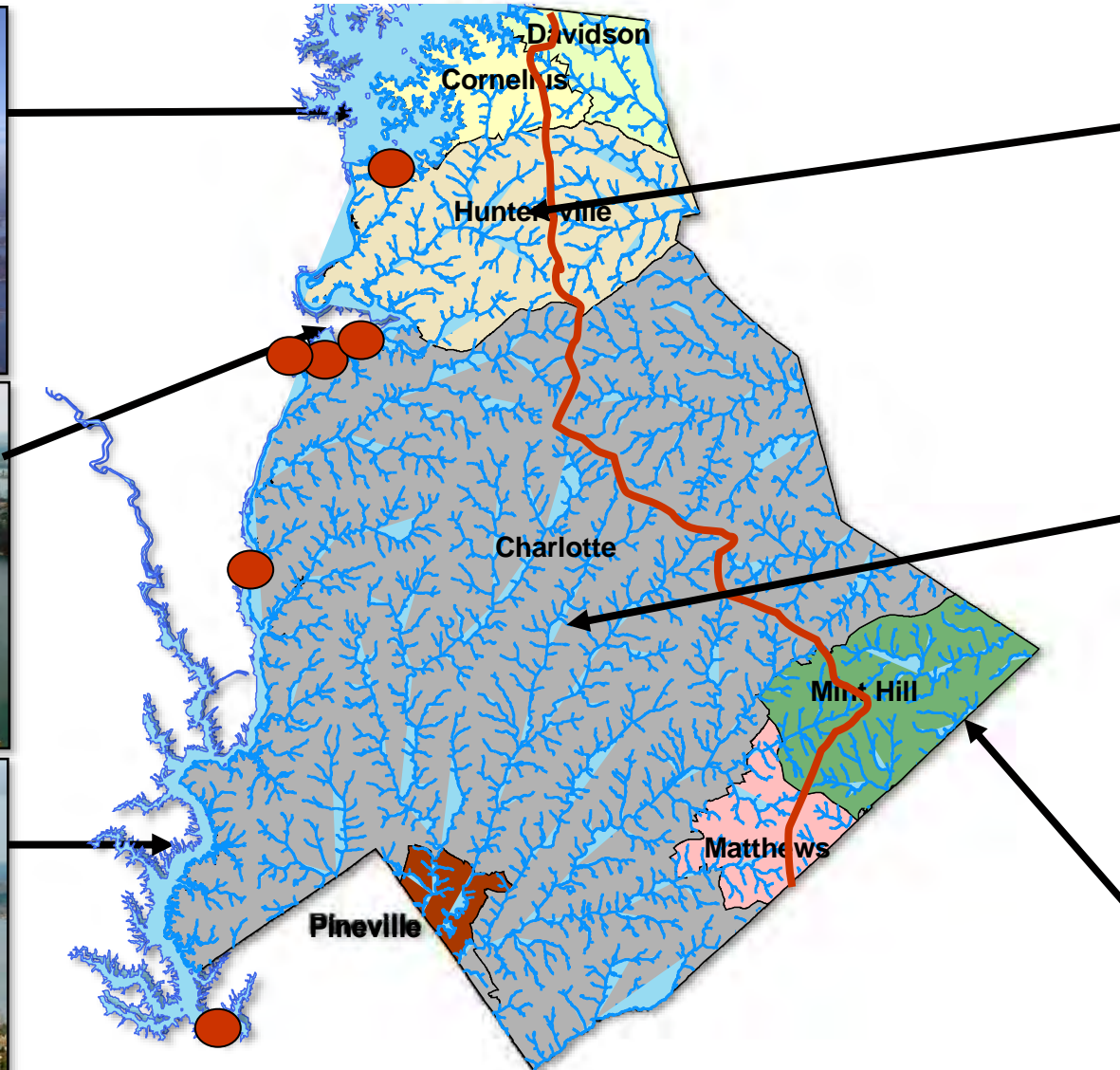




# Ten Entities Partner on Stormwater Permit Compliance



# *Waters of Mecklenburg*



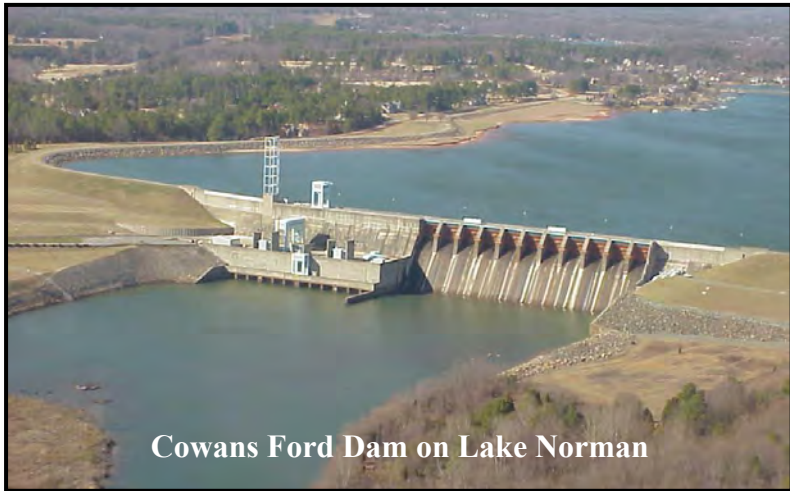
*Our Most Precious Natural Resource*

# Recreational Uses



- Over 10 million people visit the Catawba River annually.
- Visitation is projected to increase by about 11 percent per decade through 2050.
- Greenways are among Mecklenburg County's most popular amenities with visitation exceeding 250,000 annually.
- 52 miles developed with 30 additional miles planned for completion in the next 4 years.

# More Lake Uses



Cowans Ford Dam on Lake Norman

**Hardest Working River in America** – Produces electricity for 2 million residents, more than any other river its size.



The Peninsula on Lake Norman in Cornelius

**Real Estate Boom** – Everybody wants to live on the water.



Latta Plantation Park on Mountain Island Lake

**Unique Natural Landscapes, Flora & Fauna** – Provide opportunities for establishment of nature preserves.

# Our Water Resources Sustain Us

Maintaining good water quality conditions  
in our streams and lakes is essential for  
maintaining our livable community – past,  
present and future.



**Ladies Fishing in Little Sugar Creek – circa 1890**



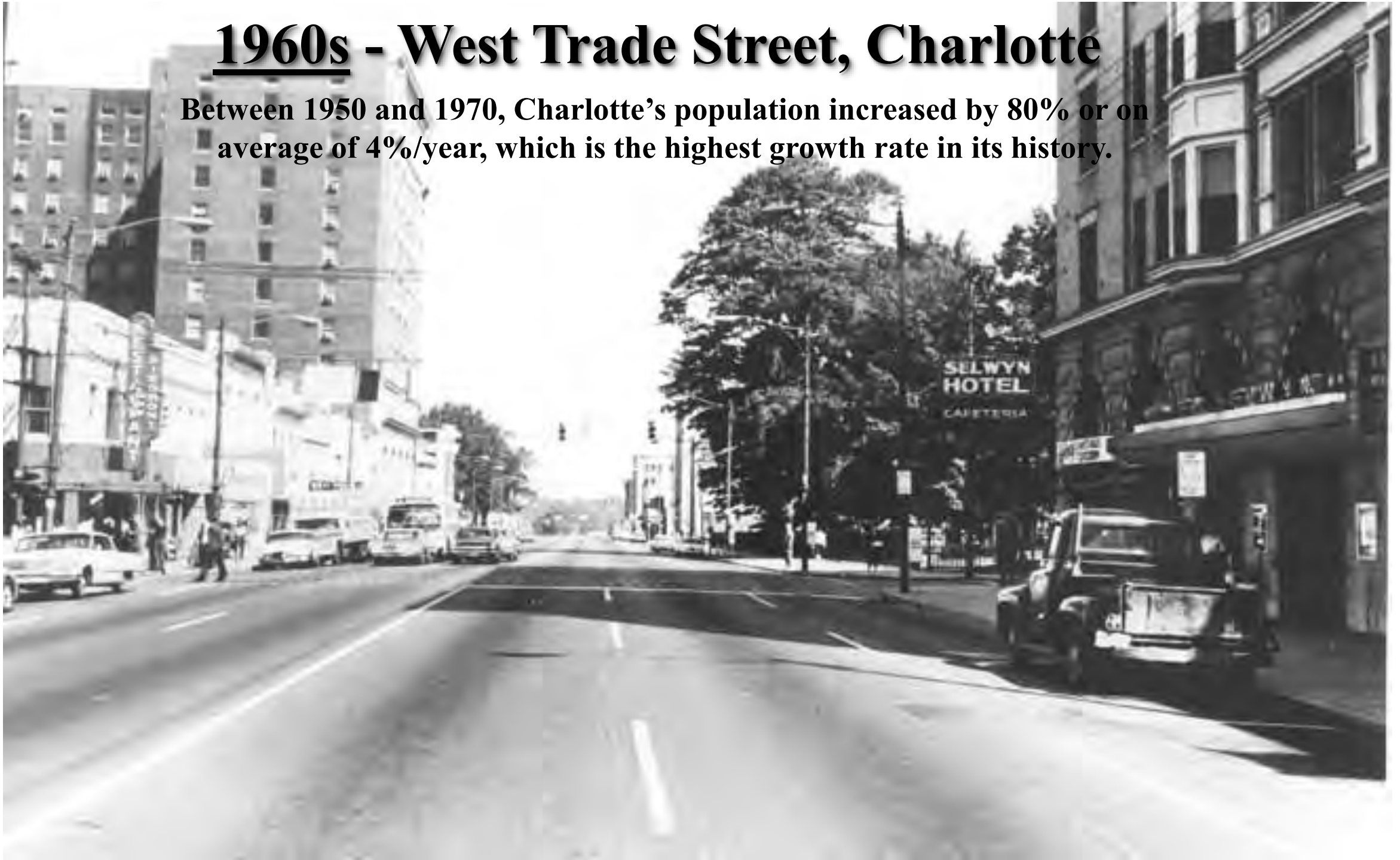
**Swimming Area on Long Creek – circa 1910**



**Kids Wading in Little Sugar Creek – circa 2000**

# **1960s - West Trade Street, Charlotte**

**Between 1950 and 1970, Charlotte's population increased by 80% or on average of 4%/year, which is the highest growth rate in its history.**



# It All Began With “Stinky” Creeks



Sewer Line Bypasses Straight To Creeks



Creeks Were A Trash Dump



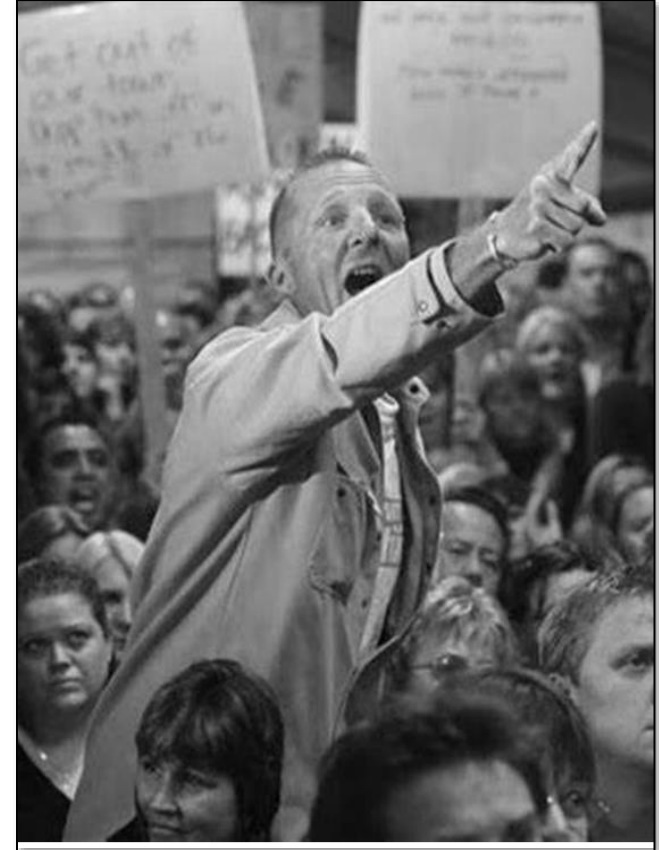
Hundreds Of Pumps Illegally Dump Industrial Waste To Creeks

- By the mid 1960s, the sewer system in Charlotte was unable to handle the increased flow from the growing population.
- Sewer lines overflowed and in some cases bypasses were installed straight to streams.
- Raw sewage and industrial waste from illicit discharges accumulated in most urban streams, particularly Little Sugar and Sugar Creeks, causing odor problems and health concerns.
- Elected officials received numerous complaints and staff were called to immediate **ACTION**.

# It All Began With “Stinky” Creeks



- To combat ongoing odor problems, staff dripped “Orange Blossom Deodorant” into the creeks from drums hanging off bridges.
- It didn’t work. Complaints continued to pour in.







# The Beginning Of It All

Dr. James G. Martin	- 2 -	September 24, 1969
Personnel		\$ 50,796
Equipment		41,000
Travel		<u>5,400</u>
Total		103,104
Less laboratory equipment to be purchased during second year		<u>-12,500</u>
TOTAL		\$ 90,604

Memo from Dr. Kamp to Chairman of the Board of  
County Commissioners

treatment," Kamp said. "Now if they can't comply then they're just out of business. That's all. What the hell, that's their problem."

Quote from Dr. Kamp – Newspaper Article 9-16-69

- **September 24, 1969:** County Health Director (Dr. Maurice Kamp) proposed the establishment of a Program to find and eliminate pollution sources.
- **November 1969:** Proposal was approved with both the City and County providing 50% of the necessary funding at \$90,604.
- **Personnel:** Chemist, Sanitarian Supervisor, Laboratory Technician and four Sanitarian Aides.
- **Equipment:** Mobile trailer, furnishings and equipment, sampling truck for on-site monitoring, and office furniture.

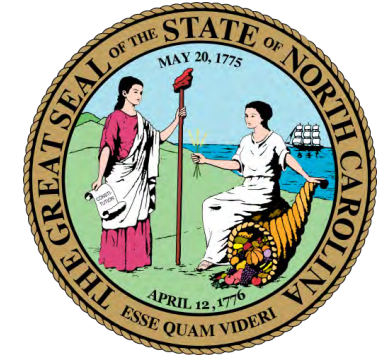
# The Beginning Of It All Was Almost The End of It All



Charlotte Skyline in 1970 (County population = 350,000)



1972 – Clean Water Act



1975 – Permitting  
Authority Delegated to  
N.C.



1986 – MOA with N.C.

# The Evolution Of Our Water Quality Program



1970s – Thousands of Illicit Discharges Eliminated



1980s – Established A Very Progressive Lake Monitoring Program



1990s – Water Supply Watershed Protection Rules Adopted

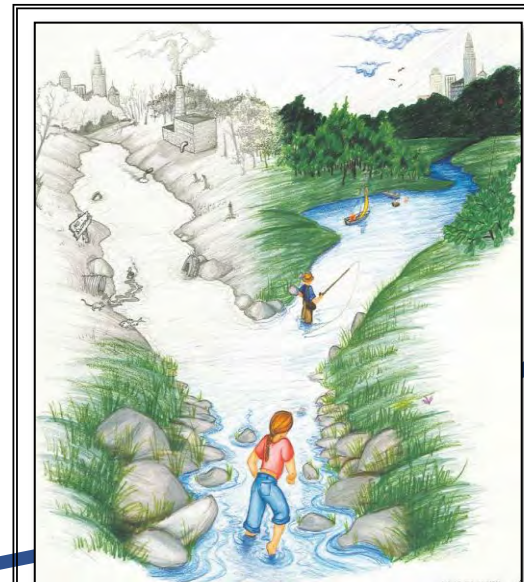


Mayfly



Stonefly

1980s & 1990s – Biological Monitoring Became Well Established



1996 – Creek Use Policy Adopted

# The Big Changes

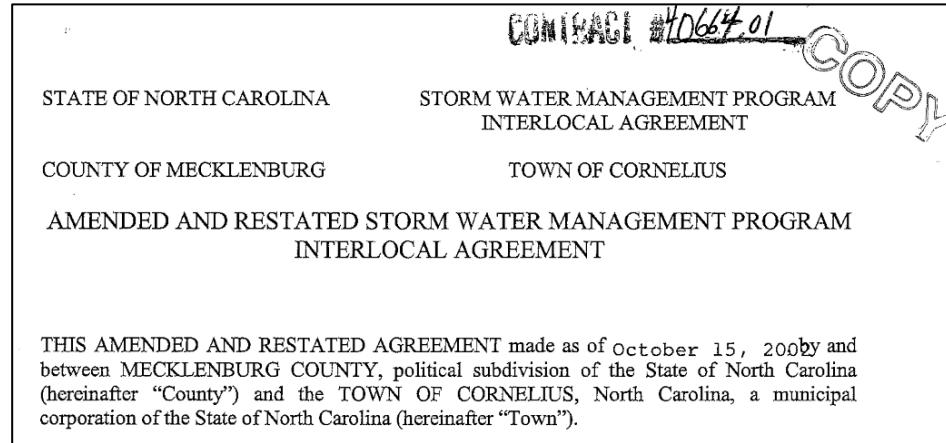


- **1993:** Charlotte was issued its Phase I Storm Water Permit. Charlotte-Mecklenburg Storm Water Services was established as a utility.
- **1995:** City and County partnership was significantly expanded for implementation of Phase I Permit requirements.
- **2005:** County and Towns were issued a joint Phase II Storm Water Permit. County administers Permit requirements, but all co-permittees are responsible for compliance.
- **2007:** Charlotte-Mecklenburg School System and Central Piedmont Community College were added as Phase II co-permittees.
- **2015:** Began performing monitoring work for Charlotte Water.
- **2020:** Staff of 30 with a \$4.1 Million budget

# The Backbone of the Partnership



Storm Water Advisory Committee (SWAC): Nine (9) member citizen panel that reviews stormwater management plans and budgets to make recommendations or offer comments to elected officials. The advisory committee also hears appeals and decides on water quality penalties, service charges, credits, and adjustment.



Interlocal Agreement: Legally binding document adopted by all parties establishing the functions, duties, powers, and responsibilities for jointly operating a single stormwater public enterprise.

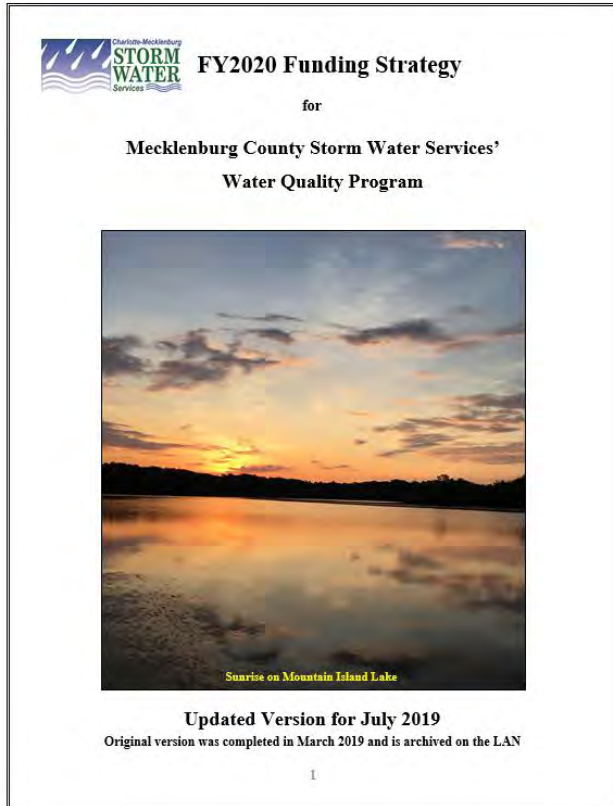
## City of Charlotte & Mecklenburg County



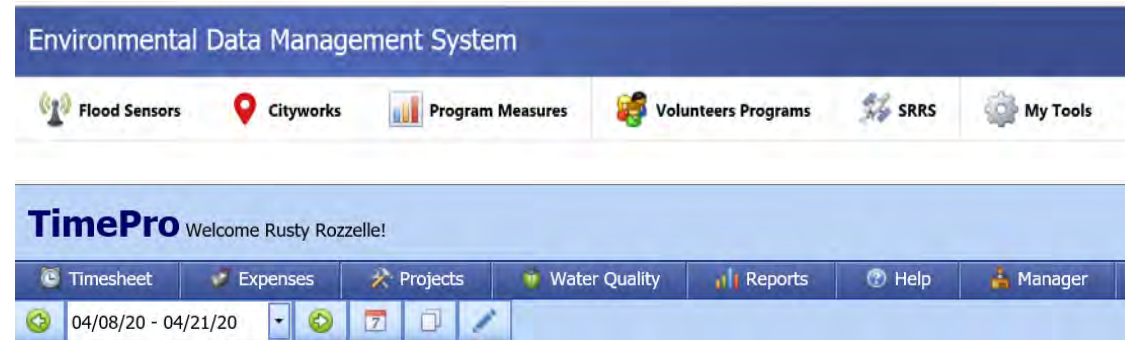
**Water Quality & NPDES MS4 Permit Program  
Work Plan  
FY2020**

Annual Work Plan: Describes the specific activities, assigned hours, staff resources, and costs for activities to be performed by the County for compliance with Permit requirements.

# The Backbone of the Partnership



Funding Strategy: Agreed upon approach for how all program costs will be shared among partners.



Technology: Utilize custom databases to document and track Work Plan activities, staff assignments, deadlines, budgets, time, and costs as well as generate all customer statements for invoicing.



Technology: Utilize an off-the-shelf database to maintain documentation of activities for Permit compliance.



Stakeholders: Balanced involvement in a consensus building processes by those groups with the most to gain or lose by the outcomes.

# The Backbone of the Partnership

## We Consistently Make Data Driven Decisions



Low Cost Flood Sensors



CMANN on Mountain Island Lake



CMANN on Four Mile Creek

### Water Quality (Annually):

- 36 stream monitoring sites, including the collection of chemical, physical and biological data (13,615 data points)
- 28 lake monitoring sites (plus 13 summer fecal monitoring sites) (6,435 data points)
- 33 Continuous Automated & Alert Notification Network (CMANN) monitoring sites (1,396,386 data points)
- 1,454 miles of streams walked every 5 to 7 years, including the collection of water quality and infrastructure data (1,101 data points)

**Total Water Quality Data Points = 1,417,537**

### Flood Information & Notification System (FINS)

- 168 flood risk monitoring sites, including 50 USGS and 118 low cost flood sensors (96% flood risk monitoring) (17,660,160 data points)
- 72 rain gauges (7,568,640 data points)
- 10 Creek Cams (live)

**Total FINS Data Points = 25,228,800**

**Total = 26,646,337 Data Points Annually**



# Successes

**In the face of unprecedented growth and significant increases in impervious area, water quality is showing significant improvement.**



**Mayfly Larvae**



**Tessellated Darter in a Creek Near Uptown Charlotte**

- Fecal Coliform bacteria counts have greatly decreased in our urban streams from a norm of over 10,000 colonies/100ml. in the 1980s to less than 1,000 today.
- Stream miles suitable for human contact has significantly increased in 20 Years from 25% in 1998 to 97% in 2019.
- For the past 20 years in our most urban Charlotte streams, a new pollution sensitive species of macroinvertebrate has been observed every 3 years on average.
- The diversity of fish species in Mecklenburg County streams has increased.
- The Tessellated darter, a clean water indicator, has returned to our most urban streams in Charlotte where it had been absent for over 50 years.
- The quality of the water in the drinking water supply reservoirs along our western border remains excellent despite the unprecedented urbanization that has occurred over the past 20 years in these watersheds.

# Successes

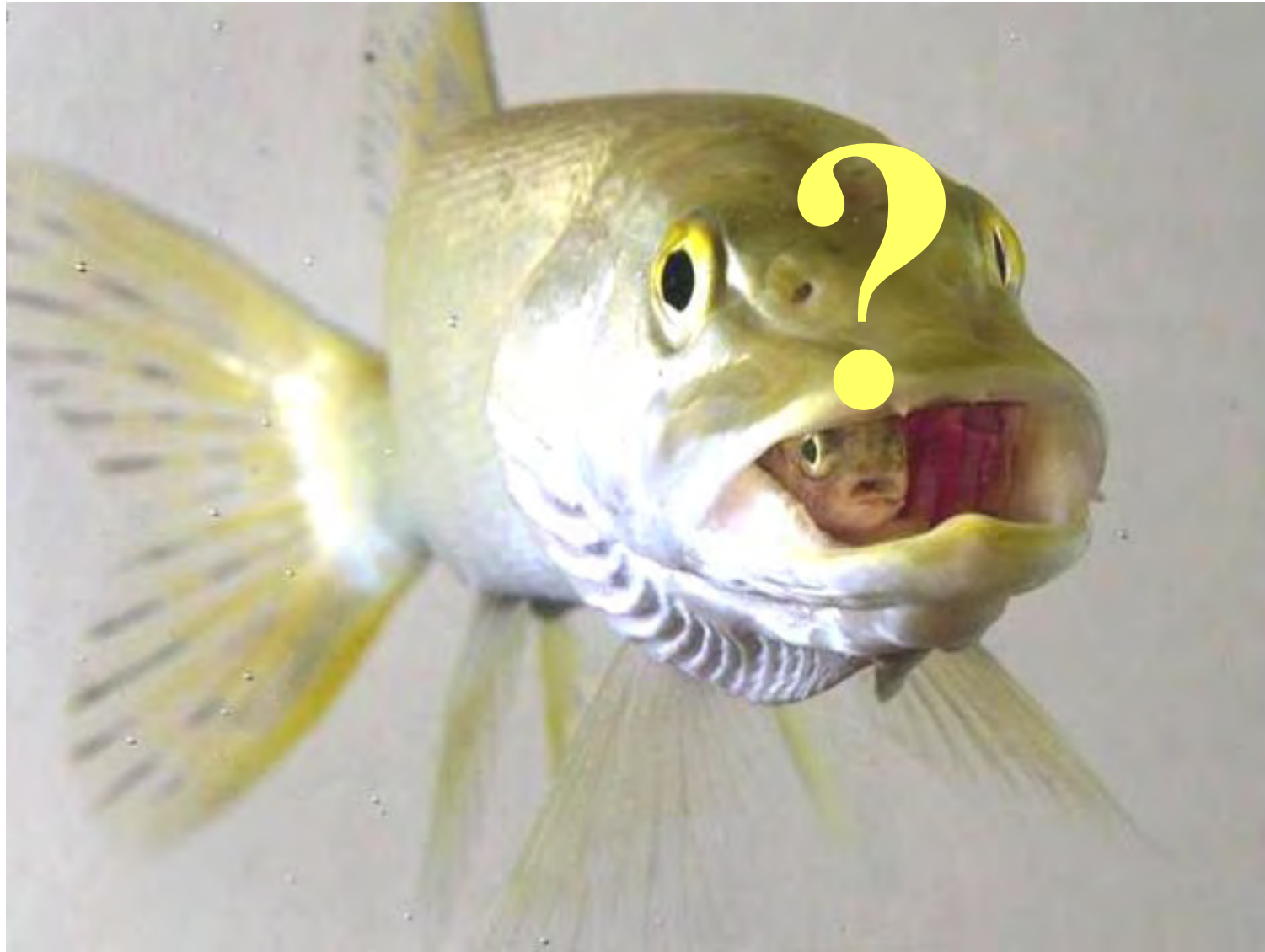


**Volunteerism Increasing**



**Little Sugar Creek Greenway Visits on the Rise**

- Over the past 7 years, participation in volunteer activities has increased by over 86% to a high of 4,622 in FY2019.
- Over the past 20 years, there has been no significant increase in designated stream impairment.
- Some improvement has been realized. Goose Creek, which was listed as impaired for elevated fecal coliform bacteria in 2003, has experienced decreased bacteria levels and compliance with the State standard since 2016 based on the State's water quality monitoring data.
- Over 50,000 visits a year are made to the Little Sugar Creek Greenway that runs under the bridge where drums of orange blossom deodorant once hung. A creek that was once a nuisance and health threat has been transformed into a community attraction.



**Rusty Rozzelle**  
**980-314-3217**

**<http://stormwater.charmeck.org>**