Charlotte Water is a vital component of the community. Our long-term planning efforts and strategic operations are designed to:

- Keep rates affordable
- Provide capacity for economic development
- Meet and exceed regulatory requirements
- Satisfy customer expectations

In order to achieve these goals, the Charlotte Water team thoughtfully and strategically developed a five-year, $1.7 billion capital plan. The plan is part of the City’s Community Investment Program, or CIP, which appropriates dollars from specific funding sources for capital, or construction and improvement, projects.

Charlotte Water’s CIP includes 127 projects that fall into four categories. While engineers, leadership, and staff do their best to determine costs for projects, they are subject to change, depending on the construction timeline, location, dependence on outside partners and other factors, many of which are simply beyond Charlotte Water’s control.

### CAPACITY FOR GROWTH $986.2 MILLION

In 2018, Charlotte-Mecklenburg businesses added more than 10,000 jobs and made more than $1 billion in capital investments (Charlotte Chamber’s Growth Report). The population of Charlotte is expected to reach 1.2 million by 2040.

Charlotte Water’s CIP projects place Charlotte in a position to ensure local and regional growth.

### MAJOR PROJECTS:

- Long Creek Wastewater Plant Expansion (Includes Mount Holly and Belmont lift stations and forcemains) ($326 million)
- Mallard Creek Wastewater Treatment Plant Expansion and Improvements ($174 million)
- Dixie-Berryhill Projects (more than $13 million)
- 960 Zone North-South and West-East Transmission Mains ($44 million)
Charlotte Water staff constantly assesses aging pipes, equipment and infrastructure at water and wastewater plants to determine when it is at the end of its useful life cycle. The original Catawba River Pump Station opened in 1903, and the historic Vest Water Treatment Plant was built in 1922. While rehabilitation can extend the use of some equipment and facilities, it is sometimes more cost-efficient to replace others.

**MAJOR PROJECTS:**
- Sanitary Sewer Line and Large-Diameter Sanitary Sewer Line Rehabilitation ($119.7 million)
- Water Line Rehabilitation and Replacement ($76.3 million)
- Vest and Franklin Water Treatment Plants Rehabilitation and Upgrades ($30 million)
- Little Hope Creek Sanitary Sewer Improvements ($22.5 million)

When highways are expanded, off-ramps improved, a runway added to Charlotte Douglas International Airport, the light rail or streetcar projects get underway, Charlotte Water is there. Water and sewer lines run across and under the City, and we are committed to working with local, state and federal partners to ensure these projects are completed on time.

As the Charlotte region grows, Charlotte Water is also growing to meet the increasing demand from customers, developers, small businesses and large industries. When we build or expand facilities, it’s always with the community’s needs first and an eye to the future.

**MAJOR PROJECTS:**
- Partnering for Progress: Independence Boulevard Widening – Water and Sewer Project ($20 million); McKee Road Water Main Extension ($2.5 million); Old Dowd Road Airport 24” Water Main Connection ($10 million)
- New Zone Four Field Operations Facility ($20 million)
- Biogas Use Pilot at Mallard Creek Wastewater Treatment Plant ($6 million)

Charlotte Water wants to ensure our customers have the best water and wastewater service available. Charlotte Water prides itself on being ahead of the curve; we know that exceeding regulatory performance and testing requirements protects public health and sustains customer confidence.

**MAJOR PROJECTS:**
- McAlpine Creek Wastewater Treatment Plant Reliability and Process Improvements ($120 million)
- Mallard Creek Wastewater Treatment Plant Reliability Improvements ($25 million)
- McDowell Creek Wastewater Treatment Plant Maintenance and Upgrades Project ($20 million)
- Sugar Creek and Irwin Creek Wastewater Treatment Plants UV Disinfection System Improvements and Sugar Creek Primary and Preliminary Treatment Study ($6 to $10 million)
PROJECT OVERVIEW

In 2007, Charlotte Water identified a need for a new wastewater treatment facility to support expected growth and provide a cost-effective solution for wastewater treatment in the western part of Mecklenburg County and nearby communities. The new wastewater treatment facility will consolidate three nutrient discharge permits from an industrial and two municipal wastewater treatment plants.

Wastewater from the Long Creek and Paw Creek Basins is currently pumped about 27 miles via two pumping stations to the McAlpine Creek Wastewater Treatment Plant in Pineville. The Long Creek Regional Wastewater Treatment Plant combined with two lift station and forcemain projects will provide a regional approach to wastewater treatment for not only Mecklenburg County, but for the Belmont and Mount Holly communities in eastern Gaston County.

WHO IT IMPACTS

• Current residents and businesses in western Mecklenburg County, as well as those just across the Catawba River in the Gaston County communities of Belmont and Mount Holly.
• New residents and business owners planning to live and work in this growing area.

WHY IT’S IMPORTANT

• Studies indicate this is the most feasible and cost-efficient solution for wastewater treatment for western Mecklenburg County, as well as Belmont and Mount Holly.
• The project will enhance and improve wastewater service for customers in this growing area, as well as support new development coming to this area for decades to come.
• The new plant will provide an opportunity to consolidate three existing discharge permits and include potentially innovative technology to protect water quality and meet nutrient removal goals.
LONG CREEK EXPANSION

LONG CREEK REGIONAL WASTEWATER TREATMENT PLANT

Charlotte Water conducted an extensive Environmental Impact Statement, which explored eight alternatives for the location and arrangement of the proposed plant. In 2013, Charlotte Water purchased 181 acres of land adjacent to the Catawba River and within reasonable distance of Mount Holly and Belmont's current treatment facilities.

Charlotte Water and the neighboring towns of Belmont and Mount Holly are working together to create detailed regional agreements for wastewater treatment services at the Long Creek Regional WWTP.

COST

- $285 million over six years

PROJECT TIMELINE

- FY19 - FY24

BELMONT & MOUNT HOLLY LIFT STATION & FORCemain PROJECTS

A lift station will be built at the existing Belmont and Mount Holly wastewater treatment plants, respectively. Dual forcemains will also be constructed under the Catawba River to bring the flow from each existing plant to Charlotte Water's sewer system. Mount Holly's flow will be brought to the existing Long Creek Pump Station and Belmont's flow will be delivered to the existing Paw Creek Pump Station.

COST

- New Mount Holly lift station and forcemain: $19 million
- New Belmont lift station and forcemain: $22 million

PROJECT TIMELINE

- New Mount Holly lift station and forcemain: FY19 - FY22
- New Belmont lift station and forcemain: FY22 - FY24


Project Manager: Nicole Bartlett, nbartlett@charlottenc.gov
The Charlotte Water system is divided into several areas based on elevations. The 960 North-South and West-East Transmission Main projects will help improve water-system operations in the 960 Zone, which is the eastern part of Mecklenburg County. Water tanks help maintain a certain level of pressure throughout the system, but over several decades, more development and growth have added demand on the water system. These projects will install new, large water mains to help get water from the pump stations to the water tanks more effectively, filling the tanks more evenly and maintaining pressure in the system.
WHY IT'S IMPORTANT
Charlotte Water conducted a study of the entire water-distribution system to determine how the system was working, what improvements were needed, and how to plan for current and future demands on the overall water system. These projects are part of that study, and were recommended in order to help maintain consistent water pressure throughout the system now and as Charlotte Water plans for growth all the way to the year 2040.

PROJECT TIMELINE
The projects are in the early design phase. Final design is expected to start in 2019; construction is estimated to start in 2021 with completion in 2024.

COST
- 960 North-South Transmission Main Project - $26 million
- 960 West-East Transmission Main project - $18 million

WHO IT IMPACTS
The 960 North-South Transmission Main project includes installing approximately 30,000 feet (more than five miles) of 36” transmission main north along East W.T. Harris Boulevard from the existing main at Idlewild Road. The main will continue north along Idlewild Road North, then northwest along Lawyers Road, where it will connect to the existing 36” main near the intersection of Lawyers Road and Albemarle Road. The new main will then continue north along East W.T. Harris Boulevard from the existing 36” main near the intersection of Lawyers Road before turning east at Hickory Grove Road, then north on Highland Avenue, which becomes Plott Road. The main continues north on Plott Road, then turns west at The Plaza before connecting to the Hickory Grove Tank connecting main.

The 960 West-East Transmission Main project includes installing approximately 30,000 feet (more than five miles) of new 36” diameter water main. The project is in the early design phase, but is preliminarily expected to be along several roads, including East W.T. Harris Boulevard, Idlewild Road North, Lawyers Road, Hickory Grove Road, Highland Avenue, Plott Road and The Plaza.

Project Information and Updates:

Project Manager:
Amy Vershel, avershel@charlottenc.gov
Ryan LeBlanc, ryan.leblanc@charlottenc.gov
PROJECT OVERVIEW

In 2003, the Charlotte City Council adopted the Dixie-Berryhill Strategic Plan, a detailed economic development, land use, and design plan for the area west of the Charlotte-Douglas International Airport (between the Catawba River and I-485) to encourage “high quality mixed-use development” and support transit.

Fifteen years later, major development is coming to that area, first with the River District, a 1,400-acre mixed-use community with plans for 4,500 homes, 1,000 hotel rooms, 500,000 square feet of retail and restaurants and 8 million square feet of office space.

Charlotte Water’s Dixie-Berryhill projects include various water and sewer projects, all in support of the River District and additional development expected in this area over the next 20 to 30 years. The River District developer expects to begin construction in 2020 with the first occupants coming in 2021.

WHY IT’S IMPORTANT

These projects:

• Align with the Dixie-Berryhill Strategic Plan and economic development plans for this area of Charlotte
• Help support future development
• Add capacity and capabilities to Charlotte Water
• Provide more revenue to the City as future residents and business owners use the utility services
WEST BLVD WATER MAIN
The City is extending West Boulevard to meet Dixie River Road. This project will include approximately 4,350 linear feet of 16” water main to connect Dixie River Road with the new West Boulevard extension.
Budget: $875,000
Timeline: This project should be complete in Fall of 2021

DIXIE RIVER ROAD WATER MAIN
This project provides approximately 15,550 linear feet of 24” water main along Dixie River Road, starting near Iverness Bay Road and extending the water main north to Sadler Road into the new River District development, with a tie-in to the new West Boulevard water main.
Budget: $3.5 million
Timeline: The project should be complete in mid-2021

BEAVERDAM CREEK WEST BRANCH OUTFALL (PHASE 1)
The Beaverdam Creek West Branch Outfall Phase I project extends approximately 7,025 feet of new 24” diameter sewer line from Dixie River Road north to the new West Boulevard extension.
Budget: $2.7 million
Timeline: The project should be complete in mid-2020

GARRISON ROAD SOUTH WATER MAIN
The City will eventually extend Garrison Road to meet Dixie River Road near Beaverdam Creek. This project will include approximately 4,200 linear feet of 16” water main, providing Charlotte Water to all residents along Garrison Road from the West Boulevard extension south to the intersection with Dixie River Road.
Budget: TBD
Timeline: TBD – to be coordinated with the City road project. This is in the Charlotte Water CIP and eligible as a developer-reimbursable project.

GARRISON ROAD SOUTH WATER MAIN
This project will include approximately 4,900 linear feet of 16” water main from the new West Boulevard extension north to connect with Dixie River Road near I-485.
Budget: TBD
Timeline: TBD – to be coordinated with the City road project. This is in the Charlotte Water CIP as a five-year developer-reimbursable project.

BEAVERDAM CREEK WEST BRANCH OUTFALL (PHASE 2)
This project will provide approximately 4,725 linear feet of 24” diameter sanitary sewer pipe from the new West Boulevard extension north to an area near I-485.
Budget: TBD
Timeline: TBD - This is in the Charlotte Water CIP and eligible as a developer-reimbursable project

LITTLE PAW CREEK PUMP STATION & FORCE MAIN
This project would build a new sewer pump station and force main, which allows wastewater to be pushed through pressurized pipes to reach a treatment plant in areas where gravity is not sufficient to maintain flow.
Budget: $6 million
Timeline: This project was previously funded in the Charlotte Water CIP, but may be pushed out, depending on the need for this project and development in the area.
PROJECT OVERVIEW

Charlotte Water will make infrastructure improvements to add capacity to the Mallard Creek Wastewater Treatment Plant. The plant was built in 1979 and handles wastewater treatment for residents and businesses in the Mallard Creek and Back Creek basins.

In the past few years, the Mallard Creek Wastewater Treatment Plant has operated close to its allowed limit and is expected to exceed it by 2021. This is due to increased growth in the area aligned with the extension of the Blue Line from Uptown Charlotte to UNC Charlotte.

This project will increase the allowed limit to phased levels of expansion, expected to accommodate current and expected growth over the next three to 12 years. Expanding the capacity is critical in order to accommodate development in the area.
WHY IT’S IMPORTANT

• The project will provide critical capacity needed to support current and expected development coming to this area with the extension of the Blue Line to UNC Charlotte.
• The expansion includes enhancements that improve process and equipment efficiency, sustainability, and safety.

WHO IT IMPACTS

• Current residents and businesses in the Mallard Creek and Back Creek basins. The Mallard Creek Basin is located in the northeast area of Charlotte and Mecklenburg County and is generally bordered by the Mecklenburg County line to the east, Gibbon Road to the south, Statesville Road to the west, and I-485 to the north. The Back Creek Basin is located directly south of this area.
• Developers wishing to build homes, businesses and other projects, as well as new residents and business owners planning to live and work in this rapidly growing area.

COST

• $174 million

PROJECT TIMELINE

• Planning for Phase 1 Expansion is anticipated to start in 2019.

Project Information and Updates:

Project Manager: Tesha Okioga,
Irene.Okioga@charlottenc.gov
PROJECT OVERVIEW

Some of the biggest dollars spent in the Community Investment Program are allocated to true community-level projects. Over the next five years, Charlotte Water plans to spend more than $76 million to rehabilitate and replace water lines in neighborhoods across Charlotte and Mecklenburg County. While that’s a large number to comprehend, it’s easy to see those dollars at work at the street level, where homeowners and businesses quickly see the benefit of these projects.

In the mid-1990’s, Charlotte Water began a program to address its aging water infrastructure. Based on findings and experience over the years, it now uses a systematic water main prioritization model to evaluate and prioritize water line renewal and replacement. A water main’s material, age, repair history, and service condition are considered and water pipes are replaced or rehabilitated when:

- Pipe condition impairs water quality or flow capacity
- Water service becomes unreliable because of breaks
- Pipe repair costs become excessive
- A main break would cause major damage
- Line capacity is not adequate to serve existing customers
- Water main work can be incorporated into other infrastructure projects

These projects are typically smaller in scope and target the most urgent needs across Mecklenburg County. Charlotte Water contracts with companies that handle several types of construction needs for set prices, so crews can handle multiple individual projects while saving the City money.

Water mains that are old but still structurally sound can be reconditioned in place, resulting in less disruption to property and traffic patterns. Mains that have a history of failure, or are undersized for current or future demand, must be replaced.

WHY IT’S IMPORTANT

Water main projects:

- Maintain Charlotte Water’s ability to reliably deliver an adequate supply of high-quality water to Mecklenburg County residents
- Help support future development
- Add capacity and capabilities to Charlotte Water’s drinking water distribution system

WHO IT IMPACTS

This program consists of numerous small projects with variable scheduling due to changes in project urgency. Some recently completed and identified projects include:
CHERRY NEIGHBORHOOD WATER REHABILITATION
This project consisted of reconditioning 11,100 LF of water mains, valves and fire hydrants in the Cherry neighborhood.

**Budget:** $1.5 million

**Timeline:** The project was completed in September 2018

**Project Information:** https://charlottenc.gov/Projects/Pages/CherryWaterRehab.aspx

BLAND STREET AREA WATER MAIN REHABILITATION
This project will rehabilitate 10,000 LF of water mains around Bland Street, bordered by South Graham, Carson Boulevard, South Tryon Street and Summit Avenue.

**Budget:** $1.4 million

**Timeline:** The project should be complete in mid-2019

**Project Information:** https://charlottenc.gov/Projects/Pages/BlandStreetPipeImprovement.aspx

SOUTH TRYON WATER MAIN REPLACEMENT
This is a high-priority water main replacement project, which includes constructing 5,500 LF of water mains, to resolve a localized water quality problem. Crews installed a temporary water line to provide service until the project is finished.

**Budget:** $900,000

**Timeline:** 2019-ongoing. Due to the urgency, the project will be constructed in phases. The first phase has been assigned for construction. Future phases will be assigned sequentially through completion of the overall project.

**Project Information:** https://charlottenc.gov/Projects/Pages/SouthTryonStreetWMReplacement.aspx

SOUTH TRYON WATER MAIN REPLACEMENT
This project will replace approximately 3,315 LF of water mains along Central Avenue, Jackson Avenue, Piedmont Street and Prospect Street.

**Budget:** $500,000

**Timeline:** The project will be assigned for construction in the third quarter of FY19.

**Project Information:** https://charlottenc.gov/Projects/Pages/PiedmontParkWaterReplacement.aspx

QUEENS ROAD WEST WATER MAIN
The 8-inch water main on Queens Road West between Wellesley Avenue and Selwyn Avenue is in poor structural condition and is located under large trees, which causes additional problems. This project includes replacing 4,450 LF of 8” water mains.

**Budget:** $600,000

**Timeline:** Mid-2019

DRUID HILLS WATER MAIN REPLACEMENTS
This project will include constructing 2,350 LF of 6” and 1,440 LF of 2” water mains in the Druid Hills neighborhood.

**Budget:** $500,000

**Timeline:** Design & permitting is scheduled for FY19 with construction anticipated in FY20.
Some of the biggest dollars spent in the Community Investment Program are allocated to true community-level projects. Over the next five years, Charlotte Water plans to spend nearly $120 million to rehabilitate and replace sanitary sewer lines ($99.3 million) and large diameter sanitary sewer lines ($20.4 million) in neighborhoods across Charlotte and Mecklenburg County. While that’s a large number to comprehend, it’s easy to see those dollars at work at the street level, where homeowners and businesses quickly see the benefit of these projects.

Charlotte Water reinvests part of the money paid in water bills to replace and rehabilitate existing large-diameter and smaller sanitary sewer pipes in the oldest areas throughout Mecklenburg County, so that we can continue to provide reliable wastewater service as our city’s infrastructure ages. Since 1997, crews have rehabbed or replaced approximately 200 miles of wastewater pipe.

The primary goal of this program is to renew critical infrastructure, keep sewage in the pipes and guarantee continued operation of these pipes for many years to come.

### Why It’s Important

- Charlotte Water’s Large Diameter and Sanitary Sewer Rehab Programs focus on fixing infrastructure that has caused or will likely cause a sanitary sewer overflow. Large diameter pipes can sometimes transmit more than several million gallons of raw sewage a day, so this effort is critical to Charlotte Water’s commitment to environmental stewardship.

- Charlotte Water is a good steward of funds, so carefully selects project locations based on rehabilitating and replacing aging and failing infrastructure, which leads to high maintenance costs and sanitary sewer overflows.

- Rehabilitation is not the answer for all aging pipelines, but depending on the location and condition, it can be the best option available.

- Charlotte Water uses the most modern pipelines rehab strategies, which are primarily trenchless. This is typically the least disruptive way to get another 20-30 years of life out of an asset.
WHO IT IMPACTS
Crews recently completed sanitary sewer line projects in these areas:
- Uptown
- McMullen Creek basin (between Park, Carmel, and Sardis Rd)
- Briar Creek
- Upper Little Sugar Creek basin (between Graham St., South Blvd., The Plaza, and Selwyn Ave.)

Current and upcoming projects include rehabilitation or replacement work in the following neighborhoods:

Project Information and Updates:
https://charlottenc.gov/Water/Projects/Pages/CommunityInvestmentPlan.aspx

Project Manager: Micah Burgess,
mburgess@charlottenc.gov
COMMUNITY INVESTMENT PROGRAM 2020-24

LITTLE HOPE CREEK SANITARY SEWER IMPROVEMENTS

PROJECT OVERVIEW
Development is booming in the South Boulevard corridor - which includes the Little Hope Creek sewer basin. This basin is generally located between South Boulevard, Clanton Road, Park Road, and Tyvola Road. This area will continue to see additional growth as contractors build apartments, condos, and more near the light rail line.

Many of the existing sewer pipes in the basin were installed in the 1950s to support single-family homes. This project will replace the main collector sewer pipe (commonly referred to as an outfall) with a newer, larger diameter sewer pipe. Charlotte Water will also repair any significant issues with the three larger tributary sewer pipes that feed into this outfall pipe and the neighborhood sewer pipes in the basin.

WHO IT IMPACTS
- Current residents and businesses in the Little Hope Creek basin, generally located between South Boulevard, Clanton Road, Park Road, and Tyvola Road.
- New residents and business owners planning to live and work in this booming area.

WHY IT’S IMPORTANT
The project will:
- Enhance and improve wastewater service for customers in the Little Hope Creek basin
- Support new development coming to this area
- Reduce risk for sanitary sewer overflows
- Protect water quality in Little Hope Creek

COST
- $22.5 million

PROJECT TIMELINE
- The project is in the design phase and is being delivered using an alternative delivery method (design-build) to accelerate the project.
- Construction is expected to be complete in mid-to late 2022.

Project Information and Updates:
https://charlottenc.gov/Projects/Pages/LittleHopeCreekSewer.aspx
Project Manager: Chuck Bliss, cbliss@charlottenc.gov
PROJECT OVERVIEW

The Reliability and Ultraviolet Improvements (RUVI) project will rehabilitate and upgrade equipment that is critical in the final processes of the Mallard Creek Wastewater Treatment Plant. The plant was built in 1979 and handles wastewater treatment for residents and businesses in the Mallard Creek and Back Creek basins.

This project will replace equipment that performs wastewater treatment processes: ultraviolet disinfection, effluent filtration and final clarification, all of which are nearly 40 years old, original to the plant opening and nearing the end of their useful life.

The UV disinfection units are the oldest in Charlotte Water's wastewater system and were a priority for replacement. As engineers started with that project's design, operations staff shared that two processes immediately upstream of UV, final clarification and effluent filtration, were also nearing the end of their useful life. In addition, the filters were a hydraulic choke point, and Charlotte Water is working system-wide to change final clarifier mechanisms to more corrosive-resistant materials.
WHY IT’S IMPORTANT

• Replacing all three aging systems will save money and allow Charlotte Water to use new technology to reduce energy consumption, improve operations and end costly and time-consuming maintenance.

• The project will also enhance and improve wastewater service for customers in the Mallard Creek and Back Creek basins.

COST

• $25 million

PROJECT TIMELINE

• The preliminary engineering phase started in January 2017 and concluded in June 2018. Detailed design commenced immediately afterward and is projected to conclude in the third quarter of 2019. Construction is expected to start in the fourth quarter of 2019 with a duration of 24 months.

WHO IT IMPACTS

• The project will not only replace 40-year-old equipment that is nearing the end of its useful life, but will also allow for future capacity in the Mallard Creek and Back Creek basin areas.

• In addition, replacing this aging equipment assures Charlotte Water will meet existing and future regulatory requirements, can continue its reuse water production, and reduce operational and maintenance costs.

MALLARD CREEK WASTEWATER TREATMENT PLANT: RELIABILITY IMPROVEMENTS

Project Information and Updates:

Project Manager: Jeff Davis,
Jeff.Davis@charlottenc.gov
PROJECT OVERVIEW

The Reliability and Process Improvements project will rehabilitate and upgrade equipment that is critical to the treatment processes of the McAlpine Creek Wastewater Treatment Plant. The plant was built in the mid-1960’s and handles wastewater treatment for residents and businesses in most of the southern and western portions of Mecklenburg County.

This project will replace equipment that performs critical wastewater treatment processes, including aeration and final clarification. The current equipment is nearly 40 years old, and nearing the end of its useful life. In addition, Charlotte Water is working system-wide to change final clarifier mechanisms to more corrosion-resistant materials.
WHY IT’S IMPORTANT

• Replacing the aging equipment will improve reliability and allow Charlotte Water to use new technology to reduce energy consumption, improve operations and reduce costly and time-consuming maintenance.
• The project will also enhance and improve wastewater service for customers in most of the southern and western portions of Mecklenburg County.

WHO IT IMPACTS

• The McAlpine Creek Wastewater Treatment Plant handles wastewater treatment for residents and businesses in most of the southern and western portions of Mecklenburg County.
• The project will not only replace 40-year-old equipment that is nearing the end of its useful life, but will also allow for future capacity in the southern and western areas of Mecklenburg County.
• In addition, replacing this aging equipment assures Charlotte Water will meet existing and future regulatory requirements and reduce operational and maintenance costs.

COST

• $120 million

PROJECT TIMELINE

• The evaluation phase was completed in May of 2016. A design-build team was selected and began working on preliminary design in October of 2018. The first phase of construction began in November of 2018 and will continue through December of 2022.

MCALPINE CREEK WASTEWATER TREATMENT PLANT RELIABILITY & PROCESS IMPROVEMENTS PROJECT

Project Information and Updates:

Project Manager: Kit Eller, keller@charlottenc.gov
PROJECT OVERVIEW

The Maintenance and Upgrades project will address two major issues at the McDowell Creek Wastewater Treatment Plant. The plant was built in 1979 and handles wastewater treatment for residents and businesses in the Huntersville area of Mecklenburg County. Currently the plant uses all operational equipment as part of the wastewater treatment process. In order to effectively rehabilitate or replace critical equipment, major stages of the treatment process will need to go off-line while maintaining continuous wastewater treatment, which isn’t possible. Therefore, the first priority of this project will be to build redundant treatment processes so equipment can be rehabilitated or replaced.

After the redundant treatment processes are constructed and operational, the second issue will then be addressed: rehabilitating and replacing equipment that’s reached the end of its useful life. This equipment includes motors, pumps, aeration systems, electrical and control systems. In some cases, this critical equipment is original to the plant, which means it’s 40 years old.

The project will include:

- Constructing the redundant wastewater-treatment infrastructure
- Replacing steel mechanisms, pumps, motors and piping, and restoring concrete for three existing 80’ diameter concrete clarifier tanks
- Adding new sewage pumps, aeration blowers and motors in existing buildings
- New electrical systems and control panels in existing buildings
- New and rehabilitated underground conveyance pipelines
- Replacing 8” round aeration disk diffusers and plastic piping
- Restoring steel structures

COST

- The project’s overall cost (including engineering and construction) is projected to be $20 million.

PROJECT TIMELINE

- The preliminary engineering phase was completed in December 2018. Funding has been appropriated for the summer of 2023, at which time Charlotte Water will solicit Requests for Qualifications from qualified engineering firms. Detailed design or design/build will commence mid-summer 2023. Construction is expected to start in the fourth quarter of 2023 and last approximately two years.
**WHY IT’S IMPORTANT**

- All treatment facilities require routine maintenance and periodic rehabilitation. Constructing redundant infrastructure will allow Charlotte Water to better maintain its equipment, potentially extending its life and allowing for greater cost savings.
- Replacing aged equipment allows Charlotte Water to take advantage of improvements in new technology, reducing energy consumption, and allowing greater system control.

**WHO IT IMPACTS**

- The project will not only replace 40-year-old equipment that is nearing the end of its useful life, but will also include the ability to easily expand for future wastewater flows, based on projected population growth for northern Mecklenburg County.
- In addition, replacing this aging equipment assures Charlotte Water will meet existing and future regulatory requirements, as well as realizing lower operational and maintenance costs.

Project Information and Updates:

Project Manager: Chuck Cowherd, CCowherd@charlottenc.gov
PROJECT OVERVIEW

The Sugar Creek and Irwin Creek Wastewater Treatment Plants’ UV Disinfection System Improvements Project will rehabilitate and upgrade both plants’ Ultraviolet (UV) Disinfection Systems. It’s part of Charlotte Water’s commitment to being good stewards of the environment. Charlotte Water’s Wastewater Treatment plants process wastewater, separating solid particles and objects, filtering it to remove fine particles and disinfecting it to remove pathogens before the treated water is released into creeks. UV disinfection is the final step in the treatment process, nearly eliminating all pathogens in the plant discharge.

Unfortunately, over the past few years, issues from power outages to equipment problems have caused wastewater to leave the plant without receiving this final UV treatment. Since the water received primary treatment, but not that final process, the released water didn’t impact local streams. However, the current equipment is nearing the end of its useful life, and replacing it will improve reliability. The project also includes an effluent flow control box to regulate flows downstream of each UV system.

The second part of this project, the Sugar Creek Primary and Preliminary Treatment Study, is part of Charlotte Water’s concerted effort to evaluate and proactively plan for upgrading first-step wastewater processes, which includes the preliminary (screening and grit removal) and primary (highly settleable solids and floating debris removal) processes. These first-step processes are conducted in an extremely harsh and corrosive atmosphere and are often subject to quick and extensive loss of operability. This study will help plan for updates to ensure continuous service.
WHY IT’S IMPORTANT

• Charlotte Water is committed to improving its operations and ensuring its plants are providing the best service possible. Upgrading the UV disinfection systems will improve reliability, ensure regulatory compliance and lessen the possibility for wastewater to be released without receiving this final UV treatment.

• Charlotte Water’s CIP included projects to replace aging UV systems at three wastewater plants: Mallard, Sugar, and Irwin. Mallard Creek’s UV system was the oldest in terms of service and is currently under design for replacement and upgrade. This project addresses the Sugar and Irwin plants.

WHO IT IMPACTS

• The UV rehabilitation and upgrade project is being sized to treat future flows but the real and immediate impact will be the assurance of meeting existing and future regulatory requirements and lowering operational and maintenance costs.

• Replacing the original equipment will allow Charlotte Water to take advantage of improvements in new technology to reduce energy consumption, improve operations and reduce costly and time-consuming maintenance.

COST

• The project’s overall cost (including engineering and construction) is projected to range from $6 to $10 million.

PROJECT TIMELINE

• The preliminary engineering phase will have a one-year duration beginning in April 2019. Detailed design work will start in April of 2020. Construction is anticipated to begin in June 2021, wrapping up by December of 2022.

Project Information and Updates: https://charlottenc.gov/Water/Projects/Pages/CommunityInvestmentPlan.aspx

Project Manager: Anthony Martin, Anthony.Martin@charlottenc.gov
The City of Charlotte is committed to preserving the environment, including producing the Strategic Energy Action Plan (SEAP). The SEAP provides a guide for Charlotte's goal to deliver a low-carbon and resilient future by 2050. In June 2018, the Charlotte City Council also passed the Sustainable and Resilient Resolution, striving to source 100 percent of the City's energy use in municipal buildings and fleet from zero-carbon sources by 2030. Charlotte Water is also committed to protecting the environment, including finding new ways to support the City's mission.

PROJECT OVERVIEW

The Biogas Use Pilot supports two SEAP goals: Changing the Energy We Consume and Generating Energy Onsite.

Here's how. The Mallard Creek Wastewater Treatment Plant produces anaerobic digester gas, primarily composed of methane (biogas). This pilot project takes the gas and refines it for use as a vehicle fuel, such as compressed natural gas, or “carbon-free” CNG. Some Solid Waste Services vehicles already run on CNG.

Charlotte Water already collects the biogas; the project would require gas scrubbers and compressors to remove CO2 and other materials from the gas. If the pilot is successful, it could be duplicated in a larger scale at other facilities.

WHY IT’S IMPORTANT

- This “carbon-free” CNG is a zero-carbon fuel source, which leads to improved air quality and reduced carbon use for the City as a whole.
- The project supports at least two SEAP goals and is a way to use this byproduct of the wastewater treatment process to support the environment.
WHO IT IMPACTS:
• Right now, Charlotte Water only uses the biogas as boiler fuel in the plant digesters and destroys any excess gas.
• CATS, Solid Waste Services or other City departments could use the CNG in converted fleet vehicles, potentially resulting in cost savings for these departments and the City.

COST
• $6 million

PROJECT TIMELINE:
• The design phase would start in FY22 with construction expected to start about a year after that. Construction will take approximately nine to 12 months.

Project Information and Updates:
https://charlottenc.gov/Water/Projects/Pages/CommunityInvestmentPlan.aspx
Project Manager: Will Rice, wrice@charlottenc.gov
COMMITMENTS TO PUBLIC PROJECTS & UTILITY OPERATIONS

COMMUNITY INVESTMENT PROGRAM 2020-24

PARTNERING FOR PROGRESS - PUBLIC ROAD PROJECTS

PROJECT OVERVIEW

In just the past 25 years, the Charlotte region's urban population has increased 135 percent, and more people means more projects to address growth and expansion. Charlotte Water is committed to working with local, state and federal partners on projects that benefit our area. Those include Department of Transportation improvements, from highway lane additions to interstate off-ramps, I-485 and I-77 Express Lanes project; growth at and around Charlotte Douglas International Airport; the light rail project and more.

When it comes to North Carolina Department of Transportation (NCDOT) projects, Charlotte Water infrastructure sits in the state right-of-way nearly 100 percent of the time. That means when the state moves forward with construction projects, Charlotte Water has to move water and sewer lines at its cost, on the state's timetable. Staff always looks to the future when designing these projects, working to move lines as far out as possible so they won't need to be relocated if another lane is added, and improving infrastructure for expected growth, even if it's not yet needed.

INDEPENDENCE BLVD WIDENING - WATER & SEWER

That's what's happening right now, as Charlotte Water partners with the NCDOT on several major road projects. The NCDOT plans to widen and add express lanes to a 6.3-mile stretch of Independence Boulevard from Conference Drive in Charlotte east to I-485 in Matthews. Charlotte Water will need to move its water and sewer lines to make way for the widening project.

Cost: $24 million

Project Timeline: The NCDOT is expected to start work on the project in 2022. Charlotte Water will begin design work in 2019; construction will depend on the DOT's timeline.

Project Information and Updates:
Charlotte Water: https://charlottenc.gov/Water/Projects/Pages/CommunityInvestmentPlan.aspx
NCDOT: https://www.ncdot.gov/projects/us-74-express-lanes/Pages/default.aspx
Project Manager: William Deal, wdeal@charlottenc.gov
MCKEE ROAD WATER MAIN EXTENSION

The NCDOT is also extending McKee Road in Matthews approximately .75 miles from the intersection of Pleasant Plains Road northeast until it intersects with East John Street. The project will improve east-west connectivity in the area, improve access to East John Street and Pleasant Plains Road, and provide an alternative way for drivers to get to I-485.

The project extends McKee Road through a wooded area next to several existing neighborhoods. Charlotte Water will relocate several water mains and a gravity sewer, as well as use this project as an opportunity to close gaps in the system and improve system reliability.

Cost: $2.5 million

Project Timeline: The NCDOT is expected to start work on the project in the summer of 2020. Charlotte Water will begin design work in 2019; construction will depend on the DOT's timeline.

Project Information and Updates:
Charlotte Water: https://charlottenc.gov/Water/Projects/Pages/CommunityInvestmentPlan.aspx
Project Manager: William Deal, wdeal@charlottenc.gov

OLD DOWD ROAD AIRPORT 24” WATER MAIN CONNECTION

Charlotte Douglas International Airport, like the Charlotte region, is growing. It’s the 10th largest airport in the county in total passengers and sixth in aircraft movements, serving more than 45 million passengers in 2017.

Charlotte Water’s Old Dowd Road Airport 24” Water Main Connection project will improve water-service reliability at the airport. Right now, the airport is served by a 24” water line that’s connected to the 72” transmission main. Charlotte Water is concerned that if either of those lines experience an interruption, the airport may not have enough water, so the new 24” water main connection will provide a redundant water line to the airport. While the airport is the primary beneficiary, local businesses and residents may also have improved reliability.

Cost: $10 million

Project Timeline: Charlotte Water will select a design-build team and begin the design process in 2019. Construction will start in 2020 and should wrap up in 2021.

Project Information and Updates:
https://charlottenc.gov/Water/Projects/Pages/CommunityInvestmentPlan.aspx
Project Managers: Amy Vershel, avershel@charlottenc.gov
Ryan LeBlanc, ryan.leblanc@charlottenc.gov
PROJECT OVERVIEW

Charlotte Water will build a new Zone Four Field Operations Facility building at 4100 West Tyvola Road to replace the existing building, which is in poor condition due to age. The current building was installed in 1972 as temporary space for just the Wastewater Collections Division, with plans to replace it with a permanent facility.

More than 45 years later, Zone Four now houses field operations staff for both water and wastewater, the lift stations group, which services more than 80 lift stations, and will include a new maintenance shop.

The new LEED-certified building will include space for community use and public art.
LOCATION
• 4100 W. Tyvola Road, Charlotte, NC

COST
• $20 million

PROJECT TIMELINE
• The project is in the design stage; construction is expected in mid to late 2021.

WHO IT IMPACTS
• More than 85 Charlotte Water employees, who now work out of this outdated and small space
• Charlotte Water customers in Zone Four, which supports operations in Uptown, South End and the Dixie-Berryhill area southwest of the airport
• Developers in the booming South Boulevard corridor and Dixie-Berryhill area, where a major live/work/play project is underway
• Local residents, who will be able to use community space inside the new facility

WHY IT’S IMPORTANT
The project will:
• Provide more space, as well as updated and better facilities for Zone Four staff and Charlotte Water as a whole
• Allow Zone Four employees to better serve their customers in one of the fastest-growing areas of Charlotte
• Replace outdated buildings with healthy, highly efficient and cost-saving LEED-certified green facilities
• Be designed to closely resemble the new Zone Three Field Operations Facility, which opened in 2017; using similar plans for facility projects will save money on design costs

Project Information and Updates:

Project Manager: Chuck Bliss, cbliss@charlottenc.gov