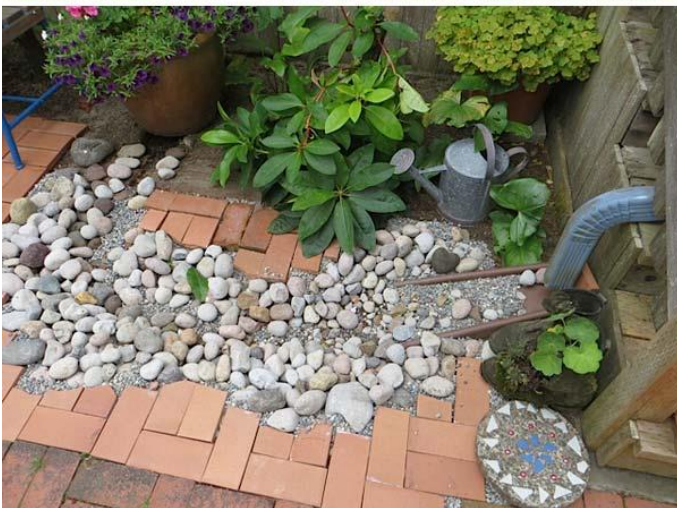


Water, water, what to do?

A homeowner's guide to rain gardens



Amy Mead
Area Natural Resources Agent



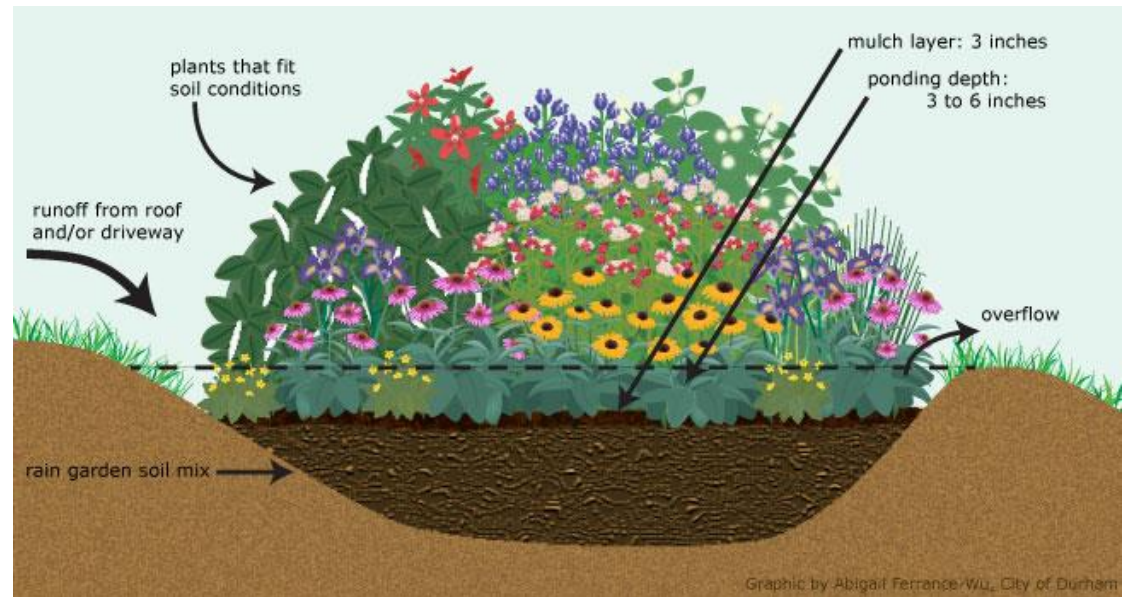
Overview



- Why do you need a rain garden?
- Plan
- Build
- Plant
- Maintain
- Smaller scale solutions



What is a Rain Garden?



- A garden shaped into a bowl-like depression
- Designed to capture rainfall runoff from rooftop and driveway
- Allows water to filter into the ground
- Plants, mulch, and soil help to filter pollutants

Can be an attractive addition to the landscape!

What is Stormwater?

Stormwater runoff occurs when rainwater flows over impervious, or hard surfaces, picking up pollutants and carrying it, *untreated*, directly to our waterways.

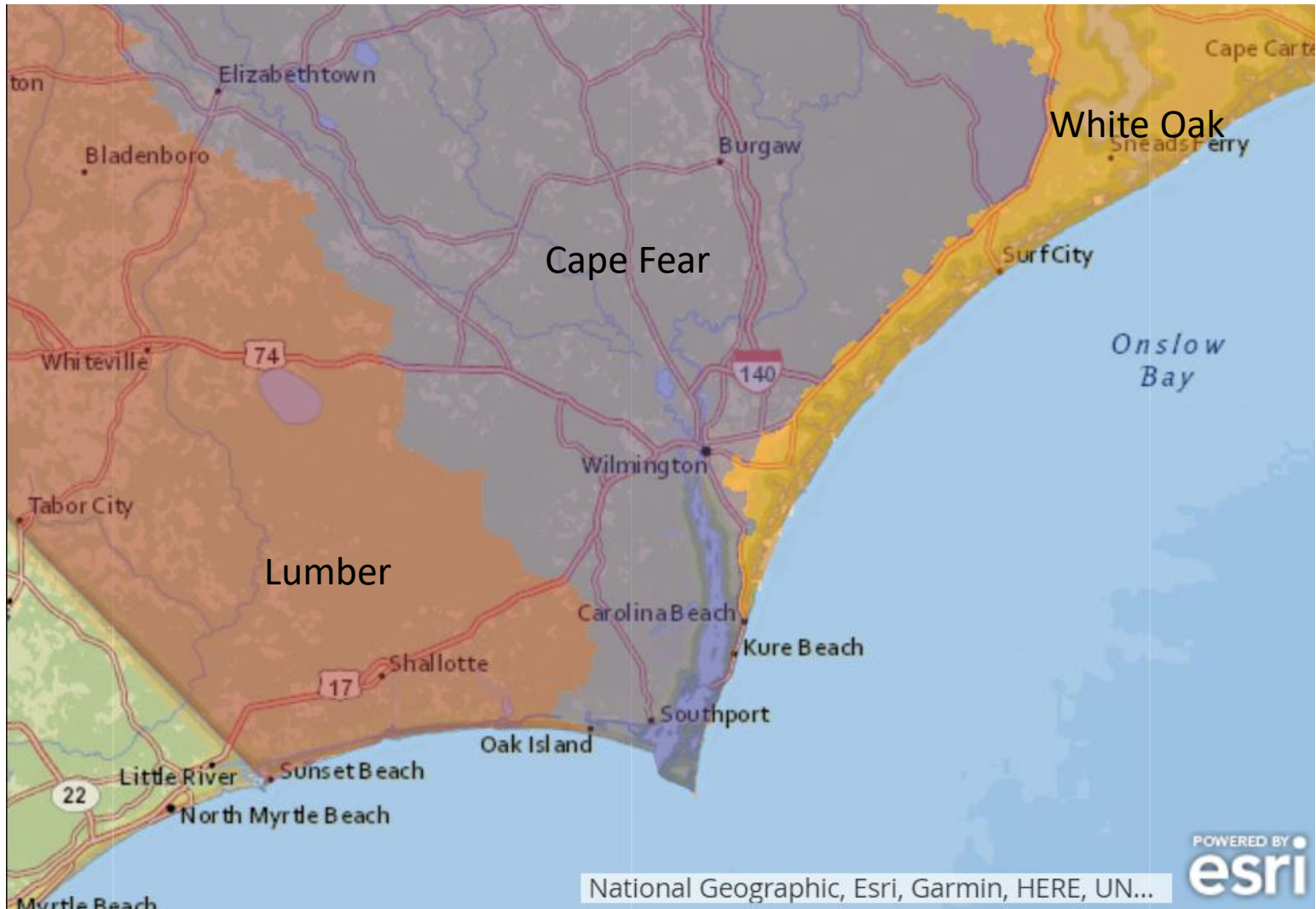


Why should we care about stormwater?



- Pollutants
 - Sediment
 - Fecal bacteria
 - PAHs
 - Nutrients
 - Pesticides
- Erosion
- Flooding

River Basins



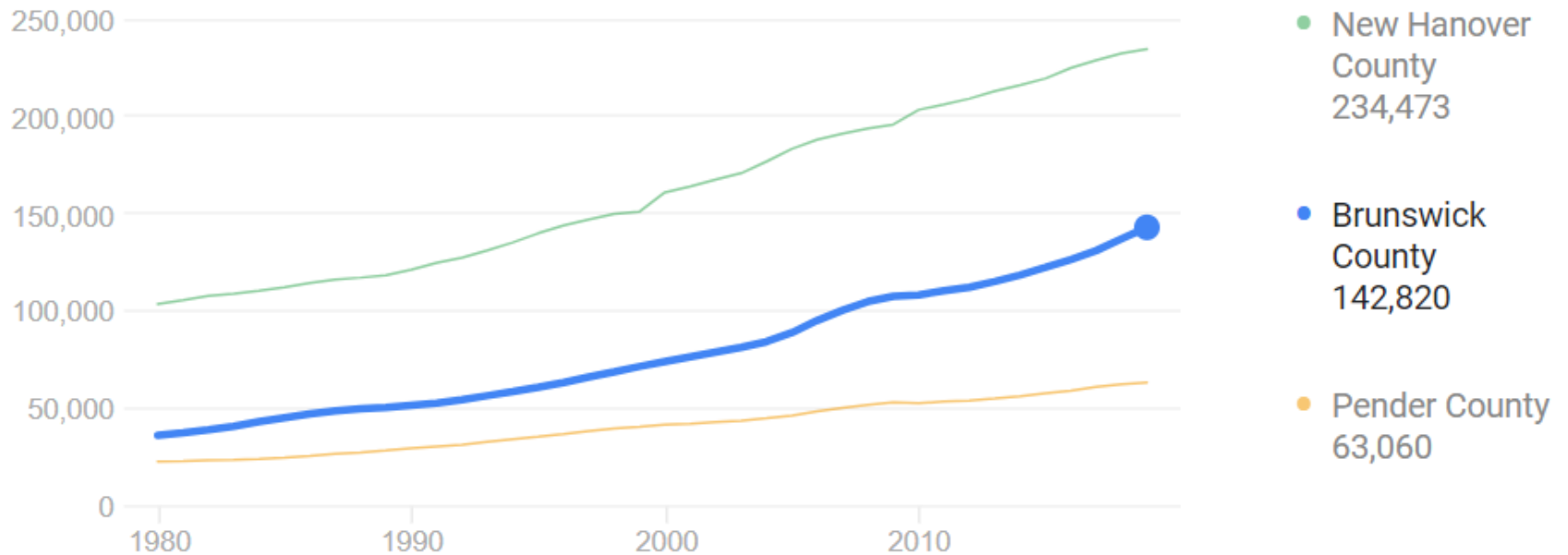
<https://ncdenr.maps.arcgis.com/apps/MapJournal/index.html?appid=fa21039c496a4f598833e6251eddd0db>



Cape Fear River Basin

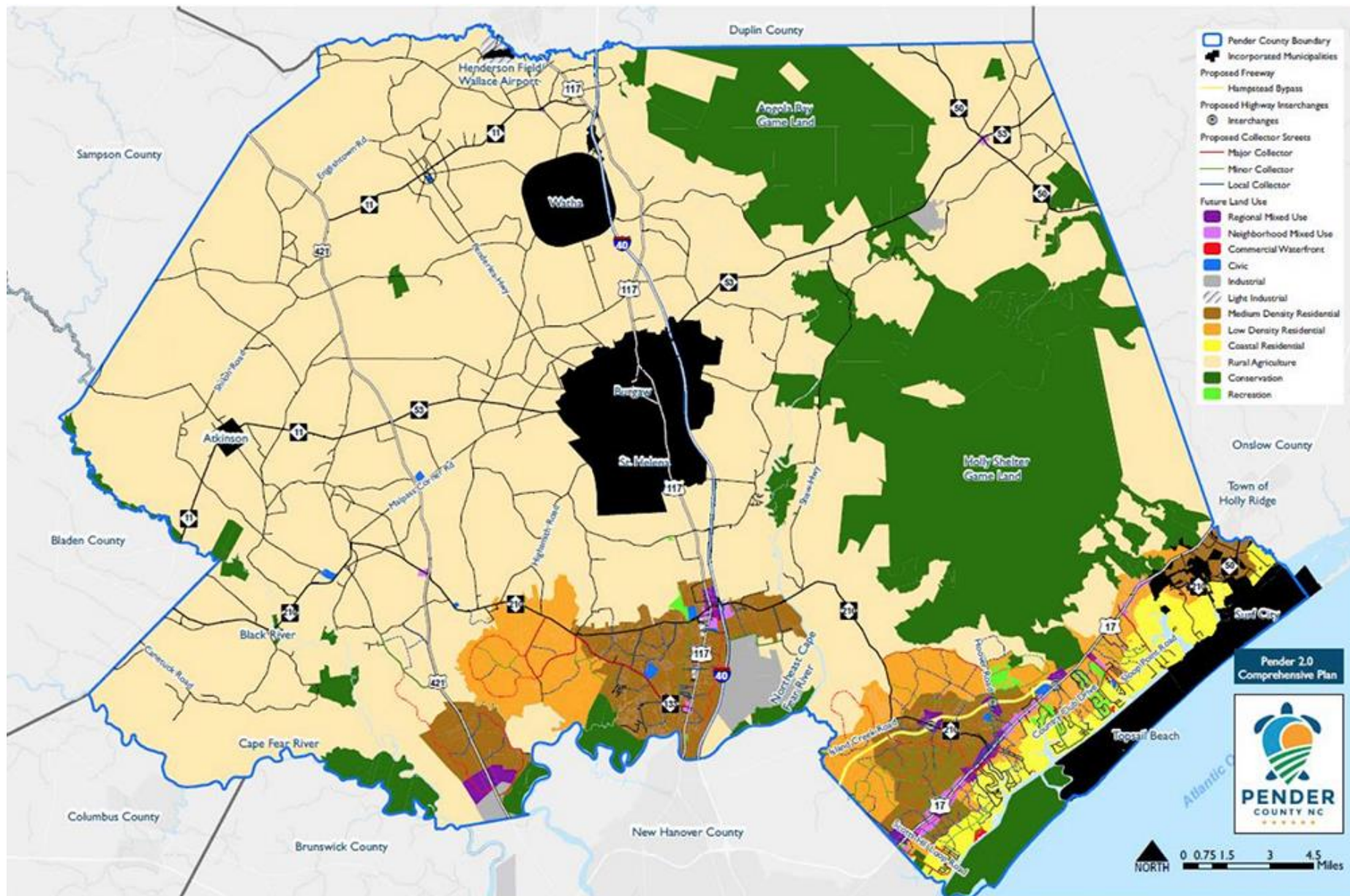
- 26 Counties within Cape Fear River Basin
- Population expected to grow from 3 million to 5 million in the next 20 years

Population increases

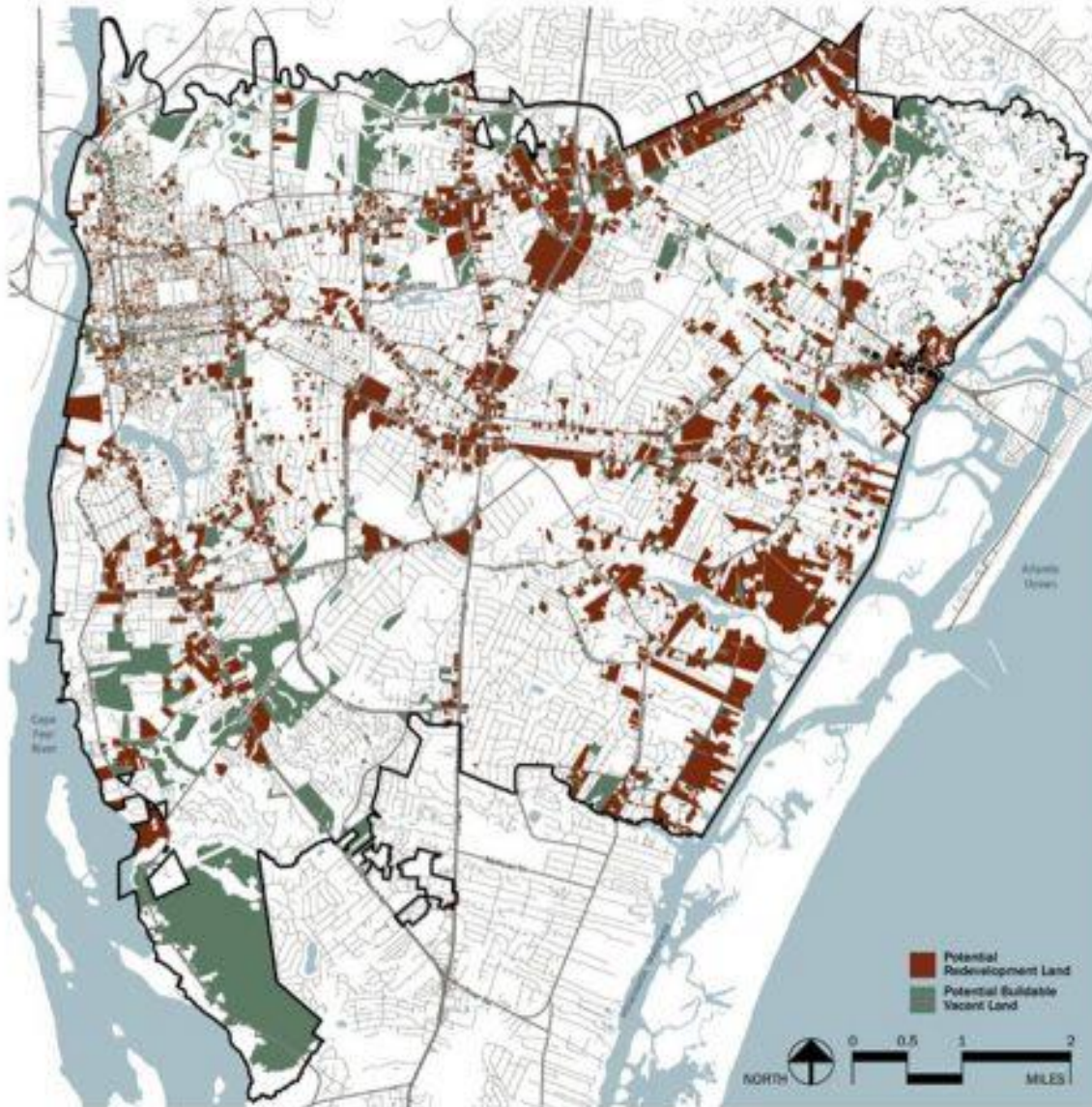


Source: US Census

Brunswick County
94% increase from 2000



Developable Land and Redevelopment Sites Combined, 2016

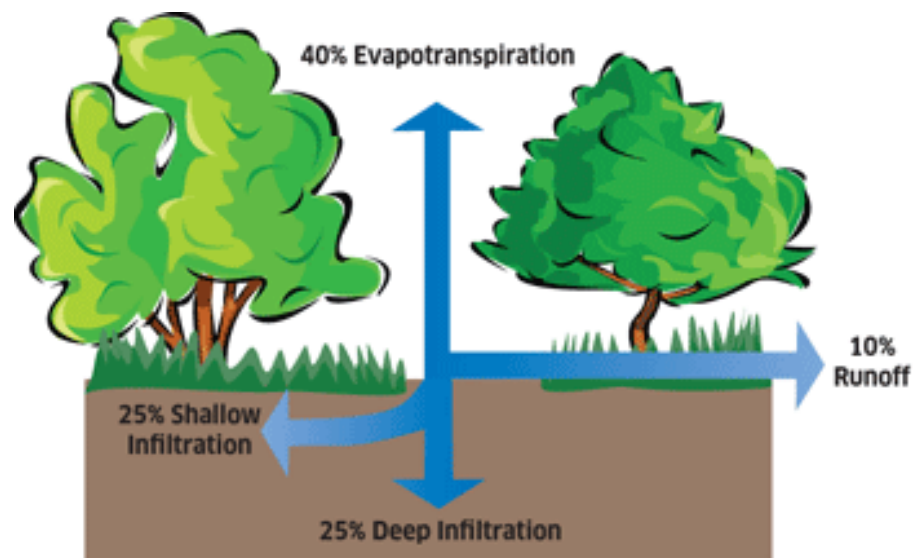


~5,800 acres of
potentially redevelopable
land

~3,700 acres of
potentially buildable
vacant land in the city.

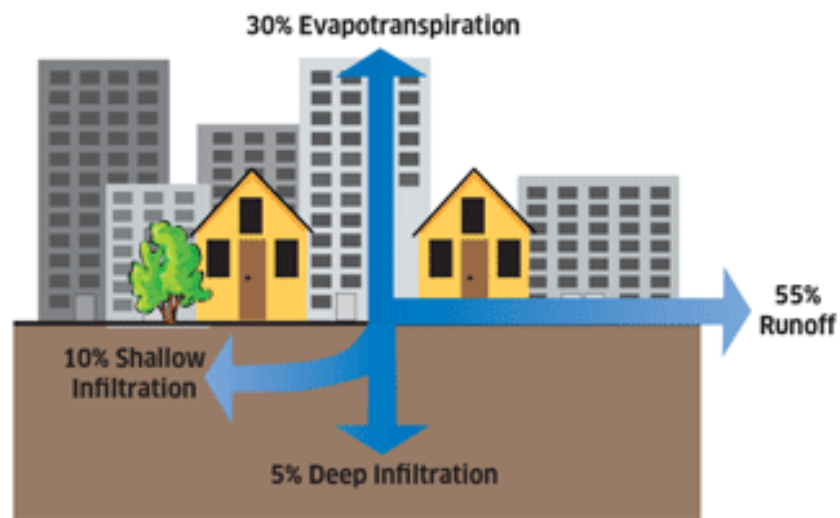
Impervious Surfaces





Natural Drainage System

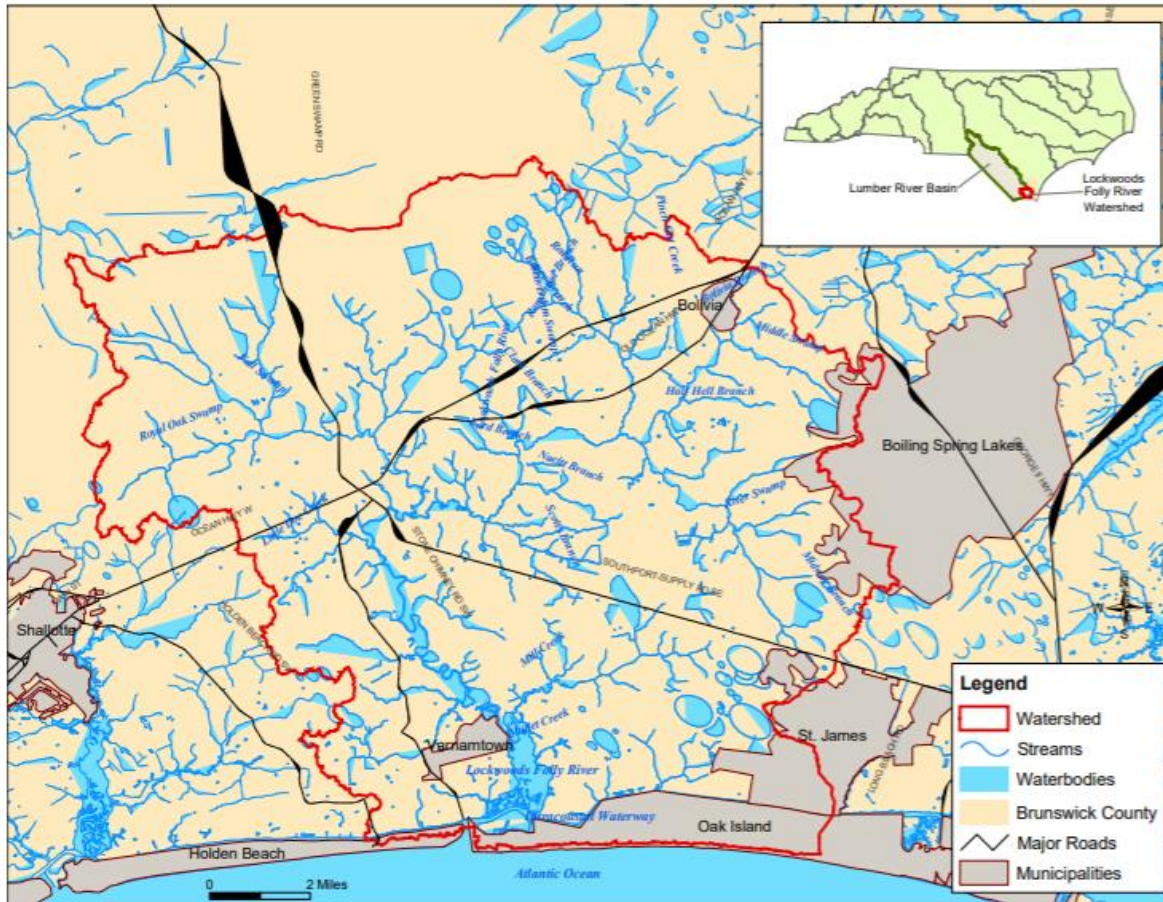
Water can soak into the soil and be absorbed by plants



Urban Drainage System

Paved surfaces prevent water from soaking into the soil, increasing runoff

Lockwoods Folly Watershed

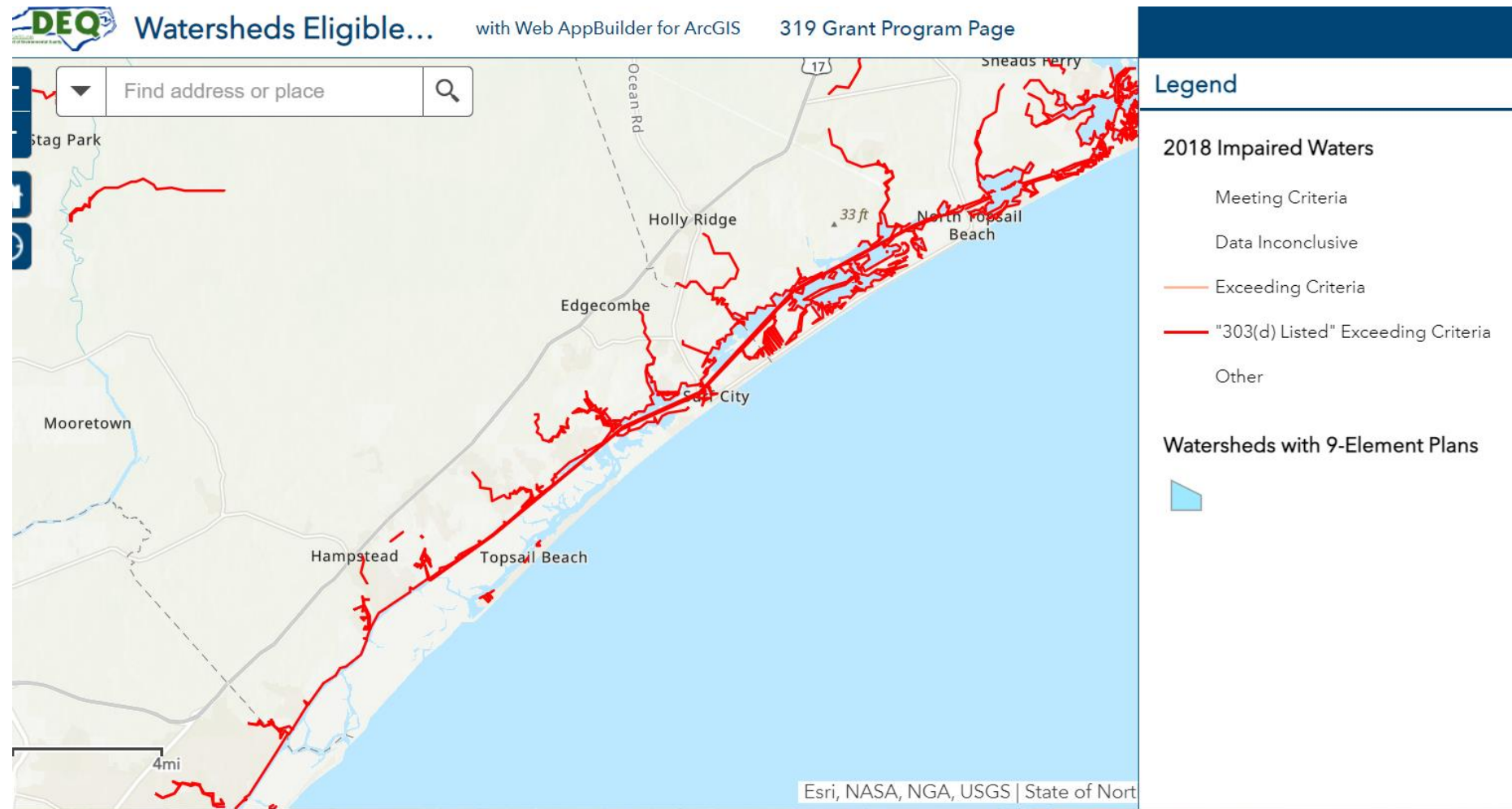


- 303(d) list of impaired waters for shellfish closures due to fecal coliform bacteria
- Waters in the estuary started to close to shellfishing after 1% of the watershed (excluding Oak Island) was developed, now 17%+ developed



- ~28% Impervious Surface
- UNCW 2014 Watershed Quality Report-Bradley Creek has the “highest levels of pollution throughout the county”

303(d) Listed Watersheds-Pender Coast



Low Impact Development

Practices that prevent stormwater runoff from polluting waterways by mimicking a site's natural surface water and groundwater hydrology



NC Coastal Federation

- **Disconnected impervious surfaces**
- **Preservation of open space/natural features**
- **Rain Gardens or Bioretention Areas**
- **Porous pavement**
- **Water harvesting (rain barrels, cisterns)**
- **Low-input native landscaping**

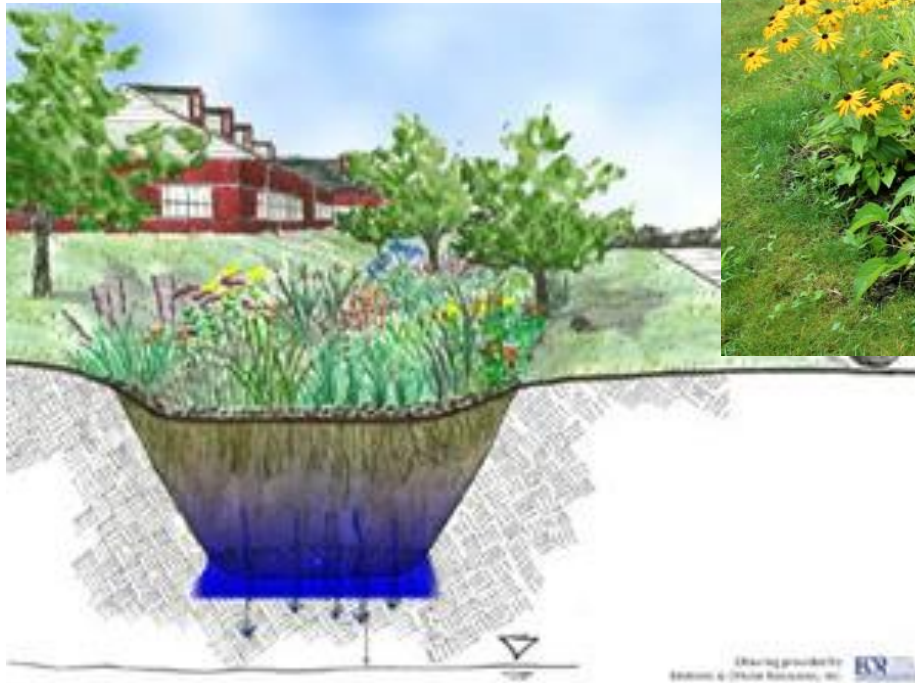


Rainfall

Storage



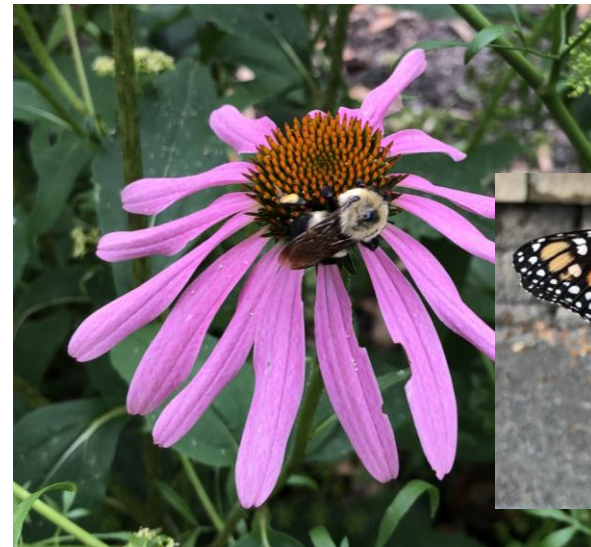
Sylvan Gardens Landscape Contractors



Infiltration

Benefits of a Rain Garden

- Help filter rainwater runoff before it reaches our local waterways
- Absorb nutrients and some heavy metals
- Replenish aquifers by increasing the amount of water infiltrating into the ground
- Provide aesthetic appeal while blending into the landscape
- Provide habitat for wildlife, butterflies, and beneficial insects
- Help protect communities from flooding and drainage problems



Flooding



Often homeowners are unaware of the effect that their stormwater runoff has on neighbors downhill.

We want to be:

- Good Stewards
- Good Neighbors