



Charlotte City Council

Environment Committee

Meeting Summary for June 10, 2015

COMMITTEE AGENDA TOPICS

- I. **Subject:** **Charlotte Water’s Major Capital Projects**
 Action: None
- II. **Subject:** **Update on Environment Focus Area Plan**
 Action: None

COMMITTEE INFORMATION

Present: John Autry, David Howard, Claire Fallon and Kenny Smith
Time: 2:00 p.m. to 3:10 p.m.

ATTACHMENTS

1. Agenda Package
2. Upcoming Projects Related to System Capacity.ppt

DISCUSSION HIGHLIGHTS

Chairman Autry called the meeting to order and asked everyone in the room to introduce themselves. He then turned it over to Assistant City Manager Hyong Yi.

I. **Charlotte Water’s Major Capital Projects**

Mr. Yi stated that staff has been asked to present to this Committee information on large Charlotte Water projects that will be coming to the Council for consideration. He then turned it over to Carl Wilson from Charlotte Water. Mr. Wilson talked about three large-scale upcoming projects related to system capacity. Those projects are Briar Creek Relief Sewer, Irwin Creek WWTP Improvements, and Taggart Creek Relief Sewer. Mr. Wilson began reviewing the “Upcoming Projects Related to System Capacity” presentation (copy attached). He discussed the EPA consent order capacity requirement and reviewed a map showing a 2-year level of service

Environment Committee

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for our system during rain events. Mr. Wilson reviewed Phase 3 of the Briar Creek Relief Sewer Project.

Howard: Will this phase 3 affect streets or interrupt traffic?

Gullet: You are thinking about a water line. These are sewer lines and they follow creeks and are generally off roads, except in rare areas that there physically is no room and we have to go in front of a house.

Mr. Wilson went on to review the slides related to the Irwin Creek WWTP improvements. He discussed the project background, the different phases of improvements as well as the sustainable features they are installing.

Fallon: Have the contracts been awarded already? Is \$40M in stone?

Wilson: No, contracts have not been awarded yet. The \$40M is based on estimates.

Howard: This project is due to us anticipating growth. How much capacity is there? How far out into the future are you looking in each area? I am thinking of the airport and wondering if this capacity will take care of the anticipated growth.

Gullet: Basically, if we do not do a combination of these projects we will be in trouble. The growth is coming. The project at Irwin Creek does not increase the capacity of the plant, but it makes the plant more reliable at those sewer flows. It is old and the equipment is not capable of operating at full capacity. The pipeline aspects are also old and too small to sustain future growth. It is a combination of replacing and planning. We have a master planning process that uses a scheduled sequence approach so we do not overbuild, but we can accommodate the likely development for this area. The master plan continuously gets updated.

Mr. Wilson continued with his presentation and reviewed the slides related to the Taggart Creek Relief Sewer project. Mr. Autry thanked them for their good work and their presentation and with no further questions asked to move to the next item.

II. Update on Environment Focus Area Plan

Mr. Yi introduced Rob Phocas and stated that Mr. Phocas will provide an update on the implementation of the Focus Area Plan. Mr. Phocas reviewed the “Charlotte as an Environmental Leader” presentation (copy attached). He reviewed the five major focus area initiatives and talked about how they will be implemented internally. He showed the Committee the newly developed environmental dashboard and reviewed the key projects that the City is working on and participating in. The Committee requested the presentation be emailed to them directly since their handouts were a little hard to read. Chairman Autry thanked Rob for the presentation and the Committee praised staff for the work they are doing around the environment.

Meeting was adjourned at 3:10 p.m.

Environment Committee

Wednesday, June 10, 2015; 2:00 – 3:30 p.m.
Charlotte-Mecklenburg Government Center
Room 280

Committee Members: John Autry, Chair
Ed Driggs, Vice Chair
David Howard
Claire Fallon
Kenny Smith

Staff Resource: Hyong Yi, City Manager's Office

AGENDA

I. Charlotte Water's Major Capital Projects

Staff Resources: Carl Wilson & Barry Gullet, Charlotte Water

In order to provide Council more information and opportunity for input on the Charlotte Water Capital Investment Plan, the City Manager referred Charlotte Water's major capital projects to the Environment Committee prior to project initiation.

There are several major projects that have already completed the design work over the past couple years and are ready for bidding, two of which were reviewed by the Environment Committee in April (Water System Master Plan and Steele Creek Sewer Liftstation Replacement). The Committee will review three more that are ready to bid before September (Briar Creek Relief Sewer Phase 3, Paw Creek Forcemain/Taggart Creek Outfall, and Irwin Creek Wastewater Treatment Plan Upgrade Phase 2). Each of these latter three projects has estimated construction costs between \$18 million and \$35 million.

Action: For information only

II. Update on Environment Focus Area Plan

Staff Resource: Rob Phocas, Neighborhood & Business Services

Staff will provide an update on the implementation of the Focus Area Plan including several specific initiatives.

Action: For information only

Attachment: 1. Charlotte: Environmental Leader.pdf

Next Meeting

Wednesday, September 9, 2015; 2:00 – 3:30 p.m., Room 280

Distribution:	City Council Bob Hagemann	Ron Carlee, City Manager Stephanie Kelly	Executive Team Environmental Cabinet
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CHARLOTTE AS AN ENVIRONMENTAL LEADER

Our new Environment Focus Area Plan sets us on the course of becoming a global environmental leader.

Today's Agenda

- 1) Environment Focus Area Plan
- 2) How we are organizing to achieve the goals
- 3) Key projects
- 4) Feedback from you
- 5) Next steps

Energy



Environment

DRAFT: FY2016 Strategic Focus Area Plan

"Charlotte will become a global leader in environmental sustainability, preserving our natural resources while balancing growth with sound fiscal policy."

The City of Charlotte recognizes that environmental stewardship is fundamentally important to quality of life and essential to maintaining a vibrant economy. Protecting our natural resources, promoting conservation, and improving the environment all enhance the City's mission to preserve its citizens' quality of life.

Charlotte will become a global leader in environmental sustainability by:

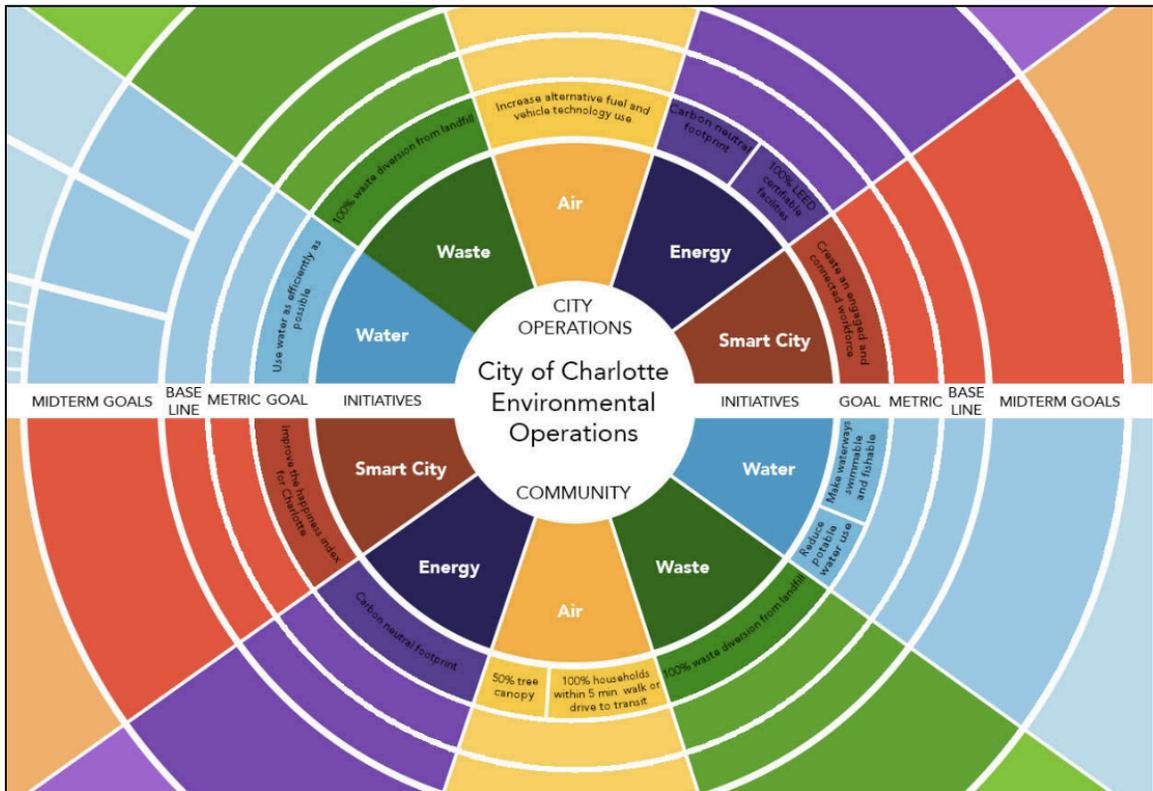
- Becoming a model environmental community in how it manages solid waste, energy, water and air;
- Leading by example by practicing environmental stewardship in City operations and facilities as directed through the Internal Environmental Operations Plan;
- Seeking and supporting collaborative and regional solutions to environmental problems;
- Applying technologies to develop "smart city" solutions to our environmental goals.

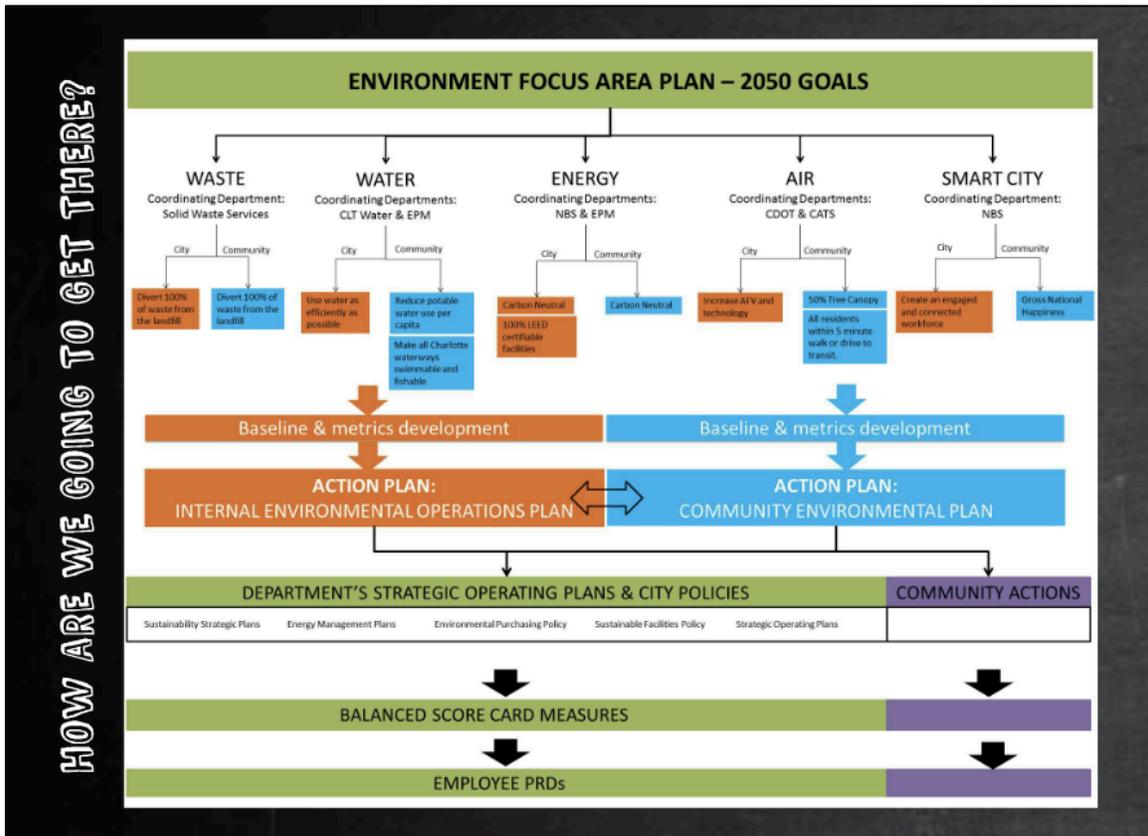
Specific initiatives to support these goals include:

FY2016 Initiatives	Key Indicators – Community
Waste	<ul style="list-style-type: none"> • Develop baseline towards 100% achievement of waste diversion from landfill
Energy	<ul style="list-style-type: none"> • Develop baseline towards achieving carbon neutral footprint for the community
Water	<ul style="list-style-type: none"> • Develop baseline towards reducing potable water use per capita • Develop baseline towards making all Charlotte waterways swimmable and fishable
Air	<ul style="list-style-type: none"> • Develop baseline towards achieving 50% tree canopy • Develop a baseline towards 100% of households located within a 5 minute walk or drive to a transit option by 2050
Smart City	<ul style="list-style-type: none"> • Develop the Happiness Index for Charlotte

FY2016 Initiatives	Key Indicators – City Organization
Waste	<ul style="list-style-type: none"> • Develop baseline towards achievement of 100% waste diversion from the landfill
Energy	<ul style="list-style-type: none"> • Develop baseline towards achievement of carbon neutral footprint for City operations • Develop baseline toward 100% LEED certified or equivalent government
Water	<ul style="list-style-type: none"> • Develop baseline towards using water as efficiently as possible
Air	<ul style="list-style-type: none"> • Develop baseline towards increasing alternative fuel and vehicle technology use
Smart City	<ul style="list-style-type: none"> • Develop baseline towards creating an engaged and connected workforce

Charlotte: Environmental Leader





HOW ARE WE GOING TO MEASURE?

CITY OF CHARLOTTE ENVIRONMENTAL DASHBOARD

Powered by **CSRware**

Data Analytics Introduction

- Introduction
- Commuting
- Energy Management
- Fleet
- Green Procurement
- Natural Assets
- Sustainable Facilities
- Waste Reduction
- Water Management

Introduction

Summary

Welcome to the City of Charlotte's environmental dashboard! Here, you'll find information and data about the City's internal operations, and initiatives aimed at making those operations more environmentally-responsible. One of the City's overarching goals under the [Environment Focus Area Plan](#) is to lead by example by practicing environmental stewardship in City operations and facilities. This dashboard showcases those practices, and our progress towards becoming a global environmental leader.



Recent Accomplishments

- Solid Waste Services added 5 new CNG trucks to fleet.
- Charlotte opened the doors of a new Green Globes certified facility.
- Old City Hall receives Energy Star Certification.

Learn more at www.power2charlotte.com

Twitter

The Queen City @CharlotteNCgov 7 May

The results are in! 3 city of Charlotte bids reduced #energy use by 14% in 2014 in the @EnergyStarNBCI #Power2CLT ow.ly/gHAYW

Retweeted by Charlotte TrafficGuy



http://charlotte-nc.csrware.info

Energy Secure Cities Coalition (ESCC)

What is it?

A project aimed at transitioning municipal fleets from vehicles powered by gasoline to ones powered by other fuels, primarily electricity.

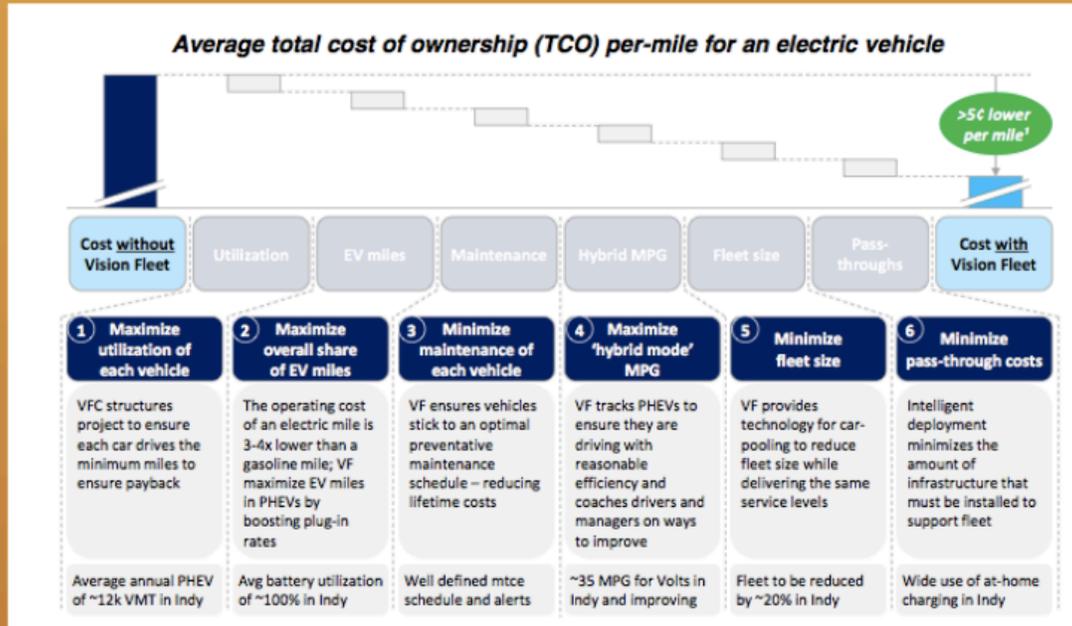
The ESCC is looking for 10 pilot cities to transition their municipal fleet.

How do we fit in?

Indianapolis Mayor Bullard has reached out to Mayor Clodfelter to participate in this project.

Charlotte representatives participated in an ESCC and Vision Fleet workshop.

Vision Fleet Model



How does this fit into our current work?

Heavy Duty Vehicles: Alternative Fuel RFI

CMGC Motor Pool Pilot

What are the next steps?

Meet with Procurement to discuss options to begin analysis of our light duty fleet.

Energy Efficiency in City Buildings

Energy efficiency leads to cost savings in operating the City's facilities.

What opportunities exist?

1. Temperature Set-Point

- A 2-3 degree adjustment saves \$60,000
- A 3-4 degree adjustment saves \$85,000

2. Plug Load: All the "stuff" plugged into the walls.

- Impacts plug load for critical equipment
- Impacts our Energy Star certifications
- Costs money ~ \$8,000 in CMGC

The Plan

HEATING SEASON

Occupied: Max of 70 degrees

Unoccupied: 55 degrees

COOLING SEASON

Occupied: Min of 75 degrees

Unoccupied: 85 degrees

PLUG LOADS

Restrict use of personal appliances to reduce plug load costs.

- Personal refrigerators (\$30.00 - \$100.00 to operate annually)
- Coffee makers (\$35.00 - \$55.00)
- Toaster (\$30.00)

Next Steps

- Meet with Fire, Police and IT management
- Present final proposal to Executive Cabinet

What Works Cities?

Bloomberg Philanthropies \$42 million initiative looking to work with 100 mid-sized cities to:

- accelerate our use of data to engage our citizens,
- make governments more effective, and
- improve people's lives.

How do we benefit?

- Access assistance targeted to our local needs and vision
- Connect with other participating cities
- Tap into new models and best practices

Charlotte has filled out an online survey stating our interest in participating.

Sustainable Facilities Policy

New Buildings & Major Renovations

- LEED v.4 certification
- Energy Star certification

Existing Buildings

- LEED v.4 EBOM certification
- Energy Star certification

Exceptions

- Cost premiums
- Alternate certifications

Sustainable Facilities Oversight Team

The review committee for all new construction , major renovations and LEED EBOM projects that fall under the purview of the City's Sustainable Facilities Policy.

Next Steps:

- Internal staff meeting to finalize details
- Manager's Cabinet
- Full Council

Property Assessed Clean Energy (PACE)

What is it?



Why are we investigating this program?

Status of enabling legislation

Charlotte PACE program

What does it look like?

Who are our partners?

Envision Charlotte

Simon Properties

Family Dollar

Smart Cities

Envision Charlotte

- Pillar Update: Energy, Water, Waste, Air
- National & international recognition
- Smart City conferences
- DOE Grant - \$500,000

Siemens Project

- R&D smart city project
 - Envision Charlotte
 - Innovation Corridor
- Partners
 - UNC-Charlotte
 - Duke Energy
 - Center City Partners
- Next Steps
 - White House Office of Technology
 - Duke Energy
 - Scope development

Global City and Community Coalition (GCCC) International smart city collaborative

Partner Cities

Charlotte, NC

Austin, TX

Chicago, IL

Eindhoven, Netherlands

Amsterdam, Netherlands

Milan, Italy

Genoa, Italy

Bandung, Indonesia

Goals

- 1) Best practices and technology sharing
- 2) Public private partnership models
- 3) Standardization of language

M Schools

What is it?

A program developed by the Mobile World Capital in Barcelona to teach middle school children to code and program.

Partnership opportunity with Discovery Place

- bringing a proven STEM program to Charlotte
- incorporating into CMS
- incorporating into DP's Education Studio

City of Charlotte Smart City Cabinet

Vision (from the Charter)

Charlotte, North Carolina is recognized as a global smart city leader using innovation, partnerships & collaboration, data science, and technology to improve the quality of life and economic opportunity for all citizens.

Demonstration Project Policy

How can we test ideas faster?

A partnership to test, evaluate and/or demonstrate innovative solutions using City land, facilities, equipment, right of ways, and City data.

Benefits

- Take advantage of emerging technologies
- Innovation
- New economic development tool

Goals

- Create new markets and new jobs
- Improve quality/efficiency of City services/operations
- Advance the City's effort towards being a global leader
- Educate the public about innovative solutions



CHARLOTTE
WATER

Upcoming Projects Related
to System Capacity

Environment Committee Meeting
June 10, 2015

This slide features a white background with a large, dynamic splash of blue water on the right side. The splash is composed of a thick, curved stream of water with smaller droplets and bubbles trailing behind it. The text is positioned in the upper left and center areas.



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System Capacity

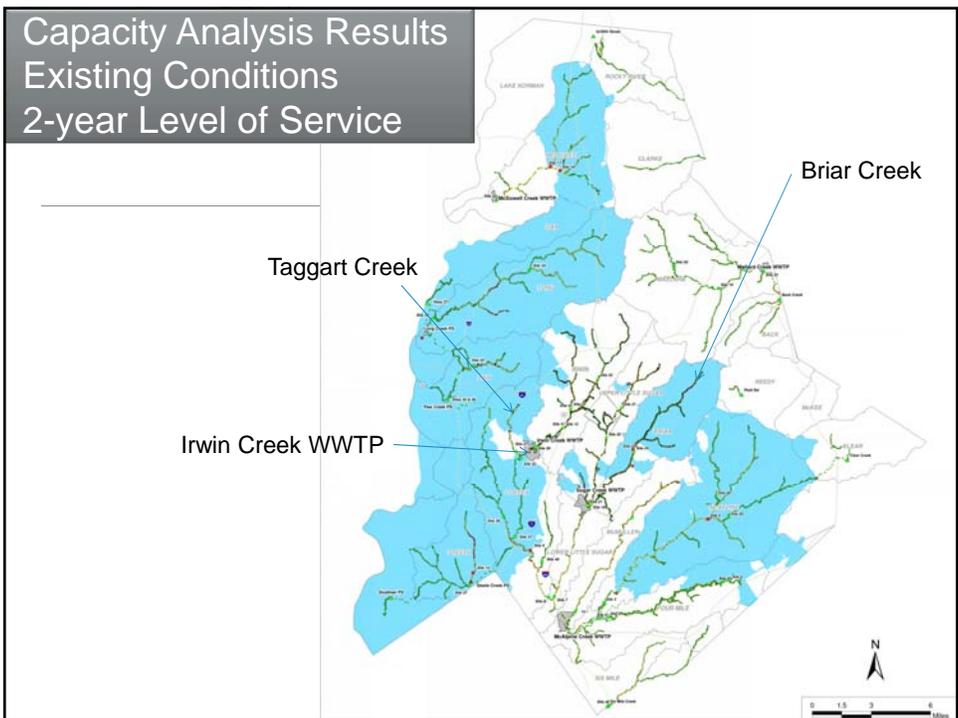
This slide features a solid blue background with a large, dynamic splash of blue water on the right side, identical to the splash in the slide above. The text is positioned in the upper left and center areas.

Background

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EPA Consent Order Capacity Requirements

- ✓ Develop Computer Hydraulic Model
- ✓ Evaluate Wet-Weather System Capacity
- ✓ Implement Capacity Assurance Program



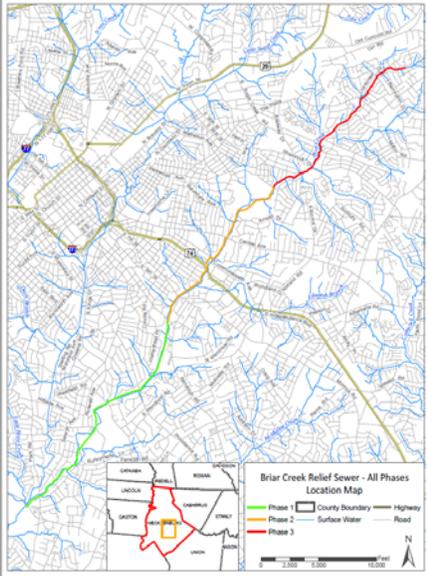


Upcoming Projects

- Briar Creek Relief Sewer - Ph 3
- Irwin Creek WWTP Improvements Ph 2
- Taggart Creek Relief Sewer



CHARLOTTE WATER | Briar Creek Relief Sewer Phase 3 Project

Briar Creek Relief Sewer:

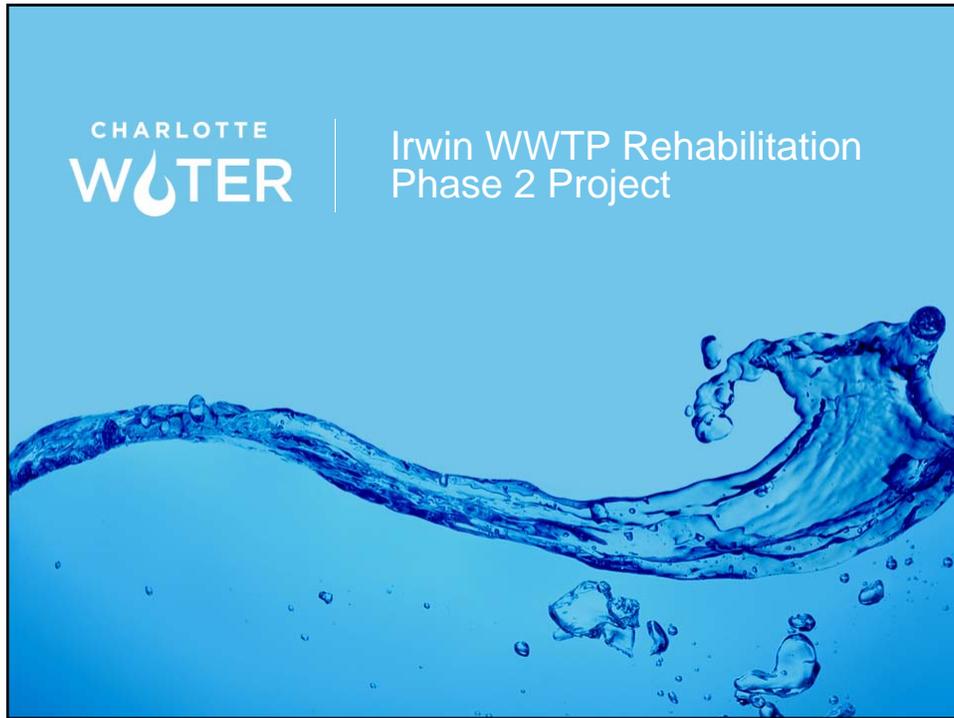
- Project split into 3 phases.
- Phase 1 completed in 2010.
- Phase 2 completed in 2014.
- Phase 3 to advertise mid 2015.
 - 2 year construction period.



Phase 3

- 17,800 feet (approx. 3 miles)
- Pipe size between 12" and 42".
- Starts at Country Club Drive
- Ends near WT Harris Blvd.
- Estimated cost \$19.5M.





Irwin Wastewater Treatment Plant



Original Plant built in the 1920's

Improvements in early 2000's

- Secondary Clarifiers
- Ultra Violet Disinfection

The complex block contains a header with the Charlotte Water logo, a title for the Irwin Wastewater Treatment Plant, a photograph of the plant's circular clarifiers, and a list of improvements made in the early 2000s.



Irwin Wastewater Treatment Plant



Phase 1 improvements completed Spring of 2014 (\$24.9M)

Proposed phase 2 improvements to be complete Dec 2018

- 3 year construction
- Estimated (\$40M)



Proposed Irwin Creek WWTP Rehabilitation, Ph 2

- Provides for replacement and upgrade of aging infrastructure;
- Increases industrial loading treatment capacity to support existing and proposed industrial development in west Charlotte and the airport area;
- Increases sustainability of the plant;
- Required to prevent sewer moratorium in western region of the City/County

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Project Overview



An aerial photograph of a wastewater treatment plant facility. The image shows several large circular tanks, rectangular basins, and various buildings. Five orange arrows point from green callout boxes to specific areas of the plant, indicating the locations of various upgrade projects.

- Biological treatment upgrades
- Filter improvements
- Primary treatment renovations
- New high efficiency blowers
- Secondary treatment improvements

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Sustainable Features

- Installation of high efficiency air blowers for biological treatment;
- Major intermediate primary treatment and pump station upgrades, eliminating six pumps (25 to 75 HP);
- Site piping replacement to reduce the possibility of storm water contamination;
- High efficiency lighting improvements;
- Addition of phosphorus treatment and better filtration to improve the quality of the treatment plant effluent.

CHARLOTTE WATER

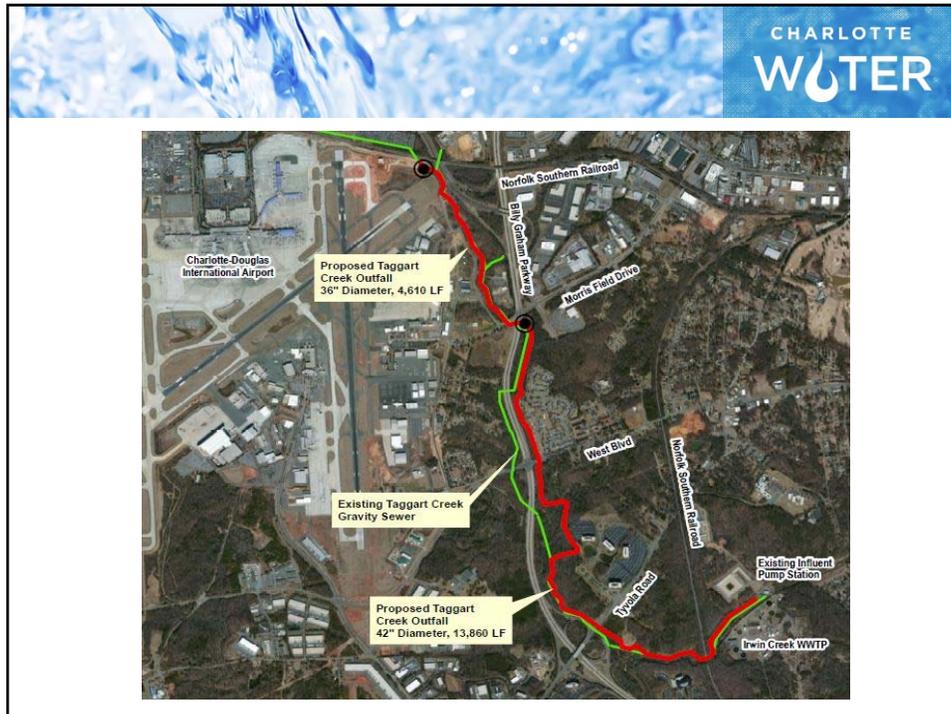
Project Background and Drivers

- Existing treatment plant capacity insufficient for future west side growth
- Required to support Taggart/Paw Creek sewer lines
- Required to meet plant environmental permits

The map displays the Charlotte water infrastructure network. Key features include: Long Creek PS (Paw Creek) and Paw Creek PS (Coffey and Taggart Creek) highlighted with red arrows; Irwin Plant, Sugar Creek WWTP, and McAlpine Plant; and various creeks such as Long Creek, Paw Creek, Steele Creek, and McAlpine Creek. The map also shows major roads like I-77 and I-85, and geographical features like Lake Wylie and Lower Little Sugar Creek.

CHARLOTTE WATER | Taggart Creek Relief Sewer

A dynamic graphic of a water splash, showing a large wave of water moving from left to right, with smaller droplets and bubbles trailing behind it. The background is a solid light blue color.

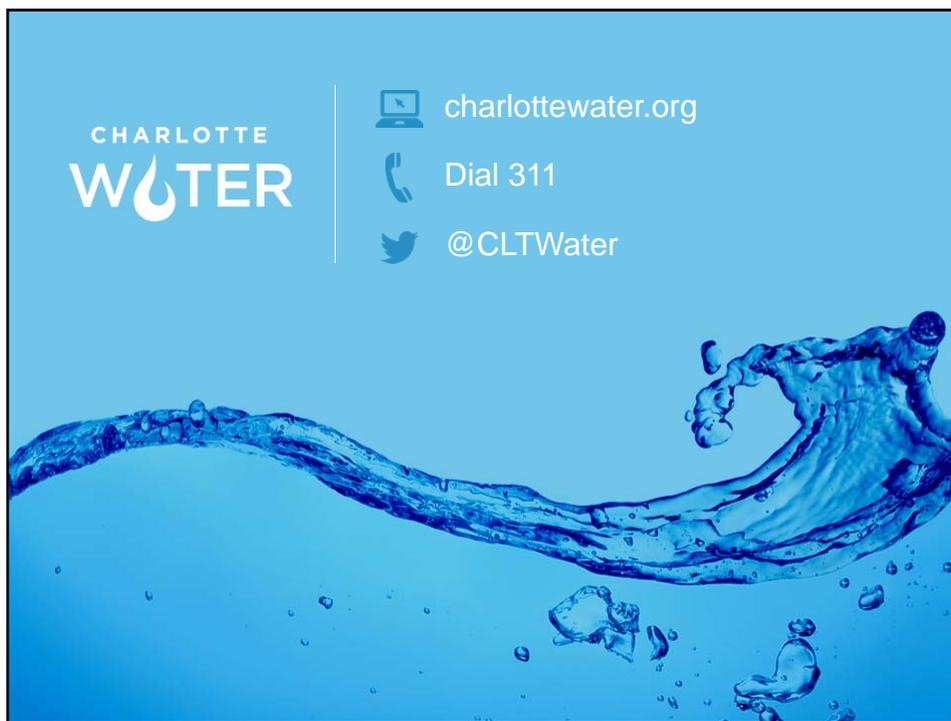


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WATER

Taggart Creek Relief Sewer

- 3.5 Miles Long – 4,610 ft of 36" and 13,860 ft 42"
- Will receive flow from Long Creek, Paw Creek and Taggart Creek
- Receives future flow from Belmont
- Estimated cost \$23M





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 charlottewater.org

 Dial 311

 @CLTWater

A dynamic splash of water in shades of blue, moving from left to right across the bottom half of the graphic, with several bubbles trailing behind it.