City of Charlotte
NPDES Permit Program

Stormwater
Management Program Plan

Permit Number NCS000240

June 2008

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Acronyms Used In This Document:

BMP:	Best Management Practice
BOD:	Biochemical Oxygen Demand
CMSWS:	Charlotte-Mecklenburg Storm Water Services
DO:	Dissolved Oxygen
DWQ:	Division of Water Quality
ETJ:	Extra Territorial Jurisdiction
GIS:	Geographic Information System
GPS:	Global Positioning System
LUESA:	Land Use and Environmental Services Agency
MOU:	Memorandum of Understanding
MS4:	Municipal Separate Storm Sewer System
NCAC:	North Carolina Administrative Code
NCDENR:	North Carolina Department of Environment and Natural Resources
NPDES:	National Pollutant Discharge Elimination System
SWAC:	Storm Water Advisory Committee
SWMP:	Stormwater Management Program Plan
TMDL:	Total Maximum Daily Load
TSS:	Total Suspended Solids

Section 1: Introduction

On November 1, 1993, the City of Charlotte began operating under Municipal Separate Storm Sewer System (MS4) National Pollutant Discharge Elimination System (NPDES) Permit Number NCS000240. This permit was renewed for a second term effective April 12, 2000 through April 12, 2005. The permit is currently renewed for a third term effective July 1, 2007 through June 30, 2012.

This document provides the Stormwater Management Program Plan (SWMP) required by Part I, paragraphs 1, 7, and 8 of the NPDES permit. The overall objective of the SWMP is to protect receiving stream water quality by reducing the discharge of pollutants from the City's MS4 to the maximum extent practicable through the implementation of the permit programs and SWMP elements described within this plan. Charlotte-Mecklenburg Storm Water Services (CMSWS) is the primary agency responsible for managing the City's NPDES stormwater permit, its MS4 and the SWMP. The implementation of these requirements within the permit program and SWMP will be coordinated with the NPDES Phase II permit programs for the jurisdictions in Mecklenburg County adjacent to the City of Charlotte where appropriate and feasible. Doing so will help to ensure uniformity between the Phase I and Phase II local NPDES stormwater permit programs and jurisdictions.

Included in this SWMP are the individual best management practices (BMPs) that will be used to fulfill program requirements along with the corresponding frequency of each BMP, measurable program goals, implementation schedule, funding sources, and responsible positions. Staff of CMSWS, under the direction of the City's Water Quality Program Manager, are responsible for the fulfillment of most of the activities discussed in this SWMP. Exceptions to this include the City's Land Development Division, which is the primary agency responsible for Construction Site Stormwater Runoff Control. In addition, the City's Street Maintenance Division and Solid Waste Services have responsibility for maintenance of portions of the MS4, in coordination with CMSWS.

The development of this SWMP will be completed within one (1) year and implementation completed within five (5) years from the effective date of the currently issued permit renewal. The City's SWMP includes the following core Phase I permit programs:

1. Public Education and Outreach Program – This program provides the general public as well as business and industry with valuable 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 provided using a wide range of media including print, radio, and television.

2. Public Involvement and Participation Program – This program provides the general public as well as business and industry the opportunity to participate in various programs within the City's SWMP. Charlotte-Mecklenburg maintains a Storm Water Advisory Committee (SWAC), which is an appointed citizen panel to review and comment on the City's

stormwater programs. In addition, public volunteer opportunities are available with City/County programs such as Storm Drain Marking.

3. Illicit Discharge Detection and Elimination Program – This program is designed to protect water quality by detecting and eliminating pollution sources from illicit connections such as improper sewage or wastewater connections; illegal discharges such as chemical, paint, or oil dumping; and spills such as sewer overflows or vehicle accidents involving discharges of fuel, oil, and other chemicals. 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 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 – The City maintains a local erosion and sediment control program to control sediments and other pollutants from construction sites. As part of this, the program enforces the "City of Charlotte - Soil Erosion and Sedimentation Control Ordinance", which requires proper 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 – The City is currently developing a program to control the discharge of pollutants in stormwater runoff from new development and redevelopment projects. As part of this, an ordinance was adopted requiring stormwater treatment practices for development that meets various size and density thresholds. The program will involve review and approval of project plans as well as site inspections to ensure that treatment practices are properly operated and maintained.

6. Pollution Prevention/Good Housekeeping Program – This program focuses on ensuring that City owned and operated facilities are properly operated and maintained to reduce stormwater pollutant discharges from these facilities. Stormwater Pollution Prevention Plans and Spill Response Plans are prepared for applicable facilities that conduct activities with the potential for stormwater pollutant discharges. The City conducts annual inspections and training sessions at these facilities to ensure that requirements are being met.

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

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

9. Water Quality Recovery Program – The Total Maximum Daily Load (TMDL) program is required by the Clean Water Act and is basically a plan designed to address pollutants that are causing impairments to water bodies. The City's NPDES permit requires that Water Quality Recovery Plans be prepared and implemented for streams that are subject to a TMDL. The plans are designed to assess the pollutant of concern and develop strategies to address pollutant sources causing the impairment.

10. Threatened or Endangered Species Program – Certain waters provide habitat for aquatic animal species that are listed as threatened or endangered by the U.S. Fish and Wildlife Service or National Marine Fisheries Service under the provisions of the Endangered Species Act, 16 U.S.C. 1531-1544 and subsequent modifications. Currently, Six Mile Creek has been identified as a water body supporting the Carolina heelsplitter, which is a Federal and State listed endangered species; however, to date, there have been no formal site-specific management plans approved by the State for Six Mile Creek concerning this issue. The City will work to develop and implement additional components within its SWMP as required, once a formal site-specific management plan is adopted by the State.

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 permit. Data reported in this section was obtained from the City's NPDES 2004 permit application. **Table 2-1** provides the population and estimated average annual growth rate for this area. The source of this population data is the 1990 and 2000 Decennial Census information obtained from the following website:
http://www.charlottechamber.com/content.cfm?category_level_id=134&content_id=186&CFID=6229476&CFTOKEN=43951359

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

2000 Population	1990 Population	Estimated Annual Percent Change
590,447	451,755	3%

2.2 Growth Rate

Table 2-1 shows the population growth rate represented as an "Estimated Annual Percent Change" for the incorporated area and ETJ of the City. This growth rate was calculated using the percent change between the 1990 and 2000 population totals from the Decennial Census, annualized by dividing this percent change by ten (10).

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 are 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)
269	107	376

2.4 MS4 Conveyance System

The existing MS4 serving the City is composed of curbs, gutters, catch basins, culverts, pipes, and ditches that collect and convey stormwater for discharge to receiving streams. There are an estimated 1190 miles of storm drain pipe and 55,195 catch basins and drop inlets within the City's MS4. At a minimum, pipe systems are typically 15 inches 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. Stream banks that were armored with riprap as a result of previous stream bank stabilization efforts are currently allowed to re-vegetate naturally.

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 watershed scale 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.

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	209	32
Commercial	31	31
Industrial	6	2
Open Space	130	35

2.6 Estimate Methodology

Land use estimates were derived from Mecklenburg County land parcel data.

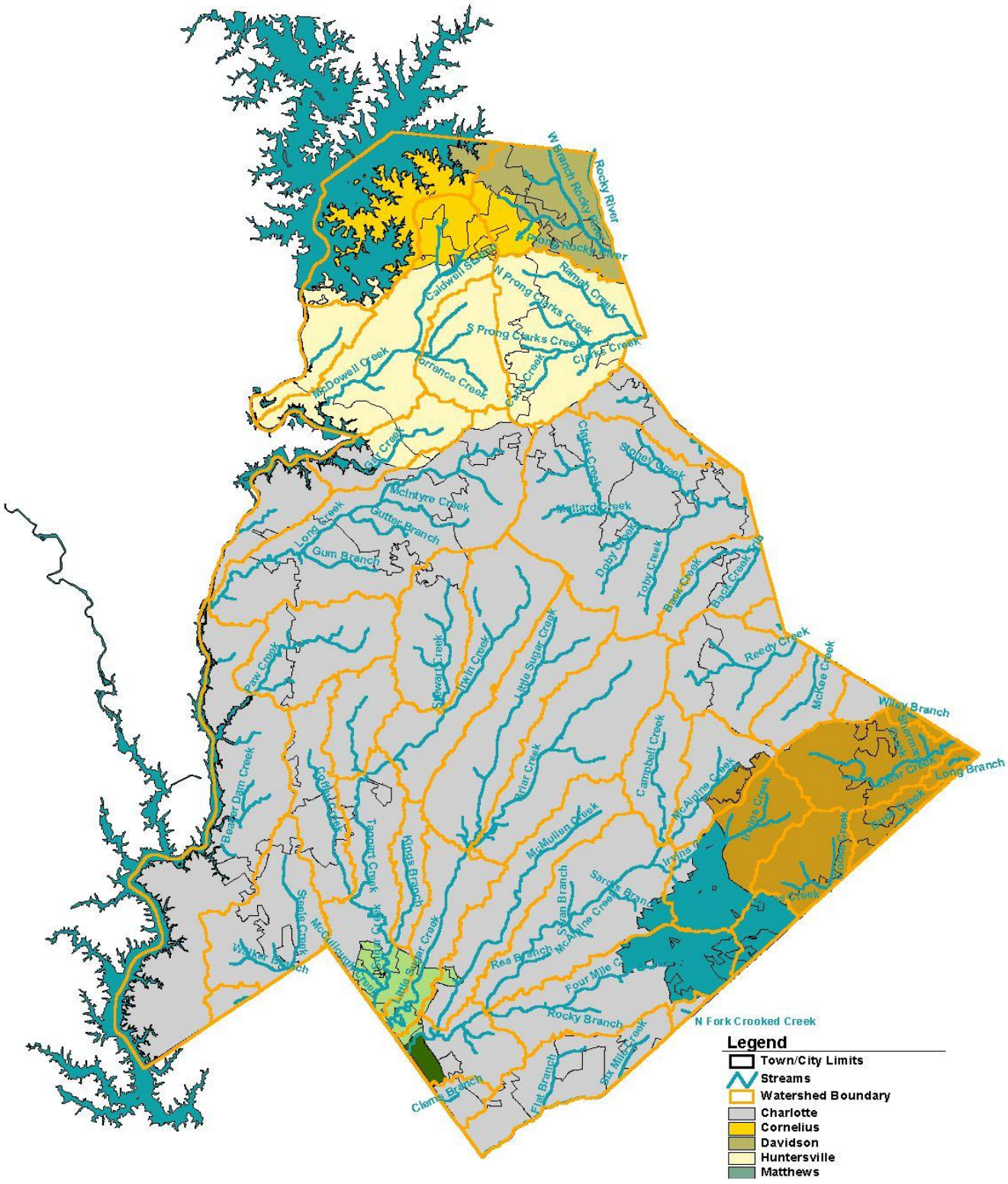
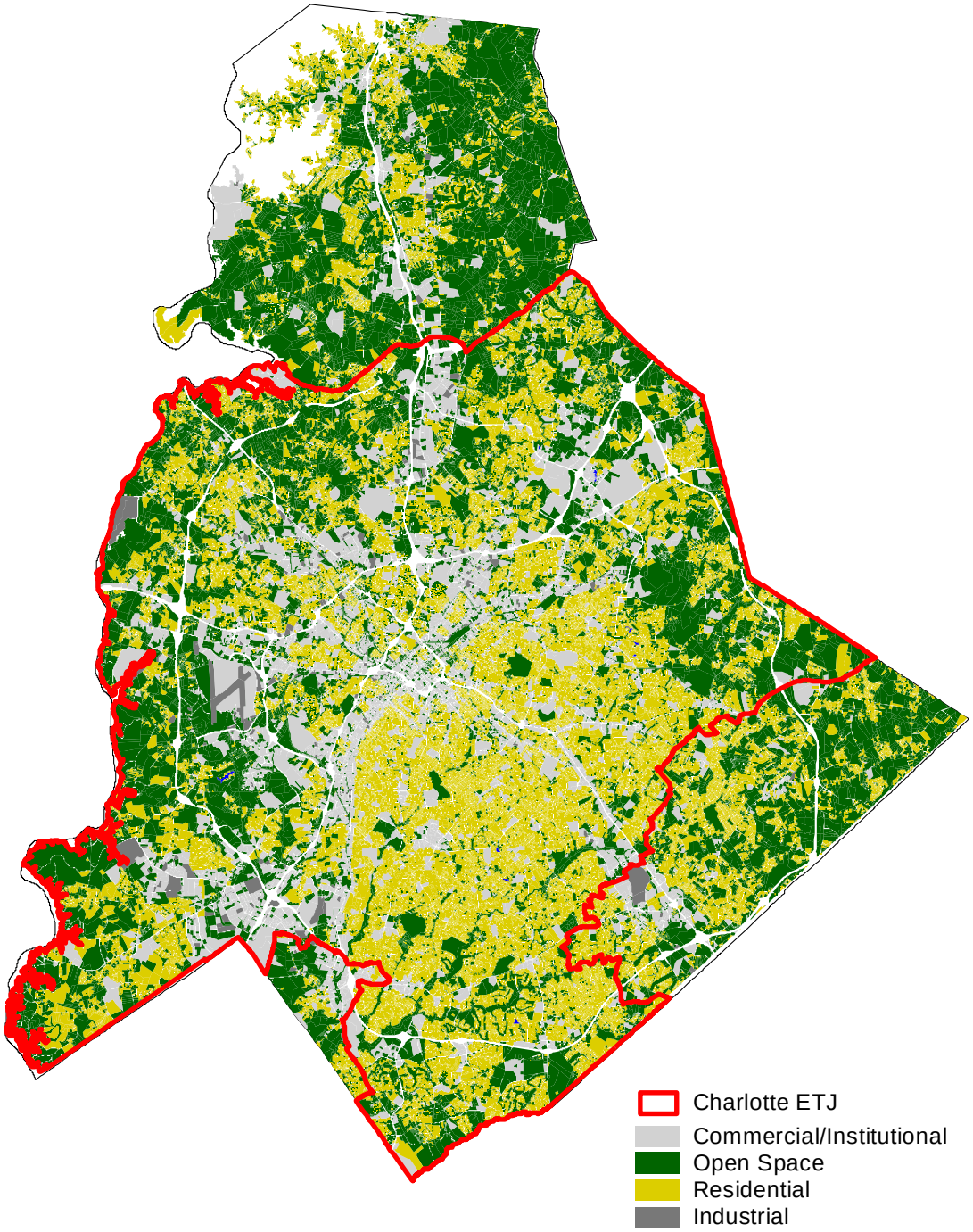


Figure 2-1:
Charlotte-Mecklenburg Jurisdictions and Watersheds

Figure 2-2: Charlotte-Mecklenburg Land Uses



Section 3: Public Education and Outreach Program

The City has developed and implemented a 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 program also provides information on the steps that the public can take to reduce these impacts and protect water quality conditions. The following subsections explain the BMPs implemented to meet these 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 implemented to fulfill the Public Education and Outreach Program requirements. Funding for the BMPs in this section is covered by local stormwater utility fees.

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	
Identify Target Pollutants	Identify the target pollutants and pollution sources affecting stormwater runoff and water quality and why they are an issue.	X					Water Quality Program Manager
Identify Target Audiences	Identify the target audiences likely to impact stormwater and water quality and describe why they were selected.	X					Water Quality Program Manager
Establish a Public Education and Outreach Program	Develop a Public Education and Outreach Program and Plan designed to address target pollutant sources and to provide information and education to the general public as well as well as target audiences.	X	X	X	X	X	Water Quality Program Manager
Maintain Informational Website	Promote and maintain an informational website to provide information on stormwater programs and projects, water quality, staff contacts, and volunteer opportunities.	X	X	X	X	X	Water Quality Program Manager
Develop and distribute public education materials to identified user groups. For example, schools, homeowners, and/or businesses.	Develop general stormwater educational outreach materials to provide education to appropriate target groups.	X	X	X	X	X	Water Quality Program Manager
Media Campaign	Develop a public education and outreach media campaign that may include, but not be limited to, newspaper articles, signage/billboards, newspaper advertisements, radio advertisements, and/or television advertisements. For each type of media, document the campaign reach and frequency.	X	X	X	X	X	Water Quality Program Manager
Establish Public Hotline/Help Line	Establish and maintain a stormwater/water quality hotline/help line for the public to utilize to report problems and/or request information.	X	X	X	X	X	Water Quality Program Manager

3.2 Target Pollutants and Sources

Table 3-2 provides the specific pollution 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: Targeted Pollution Sources for the Public Education and Outreach Program.

Pollution Source	Issue
Lawn Care Activities	Improper application, handling and storage of lawn care products can result in the discharge of pollutants to the storm drain system including fertilizers and herbicides. Improper disposal of grass clippings and leaves can negatively impact water quality by producing increased BOD and decreased DO levels in streams. Significant residential development exists in the City of Charlotte with the potential for negative water quality impacts associated with improper lawn care activities
Improper Disposal	Improper disposal can result in the discharge of a variety of pollutants to the storm drainage system. This can be a problem at construction sites where paint and other construction wastes are generated and in established commercial and residential areas where used oil, grease, animal waste, carpet cleaning wastes and a variety of other pollutants can be a problem.
Poor Housekeeping	Poor housekeeping can result in the discharge of petroleum products, miscellaneous chemicals and other wastes to the storm drain system and surface waters. This is usually a problem at commercial and industrial facilities.
Erosion	Poor erosion control at construction sites results in sediment discharges to the storm drainage system. Also, excessive volumes of stormwater runoff cause scouring of the creek banks resulting in sedimentation of the streams.

3.3 Target Audience

The target audiences for the public education program include those entities that will have significant positive and/or negative impacts on water quality conditions. The audiences selected are listed below along with an explanation as to why they are being targeted for educational outreach.

General Public: Homeowners between the ages of 25 and 55 have been selected as a primary target for the educational program due to the significant positive and negative impacts they can have on water quality conditions. This age group represents about 55% of the residents of the City. This is also the age group that would potentially engage in activities such as dumping oil and other wastes into storm drains, improperly disposing of yard wastes along creek banks and improperly applying pesticides and herbicides on lawns. This also represents the target group that would be more inclined to report pollution problems observed in streams and lakes and participate in volunteer water quality initiatives. The City receives an average of 1,000 reported water quality problems annually, the majority of which originate from phone calls from the general public. One of the goals of the outreach program is to increase public awareness regarding water quality problems/concerns and provide information regarding proper reporting requirements for observed pollution problems. Some citizen groups have a greater potential for impacting water quality and will be specifically targeted as described below:

Civic/Environmental Groups – Targeted to become aware of general water quality issues, report pollution problems and participate in a variety of volunteer activities.
Neighborhood/Homeowners Associations - Targeted to become aware of general water quality issues, report pollution problems and participate in a variety of volunteer activities.
Hispanic Outreach – Targeted for multi-language campaigns to become aware of general water quality issues and proper disposal activities.
Do-It-Yourself Yard Care – Targeted to reduce pesticide and fertilizer use and properly dispose of yard waste.

Commercial: Commercial facilities have been targeted for the educational program due to the significant negative impacts they can have on water quality by potentially improperly handling and disposing of wastes, making illicit connections to the storm drain system and practicing poor housekeeping at their facilities. Some commercial facilities have a history of water quality problems and will be specifically targeted through mailings, brochures or presentations including:
Carpet Cleaning Companies – Targeted for potential illegal dumping of wastewater into storm drains.
Restaurants – Targeted for potential improper handling of grease resulting in discharges to storm drains.
Automotive Repair Facilities – Targeted for potential improper handling of used oil and other waste automotive fluids resulting in discharges to storm drains.
Lawn Care Companies & Golf Courses – Targeted for potential improper application of fertilizers and herbicides resulting in discharges to surface waters.

3.4 Public Education and Outreach Program

Rather than use a "one size fits all" mentality, the public education and outreach program presents clear messages through a kaleidoscope of media. The multi-faceted program helps citizens of Charlotte choose behaviors that protect our water quality.

3.4.1 Newspaper Articles/Inserts

Press releases often result in newspaper articles. Press releases will be issued regularly throughout the Permit period to trigger newspaper articles about topics such as public events, workshops, proper yard waste, animal waste and grease disposal, project completion, and other topics.

3.4.2 Utility Bill Inserts

Each month throughout the Permit period, an insert will be placed in the utility bill and distributed to more than 220,000 customers. Inserts will contain information about public events, workshops, proper yard waste, animal waste and grease disposal, project completion, and other topics.

3.4.3 Community Events

Each year throughout the Permit period, staff will participate in community events such as Earth Day and Water Week by having booth space and distributing information and promotional items.

3.4.4 Public Educational Presentations

An annual educational presentation will be given beginning in the first year of the permit targeted at the general public, interest groups, businesses and industrial facilities. The presentation will focus on the efforts necessary to protect water quality and the promotion of volunteer activities.

3.4.5 Classroom Outreach

Each year throughout the Permit period, classroom presentations will be made to eight graders utilizing educational outreach materials. The NC curriculum requires that eight grade students study non-point source pollution.

3.4.6 Promotional Items

Promotional items will be designed and distributed to complement outreach activities such as group presentations, workshops and public events. Promotional items will include, but are not limited to, messages with the hotline number to report pollution and Storm Water Services internet address.

3.4.7 Newsletters

A semi-annual newsletter will be used to provide information concerning program activities and specific measures for protecting water quality. The newsletter will be distributed by mail to targeted groups, handed out at event displays, and posted on web pages.

3.5 Informational Website

A website will continue to be developed and directed at all the target audiences discussed in sub-section 3.3 including the general public and commercial and industrial entities. Specific information will be provided on these web pages directed at the pollution sources discussed in **Table 3-2** above.

3.6 Public Outreach Materials

This outreach mechanism will be used to target specific pollution sources associated with the general public, industrial/commercial facilities and institutions including lawn care practices, handling of used oil and other automotive wastes, housekeeping techniques, etc as well as to

increase public reporting of pollution problems. Brochures will be distributed during responses to citizen requests for service, presentations and at event displays.

3.7 Media Campaign

Newspaper, television or radio ads can be used to target a variety of water quality issues associated with the general public, including proper lawn care practices, proper disposal of household hazardous wastes and proper disposal of used oil and other waste automotive products. The ads will also be used to encourage the reporting of illicit connections, improper disposal and general water quality problems as well as to increase involvement in volunteer activities. The ads will also be used to inform the general public to "Keep It Clear – Don't Dump Here" and to "Maintain Your Drain."

3.8 Public Hotline/Help Line

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

3.9 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
Identify Target Pollutants	Identify the target pollutants and pollution sources affecting stormwater runoff and water quality and why they are an issue.	Identify target pollution sources utilizing monitoring and service request data	Review and update target pollution sources as necessary.	Review and update target pollution sources as necessary.	Review and update target pollution sources as necessary.	Review and update target pollution sources as necessary.
Identify Target Audiences	Identify the target audiences likely to impact stormwater and water quality and describe why they were selected.	Identify target audiences to adopt desired water quality improvement behaviors	Review and update target audiences as necessary.	Review and update target audiences as necessary.	Review and update target audiences as necessary.	Review and update target audiences as necessary.
Establish a Public Education and Outreach Program	Develop a Public Education and Outreach Program and Plan designed to address target pollutant sources and to provide information and education to the general public as well as well as target audiences.	Develop and implement a plan to conduct education & outreach activities that address target pollutants and audiences	Continue education and outreach activities per the plan.	Continue education and outreach activities per the plan.	Continue education and outreach activities per the plan.	Continue education and outreach activities per the plan.
Maintain Informational Website	Promote and maintain an informational website to provide information on stormwater programs and projects, water quality, staff contacts, and volunteer opportunities.	Continue to maintain an informational website to provide program information to the public.	Continue to maintain an informational website to provide program information to the public.	Continue to maintain an informational website to provide program information to the public.	Continue to maintain an informational website to provide program information to the public.	Continue to maintain an informational website to provide program information to the public.
Develop and distribute public education materials to identified user groups. For example, schools, homeowners, and/or businesses.	Develop general stormwater educational outreach materials to provide education to appropriate target groups.	Distribute educational materials at public events, workshops and presentations	Distribute educational materials at public events, workshops and presentations	Distribute educational materials at public events, workshops and presentations	Distribute educational materials at public events, workshops and presentations	Distribute educational materials at public events, workshops and presentations

Media Campaign	Develop a public education and outreach media campaign that may include, but not be limited to, newspaper articles, signage/billboards, newspaper advertisements, radio advertisements, and/or television advertisements.	Develop and implement a media campaign.	Continue implementation of the media campaign.	Continue implementation of the media campaign.	Continue implementation of the media campaign.	Continue implementation of the media campaign.
Establish Public Hotline/Help Line	Establish and maintain a stormwater/water quality hotline/help line for the public to utilize to report problems and/or request information.	Maintain a hotline that receives information from the public 24 hours a day	Maintain a hotline that receives information from the public 24 hours a day	Maintain a hotline that receives information from the public 24 hours a day	Maintain a hotline that receives information from the public 24 hours a day	Maintain a hotline that receives information from the public 24 hours a day

3.10 Program Assessment

The overall success of the Public Education and Outreach Program will be measured through the successful implementation of the components of the program. Program assessment will be reported with each annual NPDES permit report discussing the activities completed in this section for the previous program year.

In addition, success will also be measured specifically by the following:

- Number of website inquires
- Number of Citizen Requests for Service Received
- Number of Water Quality Presentations Conducted
- Annual Survey Results

Section 4: Public Involvement and Participation Program

The City has developed and implemented a Public Involvement and Participation Program to provide opportunities for the public to participate in program development and implementation. The following Sections explain the BMPs to be implemented to meet this requirement, explanation of the public participation program, and measures of success.

4.1 BMP Summary Table

Table 4-1 provides information concerning the BMPs to be implemented to fulfill the Public Involvement and Participation Program requirements. Funding for the BMPs in this section is covered by local stormwater utility fees.

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	
Administer a Public Involvement Program	Develop and implement a Public Involvement and Participation Program and Plan to allow the public to provide input and comment on stormwater management programs as well as participate in volunteer opportunities.	X	X	X	X	X	Water Quality Program Manager
Allow the public an opportunity to review and comment on the Stormwater Management Plan	Provide opportunities to the public to review and comment on the development of the Stormwater Management Plan. Conduct at least one public meeting to present the plan and allow the public an opportunity to provide review and comment.	X					Water Quality Program Manager
Organize a volunteer community involvement program	Develop and implement a volunteer involvement program designed to promote ongoing citizen participation in stormwater management efforts.	X	X	X	X	X	Water Quality Program Manager
Establish a	Maintain a mechanism for public involvement and	X	X	X	X	X	City

Mechanism for Public Involvement	opportunities for review and comment on stormwater issues and management programs. For example, a citizen advisory group.						Stormwater Division Manager
Establish Public Hotline/Help Line	Establish and maintain a stormwater/water quality hotline/help line for the public to utilize to report problems and/or request information.	X	X	X	X	X	Water Quality Program Manager

4.2 Target Audience

The primary target audience for the Public Involvement and Participation Program 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 will also actively involve all potentially effected stakeholder groups, including commercial and industrial facilities, trade associations, environmental groups, homeowners associations, civic groups and educational organizations.

4.3 Public Involvement and Participation Program

The City will involve the public in the development and implementation of its permit and SWMP Plan through public advertisement, website information, and interactions with the Charlotte Mecklenburg Storm Water Advisory Committee (SWAC), which will be used as a forum to conduct a public meeting for receiving comments/input on the SWMP plan development and implementation. The general public will also be actively involved in the ongoing implementation of the SWMP through participation in the Storm Drain Marking Programs.

4.4 Public Review and Comment Opportunities

A public meeting will be held before the SWAC for the purpose of receiving public comments concerning the development of the draft SWMP plan. The public meeting will be advertised in the local newspaper with the public invited to attend, receive information, and provide comments concerning program development and implementation and/or provide written comments to the City in advance. During the public meeting, a presentation will be given by City staff describing the measures that will be implemented to control stormwater pollution sources as well as the various activities that will be performed to fulfill permit requirements. The draft SWMP plan will be made available for public review prior to the public meeting at City offices and on the City's website. Comments received during this public meeting as well as comments received in writing will be used to complete the development of the SWMP. Presentations and updates will be made to SWAC as needed to update and involve the public in the ongoing development and implementation of the program.

4.5 Volunteer Involvement Program

4.5.1 Storm Drain Marking Program

Figure 4-1: Storm Drain Marker

The Storm Drain Marking Program was developed as a component of the City's NPDES permit program during the initial permit term utilizing storm drain stencils. In 2003, the program began using vinyl printed markers (***Figure 4-1***). This program will continue to be maintained and expanded where appropriate as a component of the permit program and SWMP. The Storm Drain Marking Program uses volunteers to place markers on storm drains with the message "Do Not Dump – Drains to Creek" (***Figure 4-1***). Volunteer groups include Boy/Girl Scout troops, environmental interest groups, homeowners associations, schools, garden clubs, families, businesses and industries. Typically volunteer groups will select several streets within a neighborhood for marking. 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 to CSWS that includes the street names and number of drains that were marked as well as information concerning the condition of storm drains and whether any pollutants were detected. Staff follows up to ensure the elimination of illegal dumping activities and maintain records of storm drains that have been marked.

4.6 Public Involvement Mechanism

The City of Charlotte and Mecklenburg County established a citizen Storm Water Advisory Committee (SWAC) in 1994 with the development of their stormwater utility (Charlotte-Mecklenburg Storm Water Services). SWAC was established to review policies, capital and operational programs and appeals for the stormwater programs of the City and County. SWAC reviews stormwater management policies, long-range plans and budgets to make recommendations or offer comments to the City Council and Board of County Commissioners. The advisory committee also hears appeals and decides on erosion control violations, pollution control violations, service charges, credits and adjustments. 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 will serve as the City's stormwater management citizen advisory panel for the purpose of involving the public in the development of the SWMP and the implementation of program requirements.

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
Administer a Public Involvement Program	Develop and implement a Public Involvement and Participation Program and Plan to allow the public to provide input and comment on stormwater management programs as well as participate in volunteer opportunities.	Develop and implement a public involvement and participation program that outlines campaigns and tools to encourage public involvement	Continue public involvement and participation activities per the plan.	Continue public involvement and participation activities per the plan.	Continue public involvement and participation activities per the plan.	Continue public involvement and participation activities per the plan.
Allow the public an opportunity to review and comment on the Stormwater Management Plan	Provide opportunities to the public to review and comment on the development of the Stormwater Management Plan. Conduct at least one public meeting to present the plan and allow the public an opportunity to provide review and comment.	Facilitate a public meeting by June 30, 2008 to invite comment and review of the Stormwater Management Plan	Conduct other public meetings and advise SWAC on program issues as necessary.	Conduct other public meetings and advise SWAC on program issues as necessary.	Conduct other public meetings and advise SWAC on program issues as necessary.	Conduct other public meetings and advise SWAC on program issues as necessary.
Organize a volunteer community involvement program	Develop and implement a volunteer involvement program designed to promote ongoing citizen participation in stormwater management efforts.	Develop and implement a Storm Drain Marking program.	Continue to implement Storm Drain Marking program.	Continue to implement Storm Drain Marking program.	Continue to implement Storm Drain Marking program.	Continue to implement Storm Drain Marking program.
Establish a Mechanism for Public Involvement	Maintain a mechanism for public involvement and opportunities for review and comment on stormwater issues and management programs. For example, a citizen advisory group.	Maintain the Storm Water Advisory Committee.	Maintain the Storm Water Advisory Committee.	Maintain the Storm Water Advisory Committee.	Maintain the Storm Water Advisory Committee.	Maintain the Storm Water Advisory Committee.
Establish Public Hotline/Help Line	Establish and maintain a stormwater/water quality hotline/help line for the public to utilize to report problems and/or request information.	Maintain a hotline that receives information from the public 24 hours a day	Maintain a hotline that receives information from the public 24 hours a day	Maintain a hotline that receives information from the public 24 hours a day	Maintain a hotline that receives information from the public 24 hours a day	Maintain a hotline that receives information from the public 24 hours a day

4.8 Program Assessment

The overall success of the Public Involvement and Participation Program will be measured through the successful implementation of the components of the program. Program assessment will be reported with each annual NPDES permit report discussing the activities completed in this section for the previous program year.

In addition, success will also be measured specifically by the following:

- Number of Volunteers Participating in the Storm Drain Marking Program
- Number of Storm Drains Marked
- Number of Pollution Problems detected
- Number of Citizen Requests for Service

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

The City maintains a very proactive illicit discharge detection and elimination program that has developed out of the implementation of the NPDES stormwater permit program. The program centers on the use of surface water quality monitoring data, including chemical, physical and bacteriological monitoring data. This data is carefully analyzed for the identification of water quality problem areas and the initiation of standardized follow-up field screening activities designed to identify and eliminate pollution sources and restore water quality conditions. Some of the integral components of this program are as follows:

- Maintenance of an effective chemical, physical and bacteriological monitoring program to accurately assess existing water quality conditions and identify trends.
- Use of "Action" levels established for specific 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.
- Responding to citizen requests for service concerning 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 Program.
- Identification and mapping of stormwater outfalls that discharge to waters of the State.
- Stream walking and Dry Weather Flow screening
- Train employees about illicit discharges and how to prevent and report them.
- Maintain a public reporting mechanism.
- Coordination with other local government agencies to identify and eliminate failed septic systems and sanitary sewer overflows.

The following Sections explain the BMPs to be implemented to meet this requirement.

5.1 BMP Summary Table

Table 5-1 provides information concerning the BMPs to be implemented to fulfill the IDDE Program requirements. Funding for the BMPs in this section is covered by local stormwater utility fees.

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	
Develop and implement Illicit Discharge Detection and Elimination (IDDE) Program	Develop and implement an IDDE Program and plan including provisions for program assessment and evaluation.	X	X	X	X	X	Water Quality Program Manager
Establish and maintain appropriate legal authorities	Maintain adequate ordinances or other legal authorities to prohibit illicit discharges and enforce the approved IDDE Program.	X	X	X	X	X	Water Quality Program Manager
Develop a storm sewer system base map and inventory of major outfalls.	Maintain and update existing storm sewer base map identifying major outfalls and stormwater drainage system components. At a minimum, components include major outfalls and receiving streams. Establish procedures to continue to identify, locate, and update map of drainage system.	X	X	X	X	X	Water Quality Program Manager
Maintain an inventory of major outfalls that discharges to waters of the State	Maintain and update inventory of major outfalls that discharge to waters of the State. For each major outfall identify the following: • location, • reference number, • size and type of structure, • apparent condition of structure • dry-weather flow, and Either the SIC code or a description which best reflects the principal products or services provided by each commercial or industrial facility with an industrial activity permitted to discharge stormwater to the permittee's MS4 or those commercial or industrial facility identified as an illicit discharge under the IDDE Program.	X	X	X	X	X	Water Quality Program Manager
Employee Training	Conduct training for appropriate municipal staff on detecting and reporting illicit discharges.	X	X	X	X	X	Water Quality Program Manager
Provide Public Education	Inform public employees, businesses, and the general public of hazards associated with illegal discharges and improper disposal of waste.	X	X	X	X	X	Water Quality Program Manager
Establish a public reporting mechanism	Establish and publicize reporting mechanism for the public to report illicit discharges. Establish citizen request response procedures.	X	X	X	X	X	Water Quality Program Manager

Establish procedures to identify and eliminate failed septic system and sanitary sewer overflows.	Establish procedures to identify and report to the County health department failed septic systems located within the permittee's planning jurisdiction. Establish procedures to identify and report sanitary sewer overflows and sewer leaks to the system operator.	X	X	X	X	X	Water Quality Program Manager

5.2 Illicit Discharge Detection and Elimination Program

An effective illicit discharge detection and elimination plan is essential to the success of the SWMP. Such a plan has been in place in the City of Charlotte since the beginning of the NPDES permit program in 1993 and will be updated during the first year of the current permit term. To establish a solid approach for identifying and eliminating illicit discharges, the City will rely on techniques proven to be successful through prior implementation of the IDDE program. These techniques are summarized below.

Outfall Inspections/Inventory – Continue to monitor dry weather flows detected during field inventory data collection efforts. If dry weather flows are observed, samples will be collected to determine if the flow is a pollution source and immediate follow up field screening activities will be initiated when needed to identify and eliminate pollution sources.

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 will continue its use of 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. These data will continue to be carefully reviewed in order to identify priority areas for follow-up field screening, with an overall goal of identifying and eliminating pollution sources.

Bacteriological Monitoring – As part of the IDDE monitoring program, the City conducts extensive monitoring for fecal coliform to assist in the identification and elimination of these sources of pollution, especially those caused by illicit connections and sanitary sewer overflows. Once problem areas are identified, follow-up field screening is conducted to identify and eliminate pollution sources.

Industrial/Commercial Facilities – Industrial/commercial facilities are identified as a potential source of illicit connections and discharges to City streams. An inspection program for industrial/ commercial facilities was implemented as a component of the initial NPDES permit program to identify and eliminate pollution sources. These activities continue as part of the NPDES permit program and SWMP.

Public Outreach/Involvement – Public reporting is one of the best tools for detecting illicit connections and discharges. The City will focus its public outreach campaign, in part, on informing the public of what to look for in the detection of illicit connections and discharges and the proper reporting process for suspected pollution problems. All reported pollution problems will be recorded as a "citizen request for service" and immediately assigned to staff for initiation of necessary follow-up actions to identify and eliminate pollution sources.

GIS Mapping – The City currently utilizes GIS (Geographic Information Systems) to identify priority areas for illicit discharges. "Water Quality Basin Activities" maps are generated quarterly, identifying locations of inspections conducted, emergency spills responded to, NOVs issued, and service requests received. In addition, GIS maps are produced quarterly that show locations of sewer leaks detected. These maps are reviewed by staff to identify priority areas for increased follow-up field screening activities.

Stormwater Pollution Control Ordinance – The City's Stormwater Pollution Control Ordinance is the main document that defines prohibited discharges and describes enforcement measures that may be applied when violations are determined. Once an illicit discharge or other pollution source is identified, the ordinance will be utilized to ensure the elimination of pollution problems and the restoration of water quality conditions.

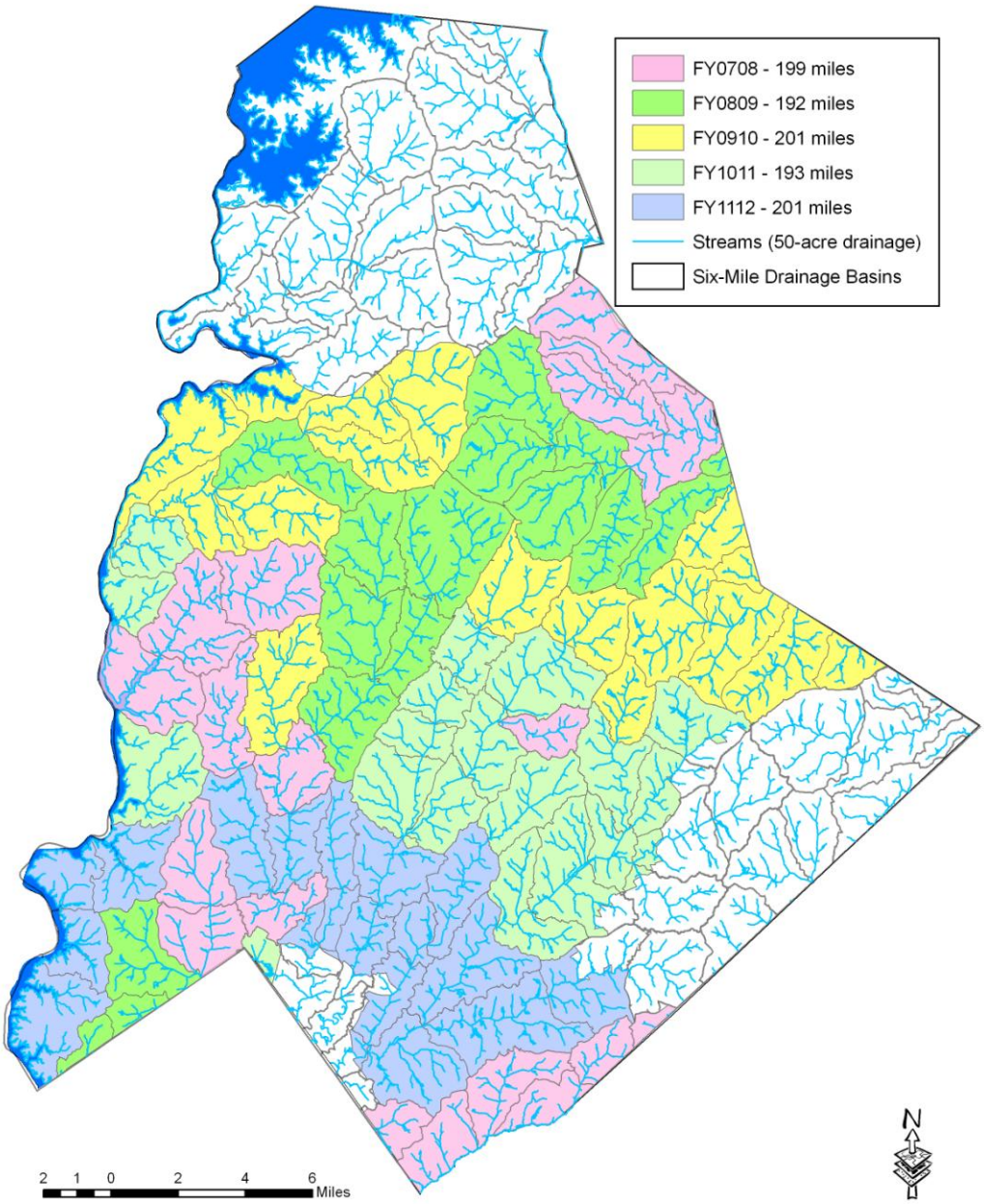
5.3 Ordinance Administration and Enforcement

The City adopted its Stormwater Pollution Control Ordinance on January 30, 1995 (Amended March 22, 2004) for their initial NPDES permit program. This ordinance will continue to be implemented as part of the NPDES permit program and SWMP. Detailed administration and enforcement procedures have been developed for the Stormwater Pollution Control Ordinance, including guidelines on when a notice of violation (NOV) is to be issued and the proper sections of the ordinance to be cited. These procedures also include the NOV shell files to be completed for the issuance of written NOVs as well as the required supervisor approval process. Procedures also describe the proper documentation to be maintained for enforcement purposes as well as provide a digital shell file for development of an enforcement package. Appeals to the ordinance are heard by the Charlotte-Mecklenburg Storm Water Advisory Committee (SWAC).

5.4 Stormwater System Inventory

As part of the SWMP, the City is implementing a five-year plan to further update its stormwater system inventory. Field staff will collect stormwater infrastructure data using Global Positioning System (GPS) units, which is then entered into a GIS database. New stormwater infrastructure will be entered into the system as digital information is supplied for new projects. At a minimum, the City will update its inventory of major outfalls as defined by the NPDES permit. **Figure 5-1** shows the watershed areas to be updated each year under the five-year plan.

Figure 5-1:
Inventory Updates by Watershed 2008 - 2012



5.5 Employee Training

Target employee groups will be 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. Employee groups will be prioritized and education programs will be delivered based on the established priorities. Various education methods will be used as appropriate for the target groups, including the distribution of written literature, participation in employee events, articles in employee newsletters, referrals to information on the Stormwater website, group presentations, field visits, and facility inspections.

5.6 Public Education and Outreach

The City will continue to maintain a public education and outreach program to inform businesses, industries and the general public about illicit discharges and improper waste disposal and how they impact the environment. This education and outreach program will include instructions regarding the proper method for reporting illicit discharges. A media campaign, website, utility bill inserts and handouts/brochures will be the primary education and outreach mechanisms. Handouts and brochures will be reviewed and revised as necessary and will be distributed during the performance of facility inspections, when responding to citizen requests for service, and at event displays. These 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 of the SWMP.

5.7 Public Reporting Hotline

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

5.8 Failed Septic System and Sanitary Sewer Overflow Coordination

Failed septic systems and especially sanitary sewer overflows contribute to elevated fecal coliform bacteria levels in local surface waters. A “Sewage Spills Matrix” detailing procedures and responsibilities for responding to sewage found in surface waters will be followed by appropriate field personnel. As described in “Bacteriological Monitoring” in Section 5.2, various methods will be used to detect and eliminate the sewage discharge sources.

The City will work with Charlotte-Mecklenburg Utilities (CMU) on a consistent basis to identify and eliminate chronic problems within the sewage system that contribute to sanitary sewer overflows. CMU has developed and implemented high-level efforts aimed at reducing overflows and discharges from their system. The City will compliment CMU’s efforts, for example, by reviewing relevant data and GIS maps, then sharing information about trends and chronic

problem areas with them. The City will also coordinate with the County Health Department to refer and address problems discovered with failed septic systems.

5.9 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)				
		1	2	3	4	5
Develop and implement Illicit Discharge Detection and Elimination (IDDE) Program	Develop and implement an IDDE Program and plan including provisions for program assessment and evaluation.	Implement the established IDDE program. Review and update IDDE procedures by June 30, 2008.	Continue implementation of the established IDDE program.	Continue implementation of the established IDDE program.	Continue implementation of the established IDDE program.	Continue implementation of the established IDDE program.
Establish and maintain appropriate legal authorities	Maintain adequate ordinances or other legal authorities to prohibit illicit discharges and enforce the approved IDDE Program.	Continue administration and enforcement of the Pollution Control Ordinance. Review ordinance and propose updates as necessary.	Continue administration and enforcement of the Pollution Control Ordinance.	Continue administration and enforcement of the Pollution Control Ordinance.	Continue administration and enforcement of the Pollution Control Ordinance.	Continue administration and enforcement of the Pollution Control Ordinance.
Develop a Storm Sewer System Base Map and Inventory of Major Outfalls.	Maintain and update existing storm sewer base map identifying major outfalls and stormwater drainage system components. At a minimum, components include major outfalls and receiving streams. Establish procedures to continue to identify, locate, and update map of drainage system.	Continue to maintain storm sewer map in GIS and update as necessary to show additional outfalls. Develop a plan by June 30, 2008 to identify new outfalls and update inventory.	Continue to maintain storm sewer map in GIS and update as necessary to show additional outfalls.	Continue to maintain storm sewer map in GIS and update as necessary to show additional outfalls.	Continue to maintain storm sewer map in GIS and update as necessary to show additional outfalls.	Continue to maintain storm sewer map in GIS and update as necessary to show additional outfalls.
Maintain an inventory of major outfalls that discharges to waters of the State	Maintain and update inventory of major outfalls that discharge to waters of the State, including attributes specified in Table 5-1.	Continue to maintain stormwater outfall inventory and update as necessary per established plan and procedures.	Continue to maintain stormwater outfall inventory and update as necessary per established plan and procedures.	Continue to maintain stormwater outfall inventory and update as necessary per established plan and procedures.	Continue to maintain stormwater outfall inventory and update as necessary per established plan and procedures.	Continue to maintain stormwater outfall inventory and update as necessary per established plan and procedures.
Employee Training	Conduct training for appropriate municipal staff on detecting and	Develop an employee training	Update training procedures as	Update training procedures as	Update training procedures as	Update training procedures as

	reporting illicit discharges.	plan and procedures and conduct employee training by June 30, 2008.	necessary and conduct employee refresher training.	necessary and conduct employee refresher training.	necessary and conduct employee refresher training.	necessary and conduct employee refresher training.
Provide Public Education	Inform public employees, businesses, and the general public of hazards associated with illegal discharges and improper disposal of waste.	Continue to provide public information and education per established education plans and mediums.	Continue to provide public information and education per established education plans and mediums.	Continue to provide public information and education per established education plans and mediums.	Continue to provide public information and education per established education plans and mediums.	Continue to provide public information and education per established education plans and mediums.
Establish a public reporting mechanism	Establish and publicize reporting mechanism for the public to report illicit discharges. Establish citizen request response procedures.	Maintain the public reporting hotline and publicize through the media outreach campaign. Update citizen request response procedures by June 30, 2008.	Maintain the public reporting hotline and publicize through the media outreach campaign.	Maintain the public reporting hotline and publicize through the media outreach campaign.	Maintain the public reporting hotline and publicize through the media outreach campaign.	Maintain the public reporting hotline and publicize through the media outreach campaign.
Establish procedures to identify and eliminate failed septic systems and sanitary sewer overflows.	Establish procedures to identify and report to the County health department failed septic systems located within the permittee's planning jurisdiction. Establish procedures to identify and report sanitary sewer overflows and sewer leaks to the system operator.	Develop and implement procedures within the IDDE program to identify and report failed septic systems and sanitary sewer overflows to County Health Dept. and CMU Utility Dept. by June 30, 2008	Continue implementation of procedures within the IDDE program to identify and report failed septic systems and sanitary sewer overflows to appropriate agency.	Continue implementation of procedures within the IDDE program to identify and report failed septic systems and sanitary sewer overflows to appropriate agency.	Continue implementation of procedures within the IDDE program to identify and report failed septic systems and sanitary sewer overflows to appropriate agency.	Continue implementation of procedures within the IDDE program to identify and report failed septic systems and sanitary sewer overflows to appropriate agency.

5.10 Program Assessment

The overall success of the Illicit Discharge Detection and Elimination Program will be measured through the successful implementation and enforcement of the City Stormwater Pollution Control Ordinance. Success will also be measured by the number of citizen requests addressed, number of inspections conducted, number of problems discovered, number of NOVs issued, and number and amount of penalties issued. Program assessment will be reported with each annual NPDES permit report discussing the activities completed in this section for the previous program year.

Section 6: Construction Site Stormwater Runoff Control Program

The City operates a 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 covered under this local Program. The City of Charlotte Soil Erosion and Sedimentation Control Ordinance was amended by the Charlotte City Council in May 2002, and provides for the continued administration and enforcement of the Program. The purpose of this ordinance is to protect surface water resources within the City of Charlotte by requiring the installation and maintenance of sediment and erosion control measures for all land disturbing activities.

6.1 BMP Summary Table

Table 6-1 provides information concerning the BMPs to be implemented to fulfill 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	Implement a program requiring erosion and sediment controls at construction sites and regulatory mechanism providing for sanctions to ensure compliance.	X	X	X	X	X	Water Quality Program Administrator
Develop requirements for construction site operators	Require construction site operators to implement erosion and sediment control BMPs and to control construction site wastes that may cause adverse water quality impacts.	X	X	X	X	X	Water Quality Program Administrator
Educational and training materials for construction site operators	Provide educational and training materials for construction site operators. New materials may be developed by the permittee, or the permittee may use materials adopted from other programs and adapted to the permittee's construction runoff controls program.	X	X	X	X	X	Water Quality Program Administrator
Plan reviews	Construction site plan reviews with established	X	X	X	X	X	Water Quality

	procedures that incorporate water quality considerations in the reviews.						Program Administrator
Public information	Established procedures for receipt and consideration of erosion and sedimentation information submitted by the public. Publicized procedures and contact information. The procedures must lead to a site inspection or other follow-up action.	X	X	X	X	X	Water Quality Program Administrator
Inspection and enforcement procedures	Established procedures for site inspection and enforcement of control measure requirements. The procedures should include prioritizing areas of inspections based on local criteria.	X	X	X	X	X	Water Quality Program Administrator

6.2 Erosion and Sediment Control Program

The City has operated a soil erosion and sediment control program locally since 1983. 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. By coupling the authority of a strong local ordinance with the expertise and knowledge of trained erosion control professionals, plan review engineers and construction inspectors, the City is able to minimize negative impacts to local waters from construction-related activities.

The Charlotte Soil Erosion and Sedimentation Control ordinance, amended and adopted by council in 2002, serves as the backbone of the program. 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 or bi-weekly inspections of erosion control measures depending on sensitivity of receiving waters performed by the permit holder.
- Inspections of measures after any rainfall event totaling one-half inch or greater performed by the permit holder.
- 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.
- To control erosion and trap sediment before it leaves site.

The ordinance also provides City staff with the following:

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

Due to the rapid growth and urbanization occurring in Charlotte, the City employs seven full time inspectors and a program administrator to enforce and implement the ordinance.

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 Phase II regulations, all construction sites one acre or greater must have an approved soil erosion and sediment control plan designed specifically for the site under development that meets minimum requirements. Requirements guide design engineers and land developers on appropriate measures depending on site conditions, drainage areas, total amount of land to be disturbed and proximity to surface waters and critical areas. After plan approval, land developers 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 until final site stabilization is achieved. Regular 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 Education and Training Materials

The City maintains an education and training program for developers and contractors in the region. Although program policies and procedures dictate that self-inspectors have 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 developed the *Charlotte-Mecklenburg Certified Site Inspector* (CMCSI) training seminar which has to date provided training to over three thousand 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 City and County host quarterly course offerings, and will conduct training for private parties who meet certain requirements in 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 to explain ordinance requirements, minimum standards and other relevant information for the financially responsible party.

6.5 Plan Reviews

Any land disturbing activity consisting of one acre or greater must obtain plan approval of the 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 section. All local erosion control staff are required to obtain and maintain status as a Certified Professional in Erosion and Sediment Control (CPESC) which provides accreditation for plan design and review. Plans are reviewed for suitability of selected measures and to ensure that design parameters and calculations are appropriately employed and minimum standards are achieved.

6.6 Public Information

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 (local users can dial 311) that serves as a clearinghouse for general information, and erosion control related issues are directed to appropriate personnel 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://www.charmeck.org/Departments/City+Engineering/Use+Our+Services/Land+Development/Charlotte+Soil+Erosion+and+Sedimentation+Control+.htm

6.7 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 unscheduled and random inspections. Sites that generate citizen complaints, have 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 given priority assignment for inspections and follow up.

Usually, first time violations that do not result in off site sedimentation will result in the issuance of a written NOV or an Inspection Report to the Violator. The Violator will be given a list of corrective actions necessary and have a period of time to correct any violations for a follow up compliance inspection. Violations that will incur a civil penalty with no specified time for compliance include:

- Grading without a permit
- Repeated violations, or non-compliance with the corrective actions detailed in a NOV
- Gross or malicious violations
- Off site sedimentation
- Sedimentation into a lake, stream, creek, pond, river, wetland or other water feature

6.8 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	Implement a program requiring erosion and sediment controls at construction sites and regulatory mechanism providing for sanctions to ensure compliance.	Continue to implement program and enforce ordinance	Continue to implement program and enforce ordinance	Continue to implement program and enforce ordinance	Continue to implement program and enforce ordinance	Continue to implement program and enforce ordinance
Develop requirements for construction site operators	Require construction site operators to implement erosion and sediment control BMPs and to control construction site wastes that may cause adverse water quality impacts.	Continue requirements for BMPs and waste control	Continue requirements for BMPs and waste control	Continue requirements for BMPs and waste control	Continue requirements for BMPs and waste control	Continue requirements for BMPs and waste control
Educational and training materials for construction site operators	Provide educational and training materials for construction site operators. New materials may be developed by the permittee, or the permittee may use materials adopted from other programs and adapted to the permittee's construction runoff controls program.	Provide annual CMCSI training for developers and contractors. Continue to provide education materials to contractors.	Provide annual CMCSI training for developers and contractors. Continue to provide education materials to contractors.	Provide annual CMCSI training for developers and contractors. Continue to provide education materials to contractors.	Provide annual CMCSI training for developers and contractors. Continue to provide education materials to contractors.	Provide annual CMCSI training for developers and contractors. Continue to provide education materials to contractors.
Plan reviews	Construction site plan reviews with established procedures that incorporate water quality considerations in the reviews.	Continue plan reviews to ensure program requirements are met.	Continue plan reviews to ensure program requirements are met.	Continue plan reviews to ensure program requirements are met.	Continue plan reviews to ensure program requirements are met.	Continue plan reviews to ensure program requirements are met.
Public information	Established procedures for receipt and consideration of erosion and sedimentation information submitted by the public. Publicized procedures and contact information. The procedures must lead to a site inspection or other follow-up action.	Continue to maintain reporting hotline and website, and provide educational materials to contractors.	Continue to maintain reporting hotline and website, and provide educational materials to contractors.	Continue to maintain reporting hotline and website, and provide educational materials to contractors.	Continue to maintain reporting hotline and website, and provide educational materials to contractors.	Continue to maintain reporting hotline and website, and provide educational materials to contractors.
Inspection and enforcement procedures	Established procedures for site inspection and enforcement of control measure requirements. The procedures	Continue implementation and enforcement	Continue implementation and enforcement of	Continue implementation and enforcement of the	Continue implementation and enforcement of the	Continue implementation and enforcement of the

	should include prioritizing areas of inspections based on local criteria.	of the program through on-site inspections, NOVs, and penalty assessments.	the program through on-site inspections, NOVs, and penalty assessments.	program through on-site inspections, NOVs, and penalty assessments.	program through on-site inspections, NOVs, and penalty assessments.	program through on-site inspections, NOVs, and penalty assessments.

6.9 Program Assessment

The overall success of the Construction Site Stormwater Runoff Control Program will be measured through the successful implementation and enforcement of the City Soil Erosion and Sedimentation Control Ordinance. Success will also be measured by the number of plans reviewed and number of inspections conducted. The number of NOVs issued and number and amount of penalties issued will also be reported. Program assessment will be reported with each annual NPDES permit report discussing the activities completed in this section for the previous program year.

Section 7: Post-Construction Stormwater Management Program

The City is working to develop and implement a program to manage post-construction stormwater discharges to the MS4 in accordance with the NPDES requirements contained in 15A NCAC 2H .0126(9). The goal of this program will be to address water quality impacts from post-construction stormwater discharges through the use of a combination of structural and non-structural best management practices (BMPs) as appropriate. The program will include the development, implementation and enforcement of an ordinance to address stormwater runoff from new development and re-development 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 that discharge to the MS4. The ordinance will also assign responsibility for the development and implementation of long-term operation and maintenance practices for required BMPs. The following sections explain the BMPs to be implemented to meet this requirement.

7.1 BMP Summary Table

Table 7-1 provides information concerning the BMPs to be implemented to fulfill 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	Develop and adopt by ordinance (or similar regulatory mechanism) a program to address stormwater runoff from new development and redevelopment. Implement and enforce the program within 24 months of the permit issue date.			X	X	X	Water Quality Program Manager
Strategies which include BMPs appropriate for the MS4	Developed strategies that include a combination of structural and/or non-structural BMPs implemented in concurrence with the 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.			X	X	X	Water Quality Program Manager

Establish a program under the Post-Construction minimum measure to control the sources of fecal coliform to the maximum extent practicable.	Coordinate with County health department to control the known sources of fecal coliform from septic systems to the maximum extent practicable. Implement within 24 months of the permit issue date.			X	X	X	Water Quality Program Manager
Deed Restrictions and Protective Covenants	Impose or require recorded deed restrictions and protective covenants that ensure development activities will maintain the project consistent with approved plans.			X	X	X	Water Quality Program Manager
Operation and Maintenance Plan	Implement or require an operation and maintenance plan that ensures the adequate long-term operation of the structural BMPs required by the program. The operation and maintenance plan may require the owner of each structural BMP to submit a maintenance inspection report on each structural BMP annually to the local program, or the maintenance inspections may be conducted annually by the Permittee.			X	X	X	Water Quality Program Manager
Setbacks for Built-upon Areas	Require built-upon areas to be located at least 30 feet landward of all perennial and intermittent surface waters except as provided for in the Permittee's approved Post-Construction Stormwater Ordinance. For purposes of this section, a surface water shall be present if the feature is shown on either the most recent version of the soil survey map prepared by the Natural Resources Conservation Service of the United States Department of Agriculture or the most recent version of the 1:24,000 scale (7.5 minute) quadrangle topographic maps prepared by the United States Geologic Survey (USGS). Relief from this requirement may be allowed when surface waters are not present in accordance with the provisions of 15A NCAC 02B .0233(3)(a).			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	Water Quality Program Manager

7.2 Post Construction Stormwater Management Program

The City began development of its Post Construction 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 ordinances. During 2006-2007, the City worked to develop the ordinance which was approved by City Council on November 26, 2007 and will be effective July 1, 2008. The City will be developing the program over the next year to ensure successful implementation by June 30, 2009.

The new ordinance and post construction program is designed to meet the requirements for post-construction runoff from new development and re-development projects specified by 15A NCAC 2H .0126 and the NPDES stormwater permit program. The ordinance will cover the entire jurisdictional area of the City. As part of the program, an administrative manual will be developed to ensure successful implementation of the program.

7.3 Post Construction BMP Strategies

BMP strategies for the City's Post Construction Controls (PCCO) program will consist mainly of structural BMPs such as wet ponds, wetlands, and bioretention areas. Structural BMPs and design procedures will be detailed in a local BMP manual being developed by the City. Structural BMPs will be 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 in sensitive watersheds as defined by the ordinance. In addition, structural BMPs must be designed to remove 85% of Total Suspended Solids in stormwater runoff, control the runoff volume from the 1-year – 24 hour storm event, control the peak flow from the 10-year storm event for single family residential, and the peak flow from the 10 and 25-year storm events for commercial development. The program will also require proper operation, maintenance, and inspection of BMPs as discussed in later sub-sections.

7.4 Nutrient Sensitive Waters

Currently, there are no waters within the City's jurisdictional area that are classified as NSW: therefore, no requirements specific to NSW waters will be included in the PCCO program or permit SWMP.

7.5 Septic System Coordination

It is anticipated that nearly 100% of development under the PCCO program will be connected to a sanitary sewer system. On the rare occasion that development is proposed using septic systems, the City will coordinate with the County Health Department to ensure that these systems are properly designed, operated, and maintained.

7.6 Deed Restrictions and Protective Covenants

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

7.7 Operation and Maintenance Plan

The PCCO program will require the execution of an operation and maintenance agreement between the City and the responsible party (owner) of each BMP. As part of the program, the owner must conduct annual inspections of BMPs, maintain proper records documenting operation and maintenance activities, and submit inspection reports to the City. In the case of single family residential projects only, the City will assume the responsibility for operating, maintaining, and inspecting required structural BMPs.

7.8 Setbacks for Built-Upon Areas

The PCCO program will require 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 will require 200-foot buffers on all perennial streams and 100-foot buffers on all intermittent streams in the Six Mile Creek watershed. These buffers are recorded on record plats as noted in sub-section 7.6.

7.9 Education and Training Program

The City will develop and implement an education and training program designed to provide developers and designers with the information necessary to comply with the PCCO ordinance. Training will include information on overall ordinance requirements, review processes, land development and BMP design requirements, deed restrictions and protective covenants, set-back and buffer requirements, and operation, maintenance, and inspection requirements for structural BMPs.

7.10 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	Develop and adopt by ordinance (or similar regulatory mechanism) a program to address stormwater runoff from new development and redevelopment. Implement and enforce the program within 24 months of the permit issue date.	None	Develop and adopt the City's Post Construction Controls Ordinance (PCCO) and begin program implementation by June 30, 2009.	Continue to implement and enforce ordinance.	Continue to implement and enforce ordinance.	Continue to implement and enforce ordinance.
Strategies which include BMPs appropriate for the MS4	Develop strategies that include a combination of structural and/or non-structural BMPs implemented in concurrence with the 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.	None	Develop program in concurrence with PCCO ordinance requiring BMPs, proper operation & maintenance, and annual inspection of BMPs by June 30, 2009.	Continue PCCO program and ensuring proper BMP operation, maintenance, and annual inspections.	Continue PCCO program and ensuring proper BMP operation, maintenance, and annual inspections.	Continue PCCO program and ensuring proper BMP operation, maintenance, and annual inspections.
Establish a program under the Post-Construction minimum measure to control the sources of fecal coliform to the maximum extent practicable.	Coordinate with County health department to control the known sources of fecal coliform from septic systems to the maximum extent practicable. Implement within 24 months of the permit issue date.	None	Coordination procedures will be developed as part of the PCCO program where necessary and coordinated also through the City's IDDE Program by June 30, 2009.	Continue coordination efforts with County Health Dept. as needed.	Continue coordination efforts with County Health Dept. as needed.	Continue coordination efforts with County Health Dept. as needed.
Deed Restrictions and Protective Covenants	Impose or require recorded deed restrictions and protective covenants that ensure development activities will maintain the project consistent with approved plans.	None	Develop and implement a procedure for requiring Deed Restrictions and Protective Covenants for development	Continue to implement Deed Restrictions and Protective Covenants through administration of the PCCO	Continue to implement Deed Restrictions and Protective Covenants through administration of the PCCO Program.	Continue to implement Deed Restrictions and Protective Covenants through administration of the PCCO Program.

			activities by June 30, 2009.	Program.		
Operation and Maintenance Plan	Implement or require an operation and maintenance plan that ensures the adequate long-term operation of the structural BMPs required by the program. The operation and maintenance plan may require the owner of each structural BMP to submit a maintenance inspection report on each structural BMP annually to the local program, or the maintenance inspections may be conducted annually by the Permittee.	None	Develop and implement a operation & maintenance plan to ensure adequate long-term operation, maintenance, and inspection of structural BMPs by June 30, 2009.	Continue to implement BMP operation, maintenance, and inspection plan and procedures.	Continue to implement BMP operation, maintenance, and inspection plan and procedures.	Continue to implement BMP operation, maintenance, and inspection plan and procedures.
Setbacks for Built-upon Areas	Require built-upon areas to be located at least 30 feet landward of all perennial and intermittent surface waters except as provided for in the Permittee's approved ordinance.	None	Develop and implement requirements for set-backs under PCCO by June 30, 2009	Continue to implement set-back requirements under PCCO.	Continue to implement set-back requirements under PCCO.	Continue to implement set-back requirements under PCCO.
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.	None	Develop and implement education/ training tools and resources covering PCCO for developers by June 30, 2009.	Continue to provide and update education/ training tools for developers.	Continue to provide and update education/ training tools for developers.	Continue to provide and update education/ training tools for developers.

7.11 Program Assessment

The overall success of the Post-Construction Stormwater Management Program will be measured by the successful adoption of the ordinance and implementation of the ordinance requirements through the City's stormwater administrator and land development review process. Success will also be measured by the number of plans reviewed, number of BMPs installed, and number of inspections conducted. Program assessment will be reported with each annual NPDES permit report discussing the activities completed in this section for the previous program year.

Section 8: Pollution Prevention/Good Housekeeping Program

The City maintains a comprehensive Pollution Prevention and Good Housekeeping Program for applicable City owned and operated facilities. This includes inspection and training programs to reduce stormwater pollutant runoff from these municipal operations to the maximum extent practicable. Training materials developed locally and those available through EPA will be used to continue training programs, which will be targeted to operations with the highest potential for impacting stormwater quality. The following Sections explain the BMPs to be implemented to meet this requirement.

8.1 BMP Summary Table

Table 8-1 provides information concerning the BMPs to be implemented to fulfill the requirements of the Pollution Prevention/Good Housekeeping Program. Funding for the BMPs in this section is covered by local stormwater utility fees.

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	
Develop an operation and maintenance program	Develop an operation and maintenance program for structural stormwater BMPs , storm sewer system maintenance which may include street sweeping, and municipal operations such as recycling and household hazardous waste and oil collection.	X	X	X	X	X	Water Quality Program Manager
Develop Site Pollution Prevention Plan for municipal facilities	Develop and implement Site Pollution Prevention Plan for municipal facilities and activities owned and operated by the permittee with the potential for generating polluted stormwater runoff that has the ultimate goal of preventing or reducing pollutant runoff.		X	X	X	X	Water Quality Program Manager
Inspection and evaluation of facilities, operations, and the MS4 system	Maintain an inventory of facilities and operations owned and operated by the permittee with the potential for generating polluted stormwater runoff, including the MS4 system and associated	X	X	X	X	X	Water Quality Program Manager

and associated structural BMPs.	structural BMPs. Conduct inspections at facilities and operations owned and operated by the permittee for potential sources of polluted runoff, the stormwater controls, and conveyance systems. Evaluate the sources, document deficiencies, plan corrective actions, implement appropriate controls, and document the accomplishment of corrective actions.						
Conduct staff training	Conduct staff training specific for pollution prevention and good housekeeping procedures.		X	X	X	X	Water Quality Program Manager
Review of municipality owned or operated regulated industrial activities	Conduct annual review of the industrial activities with a Phase I NPDES stormwater permit owned and operated by the permittee. Review the following aspects: the Stormwater Pollution Prevention Plan where one is required, the timeliness of any monitoring reports required by the Phase I permit, and the results of inspections and subsequent follow-up actions at the facilities.	X	X	X	X	X	Water Quality Program Manager
Spill Response Procedures	Establish spill response procedures for municipal operations owned and operated by the permittee with the potential to generate polluted stormwater runoff.		X	X	X	X	Water Quality Program Manager
Prevent or minimize contamination of stormwater runoff from areas used for vehicle and equipment cleaning	Describe measures that prevent or minimize contamination of the stormwater runoff from areas used for vehicle and equipment cleaning, except for facilities that house three or fewer emergency response vehicles. 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 provide 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. Minimize runoff from individual emergency response vehicle washing to the maximum extent practicable. 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 ponded water shall be removed and properly handled prior to removing the drain cover.		X	X	X	X	Water Quality Program Manager

	The point source discharge of vehicle and equipment wash waters, including tank cleaning operations, are not authorized by this permit and must be covered under a separate NPDES permit or discharged to a sanitary sewer in accordance with applicable industrial pretreatment requirements.						

8.2 Operation and Maintenance Program

The City provides an extensive network of municipal operations designed to keep these operations and services 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 develop operation and maintenance programs that take impacts to the storm sewer system into consideration.

There are numerous ways to approach this component of the Municipal Pollution Prevention and Good Housekeeping Program, and because of the extensive nature of the City's municipal operations, assessment and implementation will occur on an ongoing basis. Initially it will be important to meet with appropriate personnel within each operation. Such meetings will provide a forum to gather information about field activities and potential impacts, review operation and maintenance procedures, and discuss cooperative roles for updating good housekeeping programs and making improvements. Observations of field activities that potentially impact the storm sewer system will also be a key part of developing operation and maintenance programs. Seeing activities take place first-hand and obtaining input from field employees will provide important information that may not be obtained during an office meeting.

Many municipal operations already have well-established operation and maintenance programs. These programs will be reviewed in terms of how well they address impacts to the storm sewer system and subsequently updated if necessary. Where programs are lacking or deficient, the City will work with appropriate personnel to develop programs and procedures as well as to conduct training of field employees on how to properly implement the programs and procedures.

8.3 Facility Stormwater Pollution Prevention Plans

Stormwater Pollution Prevention Plans (SPPPs) will be developed for all facilities listed in Table 8.2 below. For facilities with their own Phase I NPDES Stormwater permit, a detailed SPPP will be developed in accordance with their permits. All other facilities will be covered under the City of Charlotte's Phase I MS4 permit, and shorter, more user-friendly versions of SPPPs will be developed for them. In all cases, the SPPP will be used as an implementation guide for maintaining good housekeeping and reducing stormwater pollution. All appropriate topics will be covered including best management practices, monitoring, training, inspections, spill prevention/response, vehicle/equipment cleaning, and preventative maintenance. All

documentation will be kept in the SPPPs, including descriptions of deficiencies found and corrective actions taken. A site map will also be included in all SPPPs.

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 - Craig Avenue 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
CMU - Irwin Creek WWTP	4000 Westmont Dr., Charlotte, NC 28217
CMU - Mallard Creek WWTP	12400 Hwy 29 N, Charlotte, NC 28262
CMU - McAlpine Creek WWTP & Zone 3 Water/Wastewater Operations	12701 Lancaster Hwy, Pineville, NC 28134
CMU - McDowell Creek WWTP	4901 Neck Rd., Huntersville, NC 28078
CMU - Sugar Creek WWTP	5301 Closeburn Rd., Charlotte, NC 28210
CMU - Franklin WTP	5200 Brookshire Blvd, Charlotte, NC 28216
CMU - Lee S Dukes WTP	7980 Babe Stillwell Rd., Huntersville, NC 28078
CMU - Vest WTP	820 Beatties Ford Rd., Charlotte, NC 28216
CMU – Zone 1 Water/Wastewater Operations	11235 Sam Furr Rd., Huntersville, NC 28078
CMU – Zone 2 Water/Wastewater Operations	5730 General Commerce Dr., Charlotte, NC 28213
CMU – Zone 4 Water/Wastewater Operations	4100 W. Tyvola Rd., Charlotte, NC 28208
CMU – Catawba Pump Station	12548 Pump Station Rd., Charlotte, NC 28216
BSS - Heavy Equipment Shop	4600 Sweden Rd., Charlotte, NC 28273
BSS - Heavy Truck Shop / Central Yard Truck Wash	829 Louise Ave., Charlotte, NC 28204
BSS - Light Vehicle Shop	932 Seigle Ave., Charlotte, NC 28205
BSS - Small Engine Repair Shop	701 Tuckaseegee Rd., Charlotte, NC 28208
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 will be examined to determine whether they will be included in the inventory of sites for inclusion in the Pollution Prevention and Good Housekeeping for Municipal Operations Program. To be included in the final inventory means that those facilities will be inspected regularly, have SPPPs prepared and implemented, and their employees will be trained on a regular basis (among other activities). The Standard Administrative Procedure for the Municipal Facilities Inventory will be followed when evaluating parcels for inventory purposes. Basically, facilities on the final inventory have 2 or more buildings, stormwater drainage to the MS4, and a potential to generate polluted stormwater runoff. **Table 8-2** shows the current inventory based on known operations. The list will be expanded if additional operations are identified through the inventory process.

Facilities on the final inventory list will be evaluated through inspections on a priority basis. Inspections will include the following:

- Thorough assessment of facility operations, maintenance activities, maintenance schedules and long-term inspection procedures.
- Evaluation of waste disposal methods and documentation to ensure compliance with existing regulations and elimination of all potential pollution sources.
- Evaluation of the stormwater drainage system, including catch basin inlets, structural best management practices and outfalls.
- Evaluation of water quality conditions downstream of the facility and identification and elimination of pollution sources if discovered.
- 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 facilities and recommendations for elimination of potential pollution sources.
- Identification and elimination of dry weather discharges.
- Review of Stormwater Pollution Prevention Plans where applicable including effluent monitoring (if required by permit).
- Completion of a written report documenting findings and recommendations.

Follow up inspections and meetings with appropriate personnel will be conducted as necessary to ensure the elimination of all potential pollution sources. The supervisor and other management personnel of each facility will be contacted and provided with a copy of the written report.

8.5 Employee/Staff Training

Training seminars will be conducted for employees at the facilities listed in **Table 8-2** based on a priority schedule. The goal of these training seminars will be to inform employees of the actions necessary to reduce the discharge of pollutants from their facilities/operations and protect water quality. The following topics will be included in the seminar:

1. Overview of general water quality conditions in the City of Charlotte and reasons for protecting water quality.
2. Description of common pollutants, their sources and water quality impacts.
3. Description of the actions that each facility should take to reduce discharges of pollutants, with an emphasis on good housekeeping.
4. Description of effective spill prevention measures that should be employed at each facility.
5. Discussion of typical pollution sources at municipal operations and specific actions that should be taken to eliminate these sources and protect water quality.
6. Review of the Stormwater Pollution Prevention Plan where applicable.
7. Explanation of the potential negative consequences of failing to control pollutants at facilities.
8. Overview of IDDE Program and how to report observed water quality problems.

The seminars will include a combination of classroom-style presentations and hands-on outdoor activities. Written materials including a summary of good housekeeping practices and spill prevention/control techniques will also be distributed during the seminars.

8.6 NPDES Permitted Municipal Facilities Review

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

Table 8-3: Municipal Operations That Have Been Issued or Have Applied for 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
Central Yard Solid Waste Operations	NCG080000	Not yet received (application sent 4/7/08)	829 Louise Avenue
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 will be conducted at each facility listed in **Table 8-3**. These inspections will include the following:

- Thorough assessment of facility operations, maintenance activities, maintenance schedules and long-term inspection procedures.
- Evaluation of waste disposal methods and documentation to ensure compliance with existing regulations and elimination of all potential pollution sources.
- Evaluation of the stormwater drainage system, including catch basin inlets, structural best management practices and outfalls.
- Evaluation of water quality conditions downstream of the facility and identification and elimination of pollution sources if discovered.
- 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 facilities and recommendations for elimination of potential pollution sources.
- Identification and elimination of dry weather discharges.
- Review and update of Stormwater Pollution Prevention Plans, including effluent monitoring (if required by permit).
- Completion of a written report documenting findings and recommendations.

Follow up inspections and meetings with appropriate personnel will be conducted as necessary to ensure the elimination of all potential pollution sources. The supervisor and other management personnel of each facility will be contacted and provided with a copy of the written report.

8.7 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 risk, Spill Prevention and Response Procedures will be developed for all facilities (and associated field operations) listed in **Table 8.2**. For those facilities/operations that already have procedures in place, they will be reviewed and updated as necessary. To make the effort as seamless as possible, Spill Prevention and Response Procedures will be incorporated into SPPPs. To that end, spill prevention and response evaluations will often be conducted in conjunction with evaluations to develop SPPPs. Once the procedures are developed, proper implementation will be evaluated as part of annual inspections.

Items that will be evaluated and incorporated into Spill Prevention and Response Plans 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 countermeasures
- Employee training

As part of the Illicit Discharge Detection and Elimination program for the City, a 24-hour emergency response team responds to environmental emergencies, including spills. Members of the team act in an advisory role to the Charlotte Fire Department's Hazmat Team. Once Hazmat secures a scene and contains the spill, ER Team members work 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 Emergency Response Protocols.

8.8 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 will be assessed during annual inspections at all facilities listed in **Table 8.2**. A section regarding vehicle and equipment washing will then be included in the SPPP of each facility that conducts washing activities. Where washing is found to not be in accordance with the City's permit, corrective actions will be implemented as appropriate to the conditions at each facility. Once the SPPPs are developed, washing activities will continue to be evaluated during facility inspections.

8.9 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
Develop an operation and maintenance program	Develop an operation and maintenance program for structural stormwater BMPs , storm sewer system maintenance which may include street sweeping, and municipal operations such as recycling and household hazardous waste and oil collection.	Review and update Operation and Maintenance programs as necessary. Continue operation and maintenance activities per established procedures.	Review and update Operation and Maintenance programs as necessary. Continue operation and maintenance activities per established procedures.	Review and update Operation and Maintenance programs as necessary. Continue operation and maintenance activities per established procedures.	Review and update Operation and Maintenance programs as necessary. Continue operation and maintenance activities per established procedures.	Review and update Operation and Maintenance programs as necessary. Continue operation and maintenance activities per established procedures.
Develop Site Pollution Prevention Plan for Municipal Facilities	Develop and implement Site Pollution Prevention Plan for Municipal Facilities and activities owned and operated by the permittee with the potential for generating polluted stormwater runoff that has the ultimate goal of preventing or reducing pollutant runoff.	None	Develop and implement SPPPs for all applicable facilities by June 30, 2009.	Review and update facility SPPPs as necessary. Continue implementation of SPPPs.	Review and update facility SPPPs as necessary. Continue implementation of SPPPs.	Review and update facility SPPPs as necessary. Continue implementation of SPPPs.
Inspection and evaluation of facilities, operations, and the MS4 system and associated structural BMPs.	Maintain an inventory of facilities and operations owned and operated by the permittee with the potential for generating polluted stormwater runoff, including the MS4 system and associated structural BMPs. Conduct inspections at facilities and operations owned and operated by the permittee for potential sources of polluted runoff, the stormwater controls, and conveyance systems actions.	Review and update inventory of facilities for inspection. Conduct inspections of applicable facilities and make corrective actions where necessary.	Review and update inventory of facilities for inspection. Conduct inspections of applicable facilities and make corrective actions where necessary.	Review and update inventory of facilities for inspection. Conduct inspections of applicable facilities and make corrective actions where necessary.	Review and update inventory of facilities for inspection. Conduct inspections of applicable facilities and make corrective actions where necessary.	Review and update inventory of facilities for inspection. Conduct inspections of applicable facilities and make corrective actions where necessary.

Conduct staff training	Conduct staff training specific for pollution prevention and good housekeeping procedures.	None	Develop a staff training program and conduct staff training on SPPPs and Spill Response Procedures at applicable facilities by June 30, 2009.	Conduct annual staff training on SPPPs and Spill Response Procedures	Conduct annual staff training on SPPPs and Spill Response Procedures	Conduct annual staff training on SPPPs and Spill Response Procedures
Review of municipality owned or operated regulated industrial activities	Conduct annual review of the industrial activities with a Phase I NPDES stormwater permit owned and operated by the permittee. Review the following aspects: the Stormwater Pollution Prevention Plan where one is required, the timeliness of any monitoring reports required by the Phase I permit, and the results of inspections and subsequent follow-up actions at the facilities.	Develop an inventory of NPDES permitted municipal facilities, develop an inspection program and conduct inspections of applicable facilities.	Review and update inventory of facilities for inspection. Conduct inspections of applicable facilities and make corrective actions where necessary.	Review and update inventory of facilities for inspection. Conduct inspections of applicable facilities and make corrective actions where necessary.	Review and update inventory of facilities for inspection. Conduct inspections of applicable facilities and make corrective actions where necessary.	Review and update inventory of facilities for inspection. Conduct inspections of applicable facilities and make corrective actions where necessary.
Spill Response Procedures	Establish spill response procedures for municipal operations owned and operated by the permittee with the potential to generate polluted stormwater runoff.	None	Develop (or update where already developed) spill response procedures for applicable facilities	Review facility spill response procedures and update as necessary. Continue implementation of procedures.	Review facility spill response procedures and update as necessary. Continue implementation of procedures.	Review facility spill response procedures and update as necessary. Continue implementation of procedures.
Prevent or Minimize Contamination of Stormwater Runoff from areas used for Vehicle and Equipment Cleaning	Describe measures that prevent or minimize contamination of the stormwater runoff from areas used for vehicle and equipment cleaning, except for facilities that house three or fewer emergency response vehicles.	None	Develop procedures within SPPPs at applicable facilities to prevent or minimize contaminated stormwater runoff from vehicle and equipment cleaning operations.	Review and update procedures for vehicle and equipment operations and update as necessary.	Review and update procedures for vehicle and equipment operations and update as necessary.	Review and update procedures for vehicle and equipment operations and update as necessary.

8.10 Program Assessment

The overall success of the Municipal Pollution Prevention/Good Housekeeping Program will be measured through the successful implementation of facility SPPPs, employee training and facility inspections conducted as part of the program. Success will also be measured by the number of inspections conducted, and the number of problems discovered and resolved. Program assessment will be reported with each annual NPDES permit report discussing the activities completed in this section for the previous program year.

Section 9: Industrial Facilities Evaluation and Monitoring Program

The City maintains an 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 sections explain the BMPs to be implemented to meet this requirement.

9.1 BMP Summary Table

Table 9-1 provides information concerning the BMPs to be implemented to fulfill the requirements of the Industrial Facilities Program. Funding for the BMPs in this section is covered by local stormwater utility fees.

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 sites	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), and commercial or industrial facilities identified with an industrial activity permitted by a separate NPDES permit for the facility to discharge stormwater to the permittee's MS4 or 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.	X	X	X	X	X	Water Quality Program Manager
Establish and implement control measures	For those commercial and industrial facilities identified above, establish and implement appropriate measures to evaluate stormwater discharges to the permittee's MS4. Measures may	X	X	X	X	X	Water Quality Program

	include inspections and a monitoring program to be developed and implemented by the facility, including the submission of quantitative data on the following constituents: any pollutants limited in effluent guidelines subcategories, where applicable; any pollutant listed in an existing NPDES permit for a facility; oil and grease, COD, pH, BOD5, TSS, total phosphorus, total Kjeldahl nitrogen, nitrate plus nitrite nitrogen, and any information on discharges required under 40 CFR Sec. 122.21(g)(7) (vi) and (vii). For the purposes of this permit, industrial activities shall mean all permitted industrial activities as defined in 40 CFR 122.26.						Manager

9.2 Industrial Facility Inventory

Facilities included in the inventory will 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, and Industrial Wastewater Pre-Treatment permitted facility. Currently, a list of 282 facilities has been developed showing those facilities that discharge to the City's MS4 and have the potential to discharge significant pollutant loads.

The list forms the basis of the industrial inspection and monitoring program inventory. The list was compiled by obtaining information from NC Department of Environment and Natural Resources and Environmental Protection Agency websites. The inventory will be modified as facilities on the list start up or shut down. Other facilities that do not fit into the categories described above may be added to the inventory as well. An example would be a facility discovered during field activities to have an illicit discharge or pollution issues.

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 was developed. The manual objectives are as follows:

- provide instructions and guidance on how to 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 goes into detail about the inspection process. Listed below are general tasks conducted as part of an industrial inspection:

- Thorough assessment of facility operations, maintenance activities, maintenance schedules and long-term inspection procedures.
- Evaluation of waste disposal methods and documentation to ensure compliance with existing regulations and elimination of all potential pollution sources.
- Evaluation of the stormwater drainage system, including catch basin inlets, structural best management practices and outfalls.
- Evaluation of water quality conditions downstream of the facility and identification and elimination of pollution sources if discovered.
- 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 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).
- Sample/monitor stormwater runoff and/or dry weather flows. Evaluate data results.
- Completion of a written report documenting findings and recommendations.

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

Through a customized annual work plan, inspections are conducted by trained professionals employed by Mecklenburg County's Land Use and Environmental Services Agency – Water Quality Program (LUESA-WQP). That program, in conjunction with Charlotte Stormwater Services and other county stormwater-related groups, is part of the overall Charlotte-Mecklenburg Stormwater Services team. The work plan specifies that inspections will be conducted annually at 50 facilities listed in the facilities inventory. LUESA-WQP also conducts industrial inspections as part of a Memorandum of Understanding (MOU) with the NC Department of Environment and Natural Resources – Division of Water Quality (NCDENR-DWQ) – Mooresville Regional Office. Annual discussions are held with LUESA-WQP personnel to ensure that all requirements of the work plan and MOU are met.

A prioritization strategy was developed in order to target inspections at facilities with the highest potential for problems. Those facilities that fit into several of the five categories in sub-section 9.2 received highest priority. The narrowed-down list was then cross-referenced with a list of previously-inspected facilities. If a facility had been inspected in the past, it was moved down in priority. If a facility on the narrowed-down list had a prior request for inspection due to service request findings or other reported problems, it was moved up in priority. Aerial photos of

prioritized facilities were then reviewed, and if no significant outdoor operations were observed, the facility was moved down in priority. This strategy will be followed with the goal of inspecting as many facilities on the facility inventory list as possible by the end of the current five-year permit term.

Monitoring of stormwater runoff and dry weather discharges will be 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 were not 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. Ten (10) facilities, or approximately 20% of those inspected, will be monitored annually. Those selected for monitoring will be based on inspection results. Basically, those facilities with the worst problems or conditions as observed during inspections will be selected as priority monitoring sites.

9.4 Evaluation Measures

As discussed in Section 9.3, the appropriate evaluation measures that will be implemented to reduce polluted discharges to Charlotte's MS4 will be industrial inspections and monitoring. Because of the MOU between NCDENR-DWQ and Mecklenburg County, DWQ has requested that inspections of NPDES permitted facilities be conducted under the City's program using State letterhead and inspection forms. The inspection letters will 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 will work with the State and facility personnel to eliminate the pollution sources. If violations of illicit discharge prohibitions and other applicable regulations are identified, enforcement measures will be implemented, especially in cases where facility personnel do not show appropriate efforts in correcting violations.

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 sites	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), and commercial or industrial facilities identified with an industrial activity permitted by a separate NPDES permit for the facility to discharge stormwater to the permittee's MS4 or identified as an illicit discharge under the IDDE Program.	Develop an inventory of industrial facilities that discharge to the City's MS4 based on criteria listed in the permit.	Update the industrial facility inventory as needed.	Update the industrial facility inventory as needed.	Update the industrial facility inventory as needed.	Update the industrial facility inventory as needed.
Inspection program	Identify priorities and inspection procedures.	Update current Industrial Inspection and Monitoring Procedures and. develop an inspection prioritization strategy	Update inspection and monitoring procedures and prioritization strategy as necessary.	Update inspection and monitoring procedures and prioritization strategy as necessary.	Update inspection and monitoring procedures and prioritization strategy as necessary.	Update inspection and monitoring procedures and prioritization strategy as necessary.
Establish and implement control measures	For those commercial and industrial facilities identified above, establish and implement appropriate measures to evaluate stormwater discharges to the permittee's MS4. Measures may include inspections and a monitoring program to be developed and implemented by the facility, including the submission of quantitative data.	Conduct inspection and monitoring activities based on established procedures and prioritization strategy at 50 facilities.	Conduct inspection and monitoring activities based on established procedures and prioritization strategy at 50 facilities.	Conduct inspection and monitoring activities based on established procedures and prioritization strategy at 50 facilities.	Conduct inspection and monitoring activities based on established procedures and prioritization strategy at 50 facilities.	Conduct inspection and monitoring activities based on established procedures and prioritization strategy at 50 facilities.

9.6 Program Assessment

The overall success of the Industrial Facilities Program will be measured through the successful implementation of facility inspections and monitoring as part of the program. Success will also be measured by the number of inspections and monitoring conducted, and the number of problems discovered and resolved. Program assessment will be reported with each annual NPDES permit report discussing the activities completed in this section for the previous program year.

Section 10: Water Quality Assessment and Monitoring Program

The City maintains a Water Quality Assessment and Monitoring program to monitor and assess the quality of streams within the City as required by the NPDES stormwater permit. Information gained from the program can be used to help identify and eliminate sources of pollution and illicit discharges, track short-term and long-term trends, and, where possible, gauge the effectiveness of stormwater management efforts and programs conducted by the City. The following Sections explain the BMPs to be implemented to meet this requirement.

10.1 BMP Summary Table

Table 10-1 provides information concerning the BMPs to be implemented to fulfill the requirements of the Water Quality Assessment and Monitoring Program. Funding for the BMPs in this section is covered by local stormwater utility fees.

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	Develop a Water Quality Assessment and Monitoring Plan to be submitted to DWQ within 12 months of the effective date of the permit. The Plan shall include a schedule for implementing the proposed assessment and monitoring activities.	X					Water Quality Program Manager
Water Quality Monitoring	Implementation of the Water Quality Assessment and Monitoring Plan within 6 months of receiving Plan approval from DWQ. In accordance with the implementation schedule, the permittee shall provide in subsequent annual reports a summary of the assessment and monitoring activities performed within the reporting period.		X	X	X	X	WaterQuality Program Manager
Revisions to the Water Quality Assessment and Monitoring Plan	The permittee shall review annually, amend as appropriate and submit to DWQ for approval the Water Quality Assessment and Monitoring Plan			X	X	X	WaterQuality 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 Stormwater 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, where possible.

As part of the new NPDES permit and SWMP, the City will develop a Water Quality Assessment and Monitoring Plan during the first year of the permit term that will detail the monitoring activities, parameters, and data assessment required by the permit. It is anticipated the plan will specify water quality monitoring activities to be performed on a quarterly basis at a total of 15 stream sites on the major watersheds in the City. Monitoring will be 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

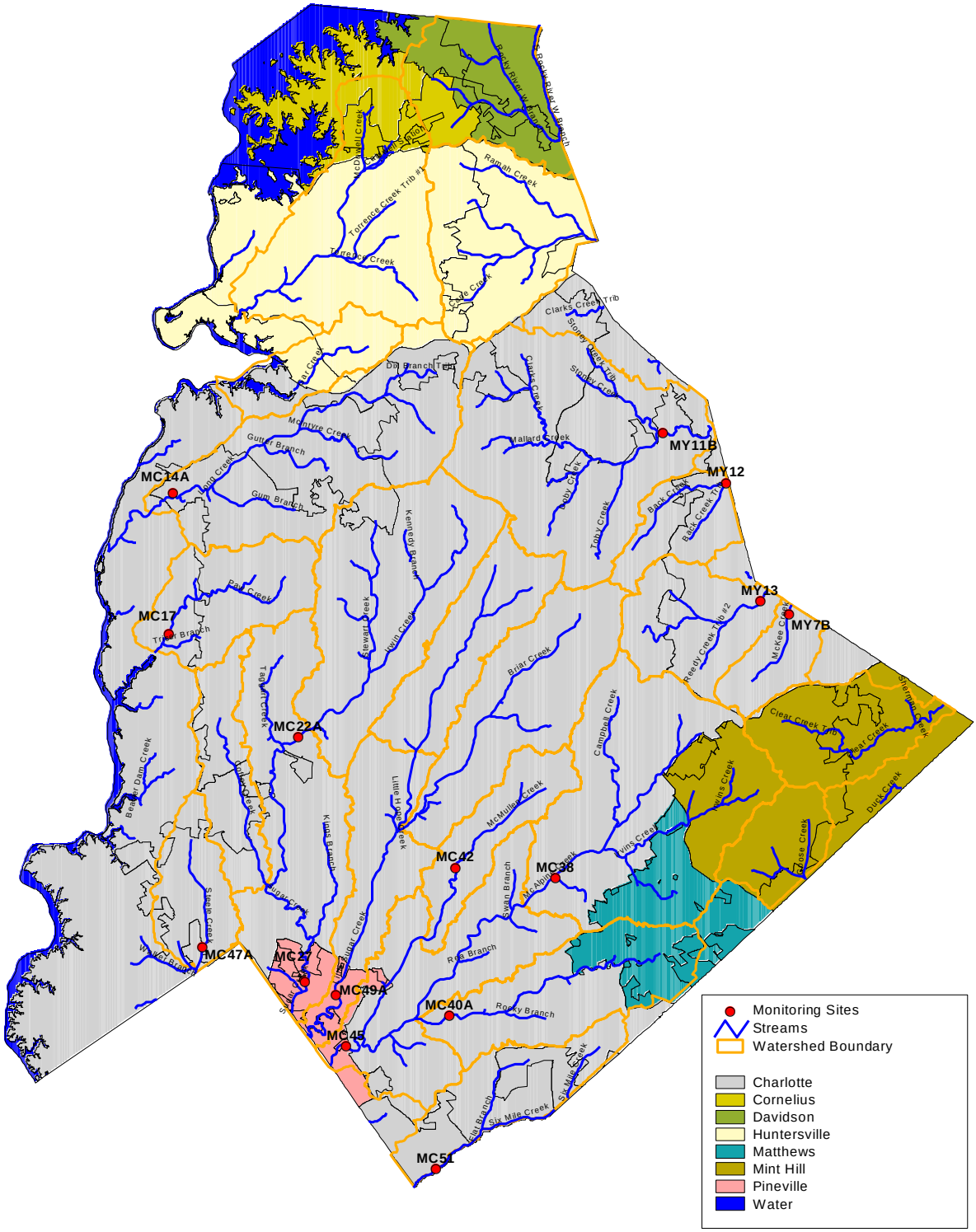


Table 10-3: Description of City of Charlotte Water Quality Monitoring Sites.

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 will prepare and submit its Water Quality Assessment and Monitoring Plan to NCDENR-DWQ by the end of the first year of the permit as described in Section 10-2 above. Within six (6) months of receiving approval of the plan from the Division, the City will begin implementation of 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 year (June 30th), monitoring data will be analyzed to determine water quality trends and gage program effectiveness where possible, especially in the areas of illicit discharge detection and elimination.

10.4 Water Quality Assessment and Monitoring Plan Revisions

The City will review the monitoring plan 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 will revise the plan and submit the revisions to the Division of Water Quality 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	Develop a Water Quality Assessment and Monitoring Plan to be submitted to DWQ within 12 months of the effective date of the permit. The Plan shall include a schedule for implementing the proposed assessment and monitoring activities.	Develop a draft WQ Assessment & Monitoring Plan and submit to DWQ for review and approval by June 30, 2008.	None	None	None	None
Water Quality Monitoring	Implementation of the Water Quality Assessment and Monitoring Plan within 6 months of receiving Plan approval from DWQ. In accordance with the implementation schedule, the permittee shall provide in subsequent annual reports a summary of the assessment and monitoring activities performed within the reporting period.	None	Implement the monitoring plan and conduct WQ assessment and monitoring activities within 6 months of receiving approval from DWQ.	Continue conducting assessment and monitoring activities per the approved plan.	Continue conducting assessment and monitoring activities per the approved plan.	Continue conducting assessment and monitoring activities per the approved plan.
Revisions to the Water Quality Assessment and Monitoring Plan	The permittee shall review annually, amend as appropriate and submit to DWQ for approval the Water Quality Assessment and Monitoring Plan	None	None	Review the Monitoring Plan annually and revise as necessary.	Review the Monitoring Plan annually and revise as necessary.	Review the Monitoring Plan annually and revise as necessary.

10.6 Program Assessment

The overall success of the Water Quality Assessment and Monitoring Program will be measured through the successful implementation of monitoring activities and data collection. Success will also be measured by the number of samples collected, number of parameters analyzed, and data analysis to determine trends. Program assessment will be reported with each annual NPDES permit report discussing the activities completed in this section for the previous program year.

Section 11: Water Quality Recovery Program

The City will develop and implement Water Quality Recovery Programs to address sources of pollutants from the assigned MS4 regulated Waste Load Allocation (WLA) within impaired water bodies that are subject to approved Total Maximum Daily Loads (TMDLs). The following Sections explain the BMPs to be implemented to meet this requirement, explanation of the water quality recovery programs, and measures of success.

11.1 BMP Summary Table

Table 11-1 provides information concerning the BMPs to be implemented to fulfill the Public Involvement and Participation Program requirements. Funding for the BMPs in this section is covered by local stormwater utility fees.

Table 11-1: BMP Summary Table for Water Quality Recovery Programs.

BMP	BMP Description	Schedule (yrs)					Responsible Position
		1	2	3	4	5	
Establish Water Quality Recovery Program Plans	Develop and implement Water Quality Recovery Program Plans for each water body subject to an Approved TMDL, including outfall inventory and monitoring programs below.		X	X	X	X	Water Quality Program Manager
Identify major outfalls with potential to discharge pollutants of concern	Identify the locations of currently known MS4 major outfalls within watershed area of an approved TMDL with the potential of discharging the pollutant(s) of concern: to the impaired segments, to their tributaries, and to segments and tributaries within the watershed contributing to the impaired segments and develop a schedule to discover and locate other MS4 major outfalls within its jurisdictional area that may be discharging the pollutant(s) of concern: to the impaired stream segments, to their tributaries, and to segments and tributaries within the watershed contributing to the impaired segments.		X	X	X	X	Water Quality Program Manager
Develop monitoring program for pollutants of concern	Develop a monitoring program and plan for each pollutant of concern in the approved TMDL. The monitoring plan shall include the sample location by written description and latitude and longitude coordinates, sample type, frequency, any seasonal considerations, and a monitoring implementation schedule for each pollutant of concern. The		X	X	X	X	Water Quality Program Manager

	monitoring plan shall include in-stream and/or major outfall monitoring at locations deemed necessary to support assessment of activities in the Water Quality Recovery Program to address the MS4 NPDES regulated Waste Load Allocation (WLA) identified in the TMDL.						
Assess Monitoring Data	Assess the available data collected under the monitoring plan for each pollutant of concern, and assess the effectiveness of the BMPs employed, to determine what, if any, additional BMP measures may be necessary to address the MS4 NPDES regulated Waste Load Allocation (WLA) identified in the TMDL.				X	X	Water Quality Program Manager

11.2 TMDL Identification

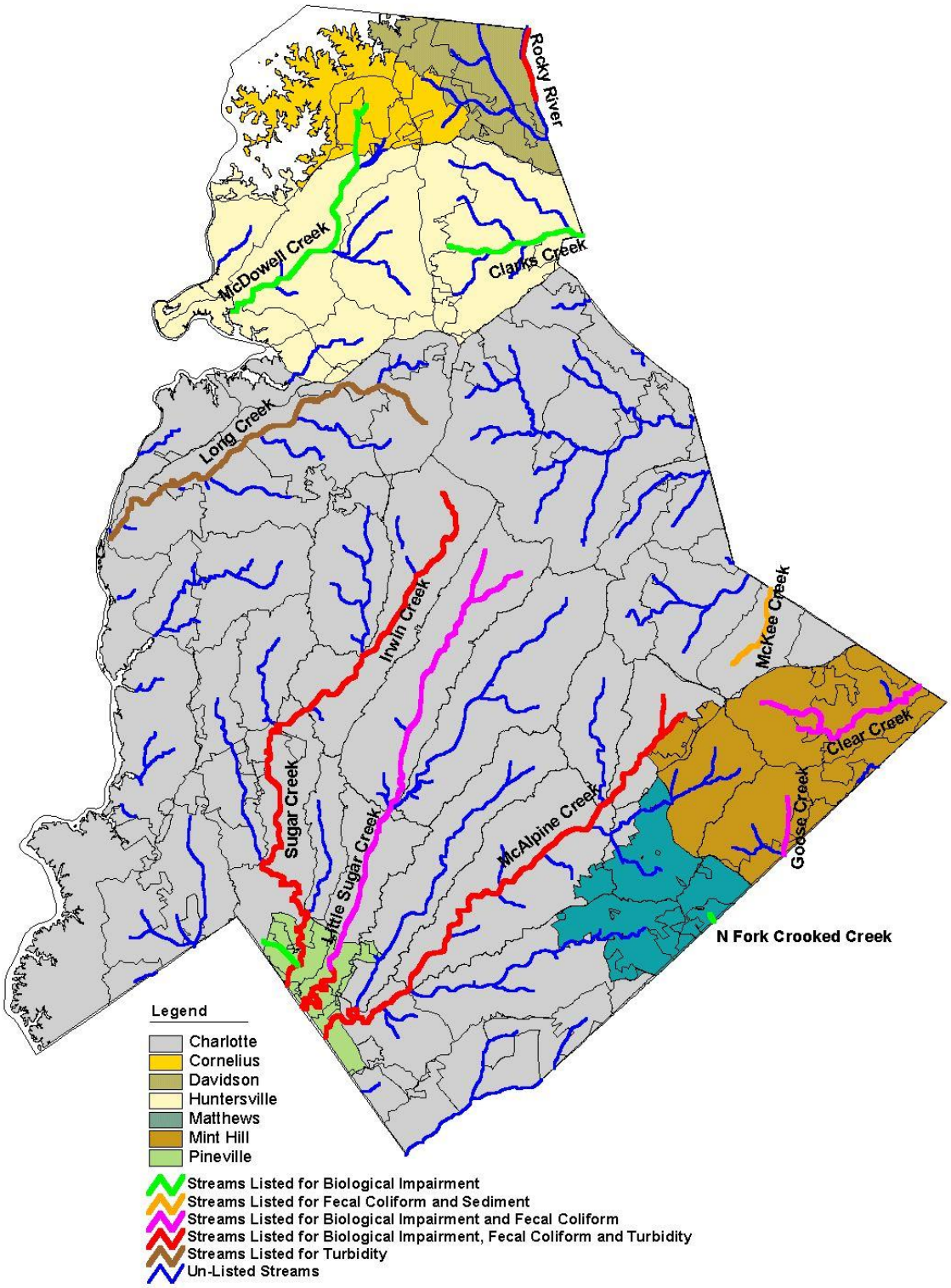
Section 303(d) of the federal Clean Water Act requires States to identify and establish a priority ranking for water bodies that do not meet applicable water quality standards (303(d) list), establish total maximum daily loads (TMDLs) for the pollutants causing impairment of these water bodies, and submit 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 section, the North Carolina Assessment and Impaired Waters List (Integrated 305(b) and 303(d) Report) 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 11-1, 11-2, 11-3, and 11-4**. A total of 6 streams draining through the City are identified on the 303(d) list as impaired and not meeting established water quality standards. Also identified is the lower Catawba river (Lake Wylie). **Figure 11-1** identifies the locations of these impaired stream sections in the City. The identified causes of impairment include combinations of fecal coliform bacteria, turbidity and/or biological impairment. Of the 303(d) listed streams in the City of Charlotte, 5 are located in the Catawba River Basin, including Long, Irwin, Sugar, Little Sugar and McAlpine Creeks. McKee Creek is the only 303(d) listed stream in the City within the Yadkin River Basin. **Table 11-2** shows the surface waters with an approved TMDL, and thus subject to the permit requirement of a water quality recovery program.

Table 11.2: Surface Waters with an Approved TMDL

Receiving Stream Name	TMDL Pollutant of Concern	River Basin	Miles Impaired	Year TMDL Approved
Sugar Creek	fecal coliform, sediment	Catawba	13.1	2002, 2005
Little Sugar Creek	fecal coliform, sediment	Catawba	20.7	2002, 2005
McAlpine Creek	fecal coliform, sediment	Catawba	20.4	2002, 2005
Long Creek	sediment	Catawba	15.3	2005
Irwin Creek	fecal coliform	Catawba	11.8	2002
McKee Creek	fecal coliform,	Yadkin	6.5	2003

Figure 11-1: Charlotte-Mecklenburg Impaired 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 North Carolina's Basin wide Information Management System (December 2007), 305(b) and 303(d) Report (2006), and the Basin Management Plans for the Yadkin-Pee Dee River (2003) and Catawba River (2004). The location of the watershed areas in the City of Charlotte is illustrated in Section 2, **Figure 2-1**. This information was obtained from a centerline stream survey performed by Mecklenburg County and incorporated into GIS.

Table 11-3: Catawba River Basin.

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	Fully Supporting	None
Catawba River* (Lake Wylie below elevation 570)	11-(117)	WS-IV; CA	Fully Supporting*	None*
Catawba River (Lake Wylie below elevation 570)	11-(122)	WS-IV, B, CA	Impaired	Organic Enrichment, no category designation found
Catawba River* (Lake Wylie below elevation 570)	11-(123.5)	WS-IV, B	Impaired*	Organic Enrichment, no category designation found*
Long Creek	11-120- (0.5)	C	Impaired	Turbidity[(1)]
Long Creek	11-120- (2.5)	WS-IV	Impaired	Turbidity[(1)]
Long Creek	11-120- (7)	WS-IV; CA	Impaired	Turbidity[(1)]
Dixon Branch	11-120-1	C	Not Rated	Tributary to Long Creek
McIntyre Creek	11-120-3-(1)	C	Not Rated	Tributary to Long Creek
McIntyre Creek	11-120-3-(2)	WS-IV	Not Rated	Tributary to Long Creek
Gutter Branch	11-120-4-(1)	C	Not Rated	Tributary to Long Creek
Gutter Branch	11-120-4-(2)	WS-IV	Not Rated	Tributary to Long Creek
Gum Branch	11-120-5	WS-IV	Not Rated	Tributary to Long Creek
Paw Creek	11-124	C	Not Rated	N/A
Ticer Branch	11-124-1	C	Not Rated	N/A
Little Paw Creek	11-125	C	Not Rated	N/A
Beaverdam Creek	11-126	C	Not Rated	N/A
Stowe Branch	11-127	C	Not Rated	N/A
Porter Branch	11-133	C	Not Rated	N/A
Studman Branch	11-134	C	Not Rated	N/A
Sugar Creek	11-137	C	Impaired	Fecal Coliform [(1)] Turbidity [(1)] Biologically Impaired [(4)]
Irwin Creek*	11-137-1	C	Impaired	Fecal Coliform [(1)] Turbidity [(1)] Biologically Impaired [(4)]

Receiving Stream Name	Stream Segment Index #	WQ Classification	Use Support Rating	WQ Issues (303(d) Listing)
Stewart Creek	11-137-1-2	C	Not Rated	N/A
Taggart Creek	11-137-2	C	Not Rated	N/A
Coffey Creek	11-137-4	C	Not Rated	N/A
Kings Branch	11-137-6	C	Not Rated	N/A
Little Sugar Creek	11-137-8	C	Impaired	Fecal Coliform [(1)] Turbidity [(1)] Biologically Impaired [(4)]
Dairy Brach	11-137-8-1	C	Not Rated	Tributary to Little Sugar Creek
Briar Creek	11-137-8-2	C	Not Rated	Tributary to Little Sugar Creek
Edwards Branch	11-137-8-2-1	C	Not Rated	Tributary to Briar Creek
Little Hope Creek	11-137-8-3	C	Not Rated	Tributary to Little Sugar Creek
McAlpine Creek	11-137-9	C	Impaired	Fecal Coliform [(1)] Turbidity [(1)] Biologically Impaired [(4)]
Campbell Creek	11-137-9-1	C	Not Rated	Tributary to McAlpine Creek
Irvins Creek	11-137-9-2	C	Not Rated	Tributary to McAlpine Creek
Four Mile Creek	11-137-9-4	C	Not Rated	Tributary to McAlpine Creek
Rocky Branch	11-137-9-4-1	C	Not Rated	Tributary to Four Mile Creek
McMullen Creek	11-137-9-5	C	Not Rated	Tributary to McAlpine Creek
Steele Creek	11-137-10	C	Not Rated	Impaired for fecal coliform in South Carolina
Walker Branch	11-137-10-1	C	Not Rated	Tributary to Steele Creek
Polk Ditch	11-137-10-1-1	C	Not Rated	Tributary to Walker Branch
Clems Branch	11-137-11	C	Not Rated	N/A
Six mile Creek	11-138-2	C	Not Rated	N/A
Flat Branch	11-138-3-2	C	Not Rated	N/A

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

Receiving Stream Name	Stream Segment Index #	WQ Classification	Use Support Rating	WQ Issues (303(d) Listing)
Mallard Creek*	13-17-5	C	Supporting *	Sediment*
Clarks Creek	13-17-5-2	C	Not Rated	Tributary to Mallard Creek
Doby Creek	13-17-5-3	C	Not Rated	Tributary to Mallard Creek
Toby Creek	13-17-5-4	C	Not Rated	Tributary to Mallard Creek
Stony Creek	13-17-5-5	C	Not Rated	Tributary to Mallard Creek
Back Creek	13-17-7	C	Not Rated	N/A
Fuda Creek	13-17-7-1	C	Not Rated	N/A
Reedy Creek*	13-17-8	C	Not Rated*	Sediment *
McKee Creek	13-17-8-4	C	Not Rated	Fecal Coliform[(1)], Sediment [(3)]

*** Indicates waters listed in 2008 Draft 303(d) list as impaired for one or more uses, final list to be approved and published in August of 2008. The public may view this list at: http://h2o.enr.state.nc.us/tmdl/General_303d.htm**

(Assessment Category)

[(1)] Category 4a: TMDLs approved by EPA. Not yet meeting standards.

[(2)] Category 4b: Regulatory controls other than TMDLs expected to result in meeting standards by next listing.

[(3)] Category 5: Waters for which TMDLs are required.

(4) Category 6: Biologically impairment. Pollution/pollutant monitoring will place waters on Category 4c (impairment not caused by a pollutant) or Category 5 (TMDL required).

(5) Category 6: Biologically impairment. Pollution/pollutant monitoring will place waters on Category 1 or Category 2 (no use threatened).

11.3 Water Quality Recovery Program Plans

The City will develop and implement a Water Quality Recovery Program Plan to address sources of pollutants of concern from the assigned MS4 regulated Waste Load Allocation (WLA) within impaired water bodies that are subject to approved Total Maximum Daily Loads (TMDLs) within two (2) years of the NPDES permit effective date. As part of the plan development,, the City will identify all known MS4 outfalls on impaired waters and tributaries with the potential to discharge the pollutant of concern. In addition to the identification of known outfalls, the City will create a schedule to locate and document other MS4 outfalls with the potential to discharge the pollutant of concern to impaired waters or their tributaries. In addition, a monitoring program will be developed for each pollutant of concern as discussed in subsequent sub-sections.

11.4 Outfall Identification for Pollutants of Concern

The City maintains an existing outfall inventory system which is routinely updated. This inventory will be reviewed and a GIS coverage will be created showing existing outfalls within TMDL watershed with the potential to discharge pollutants of concern. In addition, stream walking efforts will be implemented to assess existing outfalls for potential discharges and to update outfall inventory where necessary. The City has developed a 5 year plan to assess all streams within its jurisdictional area to conduct inventory update and outfall assessment activities.

11.5 Monitoring Plan for Pollutants of Concern

The City will develop a monitoring plan for each pollutant of concern within each watershed with an approved TMDL within the City's jurisdiction. The purpose of the monitoring plan will be to guide activities for data collection and assessment of pollutants of concern as well as to evaluate the effectiveness of achieving the regulated waste load allocation (WLA) identified in the TMDL. In developing the monitoring plan, sample locations will be selected to assess water quality conditions within each TMDL watershed. Selection of sample locations may take into consideration upland land use, permitted dischargers, dry weather flows from the storm drainage system, and the possible effects of converging tributaries. The monitoring plan will detail each sample location by written description, sample type, and frequency, as well as set forth a monitoring schedule for each pollutant of concern. The monitoring plan will also identify in-stream and/or major outfall locations deemed necessary to support assessment of activities in the Water Quality Recovery Program to address the MS4 NPDES regulated Waste Load Allocation (WLA) identified in the TMDL.

11.6 Assessment of Monitoring Data

Data collected for the Water Quality Recovery Program monitoring plan will be assessed on an annual basis to determine trends and program effectiveness. All collected data will be analyzed and compared to historical water quality data and relevant to the pollutant of concern. Data analysis reports summarizing the data will be prepared and submitted with the permit annual report.

11.7 Measurable Goals

Table 11-5 describes the various Water Quality Recovery Program BMPs and the Measurable Goals for each BMP by permit term year.

Table 11-5: BMP Measurable Goals for Water Quality Recovery Programs.

BMP	BMP Description	Measurable Goals (by permit term year)				
		1	2	3	4	5
Establish Water Quality Recovery Program Plans	Develop and implement Water Quality Recovery Program Plans for each water body subject to an Approved TMDL, including outfall inventory and monitoring programs below.	None	Develop Water Quality Recovery Program Plans for each approved TMDL WLA by June 30, 2009.	Update Water Quality Recovery Program Plans as necessary.	Update Water Quality Recovery Program Plans as necessary.	Update Water Quality Recovery Program Plans as necessary.
Identify major outfalls with potential to discharge pollutants of concern	Identify the locations of currently known MS4 major outfalls within watershed area of an approved TMDL with the potential of discharging the pollutant(s) of concern: to the impaired segments, to their tributaries, and to segments and tributaries within the watershed contributing to the impaired segments and develop a schedule to discover and locate other MS4 major outfalls within its jurisdictional area that may be discharging the pollutant(s) of concern: to the impaired stream segments, to their tributaries, and to segments and tributaries within the watershed contributing to the impaired segments.	None	Identify known major outfalls with potential to discharge pollutants of concern and develop a schedule to identify other outfall with the potential to discharge pollutants of concern by June 30, 2009.	Continue to update outfall inventory as additional outfalls with the potential to discharge pollutants of concern are discovered.	Continue to update outfall inventory as additional outfalls with the potential to discharge pollutants of concern are discovered.	Continue to update outfall inventory as additional outfalls with the potential to discharge pollutants of concern are discovered.
Develop monitoring plans for pollutants of concern	Develop a monitoring plan for each pollutant of concern in the approved TMDL. The monitoring plan shall include the sample location by written description and latitude and longitude coordinates, sample type, frequency, any seasonal considerations, and a monitoring implementation schedule for each pollutant of concern. The monitoring plan shall include in-	None	Develop monitoring plans for pollutants of concern in each Water Quality Recovery Program Plan by June 30, 2009.	Complete monitoring activities specified in the plans by June 30, 2010	Update monitoring plans as necessary based on data review and assessment activities. Complete monitoring activities specified in the plans by June 30, 2011.	Update monitoring plans as necessary based on data review and assessment activities. Complete monitoring activities specified in the plans by June 30, 2012.

	stream and/or major outfall monitoring at locations deemed necessary to support assessment of activities in the Water Quality Recovery Program to address the MS4 NPDES regulated Waste Load Allocation (WLA) identified in the TMDL.					
Assess Monitoring Data	Assess the available data collected under the monitoring plan for each pollutant of concern, and assess the effectiveness of the BMPs employed, to determine what, if any, additional BMP measures may be necessary to address the MS4 NPDES regulated Waste Load Allocation (WLA) identified in the TMDL.	None	None	None	Assess monitoring data collected under the monitoring plan to determine effectiveness of Water Quality Recovery Programs by September 30, 2010.	Assess monitoring data collected under the monitoring plan to determine effectiveness of Water Quality Recovery Programs by September 30, 2011.

11.8 Program Assessment

The overall success of the Water Quality Recovery Program will be measured through the successful development of the water quality recovery plans, implementation of monitoring activities and data collection and assessment. Success will also be measured by the number of samples collected, number of parameters analyzed, and data analysis to determine trends. Program assessment will be reported with each annual NPDES permit report discussing the activities completed in this section for the previous program year.

Section 12: Threatened or Endangered Species Program

12.1 Threatened or Endangered Species Requirements

Certain waters provide habitat for aquatic animal species that are listed as threatened or endangered by the U.S. Fish and Wildlife Service or National Marine Fisheries Service under the provisions of the Endangered Species Act, 16 U.S.C. 1531-1544 and subsequent modifications. Maintenance and recovery of the water quality conditions required to sustain and recover federally-listed threatened and endangered aquatic animal species contributes to the support and maintenance of a balanced and indigenous community of aquatic organisms and thereby protects the biological integrity of the waters. As required by the MS4 NPDES permit, Part II, Section K, the City will incorporate into its Stormwater Management Program Plan site specific stormwater management requirements for streams supporting federally-listed threatened and endangered aquatic animal species as required by site-specific management plans and schedules currently under development by the N.C. Division of Water Quality under provisions of 15A NCAC 2B .0110. These will be implemented as applicable within the City's Post-Construction Stormwater Management Program.

12.2 Waters Supporting Threatened or Endangered Species

Currently, Six Mile Creek has been identified as a water supporting the Carolina heelsplitter, which is a Federal and State listed endangered species; however, to date, there have been no formal site-specific management plans approved by the State for Six Mile Creek concerning this issue. The City will work to develop and implement additional components within its SWMP as required, once a formal site-specific management plan is adopted by the State. In the meantime, the City will implement special buffer and structural BMP provisions for the Six Mile Creek watershed within its jurisdiction as required by the NPDES permit, Part II, Section F, paragraph 4.