NPDES Phase II Stormwater

Annual Report

City of Graham

Fiscal Year

2023 – 2024

PERMIT NO: NCS000408

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And

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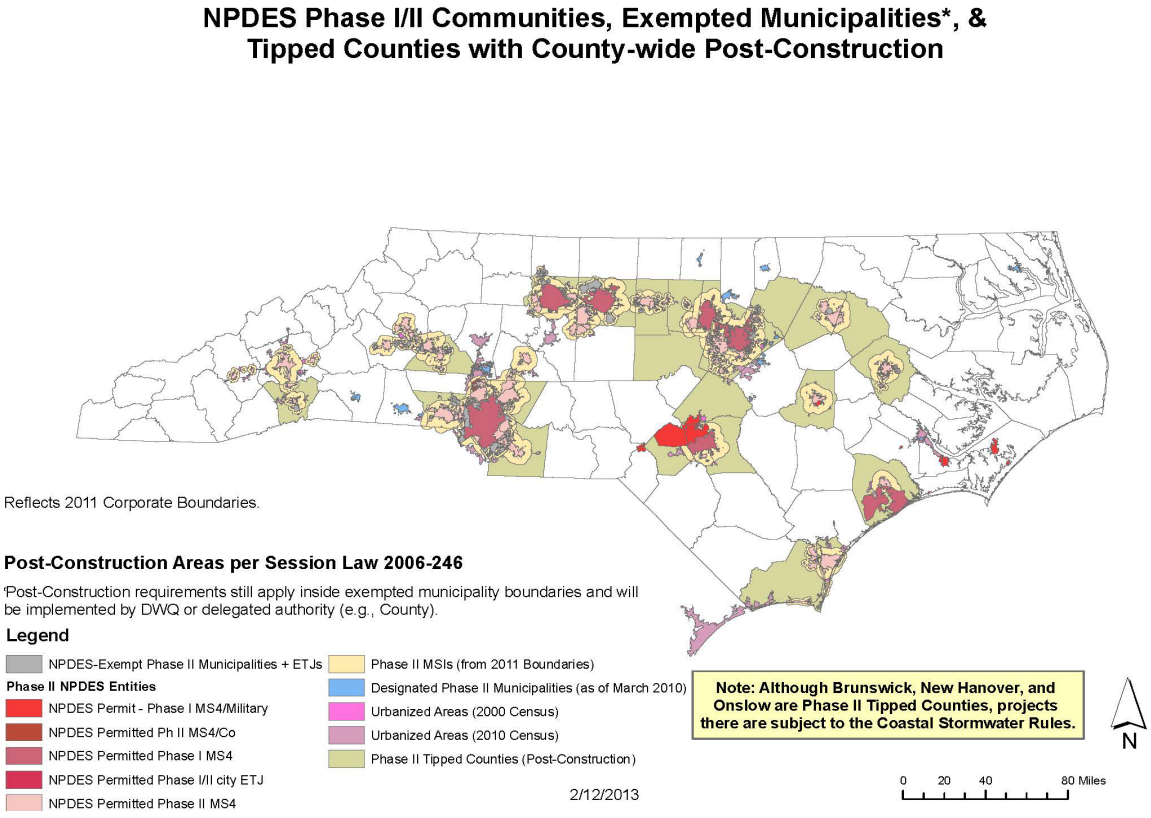
Introduction

On July 1, 2005, The North Carolina Division of Water Quality (DWQ) in the Department of Environmental Quality (DEQ), formerly DENR began issuing Phase II stormwater permits to municipalities in North Carolina under the National Pollutant Discharge Elimination System Program (NPDES). At the time, the NPDES Phase II Program was the latest stormwater program stemming from the Federal Clean Water Act of 1972. Prior to the Phase II program, EPA and NC DEQ had issued NPDES Phase I Stormwater Permits to Cities larger than 100,000 persons. In North Carolina these cities were Raleigh, Charlotte, Fayetteville, Durham, Greensboro, and Winston Salem. The Phase II Program included distribution of Phase II permits to municipalities less than 100,000 residents and began with municipalities within Municipal Spheres of Influence (MSI) that were greater than 50,000 citizens. The Burlington Corridor represented a MSI of greater than 50,000 residents and each municipal separate storm sewer system (MS4) was given a Phase II permit.



The Phase II stormwater program was created with the intention of improving the quality of the nation's waterways by reducing the quantity of pollutants that stormwater transports into stormwater systems and discharges to surface water bodies. The permit requires permittees at a minimum to develop, implement, and enforce a stormwater program designed to reduce the discharge of pollutants from the municipal separate storm sewer system (MS4) to the maximum extent practicable.

The stormwater program is composed of the following six management measures:

1. **Public Education and Outreach**
2. **Public Involvement and Participation**
3. **Illicit Discharge Detection and Elimination**
4. **Construction Site Runoff Controls**
5. **Post-Construction Site Runoff Controls**
6. **Pollution Prevention and Good Housekeeping for Municipal Operations**

Each of these measures consists of required Best Management Practices (BMPs), measurable goals for each BMP and an implementation schedule for the 5 year permit cycle. Additionally, the City of Graham has a Comprehensive Stormwater Management Program and completes annual reporting about the NPDES Phase II Program. Because the NPDES Program concentrates on water quality it has limited provisions concerning water quantity and flooding controls. The City's Storm Drainage Design Manual does include provisions for managing peak runoff from new development and the City's Flood Damage Prevention Ordinance reduces flooding through limiting development in the FEMA regulated flood plains.

In February 2017, after several months of discussion, NC DWQ issued a renewal of the City's NPDES Phase II Permit. This renewed permit is similar to the original permit with a few additional requirements included. A copy of the permit is available either through Josh Johnson, P.E. or through NC Division of Energy, Mineral and Land Resources (NC DEMLR – which as of fall of 2013 now houses Stormwater Permitting). The City was audited on October 6, 2021. DEQ approved updated Comprehensive Stormwater Management Plan on July 1, 2024.

This Report is intended to complete the Annual Report specifying the City's progression in implementing the NPDES Permit and Comprehensive Stormwater Management Plan. It is also intended to give readers a comprehensive idea of the City's full Stormwater Program including the City's Jordan Lake, Little Alamance Creek, and Water Quantity Programs as well as the City's current funding structure.

NPDES Phase II Minimum Control Measures

Each of the 6 Minimum Control Measures (MCM's) has a set of best management practices (BMP's) that are intended to foster compliance with both the City's Permit and CSWMP. These specific BMP's can be found in both the Permit and the CSWMP but highlights and specific actions will be noted in the report.

Public Education and Outreach

The City operates a Public Education and Outreach program that is designed to educate the general public about the need to improve water quality in stormwater. The general objectives are to distribute education materials to the community and/or to conduct equivalent outreach activities about the

impacts of stormwater discharges on surface waters and the steps the public can take to reduce pollutants in stormwater runoff. These objectives have been further refined to target residents, school children, local businesses (specifically gas station owners and landscaping companies) and industry because these groups have the most impact on stormwater pollution prevention.

The education program targets total suspended solids (TSS and Sediment) and nutrient loading because turbidity, sedimentation, and nutrients are the pollutants of concern in downstream waters.

The City partners with Stormwater SMART, an education and outreach organization hosted by the Piedmont Triad Regional Council (PTRC). Stormwater SMART is a cooperative group that is funded by several Piedmont municipalities. It was created in 2005 to provide education and outreach for the MS4 Permittees like Graham and concentrates on direct education of school children and residents.

Danica Heflin is the Stormwater Smart Outreach and Education Coordinator. She can be contacted at dheflin@ptrc.org or at (336)904-0300. A copy of Stormwater SMART's Annual Report is available upon request. It provides comprehensive information on Stormwater Public Education efforts in the City of Graham for the Fiscal Year 2023 – 2024 period. The City of Graham issued Spring and Fall newsletters with stormwater related information.

Alamance Area FY 2023 – 2024				
Location/Event	**Date**	**Program**	**# Participants**	**# Hrs**
Graham Public Library	May 7, 2024	Educational Stormwater Activity Books (2024 Nature Notebook)	200	
Arbor Day	April 2, 2024	Bonkers for Botany with Graham Recreation & Parks	15	2
Graham-Mebane Lake	Sept 17, 2023	Youth Fishing Day by Graham Recreation & Parks	38	4
Haw River Assembly Learning Celebration	Oct 3-5 2023	Outdoor Education for K-5th Grade, Enviroscape Program	285	9
Social Media Outreach	July 1, 2023 – June 30, 2024	Impressions on Meta (Facebook & Instagram): 1.3M Visits to www.stormwatersmart.org: 23,789		

Stormwater Outreach Efforts in Graham

Public Participation and Involvement

The City has a responsibility to solicit and consider public opinion on all matters, including stormwater management. The City originally involved the public with a public hearing in 2005 and tried to create a citizen's committee during the first permit cycle, but little interest was shown from the public. The City

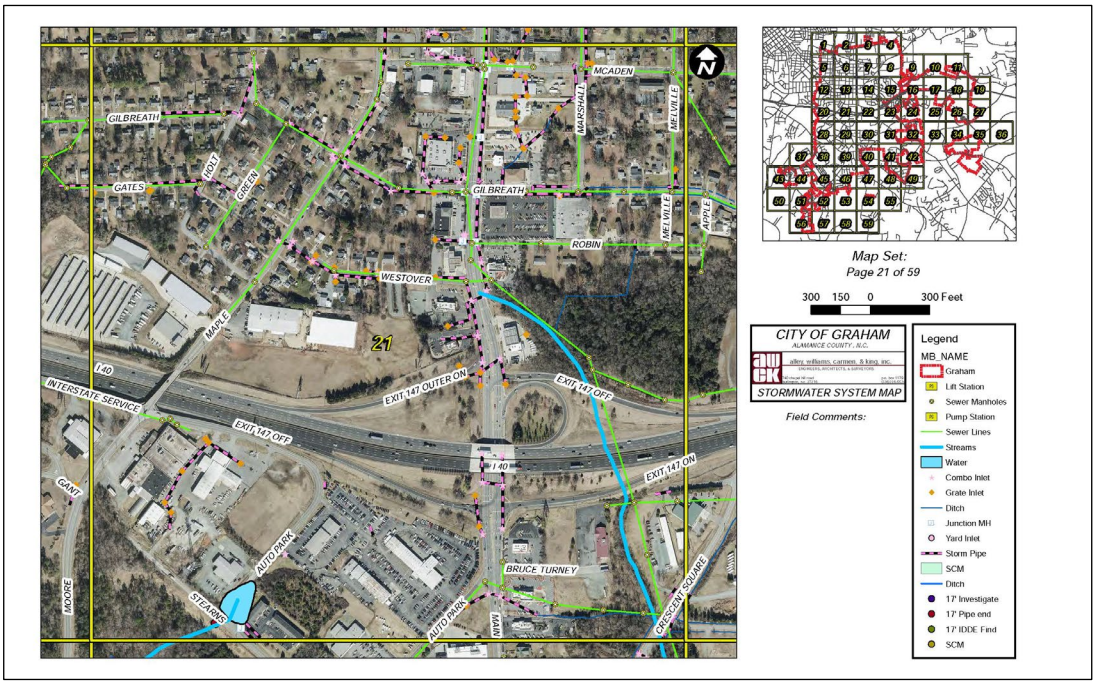
has been receptive to any questions from citizens, maintains a **Helpline - City Hall at (336) 570-6700** and has worked with Stormwater Smart and the City of Burlington to educate the public but continues to struggle to establish effective Public Participation and Involvement. Citizens may express concerns during City Council meetings as needed. Meeting minutes are on city website.

Illicit Discharge Detection and Elimination

The City of Graham has a full Illicit Discharge Detection and Elimination (IDDE) Program. The IDDE Program is intended to reduce discharges to the stormwater system that are not entirely composed of stormwater. There are a few permitted discharges and firefighting related discharges that are allowed. An illicit discharge is typically dirt, soap, pet waste, litter, oil, fertilizer, pesticides, or raw sewage and often times comes from "generating sites." Generating sites are points of pollution that continue over a period and are recurring at regular or irregular intervals.

The backbone of the IDDE program is the IDDE Ordinance that the City passed in May 2008. The IDDE ordinance provides permits specific discharges into the MS4 as legal, provides legal authority to restrict illegal discharges, prohibits illicit connections, provides conditions for cleaning up and preventing polluted spills, provides for right of entry into property to investigate prohibited activities, and provides the City with options for enforcing the Ordinance. The IDDE Ordinance is based on NC DWQ's Model Ordinance.

The second basis for the IDDE program is the City's MS4 Map. The mapping program was completed in the first permit cycle by GPS mapping and is now usable in a GIS format. The map includes the entire MS4 system and provides for easy access to aid in the investigation of illicit discharges. An investigator with the map could find an illicit discharge and then easily follow the flow of the discharge upstream until finding a source of the discharge.



The map was originally published as a map book but generally is used on a watershed basis or through ArcGIS software. If a specific area is needed it can be printed by either Stormwater or City Staff. The map is updated on a regular basis as new developments happen.

The IDDE program also includes dry weather testing of outfalls into the stream system. In the first permit cycle this was conducted in coordination with the mapping. Outfalls that have dry weather flows will be reported and investigated. Stream walks and outfall site visits are to be completed during 5yr permit cycle. They were performed in the Spring of 2020 and possibly Spring of 2022. Typically, most dry weather flow testing has been done in conjunction with complaints or City staff investigations.

The City has significantly reduced sanitary sewer overflows within the collection system in the last ten years. In Fiscal year 2023 -2024 there were 0 reportable sanitary sewer overflows of 1000 gallons or more.

The City of Graham hydraulically cleans 10% of the collection system annually and chemically treats approximately $35,000 of the system to prevent root intrusion. Additionally in 2023-24 - $125,500 was spent on cleaning and videoing 27,000LF of sewer main, and $178,057.22 was spent on 2,796LF of CIPP lining. These maintenance issues are intended to reduce Sanitary Sewer Overflows and leakage, therefore prevent illicit discharges to the MS4.

Two IDDE reported concerns were received and addressed. One was oil spill related, and the other was about illegal dumping. Both concerns were addressed with property owners. The city has just installed a new data management system that will supplement reported concern recording and tracking.

In 2023-2024, the city also completed visual inspections of boxes/creek crossings completing about 2,000 visual inspections.

In 2018 City staff visited and mapped the location of all dumpsters (199 total) in the City. This inspection also looked at the status of the dumpsters (Good or Fair). Trash dumpsters can leak and cause direct discharge into the stormwater system. This inspection has become an annual event with the city looking at 25% of the dumpsters each year to catch any problems on a timely basis.

City Staff needs training to identify illicit discharges and the reporting process for these discharges. This training is combined with the Pollution Prevention and Good Housekeeping training of public works, utilities, recreation, planning, and administrative staff as well as some fire and police personnel.

Construction Site Runoff Controls

The City of Graham delegates the Construction Site Runoff Controls to the NC DEQ Division of Energy, Mineral, and Land Resources. The City of Graham does not have a delegated erosion control program but does make sure that plans it approves that will disturb greater than 1.0 acres of land apply for and receive an erosion control plan. The City of Graham also has the ability to call NC DEMLR to report

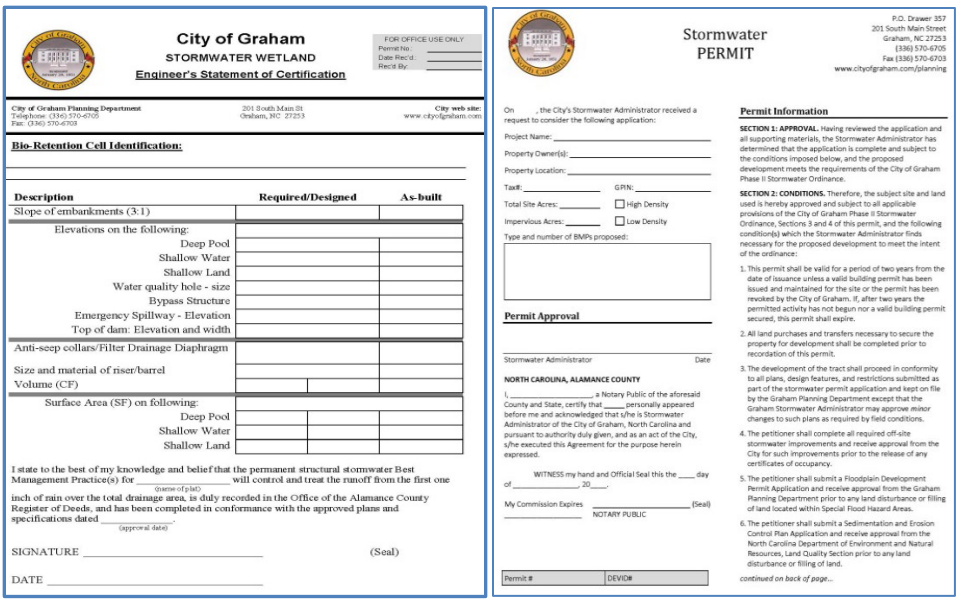
known sedimentation issues. A possible improvement could be NC DEMLR's responsiveness to City generated complaints, which has been less than effective in the past.

Post Construction Site Runoff Controls

The City of Graham has a typical NPDES Phase II Post Construction Program. This includes a Post Construction Ordinance, administrative forms that support it, and a review process. The Post Construction Program applies to projects that exceed 1 acre of disturbance or have a common plan of development that will cumulatively exceed 1.0 acres of disturbance. Projects that exceed 24% built-upon area are considered high density projects, projects that are less than 24% BUA are low density projects. High Density Projects are then required to meet the following requirements:

- Treat runoff from the first 1" of rain (the first flush).
- Treated Runoff is to be for 85% TSS removal.
- Discharge treated water at a rate less than or equal to the Predevelopment rate for the 1 year 24 hour storm.
- Discharge treated water between 48-120 hours.
- Stormwater Control Measures must be in easements and must have a recorded operation and maintenance agreement.
- Compliance with the Jordan Lake Riparian Buffer Protection Ordinance.

Stormwater Control Measures, as well as runoff calculations, are prepared based upon the NC DWQ BMP Manual and then reviewed by Josh Johnson, P.E.



City of Graham
STORMWATER WETLAND
Engineer's Statement of Certification

FOR OFFICE USE ONLY
Permit No.:
Date Rec'd.:
Rec'd By:

City of Graham Planning Department
Telephone: (336) 570-4705
Fax: (336) 570-4703

201 South Main St
Graham, NC 27253

City web site:
www.cityofgraham.com

Bio-Retention Cell Identification:

Description	Required/Designed	As-built
Slope of embankments (3:1)		
Elevations on the following:		
Deep Pool		
Shallow Water		
Shallow Land		
Water quality hole - size		
Bypass Structure		
Emergency Spillway - Elevation		
Top of dam: Elevation and width		
Anti-seep collars/Filter Drainage Diaphragm		
Size and material of riser/barrel		
Volume (CF)		
Surface Area (SF) on following:		
Deep Pool		
Shallow Water		
Shallow Land		

I state to the best of my knowledge and belief that the permanent structural stormwater Best Management Practice(s) for _____ will control and treat the runoff from the first one (name of plat)
inch of rain over the total drainage area, is duly recorded in the Office of the Alamance County Register of Deeds, and has been completed in conformance with the approved plans and specifications dated _____.
(approval date)

SIGNATURE _____ (Seal)

DATE _____

Stormwater
PERMIT

P.O. Drawer 357
201 South Main Street
Graham, NC 27253
(336) 570-4705
Fax (336) 570-6703
www.cityofgraham.com/planning

On _____, the City's Stormwater Administrator received a request to consider the following application:

Project Name: _____

Property Owner(s): _____

Property Location: _____

Tax#: _____ GPIN: _____

Total Site Acres: _____ ☐ High Density

Impervious Acres: _____ ☐ Low Density

Type and number of BMPs proposed:

Permit Approval

_____
Stormwater Administrator Date

NORTH CAROLINA, ALAMANCE COUNTY

I, _____, a Notary Public of the aforesaid County and State, certify that _____ personally appeared before me and acknowledged that s/he is Stormwater Administrator of the City of Graham, North Carolina and pursuant to authority duly given, and as an act of the City, s/he executed this Agreement for the purpose herein expressed.

WITNESS my hand and Official Seal this the ____ day of _____ 20____.

My Commission Expires _____ (Seal)

_____ NOTARY PUBLIC

Permit #	DEVID#

Permit Information

SECTION 1: APPROVAL. Having reviewed the application and all supporting materials, the Stormwater Administrator has determined that the application is complete and subject to the conditions imposed below, and the proposed development meets the requirements of the City of Graham Phase II Stormwater Ordinance.

SECTION 2: CONDITIONS. Therefore, the subject site and land used is hereby approved and subject to all applicable provisions of the City of Graham Phase II Stormwater Ordinance, Sections 3 and 4 of this permit, and the following condition(s) which the Stormwater Administrator finds necessary for the proposed development to meet the intent of the ordinance:

1. This permit shall be valid for a period of two years from the date of issuance unless a valid building permit has been issued and maintained for the site or the permit has been revoked by the City of Graham. If, after two years the permitted activity has not begun nor a valid building permit secured, this permit shall expire.
2. All land purchases and transfers necessary to secure the property for development shall be completed prior to recordation of this permit.
3. The development of the tract shall proceed in conformity to all plans, design features, and restrictions submitted as part of the stormwater permit application and kept on file by the Graham Planning Department except that the Graham Stormwater Administrator may approve minor changes to such plans as required by field conditions.
4. The petitioner shall complete all required off-site stormwater improvements and receive approval from the City for such improvements prior to the release of any certificates of occupancy.
5. The petitioner shall submit a Floodplain Development Permit Application and receive approval from the Graham Planning Department prior to any land disturbance or filling of land located within Special Flood Hazard Areas.
6. The petitioner shall submit a Sedimentation and Erosion Control Plan Application and receive approval from the North Carolina Department of Environment and Natural Resources, Land Quality Section prior to any land disturbance or filling of land.

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Low Density projects are required to comply with the Jordan Lake Buffer Protection Ordinance that went into effect in fall 2011. Both Low and High Density Projects are required to comply with the City's Storm Sewer Design Manual which governs storm drainage design as well as peak runoff rates and provides for evaluation of the 10 and 100 year design storms.

When a project is submitted to the City it goes through the City Planning Department. Then, the plans are distributed to a Technical Review Committee (TRC). The TRC includes Engineering and Stormwater Reviewers as well as assorted City staff. At this point the project is determined to be subject to the Stormwater Ordinance and High Density or Low Density. At that point review comments are made about the project and addressed. After approval of the project, the owner is required to complete an Operation and Maintenance Agreement for the stormwater control measures. This O&M agreement is then recorded with the register of deeds so that it can be reviewed at a later point in time.

Stormwater Detention Pond in Graham

The City of Graham reviewed 13 projects that triggered the Stormwater Ordinance in 2023 - 24 and reviewed 25 plans total. Six projects were completed. Several requests for inspection forms and asbuilt data were fulfilled.

The City of Graham requires as-builts and annual inspection reports from new stormwater control measures (SCM) but has had trouble getting annual inspection reports submitted. There are 59 SCMs and 17 were inspected FY23-24. In the coming year, the City plans to send a mailing containing information requiring SCM owners to provide future inspection reports to the City or face fines and/or assessments.

Pollution Prevention and Good Housekeeping

Pollution Prevention is an overall goal of the City's stormwater management plan and Good Housekeeping is a key to that goal. Municipalities, in general, conduct many activities that can pose a threat to water quality. Municipal facilities can be a primary potential source of contamination but with good housekeeping habits this potential can be reduced or eliminated. The City attempts to minimize stormwater pollution from municipal operations by complying with best management plans for each City facility. The BMP's are written into a City Facilities O&M Plan that is intended to reduce or eliminate stormwater exposure of oil, grease, pesticides, herbicides, fertilizers, sediment, and other materials used by the City. Each of the City facilities is inspected annually and any issues are noted, written into the Facility O&M Plan, and discussed with the facility supervisor. The city has three staff with pesticide applicator licenses.

The City operates a Fire Department, City Hall, Library, Police Department, Public Works Facility, Wastewater Plant, South Graham Park, Recreation Center, Maple Street Center for Performing Arts, Concession Stand for Apollo Field, Water Plant, Graham/Mebane Lake, Bill Cooke Park, Graham Regional Park, Graham Memorial Park, Linwood Cemetery, and various pump station locations. Each of these facilities is inspected annually and any new facilities will be added to the inspection list.

Salt Storage at Public Works

City staff with the greatest exposure to stormwater need to be trained on PPGH. Training is typically combined with illicit discharge detection and elimination training. The PPGH portion of the training concentrates on good housekeeping functions. This often includes identification of bad habits that can take place and how to fix the situation to reduce the risk of pollution to stormwater.

The City of Graham sweeps the downtown area every three days, Harden St. and Main St. once per week, and the rest of the curb and gutter streets once per week. Approximately 6 cubic yards of material is picked up per day, four days a week, primarily during leaf season. Fifty-eight miles are covered on a regular basis; picking up about 820 cu yds. Yard waste and bulk brush trucks pick up weekly. Loose Leaf annual collection is held for curbside pickup Oct-Feb.

The City of Graham used no road salt or road salt alternatives (brine) prior to and during inclement weather in 2023 - 2024 this is due to the mild winter in the area.

The City of Graham used 3,200 gallons of waste oil in 2023-2024 in a waste oil heater to heat the City garage area. Also, 150 gallons were recycled by Noble Oil. The city also maintains 6 or more pet waste stations at area parks around the city.

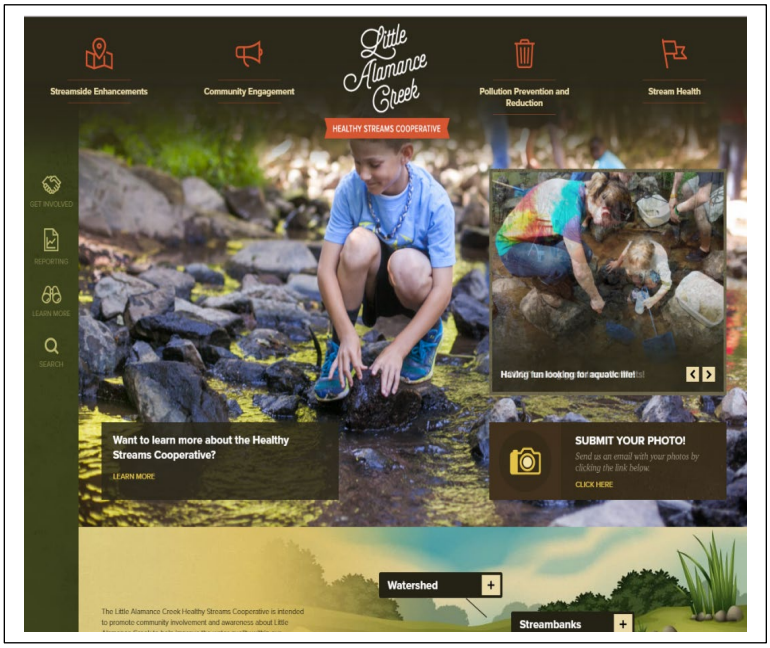
The City maintains many culverts and the storm drains that are either in storm drainage easements or within City right of ways. The City also checks all storm drains quarterly and after major rainfall events, and once a month during leaf season, and cleans them as needed. Jet trucks are used to clean storm drain pipes and vacuum trucks are used to clean inlets when they are found to need maintenance during inspections. One floodplain related reported concern was received and addressed.

The City of Graham has worked extensively on the wastewater collection system within the Boyd Creek watershed since 2009. The Boyd Creek watershed is within the impaired Little Alamance Creek watershed. This work is focused on reducing surface water and wastewater interaction. This has included extensive I/I evaluation, improvements to the Boyd Creek Pump Station, CIPP relining of sewer outfall lines, manhole rehabilitation and smoke testing.

Impaired Waters and Total Maximum Daily Loads (TMDL)

The City of Graham discharges into three impaired waters. The impaired streams are the Haw River, Town Branch, and Little Alamance Creek. More details about the impaired streams are included below:

- Haw River (16-(1)d3) - A portion of the City discharges to the Haw River where it is impaired for fecal coliform. The Haw River has been impaired since 1998 for Fecal Coliform but only a small portion of Graham drains directly to the Haw in this impaired area.
- Town Branch (16-17) – Town Branch is impaired for Fecal Coliform and was originally listed on the 1998 NC DWQ 303d list and has had a TMDL for Fecal Coliform since August 2002. The TMDL specifically lists sanitary sewer overflows, failing septic systems, and other primarily point source pollutant loads. The City of Graham has spent a substantial amount of time, energy, and funding to reduce sanitary sewer overflows in the last 10 years including over $800,000 on a 2009 project that rehabilitated over 17,000 lineal feet of sanitary sewer line in Town Branch and



Little Alamance Creek. A potential future project would be to apply for grant funding to fund rehabilitation of the manholes in the same outfall areas.

- Little Alamance Creek (16-19-11) – Little Alamance Creek is impaired for benthic macro-invertebrates and has been since 1998. Little Alamance Creek was the subject of a draft TMDL for Impervious Cover in 2010 that was not adopted; instead, a Category 4b plan was written by the City of Graham and its partners in the watershed, the City of Burlington and NCDOT, and approved by EPA in January 2015. The Category 4b Plan is written with the goal of achieving water quality standards, fiscal year 2015-2016 is the first year of implementation. There is a phased implementation schedule spread out over the next several years. More information is available on the Little Alamance Creek project website at www.littlealamancecreek.com.

Nutrient Sensitive Waters

Environmental conditions in North Carolina's rivers, estuaries and reservoirs are driven by complex interactions among rainfall, flows, temperatures, biological factors, and chemistry. Some of the waters of the state have a history of exceeding nutrient and chlorophyll a standards, and are deemed nutrient sensitive waters (NSW). Currently, the following watersheds have active nutrient sensitive waters strategies: Neuse River Basin, Tar-Pamlico River Basin and Jordan Lake Watershed.

New programs combine with the City's existing Jordan Lake Riparian Buffer and Jordan Lake Stage 1 programs to form the City's NSW Strategy. The City's NSW Strategy is intended to, and does, accomplish reductions in nutrient loading and is the maximum extent practicable per NC law. The City cannot legally implement a Jordan Lake New Development program.

Jordan Lake Rules

The City of Graham is within the Jordan Lake Watershed and is subject to the Jordan Lake Nutrient Strategy. The Jordan Lake Nutrient Strategy is composed of a set of regulatory rules enacted in 2009 that have since been augmented or replaced by a series of NC General Assembly Session Laws. Future Jordan Lake rules are currently being written by NC DEQ's Division of Water Resources – Nonpoint Source Planning Section.

Jordan Lake Background, Rules, and Implementation Schedules

Jordan Lake was impounded in 1983 by damming the Haw River near its confluence with the Deep River. It was created to provide flood control, water supply, protection of water quality downstream, fish and wildlife conservation, and recreation.

The lake has had water quality issues from the beginning, with the North Carolina Environmental Management Commission declaring it as nutrient-sensitive waters (NSW) the same year it was impounded. Since that time, Jordan Lake has consistently rated as eutrophic or hyper-eutrophic, with excessive levels of nutrients present. "Eutrophic" is an over-abundance of nutrients in the lake, primarily nitrogen and phosphorus, which can result in algal blooms and poor water quality. Nutrients make their way to the lake from sources such as wastewater discharges, rainfall runoff from agriculture and stormwater runoff from new and existing developed lands throughout the watershed. Excessive nutrient inputs can drive excessive growth of microscopic algae, which imparts a greenish, murky appearance to the water, causes taste and odor problems in potable water, and robs the water of oxygen. This can then stress or kill fish and other aquatic life. Excess nutrients also favor the growth of undesirable algae that does not support the food chain and can release toxins into the water. While not necessarily making the lake unfit for fishing, swimming or drinking uses, excessive nutrients can impact these uses and produce undesirable algae in the lake.

The Jordan Lake Rules are designed to protect and improve water quality in the lake. The rules were developed over several years through a process that involved extensive meetings, public hearings and negotiations between residents, environmental groups, local and state government agencies and other

stakeholders in the watershed. Specific issues addressed by the rules include reducing pollution from wastewater discharges, stormwater runoff from new and existing development, agriculture and fertilizer application. The Rules continue to be discussed and amended through the NC General Assembly.

The primary rules that affect local governments (like the City of Graham) are the Stormwater Management for New Development, Stormwater Management for Existing Development, Protection of Existing Riparian Buffers, Wastewater Discharge Requirements, Options for Offsetting Nutrients Loads, Session Law 2009-216, Session Law 2009-484, Session Law 2011-394 and to a lesser extent the Fertilizer Management Rule. The Protection of Existing Riparian Buffer Rules was implemented in 2011 after the Stage 1 Existing Development Programs were adopted in 2009 and Waste Water Treatment Plant compliance with Total Phosphorous limitations by January 1, 2010. The New Development Programs, Stage 2 Existing Development Program, and Wastewater Treatment Plant Compliance with Total Nitrogen Limitations have all been delayed several times. The current implementation schedule is cloudy because of delays that are contingent upon future monitoring results.

Session Law 2016-94 and 2018-5 established the NC Policy Collaboratory; directed the Collaboratory to begin a three-year study on areas subject to the Jordan Lake Water Supply Nutrient Strategies relative to the readoption of the Jordan Rules; directed the Collaboratory to commence modeling of Jordan Lake and its watershed; and set the final date for receipt of the study and modeling at Dec. 31, 2019, at which time Jordan Rules readoption could begin. The Collaboratory submitted its final report of the Jordan Lake Nutrient Management Study in December 2019. The individual research reports can be found on that same website under the resources tab. The 2024 Jordan Lake model final report can be found on the DWR Modeling and Assessment Branch Special Studies website under Jordan Lake.

Jordan Lake Nutrient Strategy rules readoption began in 2020. As part of this ongoing process DWR is participating in facilitated stakeholder engagement beginning in 2023. In anticipation of the rules readoption process, Jordan Lake One Water (JLOW) was formed by local stakeholders to develop an integrated watershed management plan and inform future rulemaking.

Jordan Lake One Water

As water quality and water supply challenges continue to increase from growing populations, there is an opportunity to reevaluate water resource management within the Jordan Lake Watershed and move towards a more collaborative, interdisciplinary, and innovative approach. Jordan Lake One Water (JLOW) is a partnership to facilitate cooperation and integrated water resource management in the Jordan Lake watershed. The group is comprised of local governments, conservation groups, universities, water utilities, agriculture, and private industry stakeholders interested in sharing the cost of water quality and quantity improvements in order to realize watershed-wide social, economic, and environmental benefits. In 2017, Triangle J Council of Governments (TJCOG) began holding meetings to discuss One Water management concepts in the Jordan Lake watershed. Interest was so high, among so many different groups, including elected officials, that a JLOW advisory committee was formed to develop a work plan and begin moving forward on collaborative planning efforts. The Advisory

Committee, NCDWR, and numerous stakeholders will now be collaborating to develop a recommended One Water/Integrated Water Management framework for the Jordan Lake watershed as part of the Jordan Lake Nutrient Management Strategy Rules Readoption opportunity.

One Water is a transformative approach to how we view, value, and manage water. The One Water approach views all water – from the water resources in our ecosystems to our drinking water, wastewater, and stormwater – as resources that must be managed holistically and sustainably in order to secure a bright, prosperous future for our children, our communities, and our country. A One Water approach can take many different forms, but has some unifying characteristics:

- A mindset that all water has value
- A focus on achieving multiple benefits - economic, environmental, & social
- Approaching decisions with a systems mindset
- Utilizing watershed-scale thinking & action
- Relying heavily on partnerships & inclusion

The City is supportive of the JLOW process and is very interested in alternative compliance strategies for Jordan Lake. The City has been represented in the JLOW process through their AWCK representative, Josh Johnson.

Jordan Lake Rulemaking

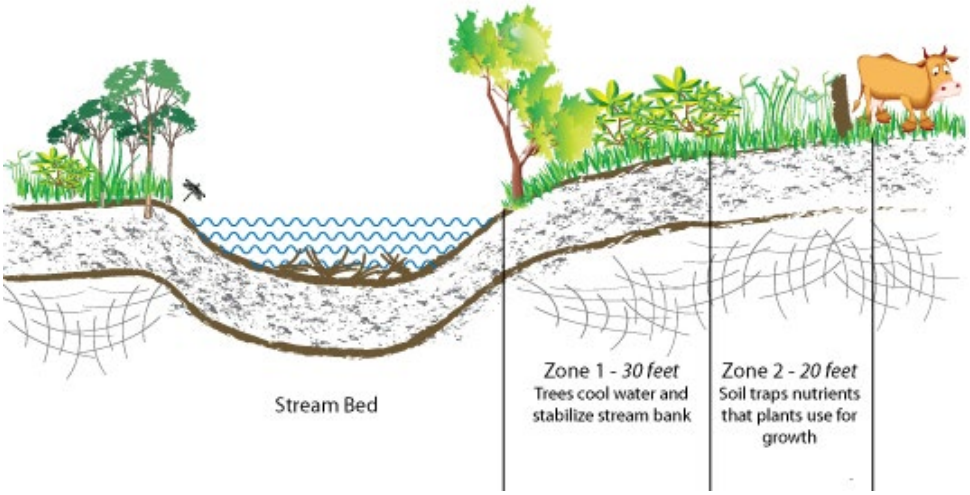
To prepare for the Jordan Lake rule readoption process, DWR has started stakeholder engagement meetings and interviews. We aim to hear feedback on current implementation and new rule concepts. Due to readoption deadlines we aim to deliver draft rules to the Water Quality Committee (WQC) of the Environmental Management Commission (EMC) in 2025. Additional information is available by contacting Ellie Rauh, ellie.rauh@deq.nc.gov with NC DWR.

Riparian Buffer Protection Program

The City's Riparian Buffer Protection Program was implemented in November 2010. The enforcement mechanism for the Buffer Protection Program is the Jordan Riparian Buffer Protection Ordinance that was approved by DWR. The Buffer Program establishes a protected buffer along surface waters (primarily perennial and intermittent streams but also ponds and other surface waters) shown on the USGS Quad maps or the NRCS Soil Survey Maps. The buffer has two different zones: Zone 1 is the closest 30' from the top of bank in all directions; Zone 2 is from 30' to 50' from the top of bank in all directions. Zone 1 is to remain undisturbed while Zone 2 is to remain vegetated.

The Buffer Ordinance is a change of use ordinance; therefore, the regulations only apply if new development or a change in use takes place within the buffer. Changes in use can range from new development that goes through an approval process to clearing of the buffer for residential or commercial landscaping but any change of use within the buffer is subject to the buffer ordinance. The

Buffer Ordinance also includes a Table of Uses that breaks down uses within the buffer to Exempt, Allowable, and Allowable with Mitigation. Any uses not in the Table of Uses are prohibited without a variance. Uses that fall in the Allowable or Allowable with Mitigation categories must submit a request to the City for written authorization prior to disturbing the buffer. These uses also must show that there are no practical alternatives to the requested use. In showing the no practical alternatives, users must show how they are minimizing the impacts if possible.



The City includes Riparian Buffer Protection Program training with its annual employee training but generally limits inspections of buffers to complaints about buffer clearing or City Staff reporting of impacts. The City tracks buffer impacts but tries to handle first time offenders by requiring replacement of the buffer and education of the offender, rather than fining first time offenders. Two buffer applications were processed FY23-24. The City's required buffer program was revised in the calendar year of 2016 to comply with Session Law 1015-246.

New Development Programs

The Jordan Lake New Development Rule, 15A NCAC2B .0265, sets out standards that named communities are to incorporate into local stormwater programs, and requires the Division of Water Quality to develop a model local stormwater program for those communities to use to create a New Development Program that complies with the rule. The Jordan Lake New Development Ordinance is the legal mechanism that local governments will use to enforce these standards on new development projects greater than ½ acre in disturbed area (or 1 acre for single family residential).

Most communities within the Jordan Lake watershed are existing NPDES MS4 Phase II communities that have existing Phase II Stormwater Post-Construction Ordinances which are centered around 85% TSS treatment of the 1" storm for developments over 24% impervious and a 1 acre disturbance threshold.

The Jordan Lake New Development Rule is centered on removal of Nitrogen and Phosphorous from stormwater and a ½ acre disturbance threshold. These two pollutants can be removed with many of the same processes as TSS but at differing removal rates and with a different calculation to determine the effectiveness of the treatment processes.

The City of Graham will combine its NPDES Phase II and Jordan Lake New Development Standards into one comprehensive stormwater ordinance. This will reduce confusion between the two ordinances on the part of developers, designers, reviewers, staff, and the public by creating one set of standards for review.

The City created, submitted, and had a full program approved in the summer of 2012. However, the City chose to delay implementation until a future date (in accordance with legislation from 2012 and 2013). The City's future study of the overall Jordan Lake Compliance Strategies may contain recommendations about early adoption of the Program. In order to gather data for future compliance, the City may begin requiring new development to complete the Jordan/Falls Nutrient Load Accounting Tool in 2014. Stormwater Nitrogen and Phosphorus (SNAP Version 4.2.0) tool was released in March 2023. The tool will not be used for regulatory compliance at this time but will be used to educate the City on future development.

Existing Development Stage 1 Programs

The City of Graham submitted a Stage 1 Adaptive Management Program to reduce existing nutrient loading to Jordan Lake in 2009. Often referred to as the Stage 1 Existing Development Program, the Program credits the NPDES Phase II Stormwater Program as the primary steps in the program along with requiring the City to create a Retrofit Identification Program. The Existing Development Program requires annual updates, but full reporting is only required for the Retrofit Program because of this annual NPDES Phase II Report.

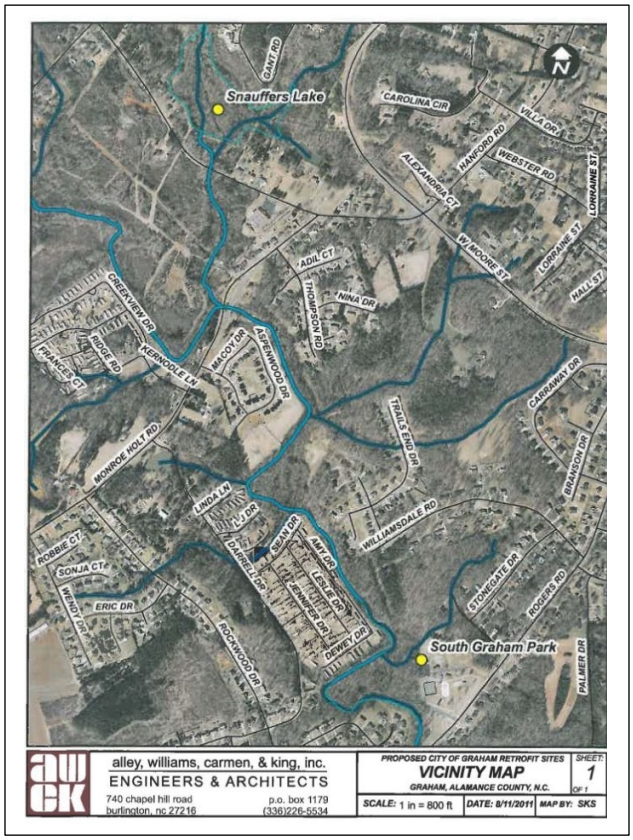
This retrofit program is intended to provide a framework for identifying retrofit opportunities to reduce nutrient loading in the Jordan Lake Watershed. The program is intended to identify both structural and non-structural retrofits that seek to reduce pollution, and nutrients, from being carried downstream by stormwater runoff. By either controlling stormwater runoff or reducing the pollution in the runoff, stormwater retrofits reduce downstream pollution in streams, rivers, and lakes. Typical structural stormwater retrofits are stormwater wetlands, bio-retention basins, water quality ponds, and other devices found in the NC Division of Water Quality Best Management Practices Manual (NC DWQ BMP Manual). Non-structural retrofits include but are not limited to fertilizer programs, reducing animal waste programs, urban forestry programs, and leaking septic tank replacement programs.

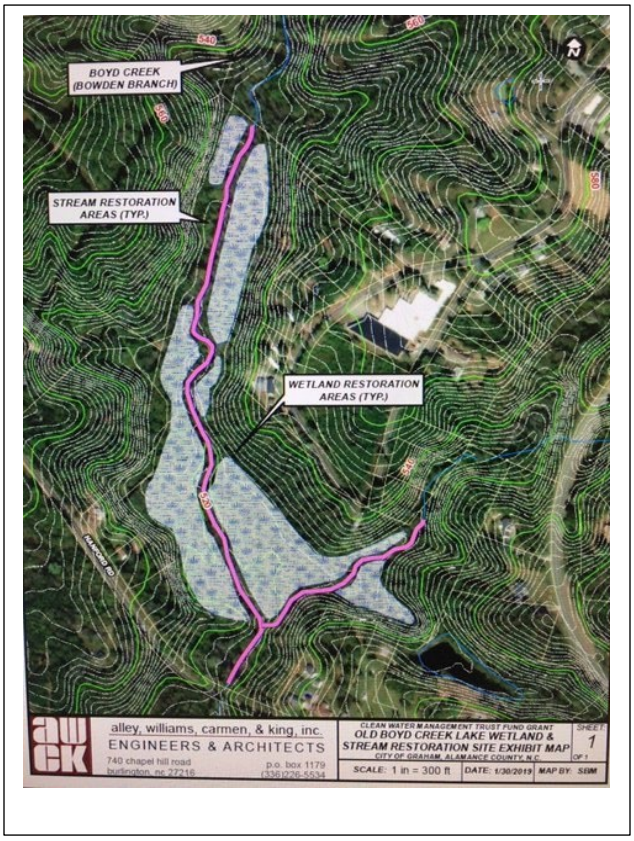
The City of Graham will use this program annually in a review of the stormwater program that will include reviewing the public education program, reviewing the illicit discharge program, and using this program to have an accurate and up to date list of potential retrofit projects. The City is required to select a number of projects based on the following chart:

Table 1: Minimum Number of Existing Development Nutrient Load-Reducing Projects

Population in the Jordan Lake Watershed	Minimum Number of Existing Development Load Reducing Activities to be Identified Annually
Less than 15,000	1
15,000-30,000	2
30,000-60,000	3
60,000+	4

In 2016, the City of Graham first identified two projects to pursue in the future. In 2019 these projects are still under consideration. These two projects included the selected Old Boyd Creek Lake BMP and the backup BMP at South Graham Park. Old Boyd Creek Lake is a previously existing lake that had the dam breached several years ago but the potential exists to recreate a BMP that will treat a significant drainage area with a large amount of impervious area, has the space for a large structural stormwater control measure and is undevelopable land.





A future strategy for the City to consider would be to fund a full study and construction of Old Boyd Creek Lake. Funding in the near future, before the Jordan Lake Rules, could provide for additional grant funding and could make grant funding easier to obtain. Funding of any BMP's before legislative

requirement represents some risk on the City's part but in this case would be within the Little Alamance Creek Watershed and credit would be applicable to both the Jordan Lake Watershed and the Little Alamance Creek Watershed. (Future Information on Compliance Strategies for Jordan Lake will be completed once NC DEQ releases final existing development nutrient loadings.)

Future Existing Development Programs

The City of Graham should expect future requirements for addressing nutrient loading off of existing developed lands with the current readoption process. The reductions, process for calculating, and exact rules are under discussion with the DWR rules readoption process.

Stormwater Funding

The City of Graham had a total stormwater budget of $90,000 ($65,000 for program and $25,000 for maintenance and repair) for 2023 – 2024**.**

The City of Graham funds it's Stormwater Programs through a Stormwater Fee. The City collects a flat fee of $2/month from utility users within the City Limits. It will increase, on 7/1/24, to $3.50. The increased amount ($1.50) will fund future capital improvement projects. The City uses the stormwater fee to pay for its Water Quality Programs including its NPDES Phase II, Jordan Lake, and Little Alamance Creek Programs. Historically, the City has used the general fund budget to pay for capital storm drainage and stormwater needs. The Capital improvement Budget for 2023-2024 was used to complete the Albright stormwater crossing.

The Future of Stormwater

Stormwater, and Water Quality in particular, is an evolving field of regulation. The City of Graham is already involved in NPDES Phase II and Nutrient Sensitive Waters. Within the next decade the City needs to plan for further regulation of these issues as well as several other outstanding issues. As stormwater information and regulation continue to evolve, the City should expect to see additional regulations, costs, and improvements within their stormwater program. The City of Graham's Little Alamance Creek 4b Plan will be an outline for how to prepare a comprehensive stormwater program.

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