Protecting Our Water Resources

1. Description of Our Regional Surface Water Resources
2. Importance of These Resources
3. Biggest Threat
4. What Can We Do Better

McDowell Creek in Huntersville.

Description of Our Regional Surface Water Resources

Partnership Cities

1. Belmont
2. Bessemer City
3. Charlotte
4. China Grove
5. Cornelius
6. Cramerton
7. Dallas
8. Davidson
9. Gastonia
10. Harrisburg
11. Huntersville
12. Lake Park
13. Lowell
14. Matthews
15. Mecklenburg
16. Mint Hill
17. Monroe
18. Mooresville
19. Mount Holly
20. Pineville
21. Shelby
22. Stallings
23. Stanley
24. Statesville

Importance of Our Surface Water Resources – We Drink It

Water Supply Providers

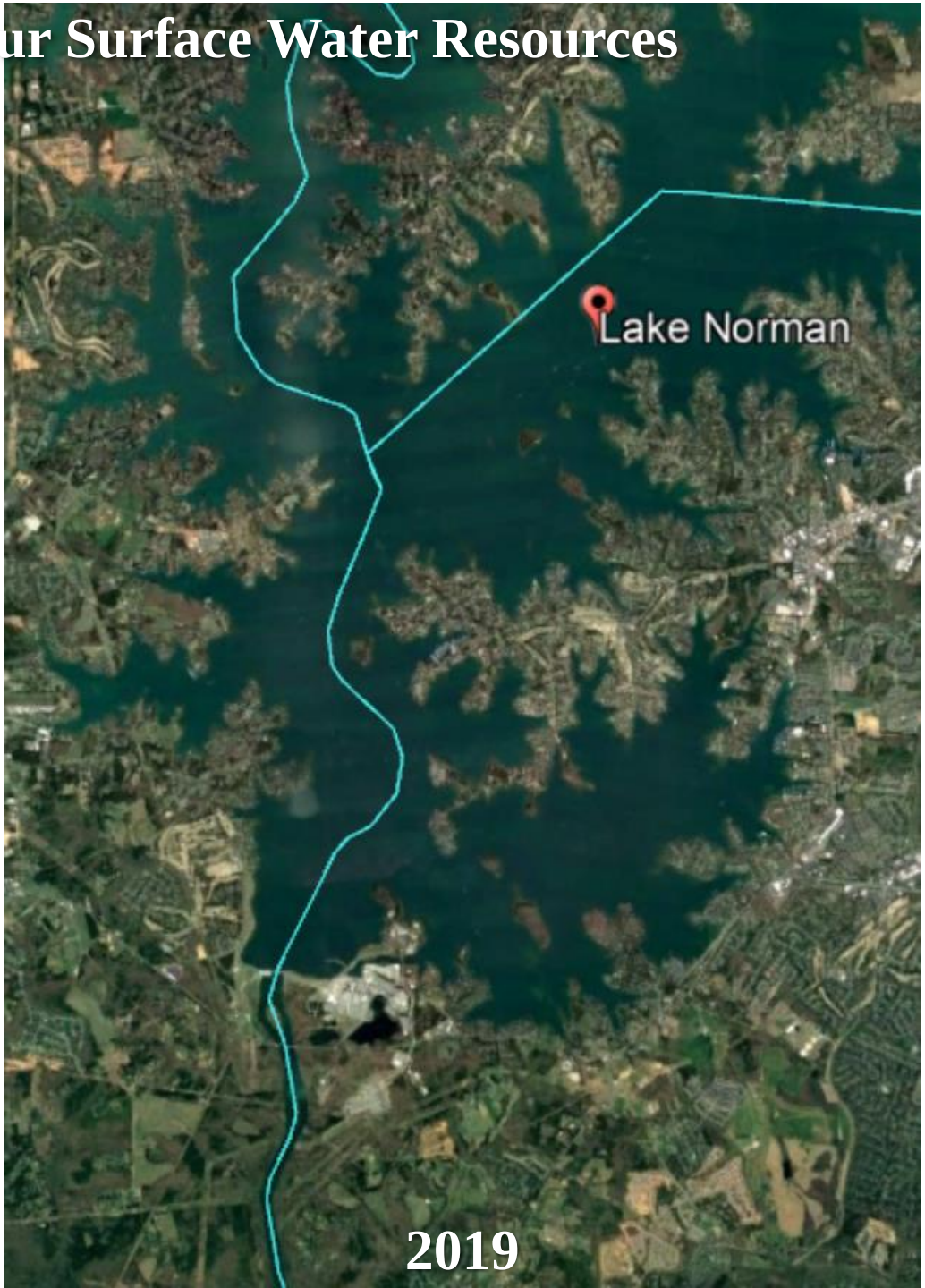
1. Statesville – Lookout Shoals (2 mgd)
2. Mooresville – Lake Norman (4.7 mgd)
3. Charlotte Water – Lake Norman (17.8 mgd)
4. Charlotte Water – Mountain Island Lake (83.5 mgd)
5. Mount Holly – Mountain Island Lake (2.5 mgd)
6. Gastonia – Mountain Island Lake (18 mgd)
7. Belmont – Lake Wylie (10 mgd)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

Total Volume = 146.8 mgd

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.
- Protection of water supplies is the only practical means of control.

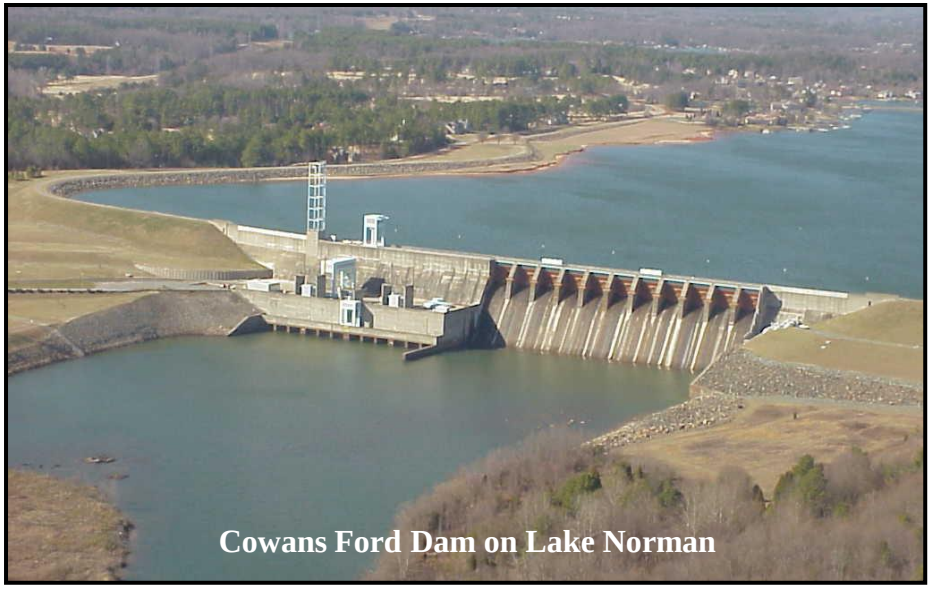
Importance of Our Surface Water Resources



Importance of our Surface Water Resources

Over 10 million people visit the Catawba River annually.

Importance of Our Surface Water Resources



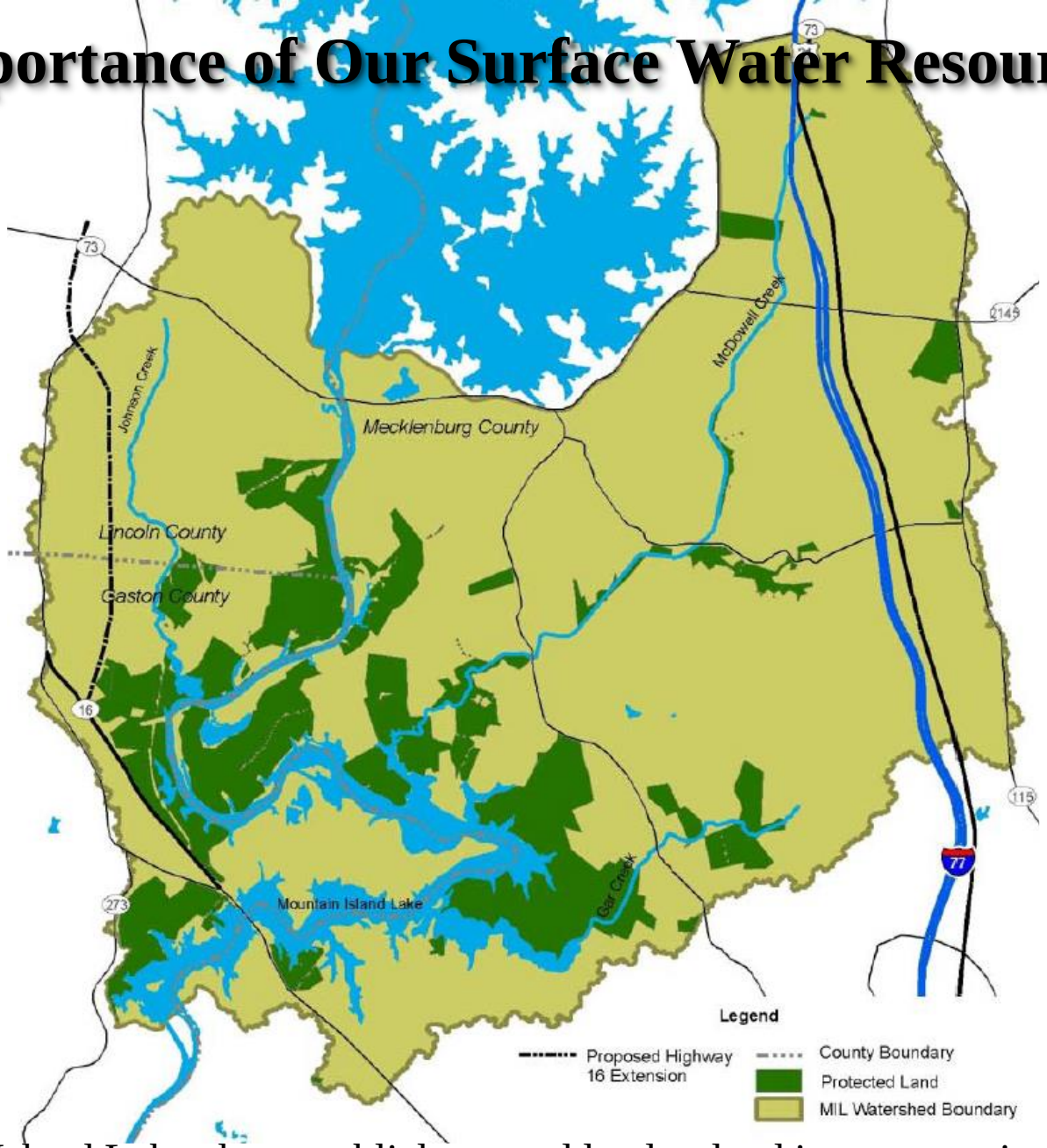
Cowans Ford Dam on Lake Norman

Electric Power Generation – 50 percent of Duke Power's capacity for electric generation relies on the Catawba River.

Latta Plantation Park on Mountain Island Lake

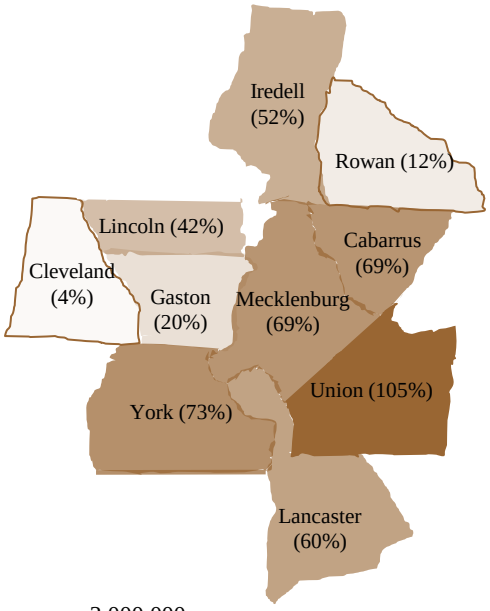
Unique Natural Landscapes, Flora & Fauna – Provide opportunities for establishment of nature preserves.

Importance of Our Surface Water Resources



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

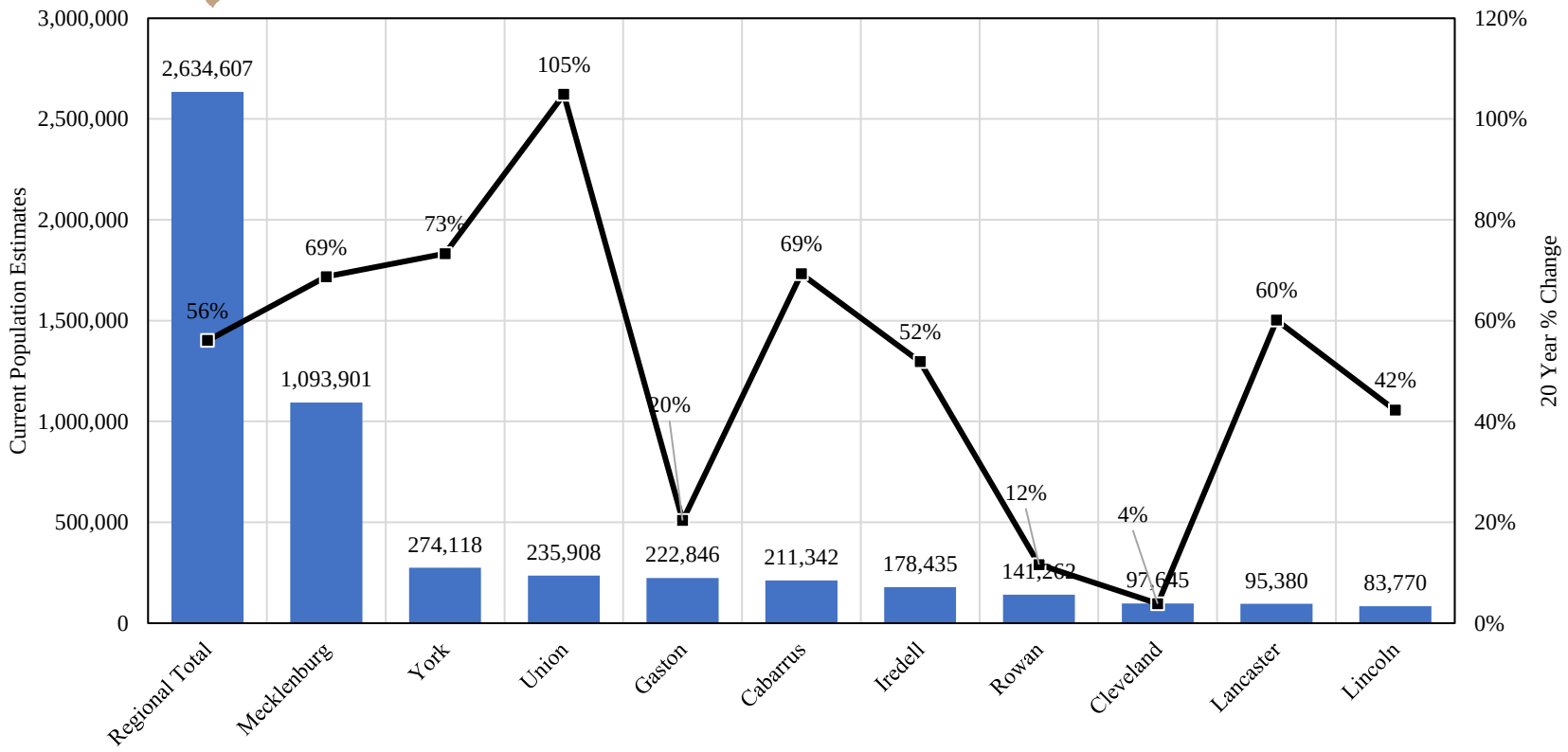
The Growing Water Challenge

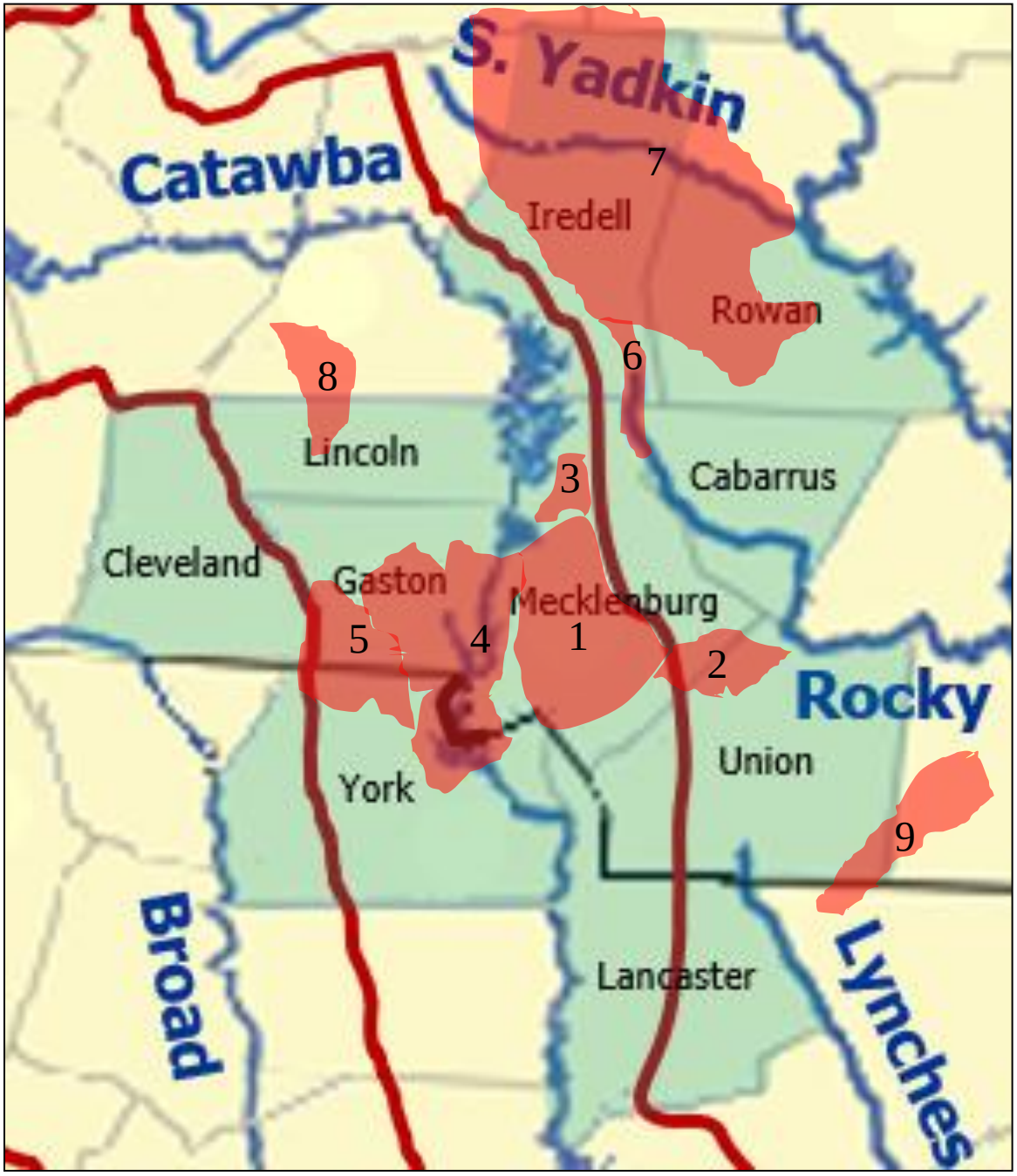


More People = *More Pollution & Greater Demand*

Our region is experiencing rapid population growth requiring ever increasing supplies of clean, reliable water, but this increased population 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.

Regional Population Data

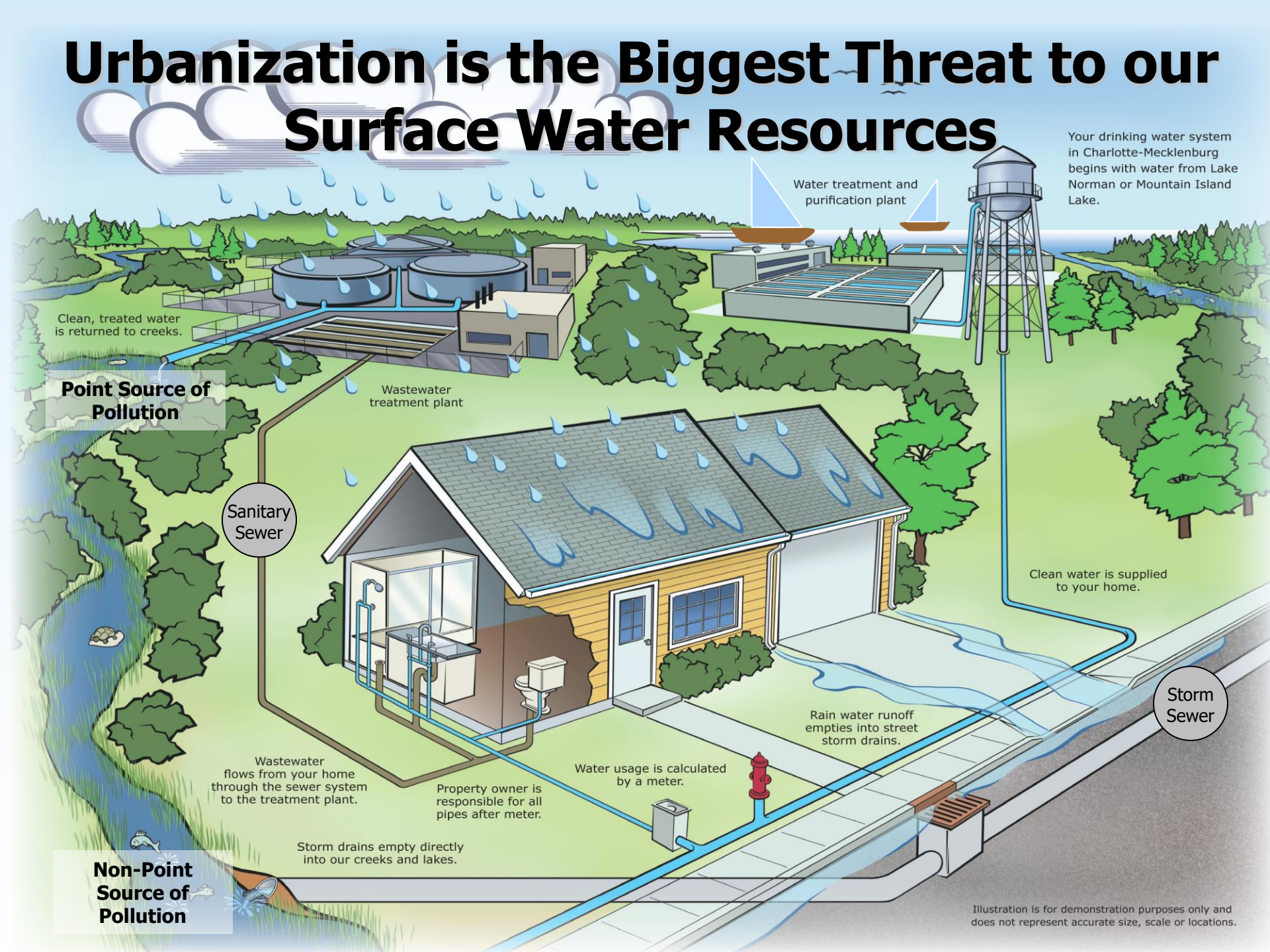




Impaired Waters with TMDLs in Our Region

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.

Urbanization is the Biggest Threat to our Surface Water Resources



Storm Water (Non-Point Source Pollutants) are the Primary Cause of Impaired Water Quality

Storm Water (Non-Point Source) Pollutants

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


Mud, sediment from poor erosion control at construction sites is a major non-point source pollutant.

Increased Storm Water Volumes & Velocities Also Degrade Water Quality

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

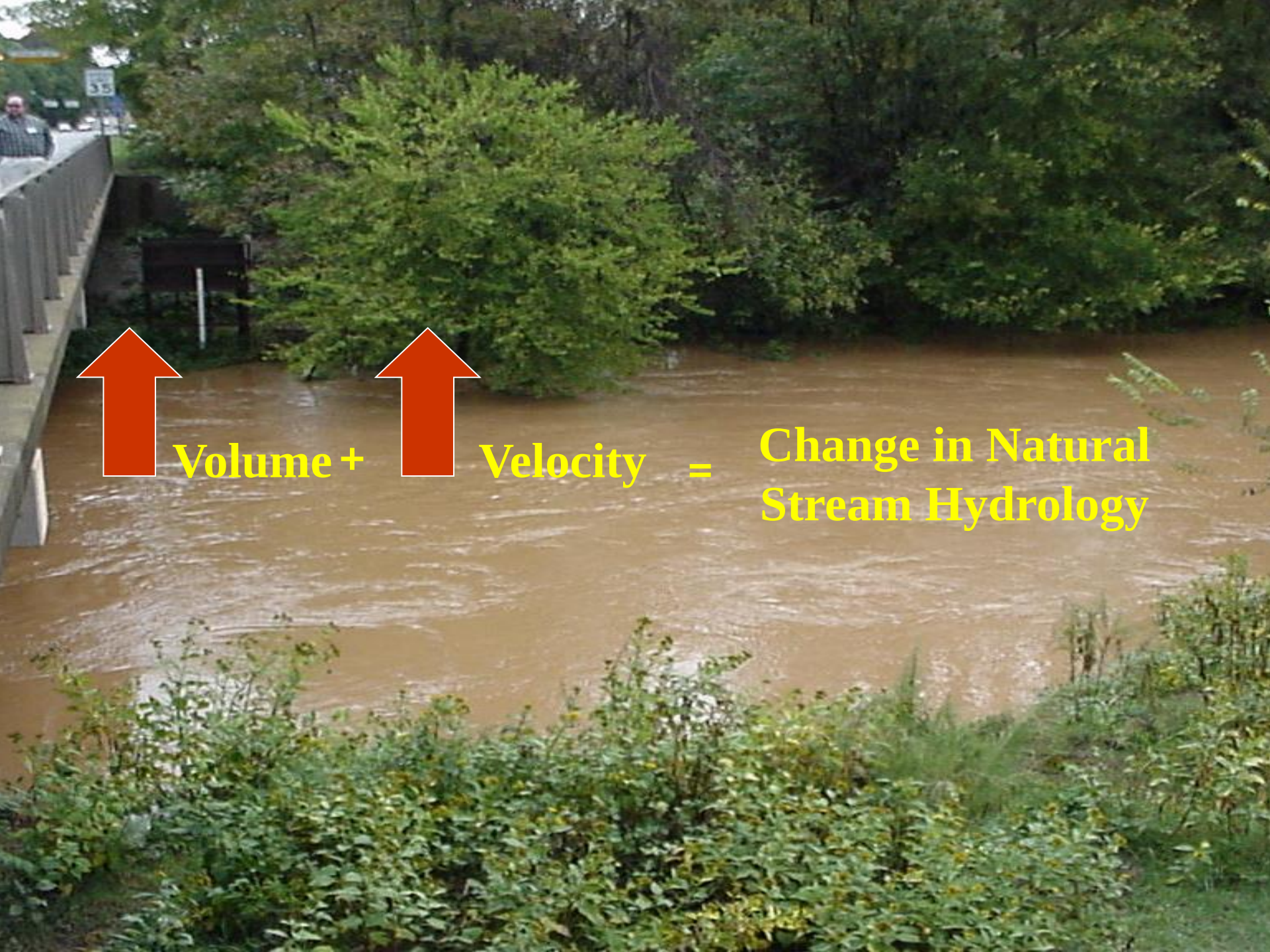
The same one (1) inch of rainfall on one (1) acre of asphalt will produce over 27,000 gallons of runoff.








- Total Impervious Area in Mecklenburg County is 73,669 acres (115 square miles or 21% of County's surface area).
- One Inch of rain will generate 2 billion gallons of runoff.
- Which is enough to fill Panthers Stadium 8 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.

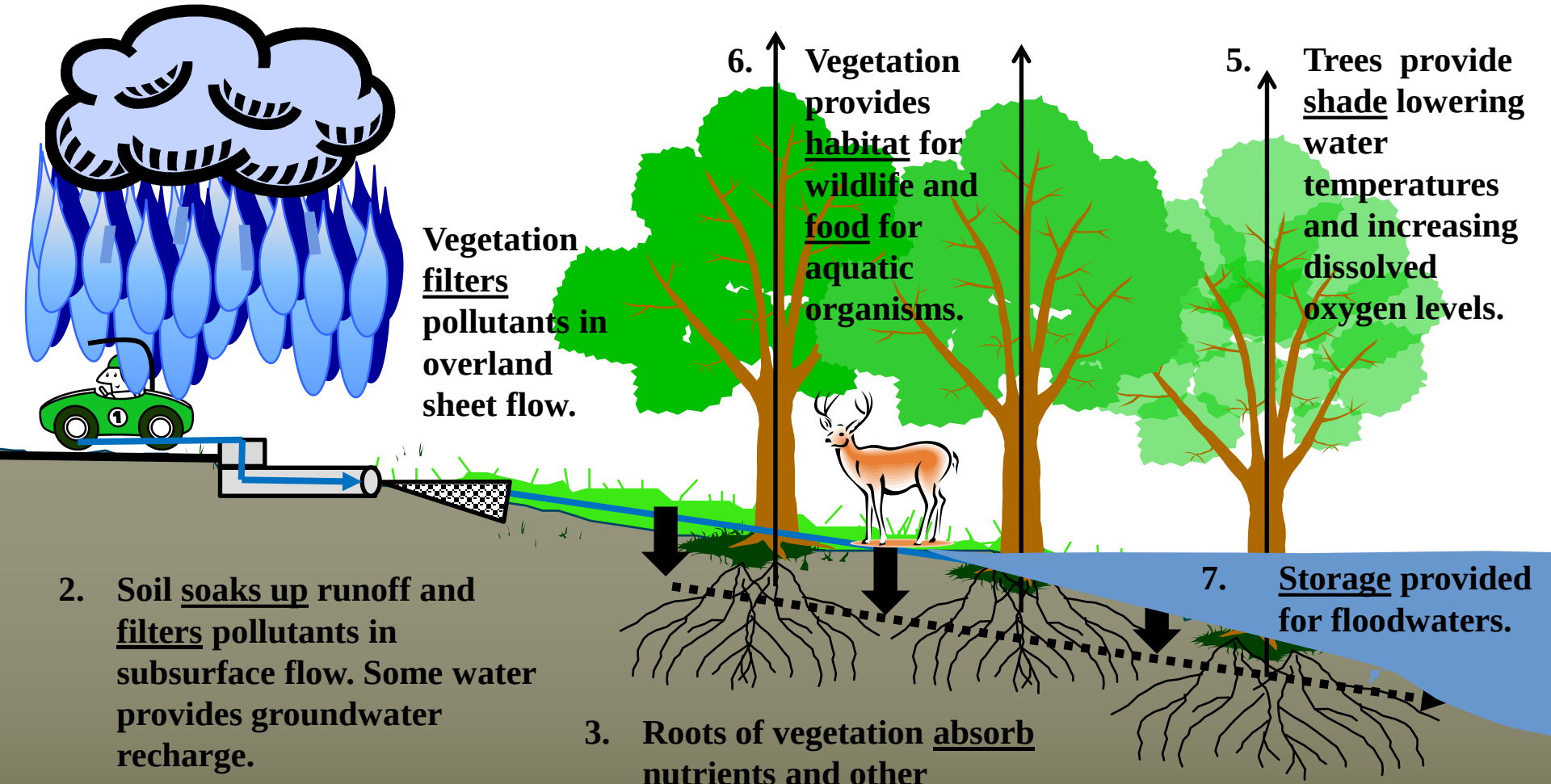
Mayfly

Controlling Non-Point Sources
Stormwater Control Measures (SCMs)

- Collect and treat surface run-off from developed areas prior to discharge into streams and/or lakes for the purpose of reducing non-point source pollutants and protecting water quality from increased runoff volumes and velocities.
- SCMs are required by Storm Water Permits through Post-Construction Site Runoff Controls.

Wet Pond SCM in Cornelius

Buffers Are The Best!



Vegetation **filters** pollutants in overland sheet flow.

6. Vegetation provides **habitat** for wildlife and **food** for aquatic organisms.

5. Trees provide **shade** lowering water temperatures and increasing dissolved oxygen levels.

2. Soil **soaks up** runoff and **filters** pollutants in subsurface flow. Some water provides groundwater recharge.

3. Roots of vegetation **absorb** nutrients and other pollutants and **release** moisture into atmosphere through evapotranspiration.

4. Roots of vegetation **stabilize** banks preventing erosion and allowing the formation of natural meanders.

7. **Storage** provided for floodwaters.

Buffer = Filter + Sponge + Much More

Open Space - Trees

Filter pollutants and reduce impervious area.

Other Requirements of Storm Water Permits in Addition to Post-Construction Site Runoff Controls

- Public Education & Outreach
- Public involvement & Participation
- Illicit Discharge Detection & Elimination
- Construction Site Runoff Controls
- Pollution Prevention & Good Housekeeping for Municipal Operations
- TMDL Compliance Measures

Charlotte-Mecklenburg STORM WATER Services

What should you do to meet our water challenge?

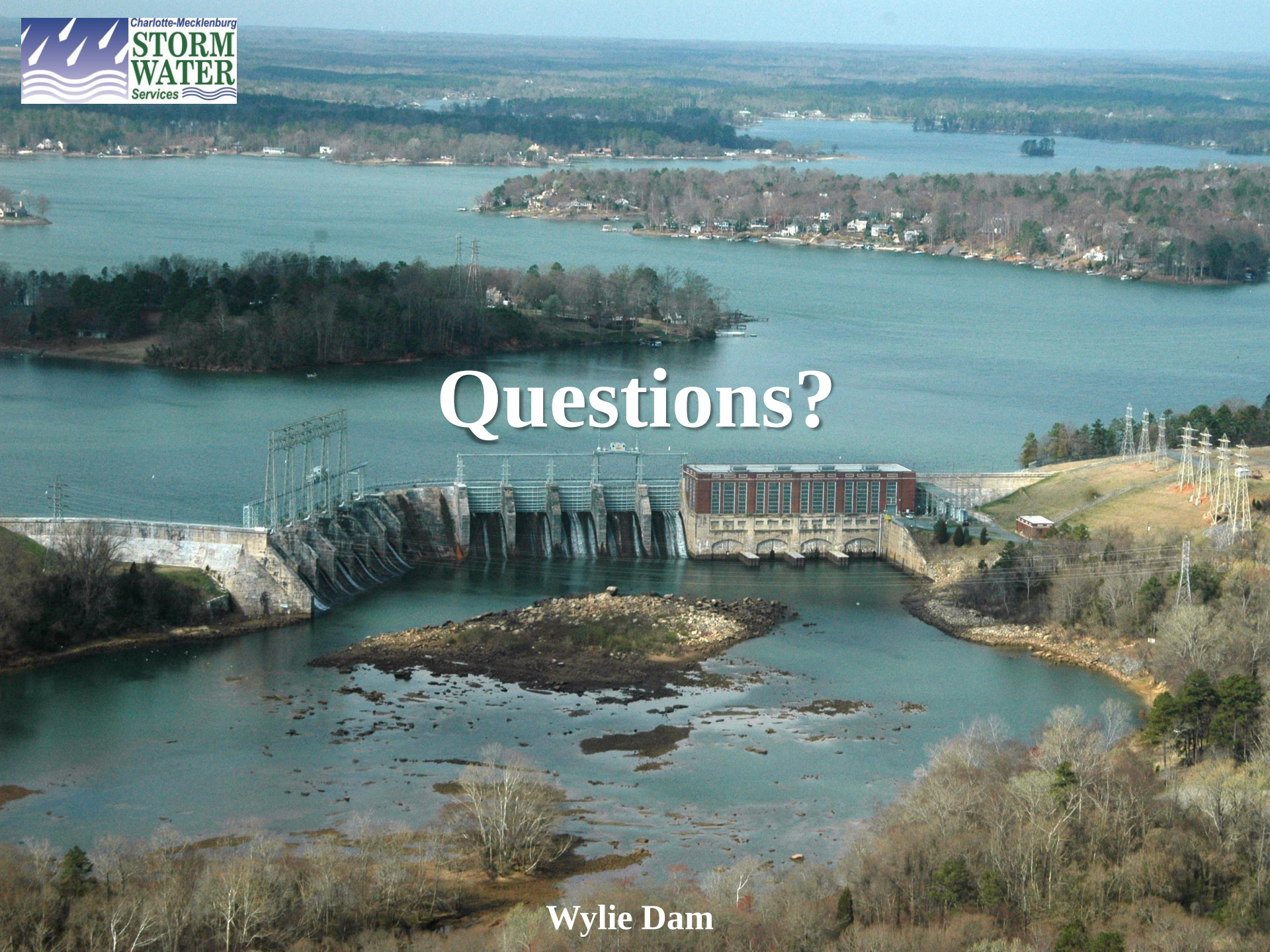
Answer: Go beyond the State Minimum Requirements

- Ensure your jurisdiction is complying with the law.

  https://files.nc.gov/ncdeq/Energy+Mineral+and+Land+Resources/Stormwater/MS4_Documents/Permitted-MS4-List.pdf

- Ensure your jurisdiction has a proactive maintenance program for its pollution control infrastructure.
- For jurisdictions with Storm Water Permits, go beyond minimum State requirements.
  - Require SCMs at 10% to 12% impervious area.
  - Require SCMs to remove 85% TSS **PLUS** 70% TP.
  - Require wider buffers.
  - Require open space/tree save.
  - Work to change Session Law 2018-145 to allow SCMs for redevelopment.
  - Require enhanced erosion control measures in critical areas.
  - Require that SCMs be maintained by jurisdictions.

Buffers – Wider the Better.


Charlotte-Mecklenburg
STORM
WATER
Services
Questions?
Wylie Dam