



CHARLOTTE WATER

Stowe Regional

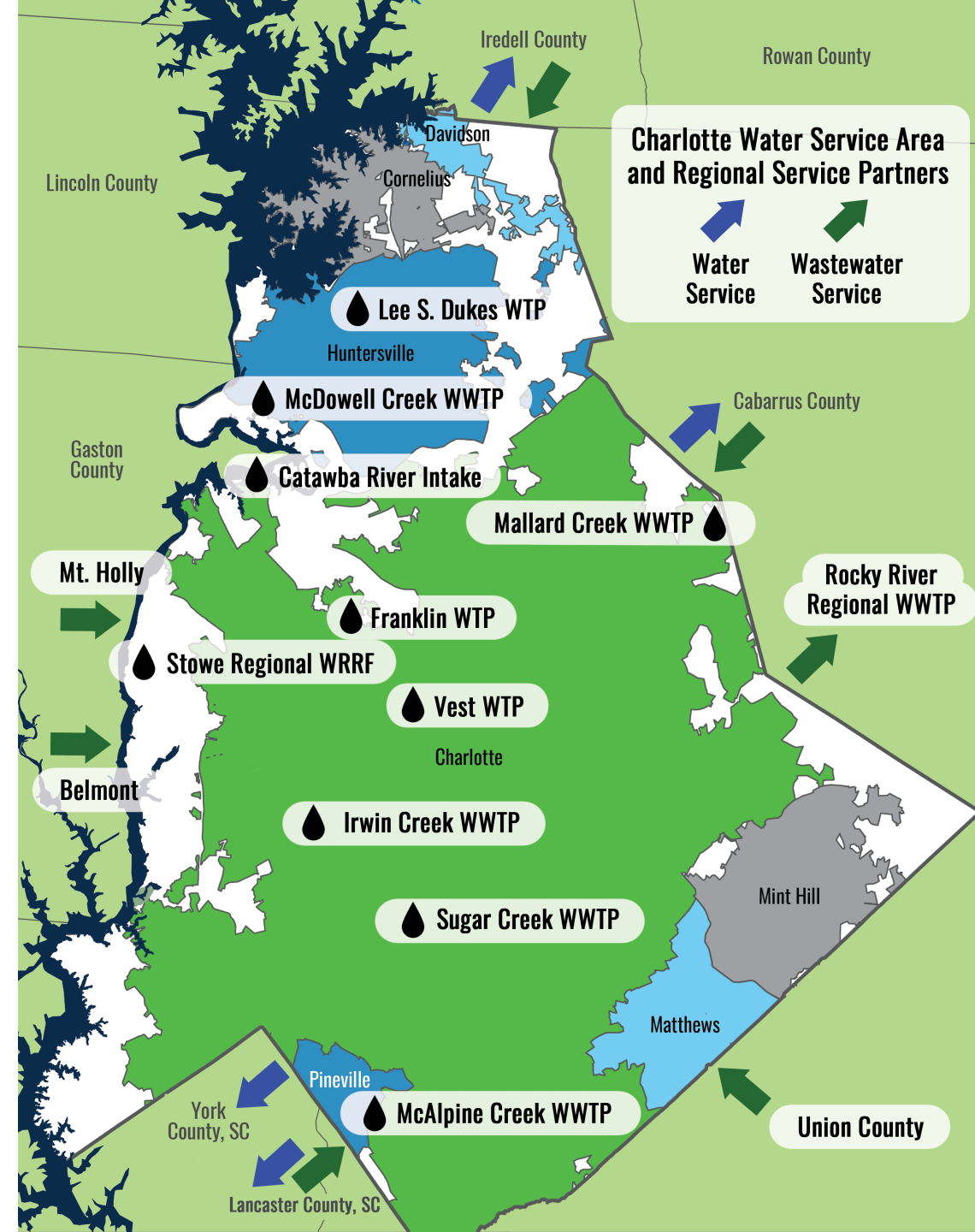
Water Resource Recovery Facility

Citizen's Water Academy – Session 14

March 1, 2022

Charlotte Water's System

- Two raw water intakes
- Three water treatment plants
- 174 MGD Water Treatment Capacity
- 4,471 miles water mains
- Five major wastewater treatment plants + one in design
- 123 MGD Wastewater Treatment Capacity
- 6 MGD Purchased capacity (12 MGD total)
- 82 pump stations
- 4,509 miles sewer mains
- Partnership agreements with most surrounding counties and many towns



Project Drivers

History:

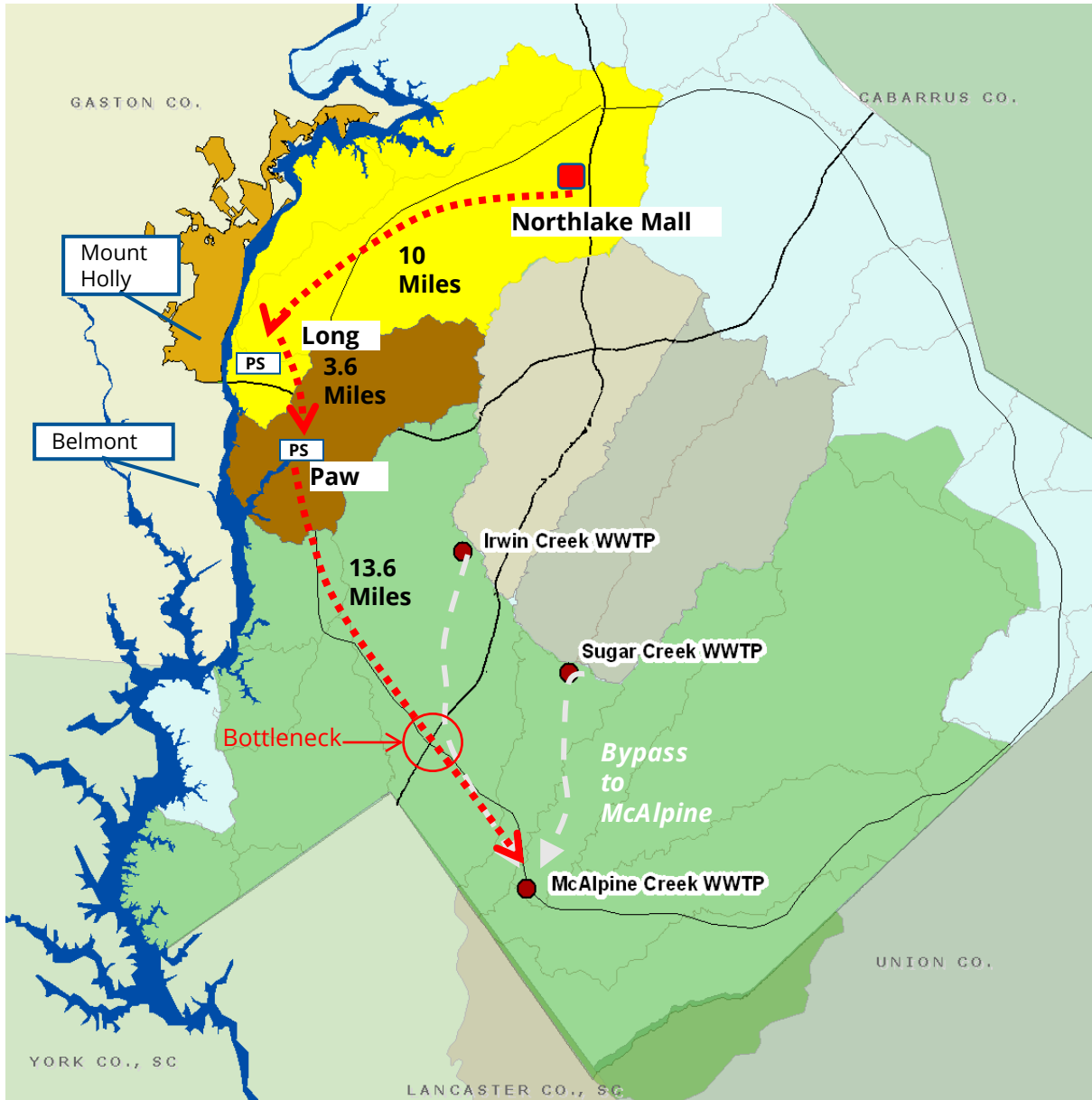
- Project discussed since the 1970s
- Studies supported add'l treatment vs. conveyance
- 1996 Nutrient TMDL issued for Lake Wylie

Current Situation:

- Piping flow more than 27 miles via 2 pumping stations
- Major system restriction
- Flows are increasing
- Major capital \$ solution
- Lake Wylie fully allocated

Solution:

- Partner with existing permitted dischargers
 - Mount Holly plant
 - Belmont plant
 - Industrial plant
- Leverage current infrastructure (connection points)
 - Long Creek PS
 - Paw Creek PS



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Project Benefits

- Protect the Environment
 - Meets TMDL for Lake Wylie
 - Removes 2 existing discharges
 - State-of-the-art treatment
- Economic Development
 - Provide for future growth
 - Investment in the community
- Regional approach
 - No nutrient removal investment for Belmont or Mount Holly
 - Least impact on customer rates

Project Partners



PROJECT DEVELOPMENT PROCESS*

*Schedule is subject to change

2006 2007 2008 2009 2010 2011 2012 2013 2014 2015

Charlotte Water and the City of Mount Holly completed the *Feasibility and Preliminary Planning Study for Regional Wastewater Treatment* and decided to further evaluate wastewater treatment options through an Environmental Impact Statement (EIS) process.

Charlotte Water developed a Wastewater Treatment Plant Expansion Plan. This Plan recommended a regional wastewater management strategy and new wastewater facility to serve the Long Creek Basin.

Charlotte Water purchased site for new wastewater treatment facility.

Environmental Impact Statement Process

2016 2017 2018 2019 2020 2021 2022 2023 2024 2025

Mount Holly and City of Charlotte enter into an interlocal agreement.

Belmont and City of Charlotte enter into an interlocal agreement.

The Long Creek Regional Wastewater Treatment Facility is renamed the Stowe Regional Water Resource Recovery Facility.

National Pollutant Discharge Elimination System (NPDES) Permit for the Stowe Water Resource Recovery Facility is issued by the NCDEQ.

Charlotte Water selects a Design-Build Team for the Stowe Regional WWRF.

Charlotte Water forms the Stowe Community Stakeholder Committee.

Begin construction of Mount Holly Pump Station to bring Mount Holly wastewater flows to Charlotte Water facilities.

Begin construction of Mount Holly Pump Station to bring Mount Holly wastewater flows to Charlotte Water facilities.

Begin construction of Stowe Regional Facility

Anticipated completion

Preliminary Engineering Report for the Long Creek Regional Wastewater Treatment Facility is prepared.

Ongoing community engagement

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Water Resource Recovery Facility

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[Intro] ↗



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CHARLOTTE WATER

Stowe Regional

Water Resource Recovery Facility

As our community continues to grow, we will **need the ability to process more wastewater**. The Stowe Regional Water Resource Recovery Facility (WRRF) will be a **regional approach to wastewater treatment, serving western Mecklenburg County** and the **Belmont and Mount Holly** communities in eastern Gaston County.

This project will...



Process **15 million gallons** of wastewater per day.



Consolidate two wastewater treatment plants into one state-of-the-art facility.



Be more **energy efficient**, reducing our carbon footprint.



Eliminate extensive pumping system currently in operation.



Contribute to our community.

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Stowe Regional
Water Resource Recovery Facility

Projects Status

- **Stowe Regional Water Resource Recovery Facility**
- **Mount Holly Pump Station and Force Mains**
- **Belmont Pump Station and Force Mains**
- **Stowe Access Roads**
- **Regional Solids Transfer Project**



Permits

Stowe Regional WRRF Project

Permit Name	Permitting Authority
Conveyance Permit - Effluent Lines	Duke/FERC
Conveyance Permit - Utility Corridor	Duke/FERC
Discharge Permit - Outfall and Boat Dock	Duke/FERC
Section 401/404 Permit	US Army Corp of Engineers (USACE)
Section 10 Permit	USACE
Catawba River Buffer Authorization	NCDEQ
Erosion and Sediment Control Permit	NCDEQ
Authorization to Construct	NCDEQ
NPDES Industrial Stormwater Permit	NCDEQ
Environmental Management Plan Approval	NCDEQ
Plan Approval	City of Charlotte Land Development
Building Permit	Mecklenburg County Code Enforcement
Floodplain Development Permit	Mecklenburg County
NPDES Stowe RWRRF Discharge Permit	NCDEQ

Access Roads Project

Permit Name	Permitting Authority
Nationwide Permit 12 Utility Lines	US Army Corps of Engineers (USACE)
Nationwide Permit 14 Linear Transportation Projects	USACE
401 Water Quality Certification	NCDEQ
Driveway Permit	NC DOT
Site Plan Approval	City of Charlotte Land Development
Erosion and Sediment Control (E&SC)	NCDEQ
Conditional Letter of Map Revision (CLOMR)	FEMA
Individual Floodplain Development Permit (IFDP)	Mecklenburg County
Building and Trades Permit	Mecklenburg County
Temporary Access	Clariant Corporation
Encroachment	Catawba Land Conservancy
Conveyance Permit	FERC

Mount Holly Pumping Station & Force Mains

Permit Name	Permitting Authority
Permit Modification	NCDEQ
Dry Force Main (Fast Track)	NCDEQ DWR/DWI
FERC Line Crossing	Duke Energy
Erosion and Sediment Control (HDD)	NCDEQ DELMR
Floodplain Development Permit (HDD)	Mecklenburg County
Nationwide Permit 12	US Army Corp of Engineers
Erosion and Sediment Control	NCDEQ DELMR
Floodplain Development Permit (Mass Ex)	Mecklenburg County
Land Development/ PC Stormwater Management	City of Charlotte
Buffer Disturbance Approval	City of Charlotte
Land Development & Zoning Compliance Permit	City of Mt. Holly
Sewer Extension Permit (Mt. Holly PS)	NCDEQ
SRF Review	NCDEQ-DWI
NPDES Discharge Permit	NCDEQ
EMP for Brownfield	NCDEQ
FEIS Revision	NCDEQ DWR
Air Quality Permit (Generators)	Gaston County
Sewer Extension Permit (Stowe PS)	NCDEQ
Building & Trade Permits	Mecklenburg County
Update Floodplain Development General Permit	Mecklenburg County
Air Quality Permit	Mecklenburg County

Belmont Pumping Station & Force Mains

Permit Name	Permitting Authority
FERC Line Crossing	Duke Energy
Erosion and Sediment Control (HDD)	NCDEQ DELMR
Floodplain Development Permit (HDD)	Mecklenburg County
Nationwide Permit 12	US Army Corp of Engineers
Erosion and Sediment Control	NCDEQ DELMR

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LONG CREEK

CATAWBA RIVER

CHARLOTTE WATER

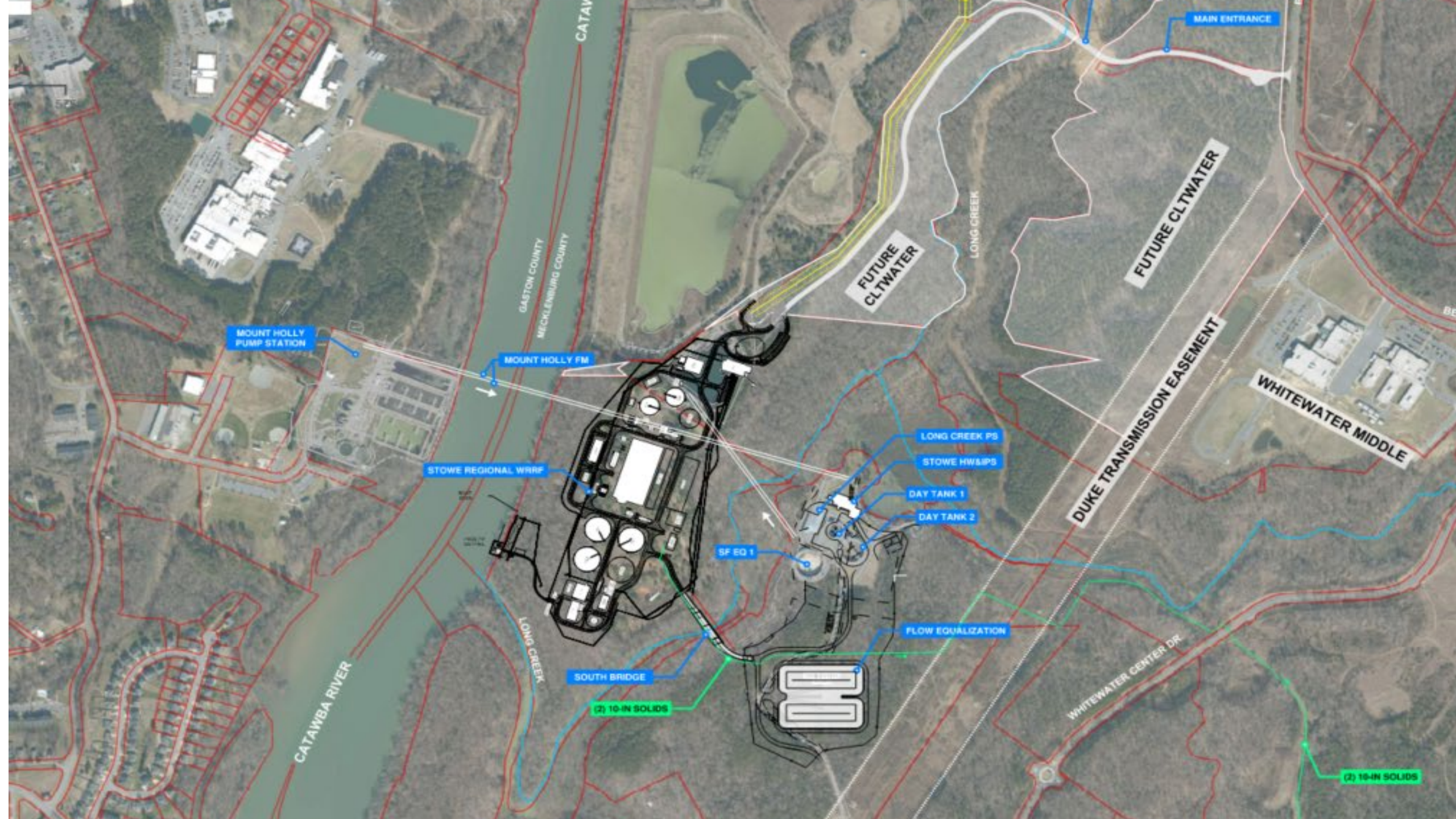
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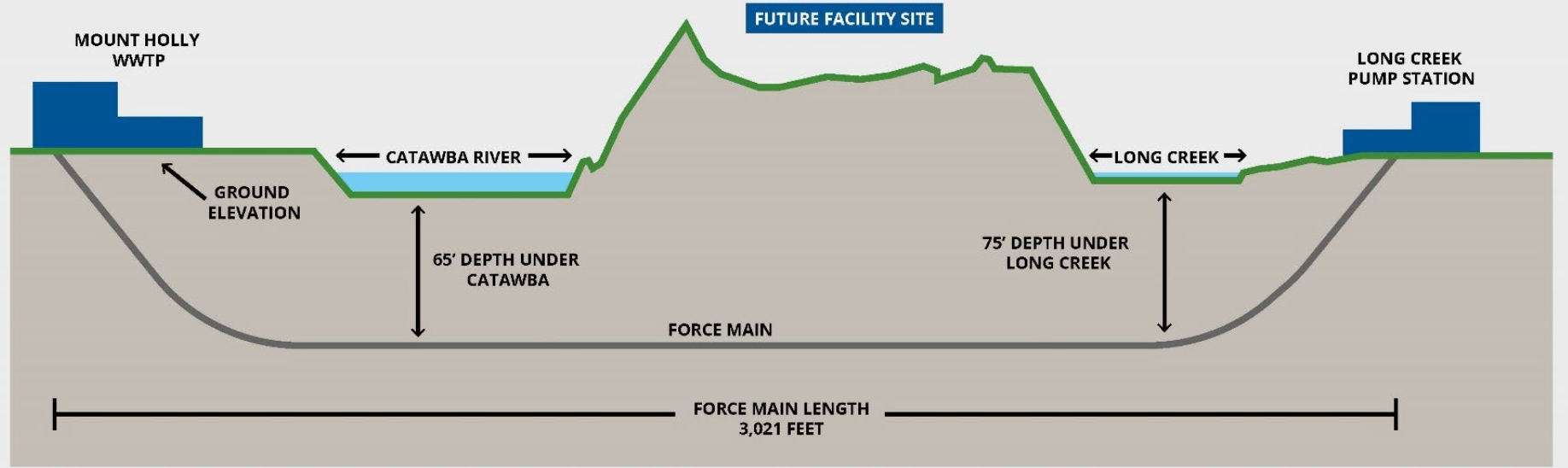


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Pipeline Installation Under the River



SUBJECT TO CHANGE

Decision Criteria

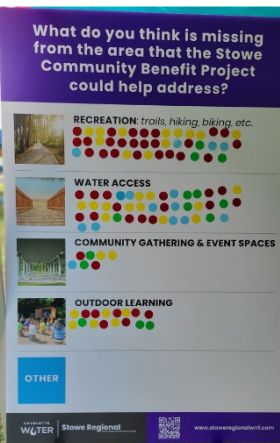
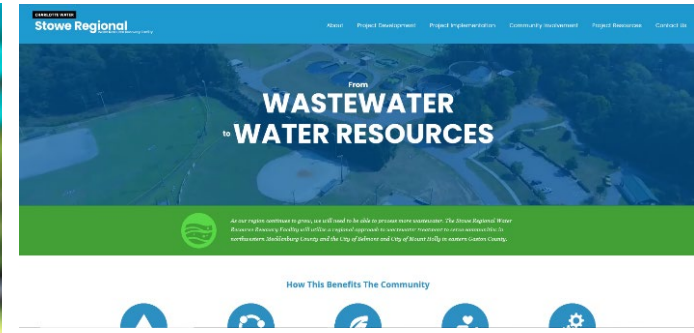
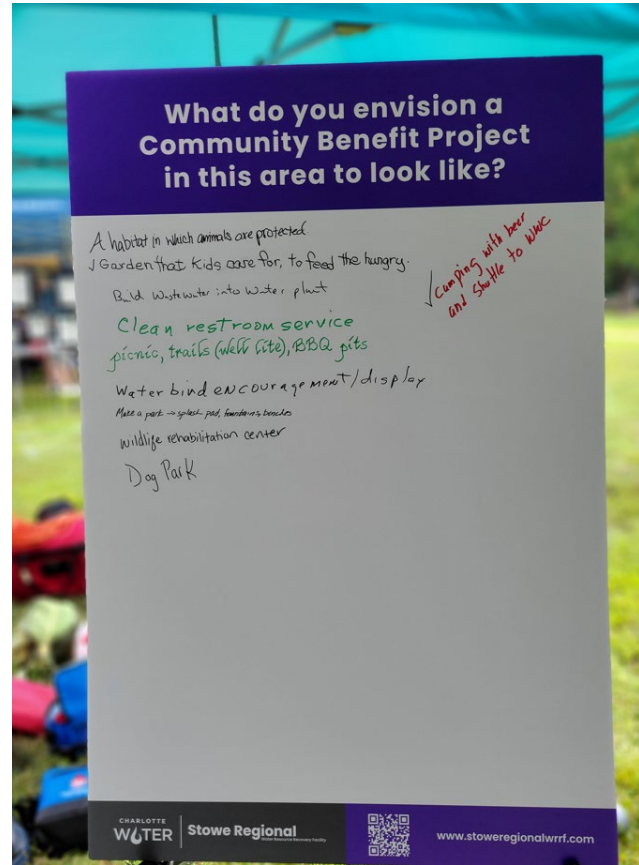
Cost	Operation & Maintenance	Sustainability / Efficient Use of Resources	Community Impacts / Good Neighbor
<ul style="list-style-type: none">• Capital cost• O&M cost• Cost risk factors• Future expansion	<ul style="list-style-type: none">• Ease of operation• Ease of maintenance• Process flexibility• Future process requirements• Treatment risk factors• Success of previous installation	<ul style="list-style-type: none">• Potential for resource recovery• Resiliency• Energy footprint	<ul style="list-style-type: none">• Alignment to city-wide goals• Odor generation• Impact to stakeholders• Noise / visual aesthetics

Charlotte Water's Commitment

We are committed to implementing a **Community Benefit Project** on the land around the new Stowe Regional Water Resource Recovery Facility that would serve as an enriching community amenity for neighbors. We want this Community Project to create a vibrant public space or a meaningful community feature that encourages connectedness and well-being in our project community.

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Questions

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StoweRegionalWRRF.com



Dial 311



@CLTWater

Operated by the City of Charlotte



CITY OF GASTONIA
TWO RIVERS UTILITIES

The Future of Water & Sewer in Gaston County

Ed Cross

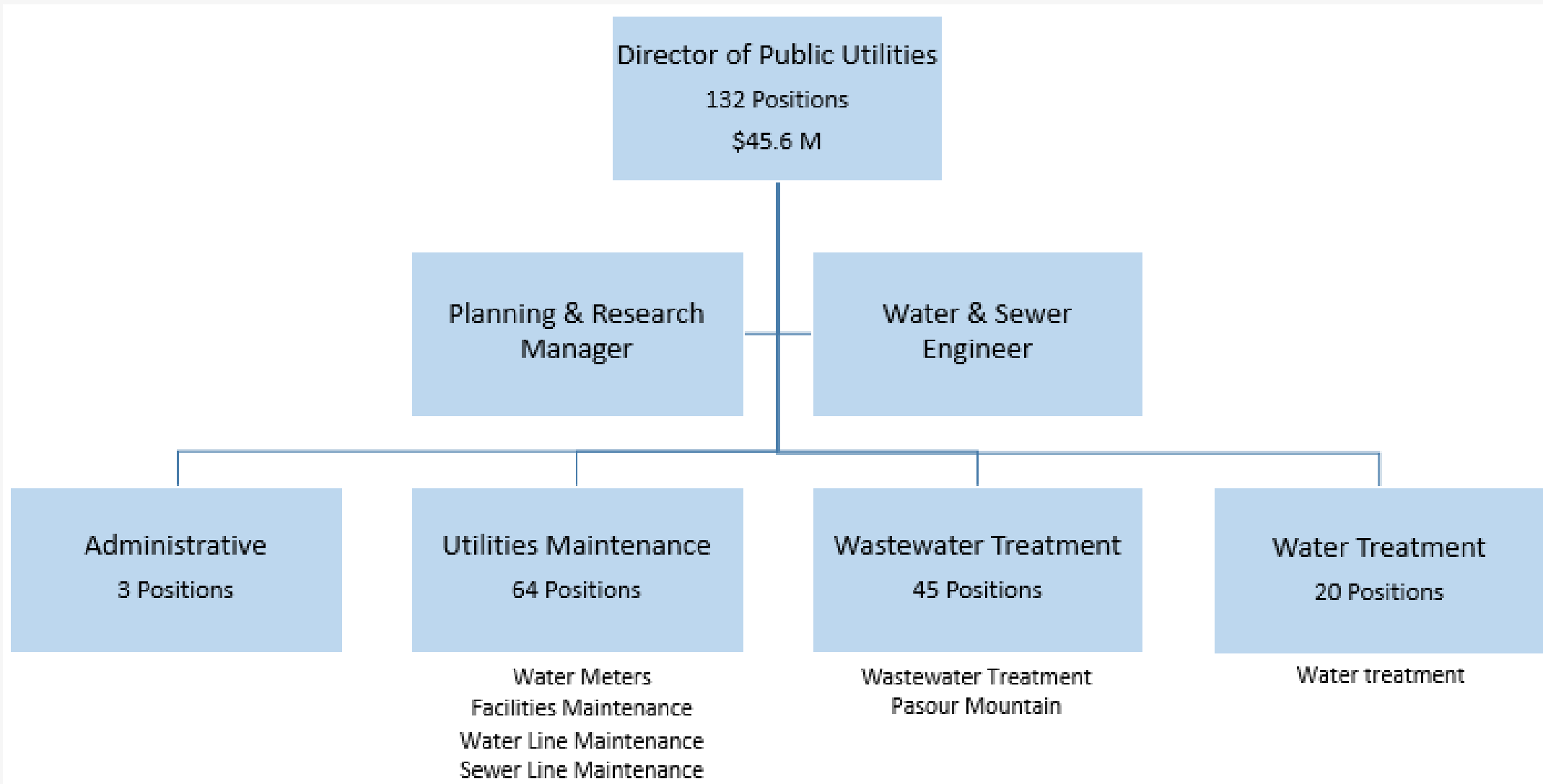
March 1, 2021



We are TRU to our customers!

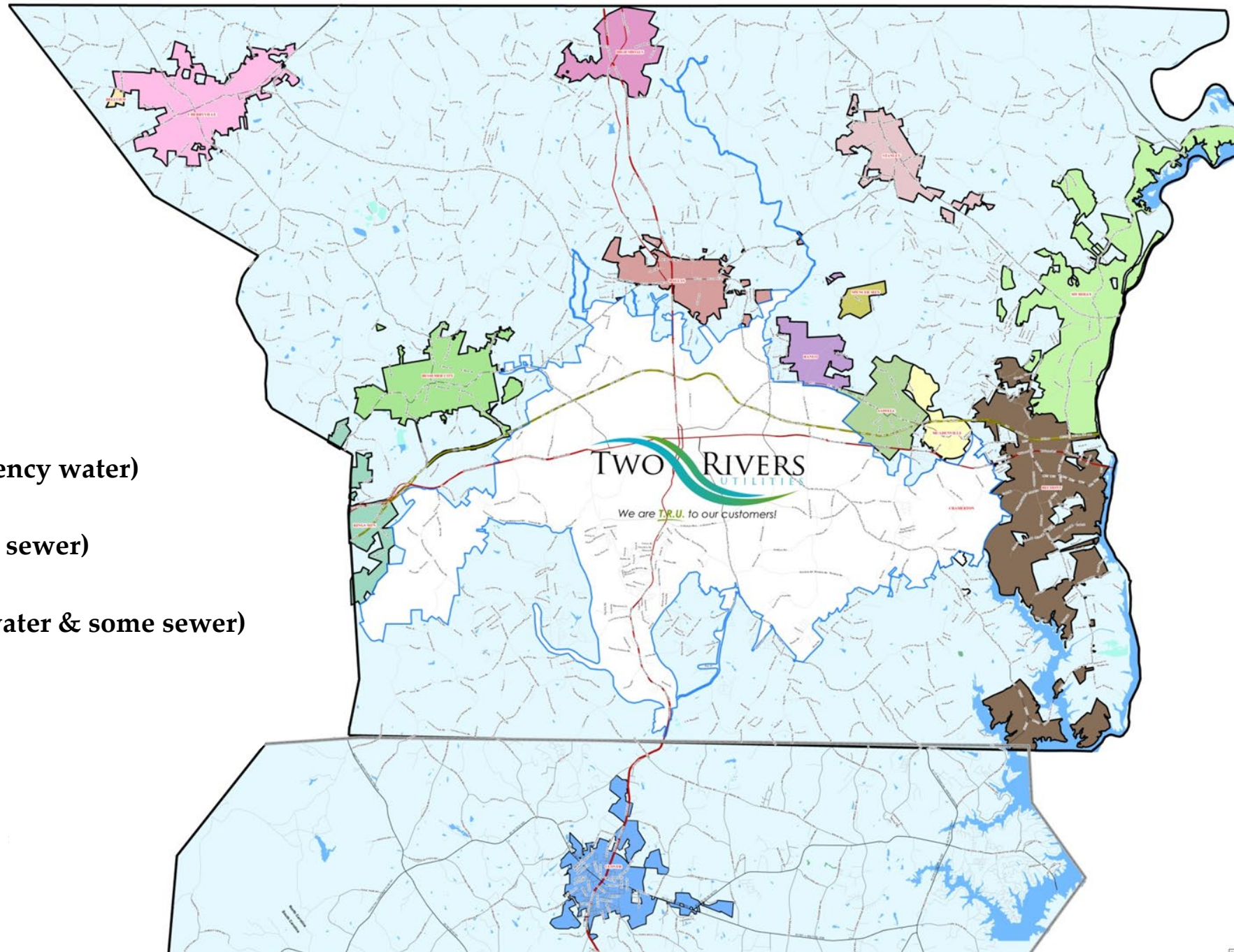
Who is Two Rivers Utilities?

- **Formed from 2011 Cramerton consolidation as a rebranding of City of Gastonia Water and Sewer Utilities into a regional provider**
 - **Full-Service Utility: Commercial Labs, Engineering, Maintenance, Pretreatment, etc.**
 - **All Divisions are ISO 14001 Certified**
 - **Our Treatment Plants are among only a handful of facilities across the State that are a part of the North Carolina Environmental Stewardship Initiative at the “Steward” level, which is the highest level recognized**
 - **Two Rivers Utilities carries a Fitch Bond Rating of aa+**



Municipal Customers

- Stanley (sewer)
- High Shoals (sewer)
- Kings Mountain (some sewer)
- Lowell (water & some sewer)
- Bessemer City (sewer and emergency water)
- Belmont (emergency water, some sewer)
- Dallas (emergency water, some water & some sewer)
- Ranlo (water & sewer)
- McAdenville (water & sewer)
- Cramerton (water & sewer)
- Clover, SC (water & sewer)



System Capacity

**Current
Average**

**Total
Capacity**

(Flow in million gallons per day)

Water Treatment Plant

Long Avenue

13.9

27.3

Wastewater Treatment Plants

Long Creek

8.5

16.0

Crowders Creek

3.1

6.0

Eagle Road

0.9

4.0

Plants are operating at approximately 50% capacity

Current Drivers for Regionalization

- Increasing capital cost driven by demand in the construction market
- The need for economies of scale
- Increasing technical complexity
- Increasingly stringent regulatory requirements
- Labor market challenges
- Aging systems
- Growth

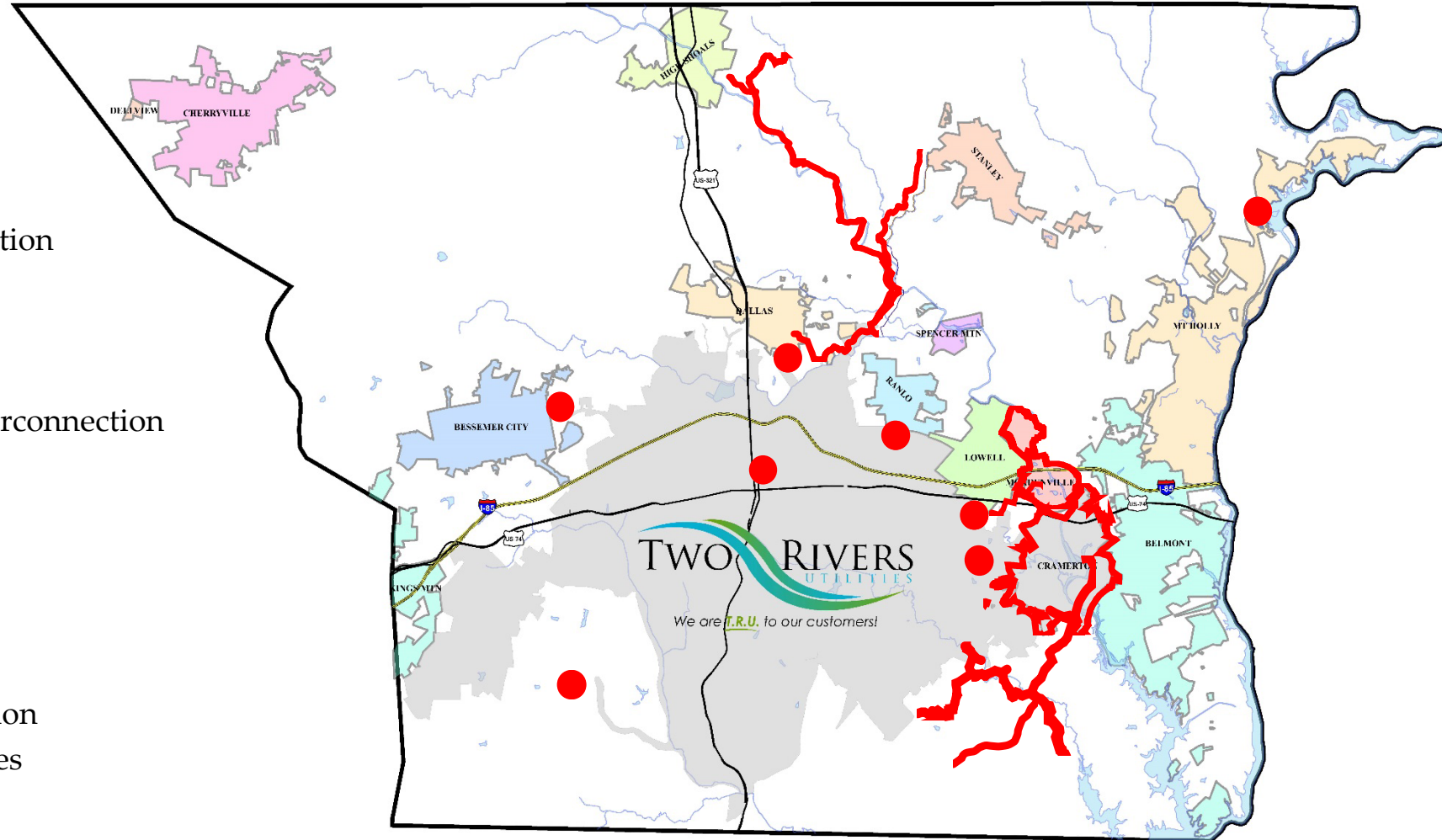
Projects of Note in the Last 10 Years

Completed Projects

- Cramerton Consolidation
- High Shoals Sewer
- Stanley Sewer
- McAdenville Contract Operations
- Mount Holly Raw Water Interconnection
- South Fork Sewer Phases I & II
- Smyre Water System Conversion
- TRU WTP Renovation
- Bessemer City Emergency Water Interconnection

In Progress or Planning

- Southeast W&S
- Dallas Sewer Interconnection
- Big Lakewood Pump Station Relocation
- Wastewater Treatment Plant Upgrades
- McAdenville Consolidation Study
- Southwest W&S



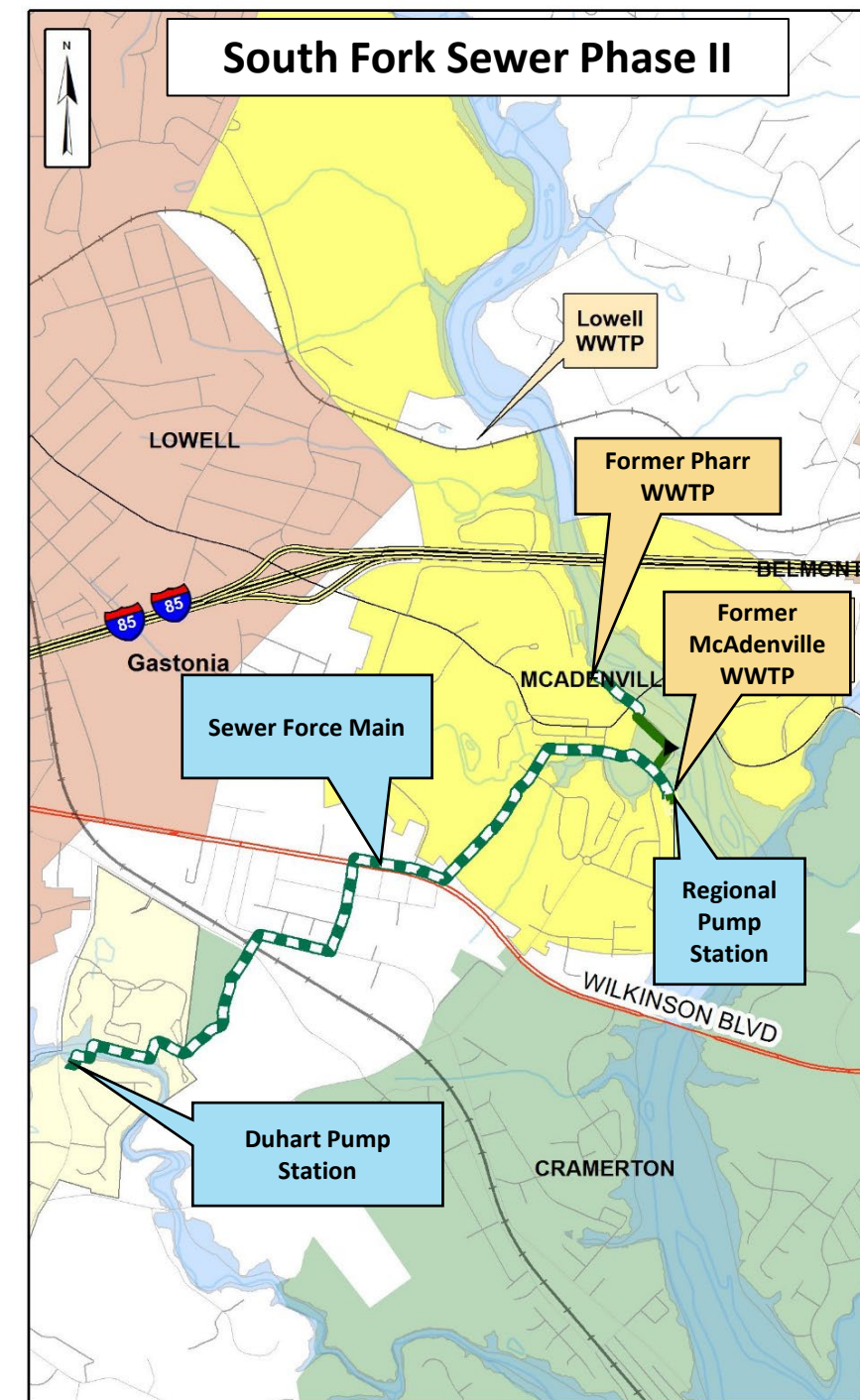
* Charlotte wastewater plant that will serve Belmont & Mount Holly is scheduled to be online in 2024

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Recently Completed Projects of Note

South Fork Sewer Phases I & II

- \$6.7 M investment
- 3 miles of sewer line & 1 regional pump station
- Eliminated 3 aged WWTPs & 1 aged pump station
- 8 partners: Gastonia, McAdenville, Cramerton, Gaston County, Pharr, Lowell, Carolina Water Service & Gaston County Economic Development Commission
- Funding
 - 5 grants (\$3.4M) : NC Department of Commerce, Golden LEAF, Gaston County & two from Clean Water Management Trust Fund
 - 2 loans: McAdenville (\$0.3M) & Gastonia (\$3.0M)
- 12 year effort



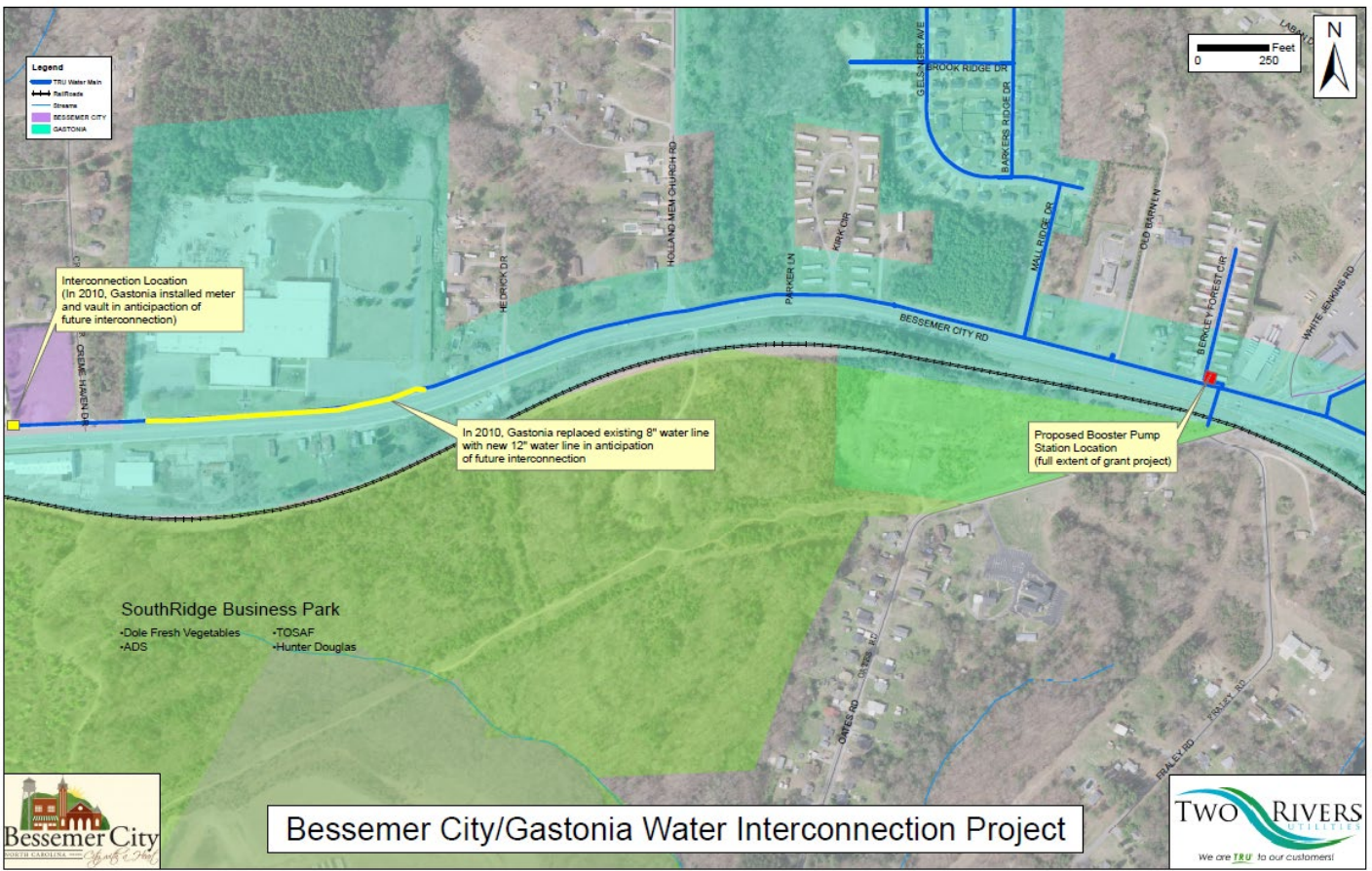
Water Treatment Plant Upgrade

- \$65 M Investment
- 3D design model
- Latest in drinking water membrane technology
- 4 MG clearwell
- Internal recycling to reduce wasted water
- Modernize laboratory
- State-of-the-art SCADA system and control room
- Training and meeting space



Bessemer City Emergency Water Interconnection

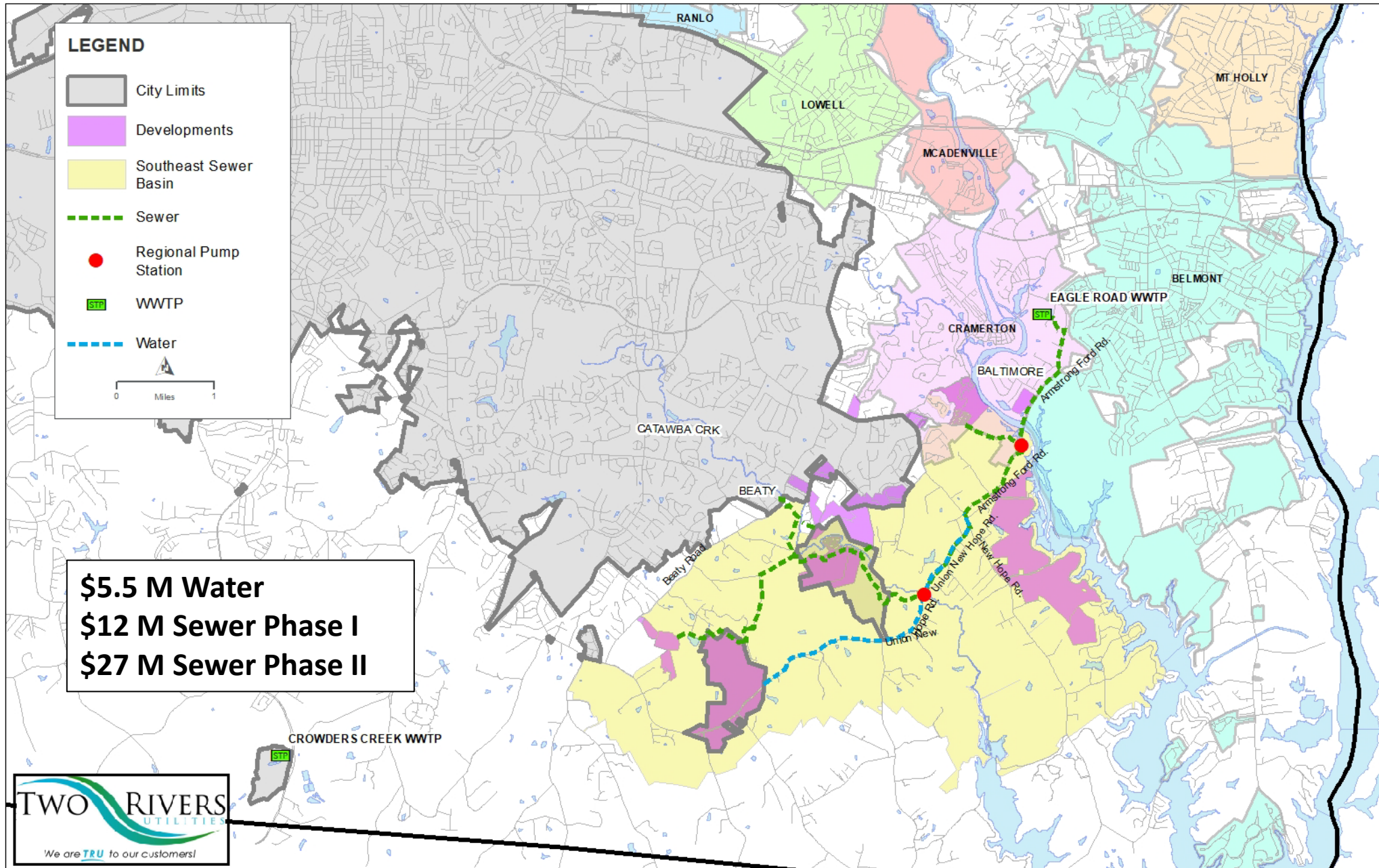
- \$2.0 M project
- Water booster pump station & piping
- Design & permitting are completed
- Funding
 - \$1.6 M Commerce grant
 - Remaining funding being sought
- Important for economic development
- Completed October 2021



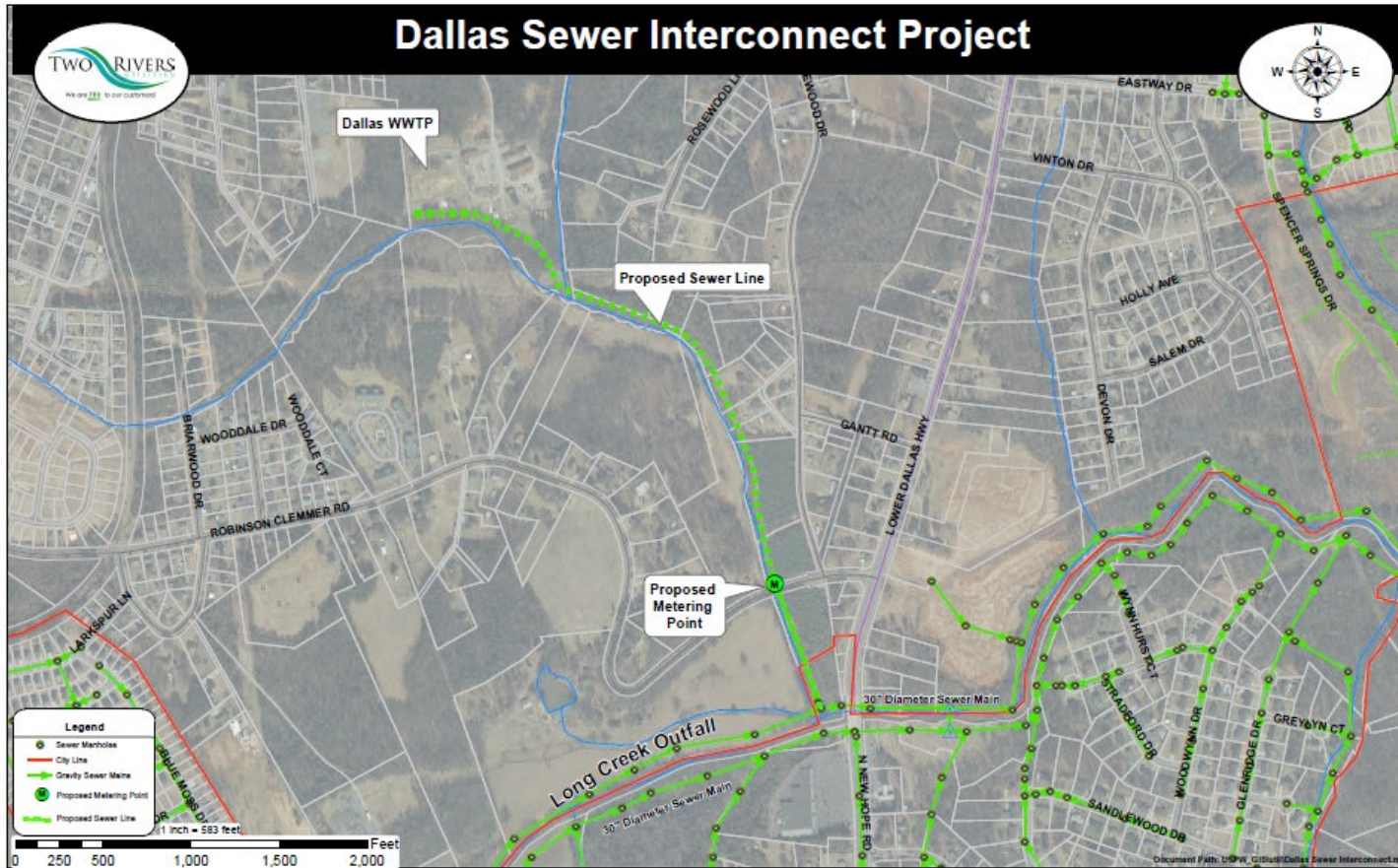


Current Projects and Future Planning

Southeast Water & Sewer



Dallas Sewer Interconnection



- \$937,000 project
- Sewer piping & appurtenances to establish connection
- Funding
 - \$150,000 Dallas
 - \$487,000 Gastonia
 - \$300,000 Gaston County
- Completion targeted Fall 2021

Big Lakewood Sewer Pump Station Relocation

- \$2.0 M project
- Serves northeast Cramerton
- Relocate pump station out of the floodway
- Funding
 - \$1.5 M FEMA Grant
 - \$0.5 M Gastonia
- FEMA grant award in progress
- 12 months to design and permit
- Construction completion targeted by December 2022



Wastewater Treatment Plant Upgrades

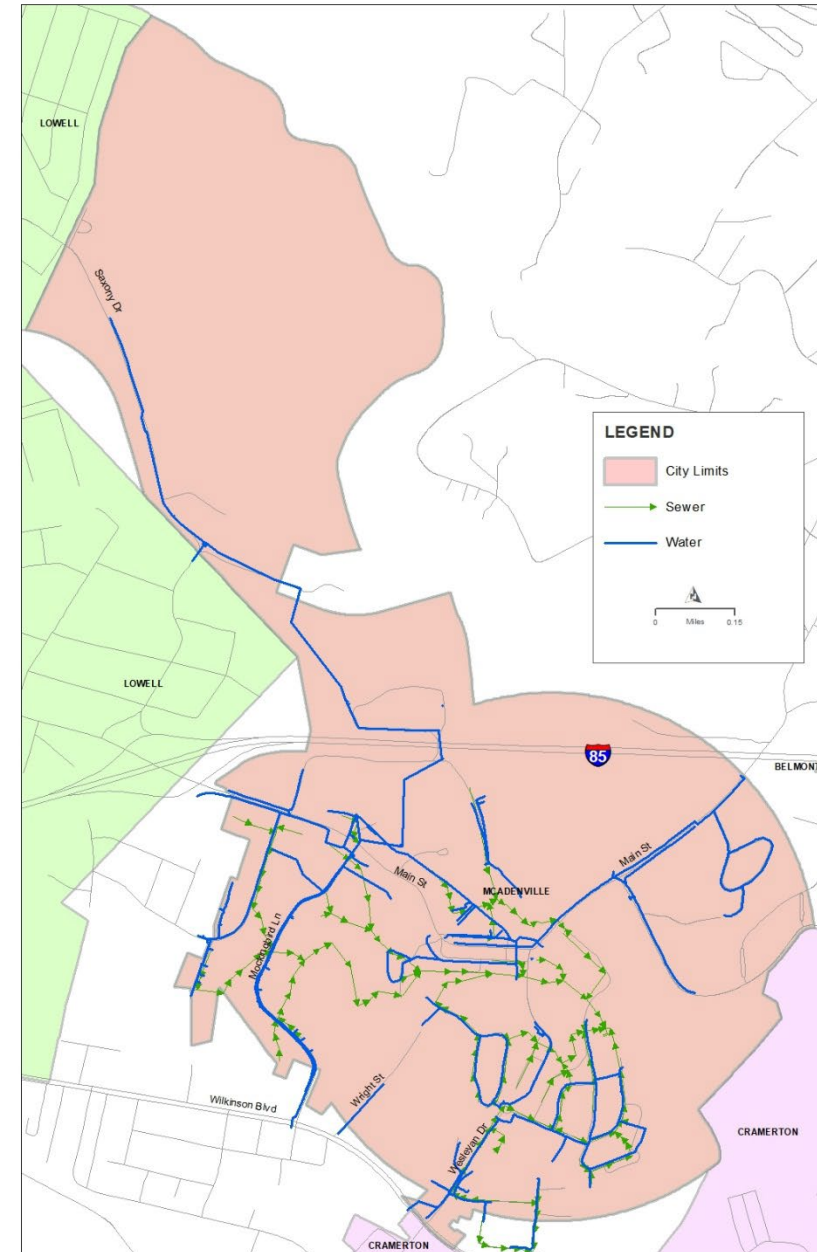
- Several projects are currently underway to ensure the continued reliability of TRU's three WWTPs
- All are funded from W&S rates
- Currently working on additional asset management planning

Project	Cost	Target Completion
Crowders Bar screen Replacement	\$0.4 M	FY 21
Crowders & Long Creek SCADA Software	\$0.5 M	FY 22
Long Creek Control Network Replacement	\$0.6 M	FY 22
Long Creek Secondary Substations (4)	\$1.8 M	FY 23

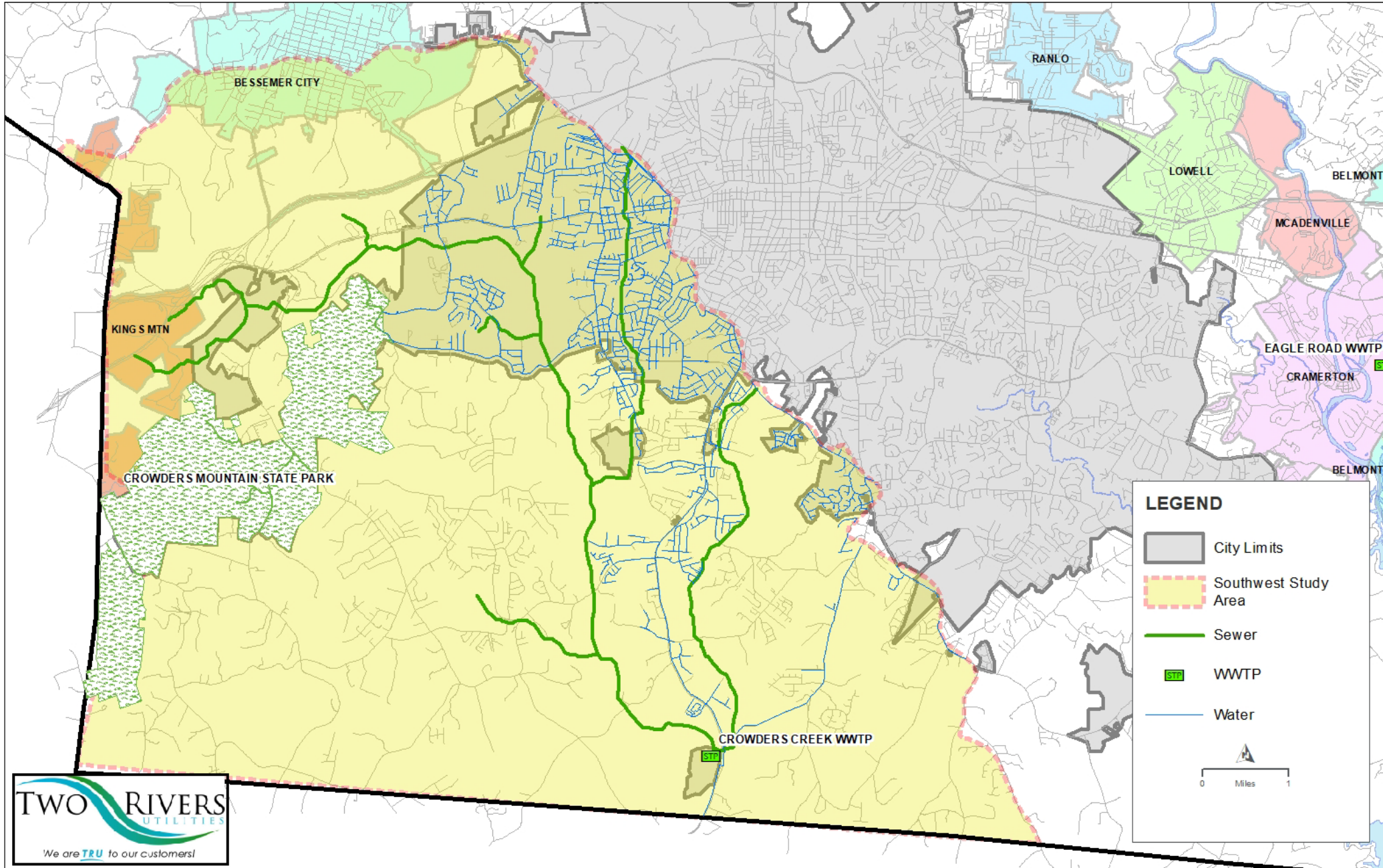


McAdenville Consolidation Study

- TRU has operated W&S on contract basis for 8 years
- Study of financial considerations to both McAdenville & TRU of a full W&S consolidation
- McAdenville applied for two Merger/Regionalization Feasibility grants from the NC Division of Water Infrastructure
 - \$50,000 water grant
 - \$50,000 sewer grant
 - NCDWI will announce in February 2021
- NCDWI has awarded merger study grants to all entities that submitted complete applications



Southwest Water & Sewer Study



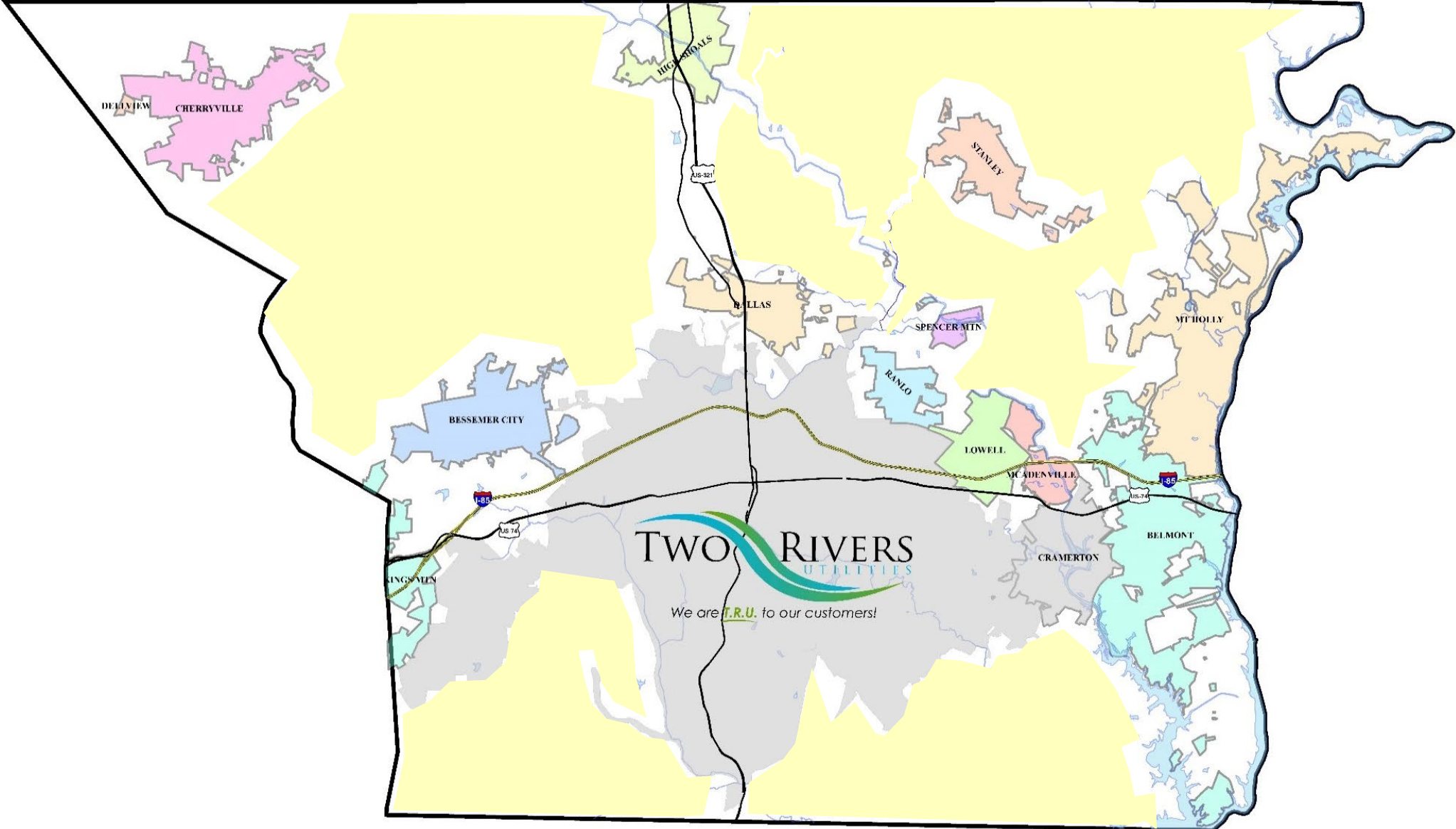
Southwest Water & Sewer Study

- Extensive study of existing and future water distribution and wastewater collection system to prepare for population growth and economic development in SW Gaston County
- Study Scope
 - Data Collection and Review
 - Basin Hydraulic Models
 - Future Flow Projections
 - Capital Project Identification & Cost Estimates
- Findings
 - Existing water & wastewater treatment plant capacities were found to be adequate to serve the basin through build out
 - Capital needs to 2040: \$17.8M (\$9.3M water & \$8.5M sewer)
 - Contingent upon growth

Moving Forward

- **Potential McAdenville W&S consolidation**
- **Potential acceptance of Pharr collection system**
- **Continued strong positive relationships with municipal partners**
- **Continue successful work with Gaston County Economic Development Commission**
- **Focus on system resiliency and reliability**
 - **Asset Management Plans**
 - **AWIA / Risk & Resiliency Implementation**
- **Focus on ensuring adequate W&S capacity to support growth**

Areas Without Water & Sewer



QUESTIONS?