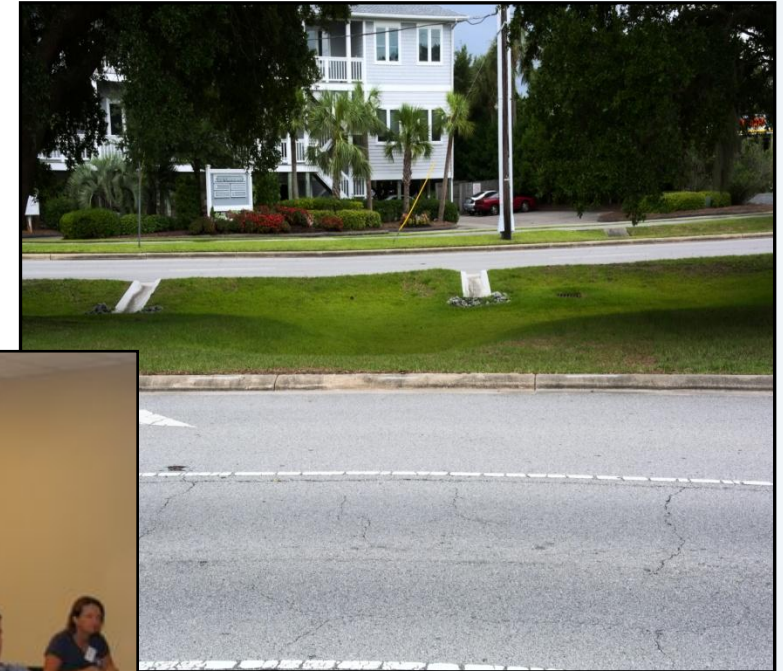


Stormwater Reduction Strategies for Coastal Communities: Watershed Management Planning



North Carolina Coastal Federation

Lauren Kolodij



North Carolina
Coastal Federation
35 years.....
working together for a healthy coast

Conventional Land Use and Stormwater Management



North Carolina
Coastal Federation
35 years
working together for a healthy coast

Low Impact Development

A Smarter Way to Manage Stormwater



North Carolina Coastal Federation's Stormwater Strategy

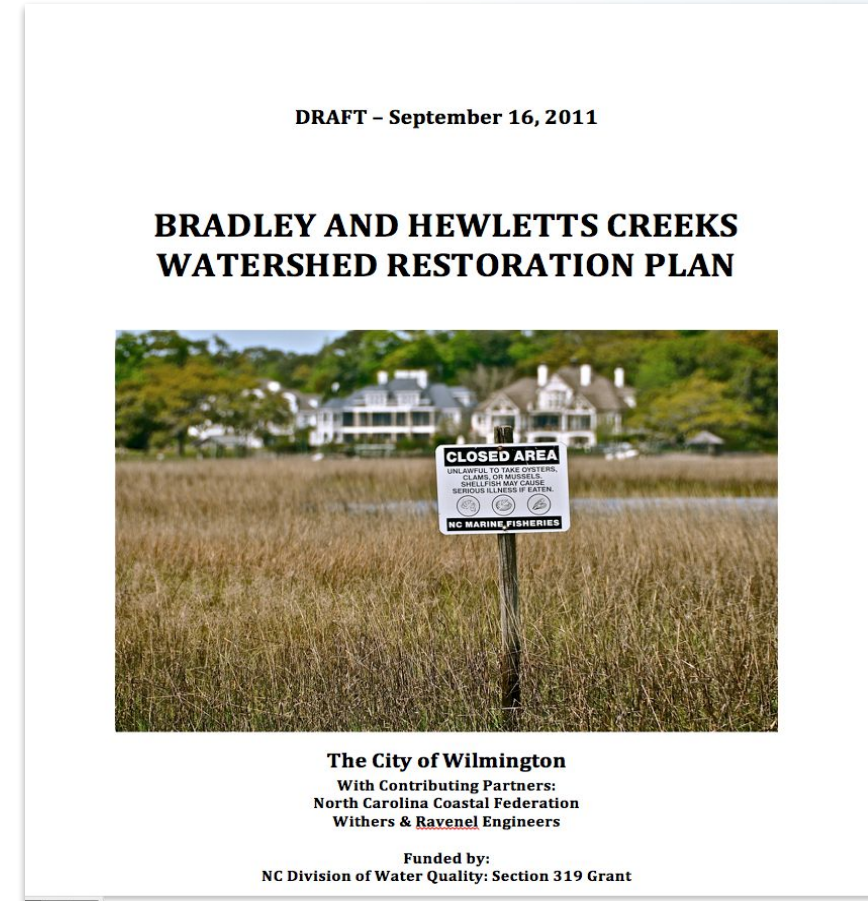
- Work in urban *and* rural landscapes
- use low-impact development (LID) techniques
- slow down the flow of stormwater runoff
- reduce the volume reaching surface waters



Model Effort: The Bradley and Hewletts Creeks Watershed Restoration Plan

Goals for Plan Development

- Collaborate with multiple partners
- Turn back the clock on water pollution
- Restore shellfish harvesting
- Prevent swimming advisories (WB)
- Remove from State's impaired list



Implementing the Bradley and Hewletts Creeks Watershed Restoration Plan



Implementing the Bradley and Hewletts Creeks Watershed Restoration Plan



Implementing the Bradley and Hewletts Creeks Watershed Restoration Plan



Implementing the Bradley and Hewletts Creeks Watershed Restoration Plan



Implementing the Bradley and Hewletts Creeks Watershed Restoration Plan

Proven Strategies

Monitoring results from stormwater retrofit sites indicate a 50-90% reduction in stormwater volumes (reducing pollutant loads).



Bradley and Hewletts Creek Planning Effort:

- Serves as model
- Leads to guidebook



nccoast.org/guidebook



North Carolina
Coastal Federation
35 years
working together for a healthy coast

The Watershed Management Planning Guidebook

nccoast.org/guidebook

- Funded by the EPA, North Carolina Coastal Federation developed a Watershed Restoration Guidebook
- Emphasis on reducing the volume of stormwater runoff to limit the conveyance from the land to coastal waters
- Framework for local governments and communities to develop plans
- Meets EPA Nine Minimum Elements

Watershed Management Planning Guidebook



A COMPREHENSIVE GUIDE TO DEVELOPING A COASTAL WATERSHED MANAGEMENT PLAN



NORTH CAROLINA COASTAL FEDERATION

Goals of Watershed Management Planning

- Reduce instances of flooding
- Turn back the clock on water pollution
- Align future capital improvements with stormwater retrofits
- Increase community awareness
- Position jurisdictions for future funding opportunities

Watershed Management Planning Guidebook

Chapter 1 - Provides introduction to the volume reduction philosophy



North Carolina
Coastal Federation
35 years.....
working together for a healthy coast

Watershed Management Planning Guidebook

Chapter 2- Provides regulatory background about the CWA, impaired waters, etc.



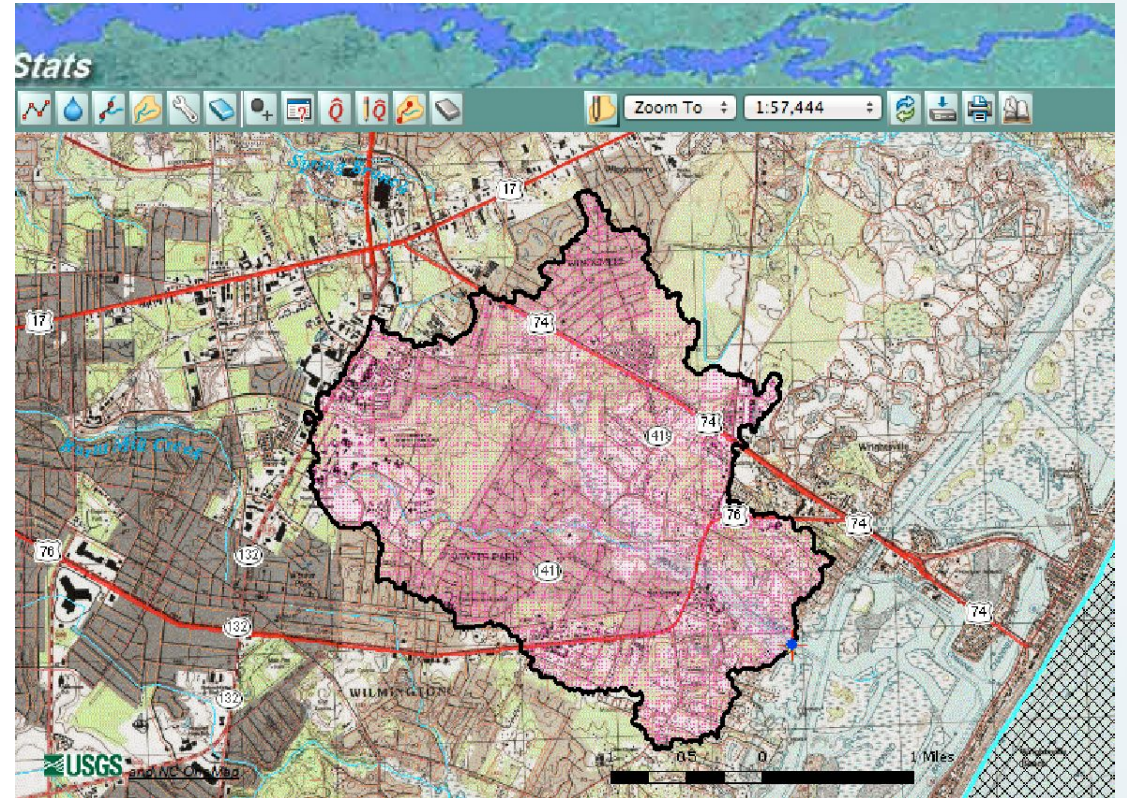
Watershed Management Planning Guidebook

Chapter 3- offers strategies for building partnerships and community support



Watershed Management Planning Guidebook

Chapter 4- provides instruction for setting planning goals and defining watersheds



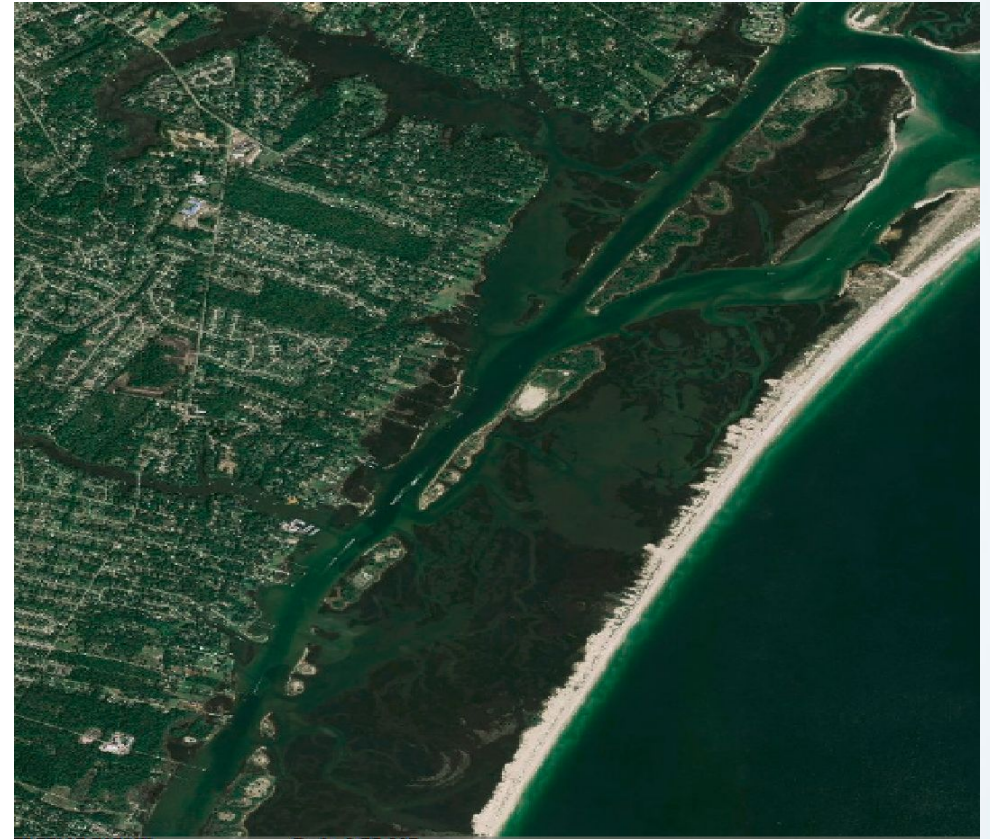
Watershed Management Planning Guidebook

Chapter 5-
 outlines how to
 collect watershed
 data and create a
 watershed
 inventory

Types of Useful Data				
Physical and Natural Properties	Land Use and Population Characteristics	Waterbody and Watershed Conditions	Pollutant Sources	Waterbody Monitoring
Watershed boundaries	Aerial photography	Water quality standards	Point sources	Water quality
Hydrology	Land use and land cover	305(b) report	Animal operations	Flow
Topography	Existing management strategies	303(d) list	Wastewater	Biology
Soils	Demographics	TMDL report	Nonpoint sources	Geomorphology
1 yr./ 24 hr. storm		Source Water Assessments	Stormwater	
Habitat				
Wildlife				

Watershed Management Planning Guidebook

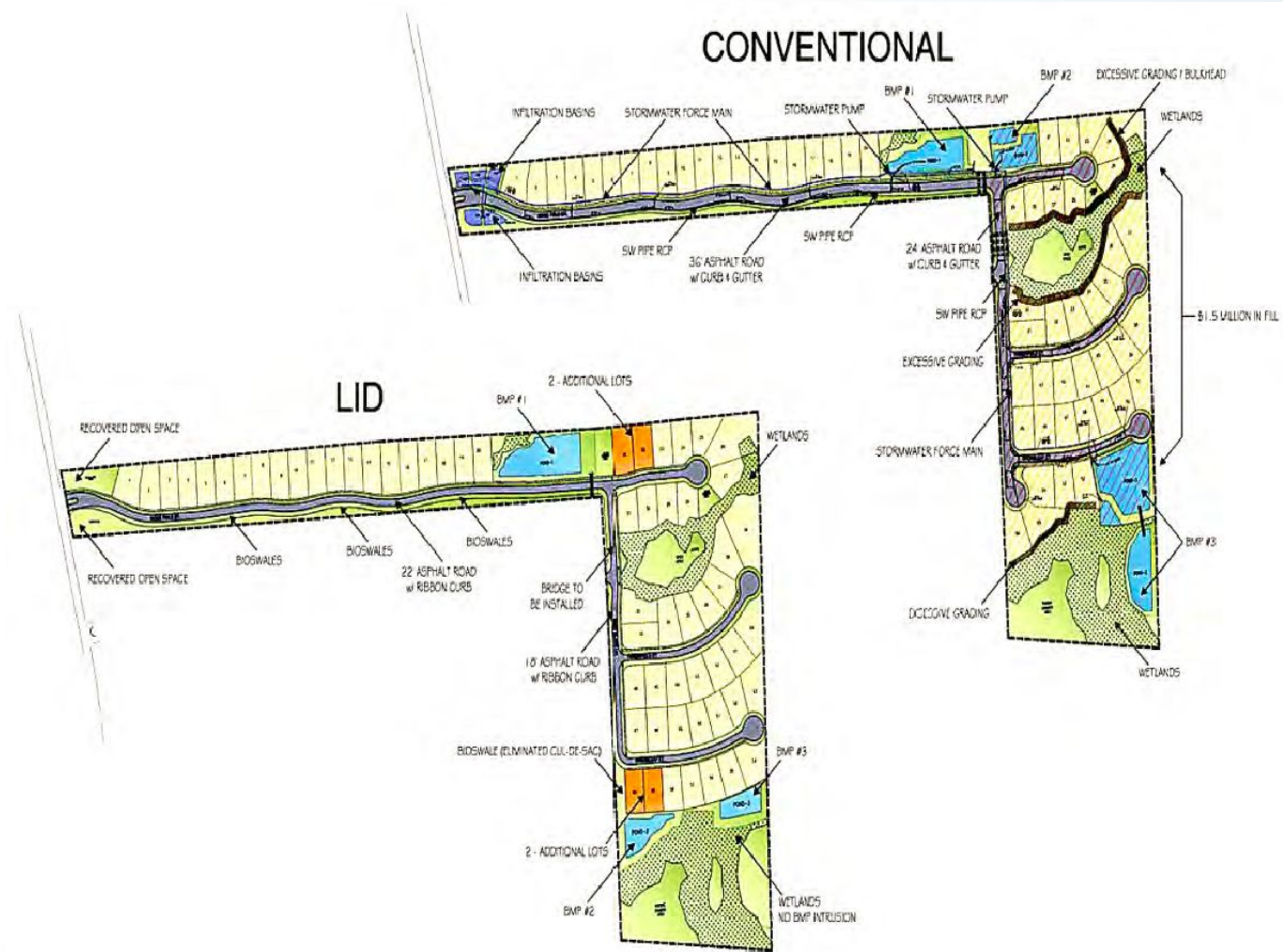
Chapter 6 -
Instructs on how
to establish
stormwater
volume
reduction goals



North Carolina
Coastal Federation
35 years
working together for a healthy coast

Watershed Management Planning Guidebook

Chapter 7 -
reviews how to
identify
management
strategies



Watershed Management Planning Guidebook

Chapter 8- shows how to put all the pieces together including goals, objectives actions, implementation schedule and monitoring



North Carolina
Coastal Federation
35 years.....
working together for a healthy coast

Collaborating To Reduce Runoff With Watershed Planning

- Lockwood Folly River (Brunswick County, Oak Island) *2007*
- Bradley and Hewletts Creek *2008* (Wilmington and Wrightsville Beach)
- White Oak River (Cedar Point) *2009* (Cedar Point)
- Stump Sound (Surf City, Pender County, Onslow County) *in progress*
- Swansboro *2017*
- Beaufort *2017*
- Nags Head *in progress*
- Lower Cape Fear and Lake Mattamuskeet *in progress*
- Pine Knoll Shores, Emerald Isle,