ANNUAL REPORT

STORMWATER MANAGEMENT ADVISORY COMMISSION

FY 2025

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SUMMARY OF REPORT

The Fiscal Year (FY) 2025 Stormwater Management Advisory Commission (SMAC) Annual Report provides a synopsis of SMAC and Raleigh Stormwater's efforts from July 1, 2024, to June 30, 2025.

MISSION AND VISION STATEMENTS

SMAC Mission Statement

Support and advise the City's Stormwater Management Program in managing stormwater to preserve and protect life, support healthy natural resources, and complement sustainable growth for the community.

Stormwater Vision Statement

Support and advise the City's Stormwater Management Program in achieving the "Smartest" Stormwater Program possible to economically and fairly achieve its Mission.

STORMWATER INFRASTRUCTURE PROJECTS

Stormwater Capital Improvement Projects (CIP) include a five-year projection of projects to address the highest priority project needs in the City. Stormwater staff develop the CIP with input from SMAC, which is then presented and approved by City Council. CIP projects protect public safety, mitigate flooding, improve water quality, restore aging infrastructure, and improve stormwater system performance. CIP projects include upgrades, repairs, replacements and improvements to stormwater pipes, culverts, dams, bridges, streams, and stormwater control measures, like green stormwater infrastructure. The following section highlights the Stormwater CIP projects developed or installed during FY 2025.

Infrastructure Highlights

Glenbrook Drive and Dacian Road Stormwater Improvements

The pipes located on Glenbrook Drive and Dacian Road are undersized and contributing to street, yard, and structural flooding, and sink holes by nearby homes. The City acquired and demolished two homes that will eliminate repetitive flooding issues. Design and permitting for this project were completed in Winter 2024. Construction started in March 2025 and will be completed in January 2026 with a total cost of **$2.7 million.**

Construction at Glenbrook Dr and Dacian Rd

Sink Hole Covered on Creston Road

Glenwood Creston Drainage Project

Metal pipes between Glenwood Avenue, Creston Road, and Woodland Avenue are failing, deteriorating, and causing sink holes in both the City right-of-way and private backyards. Structurally sound pipes will be lined and failing pipes will be replaced. The City acquired and will demolish a home on Glenwood Avenue that has a large sink hole near its foundation. Design plans, permitting, and easement acquisition were completed in in FY 2025 and construction is anticipated to begin July 2025 with a total cost of **$4.5 million.**

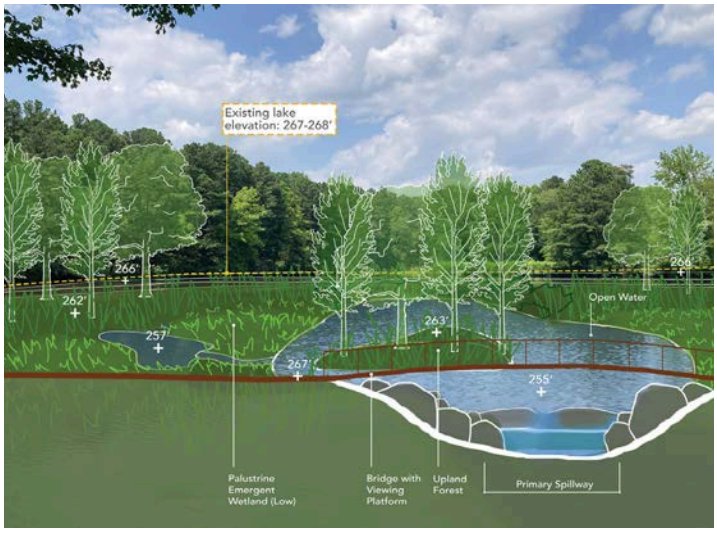
Western North Ridge Stormwater Improvements

The Western North Ridge Stormwater Improvements project was developed to mitigate structural, roadway and yard flooding in a series of neighborhoods that are serviced by Tanbark Way, Pine Bark Court, Harps Mill Road, and Grist Mill Road. The project includes stream restoration improvements to an open channel that was previously unstable and in need of stabilization. Construction was completed in April 2025 with a total construction cost of **$5.2 million.** The project is currently in its warranty period which ends in April 2026.

Western North Ridge Stormwater Completed Project

Wetland Conversion of Upper Durant Lake

NC State Department of Biological and Agricultural Engineering and NC Sea Grant assessed, developed, and ranked alternatives for the Upper Lake at Durant Nature Preserve. Converting the Upper Lake to a wetland system was selected as the project with the most sustainable, educational, recreational, and maintenance benefits. Stormwater staff collaborated with Raleigh Parks and its engineering consultant in the development of the Phase 1 study which was completed in October 2024 with design and permitting projected to be completed December 2026. Construction is anticipated to start early 2027 and last 14 months and with an inspection and construction cost of **$5.7 million.**



Upper Durant Lake Proposed Design

Rose Lane Street Flooding

Rose Lane Safe Access Flood Resilience Project

Rose Lane routinely overtops as floodwaters of Walnut Creek flow high enough and prevents cars from entering or leaving the Rosalynn Place and Maplewood Forest subdivisions with over 50 homes and 30 homes located in and near the upstream floodplain of Walnut Creek. Six alternatives were identified, and staff are collaborating with Raleigh Transportation to determine the best alternative that helps property access and viability. Staff are working with Wake County Public School System to find the best route through their property to minimize impacts. The cost for construction and timeline will not be decided until the recommended alternative receives approval from the various stakeholders.

Camp Pond and Eastgate Dam Reconstruction

Camp Pond Dam and Eastgate Lake Dam reconstruction projects are being designed to bring the dams into compliance with NC Dam Safety requirements. In June 2025, NC Dam Safety revised their design criteria to better reflect the size of the watershed contributing flow to the dam. As a result, both projects are being revised which will reduce overall project costs. Camp Pond Dam is anticipated to start construction in Fall 2026 and Eastgate Lake Dam is projected to start construction in Spring 2027.

Camp Pond Dam Current Conditions

Alamance Drive Drainage Improvment Project

This project will address structural and roadway flooding currently experienced on Alamance Drive and Alleghany Drive by replacing a failing metal pipe located in the central portions of the drainage system along Forsyth Drive. The existing private drainage pipe on Alamance Drive has inadequate capacity for even moderate rainfall events and structural flooding occurs often at this location. The project is currently in design phase with easements, inspection, and estimated construction to cost **$5.1 million.** Design is projected be completed in December 2025 with construction starting in Spring 2026.

Alamance Drive Pipe

Alleghany Drive Flooding

Emergency Repair Projects

In FY 2025, three emergency repair projects were executed in response to sink holes forming at roadway culverts or adjacent to structures where the City owned a permanent drainage easement. These projects involved a large internal and external team collaborating to develop design plans and constructing repairs on an accelerated schedule. The **Park Drive Emergency Repair Project** was completed in October 2024 for a total design and construction cost of **$498,000.** **North Boundary Street Emergency Repair Project** was completed in February 2025 for a total design, easement acquisition and construction cost of **$1,546,000.** Design for the **Dunbar Road Emergency Repair Project** is currently being developed while the contractor is ordering materials and getting ready to mobilize.

Park Drive Repair

North Boundary Repair

DRAINAGE ASSISTANCE PROGRAM

The **Drainage Assistance Program** is a voluntary program that assists private residents with flooding and erosion on their property. To qualify for the program, participants must own property in the city, receive runoff from public right-of-way or public property, and be willing to donate a drainage easement to the City. In FY 2025 the Drainage Assistance had roughly $1 million in funds utilized on beneficial infrastructure projects.

Drainage Assistance Highlights

In FY 2025, five Drainage Assistance projects were completed.

- Dresden Lane
- Hunting Ridge Road
- Northbrook Drive
- Courtland Drive
- Columbia Drive

Old English Court and Royal Street went out for construction bids in FY 2025.

Stormwater staff are nearing the completion of revised Drainage Assistance and Stream Stabilization policies which will be taken before SMAC FY 2026.

Drainage Assistance Projects Under Design

Currently, there are **24** Drainage Assistance projects in various stages of the design phase, from going out to bid in the next few months, to earlier stages that include the consultant engineer in the early stages of the design phase. Their total estimated cost is **$6.0 million.**

Dresden Lane Replaced Pipe

Hunting Ridge Stream Repair

Northbrook Drive Stream Repair

STREAM STABILIZATION PROGRAM

The **Stream Stabilization Program** assists private residents with stream erosion that is not an immediate threat to a structure and improves water quality throughout the city. The Stream Stabilization Program provides funding to projects that would not be ranked highly by the Drainage Assistance Program.

Stream Stabilization Highlights

Stream Stabilization Projects

The Stream Stabilization Program has $500,000 in annual funding for moderate to severe stream erosion projects. In FY 2025, SMAC approved three projects totaling an estimated cost of **$780,000.** A revised approach to budgeting Stream Stabilization and subsequently Drainage Assistance projects was implemented in FY 2025. Design budgets will be allocated for the fiscal year that SMAC is reviewing the recommended projects. Construction funds will be allocated in future fiscal years. This allows for a greater accuracy in allocation of funds as construction funds are not encumbered in the fiscal year that they are approved by SMAC.

Mayview Road Erosion

Buffer Builder Bag Program

The program also established the Buffer Builder Bag (B3) Program which provides property owners with free native shrub and tree seedlings to help improve or create a streamside buffer on their property. This year, approximately **2,140** live stakes were installed throughout city properties. Residents received **440** plants to install on their properties.

Stream Bank Repair Workshops and Small-Scale Stream Repairs

Staff hosted three stream bank repair workshops on private and public properties. These workshops include partnering with NC State University and teaches residents cost-effective stream protection practices, using natural materials and native plants. This year the programs stabilized approximately **740** feet of stream on public and private properties.

Small-Scale Stream Repair

WATER QUALITY INITIATIVES

Raleigh Stormwater established a variety of programs, policies, and initiatives to improve and sustain water quality across the city. By meeting and exceeding regulatory water quality requirements, incorporating green stormwater infrastructure (GSI) in public and private properties, and investing in stream restoration and repair projects, the city can benefit from improved water quality and environmental health.

Water Quality Improvement Projects

Dix Park Gipson Play Plaza

Raleigh Stormwater collaborated with multiple City teams to support above-and-beyond GSI at Dorothea Dix Park's Gipson Play Plaza. Innovative GSI features included a stormwater wetland conveyance system, permeable gravel parking lot and plaza areas, and bioretention and bioswales. More than **$600,000** in supplemental funding for these features were provided by Raleigh Stormwater with coordinated long-term inter-departmental maintenance.

Gipson Play Plaza

East Civic Tower – City Hall GSI

Raleigh's new City Hall is currently under construction and, in partnership and with funding from Raleigh Stormwater, will include green roof features and suspended pavement with trees to manage and clean stormwater runoff beyond what is required by regulation. Construction is anticipated through 2026.

Durant Stream Repair Rendering

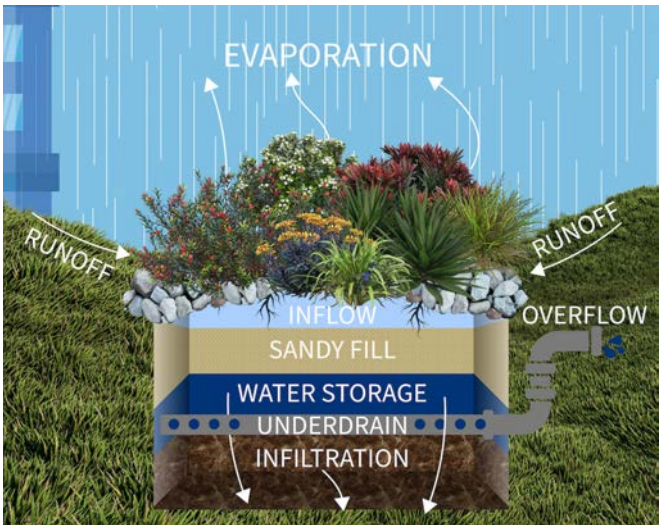
Durant Nature Preserve Stream and Stormwater Improvements

Detailed design is completed for restoration of the detention pond and stream at Durant Nature Preserve. The detention pond will be transformed into a wet pond, and the stream restoration will protect Lower Durant Lake from erosion. These improvements will reduce erosion, improve stream healthy and water quality, reduce sediment going to the lower lake, and improve safety for park users. Construction began in June 2025 and should take approximately seven months.

Worthdale Park Stream Restoration and Stormwater Improvement Project (ARPA-funded)

The final design of the approximately 2,000 linear feet of stream restoration and enhancement was completed in July 2024, with the project awarded to a construction firm in November 2024. Construction will begin in September 2025 and last approximately 6 months. The construction phase for this project is funded by American Rescue Plan Act (ARPA) Funding.

Worthdale Park Stream Rendering



Lions Park Bloswale Rendering

Lions Park GSI Retrofits Project (ARPA-funded)

The construction of the Lions Park GSI retrofit projects, including a gravel wetland and bioswale, began in June 2025. Once constructed, the GSI retrofits will help treat stormwater runoff from impervious areas in the park (such as parking lots, sidewalks and roofs), increase wildlife habitat using native plant species, and reduce the amount of pollution that reaches Bridges Branch. Raleigh Stormwater is also partnering with Raleigh Arts to install a water-quality related mural at the Lions Park community center.

North Carolina Museum of Art (NCMA) Stream Restoration

Raleigh Stormwater contributed $300,000 in funding to supplement the design and construction of 2,500LF of stream restoration at NCMA's Ann and Jim Goodnight Museum Park to improve water quality in House Creek watershed. In addition, the project and its educational signage will provide water quality and stormwater education at the park, which receives approximately 700,000 visitors each year, as well as opportunities for collaborative outreach and engagement. Construction is anticipated to be completed in July 2025 with additional planting in the Fall.

NCMA Stream Restoration

NPDES MS4 Permit Compliance

Raleigh Stormwater continues to meet and exceed the City's National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) permit requirements. This permit and corresponding **Stormwater Management Plan (SWMP)** aims to protect water quality by preventing polluted stormwater runoff from discharging to Raleigh waterways. This past year, in addition to maintaining program activities required by the permit, staff completed a program self-audit, reviewed the SWMP, and continues to negotiate new permit language for the next 5-year permit cycle. Staff anticipates receiving the final permit from North Carolina Department of Environmental Quality (NCDEQ) in the coming months, after which the Commission will have an opportunity to review the new permit and updated SWMP.

The MS4 permit requires the City to implement the following best management practices and programs to improve water quality:

- **Public Education and Outreach -** Raise awareness and educate the public on stormwater pollution causes, impacts, and prevention steps. Staff have supported nearly **100 outreach efforts** over the past fiscal year. The Capture It Stormwater Art and Video contest received **67 entries** from over **90 students.** Staff and SMAC voted to select the category winners who were awarded by the SMAC Chair at the City's Earth Day event.
- **Public Involvement and Participation -** Encourage public engagement in stormwater program development and comply with public notice laws. Across volunteer programs (storm drain marking, stream cleanups, and stream monitoring), over **1,500 volunteers** contributed about **3,106 community service hours** and cleaned up an estimated **29,986 lbs of trash.**
- **Illicit Discharge Detection and Elimination (IDDE) -** Detect, remove, and prevent illicit discharges, maintain outfall mapping, and educate the public and staff. Nearly **120 illicit discharge investigations** were conducted over the last 12 months.
- **Construction Site Runoff Controls -** Reduce stormwater pollution from land-disturbing construction with plan review, inspections, and erosion controls.
- **Post-Construction Site Runoff Controls -** Require long-term BMPs and maintenance plans for stormwater controls on developed sites within the City and and its development review jurisdiction.

Capture It! Arts Contest Winners

Worthdale Park Stream Cleanup

- **Pollution Prevention and Good Housekeeping for Municipal Operations -** Reduce pollution from municipal operations through preventive practices and staff training. Over Fifty City facilities have been inspected by WQ staff during this last fiscal year.
- **Program to Monitor and Evaluate Stormwater Discharges to Municipal Systems –** Monitor and control stormwater discharges from high-risk industrial and hazardous waste facilities. Staff have conduced nearly 60 industrial facility inspections within the City of Raleigh and directly coordinated with NCDEQ staff to resolve compliance issues.
- **Water Quality Assessment and Monitoring -** Implement a plan to assess and monitor MS4 impacts on water quality. Four water quality sampling events were successfully completed over the last calendar year, with support and coordination with Raleigh Water laboratory services.
- **Total Maximum Daily Loads (TMDLs) -** Target pollutants of concern in TMDL-listed streams through tailored stormwater practices. Staff have implemented 2 new TMDL plans in designated watersheds this last fiscal year.

Green Stormwater Infrastructure (GSI) in Raleigh

In July 2021, City Council endorsed the **GSI Action Plan** developed by SMAC and Stormwater staff, and in FY 2025, work on each action is described below.

1. Lead by Example

- Stormwater staff tracked more than 60 City projects to identify possible GSI opportunities and part of the implementation of the GSI Evaluation Policy. A total of 23 projects completed their GSI Evaluations; of these, 13 projects will include GSI.
- Agreements are in development for several additional above-and-beyond GSI projects led by other departments and funded by Raleigh Stormwater.
- Stormwater staff led GSI Tours for the Walnut Creek Watershed Learning Network.
- Staff had discussions with Wake County Public Schools staff to share opportunities for Raleigh Stormwater to help support the design, construction, and maintenance of above-and-beyond GSI on school grounds within Raleigh.
- Raleigh will host the Green Infrastructure Leadership Exchange Annual meeting in May 2026
- In FY26, the first phase of GSI Master Planning is anticipated to begin to identify drivers, goals, priorities, and metrics by which to measure the City's progress in advancing GSI throughout Raleigh.
- A new **GSI visual monitoring station** was installed at Wooten Meadow Park and a new **virtual GSI tour** developed.

2. Support and Incentivize Private Developers

- Updated GSI details were incorporated with the Stormwater Standard Details and publicized to the design community.
- The Stormwater Design Manual incorporated language to encourage and support GSI in private development.

3. Include GSI in Rezoning Decisions

4. Include GSI in City's Planning Reports

Stormwater staff met with planning staff regarding incorporating GSI into the Comprehensive Plan.

5. Propose Regulation Changes to Support GSI

- Council supported staff action to develop a process for allowing private GSI in the ROW.
- Council supported staff action to develop reimbursement tables that will make use of the GSI Reimbursement option in the UDO.

6. Build a Program for Maintaining City-owned GSI

- Raleigh Stormwater launched the GSI maintenance crew in its FY25 budget

Raleigh Rainwater Rewards Highlights

SMAC authorized **Raleigh Rainwater Rewards** projects under the Stormwater Quality Cost Share Policy. The policy supports water quality projects that are a shared cost between program participants and the City. Over the last five years, 173 projects were approved (82 by SMAC, 3 by City Council, and 88 by Stormwater staff). In FY 2025, 35 projects were approved totaling approximately $567,961 in cost share assistance to property owners.

A notable project approval during this last fiscal year included a bioretention and large cistern system at the Food Bank of Central & Eastern North Carolina. This project will treat nearly 2.85 acres of impervious surface runoff in the Pigeon House Branch watershed. SMAC also approved a large project in Cameron Village that will incorporate 8 rain gardens and 5 cisterns in community spaces throughout the multi-unit residential property.

Gateway Plaza Phase II was completed during this last fiscal year, with 10 cisterns installed to capture nearly 900,000 gallons of stormwater runoff each year. Raleigh Rainwater Rewards also saw the successful completion of two large rain gardens at the Parkside Condominium community located off Washington Street which treats nearly ¼ acre of impervious roof runoff.

Gateway Plaza Cisterns

Parkside Condominium Rain Garden

Raleigh Rainwater Rewards Highlights

Raleigh Rainwater Rewards continues to offer a **100% cost share option** for low-income property owners, rental properties that provide affordable housing, and non-profits that serve the community. Staff coordination with Office of Sustainability has resulted in the securing of additional Climate Action Funding that will continue this 100% funding program into the future.

To assist with these efforts, the City has partnered with Urban Sustainable Solutions (USS) to stand up the Rain Garden Apprenticeship Program in Raleigh. This educates both teachers and students on stormwater management and culminates with a project installation with Raleigh Rainwater Rewards funding support. The City has also partnered with Rainplan, Inc., which will provide zero interest gap funding for applicants who deem the initial construction costs and applicant's cost share as a hurdle for participation. These efforts will allow the Raleigh Rainwater Rewards program to continue to support projects in potentially underserved communities within the City of Raleigh.

GSI Maintenance at USS Workshop

COMMUNITY AND SOCIAL IMPACT

Raleigh Stormwater and SMAC are committed to engaging in activities that further the City of Raleigh's efforts of creating a prosperous, welcoming, and economically thriving community through stormwater services, operations, public engagement, CIP project prioritization, and budgeting. The objective is to economically and equitably achieve the mission and vision of stormwater management.

Highlights

Stormwater continued to work with partners and consultants to advance Stormwater's operational community and social impact work. This project provided detailed analysis and review of stormwater's communications and outreach strategies, project prioritization, utility fee crediting, and human resources activities.

Stormwater has continued implementation of the $3 million received from the City's allocation of American Rescue Plan Act (ARPA) funding to implement priority projects in areas of Raleigh that are disproportionately impacted. SMAC will remain actively involved with Stormwater's ARPA-funded projects as they move forward towards completion over the next several years.

SMAC and Stormwater staff partner with diverse organizations and City of Raleigh departments, such as the Department of Economic & Social Advancement; the Office of Sustainability; Parks, Recreation and Cultural Resources; and Office of Strategy and Innovation, to advance fair environmental resource distribution, community resilience, and sustainability.

SMAC and Stormwater staff continue to partner with and support the City's goals for community- wide engagement. Stormwater remain committed to be leader in community and for goals of Raleigh's City Council and leadership teams. Looking towards FY 2026, SMAC and staff are looking forward to the continued work and direction to furthers the City's initiatives and strategies.

Marsh Creek Watershed Study Public Meeting

STORMWATER UTILITY FEE

The **Stormwater Utility Fee** provides revenue to implement stormwater's mission and vision, which protects people, property, and local waterways by reducing hazardous flooding, preventing erosion, and preventing pollution from entering streams and rivers.

Stormwater Utility Fee Highlights

SMAC reviewed stormwater fee rate options for FY2026 to present to Raleigh City Council for approval. The fee was changed from an average residential monthly fee of **$7.65 in FY 2025** to **$8.22 for FY 2026** effective July 2025. This rate adjustment helps Stormwater provide a high level of service During FY 2026, Stormwater plans to incorporate debt financing to advance and accelerate the CIP.

Under the new utility fee rate, the stormwater budget for FY 2026 grows to approximately **$42 million**, with more than $20 million available for upcoming CIP with support from debt financing. Stormwater regularly benchmarks its fee to other municipal programs and provides high service levels for a competitive rate compared to our peers. SMAC received and provided input on the program budget and the proposed fee rate adjustment that was ultimately approved by City Council.

FLOOD EARLY WARNING SYSTEM

The **Flood Early Warning System** (FEWS) allows stormwater staff to proactively monitor flooding citywide through stream and rain gauges, street cameras, and prediction models.

Flood Early Warning System Highlights

SMAC members continued to support staff in enhancing the City's storm and flood monitoring efforts, which includes which includes plans to develop a public-facing a public facing flood monitoring website; adding stream and rain gauges for Hydrometeorology Gage Adjusted Radar Rainfall (GARR) expansion; updating the data in the system to elevation data; adding a dams section to the system that will have graphs of the water level of some lakes, inundation mapping, and links to EPAs; and continued end of month (EOM) review of gage adjusted radar rainfall data.

In addition, staff continued to work closely with partners at the United States Geological Survey (USGS) and started discussions and review of sites for eleven new stream and rain gauges. Staff worked with City Transportation to purchase ten additional flood monitoring cameras to monitor flood-prone locations. Staff also enlarged the cellular cameras network to 22 cameras to be placed where the traffic network system is not available.

Traffic Camera

Stormwater staff presented on the FEWS Program to the All-Things Open Conference. The PBS show ncIMAPCT came and interviewed FEWS staff for a story on how cities are using technology, such as the Flood Early Warning System, to help communities. The show aired in March 2025. Interviews were conducted with media outlets about the Flood Early Warning System and the Active Lake Level Management at Lake Johnson for Walnut Creek. The FEWS Program continues partnerships with USGS, Wake County, the National Weather Service, and the Army Corps of Engineers.

PBS ncImpact Interview

DEVELOPMENT MANAGEMENT

The Development Management team ensures that development projects in the City and Extra-Territorial Jurisdiction (ETJ) meet the City's requirements to protect the environment and public safety through plan review, construction inspections, and post-construction stormwater control measure (SCM) inspections.

Plan Review

The stormwater plan review team reviews each case for erosion and sediment controls during construction; riparian buffer rules; floodplain regulations; post-construction stormwater for compliance with water quality and detention rules for after construction; stormwater conveyance; and water supply watershed overlay districts with more stringent rules. The team examines the design of stormwater pipes and stormwater control measures both before and after construction.

Plan Review and Development Team

Task	FY 2025
Plan Reviews	15,256
Major Cases	767
Resident Inquiries and Case-Specific Correspondence	780

Construction Inspections

Task	FY 2024
Post-construction Stormwater Inspections	3,893
Erosion and Sediment Control Inspections	15,519
Floodplain Inspections	103
Riparian Buffer Inspections	161
Water Supply Watershed Inspections	35
Resident Inquiries Regarding Construction throughout the City	477

Post-Construction Inspections

In FY 2025, the SCM Inspections group saw above **90% compliance** with annual post construction SCM inspection requirements across **1316 sites.**

SCM Staff presented to SMAC on May 1, 2025, on the SCM Maintenance Reimbursement Process. In the presentation Staff went over the SCM Inspection Program, the history of the City requiring payments for future SCM maintenance costs, the recent State regulation changes prompting reimbursement of those funds, and the current reimbursement process for properties to receive those funds.

SCM Inspection

Stormwater Design Manual Highlights

In FY 2025, the updated **Stormwater Design Manual** and related Unified Development Ordinance (UDO) changes were adopted by City Council in September of 2024 and became effective on November 2, 2024. The City held trainings for several types of stakeholders about the new requirements:

- On September 30, 2024, the training targeting homebuilders had 39 attendees. The recorded training has since received over 200 views.
- On October 1, 2024, the training targeting designers had 204 attendees. The recorded training has since received over 100 views.
- Approximately 88 City Employees attended a 2-hour training.
- Presentations were also made during the staff meetings of three groups within the Planning and Development department.

Stormwater Design Manual Training

FLOODPLAIN MANAGEMENT

The Floodplain Management Team seeks to protect and enhance the resilience of our communities by promoting smart floodplain management through sustainable and innovative practices. Through various activities, stormwater staff aim to reduce flood risks, preserve natural floodplain functions, and foster stakeholder collaboration.

Raleigh Joins the Community Rating System (CRS) as a Class 5 Community

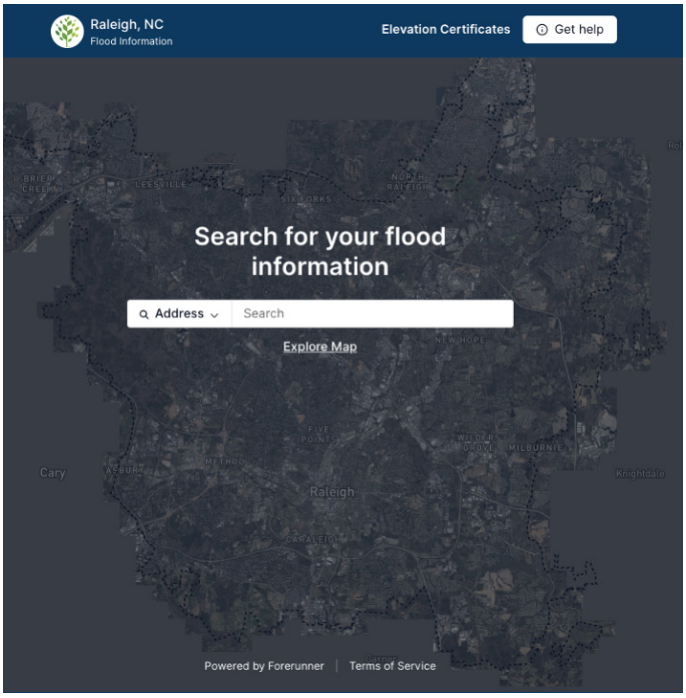
Effective October 1, 2025, the City of Raleigh has officially joined **FEMA's Community Rating System (CRS)** as a Class 5 community. As a result, all new or renewing flood insurance policies issued on or after this date will receive a **25% discount on annual premiums.** The CRS is a voluntary incentive program under the National Flood Insurance Program (NFIP) that encourages communities to adopt floodplain management practices that exceed minimum NFIP standards. In return, property owners benefit from lower flood insurance premiums and improved community resilience.

Staff presenting CRS Class to SMAC

Elevation Certificate Review Team

The Elevation Certificate Review Team (ECRT), composed of certified Floodplain Managers from the City's Stormwater Division, is now operational. This team is responsible for reviewing all floodplain-related construction certifications, including Elevation Certificates (ECs), **Floodproofing Certificates, and certifications for engineered flood openings.** The city has implemented a new software platform that provides both internal and public-facing capabilities for managing digital ECs, Flood Zone Determinations (FZDs), and Letters of Map Amendment (LOMAs).

The online platform enhances transparency, ensures data accuracy, and improves public access to essential floodplain information. It also significantly strengthens the City's ability to perform rapid and thorough damage assessments when necessary.



Flood Information Platform

Substantial Damage Management Training

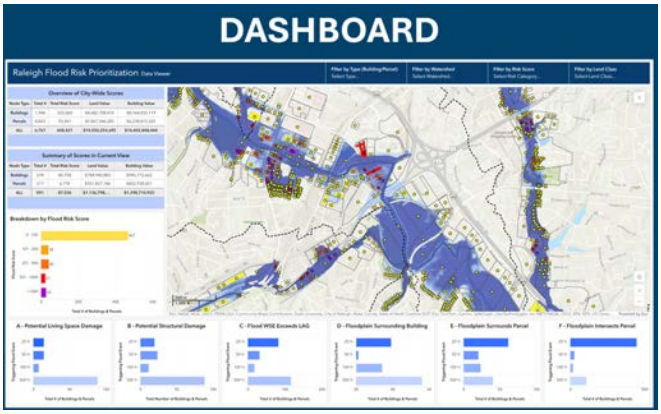
The Floodplain Management Team conducted a training session for the Stormwater Substantial Damage Assessment Team. The training covered both the desktop version and mobile app of the software, highlighting how the two platforms work together to support effective assessments and determinations. The mobile app, which includes offline functionality, enables field teams to collect assessment data and photographs in real time regardless of connectivity. Once service is restored, the data seamlessly syncs with the desktop platform, where it can be reviewed and analyzed. Together, these tools enhance the City's capacity to carry out timely and accurate damage assessments following major storm events.

Flood Warning and Response Plan

Staff developed a comprehensive Flood Warning and Response Plan (FWRP) designed to enhance public safety during flood events while also fulfilling the requirements of the CRS. This plan outlines clear procedures for monitoring flood conditions, issuing timely warnings, and coordinating emergency response efforts to protect life and property. By integrating risk communication strategies, evacuation routes, and coordination with local emergency services, the FWRP ensures that residents are informed and prepared. The plan will be tested through an annual tabletop exercise and revised based on the findings. The FWRP must be adopted by the council, with readoption every five years.

Flood Mitigation Assessment and Planning Tool (FLO-MAP)

The Floodplain Prioritization Tool, now called the Flood Mitigation Assessment and Planning Tool (FLO-MAP), is in use within the City's internal systems. This GIS-based tool provides a defensible, data-driven approach to prioritizing flood-prone properties across the City. FLO-MAP identifies properties for voluntary acquisition, enabling more strategic coordination between flood mitigation measures and broader infrastructure initiatives.



FLO-MAP Dashboard

Staff Training Enhances Floodplain Management Capacity

In preparation for participation in the CTP Program, staff participated in professional development workshops and webinars focused on the CTP program framework. Team members attended and presented at the National Association of State Floodplain Managers (ASFPM) Conference and the North Carolina Association of Floodplain Managers (NCAFPM) Conference, which provided insight into evolving floodplain regulations, best mitigation practices, and to introduce the FLO-MAP tool.

Staff presenting at NCAFPM

Grants and Mitigation Projects

The City is currently managing a number of grant-funded and locally supported mitigation projects:

- Flood Mitigation Assistance (FMA) Program: This project involves elevating a severe repetitive loss residential structure located on Rothgeb Drive. The application is currently under FEMA review.
- Hazard Mitigation Grant Program (HMGP): This project involves the voluntary acquisition of a repetitive loss property located in Hardimont Road. The project has received approval and is being set up within the State's system. The State will serve as the project manager.
- City-Funded Voluntary Property Acquisition: The City is in the process of acquiring a repetitive loss residential property, along with an associated barn structure, situated within the FEMA-designated floodplain along Lake Woodard Avenue. As the property is no longer covered by flood insurance, it is ineligible for federal funding mechanisms. A formal appraisal has been conducted and accepted by the property owner. The City's Real Estate and Stormwater Divisions are actively coordinating with the owner to facilitate the transfer of title. All structures will be demolished and the parcel will be kept as open space.

City Applies to Become a FEMA Cooperating Technical Partner

The City has applied to join **FEMA's Cooperating Technical Partners (CTP) Program.** This program, part of FEMA's Risk Mapping, Assessment, and Planning (Risk MAP) initiative, promotes partnerships with local, regional, tribal, and other non-federal entities to improve the quality and accessibility of flood hazard mapping in support of the NFIP. The City is currently defining its scope of work and responsibilities under this expanded role.

Floodplain Education and Outreach

The Floodplain Management Team continues to advance public awareness and engagement through several outreach efforts, including:

- Water bill inserts explaining the importance of understanding flood risk, purchasing flood insurance, protecting life and property, building responsibly, and preserving natural floodplain functions.
- A digital newsletter partnership with the Raleigh Chamber of Commerce to provide updates on flood-related topics and resources.
- Participation in community outreach events throughout the year.
- Presentations at national, state, and local conferences on floodplain management practices and initiatives.

Staff attending National Night Out Event at North Hills

ASSET MANAGEMENT

The Asset Management Program makes the best use of resources to extend the life of stormwater assets and protect public safety. Stormwater staff continued to implement the Asset Management Program that has been supported by SMAC for Dams and Stormwater Control Measures (SCMs) and Municipal Separate Storm Sewer System (MS4) assets.

Stormwater Control Measures

In FY 2025, staff continued to advance asset management fundamentals for the Asset Management Program. The City is currently tracking **124 active SCMs** that include both regulatory and voluntary measures that were designed to improve water quality. These devices will be supplemented with devices that will are in planning, design and construction. We anticipate 30-60 SCMs added in the portfolio over the next 3-5 years.

Devices in the inventory include:

- Bioretention (54)
- Proprietary devices (13)
- Constructed wetland (11)
- Dry pond (10)
- Rainwater harvesting / cistern (4 active, 6 inactive)
- Wet pond (8)
- Underground detention (7)
- Permeable pavement (7)
- Green roof (3)
- Level spreader/ filter strip (3)
- Sand Filter (3)
- Treatment Swale (1)

In FY 2025, work has continued by stormwater staff to create a top-tier SCM maintenance program. In addition to the first SCM maintenance contract created at the end of FY 2024, the Green Stormwater Infrastructure (GSI) Maintenance Team was created in FY2025. This inter-departmental collaboration between Stormwater and Parks, Recreation, and Cultural Resources (PRCR) will continue to grow towards our goal of maintaining city-owned SCMs proactively.

The SCM Asset Management Team has continued to make strides towards 100% compliance for the regulated SCMs which includes consultant-led projects to re-imagine SCMs that have had continual maintenance issues as well as over $115,000 of rehabilitation work across multiple SCMs.

Staff continue to evaluate lessons learned from each SCM practice to improve and incorporate those lessons into new SCMs. Stormwater has continued to collaborate with other city departments to engage and share experiences that will lead to successful implementation of SCMs.

GSI Maintenance Team

Dams

Raleigh Stormwater has an interest in 36 dams. Of these,15 are in parks and seven are associated with previous capital improvement projects, and 14 are associated with City right-of-ways. Many of the structures associated with City right-of-ways have complex ownership with private residents and City interest through right-of-ways and easements. In FY 2025, there were two dams that are in design for replacement based on documented deficiencies. Camp Pond Dam (Wake-198) is nearing the end of the design phase and is expected to go out for bid in FY 2026. Eastgate Park Dam (Wake-156) is located in Eastgate Park, a City Park. The Eastgate Dam replacement is completing concept-level design and will be moving into formal design phases in FY 2026.

Emergency Repairs on Upper Longview Dam (Wake-213) were completed in FY 2025 with support from the Stormwater Maintenance team at Transportation Field Services (TFS) and is currently being evaluated to determine the extent of long-term repairs that will be pursued. Design for Lake Johnson Dam (Wake-035) routine repairs such as concrete repair and caulk joint replacement has been submitted to Nc Dam Safety for review and should be completed in FY 2026.

Upper Longview Construction and Completion

Furthering the City's commitment to maintaining safe and functional dams, Stormwater has engaged a dams expert consultant to comprehensively evaluate the Dams Asset Management program and provide a roadmap to address and program shortcomings. Phase I will wrap in early FY 2026 and Phase II will begin shortly after.

GSI Maintenance Crew

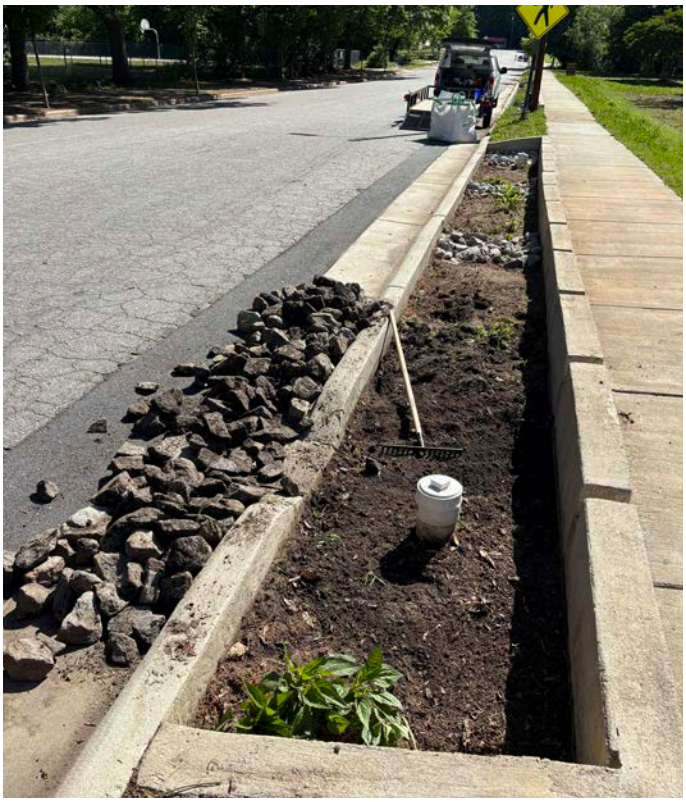
The City Council approved FY 2025 budget included the creation of an all-new and collaborative effort between PRCR and Stormwater to maintain the City's GSI and other SCMs. Driven by the GSI goal in the City's Strategic Plan (2021) and the implementation of the GSI Evaluation Policy (2023), The GSI Maintenance crew is an integral part of advancing the benefits of GSI in both new City development as well as enhancing existing sites with above and beyond treatment of stormwater runoff.

The crew began and will continue training to specifically address long-term maintenance needs and maximization of the habitat value of the devices. Members of the GSI Maintenance Crew have organized and participated in numerous trainings including SCM Inspection and Maintenance Certification, aquatic weed management training, and confined space awareness training.

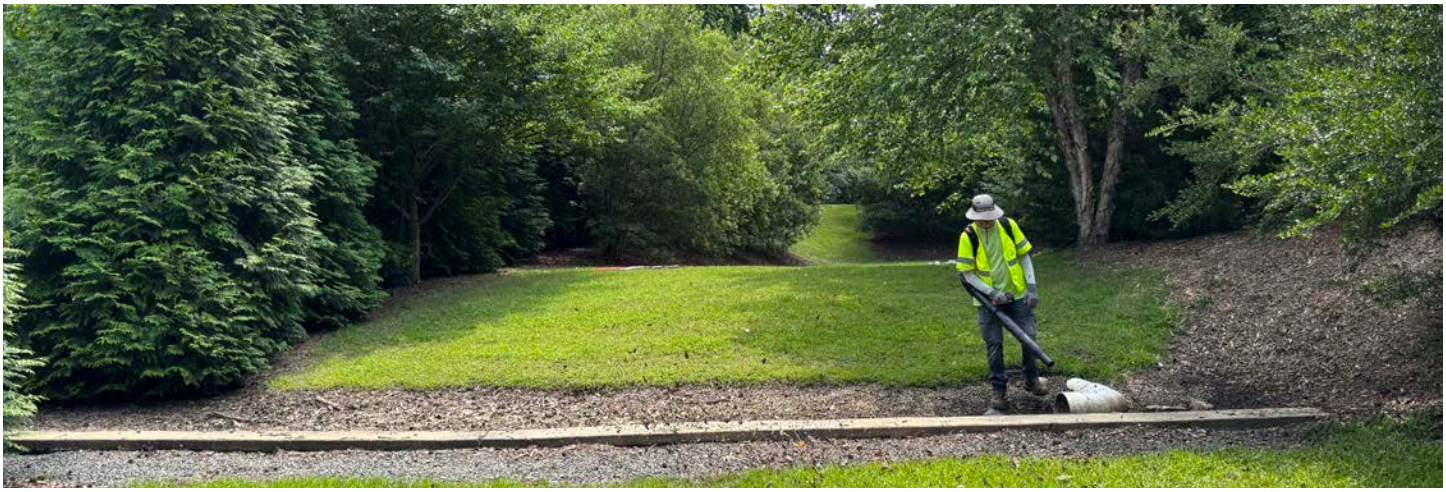
The GSI Maintenance Crew is funded by Stormwater and housed in the Parks and Recreation Department under the Natural Resources Unit following the successful model of the relationship between Stormwater and Stormwater Maintenance housed in the Transportation Department. From concept to implementation, staff from PRCR and Stormwater have developed the goals and objectives of the team to support the maintenance and development of GSI on City projects including:

- Support the implementation of the Green Stormwater Infrastructure Policy;
- Streamline the maintenance of GSI devices currently being performed by a combination of Raleigh Stormwater asset management staff, various Parks staff, and third-party contractors;
- Reduce the need for and costs of using third-party contractors over- time; and
- Provide additional focus, resources, and expertise on the functional habitat values of GSI devices

In FY25, four positions were hired including the GSI Crew Superintendent, Senior Natural Resources Specialist and two other field support positions. In three active months in FY 2025 (April-June) the GSI Maintenance Crew was able to complete 149 work orders on more than 65 SCMs across over 30 sites across the City. Work orders tracked in Cityworks include routine SCM maintenance as well as specialized maintenance efforts.



The GSI Maintenance Crew has already had considerable impact through participation in reviews of SCM design drawings to provide critical feedback on design elements such as SCM components, plant selection, and maintenance accessibility. Further relying on the experience and expertise of PRCR, the GIS Maintenance Crew hosted a volunteer community event to clean up and enhance GSI features at the Walnut Creek Wetland Center.



GSI Maintenance

MS4 Asset Management Highlights

The Municipal Separate Storm Sewer System (MS4) assets include pipes, crossline conveyances, inlets, junctions, and manholes. In FY 2025, the MS4 Asset Management Program focused on the following:

- Proactive condition assessment in coordination with the watershed studies
- Inspecting and evaluating the condition of cross line conveyances (CLCs), such as culverts through in-house and consulting firm inspection processes.
- Development of the System Repair Rehabilitation Program
- Review of condition assessment data to prioritize assets for rehabilitation or replacement
- Implementing the Stormwater Conveyance Permit process to receive as-built drawings and inspection data of newly installed stormwater infrastructure to update the asset inventory
- Pro-Active Inspection and Public Engagement program development

Several MS4 asset rehabilitation and replacement projects were ongoing in FY 2025 to address high risk assets in poor condition. These include the following:

Saratoga Drive Culvert Endwall Replacement

This project includes removal and replacement of a failing endwall for a 96” culvert crossing Saratoga Drive. Construction was completed in Winter 2024.

Saratoga Drive Endwall Completed

North Hills Drive Culvert Headwall Replacement

This project includes replacement of a partially collapsed brick headwall at the 60” culvert across North Hills Drive. The project was bid and constructed in FY 2025.

North Hills Drive Headwall Completed

City-Wide Lining and Pipe Rehabilitation

This project will renew stormwater pipes and structures at six sites where pipes are in poor condition, in some cases resulting in sinkholes.

The stormwater pipes will be rehabilitated via cured-in-place-pipe (CIPP) lining, which is a trenchless method used to repair defects in existing pipes. The project started construction in Summer 2025 and will finish construction in FY 2026.

Annual Stormwater Rehabilitation Project – Bundle 1

Staff bid the first Rehabilitation Program bundle which includes 11 sites throughout using CIPP lining to rehabilitate failing stormwater infrastructure. The project will finish construction Winter 2025.

Laurel Manor Pipe Replacement

The Laurel Manor Pipe Replacement project was bid in FY 2025 and will be constructed FY 2026.

Cambridge Road Gabion Basket Repair

This project addressed failing gabion walls which were placed to protect the streambank as part of a previous culvert replacement underneath Cambridge Road. The project was bid and started construction FY 2025 and will be completed in summer 2025.

Churchill Pipe Replacement

The Churchill Pipe Replacement Project started design in FY 2025 and will be bid and constructed in FY 2026. This project will address a failed 18” non-reinforced concrete pipe in a City Permeant Drainage Easement.

Stormwater Maintenance Unit

In FY2025, the Stormwater Maintenance Unit (SMU) appreciates the continued support of SMAC. The SMU provides maintenance to the portion of the MS4 storm drainage system that is within the City’s Right-of-Way and other areas within public drainage easements. The SMU also supports other stormwater programs; including Asset Management, Watershed Planning, Drainage Assistance, Education and Outreach, Capital Improvements, and the Leaf Collection Program.

The SMU continues to improve program operations in the following areas:

- Continued implementation of the Cross Line Conveyance Inspection Program –Stormwater Asset Inspections team assesses the condition of high priority culvert complexes
- Street Sweeping route updates to align with future NPDES Permit language requirements
- Nutrient Study Coordination – Stormwater’s Water Quality group is managing a study with NC State that will analyze the material collected for the Street Sweeping and Storm Drain Cleaning program for the potential of nutrient credit trading.

Street Sweeper Truck

The SMU continues to grow and advance the maintenance capabilities of the City with the support of SMAC. This past year the SMU had another active and successful year of maintenance and system repairs by expanding their capabilities, completing several larger projects and reorganizing to provide better internal and external customer service.

Construction Projects Undertaken by SMU in FY 2025

The SMU does several system repair projects each year and plans to expand this component of their program in the future. Using in-house maintenance crews to construct system repair level projects reduces the project timeline, reduces cost and allows for the City to have a greater level of control over design-bid-build projects. Below are projects completed or started over the past fiscal year.

Columbia Drive Repair

This project was identified due to frequent roadway flooding on Columbia Drive. Damage on the stormwater system was causing water to back up and flood the Right-of-Way. Stormwater Maintenance completed a repair on an 18-inch reinforced concrete pipe, which included replacing approximately 20 feet with polypropylene pipe.

Pullen Park Construction

Steel Street Construction

Courtland Drive Drainage Assistance

This project was identified through Drainage Assistance, when a failing corrugated metal pipe caused a sinkhole to form next a home on Courtland Drive. Stormwater Maintenance installed 430 feet of 18-inch polypropylene pipe within the Right-of-Way and abandoned 127 feet of 15-inch corrugated metal pipe.

Hillsborough Street Repair

Investigation into the flooding of NC State's parking lot, found that the stormwater system was not properly connected to the Right-of-Way. Stormwater Maintenance completed an investigation and repair of the connection in the Right-of-Way to allow stormwater to properly drain from the parking lot.

Bailey Drive Construction

WATERSHED PLANNING

The watershed planning program seeks to strategically improve stormwater conditions for our customers. In FY2025, studies were ongoing in the following high priority watersheds:

Pigeon House Branch Watershed

This study was completed in FY 2025 and a final public meeting was held to discuss the findings with residents. High priority projects identified in the study are moving forward with design in FY 2026, including the East Lane Street drainage improvements, Frank Street/ Watauga Street drainage improvements, Boundary St culvert replacement, Food Bank of NC water quality project (via Raleigh Rainwater Rewards), and CIPP lining of poor condition pipes through the annual rehab projects.

Pigeon House Branch Public Meeting

Rocky Branch Public Meeting

Rocky Branch & Central Walnut Creek Watershed

This study was started in FY 2023. Work in FY 2025 included development of the water quality and hydraulic models, evaluation of potential improvements, and continued public engagement. The study will wrap up in FY 2026.

Marsh Creek Watershed

Data collection for this watershed study began in FY 2024. In FY 2025, work included initial public engagement through a survey and meeting, modeling, and evaluation of potential improvements. The study will be completed in FY 2026.

Marsh Creek Public Meeting

INTERNSHIP PROGRAM

Several part-time/intern roles have continued to be supported within the stormwater program such as flood early warning, plan review, stormwater utility billing, GIS, and water quality. Stormwater and SMAC are continually helping to advance the City's Strategic Plan initiative that focuses on youth engagement with stewardship and environmental education.

Stormwater staff hosted an intern luncheon August 2024 where interns could present on what they've worked on and learned during their time working with Raleigh Stormwater.

STORMWATER MANAGEMENT ADVISORY COMMISSION MEMBERS

Graham Smith
Chairperson

Nicola Hill
Vice Chairperson

Samantha Krop
SMAC Liaison

Josh
Dalton

Barrett
Jenkins

Ian
McMillan

Robert
Paschal

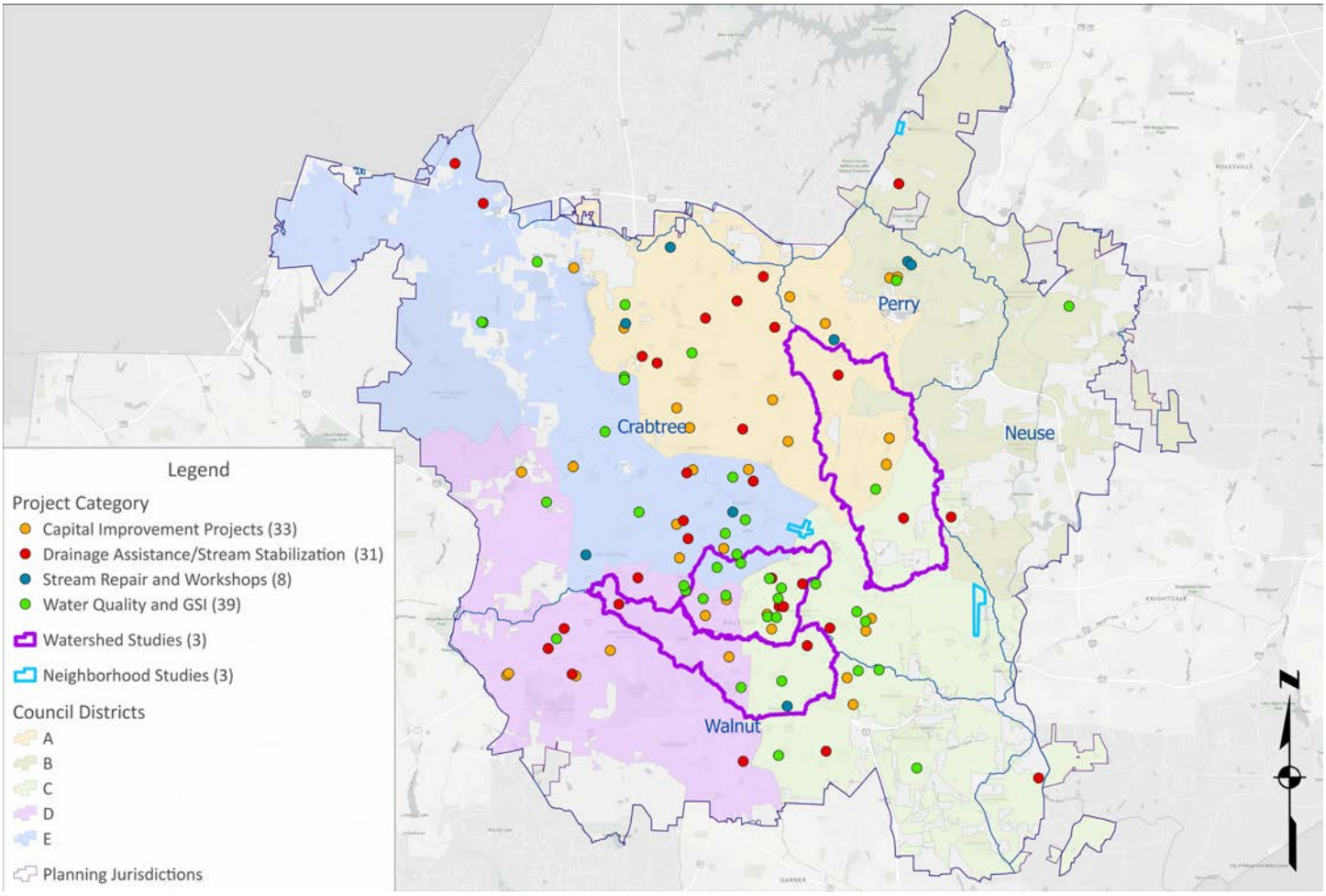
Lou Ann
Phillips

Marinel
Ubaldo Streit

Melody
Whitford

YEAR AT A GLANCE

FY 2025 Stormwater Projects



Our Raleigh Residents

1,534 Volunteers

3,106 Hours Worked

29,986 lbs Trash Removed

Stormwater Maintenance Unit

Task	Asset Quantity FY 2024	Asset Quantity FY 2025
Pipes Inspected	511,255 feet	360,327 feet
Pipes Flushed	36,815 feet	36,806 feet
Replaced or Repaired Pipes	830 feet	577 feet
Assets Maintained	3,359	2,532
Catch Basins Repaired	196	119
Street Sweeping	6,346 miles	5,255 miles