

City of Fayetteville
NPDES Permit Program

Stormwater Quality
Management Program
Plan



Permit Number NCS000246

July 2021

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Section 1: Introduction

On December 30, 1994, the City of Fayetteville began operating under Municipal Separate Storm Sewer System (MS4) National Pollutant Discharge Elimination System (NPDES) Permit Number NCS000246 as issued by the North Carolina Department of Environmental Quality (NCDEQ). This permit is currently renewed for a third term effective October 10, 2018 through October 9, 2023.

This document provides the Stormwater Quality Management Program, herein referred to as the Stormwater Plan, required by Part I, paragraphs 1, 7, and 11 of the NPDES permit. The overall objective of the Stormwater Plan 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 Stormwater Plan elements described within this plan. The Fayetteville Stormwater Division is the primary agency responsible for managing the City's NPDES stormwater permit, its MS4, and the Stormwater Plan.

Included in this Stormwater Plan 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, and funding sources. Staff of the Fayetteville Stormwater Division, under the direction of the City's Stormwater Manager, is responsible for the fulfillment of most of the activities discussed in this Stormwater Plan. The City's Street Maintenance Division and the Environmental Services Department have responsibility for maintenance of portions of the MS4, in coordination with the Fayetteville Stormwater Division. The one exception is the Construction Site Runoff Control program where the local office of NCDEQ is the primary responsible agency.

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

- 1) Public Education and Outreach – 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 – This program provides the general public as well as business and industry the opportunity to participate in various programs within the City's Stormwater Plan. Fayetteville maintains a Stormwater Advisory Board (SWAB), 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 programs such as Storm Drain Marking, Adopt-A-Site, Adopt-A-Street, Keep Fayetteville Beautiful, etc.
- 3) Illicit Discharge Detection and Elimination – 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 Fayetteville – Illicit Connections and Improper Disposal 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 Runoff Control – This program has been and is currently provided by the local office of the NCDEQ Land Quality Section. Even though the City’s existing Construction Site Runoff program is handled by the local office of the NCDEQ Land Quality Section, the City continues to aggressively inspect construction sites that are brought to their attention through complaints or other sources. These efforts are fully coordinated with NCDEQ. Additionally, the City focuses on sites that are smaller than one acre that are not permitted by NCDEQ.
- 5) Post-Construction Site Runoff Controls – The City has recently developed a program to control the discharge of pollutants in stormwater runoff from new development and redevelopment projects. As part of this program, the City enforces the “City of Fayetteville – Stormwater Control Ordinance”, which requires stormwater treatment practices for development that meets various size and density thresholds. The program involves review and approval of project plans as well as site inspections to ensure that treatment practices are properly operated and maintained.
- 6) Pollution Prevention and Good Housekeeping for Municipal Operations – 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 – 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 – 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) Total Maximum Daily Loads (TMDLs) – The Fayetteville Stormwater Division has determined that a Total Maximum Daily Load (TMDL) has not yet been developed and approved or established by NCDEQ (as delegated through EPA) for the receiving

waters of the City of Fayetteville’s MS4 NPDES stormwater discharge. Therefore, this Permit section is currently not applicable in the City of Fayetteville.

Section 2: Background Information

2.1 Population Served

The Stormwater Plan covers the incorporated area of the City of Fayetteville, as applicable and defined by the NPDES permit. As indicated in the City’s NPDES permit, those portions of the incorporated area that are within the boundaries of Fort Bragg are excluded from the City’s NPDES permit and are thus not intended to be part of this Stormwater Plan. Fort Bragg has a separate NPDES permit that regulates those stormwater discharges to the Waters of the State. Data reported in this section was obtained from the City’s Planning Department. Table 2-1 provides the population and estimated average annual growth rate for the City. The source of this population data is the 2000 and 2010 Decennial Census information.

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

2010 Population	2000 Population	Estimated Annual Percent Change
200,564	121,015	6.57%

As a point of clarification and as of the 2010 Census, the population of the City of Fayetteville minus Fort Bragg was 183,367.

2.2 Growth Rate

Table 2-1 shows the population growth rate represented as an “Estimated Annual Percent Change” for the incorporated area of the City. This growth rate was calculated using the percent change between the 2000 and 2010 population totals from the Decennial Census, annualized by dividing this percent change by ten.

2.3 Jurisdictional and MS4 Service Areas

The incorporated area of the City of Fayetteville is approximately 148 square miles. However, approximately 54 square miles of the City consist of land within Fort Bragg. Since the area of Fort Bragg is excluded from the City’s NPDES permit, the jurisdictional and MS4 service area for the City is the remaining area of approximately 94 square miles. The location of this area within Cumberland County and corresponding drainage basins are provided in Figure 2-1. The source of this information is the City of Fayetteville Planning Department which updates jurisdictional and geographical boundaries as annexations occur.

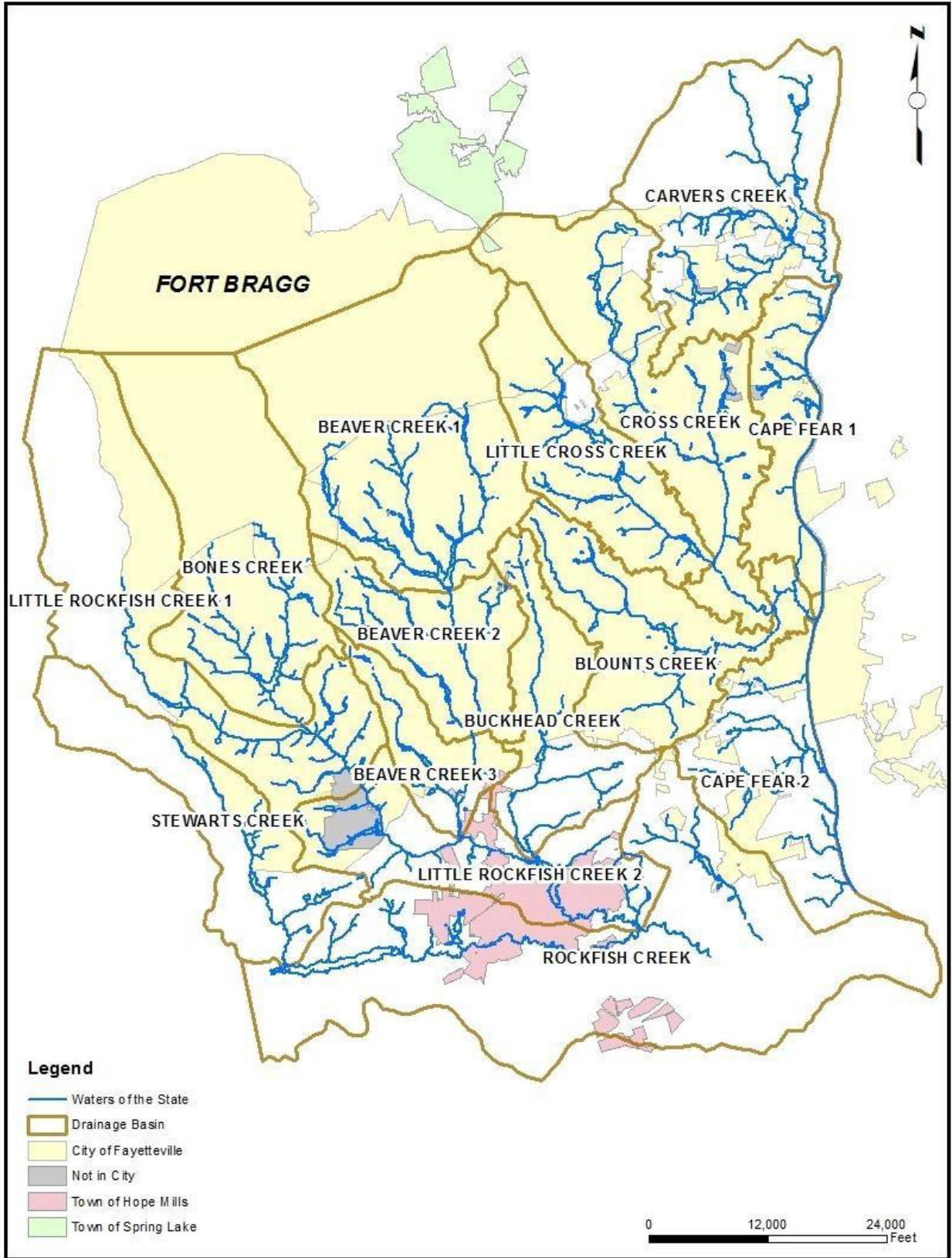


Figure 2-1: Fayetteville Jurisdiction and Drainage Basins

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 576 miles of storm drain pipe and 22,115 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, public / institutional, vacant, and transportation land use categories are provided in Table 2-2. Please note that Table 2-2 also provides data for those parcels that have not yet been assigned a land use category. These percentages are for the incorporated area of the City minus the area of Fort Bragg. Figure 2-2 provides a map of these land use areas.

Table 2-2: Percentage of Land Uses in the City of Fayetteville

Land Use Category	Number of Square Miles	% of Land Use
Residential	39	41%
Commercial	6	6%
Industrial	2	2%
Public / Institutional	9	10%
Vacant	16	17%
Transportation	13	14%
Not Yet Assigned	9	10%

2.6 Estimate Methodology

Land use estimates were derived from City of Fayetteville Unified Development Ordinance (UDO) Use Classifications.

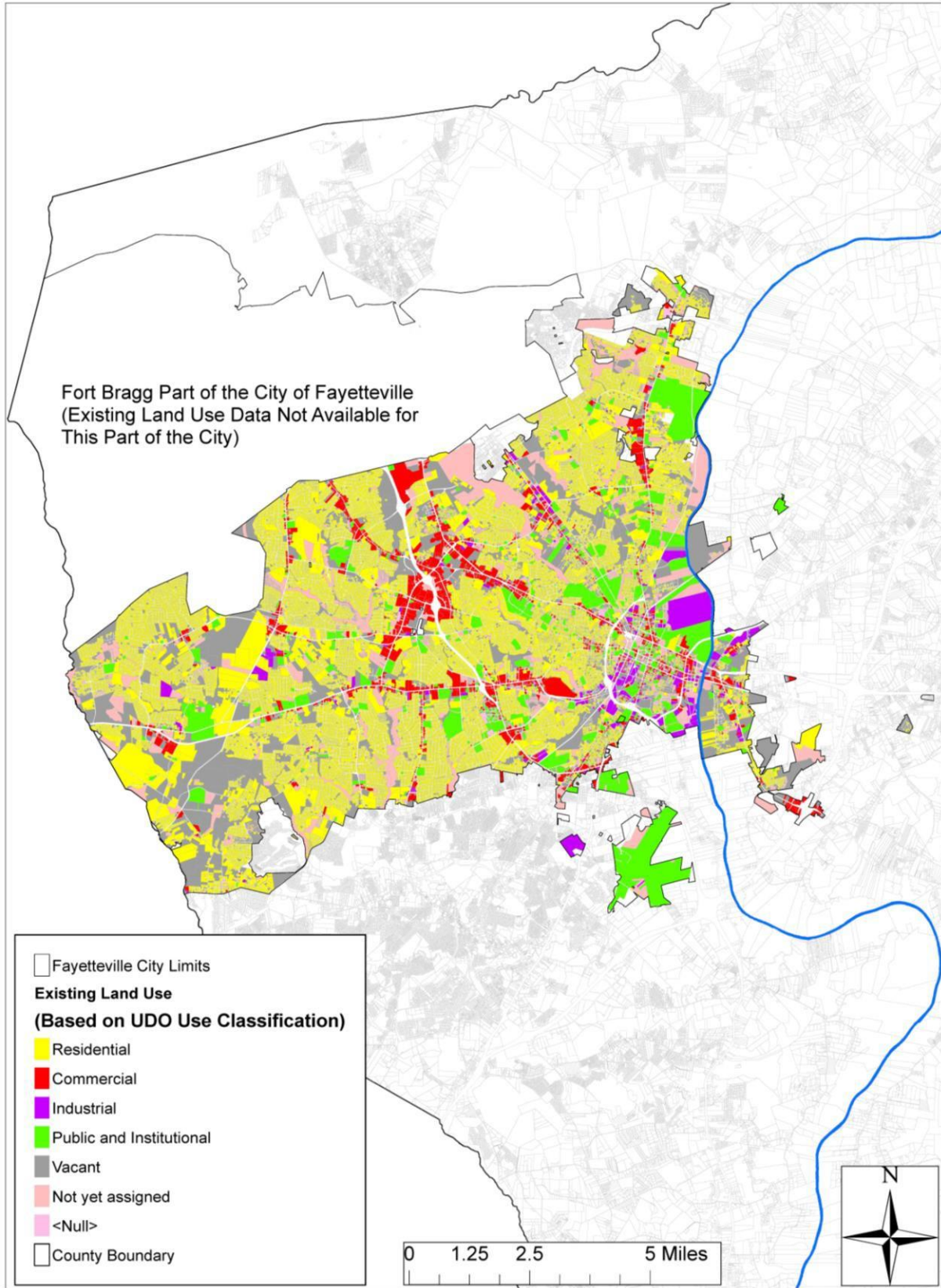


Figure 2-2: Fayetteville Land Uses

Section 3: Public Education and Outreach

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
(a) Describe target pollutants and target pollutant sources	Describe the target pollutants and target pollutant sources the public education program is designed to address and why they are an issue.
(b) Describe target audiences	Describe the target audiences likely to have significant stormwater impacts and why they were selected.
(c) Informational website	Promote and maintain an internet website designed to convey the program’s message.
(d) Distribute public education materials to identified user groups	Distribute general stormwater educational material to appropriate target groups as likely to have a significant stormwater impact.
(e) Promote and maintain Hotline / Help Line	Promote and maintain a stormwater hotline / helpline.
(f) Implement a Public Education and Outreach Program	Promote and maintain a Public Education and Outreach program designed to address target pollutant sources and to provide information and education to the general public as well as target audiences. For each media event or activity, including those elements implemented locally or through a cooperative agreement, estimate and record the extent of exposure.

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 Fayetteville 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 Audiences

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.

3.3.1 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 a significant portion 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 telephone calls annually from the general public to the City’s Stormwater Hotline. 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.

School Aged Children – Targeted to become aware of general water quality issues, collaborate with public school curriculum, and reach out to parents as well.

3.3.2 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:

Concrete Companies – Targeted for potential illegal dumping of wash water into storm drains.
Lawn Care Companies and Golf Courses – Targeted for potential improper application of fertilizers and herbicides resulting in discharges to surface waters.

Painting / Home Renovation Companies – Targeted for potential improper handling of paints and other waste materials resulting in discharges to storm drains.

Restaurants – Targeted for potential improper handling of grease and other cooking byproducts resulting in discharges to storm drains.

Carpet Cleaning Companies – Targeted for potential illegal dumping of wastewater into storm drains.

Automotive Repair Facilities – Targeted for potential improper handling of used oil and other waste automotive fluids resulting in discharges to storm drains.

3.4 Informational Website

A website will continue to be developed and directed at all the target audiences discussed in subsection 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.

3.5 Public Education 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.

3.6 Hotline / Help Line

The Stormwater Hotline, initiated in 1995 as an integral part of the Stormwater program, is a source of information and direction, and continues to be the primary means for the public to communicate incidents, complaints and suggestions on a 24/7 basis.

3.7 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 Fayetteville choose behaviors that protect our water quality.

3.7.1 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.

3.7.2 Coordination with PWC

Periodically throughout the Permit period, the Stormwater Program will coordinate advertising with PWC addressing water quality and stormwater runoff in various publications produced by the Public Works Commission and is 70,000 customers. Advertising may take the form of an advertisement placed in the Storm Prep Guide, guest appearances on various PWC radio and TV programs, and podcasts, and monthly billing newsletters.

3.7.3 Community Events

Each year throughout the Permit period, staff will regularly participate in community events such as the Fayetteville Dogwood Festival and community awareness events by having booth space and distributing information and promotional items.

3.7.4 Public Educational Presentations

Educational presentations will be given beginning in the first year of the permit targeted at the general public, interest groups, businesses and industrial facilities. These presentations will be made regularly throughout each of the permit years. The presentations will focus on the efforts necessary to protect water quality and the promotion of volunteer activities.

3.7.5 Classroom Outreach

Each year throughout the Permit period, classroom presentations will be made to all grades from prekindergarten through high school utilizing educational outreach materials. Presentations will also be made at the local colleges (Fayetteville State University and Methodist University) on certain occasions.

3.7.6 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 the Stormwater Division internet address.

3.7.7 Partnership with Clean Water Education Partnership

The City will maintain a partnership with the Clean Water Education Partnership which provides various direct education and mass media services to aid in the implementation of stormwater outreach and education. The Clean Water Education Partnership is a state wide cooperative that assists communities large and small with educational efforts through providing direct education opportunities, mass media services such as television and radio ads, social media and website content, as well as print publications for both English and Spanish speaking audiences.

3.7.8 Social Media

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

3.8 Measurable Goals

Table 3-3 describes the various Public Education and Outreach Program 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
(a) Describe target pollutants and target pollutant sources	Describe the target pollutants and target pollutant sources the public education program is designed to address and why they are an issue.	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	Review and update target pollution sources as necessary
(b) Describe target audiences	Describe the target audiences likely to have significant stormwater impacts and why they were selected.	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	Review and update target audiences as necessary
(c) Informational website	Promote and maintain an internet website designed to convey the program’s message.	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
(d) Distribute public education materials to identified user groups	Distribute general stormwater educational material to appropriate target groups as likely to have a significant stormwater impact.	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
(e) Promote and maintain-Hotline / Help Line	Promote and maintain a stormwater hotline / helpline.	Maintain a hotline that receives information from the public 24 hours a day	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

BMP	BMP Description	Measurable Goals (by permit term year)				
		1	2	3	4	5
(f) Implement a Public Education and Outreach Program	Promote and maintain a Public Education and Outreach program designed to address target pollutant sources and to provide information and education to the general public as well as target 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	Continue education and outreach activities per the plan

3.9 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 may also be measured specifically by the following:

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

Section 4: Public Involvement and Participation

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
(a) Volunteer community involvement program	Develop and promote volunteer opportunities designed to promote ongoing citizen participation.
(b) Establish a mechanism for public involvement	Provide and promote a mechanism for public involvement that provides for input on stormwater issues and the stormwater program.
(c) Establish Hotline / Help Line	Promote and maintain a Hotline / Helpline for the purpose of public involvement and participation.
(d) Public review and comment	Make copies of the most recent Stormwater Plan available for public review and comment.
(e) Public notice	Comply with State, Tribal, and local public notice requirements when implementing a Public Involvement and Participation Program.

4.2 Volunteer Involvement Program

The City of Fayetteville through the Parks and Recreation Department coordinates two programs, Adopt-A-Street and Adopt-A-Site, to provide trash and litter pickup along streets and sites that have been adopted by volunteer groups. The groups volunteer to clean these areas several times a year. The City provides trash bags along with a list of safety procedures to be followed during the cleanup.

The groups report their activities back to the City, and the City picks up the full trash bags for proper disposal. These groups provide a valuable service toward the improvement of water quality by picking up and properly disposing of trash and litter that could otherwise be discharged to the City's storm drainage system during the next rain event.

The Stormwater Division partners with Fayetteville Beautiful, a local affiliation of Keep America Beautiful. Fayetteville Beautiful is responsible for citywide clean ups to include, but not limited to, litter and debris removal, stream cleanup, etc. Fayetteville Beautiful strives to keep the City clean, and to educate the public about the importance of putting litter in its proper place, thus keeping it out of local rivers and streams.

4.3 Public Involvement Mechanism

The City has an active Stormwater Advisory Board (SWAB) that meets regularly. The SWAB was established via ordinance in July 2009 as the City formed its own Stormwater Utility and Program continuing under the same general format as the Joint Stormwater Advisory Board as established with Cumberland County in 1995.

The City SWAB consisting of Fayetteville citizens provides guidance and advice to the City Council pertaining to the Stormwater Management Program. Additionally, the SWAB has the powers and duty in matters relating to the administrative review of any orders or decisions made by the Stormwater Manager. In the past year, the SWAB has meet to discuss several issues important to the Stormwater Program, such as amending the Stormwater Ordinance, reviewing Capital Improvement Needs, reviewing the Stormwater Budget, and recommending a Stormwater Utility fee increase. The SWAB has also heard presentations regarding the City's BMP inspections process, outfall inspections process, as well as periodic project updates given by City Staff. The SWAB provides useful feedback and is an important asset to the Stormwater Program.

4.4 Hotline / Help Line

The Stormwater Hotline, initiated in 1995 as an integral part of the Stormwater program, is a source of information and direction, and continues to be the primary means for the public to communicate incidents, complaints and suggestions on a 24/7 basis.

4.5 Public Review and Comment

Following the development of a Stormwater Plan, copies will be made available to the public for review and comment. Hard copies will be available for public review at City Hall as well as a digital copy will be posted on the Stormwater Division website. The SWAB will also review the Stormwater Plan. Additionally, presentations and updates will be made to the SWAB as needed to update and involve the public in the ongoing development and implementation of the program.

4.6 Public Notice

All regular meetings, special meetings, and hearings of the Stormwater Advisory Board are filed in accordance with the North Carolina Open Meetings Law. Notices of meetings are posted in a central location in City Hall, as well as posted on the City's website. All records, files, and accounts are considered public records as provided in the North Carolina General Statutes.

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
(a) Volunteer community involvement program	Develop and promote volunteer opportunities designed to promote ongoing citizen participation.	Continue to support Adopt-A-Street, Adopt-A-Site, and Fayetteville Beautiful programs	Continue to support Adopt-A-Street, Adopt-A-Site, and Fayetteville Beautiful programs	Continue to support Adopt-A-Street, Adopt-A-Site, and Fayetteville Beautiful programs	Continue to support Adopt-A-Street, Adopt-A-Site, and Fayetteville Beautiful programs	Continue to support Adopt-A-Street, Adopt-A-Site, and Fayetteville Beautiful programs
(b) Establish a mechanism for public involvement	Provide and promote a mechanism for public involvement that provides for input on stormwater issues and the stormwater program.	Maintain the Stormwater Advisory Board	Maintain the Stormwater Advisory Board	Maintain the Stormwater Advisory Board	Maintain the Stormwater Advisory Board	Maintain the Stormwater Advisory Board
(c) Establish Hotline / Help Line	Promote and maintain a Hotline / Helpline for the purpose of public involvement and participation.	Maintain a hotline that receives information from the public 24 hours a day	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
(d) Public review and comment	Make copies of the most recent Stormwater Plan available for public review and comment.	Provide copies of draft Stormwater Plan for public review and comment	Advise the SWAB on program issues as necessary	Advise the SWAB on program issues as necessary	Advise the SWAB on program issues as necessary	Advise the SWAB on program issues as necessary
(e) Public notice	Comply with State, Tribal, and local public notice requirements when implementing a Public Involvement and Participation Program.	Provide public notices for all SWAB meetings as well as other meetings as necessary	Provide public notices for all SWAB meetings as well as other meetings as necessary	Provide public notices for all SWAB meetings as well as other meetings as necessary	Provide public notices for all SWAB meetings as well as other meetings as necessary	Provide public notices for all SWAB meetings as well as other meetings as necessary

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 may also be measured specifically by the following:

- Number of Streets and Sites adopted by Volunteers
- Number of Citizen Requests for Service Received
- Number of Pollution Problems detected
- Survey Results

Section 5: Illicit Discharge Detection and Elimination (IDDE)

The City maintains a 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 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:

- Responding to citizen requests for service concerning water quality problems
- Administration and enforcement of the City’s stormwater pollution control ordinance
- Identification and mapping of stormwater outfalls that discharge to Waters of the State
- Creek Cleaning 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, explanation of the program, and measures of success.

5.1 BMP Summary Table

Table 5-1 provides information concerning the BMPs to be implemented to fulfill the Illicit Discharge Detection and Elimination 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
(a) Maintain appropriate legal authorities	Maintain adequate ordinances or other legal authorities to prohibit illicit connections and discharges and enforce the approved IDDE Program.

BMP	BMP Description
(b) Maintain a Storm Sewer System Base Map	Maintain a current map showing major outfalls and receiving streams.
(c) Inspection / detection program to detect dry weather flows at MS4 outfalls	Maintain written procedures and / or Standard Operating Procedures (SOPs) for detecting and tracing the sources of illicit discharges and for removing the sources or reporting the sources to the State to be properly permitted. Written procedures and / or SOPs shall specify a timeframe for monitoring and how many outfalls and the areas that are to be targeted for inspections.
(d) Employee training	Conduct training for appropriate municipal staff on detecting and reporting illicit connections and discharges.
(e) Maintain a public reporting mechanism	Establish and publicize reporting mechanism for the public to report illicit connections and discharges. Establish citizen request response procedures.
(f) Documentation	Document the date of Investigations, any enforcement action(s) or remediation that occurred.

5.2 Ordinance Administration and Enforcement

Article II. Illicit Connections and Improper Disposal of Chapter 23 Stormwater Management became effective in the City in July 2009. Prior to that, the City had been covered via an interlocal agreement under Cumberland County’s Ordinance as part of the previous joint Permit with the County. The City’s Ordinance contains the exact same provisions as the previous County Ordinance. The Ordinance makes it illegal to place, deposit, or discharge anything except for stormwater runoff into the storm drainage system. There are some “DENR approved” exceptions but overall the Ordinance is very inclusive. The Ordinance provides City staff with a right-of- entry to private property including buildings for enforcement actions when required. There is also a Schedule of Civil Penalties, reviewed and approved annually by City Council on the City’s Fee Schedule, that details the fines and penalties associated with ordinance violations. The Ordinance is available to the public online through the City’s Stormwater website, or through <http://online.encodeplus.com/regs/fayetteville-nc/>.

5.3 Stormwater System Inventory

The City has previously inventoried the stormwater system that is considered part of the public system. Thus, the inventory contains all stormwater structures and conveyances within the public right-of-way and follows the system to its outfalls into Waters of the State. The parts of the stormwater system that originate on private property are not part of the inventory. The inventory is updated with new structures and conveyances as they are constructed through as-builts that are submitted to the City at project completion.

During the inventory, lists of water quality concerns, sediment, and maintenance needs for each of the watersheds were generated identifying the locations where problems and other maintenance

needs exist. These lists were used by the City to detect and eliminate illicit connections and improper disposal. Also, this information is being used to schedule maintenance by the City of Fayetteville along with NCDOT. The stormwater system inventory was instrumental in identifying outfalls to Waters of the State that need to be monitored as part of the field screening process.

5.4 Inspection / Detection Program

An effective Inspection / Detection Program is essential to the success of the Stormwater Plan. Such a program has been in place in the City of Fayetteville since the beginning of the NPDES permit program in 1995. 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 – During the stormwater system inventory, the City located and identified all outfalls to Waters of the State regardless of their size. As the City has completed the stormwater inventory, that data has been used to identify all major outfalls to Waters of the State that are 36 inches and greater. The City has currently identified approximately 279 major outfalls to Waters of the State. In order to create a baseline, the City completed an initial dry weather screening of all the major outfalls once their location was established. Each year, the City aims to screen 100% of the identified outfalls for dry weather flows and evidence to detect and eliminate illicit connections or improper disposal. Since many of the outfalls have dry weather flows due to the infiltration of groundwater, the Stormwater Inspector routinely evaluates the dry weather flow for any abnormal color, odor, or sheen. Results of the screenings are recorded in a database and are considered a permanent record.

The City will continue to monitor dry weather flows at the major outfalls and at other locations throughout the stormwater system as they are identified. 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. 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.

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 the Stormwater Plan.

Public Outreach / Involvement – Reporting by the general public 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.

Illicit Connections and Improper Disposal Ordinance – The City’s Illicit Connections and Improper Disposal 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.

The City investigates possible illicit connections or improper disposal activities to detect and eliminate them. The City acts as the enforcement agent and has authority to issue fines. Additionally, during any enforcement action, the Inspector will educate the violator on stormwater quality and how similar situations can be avoided in the future.

Coordination with Fayetteville Public Works Commission (PWC) – The Stormwater Division and PWC will continue to work jointly on promoting water quality issues through their public relations programs. Additionally, the Stormwater Division forwards potential sanitary sewer leaks to PWC upon discovery. Likewise, PWC alerts the Stormwater Division anytime there is a sanitary sewer overflow that would potentially impact the water quality of the City’s stormwater drainage system and, more importantly, local streams. In cases of sanitary sewer overflows, Fayetteville PWC sends email messages to both the Stormwater Manager and the Stormwater Inspections Supervisor detailing the specifics of the occurrence. Responses by the Stormwater Division will vary depending on the nature of the problem and the threat to water quality. Therefore, there is open communication and continuous dialogue between these two agencies.

Coordination with County Health Department – Stormwater will continue to forward discoveries of failing and potentially failing septic tanks to the Cumberland County Health Department and works with their personnel as needed to resolve the matter. Additionally, the Stormwater Division will coordinate with the County Health Department to resolve issues of stagnant water and mosquito problems.

Sanitary Sewer Extension – In addition to the above coordination with the County Health Department, properties in Cumberland County that are primarily on septic tank will continue to be annexed into the City of Fayetteville. As a result, these properties will be converted over time to the sanitary sewer. Thus, the proliferation of septic tanks in the urbanized area will continue to be reduced. Accordingly, this will reduce the circumstances where septic tanks fail and in turn impact the local water quality.

5.5 Employee Training

Target City 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 Illicit Connections and Improper Disposal 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 online training tools, distribution of written literature, participation in employee events, articles in employee newsletters, and 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 this Stormwater Plan.

5.7 Public Reporting Mechanism

The Stormwater Hotline, initiated in 1995 as an integral part of the Stormwater program, is a source of information and direction, and continues to be the primary means for the public to communicate incidents, complaints and suggestions on a 24/7 basis.

5.8 Documentation

The City maintains electronic and hard copy files as necessary to document activities conducted under the Illicit Discharge Detection and Elimination Program, including service requests, investigations and enforcement actions.

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
(a) Maintain appropriate legal authorities	Maintain adequate ordinances or other legal authorities to prohibit illicit connections and discharges and enforce the approved IDDE Program.	Continue administration and enforcement of the Illicit Connections and Improper Disposal Ordinance. Review ordinance and propose updates as necessary.	Continue administration and enforcement of the Illicit Connections and Improper Disposal Ordinance	Continue administration and enforcement of the Illicit Connections and Improper Disposal Ordinance	Continue administration and enforcement of the Illicit Connections and Improper Disposal Ordinance	Continue administration and enforcement of the Illicit Connections and Improper Disposal Ordinance
(b) Maintain a Storm Sewer System Base Map	Maintain a current map showing major outfalls and receiving streams.	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	Continue to maintain storm sewer map in GIS and update as necessary to show additional outfalls
(c) Inspection / detection program to detect dry weather flows at MS4 outfalls	Maintain written procedures and / or Standard Operating Procedures (SOPs) for detecting and tracing the sources of illicit discharges and for removing the sources or reporting the sources to the State to be properly permitted. Written procedures and / or SOPs shall specify a timeframe for monitoring and how many outfalls and the areas that are to be targeted for inspections.	Implement 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	Continue implementation of the established IDDE program

BMP	BMP Description	Measurable Goals (by permit term year)				
		1	2	3	4	5
(d) Employee training	Conduct training for appropriate municipal staff on detecting and reporting illicit connections and discharges.	Update training procedures as necessary and conduct employee refresher training	Update training procedures as necessary and conduct employee refresher training	Update training procedures as necessary and conduct employee refresher training	Update training procedures as necessary and conduct employee refresher training	Update training procedures as necessary and conduct employee refresher training
(e) Maintain a public reporting mechanism	Establish and publicize reporting mechanism for the public to report illicit connections and discharges. Establish citizen request response procedures.	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
(f) Documentation	The City shall document the date of investigations, any enforcement action(s) or remediation that occurred.	Maintain IDDE program records and databases to accurately document the activities in the program.	Maintain IDDE program records and databases to accurately document the activities in the program.	Maintain IDDE program records and databases to accurately document the activities in the program.	Maintain IDDE program records and databases to accurately document the activities in the program.	Maintain IDDE program records and databases to accurately document the activities in the program.

5.9 Program Assessment

The overall success of the Illicit Discharge Detection and Elimination 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 may also be measured specifically by the following:

- Number of Citizen Requests for Service Addressed
- Number of Inspections Conducted
- Number of Problems Discovered
- Number of Notice of Violations (NOVs) Issued
- Number and Amount of Penalties Issued

Section 6: Construction Site Runoff Controls

6.1 Locally Delegated Program

The City does not currently have a locally delegated erosion control program for administering a Construction Site Runoff Controls Program. This program has been and is currently provided by the local office of the NCDEQ Land Quality Section. Even though the City's existing Construction Site Runoff program is handled by the local office of the NCDEQ Land Quality Section, the City continues to aggressively inspect construction sites that are brought to their attention through complaints or other sources. The City developed a standard operating procedure (SOP) that provides a step by step outline as to how perform the inspection and any needed follow-up. These activities are fully coordinated with NCDEQ Land Quality Section. There continues to be an excellent working relationship between the City and NCDEQ to address all problems associated with construction sites.

Additionally, the above referenced program by NCDEQ's Land Quality Section regulates construction sites that are one (1) acre and larger. The City considers smaller sites as potentially discharging sediment and performs inspections and pursues enforcement measures through our local Ordinance or referral to NCDEQ when needed.

Section 7: Post-Construction Site Runoff Controls

The City has worked 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 is to address water quality impacts from post-construction stormwater discharges through the use of a combination of structural and non- structural stormwater control measures (SCMs) as appropriate. The program has included 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 assigns responsibility for the development and implementation of long-term

operation and maintenance practices for required SCMs. 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 Post-Construction Site Runoff Controls Program requirements. Funding for the BMPs in this section is covered by local stormwater utility fees.

Table 7-1: BMP Summary Table for the Post-Construction Site Runoff Controls Program

BMP	BMP Description
(a) Post-Construction Stormwater Management Program	Maintain an ordinance (or similar regulatory mechanism) for program to address stormwater runoff from new development and redevelopment.
(b) Strategies which include Stormwater Control Measures (SCMs) appropriate for the MS4	Maintain strategies that include a combination of structural and / or non-structural SCMs implemented in concurrence with (a) above. Provide a mechanism to require long-term operation and maintenance of structural SCMs. Require annual inspection reports of permitted structural SCMs performed by a qualified professional.
(c) Deed restrictions and protective covenants	Provide mechanisms such as recorded deed restrictions, plats, and / or protective covenants so that development activities maintain the project consistent with approved plans.
(d) Operation and maintenance plan	The developer shall provide the City with an operation and maintenance plan for the stormwater system, indicating the operation and maintenance actions that shall be taken, specific quantitative criteria used for determining when those actions shall be taken, and who is responsible for those actions. The plan must clearly indicate the steps that shall be taken and who shall be responsible for restoring a stormwater system to design specifications if a failure occurs and must include an acknowledgment by the responsible party. Development must be maintained consistent with the requirements in the approved plans and any modifications to those plans must be approved by the City.
(f) Educational materials and training for developers	Provide educational materials and training for developers. New materials may be developed by the City, or the City may use materials adopted from other programs and adapted to the City's new development and redevelopment program.

7.2 Post-Construction Stormwater Management Program

In October 2008, the Fayetteville City Council approved a Stormwater Control Ordinance that contained provisions to address stormwater runoff from new development and redevelopment. The ordinance became effective on January 1, 2009. Article III, Stormwater Control, of the City's Stormwater Management Ordinance, Chapter 23 of the City of Fayetteville's Code of Ordinances, requires SCMs to control peak discharge on new development as well as redevelopment so that the post-development peak discharge rate will be no greater than the predevelopment peak discharge rate. This provision minimizes the downstream flooding impacts arising from new development. Once

approved by the City Council, the ordinance was forwarded to NCDEQ for their review and approval. The State requested several revisions so that the ordinance would be fully compliant with NPDES permit requirements. In February 2012, the City adopted the proposed revisions to Article III to make the ordinance compliant with Phase II post- construction requirements. The Article was subsequently approved by NCDEQ. Based on the State's approval, the City of Fayetteville was delegated the authority to administer the post- construction program on a local level. Therefore, the ordinance contains both stormwater quantity and quality provisions. Last of all and to address the concern regarding the ongoing maintenance of stormwater facilities in single-family subdivisions, the City decided to accept the functional maintenance responsibility for these facilities, if the developer requests such.

The above ordinance and Post-Construction Stormwater Management Program were designed to meet the requirements for post-construction runoff from new development and redevelopment projects specified by 15A NCAC 2H .0126 and the NPDES stormwater permit program. The ordinance covers the entire jurisdictional area of the City minus those portions located on Fort Bragg. As part of the program, an Administrative Manual was developed to ensure successful implementation of the program.

The above referenced Stormwater Management Ordinance is available on the City's website as well as through the Internet at <http://online.encodeplus.com/regs/fayetteville-nc/>.

7.3 Post-Construction BMP Strategies

The above referenced Article III utilizes the "Stormwater Design Manual" as developed by NCDEQ. Therefore, local engineers and developers are able to utilize any of the SCMs in the Manual to address their post-construction site runoff control requirements. On April 12, 2012, the Stormwater Division submitted an updated "Certification of Local BMP Manual or Stormwater Engineering Guidance" form to NCDEQ to attest that the local Water Supply Watershed and Phase II Stormwater Programs are meeting requirements as outlined in the State's BMP Manual. Previously, the City's BMP Manual certification was for Water Supply Watershed regulations only, but the update to add the Phase II Stormwater component was necessary due to local program delegation by the State that resulted from revisions to the City's Stormwater Management Ordinance adopted on February 13, 2012.

Article III requires the long term operation and maintenance of structural SCMs by the property owner. This is accomplished by requiring that the structural SCM be inspected on an annual basis and the inspection report submitted to the City of Fayetteville. The inspection and report are designed to determine any maintenance needs and how they are to be repaired. Article III requires that the inspection be performed and the report signed by a qualified professional.

The exception to the above is in single-family subdivisions where the developer requests that the City provide the functional maintenance responsibility for the structural SCM. In these cases, the City performs the annual inspection and determines any functional maintenance needs. If necessary, City forces provide the needed repairs. The property owners in the subdivision are still responsible for the routine maintenance such as grass cutting, trash removal, and landscaping.

The Stormwater Program has developed a Standard Operating Procedure (SOP) for Post Construction SCM Inspections. The stormwater inspectors will follow the SOP while conducting

SCM inspections, maintain all inspection reports, and keeping all records in a central location.

7.4 Deed Restrictions and Protective Covenants

Section 23-32 Minimum Stormwater Quality Control Requirements of Article III of the Stormwater Management Ordinance contains provisions that require deed restrictions and protective covenants to ensure that development projects remain consistent with approved plans.

7.5 Operation and Maintenance Plan

Section 23-27 Plan Requirements of Article III of the Stormwater Management Ordinance contains provisions that require the execution of an operation and maintenance agreement between the City and the responsible party (owner) of each SCM. The provisions also stipulate that the owner must conduct annual inspections of SCMs, maintain proper records documenting operation and maintenance activities, and submit inspection reports to the City. In the case of single family residential projects only, the City will assume the responsibility for operating, maintaining, and inspecting required structural SCMs.

Please note that Article III of the ordinance requires that the above Operation and Maintenance Plan be submitted to the City for review and approval prior to the issuance of a permit for the construction of the improvements.

7.6 Setbacks for Built-Upon Areas

Section 23-32 Minimum Stormwater Quality Control Requirements of Article III of the Stormwater Management Ordinance contains provisions that require a minimum of 30-foot buffers on all perennial and intermittent streams draining less than or equal to 640 acres. Buffer widths of 75-feet are required on all perennial and intermittent streams draining greater than 640 acres. These buffers are recorded on record plats.

7.7 Education and Training Program

The Stormwater Division developed an Administrative Manual that details how stormwater plans are to be prepared, submitted, and reviewed by the City. The Manual outlines the entire process from approval of the construction plans to the inspection and approval of the stormwater control measures (SCMs). The Manual was specifically prepared to educate and train the local engineers and developers on the new requirements for Post-Construction Site Runoff Controls. As a matter of fact, the City engaged a Stakeholder Committee consisting of local engineers and developers to assist in the development of the Administrative Manual.

Since the Administrative Manual became effective in February 2012, local engineers and developers have used it for the preparation and submittal of plans to the City. In particular, the Appendices contain numerous forms that are required during the design, construction, and closeout phases of the SCMs. Additionally, City staff uses the Manual to review and approve the design, construction, and closeout of all stormwater projects. In particular, the Appendices contain numerous form letters that the City utilizes to approve, disapprove, or issue notices of violation for all phases of a stormwater project. The Stormwater Division also plans to review and update the Administrative Manual on an

as needed basis to ensure that it reflects any updates to Article III of the ordinance (Stormwater Control) or other procedural modifications. The Administrative Manual is available to the public on the City of Fayetteville Stormwater website (www.fayettvillenc.gov/stormwater).

During the current Permit cycle, the Administrative Manual and ordinance will be evaluated for potential amendments and reconciling proposed changes with the Administrative Manual.

7.8 Measurable Goals

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

Table 7-2: BMP Measurable Goals for the Post-Construction Site Runoff Controls Program

BMP	BMP Description	Measurable Goals (by permit term year)				
		1	2	3	4	5
(a) Post-Construction Stormwater Management Program	Maintain an ordinance (or similar regulatory mechanism) for program to address stormwater runoff from new development and redevelopment.	Continue administration and enforcement of the Stormwater Control Ordinance	Continue administration and enforcement of the Stormwater Control Ordinance	Continue administration and enforcement of the Stormwater Control Ordinance	Continue administration and enforcement of the Stormwater Control Ordinance	Continue administration and enforcement of the Stormwater Control Ordinance
(b) Strategies which include SCMs appropriate for the MS4	Maintain strategies that include a combination of structural and / or non-structural SCMs implemented in concurrence with (a) above. Provide a mechanism to require long-term operation and maintenance of structural SCMs. Require annual inspection reports of permitted structural SCMs performed by a qualified professional.	Continue Post-Construction Site Runoff Controls program by requiring SCMs, ensuring proper SCM operation and maintenance, and annual inspections	Continue Post-Construction Site Runoff Controls program by requiring SCMs, ensuring proper SCM operation and maintenance, and annual inspections	Continue Post-Construction Site Runoff Controls program by requiring SCMs, ensuring proper SCM operation and maintenance, and annual inspections	Continue Post-Construction Site Runoff Controls program by requiring SCMs, ensuring proper SCM operation and maintenance, and annual inspections	Continue Post-Construction Site Runoff Controls program by requiring SCMs, ensuring proper SCM operation and maintenance, and annual inspections

BMP	BMP Description	Measurable Goals (by permit term year)				
		1	2	3	4	5
(c) Deed restrictions and protective covenants	Provide mechanisms such as recorded deed restrictions, plats, and / or protective covenants so that development activities maintain the project consistent with approved plans.	Continue to implement Deed Restrictions and Protective Covenants through administration of the Stormwater Control Ordinance	Continue to implement Deed Restrictions and Protective Covenants through administration of the Stormwater Control Ordinance	Continue to implement Deed Restrictions and Protective Covenants through administration of the Stormwater Control Ordinance	Continue to implement Deed Restrictions and Protective Covenants through administration of the Stormwater Control Ordinance	Continue to implement Deed Restrictions and Protective Covenants through administration of the Stormwater Control Ordinance
(d) Operation and maintenance plan	The developer shall provide the City with an operation and maintenance plan for the stormwater system, indicating the operation and maintenance actions that shall be taken, specific quantitative criteria used for determining when those actions shall be taken, and who is responsible for those actions.	Continue to implement Operation and Maintenance Plan requirements through administration of the Stormwater Control Ordinance	Continue to implement Operation and Maintenance Plan requirements through administration of the Stormwater Control Ordinance	Continue to implement Operation and Maintenance Plan requirements through administration of the Stormwater Control Ordinance	Continue to implement Operation and Maintenance Plan requirements through administration of the Stormwater Control Ordinance	Continue to implement Operation and Maintenance Plan requirements through administration of the Stormwater Control Ordinance

BMP	BMP Description	Measurable Goals (by permit term year)				
		1	2	3	4	5
(f) Educational materials and training for developers	Provide educational materials and training for developers. New materials may be developed by the City, or the City may use materials adopted from other programs and adapted to the City's new development and redevelopment program.	Continue to provide Administrative Manual to educate and train local engineers and developers	Continue to provide Administrative Manual to educate and train local engineers and developers. Review Manual and propose updates as necessary.	Continue to provide Administrative Manual to educate and train local engineers and developers	Continue to provide Administrative Manual to educate and train local engineers and developers	Continue to provide Administrative Manual to educate and train local engineers and developers

7.9 Program Assessment

The overall success of the Post-Construction Site Runoff Controls 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 may also be measured specifically by the following:

- Number of Plans Reviewed
- Number of SCMs Installed
- Number of Inspections Conducted

Section 8: Pollution Prevention and Good Housekeeping for Municipal Operations

The City maintains a comprehensive Pollution Prevention and Good Housekeeping for Municipal Operations 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 have been used in training programs, which are 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 Pollution Prevention and Good Housekeeping for Municipal Operations Program requirements. Funding for the BMPs in this section is covered by local stormwater utility fees.

Table 8-1: BMP Summary Table for the Pollution Prevention and Good Housekeeping for Municipal Operations Program

BMP	BMP Description
(a) Inventory of municipal facilities and operations	Maintain an inventory of municipal facilities and operations that have been determined to have significant potential for generating polluted stormwater runoff. Also maintain an inventory of municipally-owned structural SCMs.
(b) Inspection and evaluation of municipal facilities and operations	Implement an inspection and maintenance program for facilities and operations owned and operated by the City for potential sources of polluted runoff, including stormwater controls and conveyance systems. The inspection program shall evaluate pollutant sources, document deficiencies, plan corrective actions, implement appropriate controls, and document the accomplishment of corrective actions. The maintenance program shall include maintenance activities and procedures aimed at preventing or reducing pollutants generated from municipal facilities and operations.

<p>(c) Site Pollution Prevention Plans for municipal facilities and operations</p>	<p>Maintain and implement Site Pollution Prevention Plans for municipal facilities owned and operated by the City that have been determined by the City to have significant potential for generating polluted stormwater runoff that has the ultimate goal of preventing or reducing pollutant runoff.</p>
<p>(d) Spill Response Procedures for municipal facilities and operations</p>	<p>Maintain and implement spill response procedures for municipal facilities and operations owned and operated by the City that have been determined by the City to have significant potential for generating polluted stormwater runoff.</p>
<p>(e) Prevent or minimize contamination of stormwater runoff from all areas used for vehicle and equipment cleaning</p>	<p>Describe measures that prevent or minimize contamination of the stormwater runoff from all areas used for vehicle and equipment cleaning, including fire stations that have more than three fire trucks and ambulances. Perform all cleaning operations indoors, cover the cleaning operations, ensure wash water drains to the sanitary sewer system, collect stormwater runoff from the cleaning area and provide treatment or recycle, 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.</p> <p>Where cleaning operations cannot be performed as described above and when operations are performed in the vicinity of a storm drainage collection system, the drain is to be covered with a portable drain cover during cleaning activities. Any excess standing water shall be removed and properly handled prior to removing the drain cover.</p> <p>Facilities that serve three or fewer fire trucks and ambulances and that cannot comply with these requirements shall incorporate structural measures during facility renovation.</p>
<p>(f) Streets, roads, and public parking lots maintenance</p>	<p>The City shall implement BMP's to reduce polluted stormwater runoff from municipally owned streets, roads, and public parking lots within the corporate limits.</p>

BMP	BMP Description
(g) Inspection and Maintenance (I&M) for municipally-owned or maintained structural stormwater (SCMs) and the storm sewer system	The City shall maintain and implement an inspection and maintenance program for stormwater control measures (SCMs) owned and operated by the municipality and the municipal storm sewer system (including catch basins, the conveyance system, and structural stormwater controls).
(h) Staff training	Maintain and implement a training plan that indicates when, how often, who is required to be trained, and what they are to be trained on.

8.2 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). Facilities on the final inventory will have two 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.

Table 8-2: Municipal Sites included in the Pollution Prevention and Good Housekeeping for Municipal Operations Program

Facility	Industrial Permit	Physical Address
PWC Wastewater Treatment Plant	Yes	601 South Eastern Boulevard
PWC Water Treatment Plant		502 Hoffer Drive
PWC Electrical Storage Yard		1035 Old Wilmington Road
PWC Fleet Maintenance Facility		1035 Old Wilmington Road
Fayetteville Regional Airport	Yes	400 Airport Road
Fayetteville Area System of Transit Bus Garage	Yes	455 Grove Street
Environmental Services Facility	Yes	455 Grove Street
Building Maintenance Facility & Fueling Station		325 Grove Street
Street Division Facility		335 Alexander Street
Milan Street Storage Yard		400 Milan Road
Marsh Street Storage Facility and Truck Wash		704 Marsh Street
Parks and Recreation Maintenance Facility		602 Ann Street
Parks and Recreation Maintenance / Storage Facility		214 Gray Street
Waste Management Transfer Station		583 Winslow Street

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.

8.3 Facility Site Pollution Prevention Plans

Site 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 Fayetteville'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.

8.4 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

8.5 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 NPDES 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.

8.6 BMP Selection for Streets, Roads, and Public Parking Lots Maintenance

Streets, roads, and parking lots can be a significant source of stormwater pollution. In previous years, the City of Fayetteville has implemented various BMPs to address these pollutants within the MS4 by cleaning catch basins and other MS4 maintenance activities. As required by the City's current NPDES Municipal Stormwater Discharge Permit, the City has evaluated additional types of BMPs that, in the City's opinion, would best address polluted stormwater runoff from municipally-owned streets, roads, and public parking lots prior to these pollutants entering the MS4.

The City's "BMP Evaluation for Municipally-Owned Streets, Roads, and Public Parking Lots" summarizes the City's evaluation of BMPs to reduce polluted stormwater runoff from municipally-owned streets, roads, and public parking lots within the corporate limits. The City's evaluation focused on the following BMPs:

Street Sweeping
Yard Waste Containerization
Loose Leaf Collection
Spill Response (HAZMAT)

Person Street “Greenstreet” Streetscape
Public Parking Lots
Animal Control
Dog Park
Coordination with NCDOT

Therefore and based on its evaluation, the City has selected the above BMPs to reduce polluted stormwater runoff from its municipally-owned streets, roads, and public parking lots. All of the above BMPs are outlined in the next section.

8.7 BMP Implementation for Streets, Roads, and Public Parking Lots Maintenance

The following are BMPs that the City is either currently implementing or will implement to reduce polluted stormwater runoff from its municipally-owned streets, roads, and public parking lots.

Street Sweeping – The Stormwater Division currently funds the City’s entire Street Sweeping operations. The City Street Maintenance Division performs this service on City streets as well as on some NCDOT roads, including selected thoroughfares, through a maintenance agreement. In regards to the street sweeping schedule, the thoroughfares are typically swept at night due to less traffic. These streets are swept ten (10) times during the year or about once per month except during the heart of winter. The sweeping process requires a water spray that does not work well in cold weather. The thoroughfare schedule includes NCDOT streets through the agreement previously referenced. Residential / subdivision streets are swept four (4) times per year plus shortly behind the leaf collection as close as possible. Thus, most of the residential / subdivision streets are swept five (5) or six (6) times per year.

Yard Waste Containerization – The City’s Environmental Services Department collects containerized yard waste once per week throughout the year. Citizens have the choice to purchase a brown yard waste container through Environmental Services, or may use clear plastic yard waste bags to containerize debris. Containerization of yard waste and debris helps the City to continue to look appealing, as well as to prevent this material from flowing into the storm drainage system. Details regarding the pickup of yard waste are outlined in Article I, Chapter 22 of the Solid Waste Ordinance. Stormwater promotes yard waste containerization through its educational program to help prevent stormwater pollution.

Loose Leaf Collection – The Stormwater Division promotes the City of Fayetteville’s loose leaf collection. During the fall leaf season, City residents can place their loose leaves and pine straw at the curb for pick-up during specific collection periods. This program provides for the timely removal of the leaves prior to them being washed into the storm drainage system. Stormwater coordinates with Environmental Services to educate citizens on proper placement of their loose yard waste to ensure that it does not reach the drainage system. At other times throughout the year, Chapter 22, Article I of the City’s Solid Waste Ordinance requires containerization of all leaves for efficient and effective pick-up. Again, the containerization requirement keeps the leaves from being washed down streets and other conveyances, and into the storm drainage system.

Spill Response – The City of Fayetteville’s Hazardous Materials (HAZMAT) Team provides regional emergency spill response. The members of the HAZMAT unit are certified in hazardous

materials by the State of North Carolina. Firemen who are part of the HAZMAT team also receive a wide variety of training to handle different types of hazardous materials and situations once they are assigned. The HAZMAT team is also contracted by the State of North Carolina as one of seven Regional Response teams. The team is in charge of responding to incidents that cover a twelve county area. It is through these response teams that counties in the region receive the necessary help and materials to handle large HAZMAT calls.

The Stormwater Division takes an active role in any HAZMAT spill response where material could potentially enter the drainage system and eventually Waters of the State. To participate in this process, Stormwater Division personnel have received general HAZMAT training. Stormwater Division personnel will plug any drainage lines in the vicinity of a spill where the spill might enter a portion of the drainage system. If necessary, Stormwater Division personnel will contact an environmental firm who is licensed and permitted to clean materials out of the storm drainage system. Stormwater Division personnel coordinate the efforts to ensure that hazardous materials do not reach the Waters of the State.

Person Street “Greenstreet” Streetscape – The Person Street Green Street project is complete and monitoring of the project finished in the spring of 2020. The final report was turned over to the City in the winter of 2020.

The Person Street “Greenstreet” project encompasses two blocks of Person Street (which is a major corridor for Downtown Fayetteville). Person Street is located upstream and discharges its runoff to Blounts Creek. The design for this project incorporates innovative Low Impact Development (LID) devices which aids in runoff reduction and pollution reduction. Devices such as linear bio-filtration bump-outs, Silva Cells, and an experimental undersized permeable pavement design are used in this project. These devices meet LID volume reduction and quality improvement goals for this project. Blounts Creek is a biologically impaired stream upstream of the Greenstreet project and benefits from improved water quality from the proposed devices.

Public Parking Lots – The Filterra systems that were installed in the Amtrak parking lots were removed during construction of the Segra Baseball Stadium. Two Filterra units were installed on Person Street for use in the Person Street Green Street.

City-owned parking lots are swept by street maintenance on an as needed basis and when requested by City staff.

Animal Control – On June 24, 2013, the Fayetteville City Council adopted amendments to the Animal Control Ordinance which requires owners of animals to immediately dispose of animal waste from any public or private property, properly. Violators of the Ordinance can face violation notices, fines, leading up to loss of animal (until fees are paid) for habitual offenders. This ordinance will not only help the community to look better, but it will also have a positive impact on water quality.

Dog Park – The City of Fayetteville operates the Riverside Dog Park, located near the Cape Fear Botanical Gardens. There are two designated areas, one for dogs smaller than twenty-five pounds and the other for any dog larger. All dogs in the park are to be on a leash and have license and tags on their collars. Additionally, dog owners are educated and encouraged to properly dispose of their dog’s

waste. The proper disposal of dog waste makes for a better park but it also improves the quality of the stormwater runoff leaving the park.

Coordination with NCDOT – The Stormwater Division coordinates with the local NCDOT on various stormwater activities such as street sweeping and ditch maintenance programs as well as issues related to their NPDES permit implementation. As indicated previously, the City is reimbursed for street sweeping various NCDOT roads through an existing maintenance agreement.

8.8 Inspection and Maintenance for Municipally Owned or Maintained Stormwater Control Measures (SCMs) and Storm Sewer System

The City provides several municipal operations designed to keep its storm sewer system functioning properly. All of these operations impact the storm sewer system. Thus, it is important to develop operation and maintenance programs that take impacts to the storm sewer system into consideration. Initially it will be important to meet with appropriate personnel within these operations. 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 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.

Some of these 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.

Based on previous experience with its old permit, the City has and is currently implementing operation and maintenance programs and procedures as outlined below. As part of the development process, the programs and procedures as outlined below will be reviewed and modified as necessary to better protect the storm sewer system.

Drainage Inspection – The Stormwater Division makes routine inspections of the drainage system based on drainage complaints. Stormwater Division personnel inspect the problem area, assess the source of the problem, then report the problem to the appropriate agency (City Street Maintenance Division, City or County Engineering, NCDOT, etc.). The Stormwater Division maintains a computerized database of open Work Orders until the problem is resolved. This complaint driven process was greatly enhanced based on the results from the stormwater inventory. Therefore, based on data from the inventory, the inspection and maintenance of the storm drainage system has become more efficient, effective, and systematic.

Additionally, all members of the City’s Street Maintenance Crews including the Leaf Cleaning Crews have been instructed to inspect the storm drainage system as they carry out their daily responsibilities in the field. Based on their field observations, they report any potential maintenance needs through the proper channels. Also, the Inspectors in the Construction Management Division look for any drainage system maintenance needs as they inspect construction projects involving new and

replacement / upgraded infrastructure throughout the City.

Drainage System Maintenance – The City Street Maintenance Division routinely cleans the piped portions of the storm sewer system using a Jet-Vac process. This maintenance practice provides benefits by removing sediments and other pollutants that might otherwise be washed downstream during a heavy rain. The Stormwater Division has also purchased a camera system (RovverX Long-Range Pipe Inspection Crawler) to assist in inspecting storm drainage pipe. The City uses the camera to videotape various pipes looking for damaged pipes, problems with pipe joints, and potential illegal connections to the storm drain system. The camera system has the capability to take video and still images during inspections. The camera has greatly expanded system maintenance and upkeep, while allowing for a more timely resolution to problems that are detected.

Limited Creek Cleaning Program – The Stormwater Division has a Limited Creek Cleaning Program which essentially removes trash, debris and undergrowth from the existing ditches, channels and creek banks in order to proactively remove potential threats to the public right of way or city-owned infrastructure. Crews may perform limited vegetation maintenance to ensure that the character of the channel is maintained, however the program is not intended to increase the capacity or improve any conveyance characteristics of the channel by excavation or filling; thus, the name Limited Creek Cleaning Program.

Beaver Management Program – The City of Fayetteville partners with USDA to remove debris and obstructions in local waterways. To accomplish this, the Stormwater Division coordinates with the local wildlife Beaver Management Assistance Program (BMAP) to provide City residents with these needed services to reduce or eliminate property damage and threats to human health and safety caused by beaver activities within the City limits. The beaver population in local urban streams continues to grow and be problematic for property owners.

8.9 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 Fayetteville 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 Site 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.

8.10 Measurable Goals

Table 8-3 describes the various Pollution Prevention and Good Housekeeping for Municipal Operations Program BMPs and the Measurable Goals for each BMP by permit term year.

Table 8-3: BMP Measurable Goals for the Pollution Prevention and Good Housekeeping for Municipal Operations Program

BMP	BMP Description	Measurable Goals (by permit term year)				
		1	2	3	4	5
(a) Inventory of municipal facilities and operations	Maintain an inventory of municipal facilities and operations that have been determined to have significant potential for generating polluted stormwater runoff. Also maintain an inventory of municipally-owned structural SCMs.	Maintain an inventory of municipal facilities and municipally-owned structural SCMs. Review and update as necessary.	Maintain an inventory of municipal facilities and municipally-owned structural SCMs. Review and update as necessary.	Maintain an inventory of municipal facilities and municipally-owned structural SCMs. Review and update as necessary.	Maintain an inventory of municipal facilities and municipally-owned structural SCMs. Review and update as necessary.	Maintain an inventory of municipal facilities and municipally-owned structural SCMs. Review and update as necessary.
(b) Inspection and evaluation of municipal facilities and operations	Implement an inspection and maintenance program for facilities and operations owned and operated by the City for potential sources of polluted runoff, including stormwater controls and conveyance systems.	Conduct inspections of applicable facilities and make corrective actions where necessary.	Conduct inspections of applicable facilities and make corrective actions where necessary.	Conduct inspections of applicable facilities and make corrective actions where necessary.	Conduct inspections of applicable facilities and make corrective actions where necessary.	Conduct inspections of applicable facilities and make corrective actions where necessary.

BMP	BMP Description	Measurable Goals (by permit term year)				
		1	2	3	4	5
(c) Site Pollution Prevention Plans for municipal facilities and operations	Maintain and implement Site Pollution Prevention Plans for municipal facilities owned and operated by the City that have been determined by the City to have significant potential for generating polluted stormwater runoff that has the ultimate goal of preventing or reducing pollutant runoff.	Review and update facility Site Pollution Prevention Plans as necessary and continue implementation of Site Pollution Prevention Plans	Review and update facility Site Pollution Prevention Plans as necessary and continue implementation of Site Pollution Prevention Plans	Review and update facility Site Pollution Prevention Plans as necessary and continue implementation of Site Pollution Prevention Plans	Review and update facility Site Pollution Prevention Plans as necessary and continue implementation of Site Pollution Prevention Plans	Review and update facility Site Pollution Prevention Plans as necessary and continue implementation of Site Pollution Prevention Plans
(d) Spill Response Procedures for municipal facilities and operations	Maintain and implement spill response procedures for municipal facilities and operations owned and operated by the City that have been determined by the City to have significant potential for generating polluted stormwater runoff.	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.	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.
(e) Prevent or minimize contamination of stormwater runoff from all areas used for vehicle and equipment cleaning	Maintain and implement measures that prevent or minimize contamination of the stormwater runoff from all areas used for vehicle and equipment cleaning, except for facilities that serve three or fewer fire trucks and ambulances.	Review procedures for vehicle and equipment cleaning operations and update as necessary	Review procedures for vehicle and equipment cleaning operations and update as necessary	Review procedures for vehicle and equipment cleaning operations and update as necessary	Review procedures for vehicle and equipment cleaning operations and update as necessary	Review procedures for vehicle and equipment cleaning operations and update as necessary

BMP	BMP Description	Measurable Goals (by permit term year)				
		1	2	3	4	5
(f) Streets, roads, and public parking lots maintenance	The City shall implement BMPs to reduce polluted stormwater runoff from municipally-owned streets, roads, and public parking lots within the corporate limits.	Review procedures and BMPs for streets, roads, and public parking lots maintenance and update as necessary	Review procedures and BMPs for streets, roads, and public parking lots maintenance and update as necessary	Review procedures and BMPs for streets, roads, and public parking lots maintenance and update as necessary	Review procedures and BMPs for streets, roads, and public parking lots maintenance and update as necessary	Review procedures and BMPs for streets, roads, and public parking lots maintenance and update as necessary
(g) Inspection and Maintenance for municipally-owned or maintained stormwater control measures (SCMs) and the storm sewer system (including catch basins, the conveyance system, and structural stormwater controls)	The City shall implement and maintain an inspection and maintenance program for stormwater control measures SCMs, and the storm sewer system (including catch basins, the conveyance system, and structural stormwater controls).	Continue implementation of the operation and maintenance program for structural stormwater SCMs and the storm sewer system and review and update as necessary	Continue implementation of the operation and maintenance program for structural stormwater SCMs and the storm sewer system and review and update as necessary	Continue implementation of the operation and maintenance program for structural stormwater SCMs and the storm sewer system and review and update as necessary	Continue implementation of the operation and maintenance program for structural stormwater SCMs and the storm sewer system and review and update as necessary	Continue implementation of the operation and maintenance program for structural stormwater SCMs and the storm sewer system and review and update as necessary

BMP	BMP Description	Measurable Goals (by permit term year)				
		1	2	3	4	5
(h) Staff training	Implement and Maintain a training plan that indicates when, how often, who is required to be trained, and what they are to be trained on.	Conduct annual staff training on Good housekeeping, Spill Response, and Site Pollution Prevention Plans (where applicable)	Conduct annual staff training on Good housekeeping, Spill Response, and Site Pollution Prevention Plans (where applicable)	Conduct annual staff training on Good housekeeping, Spill Response, and Site Pollution Prevention Plans (where applicable)	Conduct annual staff training on Good housekeeping, Spill Response, and Site Pollution Prevention Plans (where applicable)	Conduct annual staff training on Good housekeeping, Spill Response, and Site Pollution Prevention Plans (where applicable)

8.11 Program Assessment

The overall success of the Pollution Prevention and Good Housekeeping for Municipal Operations 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 may also be measured specifically by the following:

- Number of Inspections Conducted
- Number of Problems Discovered and Resolved

Section 9: Industrial Facilities Evaluation and Monitoring

The City maintains an Industrial Facilities Evaluation and Monitoring 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 Industrial Facilities Evaluation and Monitoring Program requirements. Funding for the BMPs in this section is covered by local stormwater utility fees.

Table 9-1: BMP Summary Table for the Industrial Facilities Evaluation and Monitoring Program

BMP	BMP Description
(a) Maintain an Inventory of Industrial Facilities	<p>Maintain an inventory of permitted hazardous waste treatment, disposal, and recovery facilities, industrial facilities that are subject to Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA), industrial facilities identified with an industrial activity permitted to discharge stormwater to the City’s MS4, or as identified as an illicit discharge under the IDDE Program.</p> <p>For the purposes of the City’s NPDES Permit, industrial activities shall mean all permitted industrial activities as defined in 40 CFR 122.26.</p>
(b) Inspection Program	Identify priorities and inspection procedures. At a minimum, priority facilities include those identified above in subsection (a).
(c) Evaluate Industrial Facilities discharging stormwater to the City’s MS4	The City is required to evaluate control measures implemented at permitted hazardous waste treatment, disposal, and recovery facilities, industrial facilities that are subject to Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA), industrial facilities identified with an industrial activity permitted to

BMP	BMP Description
	<p>discharge stormwater to the City’s MS4, or as identified as an illicit discharge under the IDDE Program.</p> <p>For permitted facilities, the City shall establish procedures for reporting deficiencies and non-compliance to the permitting agency. Where compliance with an existing industrial stormwater permit does not result in adequate control of pollutants to the MS4, the City will recommend and document the need for permit modifications or additions to the permit issuing authority.</p> <p>For the purposes of the City’s NPDES Permit, industrial activities shall mean all permitted industrial activities as defined in 40 CFR 122.26. For the purpose of the City’s NPDES Permit, the City is authorized to inspect the permitted hazardous waste treatment, disposal, and recovery facilities as an authorized representative of the Director.</p>

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 33 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 the Fayetteville Regional Office of NCDEQ, field findings, Yellow Pages review, and other sources. 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, the City has developed a standard operating procedure (SOP) that is used by all of its Inspectors as they make industrial facility inspections. The SOP provides a step-by-step outline as to how the inspection as well as any needed follow-up actions is to take place.

Additionally, the City has updated a previously developed standard Inspection Form using the EPA Guidance Manual. The new form is used and filled out by all of the Inspectors conducting inspections of industrial facilities. The Inspection Form contains an extensive checklist including the following:

- Review of the Stormwater Pollution Prevention Plan (SWPPP)
- Review and inspection of all activities both inside and outside of the facility
- Observations at all stormwater outfalls
- BMPs are reviewed and their effectiveness assessed
- History of any spills or leaks are reviewed
- Photographs are taken of the facility and its activities

Industrial inspections are conducted on a priority basis. Those industries with the greatest potential to cause environmental harm and impact the quality of stormwater runoff are assigned a higher priority and inspected before others. The City Inspector completes an industrial site inspection checklist report as described above for each site inspected. The inspection checklist information is transferred to an Excel spreadsheet as a permanent record. The City is currently inspecting all 33 of the facilities on the above referenced inventory on an annual basis. If problems are noted during the inspection, the facility is notified of the deficiencies and instructed to make the necessary improvements in order to achieve compliance. The compliance status of such facilities is indicated as “pending” in the inventory to note that the facility will need to be re-inspected at a later date to determine compliance. Once the facility has achieved compliance, the inventory is updated to indicate that the facility “complied”.

As a supplement to the industrial inspections and in a continuing effort to improve local water quality, the City inspects area restaurants to make sure that they are practicing good housekeeping in particular in the disposal of their cooking waste byproducts (grease). Similar to the industrial inspections, the City Inspector completes a site inspection checklist report for each restaurant inspected. The inspection checklist information is transferred to a database as a permanent record. As part of this inspection process, the City Inspectors provide the restaurants with educational materials and notify the owners of educational and training resources available to them through the City.

If the restaurant is found to be in non-compliance, the inspector will issue a Notice of Violation (NOV), and provide guidance on how the problem can be remedied. If the issues are later found to be unresolved, or not satisfactory, fines can be issued.

9.4 Evaluation Measures

During an industrial inspection, the City Inspector conducts visual monitoring of the receiving waters at the industrial discharge point. The Inspector checks to see if the discharge has an abnormal color, any odor, or sheen on the surface. The inspector also collects a sample of the discharge for visual observation and to determine if any substances are suspended in the water column. If necessary, photographs are taken of the outfall. If evidence of polluted runoff is suspected, a sample of the discharge is collected and further analyzed by an approved laboratory for a number of pollutant parameters. If pollutants are verified in the runoff, the City notifies the facility and requires actions to be taken to remedy the situation.

Since the City is acting on behalf of NCDEQ in the majority of the industrial inspections and anytime there is a potential violation or problem on any of the State permitted facilities, the City

notifies the Fayetteville Regional Office of NCDEQ of the situation. There is an excellent working relationship between the Stormwater Division and the local NCDEQ office.

As an EPA requirement and supplemental to the major outfall inspections described earlier in Section 5.4, the City also monitors and inspects outfalls (12 inches and larger) associated with industrial activities to make sure that they are not discharging any potential pollutants to the City's storm drainage system or to Waters of the State. Similar to the major outfall inspections, the City Inspector completes an outfall inspection checklist report for each industrial outfall inspected. The inspection checklist information is transferred to a database as a permanent record. The City is currently inspecting 46 industrial outfalls.

9.5 Measurable Goals

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

Table 9-2: BMP Measurable Goals for the Industrial Facilities Evaluation and Monitoring Program

BMP	BMP Description	Measurable Goals (by permit term year)				
		1	2	3	4	5
(a) Maintain an Inventory of Industrial Facilities	Maintain an inventory of permitted hazardous waste treatment, disposal, and recovery facilities, industrial facilities that are subject to Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA), industrial facilities identified with an industrial activity permitted to discharge stormwater to the City's MS4, or as identified as an illicit discharge under the IDDE Program.	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	Update the industrial facility inventory as needed
(b) Inspection Program	Identify priorities and inspection procedures.	Review and update Standard Operating Procedures and Inspection Forms as necessary	Review and update Standard Operating Procedures and Inspection Forms as necessary	Review and update Standard Operating Procedures and Inspection Forms as necessary	Review and update Standard Operating Procedures and Inspection Forms as necessary	Review and update Standard Operating Procedures and Inspection Forms as necessary

BMP	BMP Description	Measurable Goals (by permit term year)				
		1	2	3	4	5
(c) Evaluate Industrial Facilities discharging stormwater to the City's MS4	The City is required to evaluate control measures implemented at permitted hazardous waste treatment, disposal, and recovery facilities, industrial facilities that are subject to Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA), industrial facilities identified with an industrial activity permitted to discharge stormwater to the City's MS4, or as identified as an illicit discharge under the IDDE Program.	Conduct inspection and monitoring activities based on established procedures and prioritization strategy at all industrial facilities	Conduct inspection and monitoring activities based on established procedures and prioritization strategy at all industrial facilities	Conduct inspection and monitoring activities based on established procedures and prioritization strategy at all industrial facilities	Conduct inspection and monitoring activities based on established procedures and prioritization strategy at all industrial facilities	Conduct inspection and monitoring activities based on established procedures and prioritization strategy at all industrial facilities

9.6 Program Assessment

The overall success of the Industrial Facilities Evaluation and Monitoring 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 may also be measured specifically by the following:

- Number of Inspections Conducted
- Number of Problems Discovered and Resolved

Section 10: Water Quality Assessment and Monitoring

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 Water Quality Assessment and Monitoring Program requirements. Funding for the BMPs in this section is covered by local stormwater utility fees.

Table 10-1: BMP Summary Table for the Water Quality Assessment and Monitoring Program

BMP	BMP Description
(a) Water Quality Assessment and Monitoring Plan	Maintain a Water Quality Assessment and Monitoring Plan. The Plan shall include a schedule for implementing the proposed assessment and monitoring activities.
(b) Water Quality Monitoring	The City shall implement and maintain the Water Quality Assessment and Monitoring Plan submitted to DEMLR.

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 1995. Initially, the monitoring program focused mainly on identifying illicit discharges. 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 the Stormwater Plan, the Stormwater Division developed and submitted a Water Quality Assessment and Monitoring Plan to NCDEQ via a June 12, 2013 email with the Plan as an attachment. The Plan detailed proposed monitoring activities, parameters, and data assessment required by the Permit. The Plan specified water quality monitoring activities to be performed on a quarterly basis at a total of 6 stream sites on the major watersheds in the City. Monitoring will be conducted for chemical and physical parameters on a fixed interval monitoring basis. Staff at NCDEQ reviewed and approved the Plan later on June 12, 2013.

Table 10-2 provides a list of the water quality parameters sampled at the monitoring sites. Table 10-3 contains a description and location of the 6 monitoring sites in the Monitoring Plan. Figure 10-1 shows a map and location of the 6 monitoring sites within the Monitoring Plan.

Table 10-2: Water Quality Monitoring Parameters

Parameter	Sample Type	Frequency
Temperature	In-situ	Quarterly
Turbidity	In-situ	Quarterly
Dissolved Oxygen	In-situ	Quarterly
pH	In-situ	Quarterly
Conductivity	In-situ	Quarterly
Total Suspended Solids	Grab	Quarterly
Total Nitrogen	Grab	Quarterly
Total Kjeldahl Nitrogen	Grab	Quarterly
Ammonia (NH ₃)	Grab	Quarterly
NO ₂ + NO ₃	Grab	Quarterly
Total Phosphorous	Grab	Quarterly
Chromium (Cr)	Grab	Quarterly
Copper (Cu)	Grab	Quarterly
Lead (Pb)	Grab	Quarterly
Zinc (Zn)	Grab	Quarterly
Fecal Coliform	Grab	Quarterly

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

Site	Stream	Location
BLT	Blounts Creek	Culvert at Campbell Avenue
XCK	Cross Creek	Culvert at Hillsboro Street
BVR	Beaver Creek	Bridge at Cumberland Road
BCK	Buckhead Creek	Culvert at Coventry Road
LRC	Little Rockfish Creek	Bridge at Lakewood Drive
CCK	Carvers Creek	Culvert at Ramsey Street and I-295

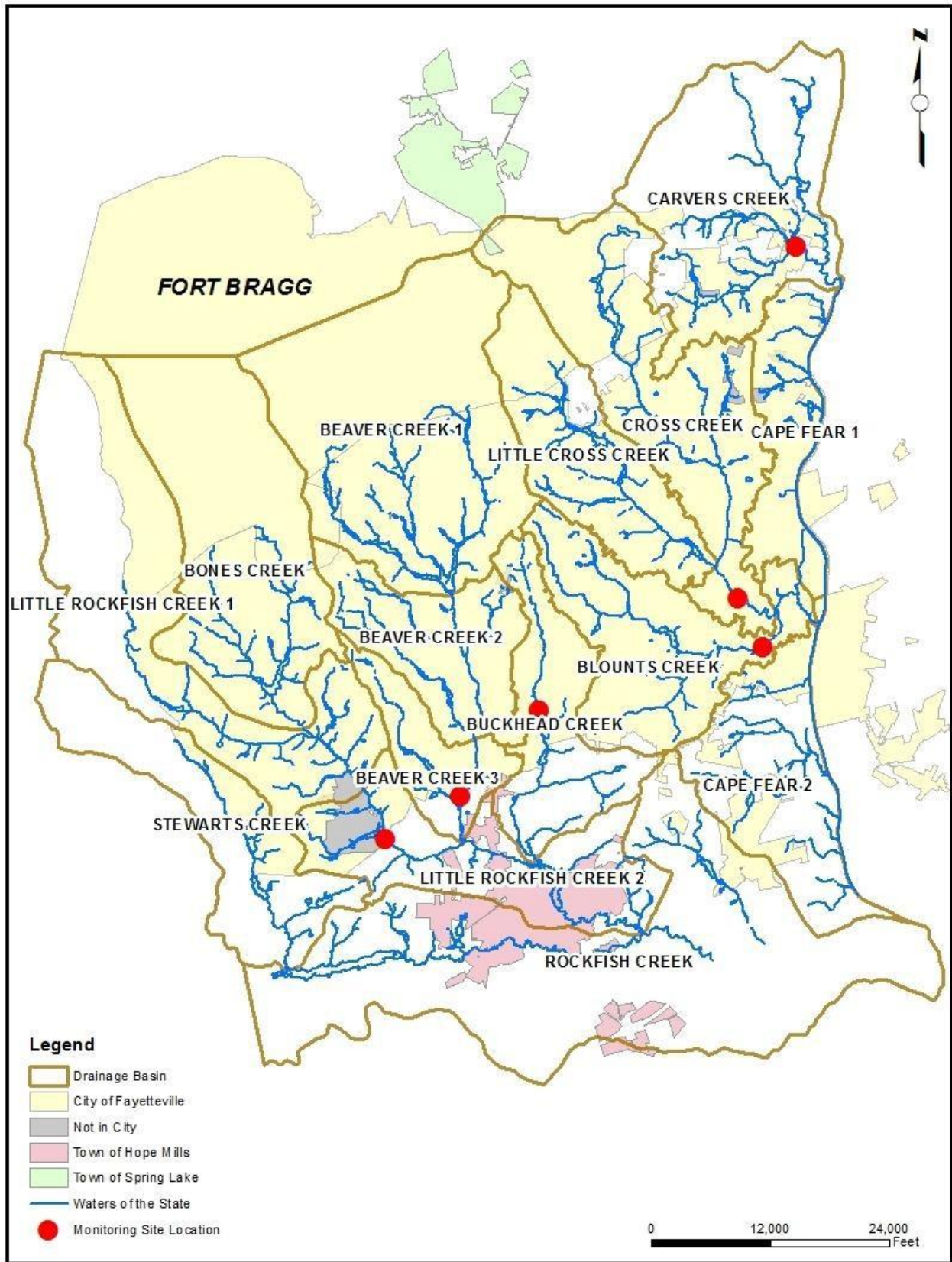


Figure 10-1: Fayetteville Water Quality Monitoring Sites

10.3 Water Quality Monitoring Implementation

The City prepared and submitted its Water Quality Assessment and Monitoring Plan to NCDEQ in June 2013 as described in Section 10-2 above. Upon receiving approval of the plan from NCDEQ in June 2013, the City began implementation of the plan to conduct quarterly fixed interval monitoring at the 6 specified monitoring sites. Following completion of monitoring activities at the end of each fiscal year (June 30), monitoring data will be analyzed to determine water quality trends and gauge program effectiveness where possible, especially in the areas of illicit discharge detection and elimination.

10.4 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
(a) Water Quality Assessment and Monitoring Plan	Maintain a Water Quality Assessment and Monitoring Plan. The Plan shall include a schedule for implementing the proposed assessment and monitoring activities.	Continue to maintain the water quality assessment and monitoring plan.	Continue to maintain the water quality assessment and monitoring plan.	Continue to maintain the water quality assessment and monitoring plan.	Continue to maintain the water quality assessment and monitoring plan.	Continue to maintain the water quality assessment and monitoring plan.
(b) Water Quality Monitoring	The City shall implement and maintain the Water Quality Assessment and Monitoring Plan submitted to DEMLR.	Continue to conduct Water Quality Assessment and Monitoring activities per the approved plan	Continue to conduct Water Quality Assessment and Monitoring activities per the approved plan	Continue to conduct Water Quality Assessment and Monitoring activities per the approved plan	Continue to conduct Water Quality Assessment and Monitoring activities per the approved plan	Continue to conduct Water Quality Assessment and Monitoring activities per the approved plan

10.5 Program Assessment

The overall success of the Water Quality Assessment and Monitoring 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 may also be measured specifically by the following:

- Number of Samples Collected
- Number of Parameters Analyzed
- Data Analysis to Determine Trends

Section 11: Total Maximum Daily Loads (TMDLs)

The Stormwater Division has determined that a Total Maximum Daily Load (TMDL) has not yet been developed and approved or established by NCDEQ (as delegated through EPA) for the receiving waters of the City of Fayetteville's MS4 NPDES stormwater discharge. Therefore, this Permit section is currently not applicable in the City of Fayetteville.

11.1 Impaired Streams Program

The Stormwater Division developed an Impaired Streams Program to monitor streams that have been classified as impaired within the City limits in 2014. In many cases, it is possible that an impaired stream could progress negatively overtime, and may have a TMDL assigned to them to improve their water quality. In order to be proactive, Stormwater has developed this program on a voluntary basis to monitor impaired streams and make necessary adjustments to improve their water quality prior to the potential issuance of a TMDL.

This program will allow Stormwater to assess the effect pollutants may have on streams, as well as determine how the streams are impacted by their surrounding environments. Stormwater uses several methods to analyze the health of a stream, such as analytical laboratory sampling, field sampling, and site inspections. The Stormwater Division samples for 20 to 32 parameters at each sample site depending on what related issues are found during the inspection. These methods allow staff to assess both the chemical and biological conditions of a stream. Information obtained through sampling and inspection is then recorded on an Excel Spreadsheet. Using the spreadsheet, staff will be able to analyze the results over time to determine patterns and possible pollution issues within a stream.

The Stormwater Division identified the sample sites based on stream segments that the State has deemed as impaired, along with input from the PWC Watersheds Group, to ensure that there is no duplication of sample sites. From these efforts, 20 sample sites were identified. This program allows Stormwater to understand the characteristics of our impaired streams.

Stormwater staff has developed a Standard Operating Procedure (SOP) for inspecting and collecting sampling data from our designated impaired stream segments. The purpose of the document outlines the City's efforts to monitor and reduce pollutants in local streams classified as

impaired by NCDEQ. The written document is also highly effective in showing procedural consistency and the process when audited by DENR and EPA. While there are no TMDLs currently assigned to the City, the collected data and a validated process will be great tools and provide historical information to hopefully avoid or at least delay future TMDLs in the local area.