B, CA	Impaired	PCB Fish Tissue Advisory[(5)]
Catawba River (Lake Wylie below elevation 570)	11-(117)	WS-IV-CA	Impaired	PCB Fish Tissue Advisory[(5)]
Catawba River (Lake Wylie below elevation 570)	11-(122)	WS-IV, B, CA	Impaired	PCB Fish Tissue Advisory[(5)]
Catawba River (Lake Wylie below elevation 570)	11-(123.5)	WS-IV, B	Impaired	PCB Fish Tissue Advisory[(5)]
Long Creek	11-120-(0.5)	C	Not Rated	None
Long Creek	11-120-(2.5)	WS-IV	Not Rated	None
Dixon Branch	11-120-1	C	Not Rated	None
McIntyre Creek	11-120-3-(1)	C	Not Rated	None
McIntyre Creek	11-120-3-(2)	WS-IV	Not Rated	None
Gutter Branch	11-120-4-(1)	C	Not Rated	None
Gutter Branch	11-120-4-(2)	WS-IV	Not Rated	None
Gum Branch	11-120-5	WS-IV	Not Rated	None
Paw Creek	11-124	C	Not Rated	None
Ticer Branch	11-124-1	C	Not Rated	None
Little Paw Creek	11-125	C	Not Rated	None
Beaverdam Creek	11-126	C	Not Rated	None
Stowe Branch	11-127	C	Not Rated	None
Porter Branch	11-133	C	Not Rated	None
Studman Branch	11-134	C	Not Rated	None
Sugar Creek	Portions of 11-137a,b,c	C	Impaired	Copper [(5)]; Fecal Coliform [(4t)]; Turbidity [(1t)]; Benthos Impairment[(5)]
Irwin Creek	11-137-1	C	Impaired	Dissolved Oxygen [(1t)]; Copper [(5)]; Lead [(5)]; Zinc [(5)]; Fecal Coliform [(4t)]; Turbidity [(4t)]
Stewart Creek	11-137-1-2	C	Not Rated	None
Taggart Creek	11-137-2	C	Not Rated	None
Coffey Creek	11-137-4	C	Not Rated	None
Kings Branch	11-137-6	C	Not Rated	None

Receiving Stream Name	Stream Segment Index #	WQ Classification	Use Support Rating	WQ Issues (303(d) Listing)
Little Sugar Creek	11-137-8	C	Impaired	Copper(5) Mercury(5) Turbidity(1t) Dissolved Oxygen(1t); Fecal Coliform (4t); Benthos and fish impairment(4s)
Dairy Branch	11-137-8-1	C	Not Rated	None
Briar Creek	11-137-8-2	C	Not Rated	None
Edwards Branch	11-137-8-2-1	C	Not Rated	None
Little Hope Creek	11-137-8-3	C	Not Rated	None
McAlpine Creek	11-137-9	C	Impaired	Dissolved Oxygen(1t); Fecal Coliform (4t);Turbidity (1t); Benthos and fish impairment(5)
Campbell Creek	11-137-9-1	C	Not Rated	None
Irvins Creek	11-137-9-2	C	Not Rated	None
Four Mile Creek	11-137-9-4	C	Not Rated	None
Rocky Branch	11-137-9-4-1	C	Not Rated	None
McMullen Creek	11-137-9-5	C	Impaired	Benthos impairment(5)
Steele Creek	11-137-10	C	Not Rated	None**
Walker Branch	11-137-10-1	C	Not Rated	None
Polk Ditch	11-137-10-1-1	C	Not Rated	None
Clems Branch	11-137-11	C	Not Rated	None
Six Mile Creek	11-138-3	C	Impaired	Fish impairment(5)
Twelvemile Creek	11-138	C	Impaired	Dissolved Oxygen(5); Copper(5); Turbidity(5); Fish impairment(4s)
Flat Branch	11-138-3-2	C	Not Rated	None

Table 11-4: Yadkin-Pee Dee River Basin Streams

Receiving Stream Name	Stream Segment Index #	WQ Classification	Use Support Rating	WQ Issues (303(d) Listing)
Mallard Creek	13-17-5b	C	Impaired	Copper(5)
Clarks Creek	13-17-5-2	C	Impaired	Benthos impairment(5)
Doby Creek	13-17-5-3	C	Impaired	Benthos impairment(5)
Toby Creek	13-17-5-4	C	Impaired	Benthos impairment(5)
Stony Creek	13-17-5-5	C	Impaired	Benthos impairment(5)
Back Creek	13-17-7	C	Impaired	Benthos impairment(5)
Fuda Creek	13-17-7-1	C	Not Rated	None
Reedy Creek	13-17-8	C	Impaired	Benthos impairment(5)*
McKee Creek	13-17-8-4	C	Impaired	Fecal Coliform(4t); Benthos impairment(5)

Use Support Ratings

(1t) No criteria exceeded but approved TMDL for parameter of interest

(4s) Impaired biological integrity with an identified Aquatic Life Standards Violation listed in Category 5

(4t) Designated use impaired with an approved TMDL

(5) Designated use impaired because of biological or ambient water quality standards violations and needing a TMDL

** Listed as impaired on South Carolina 303(d) list for Fecal Coliform; TMDL developed May 2007.

Source: North Carolina's 2014 303(d) Report

11.2.2 Outfall Identification for TMDL Watersheds

The City maintains an existing outfall inventory system in GIS, which is routinely updated. This inventory has been reviewed and a GIS coverage has been created that shows existing outfalls within the TMDL watersheds that have the potential of contributing to the cause(s) of impairment. Outfalls in the inventory include those that discharge directly to the impaired segment as well as its tributaries. In addition, stream walking efforts are implemented as needed to assess existing outfalls for potential discharges and to update the outfall inventory where necessary. Maps showing the existing outfall inventory are included within the TMDL watershed plan available for view at the City's website discussed in section 11-2.

11.3 Identification of Existing Measures

As part of the TMDL watershed plan, existing programs and measures have been identified, which are currently in use within the City's NPDES MS4 permit program. The programs and measures are designed to address the assigned MS4 NPDES regulated WLA and to reduce the TMDL pollutant of concern to the MEP within the watershed to which the TMDL applies. The plan also provides an explanation about how those measures are designed to reduce the TMDL pollutant of concern. These measures are discussed within the TMDL watershed plan available for view at the City's website discussed in section 11-2.

11.4 Assessment of Available Monitoring Data

As part of the TMDL watershed plan, existing TMDL pollutant of concern monitoring data for the identified TMDL watersheds is reviewed and analyzed. Current and historical data are also utilized to determine trends, where possible. The data is discussed within annual reports and the TMDL watershed plan available for view at the City's website discussed in section 11-2.

11.5 Monitoring Plan for Assigned MS4 NPDES Regulated Waste Load Allocation (WLA)

The City maintains a monitoring plan within the TMDL watershed plan that addresses each pollutant of concern with an assigned MS4 NPDES regulated WLA within each watershed with an approved TMDL within the City's jurisdiction. The purpose of the monitoring plan is to guide activities for data collection and assessment of pollutants of concern as well as to evaluate the effectiveness of achieving the regulated WLA identified within the TMDL. The monitoring plan is discussed within the TMDL watershed plan available for view at the City's website discussed in section 11-2.

11.6 Identification of Additional Measures

As part of the TMDL watershed plan, additional programs and measures were identified for implementation within the City's MS4 permit program that are designed to achieve the assigned MS4 NPDES regulated WLA and to reduce the TMDL pollutant of concern to the MEP within the watershed to which the TMDL applies. The plan provides an explanation as to how the additional measures are designed to reduce the TMDL pollutant of concern. The additional

measures are discussed within the TMDL watershed plan available for view at the City's website discussed in section 11-2.

11.7 Implementation Plan for Additional Measures

As part of the TMDL watershed plan, an implementation plan and schedule have been developed which describe programs and measures to be implemented within the City's MS4 permit program that are designed to achieve the assigned MS4 NPDES regulated WLA and to reduce the TMDL pollutant of concern to the MEP within the watershed to which the TMDL applies. The implementation plan is discussed within the TMDL watershed plan available for view at the City's website discussed in section 11-2.

11.8 Tracking Incremental Success

As part of the TMDL watershed plan, a methodology has been developed for tracking and reporting successes within the City's MS4 permit program that are designed to achieve the assigned MS4 NPDES regulated WLA and to reduce the TMDL pollutant of concern to the MEP within the watershed to which the TMDL applies.

11.9 Measurable Goals

Table 11-5 describes the various Total Maximum Daily Load (TMDL) Program BMPs and the Measurable Goals for each BMP by permit term year.

Table 11-5: BMP Measurable Goals for Total Maximum Daily Load (TMDL) Program.

BMP	BMP Description	Measurable Goals (by permit term year)				
		1	2	3	4	5
Identify, describe and map watershed, outfalls, and streams	Within 24 months the permittee shall prepare a plan that: • Identifies the watershed(s) subject to an approved TMDL with an approved Waste Load Allocation (WLAs) assigned to the permittee, • Includes a description of the watershed(s), • Includes a map of watershed(s) showing streams & outfalls • Identifies the locations of currently known major outfalls within its corporate limits with the potential of contributing to the cause(s) of the impairment to the impaired segments, to their tributaries, and to segments and tributaries within the watershed contributing to the impaired segments and • Includes a schedule to discover and locate other major outfalls within its corporate limits that may be contributing to the cause of the impairment to the impaired stream segments, to their tributaries, and to segments and tributaries within the watershed contributing to the impaired segments.	None	Develop TMDL Watershed Plan per requirements of the MS4 permit by Feb 28, 2015.	Update TMDL Watershed Plan as necessary. (On-going, years 3 – 5)		
Existing measures	Within 24 months the Permittee's plan: • Shall describe existing measures being implemented by the Permittee designed to achieve the MS4's NPDES WLA and to reduce the TMDL pollutant of concern to the MEP within the watershed to which the TMDL applies; and • Provide an explanation as to how those measures are designed to reduce the TMDL pollutant of concern. • The Permittee shall continue to implement the existing measures until notified by DWQ.	None	Identify existing measures within TMDL plan by Feb 28, 2015.	Continue to implement existing measures per TMDL plan. (On-going, years 3 – 5)		
Assessment of available monitoring data	Within 24 months the permittee's plan shall include an assessment of available monitoring data. Where long-term data is available, this assessment should include an analysis of the data to show trends.	None	Conduct a review and assessment of available monitoring data by Feb 28, 2015.	Continue to review and assess monitoring data as it becomes available. (On-going, years 3 – 5)		

Monitoring Plan	Within 36 months the permittee shall develop and submit to the Division a Monitoring Plan for the permittee's assigned NPDES regulated WLA as specified in the TMDL. The permittee shall maintain and implement the Monitoring Plan as additional outfalls are identified and as accumulating data may suggest. Following any review and comment by the Division the permittee shall incorporate any necessary changes to monitoring plan and initiate the plan within six months. Modifications to the monitoring plan shall be approved by the Division. Upon request, the requirement to develop a Monitoring Plan may be waived by the Division if the existing and proposed measures are determined to be adequate to achieve the MS4's NPDES WLA to MEP within the watershed to which the TMDL applies.	None	None	Develop monitoring plan for each TMDL watershed for the TMDL pollutants of concern by Feb 28, 2016.	Complete monitoring activities specified in the plan by June 30, 2017. Assess monitoring data collected under the monitoring plan to determine effectiveness of Water Quality Programs by December 31, 2017. Update monitoring plan as necessary based on data review and assessment activities.	Complete monitoring activities specified in the plan by June 30, 2018. Assess monitoring data collected under the monitoring plan to determine effectiveness of Water Quality Programs by December 31, 2018. Update monitoring plan as necessary based on data review and assessment activities.
Additional Measures	Within 36 months the permittee's plan shall: • Describe additional measures to be implemented by the permittee designed to achieve the permittee's MS4's NPDES WLA and to reduce the TMDL pollutant of concern to the MEP within the watershed to which the TMDL applies; and • Provide an explanation as to how those measures are designed to achieve the permittee's MS4's NPDES regulated WLA to the MEP within the watershed to which the TMDL applies.	None	None	Determine additional measures that may be needed to achieve assigned MS4 NPDES regulated WLA and address TMDL pollutant of concern by Feb 28, 2016.	Continue to evaluate and update additional measures per TMDL plan, as needed. (On-going, years 4 – 5)	
Implementation Plan	Within 48 months the permittee's plan shall: • Describe the measures to be implemented within the remainder of the permit term designed to achieve the MS4's NPDES WLA and to reduce the TMDL pollutant of concern to the MEP and • Identify a schedule, subject to DWQ approval, for completing the activities.	None	None	None	Develop an implementation plan for identified additional measures that may be needed to achieve assigned MS4 NPDES regulated WLA and address TMDL	Continue to implement additional measures per the plan.

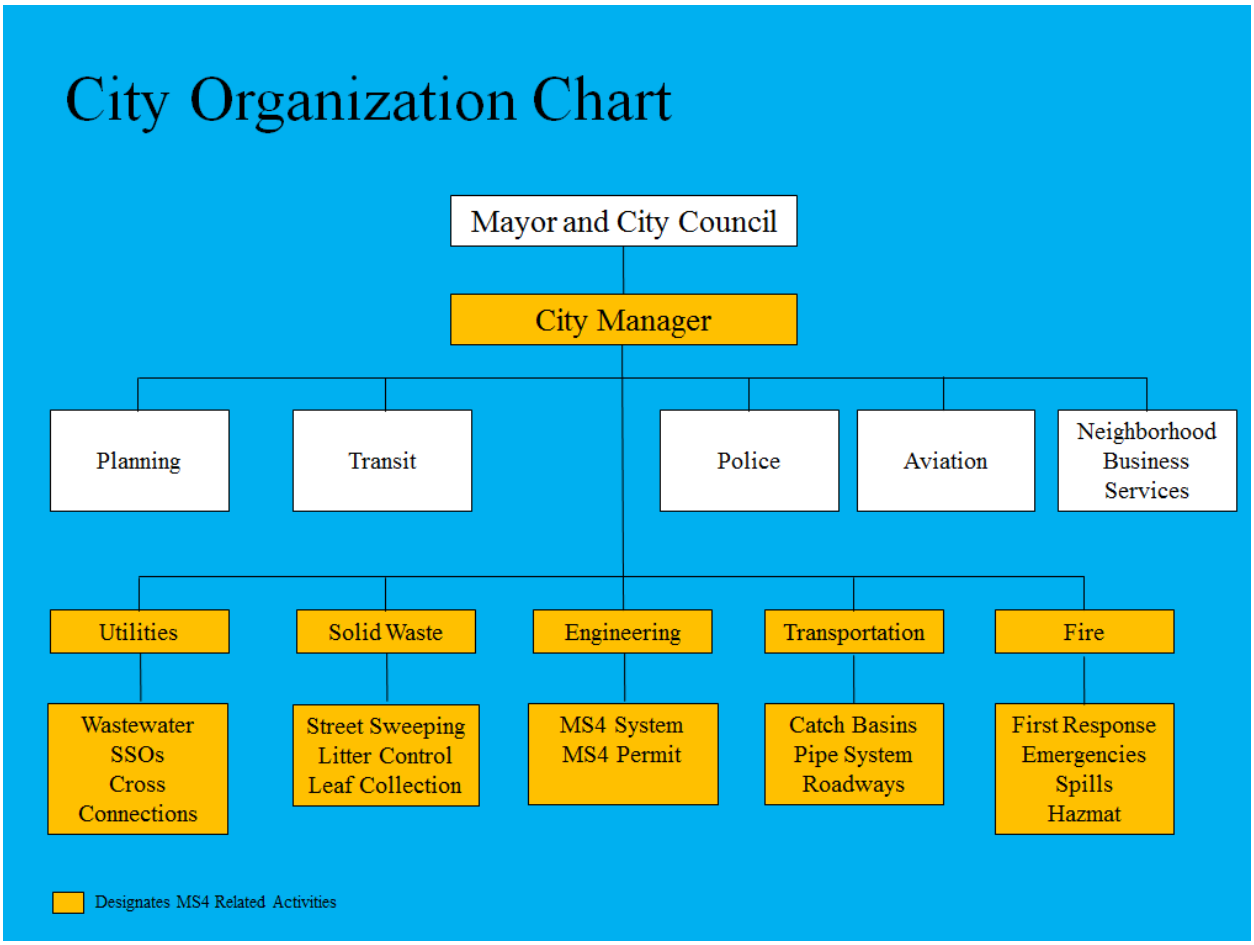
					pollutant of concern by Feb 28, 2017.	
Incremental Success	The permittee's plan must outline ways to track and report successes designed to achieve the MS4's NPDES regulated WLA and to reduce the TMDL pollutant of concern to MEP within the watershed to which the TMDL applies.	None	None	None	Develop a methodology to track and report data and successes for identified additional measures that may be needed to achieve assigned MS4 NPDES regulated WLA and address TMDL pollutant of concern by June 30, 2017.	Continue to track and report successes per the plan.
Reporting	The permittee shall conduct and submit to the Division an annual assessment of the program designed to achieve the MS4's NPDES WLA and to reduce the TMDL pollutant of concern to the MEP within the watershed to which the TMDL applies. Any monitoring data and information generated from the previous year are to be submitted with each annual report.	None	Prepare an annual assessment of activities and data analysis for the TMDL watershed plan. Provide this information in the NPDES MS4 permit annual report. (On-going, years 2 – 5)			

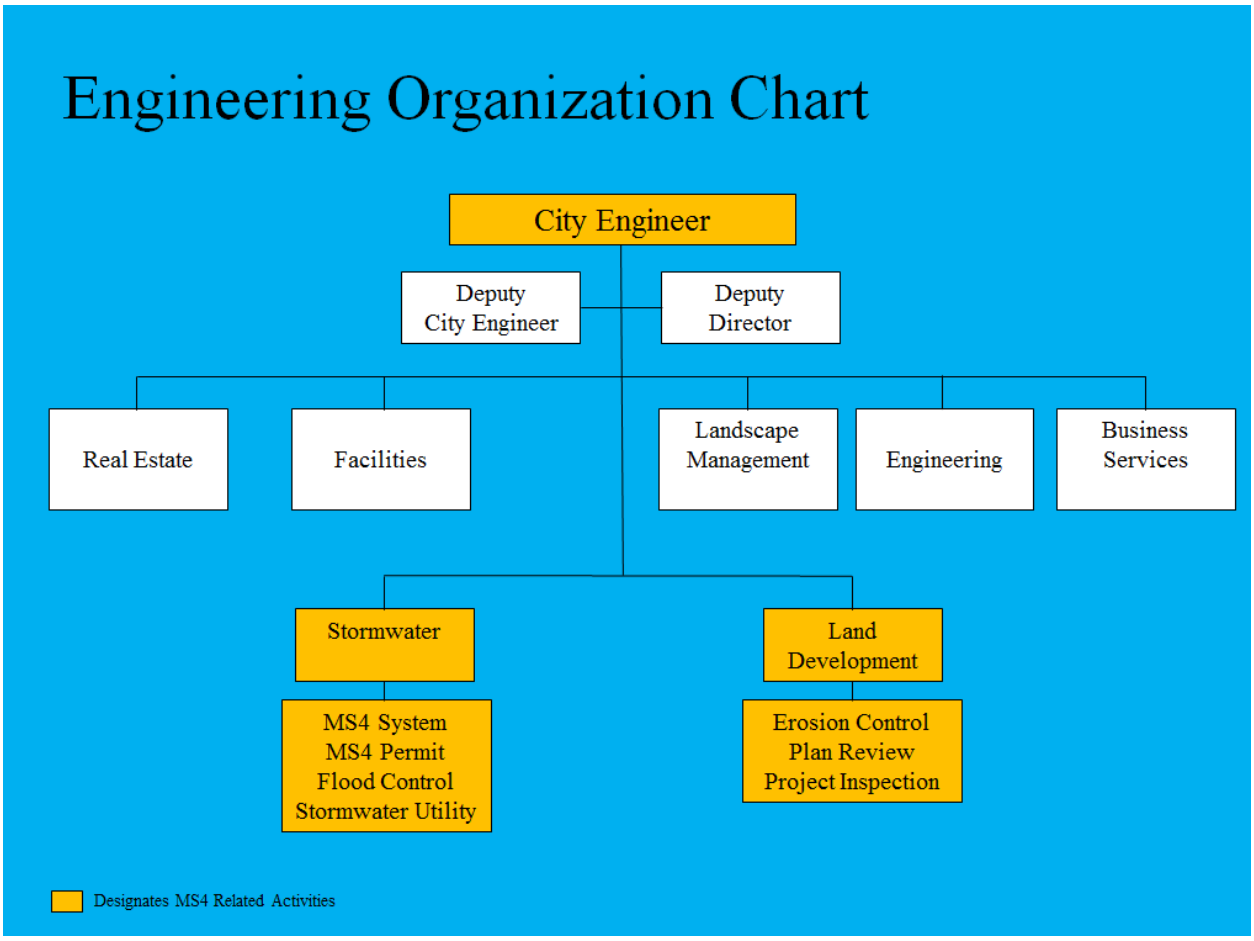
11.10 Program Assessment and Reporting

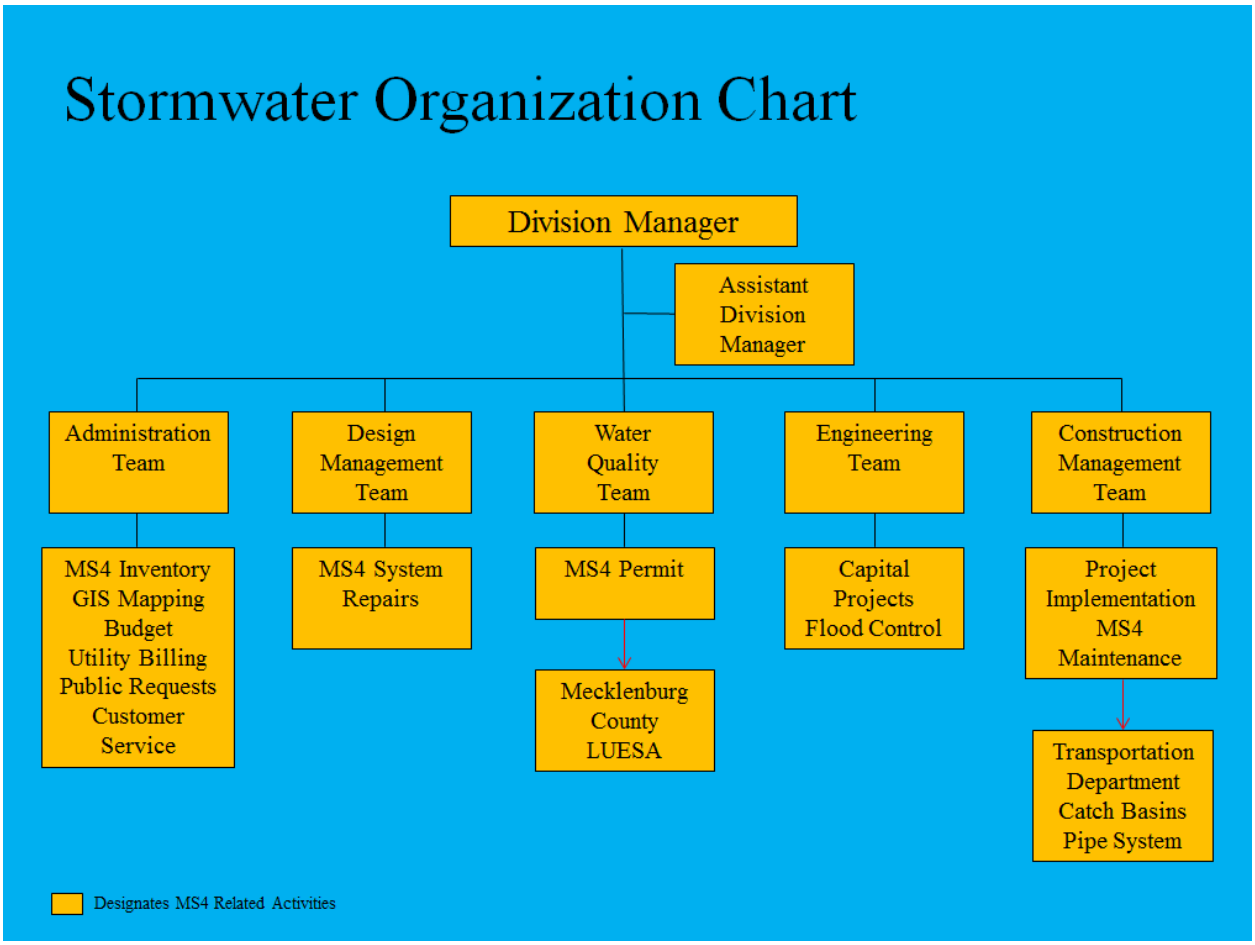
The overall success of the TMDL Program is evaluated through the successful implementation of the components of the program and reported with each NPDES MS4 annual report. In addition, success is also typically evaluated by the number of BMPs implemented within the TMDL watershed plan. Program assessment will be reported with each NPDES MS4 annual report discussing the activities completed in this section for the previous program fiscal year.

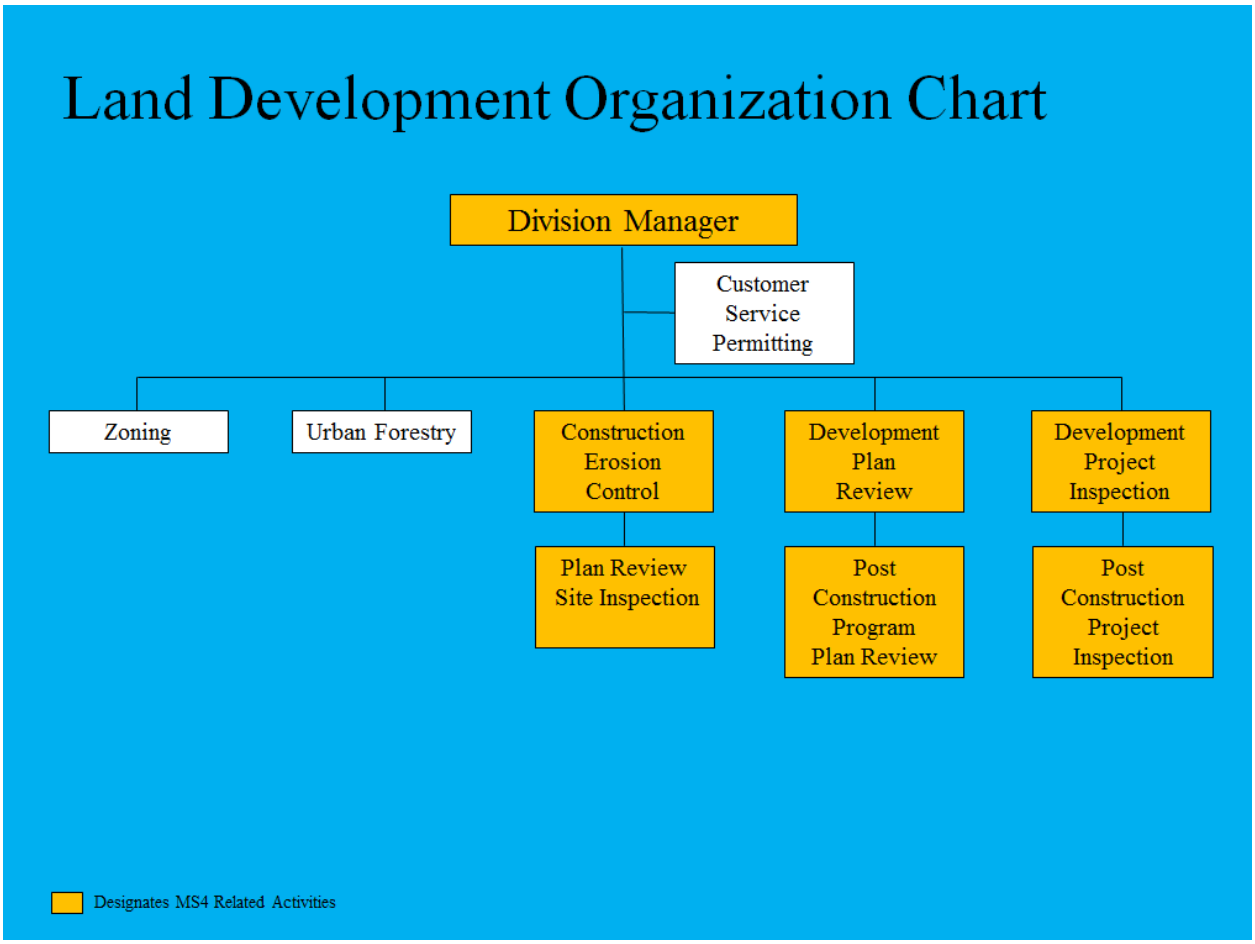
APPENDIX A

City of Charlotte Organizational Charts




Engineering Organization Chart
City Engineer
Deputy City Engineer
Deputy Director
Real Estate
Facilities
Landscape Management
Engineering
Business Services
Stormwater
Land Development
MS4 System
MS4 Permit
Flood Control
Stormwater Utility
Erosion Control
Plan Review
Project Inspection
Designates MS4 Related Activities


Stormwater Organization Chart
Division Manager
Assistant Division Manager
Administration Team
Design Management Team
Water Quality Team
Engineering Team
Construction Management Team
MS4 Inventory
GIS Mapping
Budget
Utility Billing
Public Requests
Customer Service
MS4 System Repairs
MS4 Permit
Mecklenburg County LUESA
Capital Projects
Flood Control
Project Implementation
MS4 Maintenance
Transportation Department
Catch Basins
Pipe System
Designates MS4 Related Activities


Land Development Organization Chart
Division Manager
Customer Service Permitting
Zoning
Urban Forestry
Construction Erosion Control
Development Plan Review
Development Project Inspection
Plan Review Site Inspection
Post Construction Program Plan Review
Post Construction Project Inspection
Designates MS4 Related Activities

APPENDIX B

City of Charlotte Stormwater Pollution Control Ordinance

ORDINANCE NO. 3941 AMENDING CHAPTER 18

AN ORDINANCE AMENDING CHAPTER 18 OF THE CHARLOTTE CITY CODE ENTITLED "STORMWATER POLLUTION CONTROL ORDINANCE"

BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF CHARLOTTE, NORTH CAROLINA THAT:

Section 1: Sections 18-76 through 18-88 of the City Code are amended to read as follows:

Sec. 18-76. Statutory and general authorization.

The State legislature has, in G.S. 160A-459, authorized cities to adopt and enforce a Stormwater control ordinance to protect water quality and control water quantity.

As a result, the City of Charlotte ("City") implements, administers, and enforces the provisions of the Charlotte Stormwater Ordinance ("Ordinance"). Charlotte-Mecklenburg Storm Water Services ("CMSWS") is a duly authorized representative of the City in the administration, implementation and enforcement of the Charlotte Stormwater Ordinance and is thereby entitled to all the rights granted to the City.

Sec. 18-77. Definitions.

The following words, terms and phrases, when used in this article, shall have the meanings ascribed to them in this section, except where the context clearly indicates a different meaning:
Business Day means any day that CMSWS is open to the public to conduct business.
Charity Vehicle Washing means vehicle or equipment washing performed to raise money to be used for purposes other than making a profit.
Charlotte-Mecklenburg Storm Water Services or CMSWS means staff of the City of Charlotte and Mecklenburg County Stormwater Services, both of which work to improve water quality and manage water quantity for all residents of Mecklenburg County.
City means the City of Charlotte.
Commercial means property devoted in whole or part to commerce, that is, the exchange and buying and selling of commodities or services.
Day(s) means calendar days, including Saturdays, Sundays and holidays, unless otherwise specified.
Discharge means the addition of any Pollutant either directly or indirectly to the Stormwater System or Waters of the State.
EPA means the U.S. Environmental Protection Agency or other duly authorized official of the

agency.
Illicit Connection means any physical connection, actual or potential flow discharge, or other condition that could allow Non-Stormwater to enter the Stormwater System.
Illicit Discharge means any discharge not composed entirely of Stormwater that may directly or indirectly enter the Stormwater System or Waters of the State, except as exempted in Section 18-81 of this article.
Illicit Disposal means the same as Illicit Discharge.
Improper Disposal means the releasing of matter or fluids other than atmospheric precipitation at a location where the matter or fluid can enter the Stormwater System.
Incidental means occurring by chance or without intention or calculation; also minor, casual or subordinate in significance or nature.
Industrial means a business engaged in industrial production or service, that is, a business characterized by manufacturing or productive enterprise or a related service business.
Manager means the person designated by the City to manage Stormwater Services and who is charged with certain duties and responsibilities by this article, or that person's duly authorized representative.
NC DENR means the North Carolina Department of Environment and Natural Resources.
NCGS means North Carolina General Statute.
Non-Stormwater means any flow that is not from a form of natural precipitation.
NPDES permit means the National Pollutant Discharge Elimination System Permit issued pursuant to the federal Clean Water Act, 33 USC 1251 et seq.
Person means any individual, partnership, firm, association, company, trust, estate, corporation, commission, institution, utility, governmental entity or other legal entity or their legal representatives, agents or assigns.
Pollutant means a substance that alters the chemical, physical, biological, thermal and/or radiological integrity of Stormwater, groundwater or surface water.
Pollution and Polluted mean containing Pollutants.
Receiving Stream means the body of water, stream or watercourse receiving the discharge waters from the Stormwater System, or formed by the water discharged from the Stormwater System.
Riparian means relating to or living or located on the bank of a natural watercourse or water body.
Runoff means the excess portion of precipitation that does not infiltrate the ground, but flows over the ground and into a conveyance or watercourse.
State, when referring to regulatory authority, means the NC Department of Environment and Natural Resources or any duly authorized representative thereof; otherwise, it means the State of North Carolina.
Stormwater means any flow occurring during or following any form of natural precipitation and resulting there from.
Storm Water Advisory Committee ("SWAC") means the Charlotte-Mecklenburg Stormwater Advisory Committee as established by the joint resolution of the City of Charlotte Council and the Board of Mecklenburg County Commissioners, together with any amendments thereto.
Stormwater System means the network of curbs, gutters, inlets, pipes, ditches, swales, ponds, detention and retention basins, streams, and other natural or manmade facilities and

appurtenances that serve to collect and convey Stormwater through and from a given drainage area.
Uncontaminated means not containing any Pollutants.
Unmodified Potable Water means tap water that has not had detergents, acids, degreasers, surfactants or other agents added to or mixed with it, regardless of whether the added agent is labeled as or generally considered to be biodegradable.
Wash Water is a subset of Wastewater, and means any water or liquid discharged after and as a result of conducting washing or cleaning activity.
Wastewater means any water or other liquid, other than Uncontaminated Stormwater or Uncontaminated Potable Water, discharged from a facility after use. Examples include water used for washing, flushing, cleaning, or in a manufacturing process.
Waters of the State, as defined in NCGS §143-212(6), means any intermittent or perennial stream, river, brook, swamp, lake, sound, tidal estuary, bay, creek, reservoir, waterway, or other body or accumulation of water, whether surface or underground, public or private, or natural or artificial, that is contained in, flows through, or borders upon any portion of this State, including any portion of the Atlantic Ocean over which the State has jurisdiction.

Sec. 18-78. Purpose.

The purpose of this article is to protect water quality by controlling the level of Pollutants in the Stormwater System and making it illegal for certain Pollutants to enter the Stormwater System. This article is supplemental to and in no way replaces regulations administered by the State or federal government.

The objectives of this article are:
(1) To regulate the contribution of Pollutants to the municipal Stormwater System;
(2) To prohibit Illicit Connections and Illicit Discharges to the municipal Stormwater System; and
(3) To establish legal authority to carry out all inspection, surveillance, monitoring, enforcement and penalty procedures necessary to ensure compliance with this article.

Sec. 18-79. Jurisdiction.

The provisions of this article shall apply to the area encompassed within the City of Charlotte corporate limits.

Sec. 18-80. Prohibitions.

a. Illicit Discharge(s) and Disposal(s).

No Person shall cause or allow the discharge or disposal of Non-Stormwater, either directly or indirectly, to the Storm Water System, Waters of the State, or upon the land in a manner or amount that is likely to reach the Stormwater System or Waters of the State except as described below in Section 18-81. Examples of Illicit Discharges and Illicit Disposals include, but are not limited to: oil; grease; household and Industrial chemical waste; paint; paint Wash Water;

garbage; yard waste; animal waste; food waste; chlorinated swimming pool water; concrete; concrete equipment Wash Water; Commercial vehicle Wash Water; heated water; soaps/detergents; sediment/silt or any other discarded or abandoned substances or waste materials.

b. Illicit Connection(s).

No Person shall install, maintain or use any connection to the municipal Stormwater System or Waters of the State for the discharge of Non-Stormwater or shall cause Non-Stormwater to be discharged or conveyed through a connection to the Stormwater System or Waters of the State unless the discharge is a permitted discharge listed in Section18-81.

This prohibition expressly includes, without limitation, Illicit Connections made in the past, regardless of whether the connection was permissible under law or practices applicable or prevailing at the time of connection.

Examples of Illicit Connections include, but are not limited to:
(1) Wastewater lines such as those from washing machines or sanitary sewers; and
(2) Pipes or drains carrying Wastewater or Wash Water from a building, operation or property.

c. Accidental Discharge(s).

If an accidental discharge to the municipal Stormwater System occurs, the responsible Person shall immediately begin to collect and remove the discharge and restore all affected areas to their pre-discharge condition. The responsible Person shall immediately notify CMSWS, and other authorities as appropriate, of the accidental discharge by telephone or other mode of instantaneous communication. The notification shall include the location of the discharge, type of Pollutant, volume, time of discharge and corrective action taken. Such notification shall not relieve the responsible Person of any of the expenses related to restoration, loss, damages or any other liability that may be incurred as a result; nor shall such notification relieve the responsible party from other liability that may be imposed by this article or other applicable law.

d. Obstruction a Violation.

Obstruction, as outlined in Section18-82(d) of this article, shall be a violation. Said violation may be enforced against the violator as a discrete violation of this article or as a factor in conjunction with other enforcement remedies and penalties.

Sec. 18-81. Permitted Incidental Non-Stormwater Flows.

Stormwater is the only discharge permitted in the Stormwater System with exception of Incidental Non-Stormwater flows that do not negatively impact the quality of the receiving stream. Incidental Non-Stormwater flows include:
(1) Water line flushing, except super-chlorinated water line flushing;
(2) Landscape irrigation;

(3) Diverted stream flows;
(4) Uncontaminated groundwater infiltration (as defined at 40 CFR §35.2005(20));
(5) Uncontaminated, pumped groundwater;
(6) Rising groundwaters;
(7) Discharges from Uncontaminated potable water sources;
(8) Collected infiltrated Stormwater from foundation drains or footing drains;
(9) Air conditioning condensate from residential or Commercial units;
(10) Irrigation water (does not include reclaimed water as described in 15A NCAC 2H .0200);
(11) Uncontaminated springs;
(12) Uncontaminated, collected groundwater and infiltrated Stormwater from basement or crawl space pumps;
(13) Lawn watering;
(14) Dechlorinated swimming pool discharge;
(15) Street Wash Water only when Unmodified Potable Water is used;
(16) Flows from emergency fire and rescue operations other than those resulting from negligence on the part of the Person who owned or controlled the Pollutant;
(17) Residential and Charity Vehicle Washing (*see note below);
(18) Flows from Riparian habitats and wetlands;
(19) NPDES permitted discharges authorized by the EPA or NC DENR;
(20) Dye testing, using suitable dyes, for verifying cross-connections, tracing plumbing lines, determining flow direction or rate and for similar purposes, provided that verbal notification by non-governmental entities is provided to CMSWS prior to testing; and
(21) Removal of Stormwater System blockages with Unmodified Potable Water.

* Designated vehicle wash areas at multi-family residential complexes are not allowed if they connect, directly or indirectly, to the Stormwater 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 not allowed under this article.

Sec. 18-82. Powers and Authority for Inspection.

a. Authority to inspect and monitor.

CMSWS personnel, bearing proper identification, may enter public or private properties at all reasonable times to inspect, investigate, or monitor activities and conditions subject to this article. Persons occupying premises to be inspected shall allow CMSWS ready access at all times to all parts of the premises to perform inspection, monitoring, records examination, copying, photography, video recording or other duties. CMSWS shall have the right to set up on the Person's property such devices as are necessary to conduct sampling, inspection, compliance monitoring and/or metering operations. Where a Person has security measures in force that would require identification and clearance before entry into the premises, the Person shall make arrangements with security personnel so that, upon presentation of identification, personnel from CMSWS will be permitted to enter and perform their specific responsibilities without delay. Denial of CMSWS' access to the Person’s premises or portions thereof shall be a violation of this article. Denial of access may also occur if a Person fails to provide, without unreasonable delay,

such facilities, equipment, or devices as are reasonably necessary to permit CMSWS personnel to perform their duties in a safe manner. Unreasonable delays may constitute denial of access. Any delay of more than five minutes may be considered unreasonable.

b. Search warrants.

To the extent permitted by law, CMSWS may seek the issuance of a search warrant to determine compliance with this article.

c. Confidential information.

(1) To the extent permitted by applicable law and except as otherwise provided in this section, information and data on a Person obtained from reports, questionnaires, permit applications, permits, monitoring programs and inspections shall be available to the public or other government agencies without restriction, unless the Person specifically requests, and is able to demonstrate to the satisfaction of CMSWS, that the release of such information would divulge information, processes or methods of production entitled to protection as trade secrets of the Person. Any such request must be asserted at the time of submission of the information or data.
(2) To the extent permitted by applicable law, when requested by a Person furnishing a report, the portions of a report that might disclose trade secrets or secret processes shall not be made available for inspection by the public, but shall be made available upon request to governmental agencies for uses related to this article provided, however, that such portions of a report shall be available for use by the State or any State agency in judicial review or enforcement proceedings involving the Person furnishing the report.
(3) Documents that are not public records and the information set forth therein may be withheld and released only as provided by applicable law.

d. Obstruction.

No person shall obstruct, hamper, or interfere with CMSWS while carrying out official duties. Upon presentation of credentials by CMSWS, necessary arrangements shall be made to allow immediate access onto premises or into an area protected by security measures. Any obstruction to the safe and easy access to property, a facility or enclosure on property, or to monitoring devices shall immediately be removed. Unreasonable delays in providing safe and reasonable access or removing obstructions shall be a violation of this article.

Sec. 18-83. Enforcement remedies and penalties.

a. Remedies not limited.

The remedies provided herein are not exclusive; may be exercised singly, simultaneously, or cumulatively; may be combined with any other remedies authorized under the law; and may be exercised in any order.

b. Notice of violation and meeting with CMSWS.

(1) Content of notice.

Except in emergencies, as described in Section18-83(k), upon CMSWS's determination that a violation has occurred, CMSWS shall provide to each Person against whom remedial action or penalties may be pursued, notice that describes: a) the location of the property and the nature of the violation; b) a general description of the remedies and penalties that may be incurred; c) the action(s) needed to correct the violation, which shall include a requirement to restore areas affected by the violator's discharge(s) to the pre-violation condition; d) the time limit, if required, by which corrective actions must occur; e) how to provide explanatory or additional information to CMSWS and a contact Person with whom the violation can be discussed; and f) how to request a meeting with CMSWS for certain violations as described in Section 18-83(b)(3) below. The notice shall also require the violator to provide written notification explaining actions taken to correct the violation and to prevent future violations. Only one such notice shall be required to each violator, regardless of the number of remedies or penalties that are pursued or the timing of their institution. In addition, no time period for compliance need be given for obstructing, hampering or interfering with an authorized representative while in the process of carrying out duties under this article.

Said notice shall further advise the violator that should the violator fail to remediate or restore the affected area(s) within the established deadline, the restoration work may be done by CMSWS or a contractor designated by CMSWS pursuant to Section18-83(j), and the expense thereof shall be charged to the violator.

(2) Service.

The notice may be served by mail, hand delivery, verbally, or by any means authorized under N.C.G.S. 1A-1, Rule 4 of the North Carolina Rules of Civil Procedure. Refusal to accept the notice shall not relieve the violator's obligation to comply with this article.

(3) Meeting with CMSWS.

If the violator makes a timely request for a meeting with CMSWS during the time period set forth in the notice, such meeting shall be scheduled at a time determined in the discretion of CMSWS prior to imposing a civil penalty, compliance order, or cease and desist order; or prior to withholding an inspection, permit, certificate of occupancy or other approval. The violator shall have the opportunity to present any information relevant to the violation or proposed remedy or penalty at the meeting, in writing or orally.

c. Civil penalties.

(1) Any Person who allows, acts in concert, participates, directs, or assists directly or indirectly in the creation of a violation of this article is subject to a civil penalty. A civil penalty may be assessed from the date the violation first occurs.
(2) The maximum civil penalty for each violation of this article is $5,000.00. Each Day of violation shall constitute a separate violation.

(3) No penalty shall be assessed until the Person alleged to be in violation has been served notice of the violation as described in Section18-83(b). Refusal to accept the notice shall not relieve the violator of the obligation to pay such penalty.
(4) Penalties may be assessed concurrently with a notice of violation for any of the following:

(i) Obstructing, hampering or interfering with an authorized CMSWS representative who is in the process of carrying out official duties under this article;
(ii) A repeated violation for which a notice of violation was previously given to the Person responsible for the violation; or
(iii) Willful violation of this article.

(5) In determining the amount of a civil penalty, CMSWS shall consider any relevant mitigating and aggravating factors including, but not limited to the following:

(i) Degree and extent of harm caused by the violation;
(ii) Cost of rectifying the damage;
(iii) Amount of money saved through non-compliance;
(iv) Whether the violator took reasonable measures to comply with this article;
(v) Knowledge of the requirements by the violator and/or reasonable opportunity or obligation to obtain such knowledge;
(vi) Whether the violator voluntarily took reasonable measures to restore any areas damaged by the violation;
(vii) Whether the violation was committed willfully;
(viii) Whether the violator reported the violation to an appropriate authority;
(ix) Technical and economic reasonableness of reducing or eliminating the discharge; and
(x) Prior record of the violator in complying or failing to comply with this article or any other water Pollution control ordinance or regulation.

(6) CMSWS shall determine the amount of the civil penalty to be assessed under this section and shall make written demand for payment upon the Person in violation and shall set forth in detail a description of the violation for which the penalty was imposed. Notice of said assessment shall be by registered or certified mail or other means reasonably calculated to give adequate notice. If a violator does not pay a civil penalty assessed by CMSWS within 30 days after it is due, or does not request a hearing as provided in Section 18-84, CMSWS shall request the City Attorney to institute a civil action to recover the amount of the assessment. The civil action shall be brought in Mecklenburg County Superior Court or in any other court of competent jurisdiction. Such civil actions must be filed within three years of the date the notice of assessment was served on the violator.
(7) An assessment that is not contested is due when the violator is served with a notice of assessment. An assessment that is contested is due at the conclusion of the administrative and judicial review of the assessment.
(8) Civil penalties collected pursuant to this article shall be credited to the City's general fund as a nontax revenue.
(9) A violation of this article shall not constitute a misdemeanor or infraction punishable under G.S. 14-4, but instead shall be subject to the civil penalties fixed by this section.

d. Cost recovery.

CMSWS may also recover from the violator:

(i) Costs to restore damaged property based on restoration costs, which include, but are not limited to, cleanup costs, devaluation of the property, value of animal and plant life damaged, and City administrative costs.

(ii) Compensation for damage to or destruction of the Stormwater System.

In no case shall the maximum penalty per Day exceed the amount as specified in Section 18-83(c)(2).

e. Compliance agreement.

CMSWS may enter into compliance agreements, assurances of voluntary compliance, or other similar documents establishing an agreement with the Person responsible for the non-compliance. Such agreements will include specific actions to be taken by the Person in violation to correct the non-compliance within a time period specified by the agreement. Compliance agreements shall have the same force and effect as compliance orders issued pursuant to Section 18-83(f) below.

f. Compliance order.

When CMSWS finds that any Person has violated or continues to violate any section of this article, an order may be issued to the violator directing that they do one, or a combination, of the following:

(1) Comply with the sections of this article in accordance with a time schedule set forth in the order;
(2) Take appropriate remedial or preventive actions for a continuing or threatened violation of any section of this article, including installation and proper operation of adequate structures/devices and/or implementation of procedures and management practices;
(3) Pay a civil penalty for violating any section of this article.

g. Cease and desist order.

Cease and desist orders may be issued as follows:
(1) If CMSWS finds that any Person has violated or continues to violate any section of this article, an order issued pursuant to this article, or any other provision of applicable law, CMSWS may issue an order requiring such Person to cease and desist all such violations and direct such Person to perform any one or more of the following:

(i) Comply immediately with all sections of this article, an order issued pursuant to this article, or other applicable law;

(ii) Take appropriate remedial or preventive actions for a continuing or threatened violation of any section of this article, a compliance agreement issued pursuant to this article, an order issued pursuant to this article, or any other provision of applicable law.

(2) CMSWS may include in such order the payment of a civil penalty for violating any section of this article, or for violating a compliance agreement or order issued pursuant to this article.

h. Withholding of inspections, permits, certificate of occupancy or other approvals.

Building inspections; permits for development or other improvements; requests for plan approval for zoning, subdivision, other development or construction; and certificates of occupancy may be withheld or conditioned upon compliance with this article until a violator with ownership or management of the property for which permits or approvals are sought has fully complied with this article and all actions taken pursuant to this article.

i. Restoration of areas affected by failure to comply.

CMSWS may require a Person responsible for a violation to restore all areas affected by the violation to their pre-violation condition in order to minimize the detrimental effects of the resulting impacts. This authority is in addition to any other enforcement actions authorized under this article.

j. Abatement by CMSWS.

If the violation has not been corrected pursuant to the requirements set forth in the notice of violation or by other allowable remedies, or, in the event of an appeal under Section 18-84, within 10 Days of the decision of the Stormwater Advisory Committee to uphold the decision of CMSWS, then CMSWS or a contractor designated by CMSWS may enter upon the subject premises and is authorized to take any and all measures necessary to abate the violation and/or restore impacted areas to their pre-violation condition in order to minimize the detrimental effects of the resulting impacts. It shall be unlawful for any Person in possession or control of any premises to refuse to allow CMSWS or its designated contractor to enter upon the premises for the purposes set forth above.

The Person in violation will be notified of the cost of abatement, including administrative costs. If the specified amount is not paid within 30 days after it is due, CMSWS shall request the City Attorney to institute a civil action to recover the specified amount. The civil action shall be brought in Mecklenburg County Superior Court or in any other court of competent jurisdiction. Such civil actions must be filed within three years of the date said notice was served on the violator.

k. Emergencies.

If delay in correcting a violation would seriously threaten the effective enforcement of this article or pose an immediate danger to the public health, safety, or welfare, or the environment, including but not limited to Waters of the State, then CMSWS may order the immediate cessation of the violation. Any Person ordered to cease such violation or to remedy such violation shall do so immediately. CMSWS may seek immediate enforcement through any remedy or penalty authorized in this article or other applicable law.

l. Injunctive relief.

(1) Whenever CMSWS has reasonable cause to believe that any Person is violating or threatening to violate this article, CMSWS may, either before or after the institution of any other action or proceeding authorized by this article, authorize the City Attorney to institute a civil action in the name of CMSWS for injunctive relief to restrain the violation or threatened violation. The action shall be brought pursuant to G.S. 153A-123 in Mecklenburg County Superior Court.

(2) Upon determination by a court that an alleged violation is occurring or is threatened, the court shall enter such orders or judgments as are necessary to abate the violation or to prevent the threatened violation. The institution of an action for injunctive relief under this section shall not relieve any party to such proceedings from any civil penalty prescribed for violations of this article.

Sec. 18-84. Appeal Process.

a. Issuance of a notice of violation, assessment of a civil penalty, cease and desist order and/or compliance order.

(1) The issuance of a notice of violation or notice of assessment of a civil penalty by CMSWS shall entitle the Person responsible for the violation of the article ("Petitioner") to a public hearing before the Storm Water Advisory Committee ("Committee") if such Person submits written demand for a hearing to the Clerk of the Committee ("Clerk") within 30 Days of the receipt of the notice. The demand for a hearing filed with the Clerk shall be accompanied by a filing fee as established by the Committee. In the demand for a hearing on a civil penalty assessment, the Petitioner must state separately each reason why such penalty should not be assessed or, if the Petitioner contends that the civil penalty was assessed in an improper amount, each reason why the amount of the penalty is improper. Each assessment of a civil penalty that has been included in a demand for a hearing in accordance with this section is stayed and shall not take effect until the earliest occurrence of any one of the following circumstances: the assessment of the civil penalty is approved or is modified by the Committee; or the Petitioner and CMSWS agree on the assessment of the civil penalty. Failure to timely file such demand and fee shall constitute a waiver of any rights to appeal under this article and the Committee shall have no jurisdiction to hear the appeal.
(2) The issuance of a cease and desist order and/or compliance order by CMSWS shall entitle Petitioner to a public hearing before the Committee if such Petitioner submits written demand for a hearing to the Clerk within the following schedule:

(i) within ten days of the receipt of a cease and desist order issued pursuant to Section 18-83(g);
(ii) within twenty days of the receipt of a compliance order issued pursuant to Section 18-83(f).

In the demand for a hearing on the issuance of such an order, the Petitioner must identify separately each provision of the order that is improper and every basis for such contention. Each provision of an order that has been included in a demand for a hearing in accordance with this

section is stayed and shall not take effect until the earliest occurrence of any one of the following circumstances: such provision is approved or is modified by the Committee; or the Petitioner and CMSWS agree on the terms of the order. This subsection shall not be construed to stay any section of this article or other applicable law.

The demand for a hearing filed with the Clerk shall be accompanied by a filing fee as established by the Committee. Failure to timely file such demand and fee shall constitute a waiver of any rights to appeal under this article and the Committee shall have no jurisdiction to hear the appeal.
(3) Within 5 Days of receiving the Petitioner's demand for a hearing, the Clerk shall notify the Chairman of the Committee ("Chairman") of the request for hearing. As soon as possible after the receipt of said notice, the Chairman shall set a time and place for the hearing and notify the Petitioner by mail of the date, time and place of the hearing. The time specified for the hearing shall be either at the next regularly scheduled meeting of the Committee from the submission of the notice, or as soon thereafter as practical, or at a special meeting. The hearing shall be conducted pursuant to the provisions of Section18-84(b) of this article.
(4) Any party aggrieved by the decision of the Committee with regard to the issuance of a notice of violation, notice of assessment of a civil penalty, cease and desist order or compliance order shall have 30 Days from the receipt of the decision of the Committee to file a petition for review in the nature of certiorari in Superior Court with the Clerk of Mecklenburg County Superior Court.

b. Hearing procedure.

The following provisions shall be applicable to any hearing conducted by the Committee pursuant to Section 18-84(a).

(1) At the hearing, Petitioner and CMSWS shall have the right to be present and to be heard, to be represented by counsel, and to present evidence through witnesses and competent testimony relevant to the issue(s) before the Committee.
(2) Rules of evidence shall not apply to a hearing conducted pursuant to this article and the Committee may give probative effect to competent, substantial and material evidence.
(3) At least 7 days before the hearing, the parties shall exchange a list of witnesses intended to be present at the hearing and a copy of any documentary evidence intended to be presented. The parties shall submit a copy of this information to the Clerk. Additional witnesses or documentary evidence may not be presented except upon consent of both parties or upon a majority vote of the Committee.
(4) Witnesses shall testify under oath or affirmation to be administered by the Court Reporter or another duly authorized official.
(5) The procedure at the hearing shall be such as to permit and secure a full, fair and orderly hearing and to permit all relevant, competent, substantial and material evidence to be received therein. A full record shall be kept of all evidence taken or offered at such hearing. Both the representative for CMSWS and for the Petitioner shall have the right to cross-examine witnesses.
(6) At the conclusion of the hearing, the Committee shall render its decision on the evidence submitted at such hearing and not otherwise.

(i) If, after considering the evidence presented at the hearing, the Committee concludes by a preponderance of the evidence that the grounds for CMSWS' actions (including the amount assessed as a civil penalty) with regard to either issuing a notice of violation, assessing a civil penalty, issuing a cease and desist order or issuing a compliance order are true and substantiated, the Committee shall uphold the action on the part of CMSWS.

(ii) If, after considering the evidence presented at the hearing, the Committee concludes by a preponderance of the evidence that the grounds for CMSWS' actions (including the amount assessed as a civil penalty) are not true and substantiated, the Committee shall, as it sees fit, either reverse or modify any order, requirement, decision or determination of CMSWS. The Committee Bylaws will determine the number of concurring votes needed to reverse or modify any order, requirement, decision or determination of CMSWS. If the Committee finds that the violation has occurred, but that in setting the amount of a penalty or setting order directives CMSWS has not considered or given appropriate weight to either mitigating or aggravating factors, the Committee shall either decrease or increase the per day civil penalty within the range allowed by this article, or modify order directives, as appropriate to the case. Any decision of the Committee that modifies the amount of the civil penalty or an order directive shall include, as part of the findings of fact and conclusions of law, findings as to which mitigating or aggravating factors exist and the appropriate weight that should have been given to such factors by CMSWS in setting the amount of the civil penalty or in issuing orders.

(7) The Committee shall keep minutes of its proceedings, showing the vote of each member upon each question and the absence or failure of any member to vote. The decision of the Committee shall be based on findings of fact and conclusions of law to support its decision.

(8) The Committee shall send a copy of its findings and decision to the Applicant/Petitioner and CMSWS. If either party contemplates an appeal to a court of law, the party may request and obtain, at that party's own cost, a transcript of the proceedings.

(9) The decision of the Committee shall constitute a final decision.

Sec. 18-85. Severability

If any section or sections of this article is/are held to be invalid or unenforceable, all other sections shall nevertheless continue in full force and effect.

Appendix C
City of Charlotte Soil Erosion and Sedimentation Control Ordinance

SOIL EROSION AND SEDIMENTATION CONTROL*

Article I. In General

Sec. 17-1. Short Title.
Sec. 17-2. Statement of Purpose.
Sec. 17-3. Definitions.
Sec. 17-4. Scope and exclusions.
Sec. 17-5. Forest practice guidelines.
Secs. 17-6 -17-30 Reserved.

Article II. Erosion Control Requirements

Sec. 17-31. General requirements.
Sec. 17-32. Basic control objectives.
Sec. 17-33. Mandatory standards for land disturbing activities.
Sec. 17-34. Design and performance standards.
Sec. 17-35. Erosion and sedimentation control plans.
Sec. 17-36. Permits.
Sec. 17-37-17-65. Reserved.

Article III. Administration, Enforcement and Appeals

Sec. 17-66. Inspections and investigations.
Sec. 17-67. Penalties.
Sec. 17-68. Injunctive relief.
Sec. 17-69. Restoration of areas affected by failure to comply.
Sec. 17-70. Appeals
Sec. 17-71. Severability
Sec. 17-72. Effective Date
Sec. 17-73. Revisions.

***Cross references –** Buildings and building regulations, ch. 5; floods, ch. 9.
States law reference – Municipal authority to enact and enforce soil and sedimentation control ordinances, G.S. 160A-458

CD 17:1

SOIL EROSION AND SEDIMENTATION CONTROL ORDINANCE.

ARTICLE I. IN GENERAL

Sec. 17-1 . Short Title

This Ordinance may be cited as the "City of Charlotte Soil Erosion and Sedimentation Control Ordinance."

Sec. 17-2. Preamble

The Sedimentation of streams, lakes, wetlands and other waters of this State constitute a major pollution problem. Sedimentation occurs from the Erosion or depositing of soil and other materials into the waters. Control of Erosion and Sedimentation is deemed vital to the public interest and necessary to public health and welfare, and expenditures of funds for Erosion and Sedimentation control programs shall be deemed for public purpose. It is the purpose of this Ordinance to provide for creation, administration, and enforcement of the program through procedures and for the adoption of mandatory standards that will permit development of this City to continue with the least detrimental effects from pollution by Sedimentation. In recognition of desirability of early coordination of Sedimentation control planning, it is the intention of the City Council that pre-construction conferences be held among the affected parties.
(Code 1985, § 18-22)

Sec. 17-3. Definitions

As used in this Ordinance, unless the context clearly indicates otherwise, the following definitions apply.

a. Accelerated Erosion - means any increase over the rate of Natural Erosion as a result of Land-disturbing Activity.

b. Act - means the North Carolina Sedimentation Pollution Control Act of 1973 and all rules and orders adopted pursuant to it.

c. Adequate Erosion Control Measures, Structures, or Devices - means ones that control the soil material within the land area under responsible control of the Person conducting the Land-disturbing Activity.

d. Affiliate - means a Person that directly, or indirectly through one or more intermediaries, controls, is controlled by, or is under common control of another Person.

e. Being Conducted - means a Land-disturbing Activity has been initiated and permanent stabilization of the site has not been completed.

f. Borrow - means fill material that is required for on-site construction and is obtained from other locations.

g. Certificate of Occupancy - means the document required by the North Carolina State Building Code certifying that a new building shall not be occupied or a change made in occupancy, nature or use of a building until after all required building and services systems have been inspected for compliance with the technical codes and other applicable laws and ordinances and released by the Code Enforcement Department.

h. Code Enforcement Department - means the City Engineering and Property Management Department Land Development Division.

i. City Engineer - means the City Engineer or the director's duly authorized representatives.

j. Commission - means the North Carolina Sedimentation Control Commission.

k. Committee - means The Charlotte-Mecklenburg Storm Water Advisory Committee as established by the joint resolution of the Charlotte City Council and the Mecklenburg County Board of Commissioners, together with any amendments thereto.

l. Completion of Construction or Development - means that no further Land-disturbing Activity is required on a phase of a project except that which is necessary for establishing a permanent Ground Cover.

m. Competent Person - means a person that has obtained and maintains in good standing an approved certification that is recognized by the City Engineer.

n. Contractor Conducting the Land-disturbing Activity - means any person who participates in the Land-disturbing Activity, including, but not limited to, the general contractor and sub-contractors with the responsibility for supervising the work on the Tract for the

changing of the natural cover or topography of the Tract, or any part thereof.

o. Days - means calendar days unless otherwise specified.

p. Department - means the North Carolina Department of Environment and Natural Resources.

q. Director - means the Director of the Division of Land Resources of the Department of Environment and Natural Resources.

r. Discharge Point - means that point at which concentrated flow runoff leaves a Tract of land.

s. Energy Dissipater - means a structure or a shaped channel section with mechanical armoring placed at the outlet of pipes or conduits to receive and break down the energy from high Velocity flow.

t. Erosion - means the wearing away of land surface by the action of wind, water, gravity, or any combination thereof.

u. Forest Practice Guidelines - means the written directions related to water quality prepared by the Department's Division of Forest Resources and the United States Forest Service, including but not limited to the "Forestry Best Management Practices Manual" prepared by the Department.

v. Ground Cover - means any vegetative growth or other material that renders the soil surface stable against Accelerated Erosion.

w. Lake or Watercourse - means any stream, river, brook, swamp, sound, bay, creek, run, branch, canal, waterway, estuary, and any reservoir, lake or pond, natural or impounded, in which Sediment may be moved or carried in suspension, and which could be damaged by accumulation of Sediment.

x. Land-disturbing Activity - means any use of the land by any Person in residential, governmental, industrial, educational, institutional, or commercial development, highway and road construction and maintenance that results in a change in the Ground Cover or topography and that may cause or contribute to Sedimentation.

y. Local Government - means any county, incorporated village, town, or city, or any combination of counties, incorporated villages, towns, and

cities, acting through a joint program pursuant to the provisions of the Act.

z. Natural Erosion - means the wearing away of the earth's surface by water, wind, or other natural agents under natural environmental conditions undisturbed by man.

aa. Parent - means an Affiliate that directly, or indirectly through one or more intermediaries, controls another Person.

bb. Performance Reservation - means the subjective evaluation that proposed measures may or may not be adequate to meet the design standard.

cc. Permit – means the "Permit to Conduct Land-disturbing Activities" (grading permit) issued by the City Engineer after a Plan is approved.

dd. Person(s) - means any individual, partnership, firm, association, joint venture, public or private corporation, trust, estate, commission, board, public or private institution, utility, cooperative, interstate body, or other legal entity.

ee. Person Responsible for the Violation - as used in this Ordinance means:

1. The developer or other Person who has or holds himself out as having financial or operational control over the Land-disturbing Activity;

2. The landowner or Person in possession or control of the land who has directly or indirectly allowed the Land-disturbing Activity or has benefited from it or has failed to comply with any provision of this Ordinance, the Act, or any order adopted pursuant to this Ordinance or the Act; and/or

3. The contractor with control over the Tract or the Contractor Conducting the Land-disturbing Activity.

ff. Phase of Grading - means one of two types of grading, rough or fine.

gg. Plan(s) - means an erosion and Sedimentation control plan.

hh. Sediment - means solid particulate matter, both mineral and organic, that has been or is being transported by water, air, gravity, or ice from its site of origin.

ii. Sedimentation - means the process by which Sediment resulting from Accelerated Erosion has been or is being transported off the site of the Land-disturbing Activity or into a Wetland, Lake or Watercourse.

jj. Storm Drainage Facilities - means the system of inlets, conduits, channels, ditches and appurtenances that serve to collect and convey storm water through and from a given drainage area.

kk. Storm Water Runoff - means the direct runoff of water resulting from precipitation in any form.

ll. Subsidiary - means an Affiliate that is directly, or indirectly through one or more intermediaries, controlled by another Person.

mm. Ten-Year Storm - means a rainfall of an intensity expected to be equaled or exceeded, on the average, once in ten years, and of a duration that will produce the maximum peak rate of runoff, for the watershed of interest under average antecedent wetness conditions.

nn. Tract - means all land and bodies of water being disturbed, developed or to be disturbed or developed as a unit, regardless of ownership.

oo. Twenty-five Year Storm - means a rainfall of an intensity expected to be equaled or exceeded, on the average, once in 25 years, and of a duration that will produce the maximum peak rate of runoff, from the watershed of interest under average antecedent wetness conditions.

pp. Uncovered - means the removal of Ground Cover from, on, or above the soil surface.

qq. Undertaken - means the initiating of any activity, or phase of activity, which results or will result in a change in the Ground Cover or topography of a Tract of land.

rr. Velocity - means the average velocity of flow through the cross section of the main channel at the peak flow of the design storm. The cross section of the main channel shall be that area defined by the geometry of the channel plus the area of flow below the flood height defined by vertical lines at the main channel banks. Overload flows are not to be included for the purpose of computing velocity of flow.

ss. Waste - means surplus materials resulting from on-site construction and disposed of at other locations.

tt. Watershed - means any water supply watershed protection area regulated with various controls within the jurisdictional boundaries of Mecklenburg County.

uu. Wetland(s) - means land having the vegetative, soil and hydrologic characteristics to be regulated by Section 401 and 404 of the Federal Clean Water Act as defined by the United States Army Corp of Engineers.

vv. Working Days - means days exclusive of Saturday, and Sunday and City government holidays during which weather conditions or soil conditions permit Land-disturbing Activity to be Undertaken.

(Code 1985, § 18-23)

Cross reference: Definitions generally, § 1-2.

Sec. 17-4. Scope and Exclusions

This chapter shall regulate land disturbing activity within the city and unincorporated areas of the county, the city's extraterritorial jurisdiction (ETJ) and sphere.

This Ordinance shall not apply to the following Land-disturbing Activities:

a. Activities including the breeding and grazing of livestock, Undertaken on agricultural land for the production of plants and animals useful to man, including, but not limited to:
   1. Forages and sod crops, grains and feed crops, tobacco, cotton, and peanuts.
   2. Dairy animals and dairy products.
   3. Poultry and poultry products.
   4. Livestock, including beef cattle, sheep, swine, horses, ponies, mules and goats.
   5. Bees and apiary products.
   6. Fur producing animals.

b. Activities Undertaken on forest land for the production and harvesting of timber and timber products and conducted in accordance with best management practices set out in Forest Practice Guidelines.

c. Activities for which a Permit is required under the Mining Act of 1971, Article 7 of Chapter 74 of the General Statutes.

d. For the duration of an emergency, activities essential to protect human life.

e. Land-disturbing Activity over which the State has exclusive regulatory jurisdiction as provided in G.S. 113A-56(a).

Sec. 17-5. Forest Practice Guidelines

a. The City Council adopts by reference the Forest Practice Guidelines.

b. If Land-disturbing Activity Undertaken on forest land for the production and harvesting of timber and timber products is not conducted in accordance with Forest Practice Guidelines, the provisions of this Ordinance shall apply to such activity and any related Land-disturbing Activity on the Tract.

Secs. 17-6 - 17-30. Reserved.

ARTICLE II. EROSION CONTROL REQUIREMENTS

Sec. 17-31. General Requirements

a. Erosion and Sedimentation Control Measures - All Land-disturbing Activities, including those that disturb less than an acre, shall provide Adequate Erosion Control Measures, Structures, or Devices in accordance with this Ordinance.

b. Plan Required - No Person shall initiate, direct, allow or conduct any Land-disturbing Activity on a Tract that meets any of the following criteria without having a copy of an approved Erosion and Sedimentation Control Plan on the job site, or a Plan approved by the City Engineer with performance reservations on the job site.

1. uncovers one acre or more,

2. in Borrow and Waste areas covered by Section 17-34(f), , with a disturbed area greater than one acre.

c. Compliance - Persons who submit a Plan to the City Engineer shall comply with the provisions of Sections 17-35 and 17-36 of this Ordinance.

d. Protection of Property - Persons conducting Land-disturbing Activity shall take all reasonable measures to protect all public and private property from damage caused by such activity and associated Sedimentation.

e. More Restrictive Rules Shall Apply - Whenever conflicts exist between federal, state or local laws, ordinances, or rules, the more restrictive provision shall apply.

(Code 1985, § 18-26)

Sec. 17-32. Basic Control Objectives

A Plan may be disapproved pursuant to Section 17-35 of this Ordinance if the Plan fails to include Adequate Erosion Control Measures, Structures, or Devices to address the
following control objectives:

a. Identify Critical Areas - On-site areas that are subject to severe Erosion and off-site areas that are especially vulnerable to damage from Erosion and/or Sedimentation are to be identified and receive special attention.

b. Limit Time of Exposure - All Land-disturbing Activity is to be planned and conducted to limit exposure to the shortest feasible time.

c. Limit Exposed Areas - All Land-disturbing Activity is to be planned and conducted to minimize the size of the area to be exposed at any one time.

d. Control Surface Water - Surface water runoff originating upgrade of exposed areas should be controlled to reduce Erosion and Sediment loss during the period of exposure.

e. Control Sedimentation - All Land-disturbing Activity is to be planned and conducted so as to prevent Sedimentation damage.

f. Manage Storm Water Runoff - When the increase in the Velocity of Storm Water Runoff resulting from a Land-disturbing Activity is sufficient to cause Accelerated Erosion of the receiving watercourse, Plans are to include measures to control the Velocity at the Discharge Point so as to minimize Accelerated Erosion of the site and to decrease Sedimentation to any Lake or Watercourse.

Section 17-33. Mandatory Standards for Land-disturbing Activity

No Land-disturbing Activity subject to the control of this Ordinance shall be undertaken except in accordance with the following mandatory standards:

a. Lake, Watercourse and Wetland Protection - Additional erosion control measures structures, or devices as specified in the "Policies and Procedures" statement issued by the City Engineer shall be required to provide a higher level of protection to Lakes, Watercourses, and Wetlands from Sedimentation.

b. Graded Slopes and Fills - The angle for graded slopes and fills shall be no greater than the angle which can retain vegetative cover or other Adequate Erosion Control Measures, Structures, or Devices. Permanent or temporary stabilization sufficient to restrain erosion is to be provided with 21 calendar days after completion of any Phase of Grading.

c. Ground Cover - The Person conducting the Land-disturbing Activity shall plant or otherwise provide a permanent Ground Cover sufficient to restrain Erosion after Completion of Construction or Development.

Provisions for a permanent Ground Cover sufficient to restrain Erosion must be accomplished within 21 calendar days day's following completion of construction or development for an area of a site that is inactive for a period of 21 calendar days or longer, temporary ground cover would be required.

d. Prior Plan Approval - No Person shall initiate any Land-disturbing Activity on a tract if one acre or more is to be disturbed unless a plan for that activity has been submitted and approved in accordance with Section 17-35(b) .

e. Pre-construction Conference - If one acre or more is to be Uncovered, the Person(s) conducting Land-disturbing Activity or an agent of that party shall contact the City Engineer at least 48 hours before commencement of the Land-disturbing Activity. The purpose is to arrange an on-site meeting with the City Engineer or duly authorized representative to review and discuss the approved Plan and the proposed Land-disturbing Activity.

f. Monitoring - The Person(s) conducting Land-disturbing Activity or an agent of that party shall inspect 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 or more frequently if required by State or Federal Law. The person performing this monitoring shall have certification approved by the City Engineer.

1. If one acre or more is to be disturbed, a record of inspections shall be kept by the Person conducting the Land-disturbing Activity or an agent until six months after construction is completed and approved by the City Engineer. The record shall include the date and time of inspection, weather conditions, any repairs or maintenance needed, and the signature and certification number of the person who performed the inspection. Additional record keeping may be required by State or Federal Law and as stated on the approved plans.

2. Corrective action on the repairs and maintenance indicated on the record is initiated within 24 hours after a rain event or within 24 hours of the last inspection if a rain event did not prompt the inspection, unless additional time is allowed by the City Engineer. The date of the completion of such repairs noted. The records of inspection shall be made available to the City Engineer upon request.

3. Persons that have had a Notice of Violation or repeated warning about off-site sedimentation or non-maintenance of Adequate Erosion Control Measures, Structures, or Devices may be required to provide the City Engineer with a self-inspection record for the particular Tract.

Section 17-34. Design and Performance Standards

a. Design Storm - Adequate Erosion Control Measures, Structures, and Devices shall be planned, designed, constructed and maintained so as to provide protection from the calculated maximum peak of runoff from the Ten-year Storm. Runoff rates shall be calculated using the procedures in the USDA, Natural Resource Conservation Services (formerly Soil Conservation Service's) "National Engineering Field Manual for Conservation Practices," or other acceptable calculation procedures including but not limited to the Charlotte-Mecklenburg Storm Water Design Manual.

b. Innovative Measures - Erosion and Sedimentation measures applied alone or in combination to satisfy the intent of this section are acceptable if they are sufficient to prevent adverse secondary consequences. Innovative techniques and ideas will be considered and may be used following approval by the City Engineer if it can be demonstrated that such techniques and ideas are likely to produce successful results.

c. Responsibility for Maintenance - During the development of a site, the Person conducting the Land-disturbing Activity shall install and maintain all temporary and permanent Erosion and Sedimentation control measures as required by the approved Plan or any provision of this Ordinance, the Act, or any order adopted pursuant to this Ordinance or the Act. After development, the landowner or Person in possession or control of the land shall install and maintain all necessary permanent Erosion and Sediment control measures.

d. Additional Measures - Whenever the City Engineer, determines that Erosion and Sedimentation will likely continue, despite installation and maintenance of protective practices, the Person conducting the Land-disturbing Activity will be required to take additional protective action.

e. Storm Drainage Facilities Protection - Persons shall design the Plan and conduct Land-disturbing Activity so that the post construction Velocity of the 10-year storm does not exceed the maximum non-erosive Velocity tolerated by the soil of the receiving watercourse or the soil of the receiving land.

f. Borrow and Waste Areas - When the Person conducting the Land-disturbing Activity is also the Person conducting the Borrow or Waste disposal activity, the following areas are considered as part of the Land-disturbing Activity.

1. Areas from which Borrow is obtained that are not regulated by the provisions of the Mining Act of 1971 and its subsequent amendments, or

2. Waste areas for surplus materials other than landfills regulated by the Department's Division of Solid Waste Management.

When the Person conducting the Land-disturbing Activity is not the Person conducting the Borrow or Waste disposal activity, the activity shall be considered a separate Land-disturbing Activity.

The responsible Person conducting the Borrow or Waste Areas shall provide Adequate Erosion Control Measures, Structures, or Devices and comply with all provisions of this Ordinance.

g. Access and Haul Roads - Temporary access and haul roads, other than public roads, constructed or used in connection with any Land-disturbing Activity shall be considered a part of such activity.

h. Operations in Lakes or Watercourses - Land-disturbing Activity in connection with construction in, on, over, or under a Lake or Watercourse shall be planned and conducted in such a manner as to minimize the extent and duration of disturbance of the Lake or Watercourse. The relocation of a stream, where relocation is an essential part of the proposed activity, shall be planned and executed so as to minimize changes in the stream flow characteristics, except when justification for significant alteration to flow characteristic is provided.

Sec. 17-35 . Erosion and Sedimentation Control Plans

a. Plan Requirements – All Plans required for Land- disturbing Activities as identified in Section 17-31(b) of this Ordinance shall meet the following requirements:

1. Plans shall contain architectural and engineering drawings, maps, assumptions, calculations, and narrative statements as needed to adequately describe the proposed development of the Tract and the measures planned to comply with the requirements of this Ordinance. Plan content may vary to meet the needs of specific

site requirements. Detailed guidelines for Plan preparation may be obtained from the City Engineer on request.

2. Plans must contain an authorized statement of financial responsibility and ownership signed by the Person financially responsible for the Land-disturbing Activity or that Person's attorney in fact. The statement shall include the mailing and street addresses of the principal place of business of the Person financially responsible and of the owner of the land or their registered agents. If the Person financially responsible is not a resident of North Carolina, a North Carolina agent must be designated in the statement for the purpose of receiving service of process and notice of compliance or non-compliance with the Plan, the Act, this Ordinance, or rules or orders adopted or issued pursuant to this Ordinance.

3. If the applicant is not the owner of the land to be disturbed, the draft erosion and sedimentation control plan must include the owner's written consent for the applicant to submit a draft erosion and sedimentation control plan and to conduct the anticipated Land Disturbing Activity.

4. The Land-disturbing Activity described in the Plan shall comply with all Federal, State, and Local water quality laws, rules and regulations, including, but not limited to, the Federal Clean Water Act. The City Engineer may require supporting documentation.

5. The Land-disturbing Activity described in the Plan shall not result in a violation of rules adopted by the Environmental Management Commission to protect riparian buffers along surface waters.

6. The Land-disturbing Activity described in the Plan shall not result in a violation of any local Ordinance, law, rule or regulation, including but not limited to zoning, tree protection, stream, lake and watershed buffers, and flood plain regulations.

7. If the Plan is submitted for Land-disturbing Activity for which an environmental document is required by the North Carolina Environmental Policy Act (G.S. 113A-1, et. seq.), such as required on Tracts involving public money or public land, a complete environmental document must be presented for review. The City Engineer's time for reviewing the Plan will not

commence until a complete environmental document is available for review.

8. Copies of the Plan shall be filed with the City Engineer. A copy of the approved Plan shall be maintained on the job site.

9. Effort should be made not to uncover more than 20 acres at any one time. If more than 20 acres are to be uncovered at any one time, the Plan shall contain the following:
   (a.) The method of limiting time of exposure and amount of exposed area to achieve the objectives of this Ordinance.
   (b.) A cut/fill analysis that shows where soil will be moved from one area of the Tract to another as ground elevation is changed.
   (c.) Construction sequence and construction phasing to justify the time and amount of exposure.
   (d.) Techniques to be used to prevent Sedimentation associated with larger disturbed areas.
   (e.) Additional erosion control measures, structures, and devices to prevent Sedimentation.

b. Plan Review Process - The city engineer will review each complete plan submitted and within 30 days of receipt thereof will notify the person submitting the plan, referred to as "the applicant," that it has been approved, approved with modifications, approved with performance reservations, or disapproved. Should the plan be filed and not reviewed within the specified timeframe, the land disturbing activity may commence subject to section 17-33(e) and subsection (a)(5) of this section, and the city engineer will endeavor to review the plan on an expedited schedule. If the plan is disapproved, the city engineer shall notify the applicant and, if required, the director of such disapproval within ten days thereof. The city engineer shall advise the applicant and the director in writing as to the specific reasons that the plan was disapproved. The applicant shall have the right to appeal the city engineer's decision as provided in section 17-70 of this chapter.

Plans for which Land-disturbing Activity has not commenced within 3 years from the initial plan approval are void.

c. Amendments to Plans - If the City Engineer, either upon review of such Plan or upon inspection of the job site, determines that the Plan is inadequate to meet the requirements of this Ordinance or that a significant risk of Accelerated Erosion or off-site Sedimentation exists,

then the City Engineer may require a revised Plan. Pending the preparation of the revised Plan, work on affected area may cease or may continue only under conditions outlined by the City Engineer.

Amendments or revisions to a Plan must be made in written and/or graphic form and may be submitted at any time under the same requirements for submission of original Plans. Until such time as the City Engineer approves any amendments or revisions, the Land-disturbing Activity shall not proceed, except in accordance with the Plan as originally approved.

The City Engineer must approve, approve with modifications, approve with performance reservations, or deny a revised Plan within 30 Days of receipt, or it is deemed to be approved as submitted, unless such approval conflicts with other federal, state or local regulations.

d. Grounds for Disapproval of Plans - Any Plan that is not in accordance with the requirements set forth in subsection (a) above shall be disapproved. In addition, a Plan may be disapproved upon a finding that the financially responsible Person, or any Parent or Subsidiary thereof:

1. Is conducting or has conducted Land-disturbing Activity without an approved Plan, or has received notice of violation of is not in compliance with the provisions of the notice;

2. Has failed to pay a civil penalty assessed pursuant to the Act, or a local ordinance adopted pursuant to the Act, by the time the payment is due;

3. Has been convicted of a misdemeanor pursuant to G.S. 113A-64(b) or any criminal provision of a local ordinance adopted pursuant to the Act; or

4. Has failed to substantially comply with State rules or local ordinances and regulations adopted pursuant to the Act.

e. Violations - Any Person engaged in Land-disturbing Activity who fails to file a required Plan in accordance with this Ordinance shall be deemed in willful violation of this Ordinance. Any Person who conducts a Land-disturbing Activity except in accordance with provisions of an approved Plan shall be deemed in violation of this Ordinance.
(Code 1985, § 18-30)

Sec. 17-36 Permits

No Person shall undertake any Land-disturbing Activity subject to this Ordinance without first obtaining a Permit from the City Engineer. The only exception to this requirement is a Land-disturbing Activity that:

a. has been pre-approved by the City Engineer at a pre-construction conference,

b. is for the purpose of fighting fires,

c. is for the stock piling of raw or processed sand, stone, or gravel in material processing plants and storage yards, provided that Sediment control measures are utilized to protect against off-site damage, or

d. does not exceed one (1) acre of disturbed area. In determining the size of the disturbed area, lands being developed as a unit will be aggregated regardless of ownership. Although a Plan and a Permit may not be required for activity comprising less than one acre, such activity is subject to all other requirements of this Ordinance.
(Code 1985, § 18-31)

Secs. 17-37-17-65. Reserved.

ARTICLE III. ADMINISTRATION, ENFORCEMENT AND APPEALS*

***Cross references:** Administration, ch. 2.

Sec. 17-66. Inspections and Investigations

a. The City Engineer is authorized to inspect the sites of Land-disturbing Activity to determine compliance with the Act, this Ordinance, or rules or orders adopted or issued pursuant to this Ordinance, and to determine whether the activity is being Conducted in accordance with the Ordinance and the approved Plan and whether the measures required in the Plan are effective in controlling Erosion and Sediment resulting from Land-disturbing Activity. Notice of the right to inspect shall be included in the notification of each Plan approval or issuance of the Permit.

b. No Person shall willfully resist, delay, or obstruct the City Engineer while the City Engineer is inspecting or attempting to inspect a Land-disturbing Activity under this Ordinance.

c. If, through inspection, it is determined that a Person engaged in Land-disturbing Activity has failed to comply with the Act, this Ordinance, or rules, or orders adopted or issued pursuant to this Ordinance, or has

failed to comply with an approved Plan, the City Engineer will serve upon the landowner, the landowner's agent, or other Person in possession or control of the land a written notice of violation. The notice may be served by any means authorized under G.S. 1A-1, Rule 4, or other means reasonably calculated to give actual notice. A notice of violation shall identify the nature of the violation and set forth the measures necessary to achieve compliance with the Ordinance. The notice shall, if required, specify a date by which the Person must comply with this Ordinance, and advise that the Person is subject to civil penalty or that failure to correct the violation within the time specified will subject that Person to the civil penalties including those provided in Section 17-67 of this Ordinance or any other authorized enforcement action. The notice of violation need not be given for those violations identified in subsection (f) below.

d. In determining the measures required and the time for achieving compliance, the City Engineer shall take into consideration the technology and quantity of work required, and shall set reasonable and attainable time limits.

e. The City Engineer shall use local rainfall data approved by the City Engineer to determine whether the design storm identified in17-34(a) .a has been exceeded.

f. Penalties may be assessed concurrently with a notice of violation for any of the following:

1. Failure to submit a Plan.

2. Performing Land-disturbing Activities without an approved Plan and pre-construction conference, or Permit.

3. Obstructing, hampering or interfering with an authorized representative who is in the process of carrying out official duties.

4. A repeated violation for which a notice was previously given on the same Tract or to the Person Responsible for the Violation.

5. Willful violation of this Ordinance.

6. Failure to install or maintain Adequate Erosion Control Measures, Structures, or Devices per the approved Plan and additional measures per Section 17-34(d) such that it results in

Sedimentation in a Wetland, Lake or Watercourse, or other designated protected areas.

7. Failure to install or maintain Adequate Erosion Control Measures, Structures, or Devices per the approved Plan and additional measures per Section 17-34(d) such that it results in off-site Sedimentation.

g. The City Engineer shall have the power to conduct such investigation as it may reasonably deem necessary to carry out its duties as prescribed in this Ordinance, and for this purpose to enter at reasonable times upon any property, public or private, for the purpose of investigating and inspecting the sites of any Land-disturbing Activity. No Person shall refuse entry or access to the City Engineer who requests entry for purpose of inspection or investigation, and who presents appropriate credentials, nor shall any Person obstruct, hamper, or interfere with the City Engineer while in the process of carrying out official duties.

h. The City Engineer shall also have the power to require written statements, or the filing of reports under oath as a part of investigating Land-disturbing Activity.

i. With regard to the development of any Tract that is subject to this Ordinance, the Code Enforcement Department shall not issue a Certificate of Occupancy where any of the following conditions exist:

1. There is a violation of this Ordinance with respect to the Tract.

2. If there remains due and payable to The City of Charlotte civil penalties that have been levied against the Person conducting the Land-disturbing Activity for violation(s) of this Ordinance. If a penalty is under appeal, the City Engineer may require the amount of the fine, and any other amount that the Person would be required to pay under this Ordinance if the Person loses the appeal, be placed in a refundable account or surety prior to issuing the Certificate of Occupancy.

3. The requirements of the Plan have not been completed and the building for which a Certificate of Occupancy is requested is the only building then under construction on the Tract.

4. On the Tract which includes multiple buildings on a single parcel, the requirements of the Plan have not been completed and the building for which a Certificate of Occupancy is requested is the last building then under construction on the Tract.

5. On a Tract which includes multiple parcels created pursuant to the applicable subdivision regulations, the requirements of the Plan have not been completed with respect to the parcel for which the Certificate of Occupancy is requested.
(Code 1985, § 18-32)

Sec. 17-67. Penalties

a. Any Person who violates any of the provisions of this Ordinance, or rules or orders adopted or issued pursuant to this Ordinance, or who initiates or continues a Land-disturbing Activity for which a Plan is required except in accordance with the terms, conditions, and provisions of an approved Plan, is subject to a civil penalty. A civil penalty may be assessed from the date the violation first occurs. No penalty shall be assessed until the Person alleged to be in violation has been notified of the violation except as provided in Section 17-66(f) of this Ordinance. Refusal to accept the notice or failure to notify the City Engineer of a change of address shall not relieve the violator's obligation to comply with the Ordinance or to pay such a penalty.

b. The maximum civil penalty for each violation of this Ordinance is $5,000.00. Each day of continuing violation shall constitute a separate violation.

c. The amount of the civil penalty shall be assessed pursuant to the following:

1. <u>Violations involving conducting a Land-disturbing Activity without an approved Plan</u> - Any Person(s) engaged in a Land-disturbing Activity without a required approved Plan and pre-construction conference, or Permit in accordance with this Ordinance, or who initiates, directs or allows a Land-disturbing Activity without a required, approved Plan and pre-construction conference, or Permit shall be subject to a civil penalty of $5,000.00 per day, per violation. The penalty may be decreased based on mitigating circumstances.

2. <u>Violations resulting in Sediment entering a Wetland, Lake or Watercourse</u> Violations resulting in Sediment entering a Wetland, Lake or Watercourse subjects the violator to a civil penalty of $3,000.00 per day, per violation. The penalty may be increased up to $5,000.00 per day or decreased.

3. Violations resulting in off-site Sedimentation - Violations of this Ordinance that result in off-site Sedimentation subject the violator to a civil penalty of $1,000.00 per day, per violation. The penalty may be increased up to $5,000.00 per day or decreased. Violations of this type may include, but are not limited to, the following:

   (a.) Conducting Land-disturbing Activities beyond the limits of an existing Permit without approval of an amended Plan and Permit that results in off-site Sedimentation.

   (b.) Failure to properly install or maintain Erosion control measures in accordance with the approved Plan or the Charlotte Land Development Standards Manual that results in off-site Sedimentation.

   (c.) Failure to retain Sediment from leaving a Land-disturbing Activity as required by the Ordinance.

   (d.) Failure to restore off-site areas affected by Sedimentation during the time limitation established in a Notice of Violation and as prescribed in the "Policies and Procedures" statement.

   (e.) Any other violation of this Ordinance that results in off-site Sedimentation.

4. Violations of this Ordinance not resulting in off-site Sedimentation - Violations of this Ordinance that do not result in off-site Sedimentation subject the violator to a civil penalty of $500.00 per day, per violation. The penalty may be increased up to $5000 per day or decreased. Violations of this type may include, but are not limited to, the following:

   (a.) Failure to comply with the Mandatory Standards for Land-Disturbing Activity as specified in Section 17-33 of this Ordinance, except 17-33(d) and 17-33(e).

   (b.) Failure to submit to the City Engineer for approval an acceptable revised Erosion and Sedimentation control Plan after being notified by the City Engineer of the need to do so.

   (c.) Failure to maintain Adequate Erosion Control Measures, Structures, or Devices to confine Sediment.

(d.) Failure to follow the provisions on the approved Plan.

(e.) Any other action or inaction that constitutes a violation of this Ordinance that did not result in off-site Sedimentation.

d. In determining the amount of the civil penalty, the City Engineer shall consider any relevant mitigating and aggravating factors including, but not limited to, the effect, if any, of the violation; the degree and extent of harm caused by the violation; the cost of rectifying the damage; whether the violator saved money through noncompliance; whether the violator took reasonable measures to comply with this Ordinance; whether the violation was committed willfully; whether the violator reported the violation to the City Engineer; and the prior record of the violator in complying or failing to comply with this Ordinance or any other erosion and sedimentation control ordinance or law. The City Engineer is authorized to vary the amount of the per diem penalty set out in subsection (c) to take into account any relevant mitigating factors.

e. Repeat violators may be charged by a multiple of the base penalty determined in Section 17-67(c) of this Ordinance. The penalty for a repeat violator may be doubled for each previous time the Person Responsible for the Violation was notified of a violation of this or any other Soil Erosion and Sediment Control Ordinance or the North Carolina Act. In no case may the penalty exceed the maximum allowed by subsection (b).

f. The City Engineer shall determine the amount of the civil penalty and shall notify the Person who is assessed the civil penalty of the amount of the penalty and the reason for assessing the penalty. The notice of assessment shall be served by any means authorized under G.S. 1A-1, Rule 4 and shall direct the violator to either pay the assessment or contest the assessment as specified in section 17-70. If a violator does not pay a civil penalty assessed by the City Engineer within 30 Days after it is due, or does not request a hearing as provided in section 17-70, the City Engineer shall request the City Attorney to institute a civil action to recover the amount of the assessment. The civil action shall be brought in Mecklenburg County Superior Court or in any other court of competent jurisdiction.

g. A civil action must be filed within three (3) years of the date the assessment was due. An assessment that is not contested is due when the violator is served with a notice of assessment. An assessment that is contested is due at the conclusion of the administrative and judicial review of the assessment.

h. Civil penalties collected pursuant to this Ordinance shall be credited to the City's general fund as non-tax revenue.

i. Any Person who knowingly or willfully violates any provision of this Ordinance or who knowingly or willfully initiates or continues a Land-disturbing Activity for which an Plan is required, except in accordance with the terms, conditions, and provisions of an approved Plan, shall be guilty of a Class 2 misdemeanor and may be subject to a fine not to exceed Five Thousand Dollars ($5,000). This is in addition to any civil penalties that may be charged. Each day of continuing violation shall constitute a separate violation.

j. A violation of the City Soil Erosion and Sedimentation Control Ordinance that is not knowing or not willful shall not constitute a misdemeanor or infraction punishable under North Carolina General Statute 14-4, but instead shall be subject to the civil penalties provided in this Ordinance.
(Code 1985, § 18-33)

Sec. 17-68. Injunctive Relief

a. Whenever the City Engineer has reasonable cause to believe that any Person is violating or threatening to violate this Ordinance or any term, condition, or provision of an approved Plan, the City Engineer may, either before or after the institution of any other action or proceeding authorized by this Ordinance, authorize the City Attorney to institute a civil action in the name of the City of Charlotte, for injunctive relief to restrain the violation or threatened violation. The action shall be brought pursuant to G.S. 153A-123 in Mecklenburg County Superior Court

b. Upon determination by a court that an alleged violation is occurring or is threatened, the court shall enter such orders or judgements as are necessary to abate the violation or to prevent the threatened violation. The institution of an action for injunctive relief under this section shall not relieve any party to such proceedings from any civil or criminal penalty prescribed for violations of this Ordinance.
(Code 1985, § 18-34)

Sec. 17-69. Restoration of Areas Affected by Failure to Comply

The City Engineer may require a Person who engaged in any Land-disturbing Activity and failed to retain Sediment generated by the activity to restore the waters and land affected by the failure so as to minimize the detrimental effects

of the resulting pollution by Sedimentation. This authority is in addition to any other civil penalty or injunctive relief authorized under this Ordinance.
(Code 1985, § 18-35)

Sec. 17-70. Appeals

(a) *Generally*. The storm water advisory committee (SWAC or committee), as established by the city, as shall hear and decide appeals from the requirements of this chapter.

b. Disapproval or Modification of Proposed Plan

1. The disapproval or modification of any proposed Plan by the City Engineer shall entitle the Person submitting the Plan ("Petitioner") to a public hearing before the Storm Water Advisory Committee ("Committee") if such Person submits written demand for a hearing to the Clerk of the Committee ("Clerk") within 30 Days after receipt of written notice of the disapproval or modification. The demand for a hearing filed with the Clerk shall be accompanied by a filing fee as established by the Storm Water Advisory Committee. The Committee may order the refund of all or any part of the filing fee if it rules in favor of the Petitioner. Failure to timely file such demand and fee shall constitute a waiver of any rights to appeal under this Chapter and the Storm Water Advisory Committee shall have no jurisdiction to hear the appeal.

2. Within 5 Days of receiving the demand for a hearing, the Clerk shall notify the Chairman of the Committee ("Chairman") of the demand for hearing. As soon as possible after the receipt of said notice, the Chairman shall set a time and place for the hearing and notify the Petitioner by mail of the date, time and place of the hearing. The time specified for the hearing shall be either at the next regularly scheduled meeting of the Committee from the submission of the notice, or as soon thereafter as practical, or at a special meeting. The hearing shall be conducted by the Committee in accordance with the provisions of Section 17-70(d)of this Ordinance.

3. If the Committee upholds the disapproval or modification of a proposed Plan following the public hearing, the Petitioner shall have 30 Days from the receipt of the decision to appeal the decision to the North Carolina Sedimentation Control Commission pursuant to Title 15, Chapter 4B Section .0018(b) of the North Carolina Administrative Code and G.S. 113A-61(c).

c. Issuance of a Notice of Violation with an Assessment of a Civil Penalty

1. The issuance of a notice of violation with an assessment of a civil penalty by the City Engineer shall entitle the Person responsible for the violation of the Ordinance ("Petitioner") to a public hearing before the Storm Water Advisory Committee ("Committee") if such Person submits written demand for a hearing to the Clerk of the Committee ("Clerk") within 30 Days of the receipt of the notice of violation, assessment of a civil penalty or order of restoration. The demand for a hearing filed with the Clerk shall be accompanied by a filing fee as established by the Storm Water Advisory Committee. The Committee may order the refund of all or any part of the filing fee if it rules in favor of the Petitioner. Failure to timely file such demand and fee shall constitute a waiver of any rights to appeal under this Ordinance and the Storm Water Advisory Committee shall have no jurisdiction to hear the appeal.

2. Within 5 Days of receiving the Petitioner's demand for a hearing, the Clerk shall notify the Chairman of the Committee ("Chairman") of the request for hearing. As soon as possible after the receipt of said notice, the Chairman shall set a time and place for the hearing and notify the Petitioner by mail of the date, time and place of the hearing. The time specified for the hearing shall be either at the next regularly scheduled meeting of the Committee from the submission of the notice, or as soon thereafter as practical, or at a special meeting. The hearing shall be conducted pursuant to the provisions of subsection (c) of this Ordinance.

3. Any party aggrieved by the decision of the Committee with regard to the issuance of a notice of violation, assessment of civil penalties or order of restoration shall have thirty (30) Days from the receipt of the decision of the Committee to file a petition for review in the nature of certiorari in Superior Court with the Clerk of Mecklenburg County Superior Court.

d. Hearing Procedure. The following provisions shall be applicable to any hearing conducted by the Committee pursuant to subsection (a) or (b) above.

1. At the hearing, Petitioner and the City Engineer shall have the right to be present and to be heard, to be represented by counsel,

and to present evidence through witnesses and competent testimony relevant to the issue(s) before the Committee.

2. Rules of evidence shall not apply to a hearing conducted pursuant to this Ordinance and the Committee may give probative effect to competent, substantial and material evidence.

3. At least seven (7) Days before the hearing, the parties shall exchange a list of witnesses intended to be present at the hearing and a copy of any documentary evidence intended to be presented. The parties shall submit a copy of this information to the Clerk. Additional witnesses or documentary evidence may not be presented except upon consent of both parties or upon a majority vote of the Committee.

4. Witnesses shall testify under oath or affirmation to be administered by the Court Reporter or another duly authorized official.

5. The procedure at the hearing shall be such as to permit and secure a full, fair and orderly hearing and to permit all relevant, competent, substantial and material evidence to be received therein. A full record shall be kept of_all evidence taken or offered at such hearing. Both the representative for the City and for the Petitioner shall have the right to cross-examine witnesses.

6. At the conclusion of the hearing, the Committee shall render its decision on the evidence submitted at such hearing and not otherwise.

   (a) If, after considering the evidence presented at the hearing, the Committee concludes by a preponderance of the evidence that the grounds for the City Engineer's actions (including the amount assessed as a civil penalty) with regard to either disapproving or modifying a proposed Plan, issuing a notice of violation, assessing a civil penalty or ordering restoration are true and substantiated, the Committee shall uphold the action on the part of the City Engineer.

   (b) If, after considering the evidence presented at the hearing, the Committee concludes by a preponderance of the evidence that the grounds for the City Engineer's actions (including the amount assessed as a civil penalty) are not true and substantiated, the Committee shall, as it sees fit

either reverse or modify any order, requirement, decision or determination of the City Engineer. The Committee Bylaws will determine the number of concurring votes needed to reverse or modify any order, requirement, decision or determination of the City Engineer. If the Committee finds that the violation has occurred, but that in setting the amount of a penalty the City Engineer has not considered or given appropriate weight to either mitigating or aggravating factors, the Committee shall either decrease or increase the per day civil penalty within the range allowed by this Ordinance.

Any decision of the Committee which modifies the amount of the civil penalty shall include, as part of the findings of fact and conclusions of law, findings as to which mitigating or aggravating factors exist and the appropriate weight that should have been given to such factors by the City Engineer in setting the amount of the civil penalty levied against the Petitioner.

7. The Committee shall keep minutes of its proceedings, showing the vote of each member upon each question and the absence or failure of any member to vote. The decision of the Committee shall be based on findings of fact and conclusions of law to support its decision.

8. The Committee shall send a copy of its findings and decision to the Applicant/Petitioner and the City Engineer. If either party contemplates an appeal to a court of law, the party may request and obtain, at that party's own cost, a transcript of the proceedings.

9. The decision of the Committee shall constitute a final decision.
(Code 1985, § 18-36)

Sec. 17-71. Severability

If any section or sections of this Ordinance is/are held to be invalid or unenforceable, all other sections shall nevertheless continue in full force and effect.
(Code 1985, § 18-39)

Adopted the 27th Day of October 2008

Approved as to Form:

_____ _____
City Attorney Clerk of the Board

Adopted: October 21, 1974

Amended:
March 5, 1979 February 27, 1986 May 10, 1993 May 21, 2002
June 16, 1980 April 21, 1987 February 7, 1995
April 2, 1984 December 7, 1987 June 3, 1997

October 7, 1985 February 4, 1991 September 6, 2000

Appendix D
City of Charlotte Post Construction Controls Ordinance

Article IV. Post-Construction Stormwater

Division 1. General Provisions
Sec. 18-101. Title.
Sec. 18-102. Authority.
Sec. 18-103. Findings.
Sec. 18-104. Purpose.
Sec. 18-105. Applicability and jurisdiction.
Sec. 18-106. Design manual.
Sec. 18-107. Relationship to other laws, regulations and private agreements.
Sec. 18-108. Severability.
Sec. 18-109. Effective date and transitional provisions.
Sec. 18-110. Definitions.
Secs. 18-111—18-120. Reserved.
Division 2. Administration and Procedures
Sec. 18-121. Review and decision making entities.
Sec. 18-122. Stormwater management permit.
Sec. 18-123. As-built plans and final approval.
Sec. 18-124. Appeals and variances.
Secs. 18-125—18-140. Reserved.
Division 3. Standards
Sec. 18-141. General standards.
Sec. 18-142. Watershed districts.
Sec. 18-143. Standards for the Central Catawba district.
Sec. 18-144. Standards for the Western Catawba district.
Sec. 18-145. Standards for the Yadkin-Southeast Catawba district.
Sec. 18-146. Standards for stormwater control measures.
Sec. 18-147. Total phosphorus mitigation.
Sec. 18-148. Deed recordation and indications on plat.
Secs. 18-149—18-160. Reserved.
Division 4. Development and Redevelopment Mitigation
Sec. 18-161. Mitigation payment.
Sec. 18-162. Criteria for mitigation payment.
Secs. 18-163—18-170. Reserved.
Division 5. Natural Area
Sec. 18-171. Purpose.
Sec. 18-172. General description.
Sec. 18-173. Natural area criteria.
Sec. 18-174. Natural area designation.
Sec. 18-175. Natural area mitigation.
Secs. 18-176—18-190. Reserved.
Division 6. Maintenance
Sec. 18-191. Dedication of BMPs, facilities and improvements.
Sec. 18-192. Operation and maintenance agreement.
Sec. 18-193. Inspection program.
Sec. 18-194. Performance security for installation and maintenance.
Sec. 18-195. Records of installation and maintenance activities.
Sec. 18-196. Maintenance easement.
Secs. 18-197—18-210. Reserved.
Division 7. Violations and Enforcement
Sec. 18-211. Enforcement—Inspections and investigations.
Sec. 18-212. Violations and enforcement.
Sec. 18-213. Remedies and penalties.

Secs. 18-89—18-100. Reserved.

ARTICLE IV. POST-CONSTRUCTION STORMWATER

DIVISION 1. GENERAL PROVISIONS

Sec. 18-101. Title.

This article shall be officially known as the"Post-Construction Stormwater Ordinance." It is referred to herein as "this ordinance," "these regulations," [or "this article."]

Sec. 18-102. Authority.

The City of Charlotte and City of Charlotte Extra Jurisdictional Territory, referred to herein as "city," is authorized to adopt this article pursuant to state law, including but not limited to Article 14, Section 5 of the Constitution of North Carolina; G.S. 143-214.7 and rules promulgated by the Environmental Management Commission thereunder; Session Law 2006-246 (Senate Bill 1566), G.S. 160A-174, 160A-185, 160A-372 and 160A-459.

Sec. 18-103. Findings.

It is hereby determined that:

(1) Development and redevelopment alter the hydrologic response of local watersheds and increase stormwater runoff rates and volumes, flooding, soil erosion, stream channel erosion, non-point source pollution, and sediment transport and deposition, as well as reduce groundwater re-
charge;

(2) These changes in stormwater runoff contribute to increased quantities of waterborne pollutants and alterations in hydrology which are harmful to public health and safety as well as to the natural environment; and

(3) These effects can be managed and minimized by applying proper design and well planned controls to manage stormwater runoff from development and redevelopment.

Further, the Federal Water Pollution Control Act of 1972 ("Clean Water Act") and federal phase II stormwater rules promulgated under it, as well as rules of the state environmental management commission promulgated in response to federal
phase II requirements, compel certain urbanized areas, including this jurisdiction, to adopt the minimum stormwater controls such as those included in this article.

Therefore, these water quality and quantity regulations are adopted to meet the requirements of state and federal law regarding control of stormwater runoff and discharge.

Sec. 18-104. Purpose.

(a) *General.* The purpose of this article is to protect, maintain and enhance the public health, safety, environment and general welfare by establishing minimum requirements and procedures to control the adverse effects of increased post-construction stormwater runoff and non-point source pollution associated with development and redevelopment. It has been determined that proper management of construction-related and post-construction stormwater runoff will minimize damage to public and private property and infrastructure, safeguard the public health, safety, and general welfare, and protect water and aquatic resources.

(b) *Specific.* This article seeks to meet its general purpose through the following specific objectives and means:

(1) Establishing decision-making processes for
development and redevelopment that protect the integrity of watersheds and preserve the health of water resources;

(2) Minimizing changes to the pre-development hydrologic response for development and redevelopment in their post-construction state in accordance with the requirements of this article for the applicable design storm in order to reduce
flooding, streambank erosion, and non-point and point source pollution, as well as to maintain the integrity of stream channels, aquatic habitats and healthy stream temperatures;

(3) Establishing minimum post-construction stormwater management standards and design criteria for the regulation and control of stormwater runoff quantity and quality;

(4) Establishing design and review criteria for the construction, function, and use of structural stormwater control facilities that may be used to meet the minimum post-construction stormwater management standards;

(5) Establishing criteria for the use of better management and site design practices, such as the preservation of green space and other conservation areas;
(6) Establishing provisions for the long-term responsibility for and maintenance of structural and nonstructural stormwater best management practices (BMPs) to ensure that they continue to function as designed, are maintained appropriately, and pose minimum risk to public safety; and
(7) Establishing administrative procedures for the submission, review, approval and disapproval of stormwater management plans, for the inspection of approved projects, and to assure appropriate long-term maintenance.

Sec. 18-105. Applicability and jurisdiction.

(a) *General.* The requirements of this article shall apply to all development and redevelopment within the corporate limits of this city and its extraterritorial jurisdiction, unless one of the following exemptions applies as of July 1, 2008:
(1) Residential development and redevelopment, preliminary subdivision plan application or in the case of minor subdivisions, construction plan for required improvements, submitted and accepted
for review;
(2) For nonresidential development and redevelopment, preliminary subdivision plan
application submitted and accepted for review, provided that subdivision-wide water quality and quantity features required at the time of submittal are contained within the submittal and provided the
plan is subsequently approved and all necessary easements are properly established;
(3) Zoning use application submitted and accepted for review for uses that do not require a building permit;
(4) Certificate of building code compliance issued by the proper governmental authority;
(5) Valid building permit issued pursuant to G.S. 153A-344 or G.S. 160A-385(b)(i), so long as the permit remains valid, unexpired, and unrevoked;
(6) Common law vested right established (e.g., the substantial expenditure of resources (time, labor, money) based on a good faith reliance upon having received a valid governmental approval to proceed with a project); and/or
(7) A conditional zoning district (including those districts which previously were described variously as conditional district, conditional use district, parallel conditional district and parallel conditional use district) approved prior to the effective date of this article/ordinance, provided formal plan submission has been made and accepted for review either prior to five years from July 1, 2008 in the case of conditional zoning districts approved on
or after November 15, 1999, or prior to two years from July 1, 2008 in the case of conditional zoning districts approved prior to November 15, 1999, and provided such plans encompass either a minimum of 22.5 percent of the area of the project, or any phase of a project so long as such phase is part of a project that includes project-wide water quality requirements to achieve 85 percent TSS removal from developed areas. If no such formal plan submission occurs within the above-described five- or two-year time frames, the requirements of this article shall be applied to the project, except for total phosphorus removal, natural area and buffer
requirements not in effect at the time of the approval of the conditional zoning district, all of which do not apply. Any changes to a conditional zoning district necessary to comply with the requirements of this article shall be made through
administrative amendment and not through a rezoning.
(b) *Exemptions.* The requirements of this article shall not apply within the corporate limits or in the extraterritorial jurisdiction with respect to the following types of development or redevelopment activities:
(1) Residential development and redevelopment that cumulatively disturbs less than one acre and cumulatively creates less than 24 percent built upon area based on lot size or the lot is less than 20,000 square feet (lot must have been described
by metes and bounds in a recorded deed prior to July 1, 2008 and cannot be part of a larger development or redevelopment);
(2) Commercial and industrial development and redevelopment that cumulatively disturbs less than one acre and cumulatively creates less than 20,000 square feet of built upon area (built upon area includes gravel and other partially impervious materials);
(3) Redevelopment that disturbs less than 20,000 square feet, does not decrease existing stormwater controls and renovation and/or construction costs (excluding trade fixtures) do not exceed 100 percent of the tax value of the property; and

(4) Activities exempt from permit requirements of section 404 of the federal Clean Water Act, as specified in 40 CFR 232 (primarily, ongoing farming and forestry activities).

(c) *No development or redevelopment until compliance and permit.* No development or redevelopment shall occur except in compliance with the provisions of this article or unless exempted. No development or redevelopment for which a stormwater management permit, here after referred to as permit, is required pursuant to this article shall occur except in compliance with the provisions, conditions, and limitations of said permit.

(d) *Map*. The provisions of this article shall apply within the areas designated on the map titled "Post-Construction Ordinance Map of the City" (hereafter referred to as the "post-construction ordinance map"), which is adopted simultaneously herewith. The post-construction ordinance map and all explanatory matter contained thereon accompany and are hereby made a part of this article. The post-construction ordinance map shall be kept on file by the stormwater administrator or designee (hereinafter referred to as the "stormwater administrator") and shall be updated to take into account changes in the land area covered by this article and the geographic location of all structural BMPs permitted under this article. In the event of a dispute, the applicability of this article to a particular area of land or BMP shall be determined by appeal through the stormwater administrator

Sec. 18-106. Design manual.

(a) *Reference to design manual.* The stormwater administrator shall use the policy, criteria, and information, including technical specifications and standards, in the design manual as the basis for decisions about stormwater management permits and about the design, implementation and performance of structural and non-structural stormwater BMPs.

The design manual includes a list of acceptable stormwater treatment practices, including the specific design criteria for each stormwater practice. Stormwater treatment practices that are designed and constructed in accordance with these design and sizing criteria will be presumed to meet the minimum water quality performance standards of this article and the phase II laws. Failure to construct stormwater treatment practices in accordance with these criteria may subject the violator to a civil penalty as described in division 7.

(b) *Relationship of design manual to other laws and regulations.* If the specifications or guidelines of the design manual are more restrictive or apply a higher standard than other laws or regulations, that fact shall not prevent application of the specifications or guidelines in the design manual.

(c) *Changes to standards and specifications.*

Standards, specifications, guidelines, policies, criteria, or other information in the design manual in affect at the time of acceptance of a complete application shall control and shall be utilized in reviewing the application and in implementing this article with regard to the application.

(d) *Amendments to design manual.* The design manual may be updated and expanded from time to time, based on advancements in technology and engineering, improved knowledge of local conditions, or local monitoring or maintenance experience. Prior to amending or updating the design manual, proposed changes shall be generally publicized and made available for review, and an opportunity for comment by interested persons shall be provided.

Sec. 18-107. Relationship to other laws, regulations and private agreements.

(a) *Conflict of laws.* This article is not intended to modify or repeal any other ordinance, rule, regulation or other provision of law. The requirements of this article are in addition to the requirements of any other ordinance, rule, regulation or other provision of law, and where any provision of this article imposes restrictions different from those imposed by any other ordinance, rule, regulation or other provision of law, whichever provision is more restrictive or imposes higher protective standards for human or environmental health, safety, and welfare, shall control.

(b) *Private agreements.* This article is not intended to revoke or repeal any easement, covenant, or other private agreement. However, where the regulations of this article are more restrictive or impose higher standards or requirements than such easement, covenant, or other private agreement, then the requirements of this article shall govern. Nothing in this article shall modify or repeal any private covenant or deed restriction, but such covenant or restriction shall not legitimize any failure to comply with this article. In no case shall the city be obligated to enforce the provisions of any easements, covenants, or agreements between private parties.

Sec. 18-108. Severability.

If the provisions of any section, subsection, paragraph, subdivision or clause of this article shall be adjudged invalid by a court of competent jurisdiction, such judgment shall not affect or invalidate the remainder of any section, subsection, paragraph, subdivision or clause of this article.

Sec. 18-109. Effective date and transitionalprovisions.

(a) *Effective date.* This article shall take effect on July 1, 2008.
(b) *Violations continue.* Any violation of the provisions of this article existing as of July 1, 2008 shall continue to be a violation under this article and be subject to penalties and enforcement unless the use, development, construction, or other activity complies with the provisions of this article.

Sec. 18-110. Definitions.

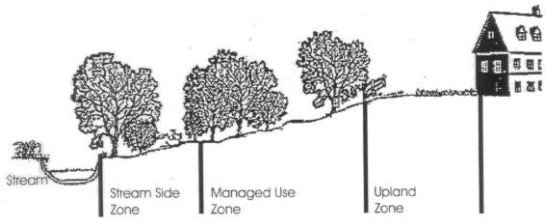
When used in this article, the following words and terms shall have the meaning set forth in this section, unless other provisions of this article specifically indicate otherwise.

Administrative manual means a manual developed by the stormwater administrator and distributed to the public to provide information for the effective administration of this article, including but not limited to application requirements, submission schedule, fee schedule, maintenance agreements, criteria for mitigation approval, criteria for recordation of documents, inspection report forms, requirements for submittal of bonds, a copy of this article, and where to obtain the design manual.

Best management practices (BMPs) means a structural management facility used singularly or in combination for stormwater quality and quantity treatment to achieve water quality protection goals.

Buffer means a natural or vegetated area through which stormwater runoff flows in a diffuse manner so that the runoff does not become channelized and which provides for infiltration of the runoff and filtering of pollutants.

Buffer zones. In the Central and Western Catawba Districts, streams draining greater than or equal to 50 acres but less than 300 acres have a two-zone buffer including a stream side and upland zone. Buffers for streams draining greater than or equal to 300 acres have three zones as shown below. The amount of disturbance allowed in the buffer differs in each zone. In the Yadkin-Southeast Catawba there are no zones, the entire buffer is undisturbed.



Buffer widths. Viewed aerially, the stream buffer width is measured horizontally on a line perpen- dicular to the surface water, landward from the
top of the bank on each side of the stream.

Built-upon area (BUA) means that portion of a property that is covered by impervious or partially impervious surface including, but not limited to, buildings; pavement and gravel areas such as roads, parking lots, and paths; and recreation facilities such as tennis courts (activity fields that have been designed to enhance displacement of runoff, such as compaction and grading or installation of sodded turf, and underground drainage systems for public parks and schools will be considered built-upon area.) "Built-upon area" does not include a wooden slatted deck or the water area of a swimming pool.

Charlotte BMP manual means the manual of design criteria, construction standards, and details for stormwater management facilities prepared by the stormwater administrator, as periodically amended, which regulates and

controls the provisions and construction of best management practices relating to post construction stormwater controls. Whenever reference is made to "standards," "design manual," or "manual," it refers to the latest published edition of this document.

Commercial development or redevelopment means any land disturbing activity that is not residential development or redevelopment as defined herein.

Development means land-disturbing activity that creates built upon area or that otherwise decreases the infiltration of precipitation into the soil.

Disturbance means any use of the land by any person or entity which results in a change in the natural cover or topography of the land.

Drainage area means That area of land that drains to a common point on a project site.

Floodplain means the low, periodically-flooded lands adjacent to streams. For land use planning purposes, the regulatory floodplain is usually viewed as all lands that would be inundated by the regulatory flood.

Grass field means land on which grasses and other herbaceous plants dominate and trees over six feet in height are sparse or so widely scattered that less than five percent of the land area is covered by a tree canopy.

Industrial uses means land used for industrial purposes only. Commercial (or other non-industrial) businesses operating on industrially-zoned property shall not be considered an industrial use.

Larger common plan of development or sale means any contiguous area where multiple separate and distinct construction or land disturbing activities will occur under one plan. A plan is any announcement or piece of documentation (including but not limited to public notice or hearing, drawing, permit application, zoning request, or site design) or physical demarcation (including but not limited to boundary signs, lot stakes, or surveyor markings) indicating that construction activities may occur on a specific plot.

Low impact development (LID) means the integration of site ecology and environmental goals and requirements into all phases of urban planning and design from the individual residential lot level to the entire watershed.

Mitigation means actions taken either on-site or off-site as allowed by this article to offset the impacts of a certain action.

Multifamily means a group of two or more attached, duplex, triplex, quadruplex, or multi-family buildings, or a single building of more than 12 units constructed on the same lot or parcel of land under single ownership, and planned and developed with a unified design of buildings and coordinated common open space and service areas in accordance with the requirements of chapter 9 of the zoning ordinance for the zoning district in which it is located.

Natural area means land that consists of natural areas containing trees and other natural shrubs consisting of either undisturbed areas or disturbed areas that have been replanted in accordance with the criteria established in this article.

Non-point source (NPS) pollution means forms of pollution caused by sediment, nutrients, organic and toxic substances originating from land use activities and carried to lakes and streams by surface runoff.

Owner means the legal or beneficial owner of land, including but not limited to a fee owner, mortgagee or vendee in possession, receiver, executor, trustee, or long-term or commercial lessee, or any other person or entity holding proprietary rights in the property or having legal power of management and control of the property. "Owner" shall include long-term commercial tenants; management entities, such as those charged with or engaged in the management of properties for profit; and every person or entity having joint ownership of the property. A secured

lender not in possession of the property does not constitute an owner, unless the secured lender is included within the meaning of "owner" under another description in this definition, such as a management entity.

Person(s) means any individual, partnership, firm, association, joint venture, public or private corporation, trust, estate, commission, board, public or private institution, utility, cooperative, interstate body, or other legal entity.

Redevelopment means any land-disturbing activity that does not result in a net increase in built-upon area and that provides greater or equal stormwater control than the previous development.

Residential development means a land disturbing activity containing dwelling units with open yards on at least two sides where land is sold with each dwelling unit.

Stormwater administrator means the city engineer or designee that administers and enforces this article.

Stormwater advisory committee (SWAC) means the Charlotte-Mecklenburg Stormwater Advisory Committee as established by joint resolutions of the city council, Mecklenburg County Board of Commissioners and the Towns of Cornelius, Davidson, Huntersville, Matthews, Mint Hill and Pineville, together with any amendments thereto.

Stormwater management permit means the development or redevelopment plan, as approved by the stormwater administrator, that details how stormwater runoff will be controlled through structural and/or nonstructural management features.

Top of bank means the landward edge of the stream channel during high water or bankfull conditions at the point where the water begins to overflow onto the floodplain.

Topsoil means natural, fertile soil capable of sustaining vigorous plant growth that is of uniform composition throughout with an admixture of subsoil, has an acidity range of pH 5.5—7.0.

Total phosphorus (TP) means a nutrient that is essential to the growth of organisms but when it occurs in high enough concentrations it can negatively impact water quality conditions. Total phosphorus includes both dissolved and suspended forms of reactive phosphorus, acid hydrolysable phosphorus and organic phosphorus as measured by Standard Method 4500-P.

Total suspended solids (TSS) means total suspended matter in water which includes particles collected on a filter with a pore size of two microns as measured by Standard Method 2540-D, which is commonly expressed as a concentration in terms of milligrams per liter (mg/l) or parts per million (ppm).

Secs. 18-111—18-120. Reserved.

DIVISION 2. ADMINISTRATION AND PROCEDURES

Sec. 18-121. Review and decision making entities.

(a) *Stormwater administrator.*

(1) *Designation.* The city engineer has been designated as the stormwater administrator and he, or his designee, is authorized to administer and enforce these regulations.

(2) *Powers and duties.* In addition to the powers and duties that may be conferred by other provisions of this Code and other laws, the stormwater administrator shall have the following powers and duties under this article:

a. To review and approve or disapprove applications submitted pursuant to this article.

b. To make determinations and render interpretations of this article.

c. To establish application requirements and schedules for submittal and review of applications and appeals.

d. To enforce this article in accordance with its enforcement provisions.

e. To maintain records, maps, and official materials as relate to the adoption, amendment, enforcement, or administration of this article.
f. To provide expertise and technical assistance upon request to the city council and the stormwater advisory committee (SWAC).
g. To designate appropriate other person(s) who shall carry out the powers and duties of the stormwater administrator.
h. To provide information and recommendations relative to variances and information as requested by SWAC in response to appeals.
i. Prepare and make available to the public an administrativemanual that includes: the stormwater management permit application; submittal checklist; fee schedule; maintenance agreements; and a reference to the design manual.
j. To take any other action necessary to administer the provisions of this article.

(b) *Powers and duties of the stormwater advisory committee.* The stormwater advisory committee, hereinafter referred to as SWAC, shall have the following powers and duties:

(1) *Administrative review.* To hear and decide appeals according to the procedures set forth in this section, where it is alleged there is an error in any order, decision, determination, or interpretation made by the stormwater administrator in the enforcement of this article, including assessments of remedies and/or penalties.

(2) *Variances.* To grant variances in specific cases from the terms of this article according to the standards and procedures herein.

Sec. 18-122. Stormwater management permit.

(a) *Stormwater management permit required.* A stormwater management permit is required for all proposed development and redevelopment unless exempt pursuant to this article. For the purpose of this article, the final approved stormwater management plan as contained in the development or redevelopment plan shall constitute the stormwater management permit.

(b) *Submission of a stormwater management plan.*

(1) *General.* A preliminary stormwater management plan developed in accordance with the specifications set forth in the administrative manual must be submitted to the planning staff or land development division as part of the preliminary plan for development or redevelopment and will be reviewed in accordance with established procedures.

(2) *Stormwater management plan contents and form.* The stormwater administrator shall establish requirements for the content and form of the preliminary stormwater management plan. These general requirements shall be contained in the administrative manual, which may be amended from time to time.

(3) *Permit review fees.* Afee, as established by city council, shall accompany the submission of the preliminary stormwater management plan.

(4) *Complete submission.* A preliminary stormwater management plan will not be considered complete until it contains all elements required by the stormwater administrator, along with the appropriate fee. If the stormwater administrator finds that a preliminary stormwater management plan is incomplete, the applicant shall be notified of the deficient elements and provided with an opportunity to correct the plan. No review of the stormwater management plan will commence until the stormwater administrator has determined the plan is complete.

(c) *Review and approval of stormwater management plan.*

(1) *Preparation by professional required.* The preliminary stormwater management plan shall be prepared by a registered state professional engineer or registered landscape architect. The engineer or registered landscape architect shall certify that the design of all stormwater management facilities and practices meets the requirements of these regulations.

(2) *Final approval of stormwater management plan.* If the stormwater administrator finds that the stormwater management plan complies with the requirements of these regulations, the stormwater administrator shall approve the stormwater management plan, which approval shall constitute the issuance of the permit. The stormwater administrator may impose conditions of approval as needed to ensure compliance with this article. The conditions shall be included in the permit as part of the approval.

(3) *Effect of the permit.* The permit issued under the provisions of this chapter shall remain valid for a period of three years from the date of approval. If no work on the site in furtherance of the plan has commenced within the three-year period, the permit and plan approval will become null and void and a new application will be required to develop the site. If work on the site in furtherance of the plan has commenced that involves any utility installations or street improvements except grading, the permit and plan shall remain valid and in force and the project may be completed in accordance with the approved plan.

(4) *Disapproval of stormwater management plan.* If the stormwater administrator disapproves the preliminary stormwater management plan, the grounds for such disapproval will be stated in writing to the applicant. After such disapproval, an appeal from that decision may be taken to SWAC in accordance with section 18-124. SWAC may approve, disapprove, in whole or in part, or otherwise modify the action of the stormwater administrator. A final stormwater management plan approved by SWAC, after appeal from the decision of the stormwater administrator, will qualify as the permit.

Sec. 18-123. As-built plans and final approval.

The applicant shall certify that the completed project is in accordance with the approved stormwater management plans and designs, and shall submit actual "as- built" plans for all stormwater management facilities or practices after final construction is completed. Failure to provide approved as-built plans within the time frame specified by the stormwater administrator may result in assessment of penalties as specified in division 7. At the discretion of the stormwater administrator, performance securities or bonds may be required for stormwater management facilities or practices until as-built plans are approved.

As-built plans shall show the final design spec-ifications for all stormwater management facilities and practices and the field location, size, depth, and planted vegetation of all measures, controls, and devices, as installed, and location and size of all natural area and tree plantings. The designer of the stormwater management measures and plans shall certify, under seal, that the as-built stormwater measures, controls, and devices are in compliance with the approved stormwater management plans and designs and with the requirements of this article. As conditions of the as-built plan(s) approval, the designer will submit a digital copy of the as-built plan(s) as described in the administrative manual to the stormwater administrator for the purpose of maintaining records, performing inspections, maintenance and other future needs as determined by the city.

Approved final as-built plans and a final inspection by the stormwater administrator are required before a project is determined to be in compliance with this article. At the discretion of the stormwater administrator, certificates of occupancy may be withheld pending receipt of as-built plans and the completion of a final inspection and approval of a project.

Sec. 18-124. Appeals and variances.

(a) *Petition to SWAC for appeal or variance.* An appeal may be initiated by any aggrieved person affected by any decision, order, requirement, or determination relating to the interpretation or application of this article. A petition for variance from the requirements of this article may be initiated by the owner of the affected property, an agent authorized in writing to act on the owner's behalf, or a person having written contractual interest in the affected property.

(1) *Filing of notice of appeal.* A notice of appeal shall be filed with the stormwater administrator contesting any order, decision, determination or interpretation within 30 working days of the day of the order, decision, determination or interpretation made or rendered by the stormwater administrator in the enforcement of this article, including assessments of remedies and penalties. SWAC may waive or extend the 30-day deadline only upon determining that the person filing the notice of appeal received no actual or constructive form of notice of the order, decision, determination or interpretation being appealed. The notice filed with the stormwater administrator shall be accompanied by a nonrefundable filing fee as established by SWAC as well as a list of adjoining properties including tax parcel numbers and the name and address of each owner. Failure to timely file such notice and fee shall constitute a waiver of any rights to appeal under this article. Upon receipt of a notice of appeal, the stormwater administrator shall transmit to SWAC copies of all administrative papers, records, and other information regarding the subject matter of the appeal. The filing of such notice shall stay any proceedings

in furtherance of the contested action, except the stormwater administrator may certify in writing to SWAC that because of facts stated in the certificate, a stay imposes an imminent peril to life or property or would seriously interfere with the enforcement of this article. SWAC shall then review such certificate and may override the stay of further proceedings.

(2) *Filing a variance petition.* A petition for variance, in the form prescribed by SWAC, shall be filed with the stormwater administrator accompanied by a nonrefundable filing fee as established by SWAC as well as a list of adjoining properties including tax parcel numbers and the name and address of each owner. Upon receipt of a variance petition, the stormwater administrator shall transmit to SWAC copies of all information regarding the variance.

(3) *Notice and hearing.* SWAC shall, in accordance with the rules adopted by it for such purposes, hold public hearings on any appeal or variance petition which comes before it. SWAC shall, prior to the hearing, mail written notice of the time, place and subject of the hearing to the person or persons filing the notice of appeal or variance petition, to the owners of the subject property and to the owners of property adjacent to the subject property.

The hearing shall be conducted in the nature of a quasi-judicial proceeding with all findings of fact supported by competent, material evidence.

(4) *Standards for granting an appeal.* SWAC shall reverse or modify the order, decision, determination or interpretation under appeal only upon finding an error in the application of this article on the part of the stormwater administrator. In modifying the order, decision, determination or interpretation, SWAC shall have all the powers of the stormwater administrator from whom the appeal is taken. If SWAC finds that a violation of this article has occurred, but that in setting the amount of the penalty the stormwater administrator has not considered or given appropriate weight to either mitigating or aggravating factors, SWAC shall either decrease or increase the per day civil penalty within the range allowed by this article. Any decision of SWAC that modifies the amount of a civil penalty shall include, as part of the findings of fact and conclusions of law, findings as to which mitigating or aggravating factors exist and the appropriate weight that should have been given to such factors by the stormwater administrator in setting the amount of the civil penalty levied against the petitioner.

(5) *Standards for granting a variance.* Before granting a variance, SWAC shall have made all the following findings:

a. Unnecessary hardships would result from the strict application of this article.

b. The hardships result from conditions that are peculiar to the property, such as the location, size or topography of the property.

c. The hardships did not result from actions taken by the petitioner.

d. The requested variance is consistent with the spirit, purpose, and intent of this article; will secure public safety and welfare; and will preserve substantial justice.

(6) *Variance conditions.* SWAC may impose reasonable and appropriate conditions and safeguards upon any variance it grants.

(7) *Action by SWAC.* SWAC bylaws will determine the number of concurring votes needed to grant an appeal or request for variance. SWAC shall grant or deny the variance or shall reverse, affirm or modify the order, decision, determination or interpretation under appeal by recording in the minutes of the meeting the reasons that SWAC used and the findings of fact and conclusions of law made by SWAC to reach its decision.

(8) *Rehearing.* SWAC shall refuse to hear an appeal or variance petition which has been previously denied unless it finds there have been substantial changes in the conditions or circumstances relating to the matter.

(b) *Review by superior court.* Every decision of SWAC shall be subject to superior court review by proceedings in the nature of certiorari. Petition for review by the superior court shall be filed with the clerk of superior court within 30 days after the later occurring of the following:

(1) The decision of SWAC is filed, or

(2) A written copy thereof is delivered to every aggrieved party who has filed a written request for such copy with SWAC at the time of its hearing of the case.

Secs. 18-125—18-140. Reserved.

DIVISION 3. STANDARDS

Sec. 18-141. General standards.

All development and redevelopment to which this article applies shall comply with the standards of this section.

Sec. 18-142. Watershed districts.

Standards for development and redevelopment vary depending on the watershed district in which a project is located as described in the "Post-Construction Ordinance Map of the City," which is adopted simultaneously herewith as described in subsection 18-105(d). The city is divided into the following watershed districts for purposes of this article:

(1) *Central Catawba*. That area of land that drains to Sugar, Little Sugar and McAlpine Creeks in the city, including all tributaries, except Six Mile Creek.

(2) *Western Catawba*. That area of land that drains to Lake Norman, Mountain Island Lake and Lake Wylie in Mecklenburg County including all creeks and tributaries.

(3) *Yadkin-Southeast Catawba.* That area of land that drains to the Yadkin River basin in Mecklenburg County, including all creeks and tributaries and in addition including Six Mile Creek.

Sec. 18-143. Standards for the Central Catawba district.

(a) *Standards for low density projects.* Any drainage area within a project boundary in the Central Catawba district is considered low density when said drainage area has less than or equal to 24 percent built upon area as determined by the methodology established in the design manual. Such low-density projects shall comply with each of the following standards.

(1) *Vegetated conveyances.* Stormwater runoff shall be transported by vegetated conveyances to the maximum extent practicable.

(2) *Stream buffers.* The S.W.I.M. stream buffer requirements apply in the Central Catawba as described in the jurisdiction's zoning ordinance, chapter 12. In addition, intermittent and perennial streams within the project boundary shall be delineated by a certified professional using U.S. Army Corps of Engineers and N.C. Division of Water Quality methodology and shall be shown in the stormwater management permit application along with all buffer areas. All perennial and intermittent streams draining less than 50 acres shall have a minimum 30-foot vegetated buffer including a ten-foot zone adjacent to the bank. Disturbance of the buffer is allowed; however, any disturbed area must be revegetated and disturbance of the ten-foot zone adjacent to the bank shall require stream bank stabilization using bioengineering techniques as specified in the design manual. All perennial and intermittent streams draining greater than or equal to 50 acres and less than 300 acres shall have a 35-foot buffer with two zones, including stream side and upland. Streams draining greater than or equal to 300 acres and less than 640 acres shall have a 50-foot buffer with three zones, including stream side, managed use and upland. Streams draining greater than or equal to 640 acres shall have a 100-foot buffer, plus 50 percent of the area of the flood fringe beyond 100 feet. This buffer shall consist of three zones, including stream side, managed use and upland. All buffers shall be measured from the top of the bank on both sides of the stream. The uses allowed in the different buffer zones as described in the S.W.I.M. stream buffer requirements in the city's zoning ordinance, chapter 12, as well as the other provisions of the S.W.I.M. ordinance shall apply in the Central Catawba district (except buffer widths).

(b) *Standards for high density projects.* Any drainage area within a project boundary in the Central Catawba district is considered high density when said drainage area has greater than 24 percent built upon area as determined by the methodology established in the design manual. Such high-density projects shall implement stormwater treatment systems that comply with each of the following standards.

(1) *Stormwater quality treatment volume.* Stormwater quality treatment systems shall treat the runoff generated from the first inch of rainfall.

(2) *Stormwater quality treatment.* All structural stormwater treatment systems used to meet these requirements shall be designed to have a minimum of 85% average annual removal for total suspended solids. Low impact development techniques as described in the design manual can be used to meet this requirement.

(3) *Stormwater treatment system design.* General engineering design criteria for all projects shall be in accordance with 15A NCAC 2H .1008(c), as explained in the design manual.

(4) *Stream buffers.* The S.W.I.M. stream buffer requirements apply in the Central Catawba as described in the city's zoning ordinance, chapter 12. In addition, intermittent and perennial streams within the project boundary shall be delineated by a certified professional using U.S. Army Corps of Engineers and N.C. Division of Water Quality methodology and shall be shown in the stormwater management permit application along with all buffer areas. All perennial and intermittent streams draining less than 50 acres shall have a minimum 30-foot vegetated buffer including a ten-foot zone adjacent to the bank. Disturbance of the buffer is allowed; however, any disturbed area must be revegetated and disturbance of the ten-foot zone adjacent to the bank shall require stream bank stabilization using bioengineering techniques as specified in the design manual. All perennial and intermittent streams draining greater than or equal to 50 acres and less than 300 acres shall have a 35-foot buffer with two zones, including stream side and upland. Streams draining greater than or equal to 300 acres and less than 640 acres shall have a 50-foot buffer with three zones, including stream side, managed use and upland. Streams draining greater than or equal to 640 acres shall have a 100-foot buffer, plus 50 percent of the area of the flood fringe beyond 100 feet. This buffer shall consist of three zones, including stream side, managed use and upland. All buffers shall be measured from the top of the bank on both sides of the stream. The uses allowed in the different buffer zones as described in the S.W.I.M. stream buffer requirements in the jurisdiction's zoning ordinance, chapter 12, as well as the other provisions of the S.W.I.M. ordinance shall apply in the Central Catawba district (except buffer widths).

(5) *Stormwater volume control.* Stormwater treatment systems shall be installed to control the volume leaving the project site at post-development for the one-year, 24-hour storm except I-1 and I-2 zoned developments which are exempt from this requirement. Runoff volume drawdown time shall be a minimum of 48 hours, but not more than 120 hours.

(6) *Stormwater peak control.* For residential land disturbing activities exceeding 24 percent built-upon area, peak control shall be installed for the appropriate storm frequency (i.e., 10-, 25-, 50- or 100-year, six-hour) as determined by the stormwater administrator based on a downstream flood analysis provided by the owner or designee using the criteria specified in the design manual or if a downstream analysis is not performed the peak shall be controlled for the ten-year and 25-year, six-hour storms. For commercial land disturbing activities exceeding 24 percent built-upon area, peak control shall be installed for the ten-year, six-hour storm and additional peak control provided for the appropriate storm frequency (i.e., 25-, 50- or 100-year, six-hour) as determined by the stormwater administrator based on a downstream flood analysis provided by the owner or designee using the criteria specified in the design manual or if a downstream analysis is not performed the peak shall be controlled for the ten-year and 25-year, six-hour storms. Controlling the one-year, 24-hour volume achieves peak control for the two-year, six-hour storm. For I-1 and I-2 zoned developments, peak control shall be installed for the two-year and ten-year, six-hour storms and additional peak control provided for the appropriate storm frequency (i.e., 25-, 50- or 100-year, six-hour) based on a downstream flood analysis or if a downstream analysis is not performed the peak shall be controlled for the two-year, ten-year and 25-year, six-hour storms. The emergency overflow and outlet works for any pond or wetland constructed as a stormwater BMP shall be capable of safely passing a discharge with a minimum recurrence frequency as specified in the design manual. For detention basins, the temporary storage capacity shall be restored within 72 hours. Requirements of the Dam Safety Act shall be met when applicable.

Sec. 18-144. Standards for the Western Catawba district.

(a) *Standards for low density projects.* Any drainage area within a project boundary in the Western Catawba district is considered low density when said drainage area has less than or equal to 12 percent built-upon area as determined by the methodology established in the design manual. Such low-density projects shall comply with each of the following standards:

(1) *Vegetated conveyances.* Stormwater runoff shall be transported by vegetated conveyances to the maximum extent practicable.

(2) *Stream buffers.* The S.W.I.M. stream buffer requirements apply in the Western Catawba as described in the city's zoning ordinance, chapter 12 as do the buffers described for the watershed overlays contained in chapter 10. When there is a conflict between buffer requirements, the more stringent always applies. In addition, intermittent and perennial streams within the project boundary shall be delineated by a certified professional using U.S. Army Corps of Engineers and N.C. Division of Water Quality methodology and shall be shown in the stormwater management permit application along with all buffer areas. All perennial and intermittent streams draining less

than 50 acres shall have a minimum 30-foot vegetated buffer including a ten-foot zone adjacent to the bank. Disturbance of the buffer is allowed; however, any disturbed area must be revegetated and disturbance of the ten-foot zone adjacent to the bank shall require stream bank stabilization using bioengineering techniques as specified in the design manual. All perennial and intermittent streams draining greater than or equal to 50 acres and less than 300 acres shall have a 35-foot buffer with two zones, including stream side and upland. Streams draining greater than or equal to 300 acres and less than 640 acres shall have a 50-foot buffer with three zones, including stream side, managed use and upland. Streams draining greater than or equal to 640 acres shall have a 100-foot buffer, plus 50 percent of the area of the flood fringe beyond 100 feet. This buffer shall consist of three zones, including stream side, managed use and upland. All buffers shall be measured from the top of the bank on both sides of the stream. The uses allowed in the different buffer zones as described in the S.W.I.M. stream buffer requirements in the jurisdiction's zoning ordinance, chapter 12, as well as the other provisions of the S.W.I.M. ordinance shall apply in the Western Catawba district (except buffer widths).

(b) *Development standards for high density projects.* Any drainage area within a project boundary in the Western Catawba district is considered high density when said drainage area has greater than 12 percent built upon area as determined by the methodology established in the design manual. The built upon area caps specified in the water supply watershed protection requirements contained in the city's zoning ordinance shall apply. High-density projects shall implement stormwater treatment systems that comply with each of the following standards:

(1) *Stormwater quality treatment volume.* Stormwater quality treatment systems shall treat the runoff generated from the first inch of rainfall.

(2) *Stormwater quality treatment.* All structural stormwater treatment systems used to meet these requirements shall be designed to have a minimum of 85 percent average annual removal for total suspended solids and 70 percent average annual removal for total phosphorus except I-1 and I-2 zoned developments which are exempt from the total phosphorus removal requirement. I-1 and I-2 zoned developments shall implement a management plan for the proper handling and application of pesticides and fertilizers to reduce negative water quality impacts. Low impact development techniques as described in the design manual can be used to meet pollutant removal requirements.

(3) *Stormwater treatment system design.* General engineering design criteria for all projects shall be in accordance with 15A NCAC 2H .1008(c), as explained in the design manual.

(4) *Stream buffers.* The S.W.I.M. stream buffer requirements apply in the Western Catawba [district] as described in the City's zoning ordinance, chapter 12 as do the buffers described for the watershed overlays contained in chapter 10. When there is a conflict between buffer requirements, the more stringent always applies. In addition, intermittent and perennial streams within the project boundary shall be delineated by a certified professional using U.S. Army Corps of Engineers and N.C. Division of Water Quality methodology and shall be shown in the stormwater management permit application along with all buffer areas. All perennial and intermittent streams draining less than 50 acres shall have a minimum 30-foot vegetated buffer including a ten-foot zone adjacent to the bank. Disturbance of the buffer is allowed; however, any disturbed area must be revegetated and disturbance of the ten-foot zone adjacent to the bank shall require stream bank stabilization using bioengineering techniques as specified in the design manual. All perennial and intermittent streams draining greater than or equal to 50 acres and less than 300 acres shall have a 35-foot buffer with two zones, including stream side and upland. Streams draining greater than or equal to 300 acres and less than 640 acres shall have a 50-foot buffer with three zones, including stream side, managed use and upland. Streams draining greater than or equal to 640 acres shall have a100-foot buffer, plus 50 percent of the area of the flood fringe beyond 100 feet. This buffer shall consist of three zones, including stream side, managed use and upland. All buffers shall be measured from the top of the bank on both sides of the stream. The uses allowed in the different buffer zones as described in the S.W.I.M. stream buffer requirements in the jurisdiction's zoning ordinance, chapter 12, as well as the other provisions of the S.W.I.M. ordinance shall apply in the Western Catawba district (except bufferwidths).

(5) *Stormwater volume control.* Stormwater treatment systems shall be installed to control the volume leaving the project site at post-development for the one-year, 24-hour storm except I-1 and I-2 zoned developments which are exempt from this requirement. Runoff volume drawdown time shall be a minimum of 48 hours, but not more than 120 hours.

(6) *Stormwater peak control.* For residential land disturbing activities exceeding 12 percent built-upon area, peak control shall be installed for the appropriate storm frequency (i.e., 10-, 25-, 50- or 100-year, six-hour) as determined by the stormwater administrator based on a downstream flood analysis provided by the owner or designee using the criteria specified in the design manual or if a downstream analysis is not performed the peak

shall be controlled for the ten-year and 25-year, six-hour storms. For commercial land disturbing activities exceeding 12 percent built-upon area, peak control shall be installed for the ten-year, six-hour storm and additional peak control provided for the appropriate storm frequency (i.e., 25-, 50- or 100-year, six-hour) as determined by the stormwater administrator based on a downstream flood analysis provided by the owner or designee using the criteria specified in the design manual or if a downstream analysis is not performed the peak shall be controlled for the ten-year and 25-year, six-hour storms. Controlling the one-year, 24-hour volume achieves peak control for the two-year, six-hour storm. For I-1 and I-2 zoned developments, peak control shall be installed for the two-year and ten-year, six-hour storms and additional peak control provided for the appropriate storm frequency (i.e., 25-, 50- or 100-year, six-hour) based on a downstream flood analysis or if a downstream analysis is not performed the peak shall be controlled for the two-year, ten-year and 25-year, six-hour storms. The emergency overflow and outlet works for any pond or wetland constructed as a stormwater BMP shall be capable of safely passing a discharge with a minimum recurrence frequency as specified in the design manual. For detention basins, the temporary storage capacity shall be restored within 72 hours. Requirements of the Dam Safety Act shall be met when applicable.

Sec. 18-145. Standards for the Yadkin-Southeast Catawba district.

(a) *Standards for low density projects.* Any drainage area within a project boundary in the Yadkin-Southeast Catawba District is considered low density when said drainage area has less than or equal to ten percent built upon area as determined by the methodology established in the design manual. Such low-density projects shall comply with each of the following standards:

(1) *Vegetated conveyances.* Stormwater runoff shall be transported by vegetated conveyances to the maximum extent practicable.

(2) *Stream buffers.* In addition, intermittent and perennial streams within the project boundary shall be delineated by a certified professional using U.S. Army Corps of Engineers and N.C. Division of Water Quality methodology and shall be shown in the stormwater management permit application along with all buffer areas. All perennial and intermittent streams draining less than 50 acres shall have a minimum 50-foot undisturbed buffer. All perennial and intermittent streams draining greater than or equal to 50 acres shall have a 100-foot undisturbed buffer, plus the entire floodplain. All buffers shall be measured from the top of the bank on both sides of the stream. The uses allowed in the stream side zone described in the S.W.I.M. stream buffer requirements in the jurisdiction's zoning ordinance, chapter 12, as well as the other provisions of the S.W.I.M. ordinance shall apply in the Yadkin-Southeast Catawba district (ex-
cept buffer widths).

Six Mile Creek watershed only. In addition to the above information for streams in the Yadkin-Southeast Basin Watershed, all perennial streams in the Six Mile Creek Watershed shall have 200-foot undisturbed buffers, plus entire floodplain and all intermittent streams in the Six Mile Creek Watershed shall have 100-foot undisturbed buffers all measured on each side of the stream from top of bank.

(b) *Standards for high density projects.* Any drainage area within a project boundary in the Yadkin-Southeast Catawba District is considered high density when said drainage area has greater than ten percent built upon area as determined by the methodology established in the design manual. Such high-density projects shall implement stormwater treatment systems that comply with each of the following standards:

(1) *Stormwater quality treatment volume.* Stormwater quality treatment systems shall treat the runoff generated from the first inch of rainfall.

(2) *Stormwater quality treatment.* All structural stormwater treatment systems used to meet these requirements shall be designed to have a minimum of 85 percent average annual removal for total suspended solids and 70 percent average annual removal for total phosphorus except I-1 and I-2 zoned developments which are exempt from the total phosphorus removal requirement. I-1 and I-2 zoned developments shall implement a management plan for the proper handling and application of pesticides and fertilizers to reduce negative water quality impacts. Low impact development techniques as described in the design manual can be used to meet pollutant removal requirements.

(3) *Stormwater treatment system design.* General engineering design criteria for all projects shall be in accordance with 15A NCAC 2H .1008(c), as explained in the design manual.

(4) *Stream buffers.* In addition, intermittent and perennial streams within the project boundary shall be delineated by a certified professional using U.S. Army Corps of Engineers and N.C. Division of Water Quality methodology

and shall be shown in the stormwater management permit application along with all buffer areas. All perennial and intermittent streams draining less than 50 acres shall have a minimum 50-foot undisturbed buffer. All perennial and intermittent streams draining greater than or equal to 50 acres shall have a 100-foot undisturbed buffer, plus the entire floodplain. All buffers shall be measured from the top of the bank on both sides of the stream. The uses allowed in the stream side zone described in the S.W.I.M. stream buffer requirements in the city's zoning ordinance, chapter 12, as well as the other provisions of the S.W.I.M. ordinance shall apply in the Yadkin-Southeast Catawba District (except buffer widths).
Six Mile Creek watershed only. In addition to the above information for streams in the Yadkin-Southeast Basin Watershed, all perennial streams in the Six Mile Creek Watershed shall have 200-foot undisturbed buffers, plus entire floodplain and all intermittent streams in the Six Mile Creek Watershed shall have 100-foot undisturbed buffers all measured on each side of the stream from top of bank.
(5) *Stormwater volume control.* Stormwater treatment systems shall be installed to control the volume leaving the project site at post-development for the one-year, 24-hour storm except I-1 and I-2 zoned developments which are exempt from this requirement. Runoff volume drawdown time shall be a minimum of 48 hours, but not more than 120 hours.
(6) *Stormwater peak control.* For residential land disturbing activities exceeding ten percent built-upon area, peak control shall be installed for the appropriate storm frequency (i.e., 10-, 25-, 50- or 100-year, six-hour) as determined by the stormwater administrator based on a downstream flood analysis provided by the owner or designee using the criteria specified in the design manual or if a downstream analysis is not performed the peak shall be controlled for the ten-year and 25-year, six-hour storms. For commercial land disturbing activities exceeding ten percent built-upon area, peak control shall be installed for the ten-year, six-hour storm and additional peak control provided for the appropriate storm frequency (i.e., 25-, 50- or 100-year, six-hour) as determined by the stormwater administrator based on a downstream flood analysis provided by the owner or designee using the criteria specified in the design manual or if a downstream analysis is not performed the peak shall be controlled for the ten-year and 25-year, six-hour storms. Controlling the one-year, 24-hour volume achieves peak control for the two-year, six-hour storm. For I-1 and I-2 zoned developments, peak control shall be installed for the two-year and ten-year, six-hour storms and additional peak control provided for the appropriate storm frequency (i.e., 25-, 50- or 100-year, six-hour) based on a downstream flood analysis or if a downstream analysis is not performed the peak shall be controlled for the two-year, ten-year and 25-year, six-hour storms. The emergency overflow and outlet works for any pond or wetland constructed as a stormwater BMP shall be capable of safely passing a discharge with a minimum recurrence frequency as specified in the design manual. For detention basins, the temporary storage capacity shall be restored within 72 hours. Requirements of the Dam Safety Act shall be met when applicable.

Sec. 18-146. Standards for stormwater control measures.

(a) *Evaluation according to contents of design manual.* All stormwater control measures and stormwater treatment practices (also referred to as best management practices, or BMPs) required under this article shall be evaluated by the stormwater administrator according to the policies, criteria, and information, including technical specifications, standards and the specific design criteria for each stormwater best management practice contained in the design manual. The stormwater administrator shall determine whether these measures will be adequate to meet the requirements of this article.
(b) *Determination of adequacy; presumptions and alternatives.* Stormwater treatment practices that are designed, constructed, and maintained in accordance with the criteria and specifications in the design manual will be presumed to meet the minimum water quality and quantity performance standards of this article. Whenever an applicant proposes to utilize a practice or practices not designed and constructed in accordance with the criteria and specifications in the design manual, the applicant shall have the burden of demonstrating that the practice(s) will satisfy the minimum water quality and quantity performance standards of this article before it can be approved for use. The stormwater administrator may require the applicant to provide such documentation, calculations, and examples as necessary for the stormwater administrator to determine whether such an affirmative showing is made.
(c) *Submittal of digital records.* Upon submittal of as-built plans, the location of storm drainage pipes, inlets and outlets as well as the location of all BMPs as well as natural area must be delivered to the stormwater administrator in the digital format specified in the administrative manual.

Sec. 18-147. Total phosphorus mitigation.

(a) *Purpose*. The purpose of this mitigation is to reduce the cost of complying with the 70 percent total phosphorus removal criteria for development and redevelopment with greater than or equal to 24 percent built-upon area while ensuring the reduction of pollution loads and achievement of the ordinance objectives.

(b) *General description*. There are two total phosphorus mitigation options available to development and redevelopment greater than or equal to 24 percent built-upon area, including off-site mitigation and a buy-down option as described in this section. Both off-site and buy-down mitigation will result in the construction of retrofit BMPs in the same river basin (Catawba or Yadkin) as the mitigated site. In the Western Catawba district both forms of mitigation must occur in the watershed of the same named creek system for the purpose of ensuring a balance of total phosphorus loads to lake cove areas where phosphorus is a limiting pollutant with the exception that up to 30 percent of the buy-down money can be spent outside the watershed. In addition, the buy-down option is available provided the city has projects and/or property available for mitigation. There is no total phosphorus requirement in the Central Catawba District so the mitigation option is not necessary. The named creek (or drainage basin) systems referred to above include:

(1) *Western Catawba*. Studman Branch, Porter Branch, Neal Branch, Stowe Branch, Beaverdam Creek, Little Paw Creek, Paw Creek, Long Creek, Gar Creek, and the Lower Mountain Island watershed.

(2) *Yadkin-Southeast Catawba.* Six Mile Creek, Twelve Mile Creek, Caldwell Creek, McKee Creek, Reedy Creek, Fuda Creek, Back Creek, Mallard Creek, and Lower Clarke Creek.

(c) *Criteria for off-site mitigation.*

(1) The owner or designee of a proposed construction site that will include greater than or equal to 24 percent built upon area shall construct a BMP retrofit project designed to achieve an equivalent or greater net mass removal of total phosphorus as would be achieved by removing 70 percent of the total phosphorus from the proposed site. Off-site mitigation is allowed only for total phosphorus removal above 50 percent. On-site BMPs shall be constructed to achieve 50 percent removal of total phosphorus from the project site.

(2) The stormwater administrator shall receive, review, approve, disapprove or approve with conditions an "Application for Off-Site Total Phosphorus Mitigation." The stormwater administrator shall design this application to include all pertinent information. This application shall be submitted with the stormwater management permit application and shall at a minimum contain a description of the BMP(s) to be constructed, including their type and size as well as the pollutant removal efficiencies to be achieved. The location of the site where the BMP(s) are to be constructed shall be described, including the size of the drainage area to be treated and percentage and type of existing built upon area. The application must also include the pounds of total phosphorus being mitigated for and the pounds of total phosphorus reduced with the retrofit BMP(s). A legally valid instrument shall be submitted with the application to demonstrate that the applicant has land rights to perform the BMP retrofit on the property.

(3) The criteria for approval of off-site total phosphorus mitigation by the stormwater administrator are as follows:

a. BMP(s) must be constructed in accordance with 15ANCAC 2H.1008(c), as explained in the design manual.

b. BMP(s) must be sized for the corresponding watershed area according to the design manual.

c. BMP(s) must be inspected by the stormwater administrator and found to be in compliance with all approved plans and specifications prior to the release of occupancy permits for the mitigated site.

d. Following approval from the stormwater administrator, BMP(s) may be installed and credits obtained for pounds of total phosphorus removed that can be applied to future projects. These credits can be accumulated or "banked" for a period of time as specified by the stormwater administrator in the administrative manual.

e. All off-site mitigation BMPs shall be subject to the maintenance requirements as well as installation and maintenance performance securities specified in division 6.

(d) *Criteria for total phosphorus buy-down option.*

(1) The owner or designee of a proposed construction site that will include greater than or equal to 24 percent built upon area may "buy-down" the 70 percent phosphorus removal requirement to no less than 50 percent. On-site BMPs must be installed to remove the remaining total phosphorus load. The money shall be used by the city to construct BMP retrofit projects designed to achieve an equivalent or greater net mass removal of total phosphorus as would be achieved by removing 70 percent of the total phosphorus from the proposed site.

(2) The stormwater administrator shall receive, review, approve, disapprove or approve with conditions an "application for total phosphorus buy-down." The stormwater administrator shall design this application to include all pertinent information. This application shall be submitted with the stormwater management permit application

and shall at a minimum contain calculations showing the total load buy-down and all cost calculations as described in the administrative manual.
(3) The criteria for the buy-down option are
as follows:
a. The buy-down option shall not be approved by the stormwater administrator unless projects and/or properties are available for mitigation,
including BMP construction, BMP maintenance, BMP rehabilitation and stream restoration.
b. There is no time constraint for the city to spend mitigation money; however, the city shall strive to spend buy-down monies in a timely and
efficient manner such that a net improvement in water quality results.
c. All BMPs constructed by the city as part of this mitigation option shall be maintained by the jurisdiction into perpetuity.
(4) The criteria for calculating the buy-down cost shall be provided in the administrative manual.

Sec. 18-148. Deed recordation and indications on plat.

The approval of the stormwater management permit shall require an enforceable restriction on property usage that runs with the land, such as plat, recorded deed restrictions or protective covenants, to ensure that future development and redevelopment maintains the site consistent with the approved project plans. The location of all designated natural area for a site shall be recorded at the Mecklenburg County Register of Deeds Office as "undisturbed natural area" or "re-vegetated natural area." Streams and buffer boundaries including the delineation of each buffer zone must be specified on all surveys and record plats. The applicable operations and maintenance agreement pertaining to every structural BMP shall be referenced on the final plat and shall be recorded with the Mecklenburg County Register of Deeds Office upon final plat approval. If no subdivision plat is recorded for the site, then the operations and maintenance agreement shall be recorded with the Mecklenburg County Register of Deeds Office so as to appear in the chain of title of all subsequent purchasers under generally accepted searching principles. A copy of the recorded maintenance agreement shall be provided to the stormwater administrator within 14 days following receipt of the recorded document. A maintenance easement shall be recorded for every structural BMP to allow sufficient access for adequate maintenance. The specific recordation and deed restriction requirements as well as notes to be displayed on final plats and deeds shall be contained in the administrative manual.

Secs. 18-149—18-160. Reserved.

DIVISION 4. DEVELOPMENT AND
REDEVELOPMENT MITIGATION

Sec. 18-161. Mitigation payment.

(a) *Lots less than one acre.* Development and redevelopment on a lot less than one acre in size are allowed to forego meeting the requirements of this article, except for required stream buffers, provided the city is paid a mitigation fee according to rates set forth in the administrative manual and provided such development and Redevelopment are not part of a larger common plan of development or sale, even though multiple, separate or distinct activities take place at different times on different schedules.
(b) *Transit station areas and distressed business districts.* Development and redevelopment projects within transit station areas designated by the planning director based on corridor record of decisions, council adopted station area plan or distressed business districts designated by the economic development director are allowed by right to forego meeting the requirements of this article, except for required stream buffers and peak control and downstream analysis requirements on the increased impervious area of the project site, provided one of the following three measures are implemented on the site:
(1) Provide 85 percent TSS removal from first inch of rainfall for entire project;
(2) Provide one-year, 24-hour volume control and ten-year, six-hour peak control for entire project; or

(3) Pay the city a mitigation fee according to rates set forth in the administrative manual for the pre-project built upon area and any additional impervious area not to exceed five acres. New impervious area in excess of five acres must comply with this article.

(c) *Redevelopment not within transit station areas or distressed business districts*. Projects involving redevelopment of existing built-upon-area and the cumulative addition of less than 20,000 square feet of new built-upon-area are allowed by right to forego meeting the requirements of this article, except for required stream buffers and phosphorous requirements, provided the city is paid a mitigation fee according to rates set forth in the administrative manual for the post-project built- upon-area and, if required, onsite controls are installed for stormwater quality, and detention (i.e. volume and peak control) as well as quality stream protection in accordance with the provisions of the administrative manual.

Sec. 18-162. Criteria for mitigation payment.

(a) *Notification to stormwater administrator.* The buy-right mitigation option does not require approval by the stormwater administrator; however, notification that this right is to be exercised for a particular lot must be made prior to the issuance of any permits for the project. This notification is to be made to the stormwater administrator on a standard form provided in the administrative manual.

(b) *Use of mitigation payment.* The city shall use the mitigation payment to install water quality enhancement measures, including but not limited to BMPs, stream restoration, natural area preservation, etc. BMP(s) installed using the mitigation payment must be constructed in accordance with 15A NCAC 2H .1008(c), as explained in the design manual. All BMPs constructed by the jurisdiction as part of this mitigation option shall be maintained by the jurisdiction into perpetuity. The city will pursue using these mitigation funds within the same watershed as the project site provided adequate resources and property are available.

Secs. 18-163—18-170. Reserved.

DIVISION 5. NATURAL AREA

Sec. 18-171. Purpose.

Natural area provides for a reduction in the negative impacts from stormwater runoff through nonstructural means. The combination of the structural BMPs described in division 3 with the nonstructural natural area provisions described in this section allow the objectives of this article to be fulfilled.

Sec. 18-172. General description.

Undisturbed natural area is required for all development unless mitigated. The percentage of natural area required depends on a project's built-upon area as described below. Natural area requirements can be met in stream or lake buffers, designated common areas or on individual lots for residential development (e.g., backyards, borders, etc.). Natural area requirements can be met in vegetated utility rights-of-way (including sewer, water, gas, etc.) at a ratio of one acre of right-of-way to one-fourth acre of natural area credit. Grass fields can be used to meet natural area requirements on a one-to-one ratio; however, the fields must be replanted in accordance with the tree planting provisions described in subsection 18-175(c). Natural area requirements can also be met in planting strips that are planted in trees in accordance with the city's tree ordinance, this article or other tree planting requirements for road rights-of-way at a ratio of one acre of planting strip to three-fourth acre of natural area credit. Natural area is preferred where it will provide maximum water quality benefit (i.e. around gullies and existing drainage areas, adjacent to streams and wetlands, around structural BMPs, etc.). Cluster provisions aswell as tree and S.W.I.M. buffer ordinance incentives currently contained in the city's ordinances will continue to apply in the area designated to meet this natural area requirement.

Sec. 18-173. Natural area criteria.

Natural Area requirements apply to projects as described below.

(1) *Less than 24 percent built-upon area.* A project with less than 24 percent built-upon area shall include as natural area within the boundaries of the project a minimum of 25 percent of the project area.
(2) *Greater than or equal to 24 percent and less than 50 percent built-upon area.* A project with greater than or equal to 24 percent and less than 50 percent built-upon area shall include as natural area within the boundaries of the project a minimum of 17.5 percent of the project area.
(3) *Greater than or equal to 50 percent built-upon area.* A project with greater than or equal to 50 percent built-upon area shall include as natural area space within the boundaries of the project a minimum of ten percent of the project area.
(4) *I-1 and I-2 development and redevelopment projects.* I-1 and I-2 zoned developments are exempt from the open space requirement in the Central and Western Catawba Districts.

Sec. 18-174. Natural area designation.

For natural area areas that have remained undisturbed, the location of this area shall be recorded at the register of deeds office as "undisturbed natural area." For natural area areas that have been disturbed and revegetated, the location of this area shall be recorded at the register of deeds office as "revegetated natural area." The future disturbance of these areas is prohibited except for greenway trails with unlimited public access, private trails provided they are composed of pervious materials and comply with the S.W.I.M. stream buffer requirements, Charlotte-Mecklenburg Utility lines and channel work/maintenance activities by Charlotte-Mecklenburg stormwater services. Other utility work may be allowed in the natural area areas provided it will not result in loss of natural area as approved by the city.

Sec. 18-175. Natural area mitigation.

(a) *Purpose.* The purpose of this mitigation is to reduce the cost of complying with the natural area requirement while ensuring the reduction of pollution loads and achievement of the article objectives.
(b) *General description.* Approved disturbance to the natural area described in section 18-173 must be offset by an allowable form of mitigation, including on-site and off-site mitigation as well as through payment-in-lieu.
(c) *Natural area mitigation criteria.*
(1) *On-site mitigation.* On-site mitigation shall allow the disturbance of designated natural area on a project with the fulfillment of the following criteria on the project site:
a. Establishment of a minimum of six inches of top soil to the disturbed natural area following the completion of construction activities. This material may be obtained from onsite when available.
b. Planting of a minimum of 36 trees per acre of natural area as follows:
1. Trees shall have a minimum caliper of one and one-half inches.
2. Trees shall be of a quality set forth by the American Standard for Nursery Stock and will be selected from a list of acceptable native species for planting in natural area established by the jurisdiction.
3. Planted trees shall contain a mix of at least three different species in roughly equal proportions and be "large mature shade tree species" as defined by the city.
4. Trees shall be planted in accordance with specifications provided by the city.
5. Trees shall be warranted for a minimum of two years following planting and any dead or diseased trees must be replaced.
c. The area around and between trees must be stabilized using an approved vegetative ground cover and mulch.
d. The slope of any graded or disturbed area that is dedicated for natural area cannot exceed 3 to1.
e. The flow of water across the natural area must be controlled to prevent soil erosion or mulch disturbance.
(2) *Off-site mitigation.* The city shall allow natural area disturbance and off-site mitigation through the acceptance for ownership or conservation easement properties for the protection of natural area. This off-site mitigation shall be located in the same delineated watershed as the project site. There are 20 delineated watershed districts used for mitigation purposes as follows: Sugar/Irwin, Little Sugar/Briar, McMullen, McAlpine, Four Mile, Six Mile, Stevens/Goose, Clear, McKee, Reedy, Back, Mallard, Clarks, Rocky River, McDowell, Gar, Long, Paw, Steele, Beaver Dam, and Stowe Branch. In the event property for purchase cannot be located within the same watershed district, the city shall designate an alternate

watershed where there will be a net improvement in water quality protection such as designated impaired watersheds.

(3) *Payment in lieu of natural area dedication.* Payment in lieu of natural area dedication is only allowed for commercial development and multi-family development projects that are in excess of 50 percent built upon area. Payment in lieu shall only be allowed to the extent an approved disturbance cannot be offset by on-site mitigation as determined by the stormwater administrator. The following criteria shall be fulfilled for the payment in lieu option:

a. A fee shall be paid to the city where the property is located or its designee based on the following formula: 1.25 × (appraised value of subject property including intended use without improvements). The appraised value of the subject property shall be determined by a licensed, independent real estate appraiser retained by the developer or owner. The jurisdiction may accept the appraised value or at its discretion obtain its own appraisal. In the event the parties cannot agree on the appraised value, the two appraised values shall be averaged together to determine the final appraised value to be used in the formula above.

b. Payment shall be accepted by the city or its designee prior to land disturbing activities.

c. The city shall use the payment-in-lieu to purchase natural area in the same delineated watershed as the property to be disturbed. The 20 delineated watershed districts used for mitigation purposes are described in subsection (c)(2). As an option, the city may elect to use up to ten percent of the fee to purchase and plant trees within the city.

(d) *Approval criteria for natural area mitigation.*

(1) *Application for natural area mitigation.* The stormwater administrator shall receive, review, approve, disapprove or approve with conditions an "application for natural area mitigation." The stormwater administrator shall design this application to include all pertinent information, including at a minimum a "mitigation plan" describing the desired mitigation option as discussed in previous sections. An application for on-site mitigation shall show the location of the restored natural area on the property and the location, type and size of all trees and ground cover to be planted as well as contain a warranty statement for the trees. An off-site mitigation application shall show the location and description including acreage, etc. of the property to be used for mitigation and contain a legally valid instrument demonstrating that the applicant has legal title to the property for transfer to the city a payment in lieu application shall at a minimum contain the location and description of the site to be mitigated and an approved appraisal by a licensed, independent real estate appraiser.

(2) *Pre-approved natural area mitigation.* The following is pre-approved for on-site mitigation and does not require the submittal of an application to the stormwater administrator; however, these mitigation areas shall be described on the stormwater management permit application: *Residential, commercial and multifamily uses:* Forty percent of the required natural area as described in section 18-173 is pre-approved for on-site mitigation. Other forms of mitigation as described above must receive approval from the stormwater administrator.

(e) *Natural area designation.* All designated natural area areas included as part of an approved mitigation must be recorded at the register of deeds office. For off-site mitigation and payment in lieu where natural area remains undisturbed, the location of this area shall be recorded at the register of deeds office as "undisturbed natural area." For natural area areas that have been disturbed and revegetated, the location of this area shall be recorded at the register of deeds office as "revegetated natural area." The future disturbance of these areas shall be in accordance with ordinance requirements, which allow for disturbances associated with the installation of greenway trails with unlimited public access, private trails provided they are composed of pervious materials and comply with S.W.I.M. stream buffer requirements, Charlotte-Mecklenburg Utility lines and channel work/ maintenance activities by Charlotte-Mecklenburg stormwater services. Other utility work may be allowed in the natural area provided it will not result in loss of natural area as approved by the city.

Secs. 18-176—18-190. Reserved.

DIVISION 6. MAINTENANCE

Sec. 18-191. Dedication of BMPs, facilities and improvements.

(a) *Single-family residential BMPs accepted for maintenance.* The city shall accept maintenance responsibility (as specified in the administrative manual) of structural BMPs that are installed pursuant to this article following a warranty period of two years from the date of as-built certification described in section 18-123, provided the BMP:

(1) Only serves a single-family detached residential site or townhomes all of which have public street frontage;
(2) Is satisfactorily maintained during the two-year warranty period by the owner or designee;
(3) Meets all the requirements of this article and the design manual; and
(4) Includes adequate and perpetual access and sufficient area, by easement or otherwise, for inspection, maintenance, repair or reconstruction.

The stormwater administrator must receive an application for transfer of maintenance responsibilities for the structural BMP along with the stormwater management permit application. The stormwater administrator will develop and distribute this application as a component of the administrative manual (see subsection 18-122).

(b) *Maintenance and operation of BMPs.* The owner of a structural BMP installed pursuant to this article and not covered under subsection (a) shall maintain and operate the BMP so as to preserve and continue its function in controlling stormwater quality and quantity at the degree or amount of function for which the structural BMP was designed.

(c) *Damage or removal of trees.* The following provisions apply to trees contained in permitted natural area areas or in BMPs that are damaged or removed:

(1) For trees damaged or removed due to natural disasters, the owner shall be required to replace the trees in accordance with the natural area mitigation criteria described in subsection 18-175(c)(1) within a timeframe specified by the stormwater administrator.
(2) For trees damaged or removed due to reasons other than subsection (c)(1), the owner shall be required to replace the trees in accordance with the natural area mitigation criteria described in subsection 18-175(c)(1) within a timeframe specified by the stormwater administrator with the following exception, the trees shall be replaced at twice the specified density. In addition, the owner may be subject to fines as described in division 7.

(d) *Annual maintenance inspection and report.* The person responsible for maintenance of any BMP installed pursuant to this article and not covered under subsection (a) shall submit to the stormwater administrator an inspection report from a qualified registered state professional engineer or registered landscape architect performing services only in their area of competence. All inspection reports shall be on forms supplied by the stormwater administrator that are contained in the administrative manual. An original inspection report shall be provided to the stormwater administrator beginning one year from the date of as-built certification and each year thereafter on or before the anniversary date of the as-built certification.

Sec. 18-192. Operation and maintenance agreement.

(a) *General.* At the time that as-built plans are provided to the stormwater administrator as described in section 18-123 and prior to final approval of a project for compliance with this article, but in all cases prior to placing the BMPs in service, the applicant or owner of the site must execute an operation and maintenance agreement that shall be binding on all current and subsequent owners of the site, portions of the site, and lots or parcels served by the structural BMP. Failure to execute an operation and maintenance agreement within the time frame specified by the stormwater administrator may result in assessment of penalties as specified in division 7. Until the transference of all property, sites, or lots served by the structural BMP, the original owner or applicant shall have primary responsibility for carrying out the provisions of the maintenance agreement. At the discretion of the stormwater administrator, certificates of occupancy may be withheld pending receipt of an operation and maintenance agreement.

The operation and maintenance agreement shall require the owner or owners to maintain, repair and, if necessary, reconstruct the structural BMP, and shall state the terms, conditions, and schedule of maintenance for the structural BMP. In addition, it shall grant to the city a right of entry in the event that the stormwater administrator has reason to believe it has become necessary to inspect, monitor, maintain, repair, or reconstruct the structural BMP; however, in no case shall the right of entry, of itself, confer an obligation on the city to assume responsibility for the structural BMP.

Standard operation and maintenance agreements for BMPs shall be developed by the stormwater administrator and made available in the administrative manual. The operation and maintenance agreement must be approved by the stormwater administrator prior to plan approval, and it shall be referenced on the final plat as described in section 18-148.

(b) *Special requirement for homeowners' and other associations.* For all structural BMPs required pursuant to this article not covered under subsection 18-192(a), and that are to be or are owned and maintained by a homeowners' association, property owners' association, or similar entity, the required operation and maintenance agreement shall include the provisions described in the design manual.

Sec. 18-193. Inspection program.

Inspections and inspection programs by the city may be conducted or established on any reasonable basis, including but not limited to routine inspections; random inspections; inspections based upon complaints or other notice of possible violations; and joint inspections with other agencies inspecting under environmental or safety laws. Inspections may include, but are not limited to, reviewing maintenance and repair records; sampling discharges, surface water, groundwater, and material or water in BMPs; and evaluating the condition of BMPs.
If the owner or occupant of any property refuses to permit such inspection, the stormwater administrator shall proceed to obtain an administrative search warrant pursuant to G.S. 15-27.2 or its successor. No person shall obstruct, hamper or interfere with the stormwater administrator while carrying out his or her official duties.

Sec. 18-194. Performance security for installation and maintenance.

The city may require the submittal of a performance security or bond with surety, cash escrow, letter of credit or other acceptable legal arrangement prior to issuance of a permit in accordance with the provisions contained in the administrative manual.

Sec. 18-195. Records of installation and maintenance activities.

The owner of each structural BMP shall keep records of inspections, maintenance, and repairs for at least five years from the date of creation of the record and shall submit the same upon reasonable request to the stormwater administrator.

Sec. 18-196. Maintenance easement.

Every structural BMP installed pursuant to this article shall be made accessible for adequate inspection, maintenance, reconstruction and repair by a maintenance easement, which will be shown and labeled on all plans and plats. The easement shall be recorded to provided adequate and perpetual access and sufficient area, in favor of the city or otherwise, for inspection, maintenance, repair or reconstruction. All BMPs that are not located adjacent to a public right-of-way will require the owner to provide a 20-foot wide access easement in favor of the city that connects the BMP area to the public right-of-way. The easement shall be described on all plans and plats as follows: "The purpose of the Post Construction Controls Easement (PCCE) is to provide stormwater conveyance and for the control and treatment of stormwater runoff. Buildings or any other objects which impede stormwater flow, system performance or system maintenance are prohibited. This easement also provides for unlimited access for inspection and maintenance purposes to be performed on the BMP as required by the City of Charlotte's Stormwater Ordinance Post Construction Controls Regulations." The easement shall be recorded as described in section 18-148 and its terms shall specify who may make use of the easement and for what purposes.

Secs. 18-197—18-210. Reserved.

DIVISION 7. VIOLATIONS AND ENFORCEMENT

Sec. 18-211. Enforcement—Inspections and investigations.

(a) Authority to inspect and investigate. The stormwater administrator shall have the authority, upon presentation of proper credentials, to enter and inspect any land, building, structure, or premises to ensure compliance with this article, or rules or orders adopted or issued pursuant to this article, and to investigate to determine whether the

activity is being conducted in accordance with this article and the approved stormwater management plan, design manual and administrative manual and whether the measures required in the plan are effective. The stormwater administrator shall also have the power to require written statements, or the filing of reports under oath as part of an investigation.
(b) No person shall resist, delay, obstruct, hamper or interfere with the stormwater administrator while the stormwater administrator is inspecting and/or investigating or attempting to inspect and/or investigate an activity under this article. The stormwater administrator, to the extent permitted by law, may seek the issuance of a search warrant to determine compliance with this article.
(c) Inspection and/or investigation frequency. The inspections and investigations outlined above in subsection (a) may be conducted or established on any reasonable basis, including but not limited to: routine inspections and/or investigations; random inspections and/or investigations; inspections and/or investigations based upon complaints or other notice of possible violations; and joint inspections and/or investigations with other agencies inspecting and/or investigations under environmental or safety laws. Inspections may include, but are not limited to: reviewing maintenance and repair records; sampling discharges, surface water, groundwater, and material or water in BMPs; and evaluating the condition of BMPs.

Sec. 18-212. Violations and enforcement.

(a) *Violation unlawful.* Any failure to comply with an applicable requirement, prohibition, standard, or limitation imposed by this article, or the terms or conditions of any permit or other development or redevelopment approval or authorization granted pursuant to this article, is unlawful and shall constitute a violation of this article.
(b) *Responsible persons/entities.* Any person who erects, constructs, reconstructs, alters (whether actively or passively), or fails to erect, construct, reconstruct, alter, repair or maintain any structure, BMP, practice, or condition in violation of this article, as well as any person who participates in, assists, directs, creates, causes, or maintains a condition that results in or constitutes a violation of this article, or fails to take appropriate action, so that a violation of this article results or persists; or an owner, any tenant or occupant, or any other person, who has control over, or responsibility for, the use, development or redevelopment of the property on which the violation occurs shall be subject to the remedies, penalties, and/or enforcement actions in accordance with this section. For the purposes of this article, responsible person(s) shall include but not be
limited to:

(1) *Person maintaining condition resulting in or constituting violation.* Any person who participates in, assists, directs, creates, causes, or maintains a condition that constitutes a violation of this article, or fails to take appropriate action, so that a violation of this article results or persists.
(2) *Responsibility for land or use of land.* The owner of the land on which the violation occurs, any tenant or occupant of the property, any person who is responsible for stormwater controls or practices pursuant to a private agreement or public document, or any person, who has control over, or responsibility for, the use, development or redevelopment of the property.

(c) *Notice of violation and order to correct.* If, through inspection and/or investigation, it is found that any building, structure, or land is in violation of this article, the stormwater administrator shall notify in writing the responsible person/entity. The notice may be served by any means authorized under G.S. 1A-1, rule 4, or other means reasonably calculated to give actual notice. The notification shall indicate the nature of the violation, contain the address or other description of the site upon which the violation occurred or is occurring, order the necessary action to abate the violation, and give a deadline for correcting the violation. The notice shall, if required, specify a date by which the responsible person/entity must comply with this article, and advise that the responsible person/entity is subject to remedies and/or penalties or that failure to correct the violation within the time specified will subject the responsible person/entity to remedies and/or penalties as described in section 18-213. In determining the measures required and the time for achieving compliance, the stormwater administrator shall take into consideration the technology and quantity of work required, and shall set reasonable and attainable time limits.
If a violation is not corrected within a reasonable period of time, as provided in the notification, the stormwater administrator may take appropriate action, as provided in section 18-213, to correct and abate the violation and to ensure compliance with this article.
(d) *Extension of time.* A responsible person/entity who receives a notice of violation and correction order, or the owner of the land on which the violation occurs,may submit to the stormwater administrator a written request for an extension of time for correction of the violation. On determining that the request includes enough information to

show that the violation cannot be corrected within the specified time limit for reasons beyond the control of the responsible person/entity requesting the extension, the stormwater administrator may extend the time limit as is reasonably necessary to allow timely correction of the violation, up to, but not exceeding 60 days. The stormwater administrator may grant 30 day extensions in addition to the foregoing extension if the violation cannot be corrected within the permitted time due to circumstances beyond the control of the responsible person/entity violating this article. The stormwater administrator may grant an extension only by written notice of extension. The notice of extension shall state the date prior to which correction must be made, after which the violator will be subject to the penalties described in the notice of violation and correction order.
(e) *Emergency enforcement.* If a violation seriously threatens the effective enforcement of this article or poses an immediate danger to the public health, safety, or welfare or the environment, then the stormwater administrator may order the immediate cessation of a violation. Any person so ordered shall cease any violation immediately. The stormwater administrator may seek immediate enforcement, without prior written notice, through any remedy or penalty specified in section 18-213.

Sec. 18-213. Remedies and penalties.

(a) *Civil penalties.* Any person who violates any of the provisions of this article or rules or other orders adopted or issued pursuant to this article may be subject to a civil penalty. A civil penalty may be assessed from the date the violation occurs. The stormwater administrator shall determine the amount of the civil penalty and shall notify the violator of the amount of the penalty and the reason for assessing the penalty. No penalty shall be assessed until the person alleged to be in violation has been notified of the violation except as provided in subsection 18-212(d) in which case the penalty is assessed concurrently with a notice of violation. Refusal to accept the notice or failure to notify the stormwater administrator of a change of address shall not relieve the violator's obligation to comply with the article or to pay such a penalty.
(b) *Each day a separate offense.* Each day that a violation continues shall constitute a separate and distinct violation or offense.
(c) *Penalties assessed concurrent with notice of violation.* Penalties may be assessed concurrently with a notice of violation for any of the following, in which case the notice of violation shall also contain a statement of the civil penalties to be assessed, the time of their accrual, and the time within which they must be paid or be subject to collection as a debt:
(1) Failure to submit a stormwater management plan;
(2) Performing activities without an approved stormwater management plan;
(3) Obstructing, hampering or interfering with an authorized representative who is in the process of carrying out official duties;
(4) A repeated violation for which a notice was previously given on the same project and to the same responsible person/entity responsible for the violation;
(5) Willful violation of this article; and
(6) Failure to install or maintain best management practices per the approved plan.
(d) *Amount of penalty.* The civil penalty for each violation of this article may be up to the maximum allowed by law. In determining the amount of the civil penalty, the stormwater administrator shall consider any relevant mitigating and aggravating factors including, but not limited to, the effect, if any: of the violation; the degree and extent of harm caused by the violation; the cost of rectifying the damage; whether the violator saved money through noncompliance; whether the violator took reasonable measures to comply with this article; whether the violation was committed willfully; whether the violator reported the violation to the stormwater administrator; and the prior record of the violator in complying or failing to comply with this article or any other post-construction ordinance or law.
(e) *Failure to pay civil penalty assessment.* If a violator does not pay a civil penalty assessed by the stormwater administrator within 30 days after it is due, or does not request a hearing as provided in subsection (c), the stormwater administrator shall request the initiation of a civil action to recover the amount of the assessment. The civil action shall be brought in Mecklenburg County superior court or in any other court of competent jurisdiction. A civil action must be filed within three years of the date the assessment was due. An assessment that is appealed is due at the conclusion of the administrative and judicial review of the assessment.
(f) *Appeal of remedy or penalty.* The issuance of an order of restoration and/or notice of assessment of a civil penalty by the stormwater administrator shall entitle the responsible party or entity to an appeal before the stormwater advisory committee (SWAC) if such person submits written demand for an appeal hearing to the clerk of

SWAC within 30 days of the receipt of an order of restoration and/or notice of assessment of a civil penalty. The demand for an appeal shall be accompanied by a filing fee as established by SWAC. The appeal of an order of restoration and/or notice of assessment of a civil penalty shall be conducted as described in section 18-124.

(g) *Additional remedies.*

(1) *Withholding of certificate of occupancy.* The stormwater administrator or other authorized agent may refuse to issue a certificate of occupancy for the building or other improvements constructed or being constructed on the site and served by the stormwater practices in question until the applicant or other responsible person has taken the remedial measures set forth in the notice of violation or has otherwise cured the violations described therein.

(2) *Disapproval of subsequent permits and plan approvals.* As long as a violation of this article continues and remains uncorrected, the stormwater administrator or other authorized agent may withhold, and the stormwater administrator may disapprove, any request for permit or plan approval or authorization provided for by this article or the zoning, subdivision, and/or building regulations, as appropriate for the land on which the violation occurs.

(3) *Injunction, abatements, etc.* The stormwater administrator, with the written authorization of the city manager, may institute an action in a court of competent jurisdiction for a mandatory or prohibitory injunction and order of abatement to correct a violation of this article. Any person violating this article shall be subject to the full range of equitable remedies provided in the general statutes or at common law.

(4) *Correction as public health nuisance, costs as lien, etc.* If the violation is deemed dangerous or prejudicial to the public health or public safety and is within the geographic limits prescribed by G.S. 160A-193, the stormwater administrator, with the written authorization of the city manager, may cause the violation to be corrected and the costs to be assessed as a lien against the property.

(5) *Restoration of areas affected by failure to comply.* By issuance of an order of restoration, the stormwater administrator may require a person who engaged in a land disturbing activity and failed to comply with this article to restore the waters and land affected by such failure so as to minimize the detrimental effects of the resulting pollution. This authority is in addition to any other civil penalty or injunctive relief authorized under this article.

(h) *Criminal penalties.* Violation of this article may be enforced as a misdemeanor subject to the maximum fine permissible under state law.