



NATIONAL  
ESTUARINE  
RESEARCH  
RESERVE  
SYSTEM



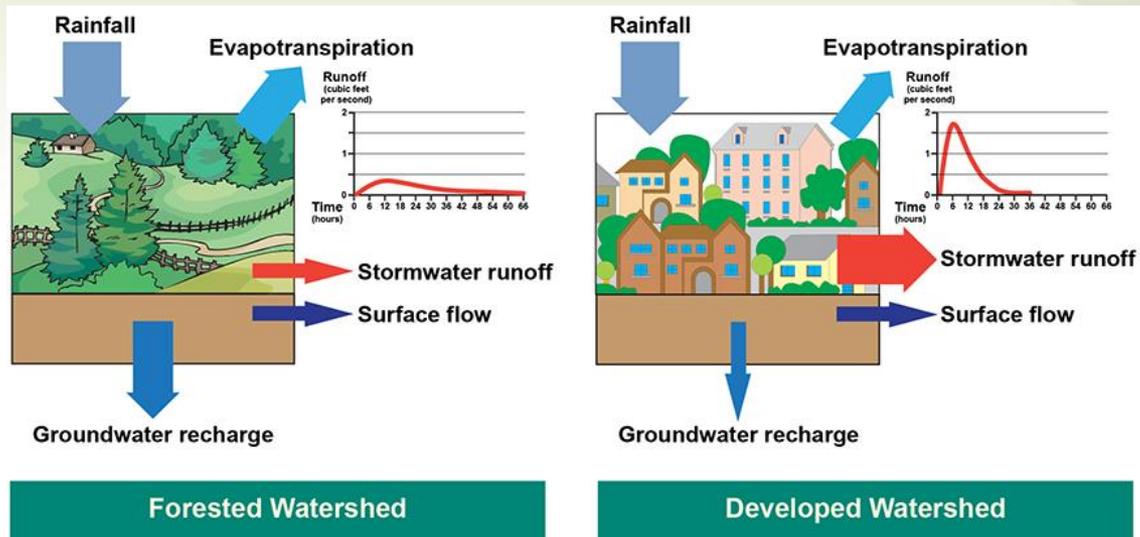
# NATIONAL ESTUARINE RESEARCH RESERVE SYSTEM

## *Making the Case for Low Impact Development*



# What is LID?

- Integrated, comprehensive approach to development
- Mimics natural hydrologic cycle
  - Infiltration, evaporation, and biologic treatment of runoff
  - Minimize impervious cover
  - Divert runoff from a common collection point

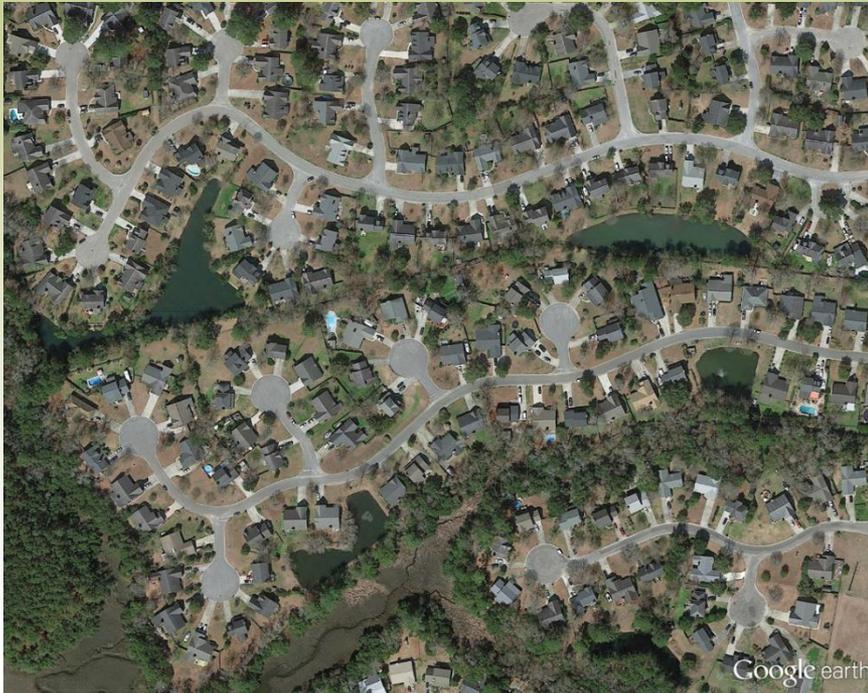


## South Carolina coast a grow

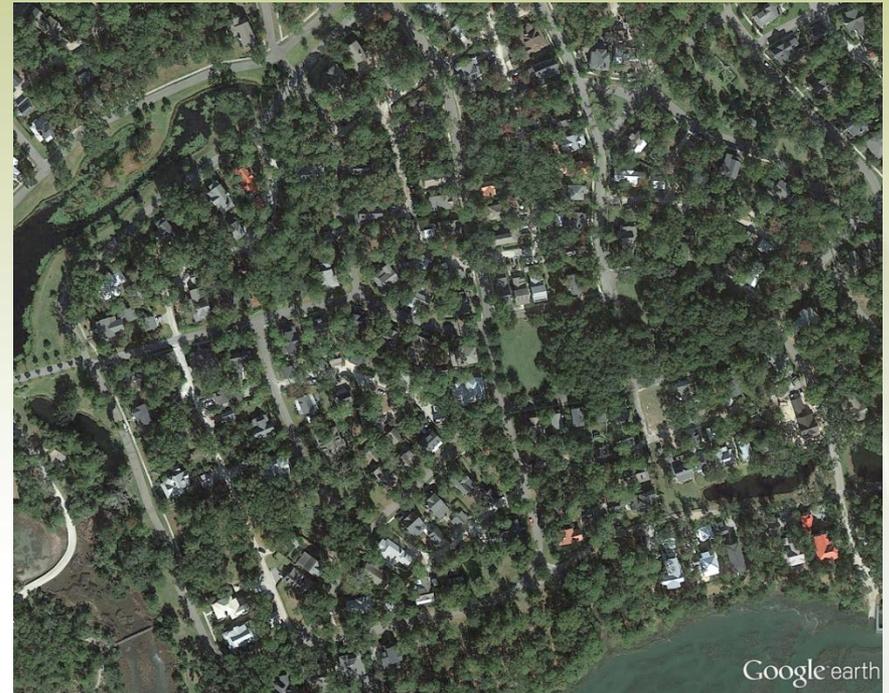


SOURCE: U.S. CENSUS BUREAU



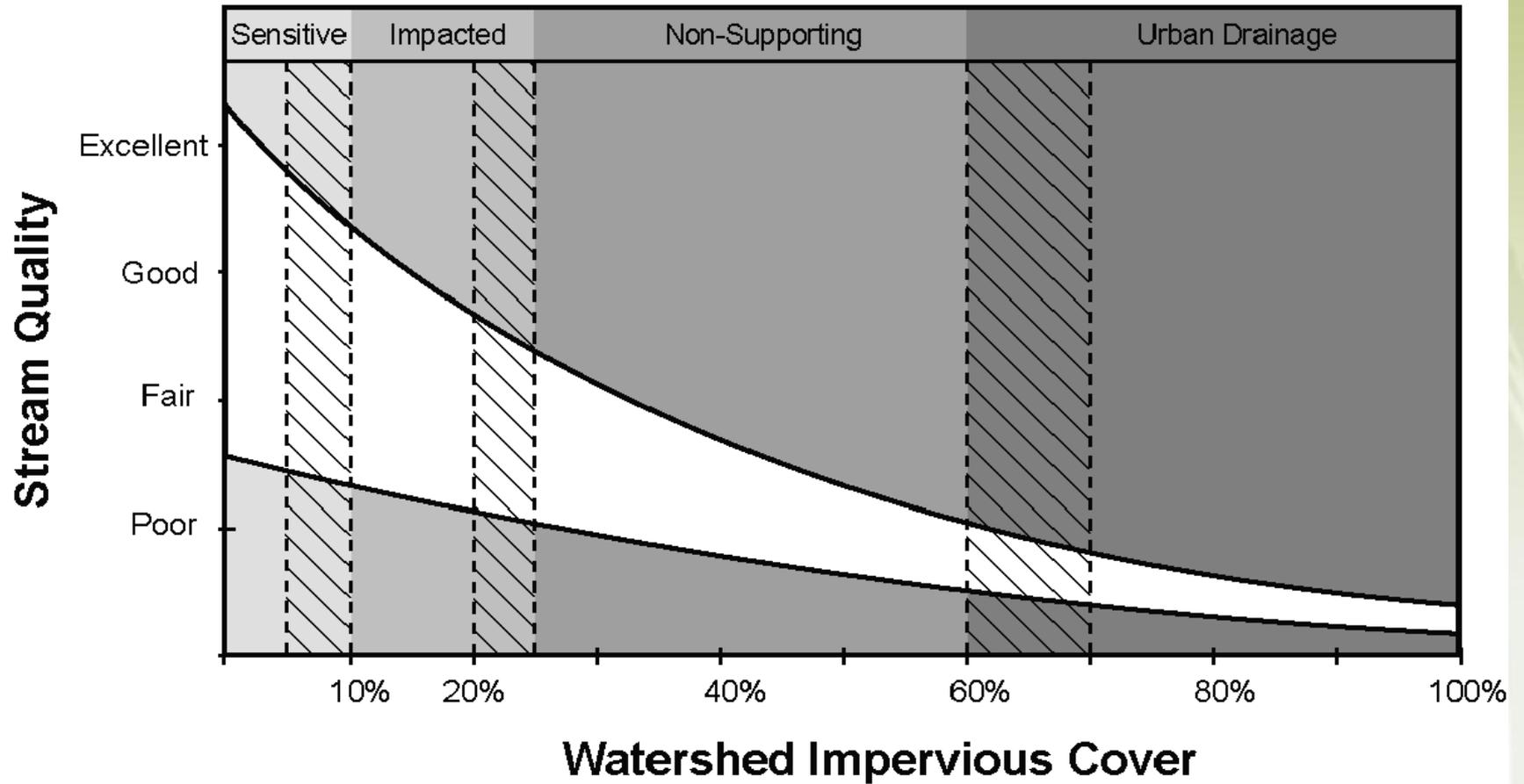


45% impervious

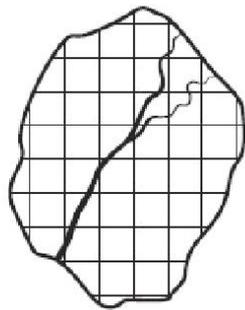


25% impervious





## Scenario A

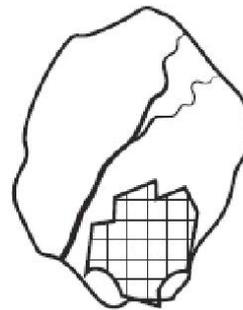


1 unit per acre

**Site: 20% impervious cover**

**Watershed: 20% impervious cover**

## Scenario B



4 units per acre

**Site: 38% impervious cover**

**Watershed: 9.5% impervious cover**

## Scenario C



8 units per acre

**Site: 65% impervious cover**

**Watershed: 8.1% impervious cover**



# Why LID?

## Municipalities

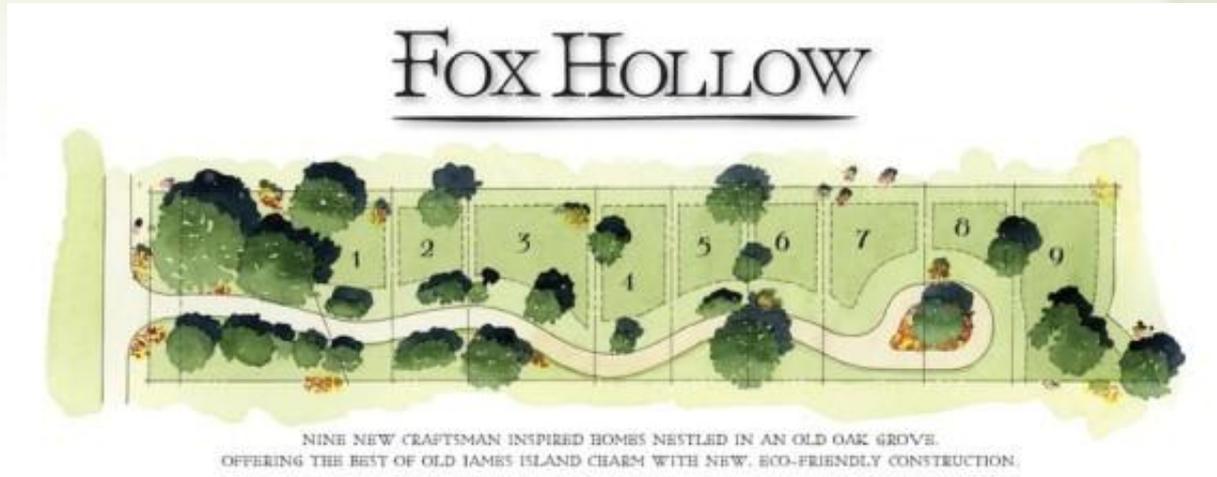
- Protect native flora and fauna
- Reduce municipal infrastructure
  - Streets, curbs, sidewalks, storm sewers
- Reduce system-wide operations and maintenance costs of infrastructure
- Reduce costs of combined sewer overflows
- Increase groundwater recharge
- Foster public/private partnerships
- Balance growth needs with environmental protection



# Why LID?

## Developers

- Reduces land clearing and grading costs
- Reduces infrastructure costs (streets, curbs, gutters, sidewalk)
- Reduces stormwater management costs
- Increases lot yields and reduces impact fees
- Increases lot and community marketability



# Why LID?

## Case Study: Oak Terrace Preserve

- Infrastructure cost more expensive for LID
- LID lots potentially \$32,000 more profitable
- Use of stormwater ponds in traditional
  - Loss of 19 lots
  - Cost of \$21,000



**Table 1.2-5. Cost comparison of four BMPs for a 10-acre watershed (CN 80)\***

Practice	Wet Pond	Wetland	Bioretention in clay soils	Bioretention in sandy soils
Construction cost	\$64,357	\$11,740	\$124,445	\$7,843
Annual maintenance cost	\$4,411	\$752	\$583	\$583
Opportunity cost of land (\$217,800/acre)	\$43,560	\$65,340	\$65,340	\$65,340
Present value of total cost	\$146,474	\$83,486	\$194,751	\$78,137
Annualized cost per acre watershed	\$1,721	\$981	\$2,288	\$918
Annualized cost per percent pollutant removed				
TSS	\$26	\$15	N/A	N/A
TN	\$61	\$45	\$51	\$20

*\*information excerpted from Wossink and Hunt (2003)*



# Why LID?

## Home Buyers and Residents

- Preserves and protects amenities
  - More salable homes
  - Increased property values
- Provides shading for homes
- Reduces flooding
- Saves money through water conservation



# Why LID?

## Environment

- Preserves integrity of ecological and biological systems
- Reduces demand on water supply
- Encourages groundwater recharge
- Protects site and regional water quality
  - Reduces sediment, nutrient, and toxic loads
- Reduces impact on local terrestrial and aquatic organisms
- Preserves trees and natural vegetation
- Improves air quality
- Reduces urban heat stress
- Lessens sewer overflows



# Why LID?

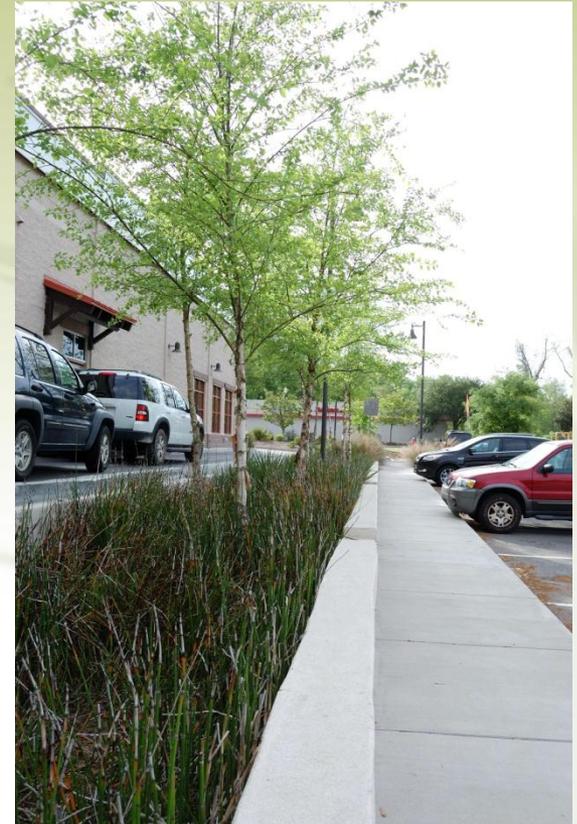
## Social

- Enhances aesthetics
- Stimulates economic development
- Creates green jobs
- Encourages more urban greenways
- Reduces flooding
- Educates the public



## *Low Impact Development in Coastal South Carolina*

- Planning
  - Reviewing codes and ordinances
  - Providing incentives
  - Encouraging different types of development
  - Collaborative plan review process
- Conservation
  - Protect resources
  - Promote buffers
- Better Site Design
  - Reduce impervious cover
- Stormwater Best Management Practices



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LID Manual Project page:  
<http://www.northinlet.sc.edu/LID/>

