Design & Development

Stormwater and Your Bottom Line

Nicole Saladin, Coastal Training Program Coordinator
North Inlet-Winyah Bay National Estuarine Research Reserve

Christopher Laude, Engineer
Georgetown County Department of Public Services, Stormwater Division
Low Impact Development &
Your Bottom Line

Nicole Saladin, Coastal Training Program Coordinator
North Inlet-Winyah Bay National Estuarine Research Reserve
BENEFITS FOR:

- builders
- developers
- business owners
- homeowners
- government
- community
- wildlife

BENEFITS OVER:

- individual sites
- community scales
- short term
- long term
<table>
<thead>
<tr>
<th>PRODUCT</th>
<th>MANUFACTURER</th>
<th>COST (Sq Ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asphalt</td>
<td>Various</td>
<td>$0.50-$1.00</td>
</tr>
<tr>
<td>Geoweb ®</td>
<td>Presto Products, Inc</td>
<td>$1.00-$2.00</td>
</tr>
<tr>
<td>Grasspave ™ Gravelpave ™</td>
<td>Invisible Structures, Inc.</td>
<td>$1.00-$2.00</td>
</tr>
<tr>
<td>Grassy ™</td>
<td>Pavers RK Manufacturing</td>
<td>$1.00-$2.00</td>
</tr>
<tr>
<td>Geoblock ®</td>
<td>Presto Products, Inc</td>
<td>$2.00-$3.00</td>
</tr>
<tr>
<td>Turfstone</td>
<td>Westcon Pavers</td>
<td>$2.00-$3.00</td>
</tr>
<tr>
<td>UNI-Eco-stone</td>
<td>Uni-Group USA</td>
<td>$2.00-$3.00</td>
</tr>
<tr>
<td>Checkerblock</td>
<td>Hastings Pavement Co.</td>
<td>$3.00-$4.00</td>
</tr>
</tbody>
</table>

Data from Center for Watershed Protection, Ellicott City, MD
pervious paving

COST VARIABLES

- regional construction costs
- individual contractor
- time of year
- material chosen
- site
- underlying soils
- size of project
- expected traffic
- life of pavement
pervious paving

ADDITIONAL COST BENEFITS

- eliminates need for other paving (curb & gutter), infrastructure, piping, etc.
- credits or reductions in stormwater impact / utility fees
- low life-cycle cost
- reduced over-production costs
- increase in available land for development
pervious paving w/ other lid

Case study from Brunswick, NC. Bill Hunt, NCSU
### pervious paving w/ other lid

<table>
<thead>
<tr>
<th>ITEM</th>
<th>NOTES</th>
<th>SAVINGS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pond Eliminated</td>
<td>3350 sf / $7</td>
<td>$23,450</td>
</tr>
<tr>
<td>Profit from Home &amp; Lot</td>
<td>$400,000 (sale per recent sales)</td>
<td>If 15% profit = $60,000, If 30% profit = $120,000</td>
</tr>
<tr>
<td>LID Savings</td>
<td>LID cost savings compared to traditional practice</td>
<td>$45,900</td>
</tr>
</tbody>
</table>

- If 15% profit, total savings = $37,500
- If 30% profit, total savings = $97,500
- PLUS LID Savings of $45,900
- Equals Total $83,400-$143,400 extra revenue gained

Case study from Brunswick, NC. Bill Hunt, NCSU
Is LID worth it?
## native landscaping

<table>
<thead>
<tr>
<th>ACTIVITY/YEAR</th>
<th>SUSTAINABLE LANDSCAPE (ANNUAL COST)</th>
<th>TRADITIONAL LANDSCAPE (ANNUAL COST)</th>
<th>% DIFFERENCE SUSTAINABLE/TRADITIONAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design</td>
<td>$25,000</td>
<td>$25,000</td>
<td>0%</td>
</tr>
<tr>
<td>Construction</td>
<td>$100,000</td>
<td>$216,000</td>
<td>52%</td>
</tr>
<tr>
<td>Post-Planting Management</td>
<td>$16,000</td>
<td>$28,000</td>
<td>43%</td>
</tr>
<tr>
<td>Total Up-Front Costs</td>
<td>$141,000</td>
<td>$269,000</td>
<td>48%</td>
</tr>
</tbody>
</table>

* Based on landscape features for a 10 acre corporate landscape, excluding site amenities such as hardscapes and aesthetic programs
* Costs in 1999 US Dollars
* Estimated values by Conservation Design Forum, Inc. Elmhurst, IL
community design
savings to builders/developers

- reduced infrastructure costs
roadways
drainage structures
ditches/ponds/outfalls
private drainage systems
savings to builders/developers

- reduced infrastructure costs:
  - $150/linear foot road that is shortened
  - $25-$50/linear foot road that is narrowed
  - $10/linear foot sidewalk that is eliminated
  - $1,100 construction cost/parking space that is eliminated in commercial parking lot
  - eliminated storm drains, pipes, inlets, and stormwater ponds
savings to builders/developers

- reduced infrastructure costs
- reduced lot grading & clearing costs
- reduced landscaping installation & maintenance
community design
savings to builders/developers

- reduced infrastructure costs
- reduced lot grading & clearing costs
- reduced landscaping installation
- increased property values/greater marketability advantage
- reduced sell time
increased property values

- adjacent to recreation areas
- adjacent to natural areas
- adjacent to open areas
- adjacent to community areas
- with vegetation
- with mature trees
increased property values

- Homes with treed lots are 20% more saleable (Bank of America Survey of Real Estate Agents)
- Avg property value adjacent to greenbelt 32% greater than properties 3200 feet away (Boulder, Co)
- Homes 20 ft away from 4 study parks sold for $2675 more than homes 2000 ft from park (Worcester Ms)
- Conserving forests on residential & commercial sites enhance prop values by average 6-15% and increase rate at which units sold and leased (Morales and Weyerhaeuser)
- Developers in MD receiving 10-15% premiums for lots adjacent to forests and buffers (Ches. Bay Program)
increased property values

Heritage Preserve... Naturally Beautiful.

Only minutes away from the quaint small-town charm of Conway and the excitement of Myrtle Beach, you'll find Heritage Preserve, an elegant new Centex Homes community.

Nestled between majestic live oaks, natural wetlands, and the Waccamaw River, Heritage Preserve offers the ultimate in gracious living. Choose from beautiful single-family homes, and scenic homesites, all with an impressive array of planned amenities.
increased property values
increased property values
increased property values
increased property values
savings to government

- reduced pollutant loads into waters
- reduced costs for treating water
- reduced costs for water treatment and storage infrastructure and facilities
- reduced costs for retrofitting to prevent pollution
- reduced restoration costs
- reduced energy costs
- reduced flood damage costs
- reduced maintenance of infrastructure
- reduced service costs for residents
savings to home/business owners

- reduced energy costs
- reduced maintenance costs (watering, mowing, fertilizing)
- reduced flood damage costs
- potential for reduced dependence on vehicles
- potential for reduced health costs (with reduced smog, enhanced air quality, etc)
- potential for reduced taxes (or less rate of increase) with cost savings to government
additional cost benefits

- tax incentives for conservation easements
- IRS tax incentive
- SC State Easement Act
- reduce ad valorem taxes
- qualification for 30% deduction over 6 years
your bottom line vs.
the triple bottom line

people
bearable
equitable

planet

profit
viable