Our Natural Waters and the Impacts of Urbanization

1. Historical summary of our lakes and streams
2. Linkage between urbanization and water quality
3. Benefits of watershed protection and conservation

Description of Our Regional Surface Water Resources

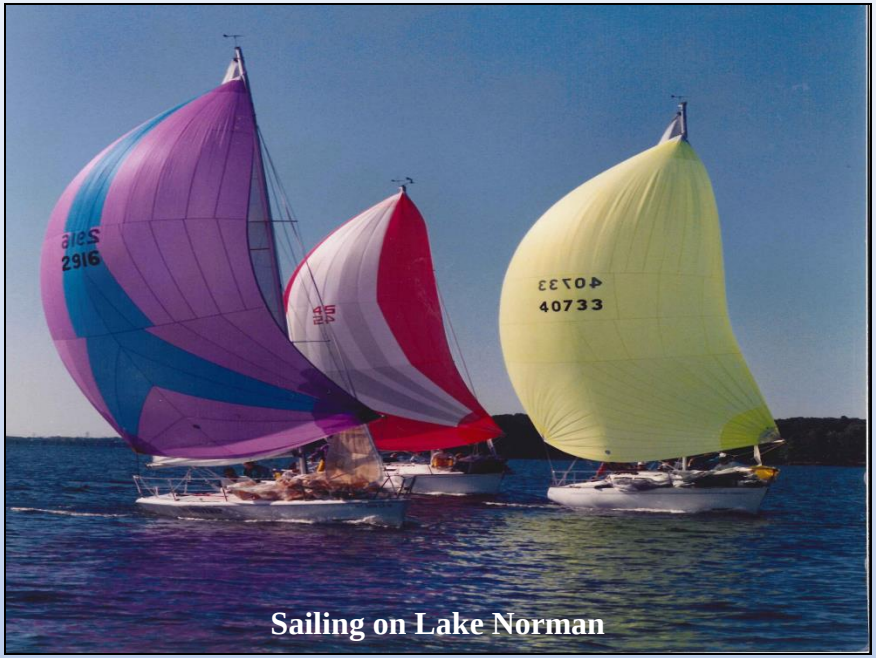
Importance of Our Surface Water Resources – We Drink It

Water Supply Providers

1. Statesville – Lookout Shoals (2 mgd)
2. Mooresville – Lake Norman (4.7 mgd)
3. Charlotte Water – Lake Norman (17.8 mgd)
4. Charlotte Water – Mountain Island Lake (83.5 mgd)
5. Mount Holly – Mountain Island Lake (2.5 mgd)
6. Gastonia – Mountain Island Lake (18 mgd)
7. Belmont – Lake Wylie (10 mgd)
8. Rock Hill – Lake Wylie (4 mgd)
9. Union County – Catawba River, S.C. (9.3 mgd)
10. Monroe – Rocky River (6 mgd)
11. Harrisburg – Lake Howell, Lake Fisher, Lake Concord (Concord) average withdrawal = 0.9 mgd
12. Landis – South Yadkin River (Salisbury) average withdrawal = 0.078 mgd

Total Volume = 148.8 mgd

Recreational Uses



Sailing on Lake Norman

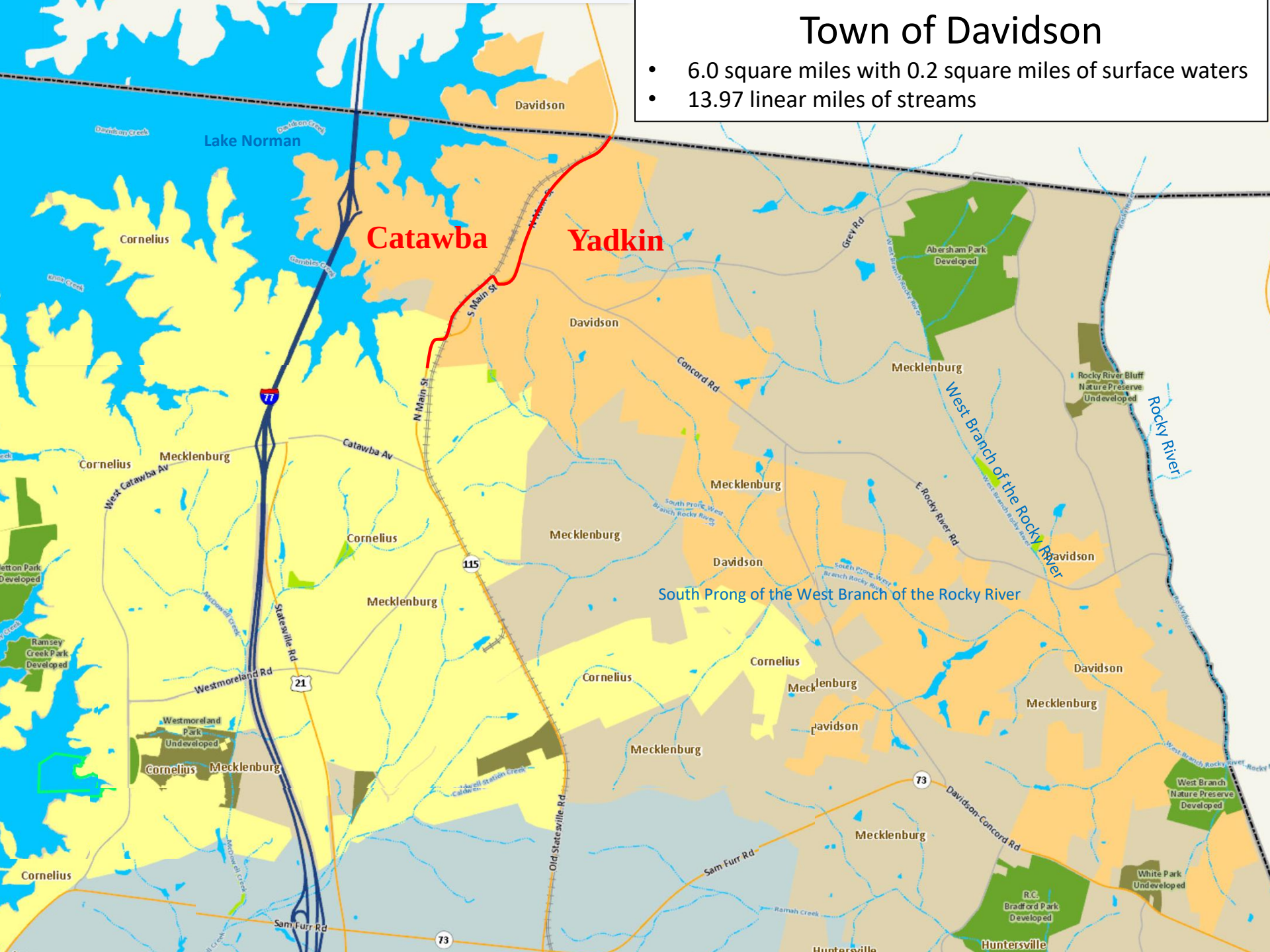
- Over 10 million people visit the Catawba River annually.
- Visitation is projected to increase by about 11 percent per decade through 2050.


Campbell Creek Greenway

- 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.

Town of Davidson

- 6.0 square miles with 0.2 square miles of surface waters
- 13.97 linear miles of streams



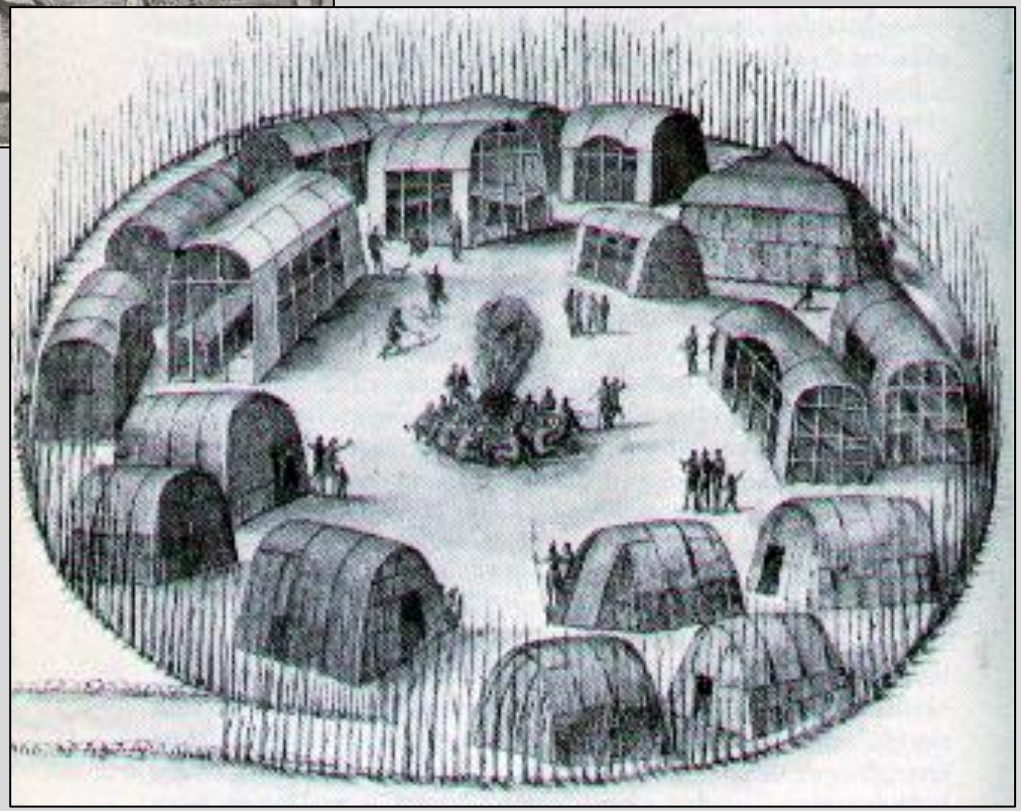
Ladies fishing in Little Sugar Creek – circa 1890

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

Swimming hole in Long Creek – circa 1910

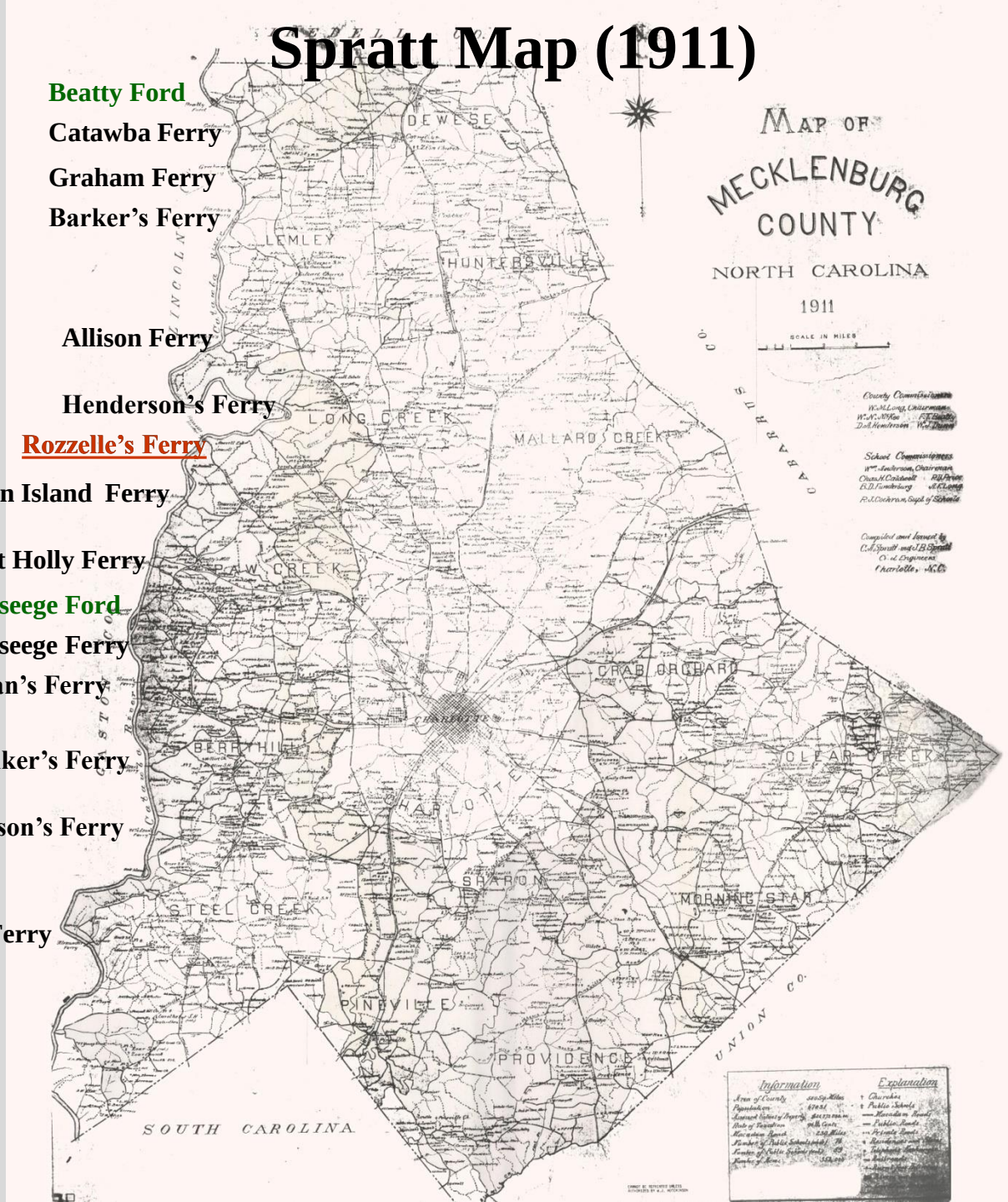
Kids wading in Little Sugar Creek – circa 2000

Catawba: Siouan Indian word meaning “people of the river.”



Yadkin: Siouan Indian word meaning “place of big trees.”

Spratt Map (1911)



Beatty Ford

Catawba Ferry

Graham Ferry

Barker's Ferry

Allison Ferry

Henderson's Ferry

Rozzelle's Ferry

Mountain Island Ferry

Mount Holly Ferry

Tuckaseege Ford

Tuckaseege Ferry

Sloan's Ferry

Walker's Ferry

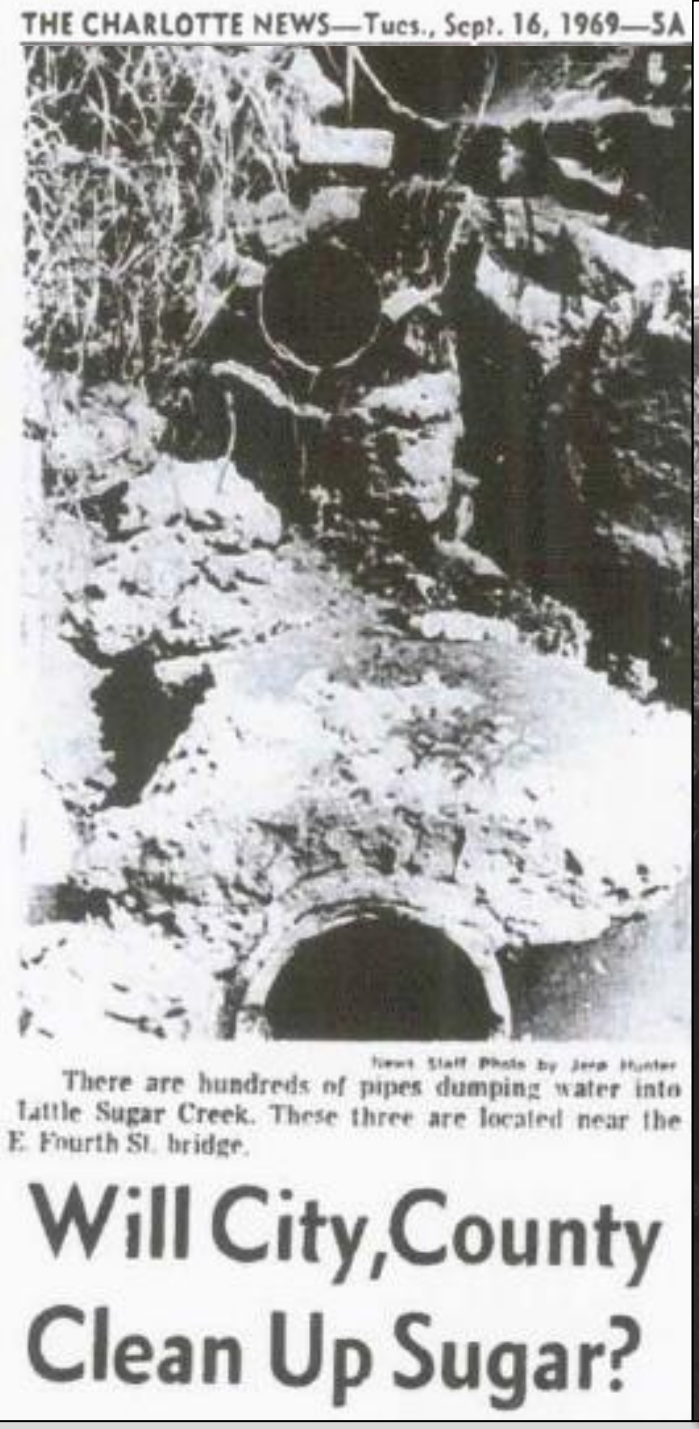
Wilson's Ferry

Alexander Ferry

Rozzelle's Ferry on the Catawba River

Every Animal on Foot..... 73 ¢

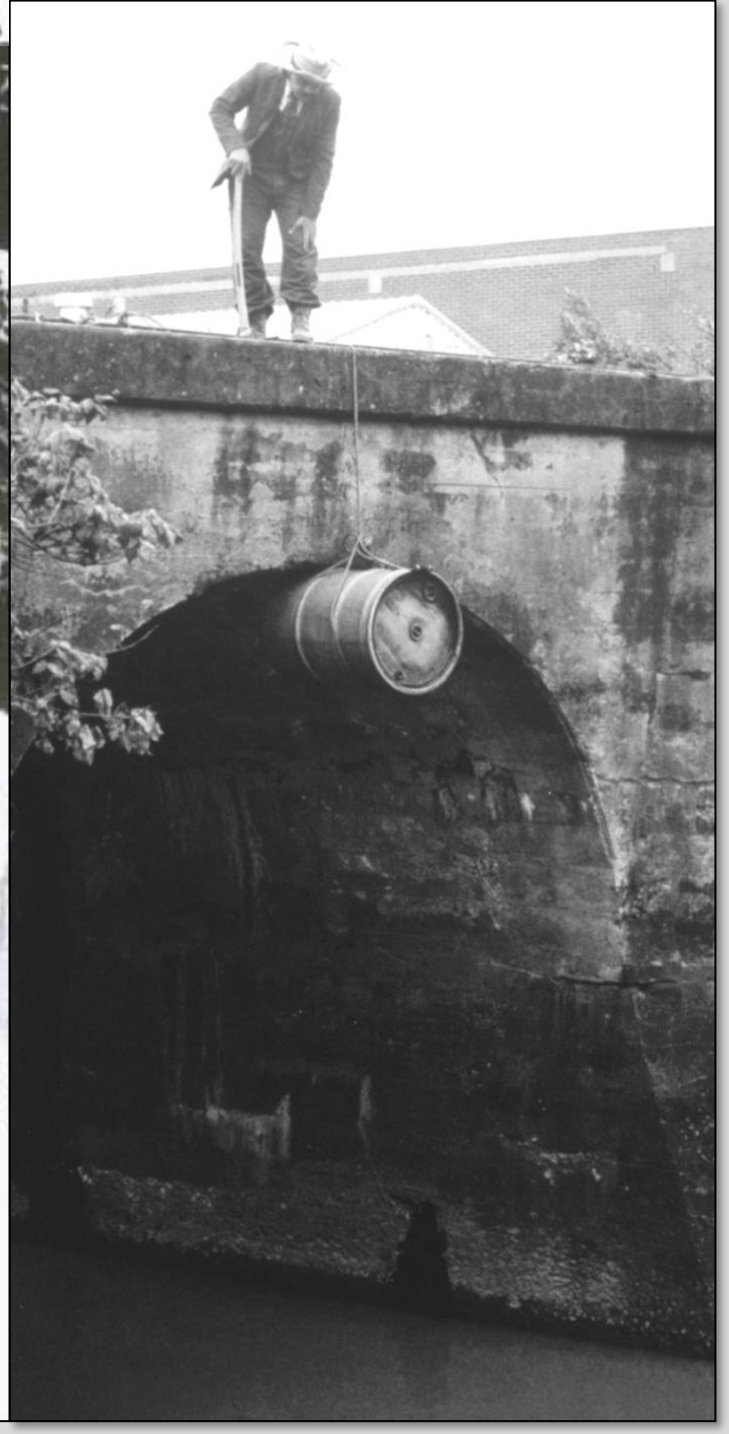
For Exhibitions


THE CHARLOTTE NEWS—Tues., Sept. 16, 1969—5A

News Staff Photo by Jerry Hunter

There are hundreds of pipes dumping water into Little Sugar Creek. These three are located near the E. Fourth St. bridge.

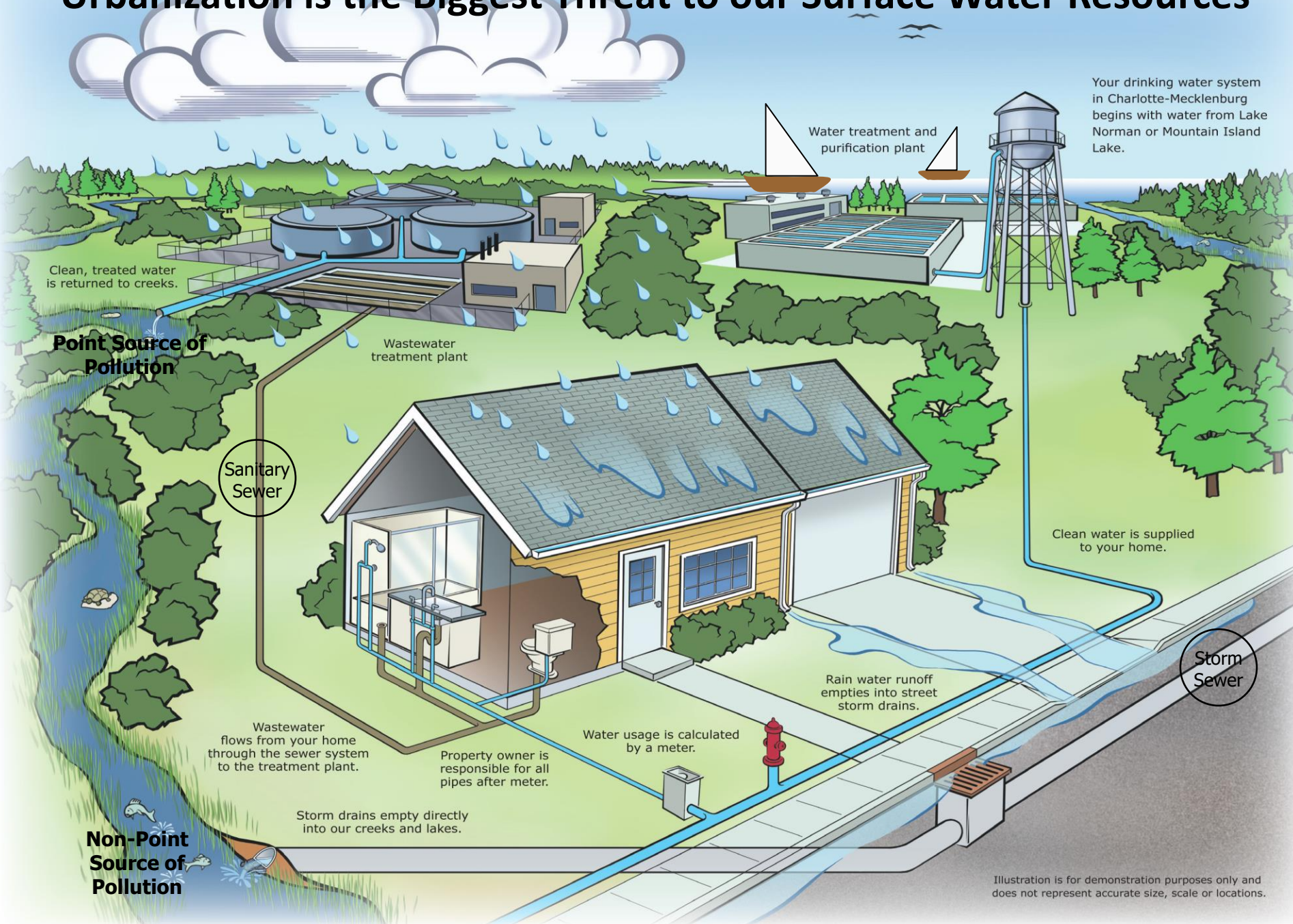
Will City, County Clean Up Sugar?



1960s Sewage Dominated Our Urban Streams

- To combat ongoing odor problems, staff dripped "Orange Blossom Deodorant" into the creeks from drums hanging from bridges.
- It didn't work. Complaints continued to pour in.
- In 1970, our local Water Quality Program was established.

Urbanization is the Biggest Threat to our Surface Water Resources



Nonpoint Source Pollutants

- Sediment
- Bacteria
- Toxic & Mineral Metals
- Pesticides
- Fertilizers
- Petroleum Products

n Huntersville

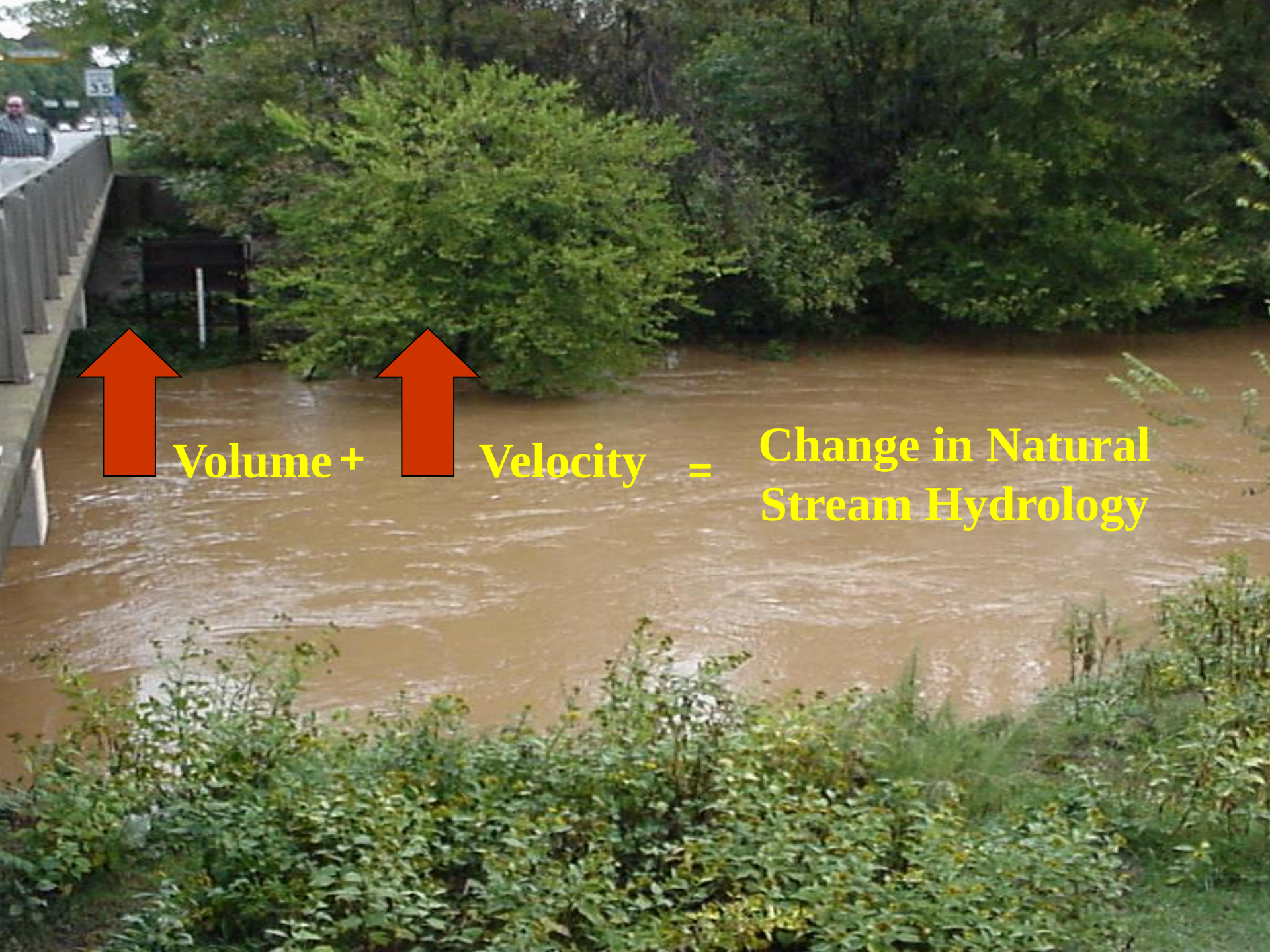
Increased Stormwater Volumes & Velocities Also Degrade Water Quality

One (1) inch of rainfall on one (1) acre of woods produces no runoff.

The same one (1) inch of rainfall on one (1) acre of asphalt will produce over 27,000 gallons of runoff.




- Total impervious area in the Town of Davidson is 856 acres.
- One inch of rain will generate over 23 million gallons of runoff.
- Average rainfall in one year is 43 inches which will generate 994 million gallons of runoff.
- This is enough water to fill Panthers Stadium 4 times.


Volume +
Velocity
=
Change in Natural
Stream Hydrology

The result is unstable, highly erodible stream channels.

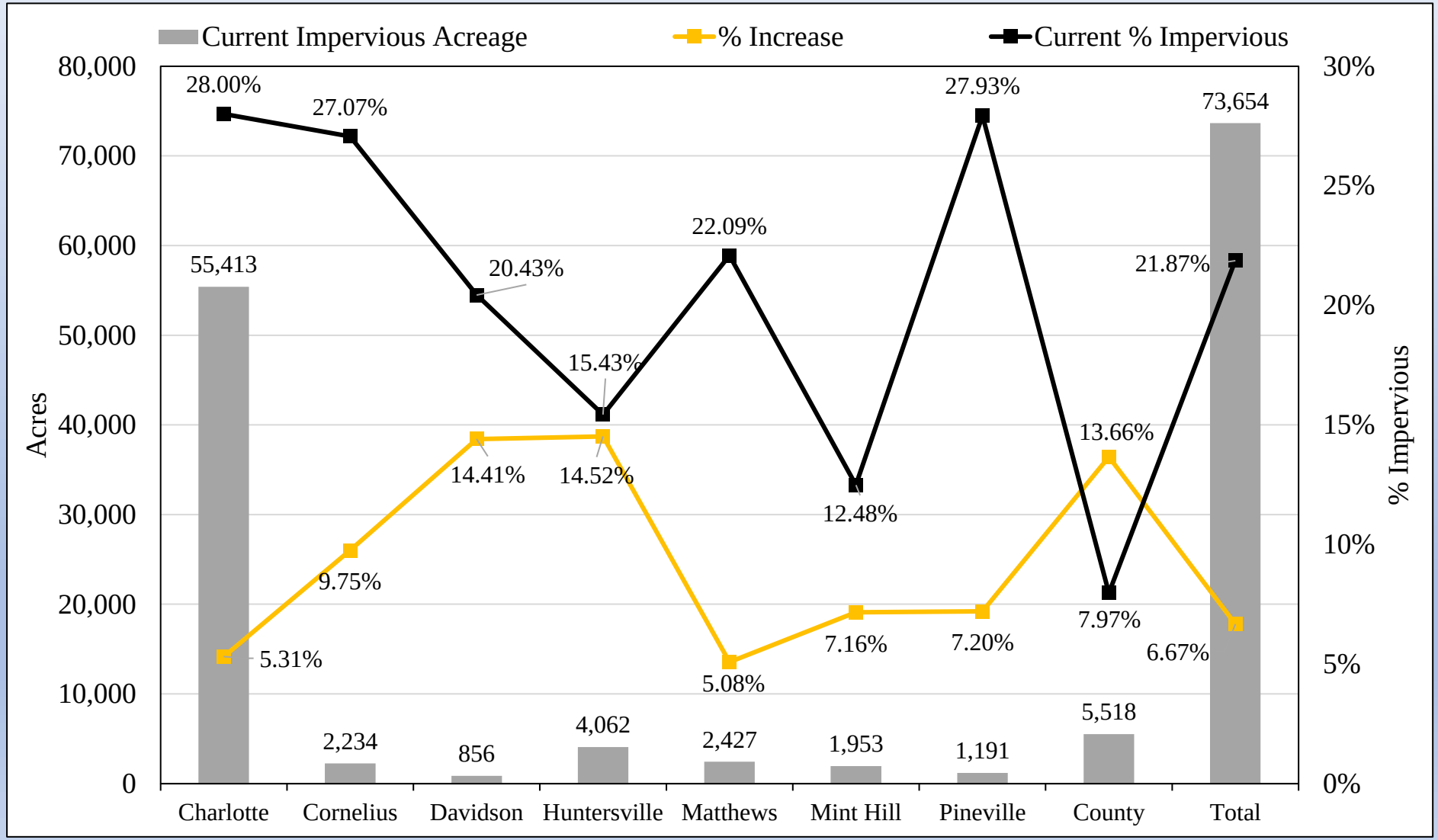
McDowell Creek in Huntersville

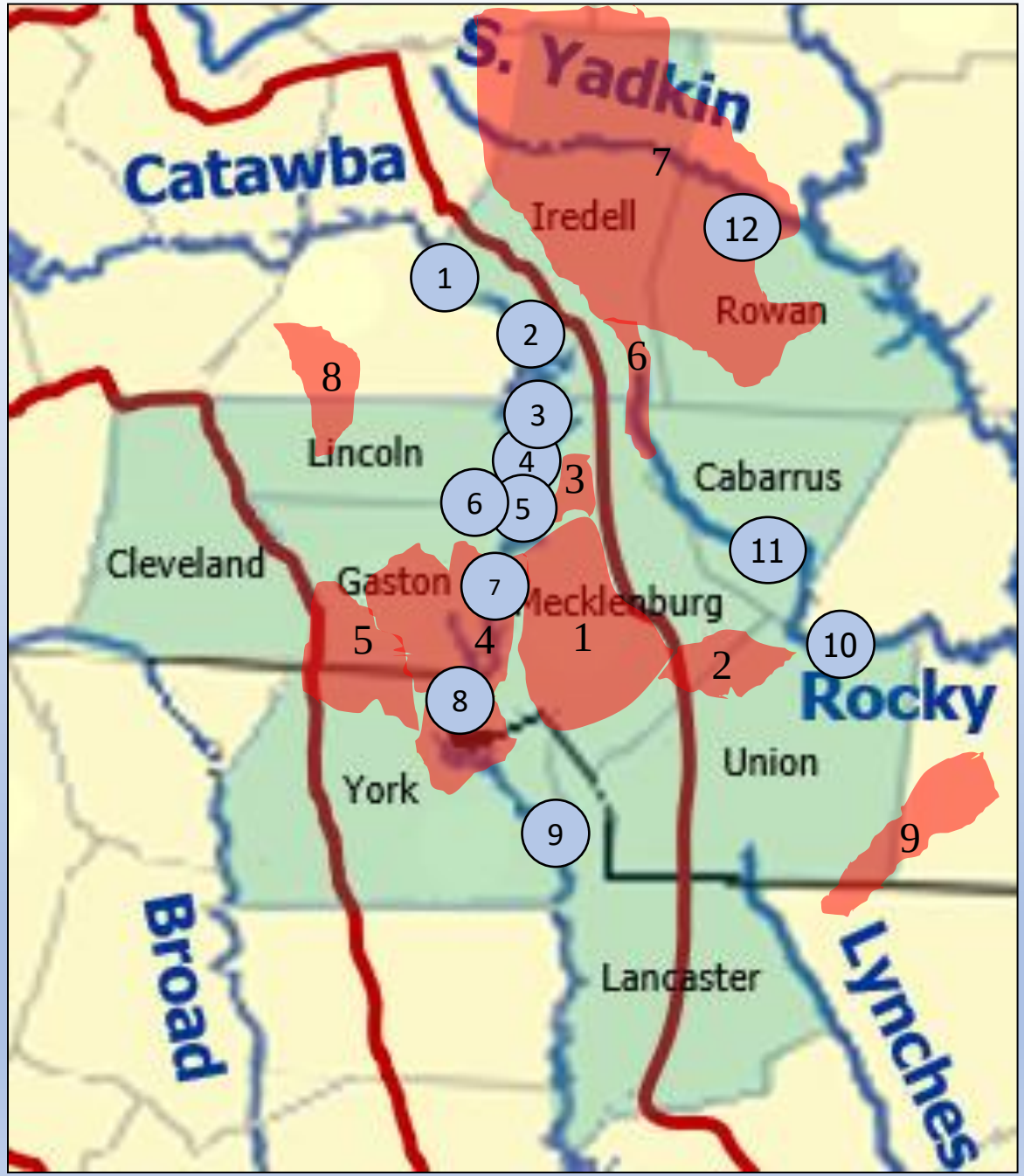
Sediment is deposited in the channel, the water becomes polluted, and aquatic life is destroyed.

The Growing Water Challenge

More People = More Pollution & Greater Demand

Our region is experiencing rapid population growth requiring ever increasing supplies of clean, reliable water, but the resulting increase in impervious area is the greatest threat to our being able to fulfill our growing water needs. To address this challenge, our efforts to protect our water resources must grow with our population.

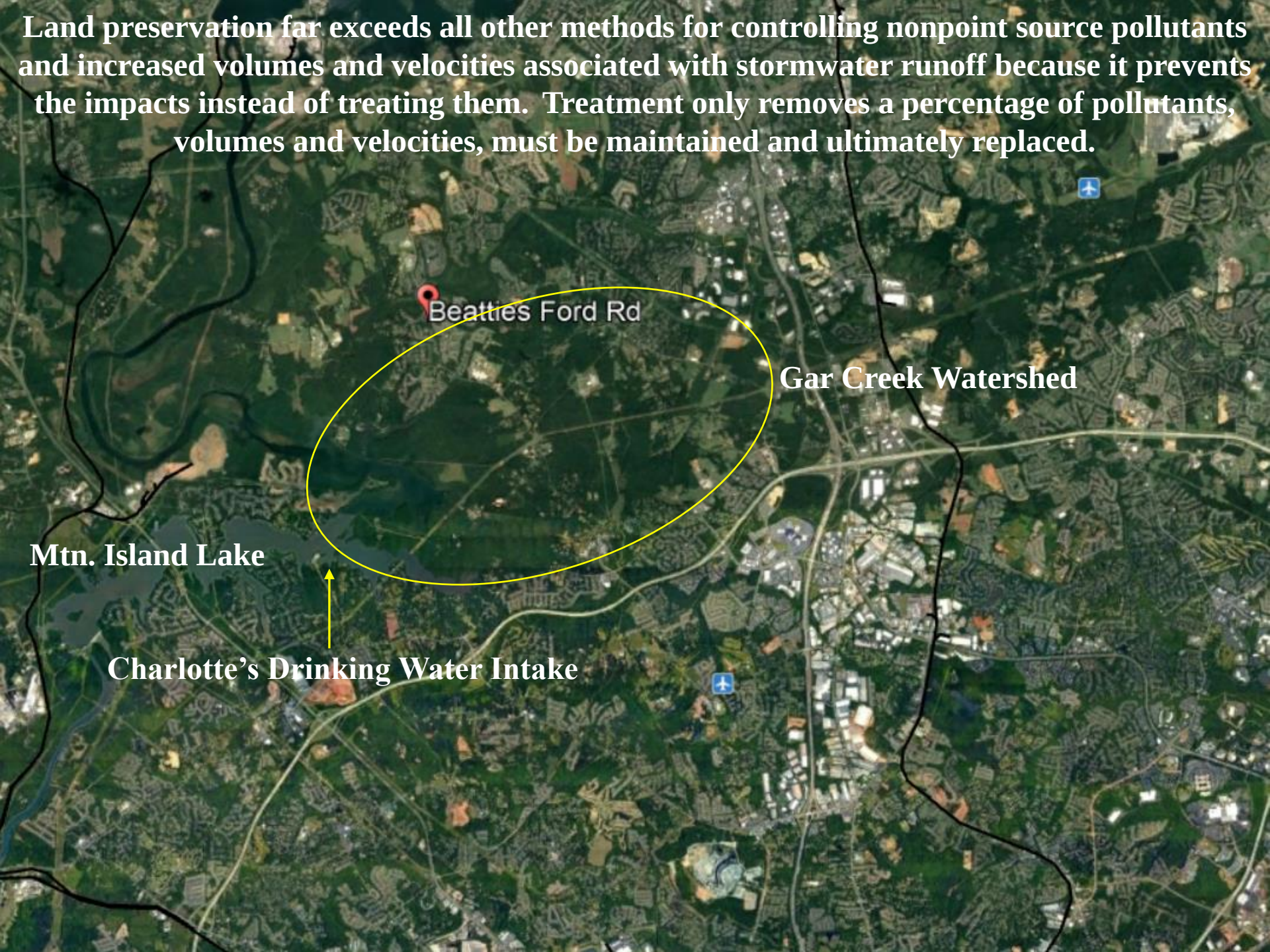


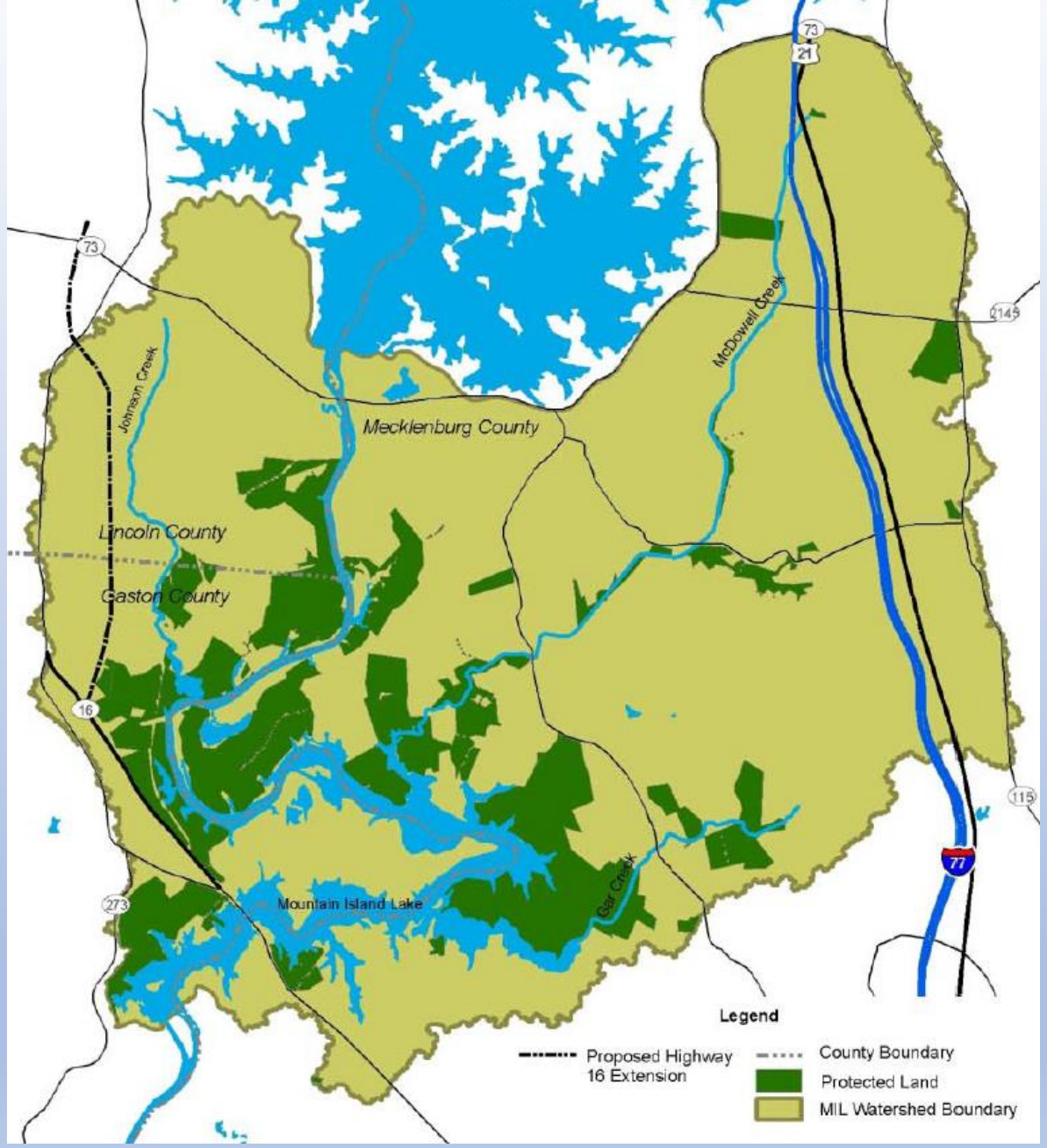


Impaired Waters with TMDLs in Our Region

1. Irwin, McAlpine, Little Sugar, and Sugar Creek Watersheds for Fecal Coliform Bacteria; Long, McAlpine, Sugar, Little Sugar, and Irwin Creek Watersheds for Turbidity; and McAlpine, Little Sugar, and Irwin Creeks for DO.
2. Goose Creek Watershed for Fecal Coliform
3. McDowell Creek Watershed for Fish Community.
4. Lake Wylie Watershed for Nutrients.
5. Crowders Creek Watershed for Fecal Coliform Bacteria.
6. Rocky River Watershed for Fecal Coliform Bacteria.
7. Yadkin River Watershed for Turbidity.
8. Clark Creek Watershed for Fecal Coliform Bacteria.
9. Browns Creek Watershed for DO.

In Mecklenburg County, nonpoint source pollutants and increased stormwater volumes and velocities are controlled by structural stormwater controls, buffers, and land preservation.


Land preservation far exceeds all other methods for controlling nonpoint source pollutants and increased volumes and velocities associated with stormwater runoff because it prevents the impacts instead of treating them. Treatment only removes a percentage of pollutants, volumes and velocities, must be maintained and ultimately replaced.
Beatties Ford Rd
Gar Creek Watershed
Mtn. Island Lake
Charlotte's Drinking Water Intake



On Mountain Island Lake, publicly owned land or land in conservation easements totals ±9.7 square miles or ±14% of the 69 square mile watershed.

Importance of Our Surface Water Resources

- Emerging Contaminants - Found at trace amounts in water supplies, health risk unknown.
- PFAS (per- and polyfluoroalkyl substances) - Found almost everywhere on the planet, its sources are nearly endless, and it lasts forever. Problems found in the Cape Fear River, N.C.
- Stormwater Controls and buffers are ineffective against these contaminants. Preventing these contaminants from entering our water supplies by conserving land is the only means of control.