

CITY OF GREENSBORO
NPDES MS4 STORMWATER DISCHARGE PERMIT

Permit # *NCS000248*

STORMWATER QUALITY MANAGEMENT PROGRAM PLAN
2023/2024 Annual Report

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Stormwater Quality Management Program Plan (Stormwater Plan) for Greensboro’s NPDES MS4 Discharge Permit

EXECUTIVE SUMMARY

The City of Greensboro’s initial National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) Discharge Permit (Permit Number NCS000248) became effective on December 30, 1994. The North Carolina Department of Environmental Quality (NCDEQ) issued the City of Greensboro’s current permit on October 10, 2018, for a period of five years with an effective expiration date of October 9, 2023. This document includes a summary of NPDES stormwater quality management programs and activities implemented, scheduled to be implemented, or completed during the July 1, 2023 - June 30, 2024 permit term.

The City’s NPDES stormwater permit, and associated Stormwater Quality Management Program Plan (Stormwater Plan), is designed to control the discharge of pollutants from the MS4 to the Maximum Extent Practicable (MEP).

Significant Receiving Waters and Watersheds

Greensboro is located near the headwaters of the Cape Fear River Basin in the Piedmont physiographic region of North Carolina, with a majority of the City’s jurisdictional watersheds draining eastward towards the Haw River, while a smaller portion of the City area drains south towards the Deep River. The North and South Buffalo Creek Watersheds drain the majority of the City’s central urbanized area eastward towards Buffalo Creek. Beyond the eastern City limits, Buffalo Creek drains generally northeastward into the Reedy Fork Creek and the Haw River, a tributary of the Jordan Lake watershed. The City of Greensboro, with a total area of about 131.94 square miles, represents just over 1% of the 9,322 square mile Cape Fear Basin. Existing land uses within Greensboro are broadly classified in Table 1.

Table 1 – Land Uses in the City of Greensboro

Land Use Classification	Approximate % within Corporate Limits
Residential	39%
Commercial	13%
Industrial	7%
Open Space/Wooded/Undeveloped	41%
Total (land use does not include public streets and water bodies)	100%

Table 2 shows a listing of the primary streams located within the City of Greensboro MS4 service area. Water quality classifications of receiving streams are provided, along with their use support ratings and key water quality challenges.

Table 2 - Primary Receiving Streams within Greensboro Service Area (Upper Cape Fear River Basin)

Receiving Stream Name	Stream Segment	Water Quality Classification*	Use Support Rating	Water Quality Issues	303(d) List
Reedy Fork Creek	Within corporate limits	WS-III;NSW, WS-III;NSW CA	Impaired	Impaired biological integrity, Chlorophyll a, Turbidity	yes
Brush Creek	Within corporate limits	WS-III;NSW	Impaired	Impaired biological integrity, Chlorophyll a	Yes
Horsepen Creek	Within corporate limits	WS-III;NSW, WS-III;NSW CA	Impaired	Impaired biological integrity	Yes
North Buffalo Creek	Within corporate limits	WS-V;NSW	Impaired	Fecal coliform, Impaired biological integrity, Zinc, Cooper, NO2+NO3-N	Yes
South Buffalo Creek	Within corporate limits	WS-V;NSW	Impaired	Turbidity, Impaired biological integrity, Zinc	Yes
East Fork Deep River	Within corporate limits	WS-IV, WS-IV;CA	Impaired	Impaired biological integrity, Turbidity, Fecal coliform	Yes

*** Water Quality Classifications:**

NSW = Nutrient Sensitive Waters

WS = Water Supply classification (degree of protective measures).

C = Class C waters – general use category (maintain aquatic life and biological integrity, wildlife, secondary recreation, etc.)

CA = Critical Area

**** Use Support Rating (the degree to which the water body supports its designated uses):**

FS = Fully Supporting

PS = Partially Supporting

NS = Not Supporting

NR = Not Rated

Organizational Structure

The Stormwater Management Utility is one of seven divisions of the City's Water Resources Department (also including water supply, water reclamation, customer service, business, engineering, and operations and maintenance). This organizational arrangement facilitates protecting and improving surface water quality while best managing local water resources.

The following bullet points briefly document the overall organizational structure and functional responsibilities of the City's Stormwater Plan. Although the Stormwater Management Division resides within the Water Resources Department, the program itself is much broader and encompasses and/or extends well beyond the boundaries of the Water Resources Department. Several other departments in the City of Greensboro, as well as those in Guilford County, contribute to stormwater quality management and NPDES-related programs in substantive ways.

- **City Stormwater Management Division:** NPDES MS4 Discharge Permit administration for Greensboro; stormwater utility administration; surface water quality monitoring and operations management; computerized infrastructure management systems; stormwater and surface water quality related complaint response; stormwater conveyance system inventory and detailed MS4 outfall mapping; public education and awareness; stormwater and watershed master planning; site development plan reviews for stormwater management; general stormwater-related technical support and mapping; local Federal Emergency Management Agency (FEMA) National Flood Insurance Program (NFIP) floodplain administration; local water supply watershed protection program administration; stormwater control measures (SCM) evaluations and SCM crediting; SCM inspections and monitoring; field screening and follow-up monitoring activities; industrial monitoring and related activities; industrial inspections and educational efforts; system inspection; special stormwater inspection and enforcement programs; water quality inspections and monitoring programs; overall authority (as delegated from City Manager's Office) over the municipal stormwater quality management programs
- **City Field Operations Department:** Litter (including floatables) and loose-leaf collection programs; street cleaning and sweeping programs; closed drainage infrastructure system routine and remedial maintenance activities; open channel maintenance; new storm sewer construction
- **City Engineering and Inspections Department:** Project design, construction contract bidding, construction contract administration, and inspections of new development and redevelopment; stormwater capital improvement projects and property acquisition; local construction erosion and sedimentation control program administration
- **City Parks and Recreation Department:** City of Greensboro parks, greenway and utility easement maintenance coordination and programs; partner in volunteer programs such as Adopt-a-Park
- **City Planning Department:** Overall City planning including management of plan review process; comprehensive planning; management of City's Technical Review Committee (TRC) for design engineers and developers; zoning management and ordinance development and revisions
- **City Water Resources Department (beyond Stormwater Division):** Enhancements to the municipal stormwater system and receiving waters by controlling sanitary sewer overflows (SSOs) and industrial spills; pretreatment programs for major industry; water supply and wastewater treatment programs, including planning and management; water distribution system and sanitary sewer system maintenance programs

- **City Fire Department:** Spill response program - HAZMAT (HAZardous MATerials) Team, containment of spills; industrial site inspections
- **City Management Information Systems Department:** Data management including city Geographic Information Systems (GIS) and city database administration; city computer systems management; aerial photography and related city mapping programs
- **City Legal Department:** Permit-related legal, enforcement and ordinance assistance; other legal services including contract and agreement reviews
- **(Guilford County) Emergency Management / Health Department:** County emergency management programs, chemical control; county spill response, coordinate cleanup & reporting

Legal Authority

The required legal authorities for Greensboro’s NPDES municipal stormwater program were developed and adopted during the first permit period in a new ordinance to the Greensboro Land Development Ordinance: *Chapter 30 – City of Greensboro Stormwater Management Ordinance* (<http://online.encodeplus.com/reg/greensboro-nc/doc-viewer.aspx#secid-144>). The stormwater management ordinance became effective on July 1, 1994.

The Chapter 30 ordinance includes the following objectives:

- To provide for the establishment and enforcement of the City's Stormwater Management Program;
- To reduce the discharge of pollutants to the storm sewer system to the maximum extent practicable by requiring, where appropriate, the use of best management practices, structural and/or nonstructural stormwater quantity and quality control measures and other provisions;
- To provide for the inspection and proper maintenance of structural and nonstructural stormwater controls and the municipal separate storm sewer;
- To prohibit non-storm water discharges to the City storm sewer and require the removal of illicit connections to the City storm sewer;
- To prevent improper disposal of materials that degrade water quality;
- To permit sampling and monitoring for pollutants such as those associated with illicit discharges, improper disposal, industrial and construction activities, and the application of pesticides, herbicides, and fertilizers; and,
- To reduce erosion associated with stormwater runoff;
- To provide legal definitions for user fee rate calculations.

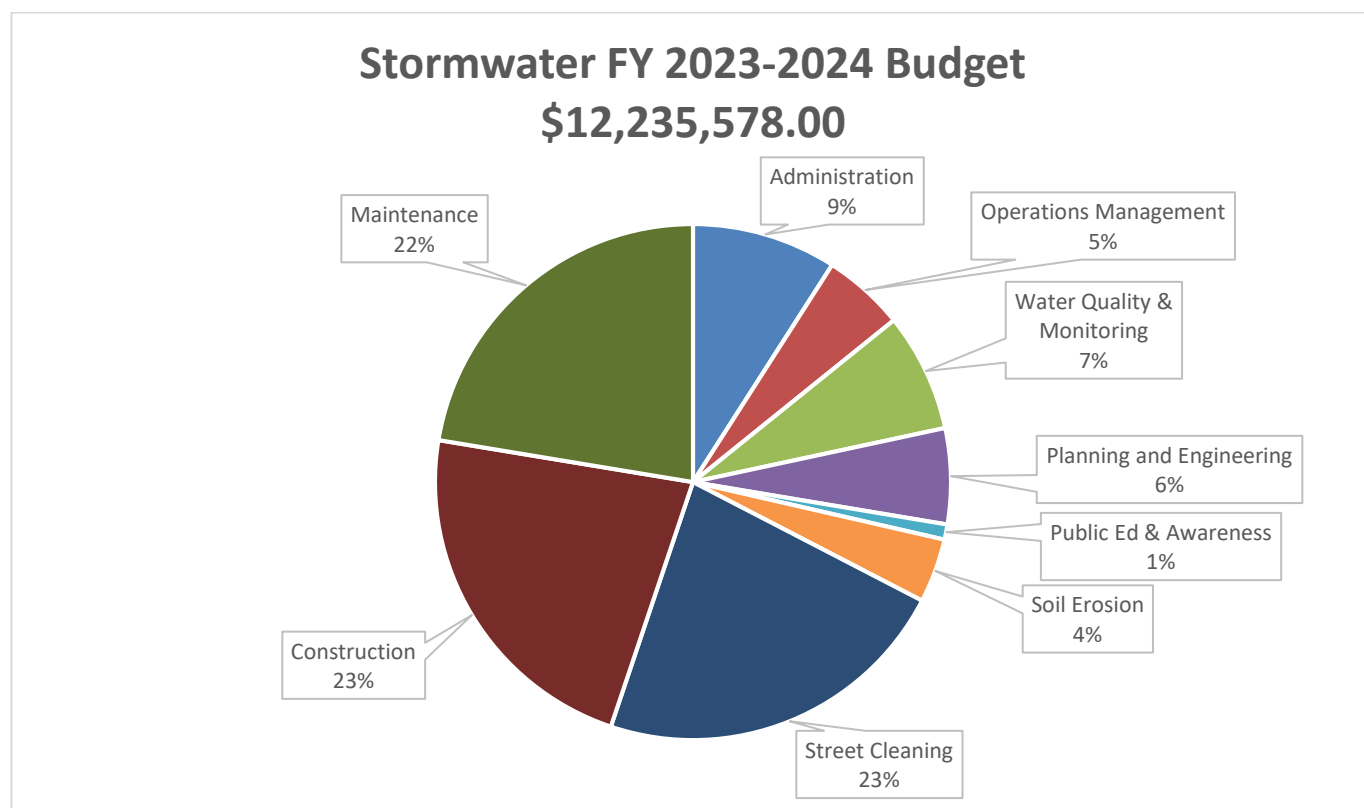
To date, no significant changes have been required or considered for the City’s legal authority *related to NPDES stormwater program implementation*. Stormwater Management, working with City Management, Council, and Stakeholders has incorporated runoff quantity control and citywide stream buffer requirements into the Code of Ordinance in recent years, but these have not been specific NPDES MS4 discharge permit requirements. Many of these additional requirements along with historic stormwater related regulations are located throughout the Code of Ordinance with a large portion appearing in Chapter 30 which serves as the City’s Unified Development Ordinance. Additional ordinance language specific to the Phase II rules, specifically with regard to post-construction runoff, was adopted by City Council on April 7, 2009, and became effective June 1, 2009.

Funding

The City established a stormwater utility funding mechanism partially in response to the initial and ongoing requirements of the NPDES municipal stormwater permit, but also to help ensure a dedicated funding source for stormwater-related programs and activities, along with the desire to manage municipal stormwater issues in a more proactive and comprehensive manner. As impervious area is generally in direct correlation with the volume and quality of surface stormwater runoff, establishing the stormwater billing system based on total impervious area is equitable to all of the City’s utility customers. As of July 1 2024, single-family residences are charged one of three tiers with an average rate of \$3.24 per month. Non-single-family properties are billed based upon the number of equivalent residential units (ERUs), which is computed by dividing the total impervious area by the size of the ERU (2,543 square feet), on the given property.

Additionally, as a financial incentive for non-structural and structural best management practice implementation at non-single-family residential sites throughout the City, Greensboro provides a fee crediting mechanism within the stormwater utility. The City also provides technical support and educational assistance for innovative stormwater practices.

The Stormwater Utility is a dedicated balanced enterprise fund with budgeted revenues and expenditures of over eight million dollars in the coming fiscal year. This budget represents a slightly higher than normal budget due to an extra investment in capital projects this fiscal year. The chart illustrates the allocation of Stormwater Utility funds by operational category.



STORMWATER QUALITY MANAGEMENT PROGRAM PLAN

The following information is the City’s stormwater quality management program plan (Stormwater Plan) identifying programmatic measures to comply with the City’s NPDES permit to the maximum extent practicable. BMP summary tables for each of the regulatory areas are provided, along with narrative for key programs and updates or accomplishments completed during the last permit year (July 1, 2023 - June 30, 2024).

Public Education and Outreach

BMP Summary Table

BMPs for Public Education and Outreach Program		
BMP	Measurable Goals	Comments
Pollution Prevention Brochures	Distribute brochures through event displays, volunteer participants, informational displays, and field representatives. Various issues addressed include proper disposal of oil and other toxic materials, sediment and erosion control issues, proper application and handling of fertilizers and pesticides, litter prevention, pollution reporting and awareness, etc. for different age groups.	<p>Stormwater SMART (SMARTs) target pollution brochures (Litter and Trash, Pet Waste, Yard Waste, Pesticides, Household Chemicals, Vehicle Maintenance) brochures were displayed at 57 events to approximately 3,886 individuals at organized events attended by the City.</p> <p>SMARTs brochures were also placed in the Water Resources customer service area and replenished as need thought out the year.</p> <p>COGs drain marker brochures were distributed during 17 events to ~ 100 residents.</p>
Website	Maintain the Stormwater Management Website. Contains information about pollution prevention, stormwater technology and practices. Provides contacts and forms for pollution reporting and information requests.	<p>Throughout the year updates were made as needed.</p> <p>http://www.greensboro-nc.gov/stormwater</p>
Stormwater Videos	<p>Stormwater SMART and GTN created several videos to educate residents and students about various pollution prevention measures and volunteer opportunities. SMART shared Litter Videos and Pet Waste Videos throughout the year on Facebook, Instagram, YouTube, and Nextdoor.</p> <p>As part of the SMART mass media campaign, Pet Waste and Litter PSAs (15</p>	<p>Stormwater SMART PSA’s (30 seconds PSAs i.e. Litter and Trash, Pet Waste, Yard Waste, Pesticides, Household Chemicals, Vehicle Maintenance) were adapted to meet Greensboro’s needs and were aired along with GTNs “Don’t Flush Wipes”. SMART’s Litter and Pet Waste videos on Facebook, Instagram, YouTube, and Nextdoor gained ~1,306,184 impressions, with 2,191</p>

	<p>second and 30 second) videos are aired on local stations WXII NBC and WFMY CBS News2, as well as Spectrum and Hearst Anyscreen. Audio versions were aired on WSMW 98.7 FM.</p> <p>Stormwater videos are also shared on GSOGoesGreen Water Resources social media platforms (Facebook, Instagram and X).</p> <p>Videos air periodically on Greensboro Television Network (GTN) that appears on the local cable affiliate and are located on the <u>City's YouTube</u>.</p> <p>Videos are aired at Greensboro Grasshopper home games and on My48 as part of the Greensboro SWARM's broadcasting assets.</p> <p>SMART ran Google Network Ads from December 2023 – June 2024.</p>	<p>web users who clicked on links.</p> <p>SMART's mass media campaign outcomes within Greensboro included 159 runs on TV/Cable & connected TV (Pet Waste) with ~372,657 impressions. There were 70 runs (Litter) on the Radio with a reach of ~63,500.</p> <p>On the GSOGoesGreen Facebook, 5 Stormwater SMART PSA's were posted with 163 video views. Video analytics were not available for Instagram and X.</p> <p>At this time, GTN does not track video analytics.</p> <p>Greensboro Grasshoppers played 61 home games times during Patron attendance throughout the season: 2023 July ~54,480, August ~61,474, September ~19,955 and 2024 April~41,717, May, ~49,206, and June, ~33,328. SMART's videos played 5 times on My 48 during 4 Greensboro SWARM games reaching ~1,045 households per game. In addition to 24 home games where PSAs ran twice per game reaching ~276,864 patrons this season.</p> <p>Google Network ads achieved 1,345,912 impressions. Web users clicked on the "Learn More" buttons on display ads 15,781 times.</p>
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BMP Summary Table – *Continued*

Media Campaign	<p>Advertise with Greensboro SWARM</p> <p>Advertise on Facebook, Instagram, and X about different Stormwater related topics.</p>	<p>Greensboro SWARM Basketball Ads - A water quality message was displayed through the following avenues: courtside rotational signs 3 minutes + per home game reaching ~276,864 patrons this season, 10,000 pocket schedules were</p>
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	<p>Advertise pollution issues and stormwater related news in the local Hispanic newspaper La Noticia and in The Gist and the GSOGoesGreen Volunteer Newsletter.</p>	<p>printed and distributed in the triad, online game day program ads had ~502 impressions on SWARMS social media, were promoted during games reaching~276,864 and were sent via email to 12,348 people over the course of the season.</p> <p>SMART’s social media campaign included: 61 posts on Facebook/Instagram with a total reach of 553,300 and 23,789 visits to SMART’s website.</p> <p>On the GSOGoesGreen Facebook page, 179 posts were Stormwater information. Topics included: Waste Reduction, Litter Prevention, Volunteer Programs such as Drain Marker, Pet Waste, Plastic Free July, Guilford Creek Week Fertilizer, Stormwater Job Opportunities ~ Estimated reach ~ 74,094 users with 4,510 engaged users (average engagement rate 5%).</p> <p>On the GSOGoesGreen Instagram page, 141 posts were Stormwater information. Topics included Rain Barrels, Waste Reduction/Recycling, Litter Prevention, and Volunteer Programs such as Lake Cleanups, Pet Waste, Resources/Guilford Creek Week, Salts/Fertilizer, and Stormwater Job Opportunities. Estimated reach ~16,676 users with 983 engaged users (average engagement rate 5.32%).</p> <p>On the GSOGoesGreen X page, 142 posts were Stormwater information. Topics included Proper Household Hazardous Waste Disposal, Waste Reduction, Litter Prevention Campaigns, Volunteer Programs, such as Adopt-a-Stream, Pet Waste, and Stormwater Job Opportunities. These posts gained 99 likes and 41 retweets.</p> <p>On the City’s NextDoor, site 15 posts contained Stormwater information.</p>
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		<p>Topics included Guilford Creek Week, Stream Cleanups, Drain Marker Pop-ups, Flooding, and Rain Barrels with ~ 53,761 impressions.</p> <p>La Noticia distributed 276,000 newspapers and had 3,120,000 visitors to LaNoticia.com and the Greensboro E-Edition. There were 43 stormwater education information included. Topics included: Motor Oil (4), litter prevention/Adopt-a-Stream (13), Pet Waste (3), Fertilizer (4), and Flooding (7). These ads are also available online at https://lanoticia.com/noticias/usa/nc/gbo/ in the Newspaper.</p> <p>The Gist Newsletter emailed monthly issues throughout the year with stormwater education information included. The Gist has grown from 5,504 subscribers in July 2023 to approximately 11,536 subscribers as of June 30, 2024. Topics included Leaf Collection, Rain Barrel promotion, Stormwater Jobs, and Stormwater Related Events. These newsletters are also available online.</p> <p>The GSOGoesGreen Volunteer Newsletter emailed quarterly information on upcoming volunteer opportunities (Drain Marker, Clean-a-Creek, Lake Cleanups, etc.), Stormwater-related campaigns within the City. Four emails were sent to ~260 subscribers, with an average open rate of 60% and click rate of 10.46%.</p>
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BMP Summary Table – *Continued*

<p>Helpline</p>	<p>Established a helpline for citizens to report pollution, address water quality and drainage concerns, as well as volunteer opportunities.</p>	<p>144 Water Pollution Spills and Concerns were reported via the city helpline.</p> <p>23 Water Pollution events reported via online form 225 visits to the Report Water Pollution webpage 37 Drainage Concerns reported via online form 278 visits to the Report Drainage Concerns webpage</p>
<p>School and Civic Group Presentations</p>	<p>Develop and present educational talks and activities for schools and civic groups, including our Enviroscape Model, stormwater drain model, and other educational tools.</p>	<p>Approximately 3,886 individuals were reached by the City’s Stormwater program at 57 events.</p>
<p>Targeted Commercial Education Initiative</p>	<p>Develop flyer /brochures to inform businesses that have a potential of illicit discharges or improper disposals to the stormwater conveyance system.</p>	<p>Ongoing effort by the Stormwater Program; program initiated in Mid-2003. See page 13 for details.</p>
<p>Watershed Signs</p>	<p>Road signs have been installed at stream crossings identifying the watershed and stream name.</p>	<p>Ongoing effort by the Stormwater Program.</p>
<p>Cooperative Efforts</p>	<p>The City of Greensboro seeks reasonable opportunities to collaborate with neighboring communities for joint educational programs. The City is a member of Stormwater SMART and receives direct education and mass media services through the partnership. The North Carolina Cooperative Extension Services Master Gardeners and Guilford County Soil and Water Conservation District are also partners in Stormwater education.</p> <p>The City of Greensboro (Water Resources, The Office of Sustainability and Resilience, Parks and Recreation, Libraries, and Solid Waste and Recycling) collaborates with High Point, Guilford County, local businesses, and non-profits during Guilford Creek Week. Each year we strive to provide fun and educational opportunities throughout Guilford County to help raise awareness about the health of our watersheds.</p>	<p>SMART facilitated 19 events and reached 1,161 individuals. Delivered 1,950 Nature Notebooks within Greensboro via direct mail to teachers and libraries.</p> <p>During Guilford Creek Week, over 23 community programs occurred June 1 – 8, 2024. The City of Greensboro had over 647 participants, collected over 50 pounds of trash near local waterways, and placed over 70 drain markers.</p>

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BMP Summary Table – *Continued*

Target Audience

Current and future target audiences for stormwater education include:

1. General Public, especially homeowners – applies lawn care products, uses chemicals for home and auto maintenance, makes decisions about drainage issues on their properties and participates in volunteer opportunities.
2. Structural SCM Owners – maintenance issues and education about proper SCM maintenance and responsibilities.
3. Industries – potential of water quality impacts due to improper material handling, improper housekeeping practices and illicit discharges.
4. Commercial landscapers, restaurants, mobile washers, concrete companies, painters, drywall installers, masons, automotive repair facilities and kennels – potential water quality impacts due to illegal dumping of wastewater into storm drains and improper chemical handling and application.
5. Through the City’s Education and Outreach programs, over 3,886 individuals were reached through school programming, summer camps, library programs, and more. A continuing partnership with the Greensboro’s Solid Waste and Recycling program on the social media platforms Facebook and Instagram (@GSOGoesGreen) reached over 90,770 impressions (views), with 41 retweets and 99 likes on Twitter (@GSOGoesGreen). Stormwater topics included Adopt-a-Stream, Drain Marker, Lake Cleanups, Litter Prevention Programs/Events, and Household Hazardous Waste proper disposal information/events.
6. Through our partnership with Stormwater SMART, approximately 3,111 individuals were reached through school programming, educational notebooks, seed packets, library programs, and more. A robust social (Facebook, Instagram, YouTube, Google, SMART sites) media campaign landed ~1,306,184 impressions for educational videos on social channels and a reach of ~553,300 for Facebook and Instagram posts. There were 23,789 visits to the www.ptrc.org/stormwatersmart website and videos aired on TV/cable and radio gained ~436,157 impressions. The nine Guilford Creek Week events hosted by the City of Greensboro reached 647 participants.

Identifying Target Pollutants and Sources

Target pollution sources for stormwater education include:

1. Illicit Connections – The discharge of non-stormwater into the stormwater conveyance system can result in biological mortality in receiving streams due to discharges.
2. Improper Disposal – The discharge of used motor oil, oil & grease, organic materials (grass and leaves), and various other pollutants into storm drains can be a problem on construction sites, commercial and residential areas, etc.
3. Water Quality Monitoring – Routine water quality monitoring data will be evaluated to identify target pollutants which impact water quality.
4. Pet Waste – Greensboro has developed a TMDL for fecal coliform for the portion of North Buffalo Creek located within the jurisdictional limits. As a management measure, the City generates educational literature targeting pet owners on the need to pick up after their pet in order to protect water quality. Additionally, staff has observed that a number of public parks and homeowner’s associations

have installed pet waste bag dispensers and or signage to encourage proper disposal of pet waste. The City (Water Resources and Parks and Recreation Departments) gave out approximately 520 dog waste bags with a proper disposal message and a link to our Stormwater webpage throughout the year at various events. The City also maintains 40 pet waste stations throughout parks and trails.

5. Lawns and Gardens – Lawn care chemicals may enter storm drains due to improper application. Yard waste may also be improperly placed into storm drains. These can create blockages in the stormwater conveyance system and cause decreased dissolved oxygen in streams. The Clean Streams Program educates commercial landscape professionals on the proper application of fertilizer and pesticides, as well as aquatic pesticides. Commercial landscape professionals have an opportunity to receive pesticide credit for successful completion.
6. Auto Repair Shops – Many auto repair shops have interior drains that have the potential to be illicit connections (such as older buildings or sites that were previously a different business type). As these locations are identified and dye-testing is conducted, owners and staff are made aware of proper house-keeping practices, including awareness of interior drains and their resulting destinations (i.e., either storm or sanitary sewers).
7. Mobile Auto Washers – car washing activities can generate potentially harmful wash water. An educational and inspection program targeting mobile auto washers on containment, collection, and disposal of wash water has been developed.
8. Restaurants – Many restaurants have Good Housekeeping issues related to disposal of cooking oil, process wastewater generated by cleaning activities, and outdoor storage areas such as trash dumpsters and grease containers that can adversely impact water quality. An educational and inspection program targeting restaurants has been developed and implemented during this reporting period.

Public Outreach Program Narrative

Outreach mechanisms are described in the BMP summary table above. Over the permit period, Greensboro expects to reach the majority of the approximately 300,000 individuals in its MS4 service area, as well as individuals in surrounding service areas. Stormwater information is included in both The Gist newsletter (~11,536 subscribers) and the GSOGoesGreen Volunteer Newsletter (~260 subscribers). Individuals are also periodically exposed to various stormwater related messages that are shown on our local governmental broadcast station. For those who do not read the newsletters, various media campaigns are featured on TV, and newspaper as well as posts on social media platforms (Nextdoor, Facebook, Instagram, and X). Combined together, the media outlets are designed to reach the citizens of Greensboro. For citizens who speak Spanish, some materials will be printed in English and Spanish. The City also utilizes a local Spanish newspaper to deliver various educational messages.

Public Involvement and Participation

BMP Summary Table

BMPs for Public Involvement and Participation Program		
BMP	Measurable Goals	Comments
Adopt-a-Stream	Developed an Adopt-a-Stream Program. Volunteers must pick up trash from their adopted segment of stream twice per year.	52 cleanups 478 volunteers 373 bags of trash 8,299 lbs of trash
Drain Marker	Developed a Drain Marker Program. Volunteers	17 events

Program	have attached signs to Greensboro's storm drains.	92 volunteers 877 drain markers installed
Adopt-a-Street	Developed an Adopt-a-Street Program. Volunteers must pick up trash from their adopted segment four times per year.	224 cleanups 1,357 volunteers 2,869 hours
Stormwater Advisory Board	Board established to help guide Stormwater program on important community issues.	Stormwater Advisory Board reconvenes as needed to address community issues.
Annual Clean-up Events	Promote the Great American Clean-up, Winter Wipe Out, NC Big Sweep, and Guilford Creek Week.	Cleanups: Big Sweep (9/16/23 – 10/7/23) Winter Wipe Out (2/1/24 – 2/29/24) Great American Cleanup (4/15/24-4/30/24) Guilford Creek Week (6/1/24-6/8/24)
City Lake Cleanups	Held monthly lake cleanups during the Spring and Summer months where volunteers helped to gather trash from hard to reach areas via kayaks.	Lake Higgins 7/10/23 – 11 volunteers , 5 lbs. of trash and 1 lb. of recycling collected Lake Brandt 8/29/23 - Canceled due to thunderstorm warnings 10/10/23 – 5 volunteers, 20 lbs. trash and 3 lbs. of recycling collected. 5/21/24 – 30 volunteers, 50 lbs. of trash and 6 lbs. of recyclables collected. Lake Townsend 9/12/23 – Canceled due to severe thunderstorms 6/5/24 – Canceled due to thunderstorm warnings 4/10/24 – 20 volunteers, 156 lbs. of trash collected.
Trash Trap	Promote and assist with the trash trap installed by Haw River Assembly at Barber Park (South Buffalo Creek).	Barker Park Trash Trap 8 cleanouts 38 volunteers Removed 2,364 items from inside the trap: <ul style="list-style-type: none"> • Plastic Film 224 • Hard Plastic 892 • Styrofoam 974 • Metal 95 • Glass 122 • Other 57

		Outside of the trap 367 lbs. of trash was collected.
Poster Contest	A water conservation poster contest was held for elementary students in the Guilford County School System. Winning posters in each division were selected to represent Greensboro in a statewide contest sponsored by NC One Water.	The theme of Greensboro’s 2024 Water Conservation Poster Contest was “Be a Water Wizard.” There were 15 participants from grades K – 8. 1 st , 2 nd , and 3 rd place winners from two divisions, K-2 and 3-5, were chosen.
Neighbor Woods Program	Developed a Neighbor Woods Program, which encourages community wide tree planting and re-vegetation efforts.	101 participants 212 trees planted

BMP Summary Table – *Continued*

Educational Workshops	Don’t Waste It (DWI) and Project Water Education for Teachers (WET) workshops offered as a resource for educators.	11/2/2023 – Don’t Waste It Workshop with 20 participants 1/20/2024 – Project WET with 20 participants 6/7/2024 – Getting Little Feet Wet with 20 participants
Household Hazardous Waste Collection	Promote proper disposal of harmful chemicals through the Household Hazardous Waste Collection Center.	1,751,940 lbs. of chemicals were collected from 22,518 households in Guilford County. Approximately 75% is from City residents.
Fats, Oils, and Grease Inspection Program	Program designed to prevent the excessive introduction of oil, grease, and fats into the sanitary sewer system and the wastewater collection system, which helps prevent sanitary sewer over flows.	Over 6,175 door hangers were distributed and several messages were posted to Nextdoor, and other social media sites.

Target Audience

Target audiences for the public involvement program include representative age, ethnic, and economic groups in Greensboro, from individuals to businesses. For local citizens who speak Spanish, some materials to promote volunteer programs are printed in both English and Spanish. A local Spanish newspaper will also be used for advertising on select campaigns.

Participation Program Narrative

The public is involved in the City’s Stormwater Management Program. The following are ongoing programs that are available in the community.

- **Public Hearings**

Public hearings are held to address key programs, such as, stream corridor concerns in the community including restoration projects. Additionally, City Council meetings serve as public hearing opportunities.

- **Working with Citizen Volunteers Willing to Educate Others About the Program**

As part of the drain marker program, for example, volunteers hang an information piece on the mailboxes of neighborhood residents where drain markers are installed.

- **Volunteer Monitoring or Stream Clean-up Activities**

As part of our Adopt-a-Stream Program, volunteers are asked to note stream conditions on their reporting form. The volunteers are required to clean the stream twice per year. If volunteers are not ready to adopt a stream, they may complete a one-time cleanup (Clean-a-Creek). The City also hosts community pop-up cleanups at streams throughout the year that are open to the public. Many volunteers also participate in the NC Big Sweep, Great American Cleanup, and Winter Wipe Out cleanups. We also promote and support the trash trap cleanouts held at Barber Park.

Illicit Discharge Detection and Elimination

The City of Greensboro maintains a program to identify and eliminate illicit discharges and improper disposals from its MS4 service area.

BMP Summary Table

<u>BMPs for Illicit Discharge Detection and Elimination (IDDE) Program</u>		
BMP	Measurable Goals	Comments
Implementation and enforcement of <i>Stormwater Management Ordinance</i>	Enforce current <i>Stormwater Management Ordinance</i> (Chapter 30 of the Greensboro Land Development Ordinance) requirements pertaining to the illicit discharge and improper disposal of pollutants and waste.	Ongoing program (Water Quality Section)
Stream water quality monitoring	Conduct routine chemical and physical water quality sampling of major streams. Analyze data, detect potential illicit discharges, and prioritize locations for follow-up investigation.	Ongoing program (Water Quality Section)
Response and investigation of citizens' concerns	Maintain dedicated helpline and field calls related to pollution concerns and environmental questions from citizens. Provide staff response to pollution concerns.	Ongoing program (Water Quality Section, Public Education and Awareness Section, City Contact Center)
Develop and maintain storm sewer system inventory base map of major outfalls	Create map and inventory procedures for the collection of major outfalls that discharge to waters of the State.	Ongoing program (Operations Management Section)
Maintain an inventory of major outfalls that discharges to waters of the State	Maintain an inventory of major outfalls that discharges to waters of the State.	Inventory complete; ongoing collection for annexations and new developments (Operations Management Section)
Establish procedures to identify and eliminate failed septic systems and sanitary sewer overflows.	Establish and maintain procedures to identify and report failed septic systems or sanitary sewer overflows to the appropriate agency (County health department or local utility department).	Ongoing program (Water Quality Section)
Maintain Inspection/detection program to detect dry weather flows at MS4 outfalls	Maintain procedures for detecting and tracing the sources of illicit discharges to the MS4 and for removing the sources.	Ongoing program (Water Quality & Operations Management Sections)

BMP Summary Table – *Continued*

Inter-departmental spill response team	Maintain cooperative agreement and improve relationship with spill response team partners. City Fire and Police are primary responders, while Stormwater is a secondary responder to assist in tracking spills and assessing environmental damage as a result of environmental emergencies.	Ongoing program (City Fire & Police--primary responders; Stormwater Management Division secondary responders)
Commercial/Business education and inspection program	Develop and implement education and inspection program to inform local businesses of stormwater regulations, hazards of unlawful discharges, and penalties for violations.	Ongoing program (Water Quality Section)
Education and outreach programs	Continue ongoing programs and develop new programs to inform municipal employees, local businesses, and the general public of the hazards associated with illicit discharges and improper disposal of pollutants and waste.	Ongoing program (Water Quality Section, Public Education and Awareness Section)

Detection and Elimination

Greensboro continues to implement a comprehensive program of stormwater ordinance enforcement, water quality monitoring, education and outreach, spill and citizen complaint response, and formal inspections in order to prevent, detect, address, and eliminate illicit discharges and improper disposals to the storm sewer system and receiving waters. The ongoing detection and elimination program currently includes the following specific tasks:

1. Conducting stream water quality monitoring activity and conducting immediate follow up when the data suggests a water quality issue.
2. Maintaining venues for public reporting, including helpline via the Contact Center, website reporting forms, app reporting form, etc.
3. Providing professional staff response to citizen reports and complaints.
4. Participating in cooperative spill response team with inter-governmental partners.
5. Implementing a formal commercial and business education and inspection program.
6. Conducting stormwater investigations at NPDES permitted industrial facilities.
7. Conducting field screening of NPDES MS4 outfalls to detect dry weather flows.
8. Educating and training municipal employees and public.

Locating Priority Areas

To locate priority areas for illicit discharge investigations, Greensboro will continue to rely on a combination of water quality monitoring, inspections, complaints or notifications from citizens and city staff, and historical knowledge to locate and verify priority areas. Permanent sampling stations will continue to be located within Greensboro’s major watershed sub-basins, and field and laboratory water quality parameters will be analyzed to detect potential illicit discharges and prioritize locations for follow-up investigation.

Removing Sources of Illicit Discharges

Greensboro’s Land Development Ordinance (Chapter 30) specifically prohibits the illicit discharge or improper disposal of pollutants and waste to Greensboro’s stormwater conveyance system and subsequent receiving surface waters. This ordinance authorizes City staff to utilize enforcement action, when

necessary, to stop an illicit discharge, remove the source, and require cleanup of the impacted area.

According to Stormwater's *Administrative Procedures for Completing an Enforcement Action*, the source of an illicit discharge may be removed through a series of educational efforts, written Notices of Violations (NOV), or progressing to civil penalty, if necessary. Once the source and responsible party of an illicit discharge or improper disposal is identified, an appropriate educational letter or NOV is mailed. Discontinuation of the discharge is required by the NOV, and the responsible party is required to reply in writing to Stormwater staff detailing efforts taken to discontinue the unlawful activity and prevent the activity from occurring in the future. Staff then conducts a follow-up investigation to ensure compliance.

During the July 1, 2023, to June 30, 2024, reporting period, approximately 144 illicit discharges, improper disposals, spills, or other pollution concerns were reported and investigated and resolved, 11 of which resulted in an issuance of a Notice of Violation (enforcement action).

In addition to the standard citizen reporting procedure such as the City Call Center, City Stormwater program has an inspection and education program that proactively addresses small commercial businesses that are identified as having the potential to impact water quality. During the July 1, 2023, to June 30, 2024, reporting period, educational material for horizontal directional drillers was finalized, and more than 25 drillers have received this information. Staff is working with other divisions in Water Resources to identify businesses contracted for this type of work in order to educate the companies on best management practices.

Outfall Screening

The City of Greensboro has identified and mapped 2098 NPDES outfalls. During this reporting period, 364 of these outfalls were inspected and assessed.

Construction Site Stormwater Runoff Control

The City of Greensboro has a locally delegated Erosion and Sediment Control (E&SC) Program implemented by the Erosion and Sediment Control Section of the Engineering and Inspections Department. The E&SC Section is responsible for erosion control plan review, grading permits, erosion control inspections, enforcement, and review of permanent stabilization of commercial development. A Chief E&SC Inspector, an Engineering Specialist, and three E&SC Inspector(s) comprise the section.

BMP Summary Table

BMPs for Construction Site Stormwater Runoff Control		
BMP	Measurable Goals	Comments
Plan Review, Enforce current E&SC ordinances.	Ongoing program implementation and enforcement. The locally delegated program is regulated by the NCDEQ, Division of Energy, Mineral and Land Resources	Water Resources Dept, Stormwater Management Division, E&SC Section.

E&SC Plan Review

In the City of Greensboro, any proposed land disturbance of one or more acre, including common plans of development that add up to a total of one or more acre, requires a grading permit prior to any land disturbance. For sites requiring a grading permit, a plan submittal consisting of a grading permit application, financial responsibility ownership forms, erosion and sediment control plans, and calculations are required. Plan approval is also required either through the City’s Technical Review Committee, or through a grading only process that consists of limited reviewers from the Technical Review Committee prior to grading permit issuance. Once plans are reviewed and approved, a pre-construction meeting is scheduled and a letter of approval is provided to the financially responsible party. As of April 1, 2019, information is provided to the permittee on the requirement to obtain a NC DEQ issued certificate of coverage for the NPDES NCG01 permit.

During the onsite pre-construction meeting, the representative from the erosion and sediment control section reviews local, state and federal requirements with the permittee prior to issuing the grading permit. The City then requires and verifies that the certificate of coverage for the NPDES NCG01 permit is attached to the grading permit located in the permit box. The City also ensures that temporary erosion and sediment control measures are installed, inspected, and accepted prior to mass grading of the site. The City of Greensboro also stipulates that any development resulting in less than one acre of land disturbance indicate proper erosion and sediment control measures on the site plan. These plans are reviewed and approved by the erosion and sediment control section during the technical review process. Therefore, all sites developed that go through the City’s Technical Review Committee are reviewed for compliance with erosion and sediment control regulations.

E&SC Program Implementation and Enforcement

The City of Greensboro employs a variety of mechanisms to ensure compliance with the provisions of the Soil Erosion and Sedimentation Control ordinance. First, no site will be issued a grading permit until the plan

reviewer is certain that necessary sediment and erosion control measures are adequately detailed on the construction documents. Prior to issuing a grading permit for any site disturbing one acre or more, the City Code requires that the owner/contractor post a bond. Prior to issuing a grading permit for any site disturbing one acre or more, City Code requires that the owner/contractor post a bond. If a contractor begins land disturbance without the required permits, appropriate City staff will issue a stop work order.

Should the field inspector identify deviations from the approved plan during construction, the inspector may provide an inspection report to the owner and contractor indicating required measures and allowable timeframe to bring the site into compliance. If the required items are not addressed within the appropriate time, the inspector may issue a notice of violation (NOV) to the owner. A monetary fine may accompany the NOV. If the required measures are still not addressed as indicated in the NOV, the inspector may issue a stop work order. Additionally, the City of Greensboro reserves the right to deny the issuance of a certificate of occupancy for sites that continue to remain in nonconformance with the erosion and sediment control regulations.

Construction Site Inspections

Site inspections to ensure that proper erosion control measures are provided on construction sites are conducted by qualified field inspectors. Each inspector represents a specific area of the City and inspects sites within this area. Sites may be inspected more often depending on specific site conditions, the progress of construction, citizen complaints and/or previously identified problems.

As site inspections may occur more frequently based on several factors, these same factors apply to the prioritization of site inspections. Specific site conditions, contractor experience, citizen complaints, previous inspections and the progress of construction all impact which site is given priority for inspection on a more frequent basis. During the site inspection, the field inspector ensures that erosion and sediment control measures are implemented according to the approved plan and that no significant offsite sedimentation is occurring. If the inspector recognizes a problem in the field, the inspector may require that additional erosion control measures be installed and maintained in accordance with established enforcement procedures.

Included in the chart below is the data on the number of inspections and enforcement actions carried out by the E&SC Section during the period of July 1, 2023 to June 30, 2024.

INSPECTIONS			
Reporting Period: July 1, 2023 to June 30, 2024			
Universe of active construction sites	190	Number of active construction sites inspected	190
Number of construction sites found to be non-compliant after the initial inspection	86	Number of follow-up inspections	1681
ENFORCEMENT			
Reporting Period: July 1, 2023 to June 30, 2024			
Number of informal enforcement actions noncompliance			19
Number of formal enforcement actions without penalty			0
Number of formal enforcement actions with penalty			6
Number of stop work orders issued			6

Post-Construction Stormwater Management for New Development and Redevelopment

The City of Greensboro enforces local stormwater management and riparian buffer regulations in addition to State approved water-supply watershed protection regulations. Throughout the NPDES permit compliance period, the City of Greensboro will review existing ordinances and, if necessary, develop and implement revised ordinances in order to *implement the post-construction stormwater management program* with the goal of further minimizing impacts to surface water quality. Ordinance language specific to the Phase II rules, specifically with regard to post-construction runoff, was adopted by City council on April 7, 2009, and became effective June 1, 2009.

BMP Summary Table

BMPs for Post-Construction Site Stormwater Runoff Controls		
BMP	Measurable Goals	Comments
Post-Construction Stormwater Management Program	Develop and adopt by ordinance a program to address stormwater runoff from new development and redevelopment within 24 months of the permit issue date.	The ordinance was adopted by City Council on April 7, 2009 and became effective June 1, 2009.
Strategies which include BMPs appropriate for the MS4	Developed 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.	City of Greensboro Stormwater Management Manual requires any proposed structural SCM be accompanied by an operation and maintenance plan and agreement concurrent to development plan approval. The city has an extensive inspection program to ensure SCM's are maintained to protect water quality.
Establish nutrient sensitive waters (NSW) protection measures (for programs with development or redevelopment draining to NSW waters)	Develop, adopt, and implement an ordinance to ensure that the best management practices reduce nutrient loading to the maximum extent practicable. In areas where the Environmental Management Commission has approved a Nutrient Sensitive Water Urban Stormwater Management Program, the provisions of that program fulfill the nutrient loading reduction requirement.	The Greensboro Land Development Ordinance was reviewed and modified to ensure structural and non-structural SCMs reduce nutrient loading to the maximum extent practicable.

BMP Summary Table – *Continued*

<p>Deed Restrictions and Protective Covenants</p>	<p>Impose or require recorded deed restrictions, plats, and/or protective covenants that ensure development activities will maintain the project consistent with approved plans.</p>	<p>Current City of Greensboro Land Development Ordinance requires a maintenance note and recorded maintenance agreement to be placed on final plats stating the maintenance responsibilities, consistent with approved plans, for the project SCM.</p>
<p>Establish a program under the Post-Construction minimum measure to control the sources of fecal coliform to the maximum extent practicable.</p>	<p>Coordinate with County health department to control the known sources of fecal coliform from septic systems to the maximum extent practicable.</p>	<p>Stormwater Division coordinates with Guilford County Health Department to control the known sources of fecal coliform from septic systems within the City’s jurisdictional limits to the maximum extent practicable. Additionally, the City’s Water Resources Department funds and performs an ongoing sewer rehabilitation program to minimize and eliminate cross connections between the storm and sanitary sewer systems.</p>
<p>Operation and Maintenance Plan</p>	<p>Require an operation and maintenance plan that ensures the adequate long-term operation of the structural SCMs required by the program. The operation and maintenance plan may require the owner of each structural SCM to submit a maintenance inspection report on each structural SCM annually to the local program, or the maintenance inspections may be conducted annually by the Permittee.</p>	<p>City of Greensboro Stormwater Division’s development plan review process requires a stormwater management plan and separate SCM operation and maintenance plan (consistent with the provisions outlined in the State stormwater design manual) be submitted prior to receiving development plan approval. Currently, the City of Greensboro Stormwater Division conducts maintenance inspections on SCMs within the City’s jurisdiction.</p>

BMP Summary Table – *Continued*

<p>Educational materials and training for developers</p>	<p>Provide educational materials and training for developers. New materials may be developed by the permittee, or the permittee may use materials adopted from other programs and adapted to the permittees new development and redevelopment program.</p>	<p>Water Resources Stormwater and Engineering Divisions notify developers and engineers of ordinance changes via direct phone and e-mail, face-to-face meetings upon request regarding proposed site projects, Triad Real Estate and Building Industry Coalition, televised City Council meetings, providing opportunity for public comment, as well as posting the changes on the City website.</p>
<p>Setbacks for Built-upon Areas</p>	<p>Require built-upon areas to be located at least 50 feet landward of all perennial and intermittent surface waters except as provided for in the Permittees Post-Construction Stormwater Ordinance. For purposes of this section, a surface water shall be present if the feature is shown on either the most recent printed version of the soil survey map prepared by the Natural Resources Conservation Service of the United States Department of Agriculture or the most recent version of the 1:24,000 scale (7.5 minute) quadrangle topographic maps prepared by the United States Geologic Survey (USGS). Relief from this requirement may be allowed when surface waters are not present in accordance with the provisions of 15A NCAC 02B .0233(3) (a).</p>	<p>The Greensboro Land Development Ordinance was reviewed and modified to require a 50 foot stream buffer in accordance with NPDES phase II requirements. In addition, the City of Greensboro has updated the riparian buffer requirements according to the Jordan and Randleman Lake Rules. The “Table of Activities and Structures in Stream Buffers (Zone 1 & Zone 2)” located in Chapter 30 of the Greensboro Land Development Ordinance determines the allowable uses within the 50’ riparian buffer.</p>

Local Permit Issuance

Currently, Group, Site and Subdivision plans within Greensboro’s jurisdiction are reviewed by the City’s Technical Review Committee (TRC) for compliance with applicable development regulations. TRC is an interdepartmental team charged with enforcing development standards as they relate to Watershed Protection, Stormwater Management, Water-Supply, Water Reclamation, Zoning, Transportation, Parks and Recreation, Tree Preservation, etc. Approval by members of TRC is a prerequisite to the issuance of a grading permit or building permit. The City has reviewed and modified the Greensboro Land Development Ordinance in order to ensure that plans meet *post-construction stormwater management* requirements as defined by 15A NCAC 2H.0126 (10). The final 15A NCAC 2H.0126 (10)(h) rules define low and high

density development thresholds and as such these thresholds and any associated permanent structural control and riparian buffer requirements will be applied to applicable new development or re-development within the City's jurisdictional area. These requirements have now been incorporated in the Greensboro Land Development Ordinance to allow for enforcement by City staff prior to issuance of the applicable construction permit. The post-construction stormwater requirements were adopted by City Council on April 7, 2009 and became effective June 1, 2009. Additionally, the City amended the Land Development Ordinance and adopted Jordan Lake Riparian Buffer requirements on November 9, 2010. These rules became effective on December 1, 2010.

Structural SCM Operation and Maintenance

Greensboro mandates that all required structural stormwater control measures (SCMs) be placed in a drainage maintenance and utility easement (DMUE) connected to the public right-of-way by a 20 foot wide access easement. The DMUE and access easement for each SCM must be platted before any certificate of occupancy is issued for the site. TRC-approved development plans for structural SCMs include an operation and maintenance plan (consistent with the provisions outlined in the State minimum design criteria) be submitted prior to receiving development plan approval. Furthermore, notes are recorded on the plat indicating that the City has the right to access the site for SCM inspections and that the owner will maintain the SCM per the approved maintenance plan or as directed by the City.

During the reporting period (July 1, 2023 to June 30, 2024), 295 privately owned SCMs were initially inspected by City staff for performance and maintenance compliance. In total, the Water Quality section conducted 643 site visits and/or re-inspections. During this time frame, 39 owners were issued a Notice of Violation (NOV) for failing to complete the required maintenance items. Of the 39 sites with NOVs, all have either finished or are in the process of completing the required SCM maintenance.

Pollution Prevention/Good Housekeeping for Municipal Operations

Pollution Prevention and Good Housekeeping Programs are an important factor in the improvement of stormwater runoff quality. Municipal departments that utilize various facilities currently implement good housekeeping and pollution prevention programs. Additionally, the City Water Resources Department works to ensure that pollution prevention and good housekeeping measures are being implemented at other municipal facilities to the maximum extent practicable with the intent of improving stormwater runoff quality discharged into receiving streams by those municipal facilities and their operations.

BMP Summary Table

BMPs for Pollution Prevention/Good Housekeeping Program		
BMP	Measurable Goals	Comments
Street Sweeping	Continue ongoing program with periodic review.	Ongoing program: Stormwater Management and Field Operations Department.
Loose Leaf Collection for Composting	Continue ongoing program with periodic review.	Ongoing program: Stormwater Management and Field Operations Department.
Erosion and Sedimentation Control	City owned or otherwise public construction sites are regulated by NCDEQ, Division of Energy, Mineral and Land Resources for proper erosion and sediment control.	Ongoing program: City owned and other publicly funded projects obtain appropriate state permits.
Staff Training/Site Operator Education	The Stormwater Management Division of Water Resources distributes education material for training employees on various municipal operations.	Ongoing cooperative effort by the City's departments.
Site Planning/Pollution Prevention Plan for Municipal Facilities	Develop and implement pollution prevention plans that have been determined to have the potential to impact Water Quality.	Ongoing effort by the City of Greensboro.
Site inspection and evaluation of facilities, operations including the MS4 system and associated structural SCMs.	The City maintains mapping programs that consist of all municipal facilities, as well as any related structural SCMs. City Stormwater Management maintains an ongoing inspection program to monitor, document and enforce stormwater discharges to the MS4 system.	The City's Stormwater Management Division has identified a list of specific city facilities and ranked each of them according to their potential to pollute. Inspections of the high and medium ranking facilities have been conducted, including documenting areas where improvements can be made to reduce the potential of generating

		polluted runoff.
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Affected Operations

The facilities listed in the following table are municipal operations that have been issued NPDES Stormwater Discharge permits. These facilities have developed Municipal Pollution Prevention/Good Housekeeping techniques in addition with the education and training material sent out.

Municipal Operation	Permit Number
City of Greensboro White St. Landfill	NCG120013
TZ Osborne WWTP	NCG110005
Patton Avenue Service Center	NCG080799
Greensboro Transit Authority (Bus Garage)	NCG080893

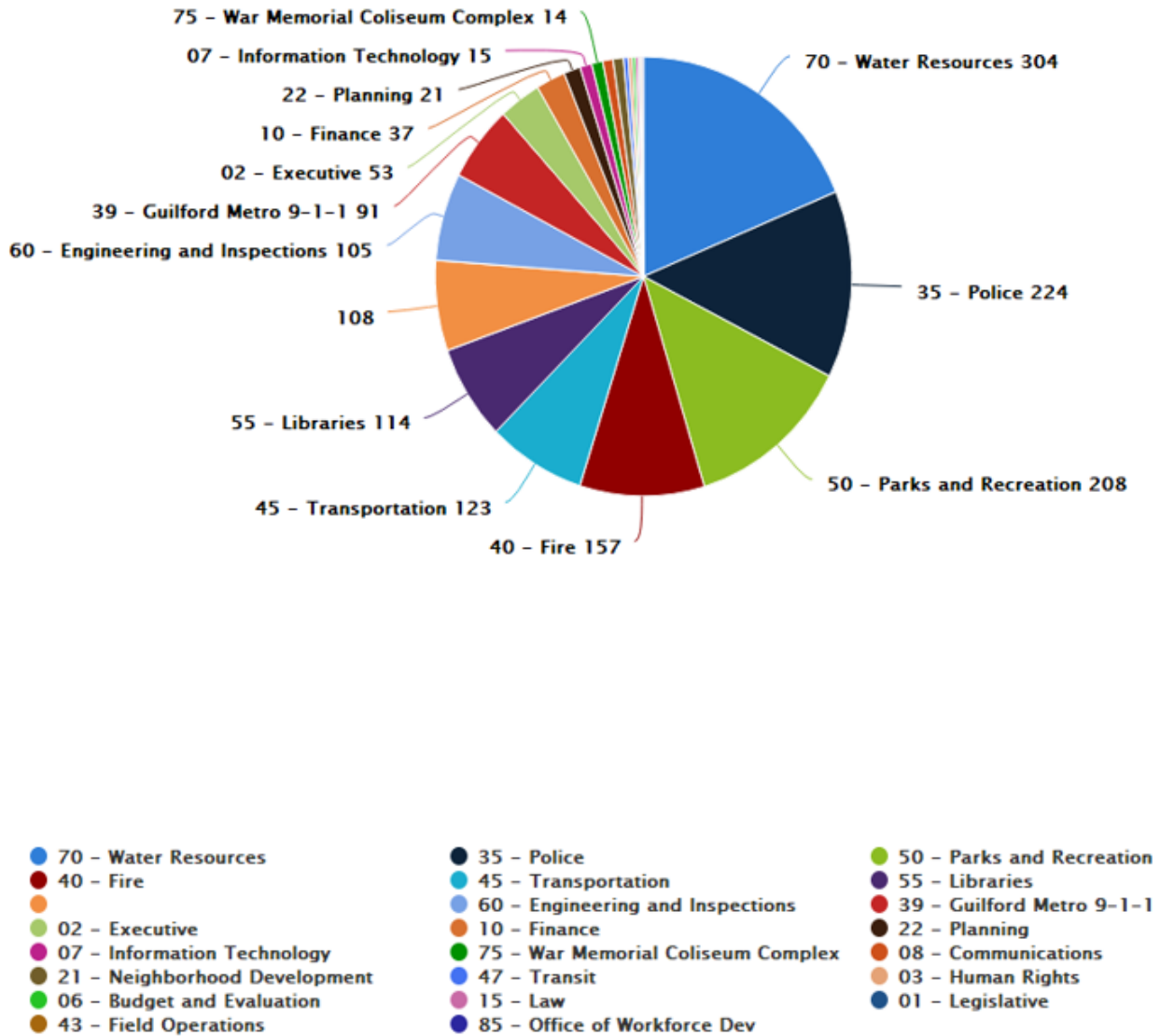
Training

The City’s Stormwater Management Division of Water Resources provides educational and technical assistance for City facilities pertaining to pollution prevention plans and/or BMPs for the improvement of overall environmental quality. In addition, the Stormwater Management Division also provides assistance for City facilities pertaining to structural and non-structural stormwater BMPs for the improvement of stormwater quality and/or quantity and BMP design and implementation.

The City has identified nine Departments that have a greater potential to contribute pollution to stormwater runoff. The Departments involved in this program are as follows:

1. Coliseum
2. Engineering and Inspections
3. Field Operations
4. Finance (Equipment Services)
5. Fire
6. Parks and Recreation
7. Police
8. Transportation
9. Water Resources

Approximately 1,625 City of Greensboro employees received training on municipal pollution prevention. This training includes our Learning Management System (LMS) Good HouseKeeping Training, which includes portions of Excal's Rain Check video and pre and post assessments on pollution prevention; and the Fire Department's in-depth annual training of personnel on spill response and pollution prevention.



GRAPH

Collectively, it is the responsibility of the entire City of Greensboro to maintain the NPDES citywide permit and enforce programs collaboratively. The objective is for all municipal departments that engage in various operations to implement good housekeeping and pollution prevention methods in everyday activities and to set a good example for the community to follow.

Site Inspection and Evaluation of Facilities

Stormwater personnel focused on site inspection and evaluation of city owned and operated facilities. A complete list of all City owned and operated facilities was obtained from a GIS layer file. To prioritize each facility, the history of spills/concerns, the proximity to a stream or stormwater conveyance system, and the activities at a particular location were considered when ranking each facility as High, Medium or Low. This ranking is further defined below.

High: Facilities in this category would have a large amount of outdoor processing activities, close proximity to a stream and/or material storage on-site or obvious poor housekeeping issues. Examples of these facilities would be golf courses, satellite fueling stations, facilities that store salt for deicing roadways or the Coliseum that has many vendors using this property at all times.

Medium: This category includes facilities that have some outdoor storage or processing, that may not be in close proximity to a stream. Examples of these type facilities would be larger parks, the science center, water treatment plants and the fire training center.

Low: A facility in low level ranking would have limited or no outdoor processing areas. Examples of these facilities would be libraries, parking decks, rec centers and fire stations.

During the July 1, 2023 to June 30, 2024, reporting period, the stormwater division did not inspect any city-owned facilities. However in July TZ Osbourne was inspected. All recommendations and improvements made at this facility were documented in the respective facility file.

Delete table

Municipal Operation	Rank
City of Greensboro White St. Landfill	H
Patton Avenue Service Center	H
Transfer Station	M
Fire Station #1	M
Greensboro Curb Farmers Market	M
Lake Townsend Water Treatment Plant	M

Maintenance and Inspections

The City of Greensboro Stormwater Maintenance Section, within the City's Field Operations Department, maintains open and closed stormwater infrastructure and drainage conveyance systems that carry public runoff within the MS4 service area. This section also performs stream maintenance activities and preventative maintenance on most public stormwater infrastructure.

The City's Stormwater Management Division identifies and inspects industrial and related facilities that may discharge stormwater into either the MS4 or receiving streams in Greensboro, and assists the local industrial community in the development and implementation of appropriate stormwater runoff controls.

In addition, the City has an ongoing litter pick-up program to clear trash and other floatables from roadways, which helps keep them out of the storm drainage system and surface waters.

Vehicular Operations

The City of Greensboro’s vehicular operation centers utilize the City’s hazardous waste program to recycle or dispose used oil, antifreeze, batteries, and spare parts and used chemicals. A new salt storage barn was constructed in fall 2002 as a BMP to prevent salt stormwater runoff from entering receiving streams.

Waste Disposal

Waste materials generated from the City’s day-to-day activities are managed according to local and state regulations and vendors utilized by Greensboro are audited to ensure environmental compliance. With the ongoing public education and awareness programs, the City will continue to facilitate staff meetings to inform staff of all new and related regulations/programs corresponding with the Municipal Pollution Prevention and Good Housekeeping Program.

Examples of Waste Disposal Programs include:

- Hazardous Waste Program
- Solid Waste Recycling
- Lead Disposal Program
- Oil Disposal Program
- Water Treatment Chemicals Disposal Program

Program to Monitor and Evaluate Storm Water Discharges to the Municipal System

The City of Greensboro has developed and implemented an industrial facilities inspection program during the first two permit terms. During the current permit term, the inspection program will be reviewed and revised to reflect current permit conditions. Industrial facilities subject to Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1985 (SARA), and industrial facilities that the City determines to be contributing or have the potential to contribute a substantial pollutant loading to the municipal separate storm sewer system will be inventoried and evaluated.

BMP Summary Table

BMPs for Monitoring and Evaluating Storm Water Discharges to the MS4		
BMP	Measurable Goals	Comments
Maintain Inventory of Industrial Sites	The City maintains an inventory of all NPDES permitted industrial facilities. The City will add additional facilities to list that meet the SARA Title III (Section 313) criteria or that contribute substantial pollutant loading to the MS4 system.	The City will update and revise list annually.

Inspection Program	The City has developed a formal inspection program for evaluating industrial facilities. This inspection program will be expanded to include any facility on the above stated list.	The City has an ongoing industrial inspection program with a goal of visiting all listed industrial facilities once per permit cycle. Annual training is conducted for City staff on specific inspection procedures and staff coordinates with NCDEQ on a regular basis to be trained on any issues or permit updates.
Establish and Implement Measures to Evaluate Commercial and Industrial Facilities discharging stormwater to the City's MS4	The City has developed the industrial facilities inspection program to evaluate those facilities on the above list and ensure all permit conditions are being met and discharges to the MS4 are not considered substantive.	The City has a strong working relationship with the NCDEQ regional office and county officials. The City's enforcement procedures are utilized when water quality violations are encountered and follow up actions are deemed necessary. NPDES permit deficiencies are addressed in written notification and are also forwarded to NCDEQ (agency with permitting authority).

During the reporting period (July 1, 2023 to June 30, 2024), a total of 6 NPDES permitted facilities were inspected by City staff. Of these 6 inspections, none were listed in the Toxic Release Inventory. The number of facility inspections varies from year to year, with some years having more inspections than others. This variation in facility inspections is due to a previous scheduling agreement between the City of Greensboro and NCDEQ to avoid overlapping inspections of NPDES permitted facilities.

Water Quality Assessment and Monitoring

The City of Greensboro has developed and implemented a comprehensive water quality monitoring and assessment program to evaluate the impacts on water quality.

BMP Summary Table

BMPs for Water Quality Assessment and Monitoring		
BMP	Measurable Goals	Comments
Water Quality Assessment and Monitoring Plan	A DRAFT City of Greensboro Water Quality Assessment and Monitoring Plan was submitted within 12 months of permit issuance as required by the NPDES permit.	Draft document was submitted to NCDEQ for comment and approval within 12 months of permit issuance as required.

Water Quality Monitoring	The City will implement the water quality assessment and monitoring plan in accordance with NCDEQ and the permit schedule.	The City implemented the submitted water quality monitoring plan January 1, 2009.
Revisions to the Water Quality Assessment and Monitoring Plan	The City will conduct an annual review, revise as appropriate, and submit any revisions to NCDEQ for approval.	The City will review and revise annually and coordinate with NCDEQ any proposed changes. The most recent revision occurred in the 2019-20 reporting cycle. This revised plan was submitted with the 2019-2020 annual report.

Total Maximum Daily Load (TMDL)

The City of Greensboro has an EPA and NCDEQ approved TMDL for Fecal Coliform bacteria for North Buffalo Creek. The permittee will utilize BMPs within the six minimum measures to address the permittee’s assigned NPDES regulated stormwater waste load allocation (WLA) identified in the approved TMDL to the maximum extent practicable and to the extent authorized by law. Resolute efforts are being made to determine the most efficient best management practices that address the MS4 NPDES regulated Waste Load Allocation identified in the TMDL. Current efforts are continually re-evaluated and adapted as needed. More importantly, new ideas are continuously shared and assessed, with the ultimate goal of improving and protecting water quality.

An assessment of available data, BMP strategies, and TMDL Watershed Plan effectiveness will be conducted and utilized to define the appropriate progress and schedule of the watershed plan within the context of the Maximum Extent Practical (MEP) standard. Activities conducted throughout the program implementation schedule to address the MS4 NPDES regulated waste load allocation (WLA) identified in the TMDL will be evaluated and defined as to the collective contribution to the watershed plan. The results of the analysis will be utilized to prioritize local funding aimed at elimination of the most significant portion of the MS4 waste load allocation for the least resources.

BMP Summary Table

BMPs for Total Maximum Daily Load		
BMP	Measurable Goals	Comments
(A) Identify, describe and map watershed, outfalls, and streams	Within 12 months the permittee shall prepare a plan that: <ul style="list-style-type: none"> • Identifies the watershed(s) subject to an approved TMDL with an approved Waste Load Allocation (WLAs) assigned to the permittee; and • Includes a description of the watershed(s); and • Includes a map of the watershed(s) showing streams & outfalls; and 	Description, maps, and outfall information is noted in BMP Narratives following this table.

	<ul style="list-style-type: none"> Identifies the locations of currently known major outfalls within its corporate limits with the potential of contributing to the cause(s) of the impairment to the impaired segments, to their tributaries, and to segments and tributaries within the watershed contributing to the impaired segments; and Includes a schedule (not to exceed 6 months) to discover and locate other unknown major outfalls within its corporate limits that may be contributing to the cause of the impairment to the impaired stream segments, to their 	
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BMP Summary Table – *Continued*

	tributaries within the watershed contributing to the impaired segments.	
(B) Evaluate existing measures	<p>Within 12 months the Permittee’s plan:</p> <ul style="list-style-type: none"> Shall describe existing measures being implemented by the Permittee designed to achieve the <u>MS4’s NPDES WLA</u> and to reduce the TMDL pollutant of concern to the MEP within the watershed to which the TMDL applies; and Provide an explanation as to how those measures are designed to reduce the TMDL pollutant of concern. The Permittee shall continue to implement the existing measures until notified by NCDEQ. 	Measures include education, sampling, investigating pollution concerns, industrial inspections, etc. See information in BMP Narratives following this table for a more complete list and descriptions.
C) Assessment of available monitoring data	Within 24 months the permittee’s plan shall include an assessment of available monitoring data. Where long-term data is available, this assessment should include an analysis of the data to show trends.	An assessment of the programmatic management measures, existing TMDL data, relevant watershed data, monitoring data, etc., is performed periodically. An assessment of activities conducted under the TMDL plan will be performed to evaluate the overall effectiveness of the watershed plan and make any adjustments deemed necessary. The assessment will be used, where possible, to

		evaluate the performance of existing BMPs and identify additional BMP strategies as necessary.
(D) Monitoring Plan	Within 24 months the permittee shall develop a Monitoring Plan for the permittee's assigned NPDES regulated WLA as specified in the TMDL. The permittee shall maintain and implement the Monitoring Plan as additional outfalls are identified and as accumulating data may suggest. Following any review and comment by the Division the permittee shall incorporate any necessary changes to monitoring plan and initiate the plan within	The monitoring plan for the TMDL Watershed Plan includes current monitoring programs and procedures that will be updated as necessary to achieve the City's waste load allocation (WLA) and reduce the pollutant of concern (POC) to the maximum extent possible.

BMP Summary Table – *Continued*

	6 months. Modifications to the monitoring plan shall be approved by the Division. Upon request, the requirement to develop a Monitoring Plan may be waived by the Division if the existing and proposed measures are determined to be adequate to achieve the MS4's NPDES WLA to MEP within the watershed to which the TMDL applies.	
(E) Additional Measures	<p>Within 24 months the permittee's plan shall:</p> <ul style="list-style-type: none"> Describe additional measures to be implemented by the permittee designed to achieve the permittee's MS4's NPDES WLA and to reduce the TMDL pollutant of concern to the MEP within the watershed to which the TMDL applies; and <p>Provide an explanation as to how those measures are designed to achieve the permittee's MS4's NPDES regulated WLA to the MEP within the watershed to which the TMDL applies.</p>	Measures include the FOG Program, sanitary sewer rehabilitation, pet waste stations, and the use of new technology, and the SSO Reduction Committee. See information in BMP Narratives following this table.
(F) Implementation Plan	<p>Within 48 months the permittee's plan shall:</p> <ul style="list-style-type: none"> Describe the measures to be implemented within the remainder of the permit term designed to achieve the MS4's NPDES WLA and to reduce the TMDL pollutant of concern to the MEP; and 	Current BMPs will continue to be implemented to achieve the Waste Load Allocation to reduce the pollutant of concern to the MEP. This includes existing BMPs and the

	<ul style="list-style-type: none"> Identify a schedule, subject to Division approval, for completing the activities. Implement the permittee's TMDL plan 	exploration of additional opportunities.
(G) Incremental Success	The permittee's plan must outline ways to track progress and report successes designed to achieve the MS4's NPDES regulated WLA and to reduce the TMDL pollutant of concern to MEP within the watershed to which the TMDL applies.	The TMDL plan describes ways to track and report successes based on the TMDL BMPs and goals designed to achieve the Waste Load Allocation to reduce the pollutant of concern to the MEP.

BMP Summary Table – Continued

(H) Reporting	The permittee shall conduct and submit to the Division an annual assessment of the program designed to achieve the MS4's NPDES WLA and to reduce the TMDL pollutant of concern to the MEP within the watershed to which the TMDL applies. Any monitoring data and information generated from the previous year are to be submitted with each annual report.	Following the schedule per the permit, the TMDL watershed plan addresses and reports on the TMDL program.
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BMP Narratives

1) Identify, Describe and Map Watershed, Outfalls, and Streams (A)

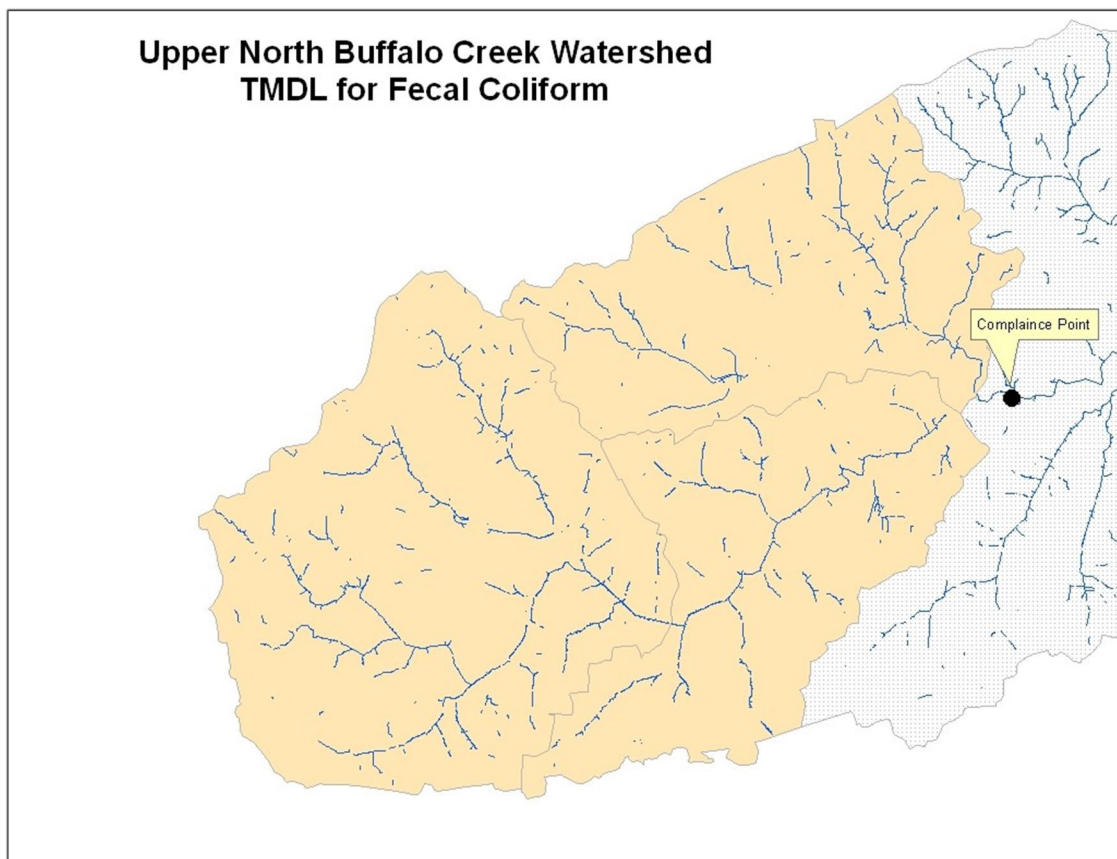
Watershed Description

The North Buffalo Creek watershed is located in Greensboro, North Carolina (Guilford County), and is in the headwaters of the Cape Fear River Basin. The eastern flowing stream eventually feeds into the Haw River. The watershed is represented by small floodplain streams that have some bedrock outcroppings and are surrounded by gently sloping uplands. North Buffalo Creek's headwaters lie entirely within urbanized areas (commercial, industrial, and residential with high impervious area) in the city of Greensboro (population ~301,115).

As outlined in the City's TMDL Watershed Plan, the compliance point for Upper North Buffalo Creek TMDL is located where Summit Avenue crosses over North Buffalo Creek. The drainage area from the headwaters to this compliance point is 21.8 mi² and incorporates 8.7 miles of stream. The area is generally

deemed as built out, in that no major future land use changes are predicted. The area is 38% residential, 15% right-of-ways, and 20% forest. Impervious surface constitutes >26% of the watershed. In January of 2009, the City started collecting water quality samples at the compliance point on a monthly basis. Samples are analyzed for both physical and analytical parameters.

Drainage Area: Headwaters to TMDL Compliance Point



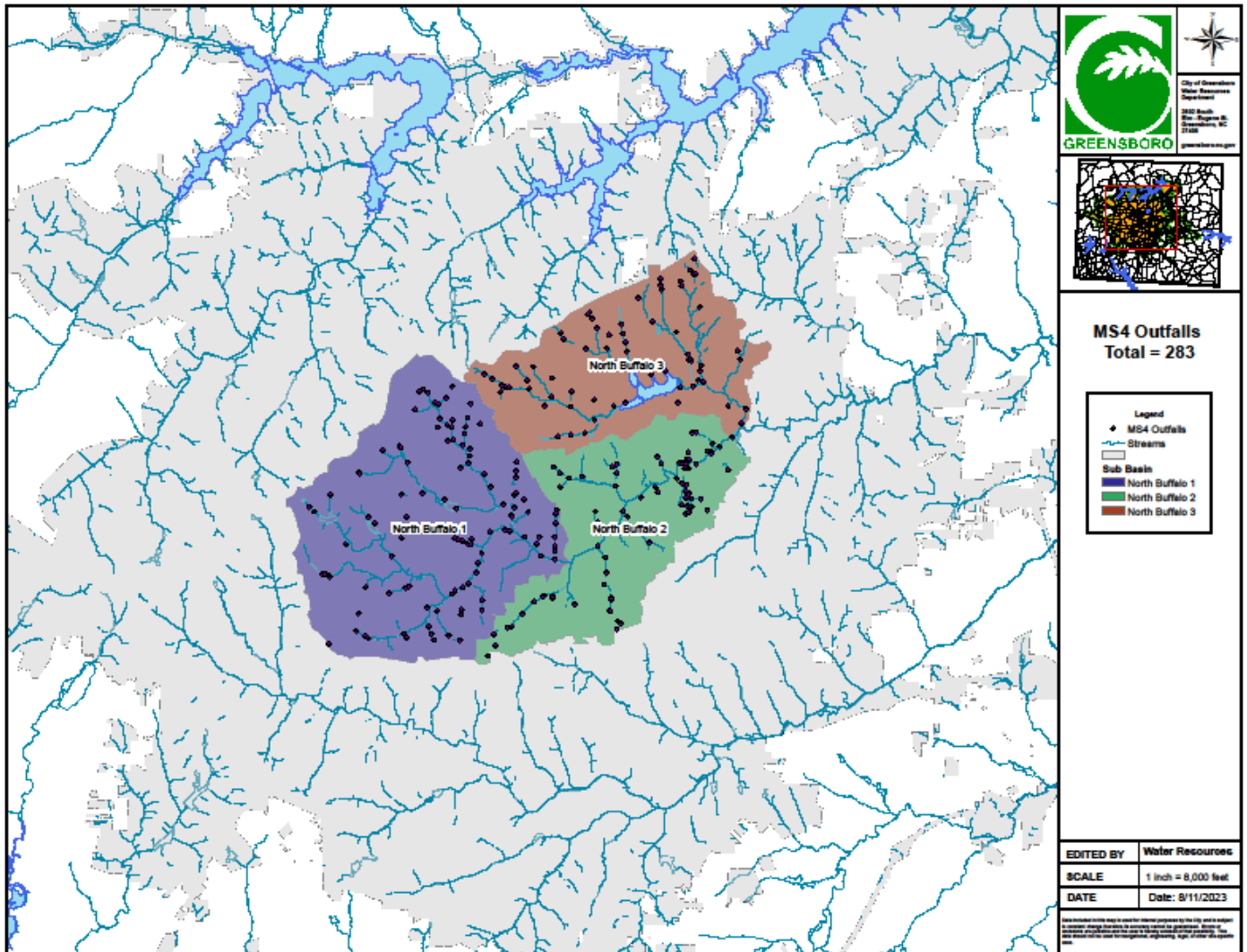
Outfall Locations

MS4 outfalls have been determined through GIS and the City’s ongoing stormwater inventory process. See map below for outfall locations within the TMDL watershed.

Schedule for Locating New Outfalls

Unknown major NPDES outfalls will be identified utilizing the ongoing stormwater inventory procedures through subsequent QAQC checks of various sub basins, ongoing collection efforts involved with new development, and updates due to drainage system repairs and maintenance. Any new outfalls and/or newly identified outfalls will be recorded and mapped on a routine basis.

NPDES Outfalls in TMDL Drainage Area



2) Existing Measures (B)

Outfall Screening

NPDES outfalls are investigated/screened on a routine basis to determine illicit discharges or improper disposals. Locations are determined based on random selection and areas that have not been done before. Any noted concerns are investigated further, which may include tracking, obtaining readings for physical parameters, and/or taking samples to be analyzed in the field or by the contracted lab.

Education

The following are examples of TMDL/pollution education and outreach:

- Engaging citizens with the Drain Marker and Adopt-a-Stream programs, pet waste stations, etc., to encourage personal involvement
- Assisting local universities with stream clean-up events

- Partnering with communities and organizations to use media for a broad-scale approach to pollution education and prevention
- Educating citizens about TMDLs via the City’s website (social media, city newsletter, tabling events, etc.)
- Creating and updating education/outreach materials, such as new drain markers reminding dog owners to “scoop the poop.”

Small-Quantity Polluters Program

As well as general education, specific business types in the community are identified and educated regarding housekeeping practices and proper waste disposal. This Pollution Prevention Program entails water quality staff to educate businesses that are common polluters, such as painters, landscapers, ready-mix concrete companies, auto repair shops, mobile washers, restaurants, directional drillers, etc. This ongoing prevention program is highly regarded and has been determined to be a worthwhile endeavor in keeping pollution from streams and other water sources.

Fixed Interval Sampling

Monthly sampling and assessments are performed, including the analysis of results and the need for outfall follow-ups; this includes a sampling site at the compliance point in addition to three other monitoring sites in the TMDL watershed. When data suggests an elevated level of fecal coliform, increased follow-up sampling and investigations take place to determine the potential source.

Sanitary Sewer Overflow (SSO) Prevention

Ongoing evaluation of citywide SSOs is being used to direct resources for maintenance and rehabilitation of sanitary sewer lines in the TMDL watershed in an effort to prevent overflows and exfiltration.

Field Observations

Issues discovered by staff through inventory collections, outfall screenings, etc., and water quality staff address potential issues.

Public Concerns/Reports

Reports are followed up by investigating, tracking, resolving, and enforcing violations when applicable. Over the past reporting year, 144 calls were investigated throughout the city. Of those calls, 17 (24%) were in the TMDL watershed and 22 (15.2%) were in the TMDL watershed upstream of the compliance point. This high percentage may be a result of additional outreach efforts in that area.

Industrial Inspection Program

NPDES permitted facilities and TRI facilities are inspected, focusing on a review of the Stormwater Prevention Pollution Plan, spill prevention and response procedures, employee training, housekeeping practices, and outfall monitoring.

3) Additional Measures (E)

Current and Upcoming City Projects

Various projects are taking place throughout the TMDL watershed in an effort to address water quantity and water quality issues. These include stream restoration along the tributary that runs next to the Downtown Greenway, and the Fairview Street Dam Rehabilitation project. Additionally, ongoing stream maintenance continues in Latham Park.

Fats, Oils, and Grease (FOG) Program

This ongoing program seeks to reduce the number of SSOs due to issues caused by oil and grease. New approaches and technology, such as SwiftComply software, are continuously evaluated and implemented where applicable. In addition, two full-time staff positions have been added to support this program, increasing staff in this section from one to three.

North Buffalo Master Watershed Planning

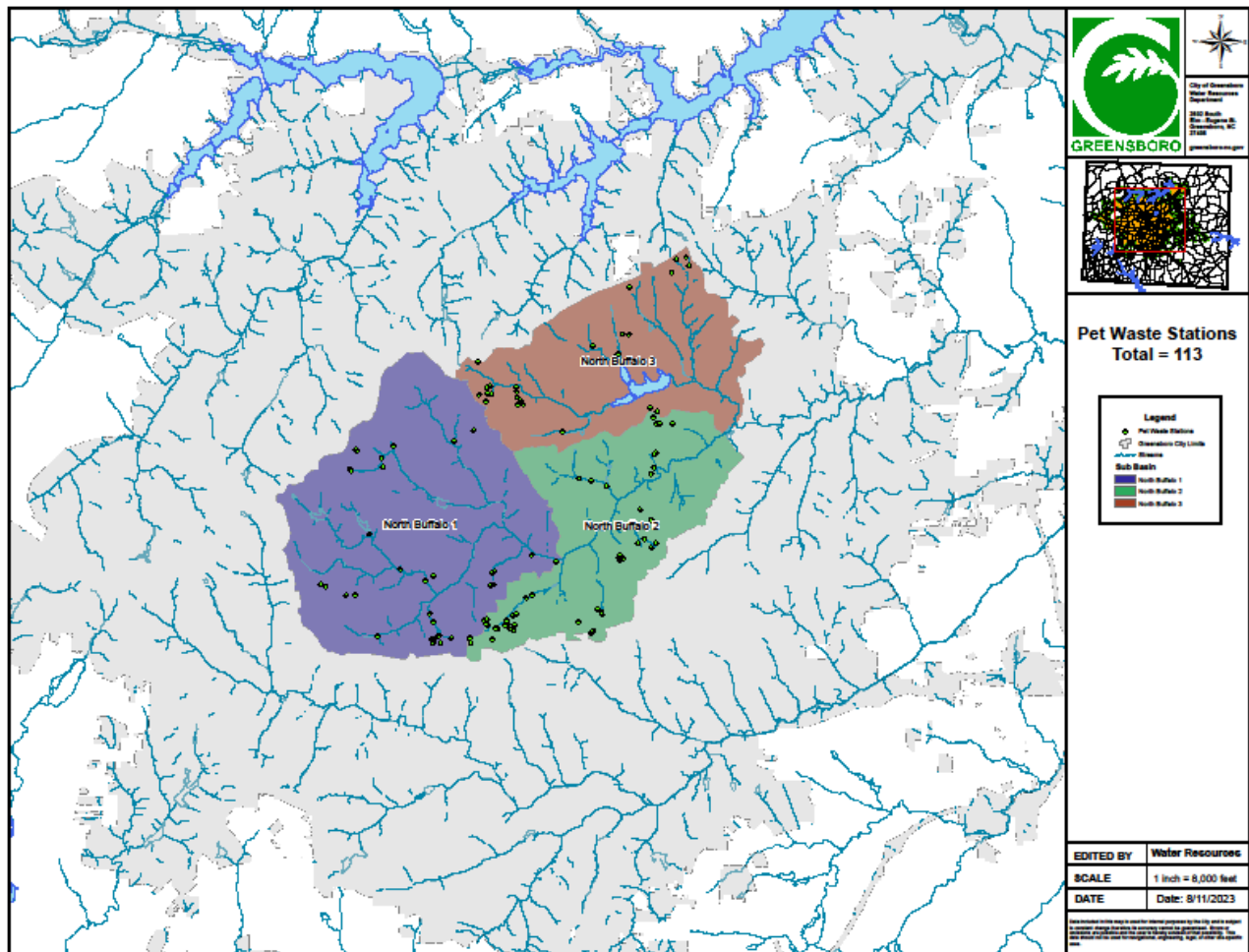
The City of Greensboro hired a consultant to conduct watershed master planning efforts for the North Buffalo Creek watershed. The main goal of this effort is to identify areas across the watershed that are prone to flooding, either due to stormwater infrastructure constraints or increased development upstream. As flooding can result in sanitary sewer issues, investigating drainage solutions can have a direct effect on reducing fecal coliform entering surface waters. In addition, stream walks have been increased in this area to discover water quality issues that need to be addressed. The North Buffalo Creek Master Plan is still being developed.

Sanitary Sewer Rehabilitation

During the reporting year, nearly 500 linear feet of sewer underwent rehabilitation in the North Buffalo watershed up to the compliance point.

Pet Waste Stations

Pet waste stations in the TMDL watershed have been mapped, including both private stations and those maintained by the City of Greensboro. Within this watershed, there are approximately 113 documented pet waste stations (84 private, 29 city maintained).



New Technology

New technology is always being assessed in an effort to be proactive regarding the City's wastewater collection system. Acoustical testing and assessment tools (such as SL-RAT—Sewer Line Rapid Assessment Tool), could help reduce the number of SSOs, therefore reducing the WLA for the POC. The Operations Division continually explores new and updated equipment to prevent SSOs and to investigate or repair sewer lines. In addition, inflatable plugs are being used when applicable, helping prevent overflows from entering surface waters.

Threatened or Endangered Species Protection Program

The City of Greensboro currently does not have any federally listed aquatic animal species that are listed as threatened or endangered by the U.S. Fish and Wildlife Service or the National Marine Fisheries Service under the provisions of the Endangered Species Act.

For more information on the City of Greensboro's NPDES MS4 Discharge Permit and associated Stormwater Quality Management Program Plan, please visit the Stormwater website at:

www.greensboro-nc.gov/stormwater