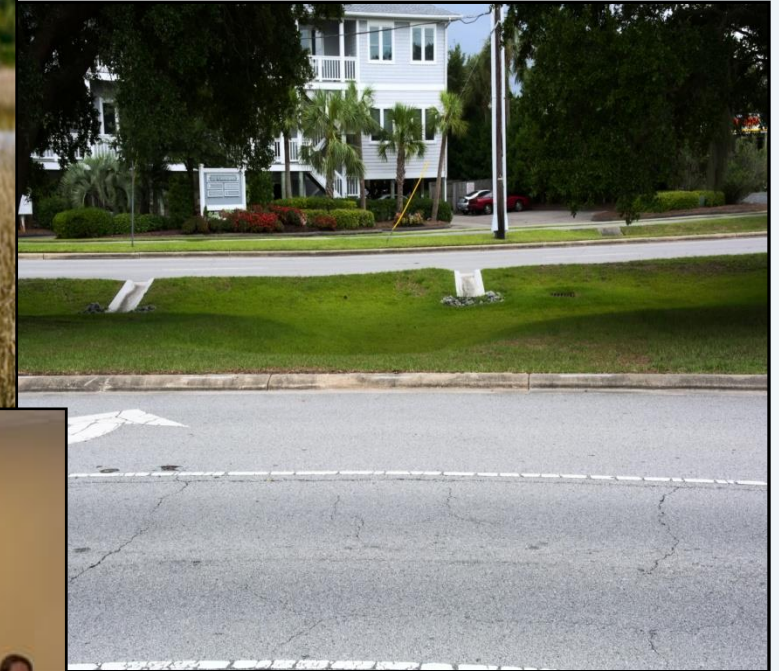


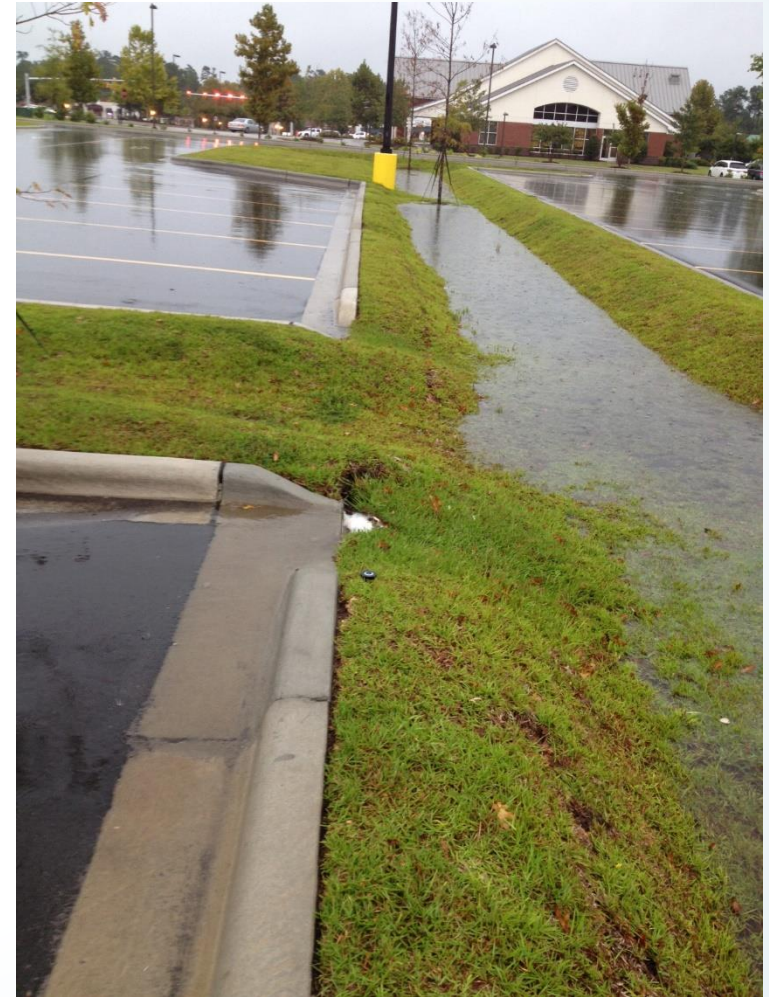
Coastal Watershed Management Planning



North Carolina Coastal Federation
Lauren Kolodij

North Carolina Coastal Federation's Stormwater Strategy

Work in urban *and* rural landscapes to use **low-impact development (LID)** techniques that slow down the flow of stormwater runoff and reduce the volume reaching surface waters by letting it soak into the ground or be harvested for later use.



North Carolina Coastal Federation's Stormwater Strategy

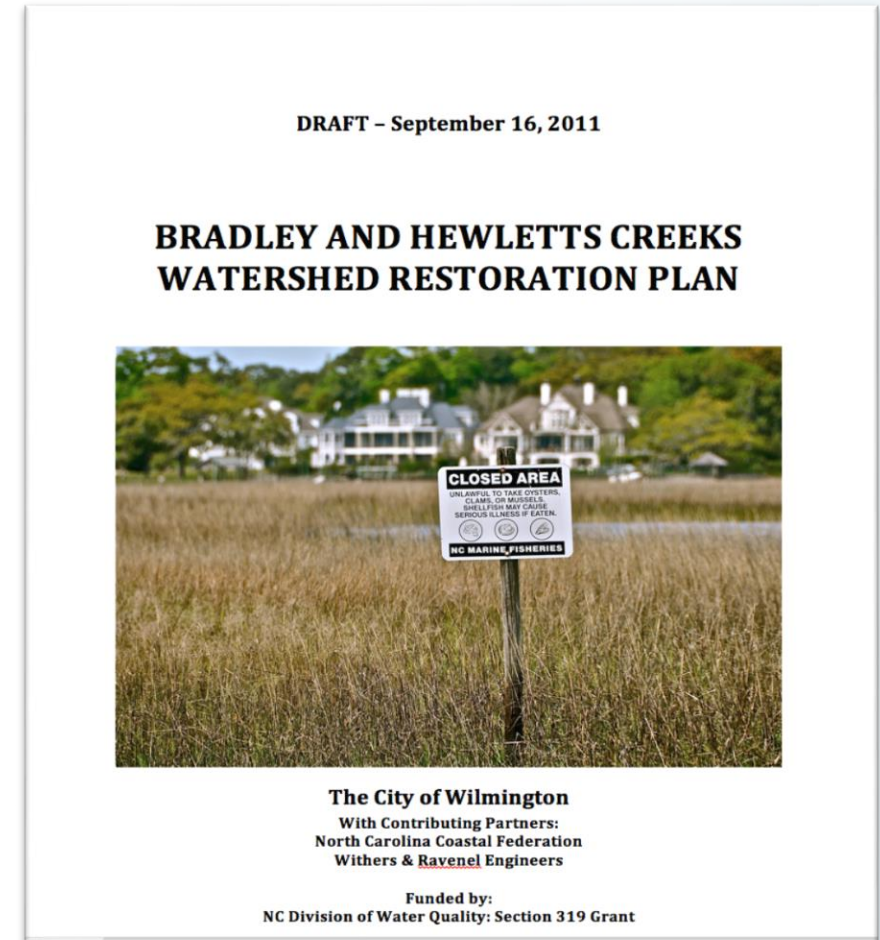
Prevent stormwater runoff by working with developers and local governments on ways to incorporate and encourage LID for *new* developments.

Reduce the volumes of runoff currently impacting our waterways by developing watershed restoration plans and installing on-the-ground LID projects to catch and infiltrate runoff.

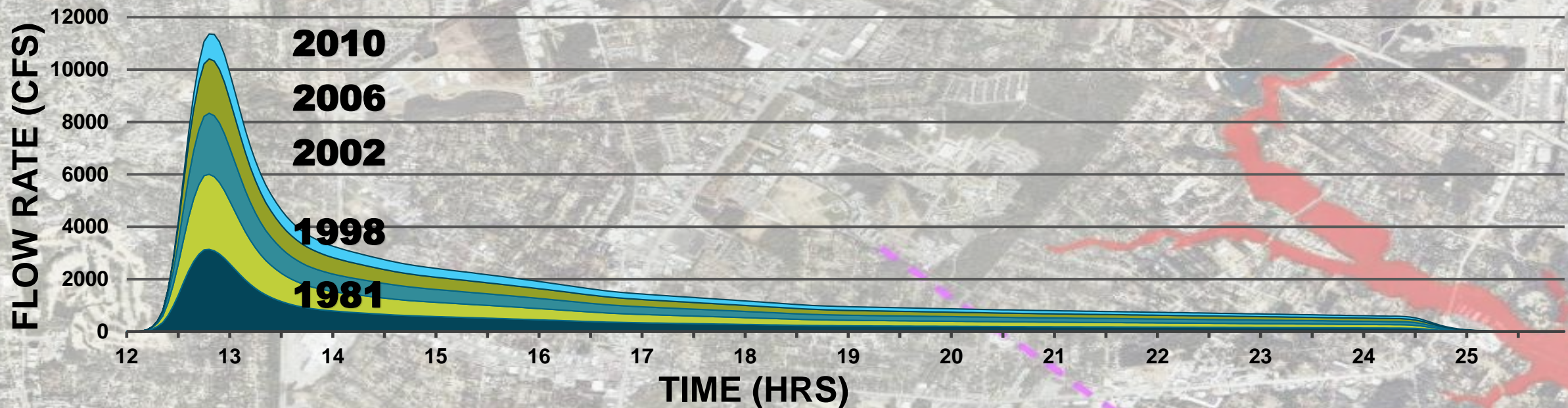
Model Effort: The Bradley and Hewletts Creeks Watershed Restoration Plan

Goals of Voluntary WRP

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



HEWLETTS CREEK WATERSHED 1-YR STORM HYDROGRAPHS



CHANGES IN SHELLFISH CLOSURE BOUNDARIES



Implementing the Bradley and Hewletts Creeks Watershed Restoration Plan



Implementing the Bradley and Hewletts Creeks Watershed Restoration Plan



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Implementing the Bradley and Hewletts Creeks Watershed Restoration Plan



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Implementing the Bradley and Hewletts Creeks Watershed Restoration Plan



Implementing the Bradley and Hewletts Creeks Watershed Restoration Plan

Proven Strategies

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



	<u>Stormwater Flow</u>	<u>Enterococcus</u>	<u>Fecal Coliform</u>
Pre-Iula outfall:	11,092 L/hr (n=7)	90.7 million/hr (n=6)	181.8 million/hr (n=5)
Post-Iula outfall:	864 L/hr (n=7)	9.5 million/hr (n=7)	5.7 million/hr (n=7)
Load decrease:	92%	90%	97%

Bradley and Hewletts Creek Project

- Serves as a model
- Leads to guidebook

nccoast.org/guidebook

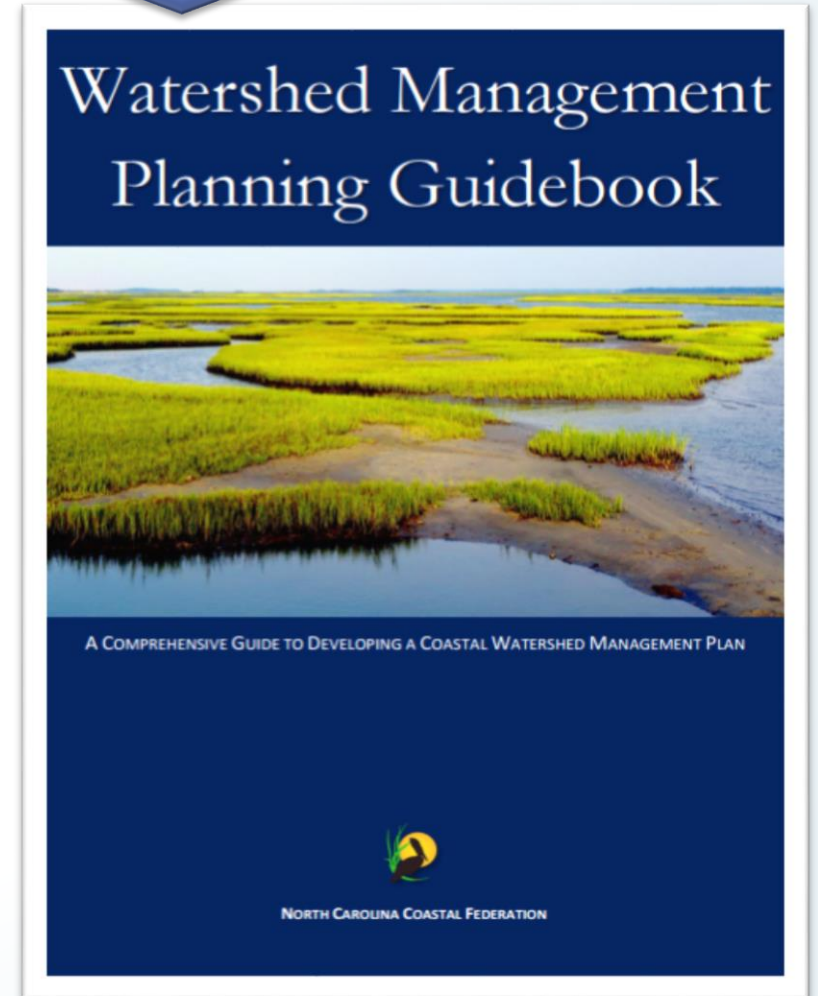


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The Watershed Management Planning Guidebook

nccoast.org/guidebook

- Concentrate on coastal watersheds with water quality impairments.
- Reduce the volume of surface runoff instead of eliminating pollution sources.
- Provides a framework for local governments and communities to develop plans.
- Meets EPA Nine Minimum Elements.



Why This Method?

- Moves away from conventional stormwater management strategies
- Focus on mimicking the natural hydrology
- Ideal for smaller community-based watershed management strategies



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Watershed Restoration Guidebook

Chapter 1

Provides introduction to the
volume reduction philosophy



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Watershed Restoration Guidebook

Chapter 2

Provides regulatory background about the CWA, impaired waters, etc.



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Watershed Restoration Guidebook

Chapter 3

Offers strategies for building partnerships and community support

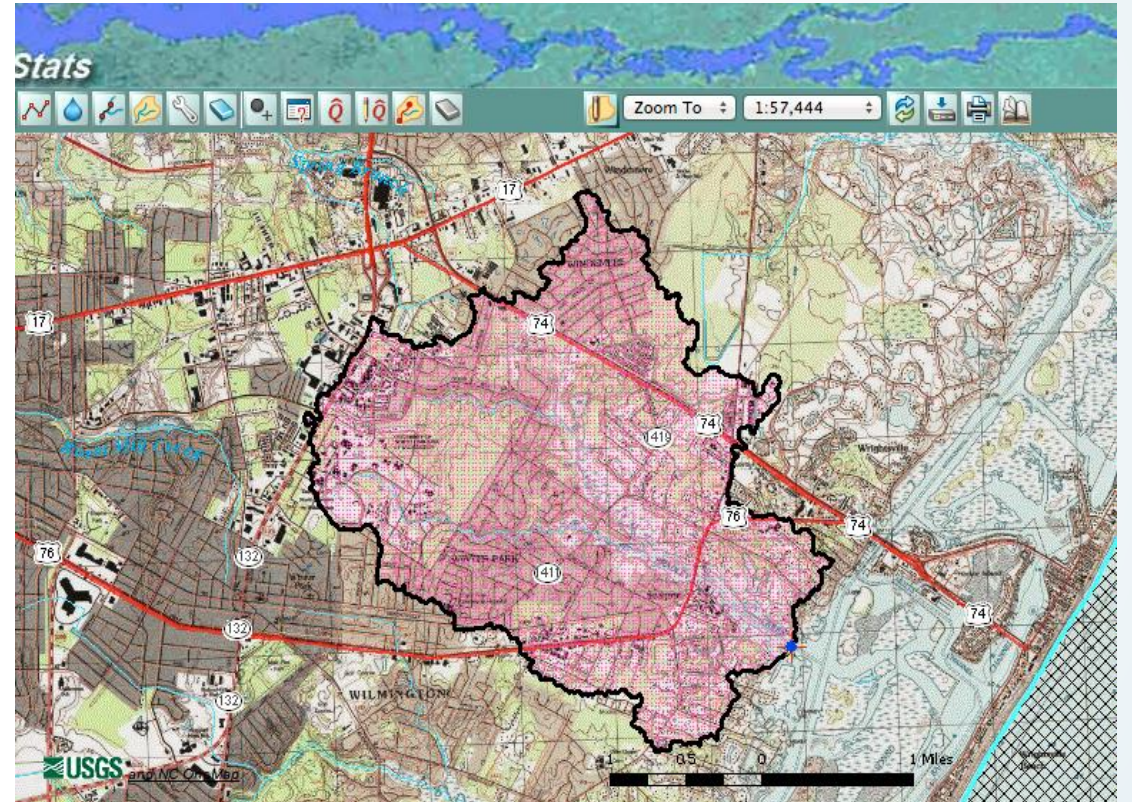


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Watershed Restoration Guidebook

Chapter 4

Provides instruction for setting planning goals and defining watersheds



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Watershed Restoration Guidebook

Chapter 5

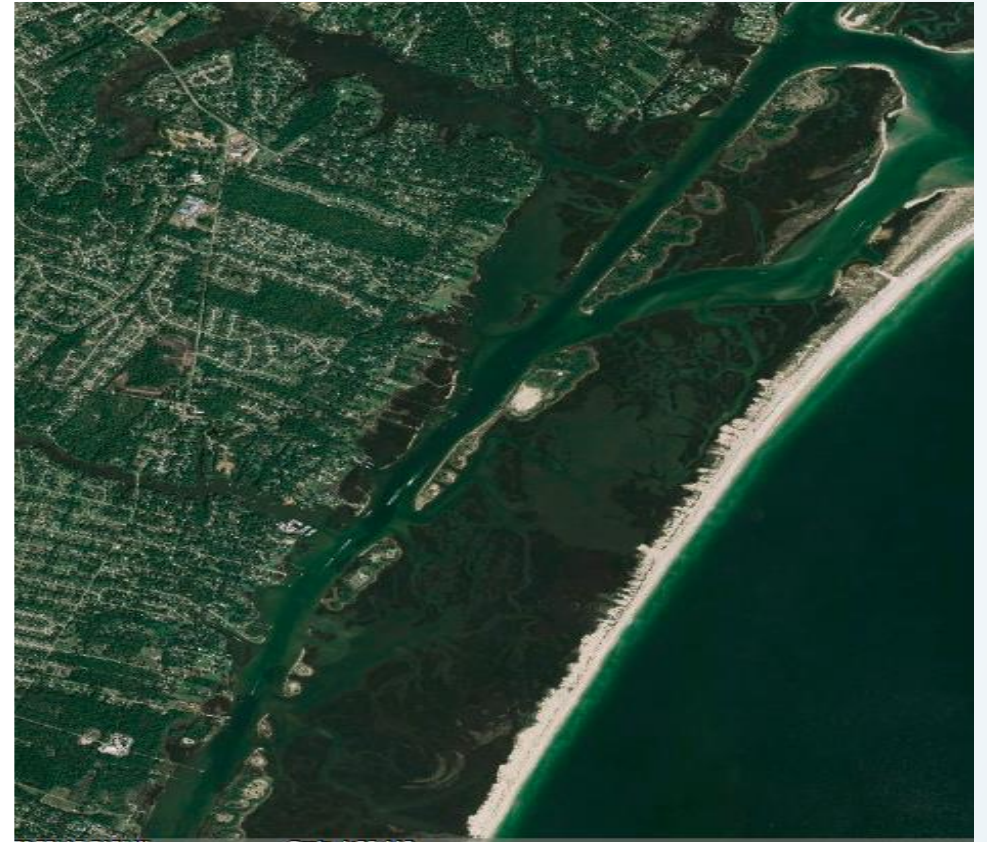
Outlines how to collect watershed data and create a watershed inventory

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 Restoration Guidebook

Chapter 6

Instructs on how to
establish stormwater
volume reduction goals



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Watershed Restoration Guidebook

Chapter 7

Reviews how to identify
Management strategies



Watershed Restoration Guidebook

Chapter 8

Lays out how to create
plan and implementation
schedule



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Watershed Restoration Plan Development Process Recap

1. Assemble Planning Team
2. Complete Watershed Characterization
3. Determine Water Quality Conditions and Impairments
4. Calculate Runoff Reduction Targets via Hydrograph
5. Establish Plan Goals, Objectives and Action Items
6. Identify Stormwater Reduction Techniques
7. Develop Management Plan