Low Impact Development: Basics for Water Quality Protection

Eastern North Carolina attracts residents and visitors who admire its beautiful coasts and many natural resources. As more people visit and move to this area, it is important to remember that development on land can affect the water quality and wildlife habitat that are so crucial to significant parts of the coastal economy, such as tourism and fishing. However, there are ways to develop coastal areas in smart, responsible ways that limit impacts to coastal resources.

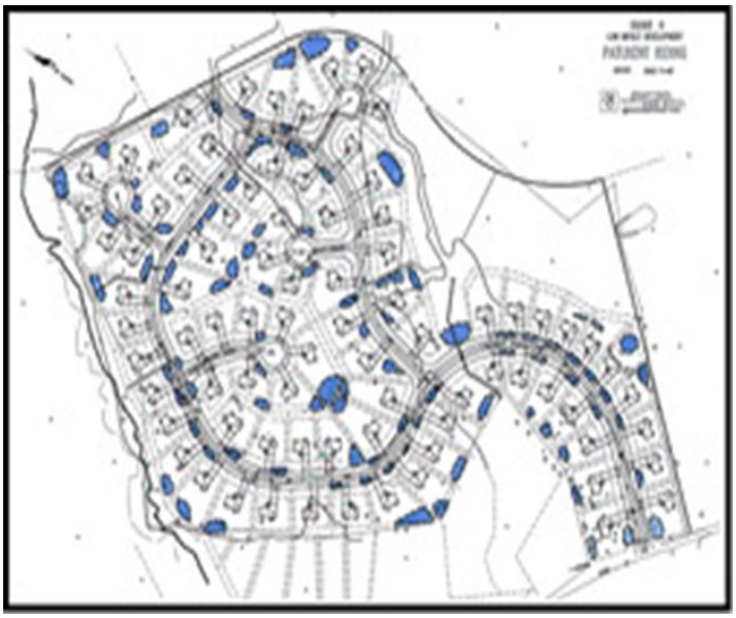
Low Impact Development was the topic of a recent N.C. National Estuarine Research Reserve Coastal Training Program workshop held in Wilmington October 29 and 30, 2013. The workshop featured presentations by county and state planners and private developers who use Low Impact Development techniques in their projects. Workshop participants represented a range of professions, including realtors, land planners, landscape architects, coastal managers, and environmental educators, who were all interested in learning how to incorporate Low Impact Development into their work.

Here are some contrasts between conventional development and Low Impact Development (LID) discussed during the workshop. For more information, please visit N.C. State University's Low Impact Development Group website.

LID	Conventional Development
Minimize land clearing	Removal of most or all native vegetation
Amended soils	Compacted soils
Minimize use of impervious surfaces	Excessive use of impervious surfaces
Infiltration	Costly Infiltration
Natural hydrology	Severely altered hydrology

Low Impact Development Techniques

The conventional development depicted here has two large stormwater retention ponds, which require a lot of site grading, soil compaction, and infrastructure to get the water to these ponds



The LID design aims to mimic the sites natural infiltration capacity by creating small and localized bioretention areas to manage stormwater, which work with the sites natural features and minimize soil compaction and tree removal

Conventional parking lots and driveways use impervious materials such as concrete that impede water filtration and funnel water directly to storm drains and eventually coastal waters (photo courtesy of Burrows Smith)

Pervious pavements are designed to support vehicle traffic, but allow rainwater to infiltrate like a natural setting (photo courtesy of Burrows Smith)

Low Impact Development Techniques

This conventional development property had an impervious parking lot that prevented stormwater retention and filtration (photo courtesy NC LID Group)

The same property was retrofitted with a vegetated filter area to retain stormwater and prevent runoff to waterways (photo courtesy NC LID Group)

LID design of this parking lot works to maintain the natural hydrology of the site, and uses this bioretention area to collect and filter rainwater (photo courtesy of NC LID Group)

Cisterns, like this one at the Craven County Cooperative Extension Office, allow users to collect, store, and reuse rainwater for activities such as watering landscaping and washing cars (photo courtesy Craven County Cooperative Extension)