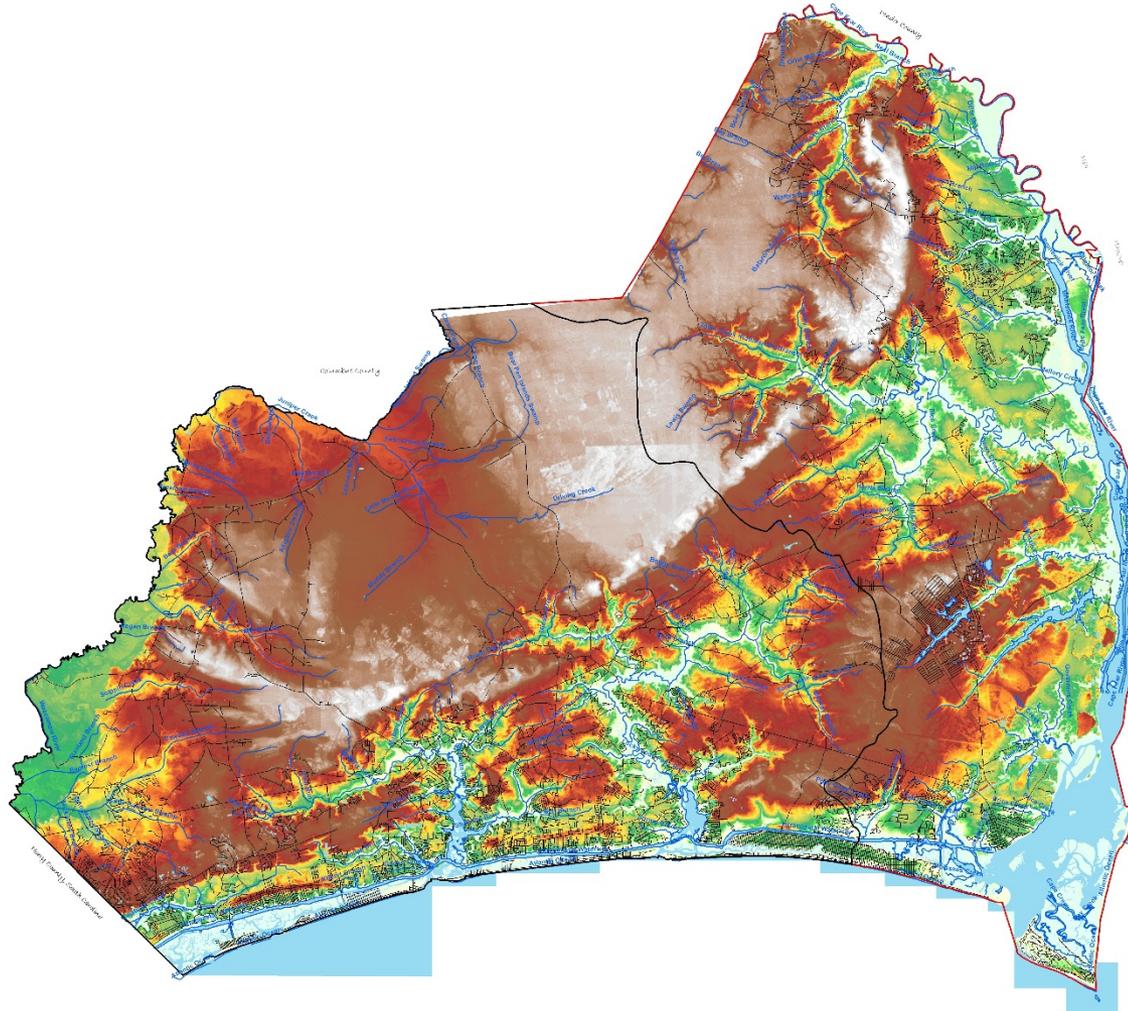


# Stormwater Management & LID in Brunswick County

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Brunswick County



# Brunswick County



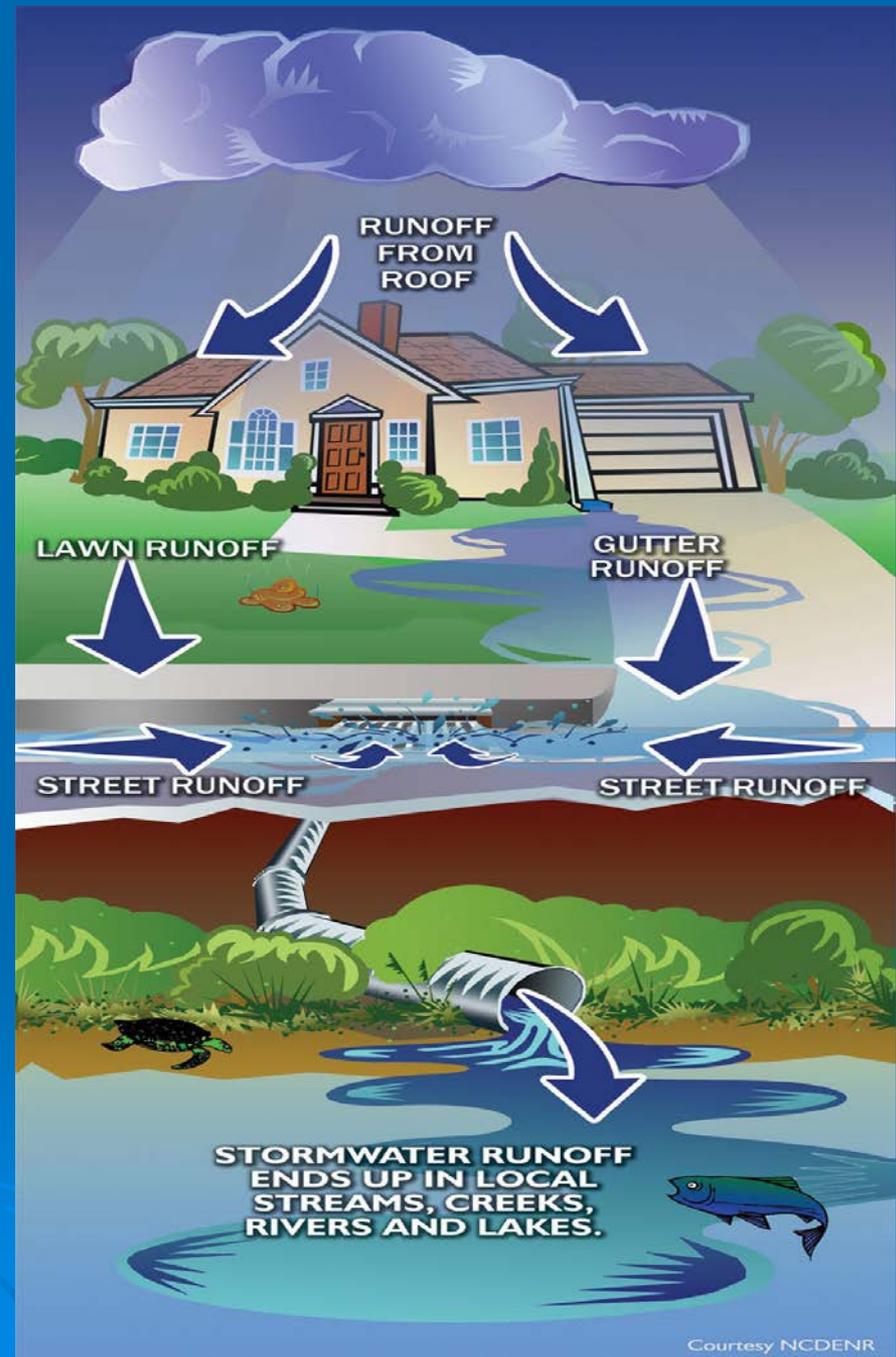
# Municipalities

- Bald Head Island
- Calabash
- Carolina Shores
- Caswell Beach
- Holden Beach
- Leland
- Navassa
- Northwest
- Oak Island
- Ocean Isle
- Sandy Creek
- Shallotte
- Southport
- Varnamtown
- Belville\*
- Boiling Spring Lakes\*
- Bolivia\*
- St. James\*
- Sunset Beach\*

\*These municipalities have agreements with the County for stormwater management

# What is stormwater?

- Stormwater runoff is water from rain or melting snow that “runs off” across the land instead of seeping into the ground.
- Stormwater runoff is increased due to hard surfaces like roofs, driveways, parking lots, and roads being constructed.
- This runoff usually flows **untreated** into the nearest stream, creek, river, or ocean, picking up and carrying many substances that pollute water and increasing erosion and flooding problems downstream.



# How is stormwater managed in Brunswick County?

- New development & redevelopment projects in Brunswick County must apply for a State Stormwater Permit which addresses water quality impacts
- In addition a County Stormwater Permit is required which addresses water quantity impacts in addition to the State Stormwater Permit requirements
  - The County Stormwater Ordinance requires development to control the post-development runoff from the site to pre-development conditions for the 1-year and 10-year 24 hour storms.
  - Some developments are designed to control larger storm events however most are designed to have an emergency overflow for larger storm events.
- Stormwater Control Measures (SCMs) is a term used to describe different ways to keep pollutants out of runoff and slow down high volumes of runoff
  - Structural SCMs refer to physical structures designed to remove pollutants from stormwater runoff, reduce downstream erosion, provide flood control, and promote groundwater recharge.



# Development of LID Guidance Manual

- Partnered with New Hanover County, City of Wilmington, NC Coastal Nonpoint Source Program and NC Coastal Federation (NCCF) to develop the manual
- Adopted by the Brunswick County Board of Commissioners on November 3, 2008
  - As part of adopting the LID Guidance Manual the Commissioners also signed a Resolution encouraging the use of LID in Brunswick County

# Low Impact Development (LID)



- LID is an approach to site development and stormwater management that incorporates site level planning, design, and control techniques that are focused toward restoring and optimizing the land's ability to absorb water, capture pollutants and process pollutants into the landscape.
- The ultimate goal of LID is to create an environmentally and hydrologically functional landscape that mimics natural hydrologic functions.
- A well-designed site can minimize the volume of runoff that is generated, and maximize the treatment capabilities of the landscape, while controlling runoff as close to the source as possible.

# LID in Coastal Situations

- Many coastal areas are relatively flat, the soils are sandy, and there is potential for heavy rainfall from coastal and seasonal storms. In addition, many development projects are within close proximity to environmentally sensitive areas such as wetlands, estuaries, and surface water bodies that need to be protected.
- These areas are well-suited for infiltration practices such as grass swales, bio-retention areas and infiltration basins.



**Before rain event**



**After rain event**

# LID in Coastal Situations

- There are also areas that have rolling topography, shallow groundwater, and dense sub-soils with confining layers of clay or hardpan.
- In these locations it may be more feasible to rely on preventative conservation to the greatest extent possible. This approach will also reduce both quantity of runoff and the amount of pollutants generated.
- In areas with high groundwater tables, incorporating LID may be more challenging, however there are practices such as stormwater wetlands that would be suitable in these locations.
- Hybrid approaches that utilize both LID techniques and structural SCMs may work best in these locations especially to meet County Stormwater requirements.



# For More Information

## ➤ **Flooding on Streets**

- Roads in North Carolina are either owned and maintained by the State, owned and maintained by a municipality, or privately-owned and maintained.
- If you have concerns about the conditions of a State-owned road, including drainage in the right-of-way, contact the [North Carolina Department of Transportation](#) at 910-754-8924 or report a drainage issue, culvert blockage or other problem online [here](#).
- If you have concerns about a municipal road, contact the officials in that municipality ([find a listing here](#)). To determine whether a road is in a municipality's boundary or its extraterritorial jurisdiction (ETJ), [click here](#).
- If you have concerns about a private road located in and maintained by a Property Owners Association (POA) or a Homeowners Association (HOA), contact the POA or HOA.

## ➤ **Stormwater**

- If you have questions or concerns about stormwater drainage in unincorporated Brunswick County, Belville, Bolivia, Boiling Spring Lakes, St. James or Sunset Beach, contact Brunswick County Engineering at 910-253-2500.
  - Note: Brunswick County does not provide maintenance of drainage ways.
- If you have concerns about stormwater drainage in another municipality, contact that municipality ([find a listing here](#)).
- For concerns about mosquito breeding in standing water during or after flooding, [click here](#). (To find a licensed beaver trapper in Brunswick County, [click here](#).)

# For More Information

## ➤ **Flooding in a Home**

- If you have safety or access concerns, contact Emergency Services at 910-253-5383.
- If you have concerns about Brunswick County water and sewer lines, contact Brunswick County Public Utilities at 910-253-2657.
- Service a damaged septic tank, cesspool, pit or leaching system as soon as possible. Damaged sewage systems are health hazards. Most damaged septic systems require a permit prior to being repaired. If you have concerns about your septic system, contact Environmental Health at 910-253-2250.
- Drinking water wells: Flooding around your drinking water well head can contaminate your water supply. Drinking contaminated water may cause illness. You cannot assume that the water from wells which have been flooded is safe to drink. If your well has been flooded or even covered briefly with flood water, it needs to be tested. If you have concerns about your drinking water well, contact Environmental Health at 910-253-2250.
- For information about safely re-entering a home that has been flooded, [click here](#).



# Engineering Brunswick County NC

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<http://www.brunswickcountync.gov/>

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