

CLEAN WATER: PLAN FOR IT

Low Impact Development (LID) is a set of site planning, development and design strategies that can reduce stormwater runoff and the cost of managing it. Here's how.

Land development has had a profound influence on stormwater runoff in the Ocean State. Now there is a cost-effective way for RI land developers to address this concern while reducing costs, increasing profitability, AND meeting regulatory requirements. It's called LID (Low Impact Development).

AVOID. REDUCE. MANAGE.



Stormwater is NOT wastewater -- even if runoff is the main cause of pollution to RI waters. Using **Low Impact Development (LID)** solutions to manage stormwater can reduce development costs through by reducing or eliminating costly conventional conveyance and drainage systems because it treats runoff at its source (instead of at the end of the pipe). The premise is simple: **avoid** disturbing natural site conditions; **reduce** impervious surfaces and plan to **manage** stormwater runoff on-site with these LID alternatives.



www.ristormwatersolutions.org

Additional Resources:

- RI Stormwater Design and Installation Standards Manual and supporting guidance:**
<http://www.dem.ri.gov/programs/benviron/water/permits/ripdes/stwater/t4guide/desman.htm>
- RI LID Site Planning and Guidance Manual**
<http://www.dem.ri.gov/programs/bpoladm/suswshed/pdfs/lidplan.pdf>

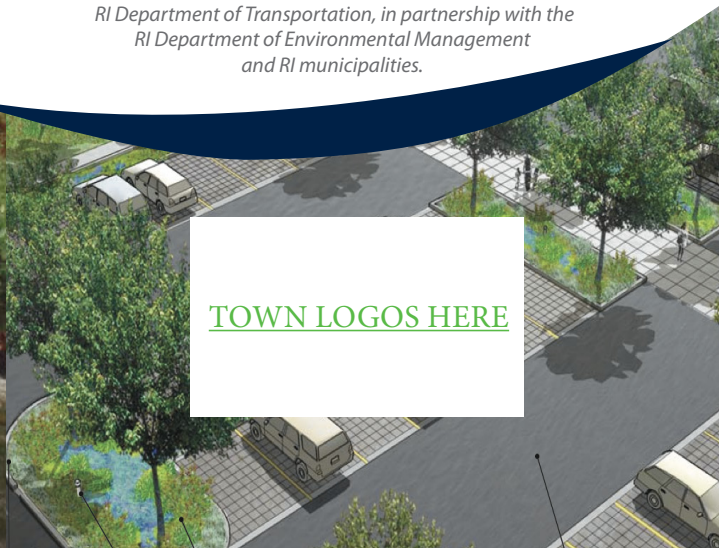
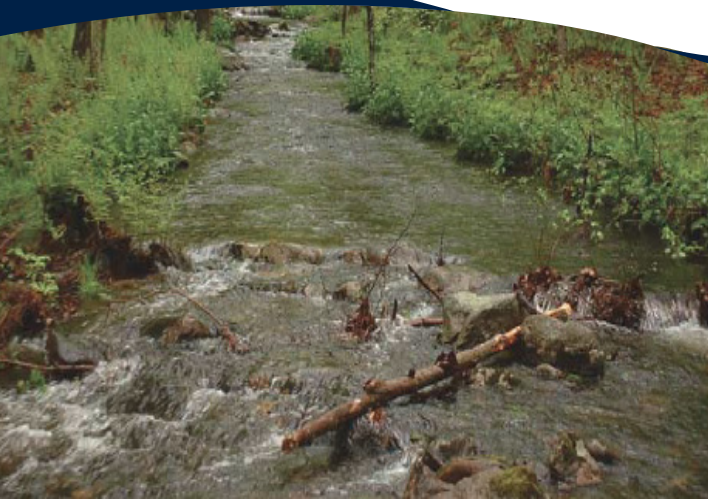


THE UNIVERSITY OF RHODE ISLAND



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TOWN LOGOS HERE



LOW IMPACT SOLUTIONS FOR RI LAND DEVELOPERS

Conservation Development

An unintended consequence of large lot development has led to a loss of open space, increased runoff and additional pollutants to waterways. Plan to **use compact neighborhood design** and preserve maximum **open space** in new developments.



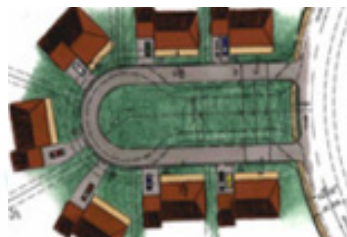
Wetland Buffers

help maintain good water quality. Preserving land along streams and rivers helps remove pollutants, protect against flood waters and stabilize stream banks. Preserving and restoring natural wetland buffers is considered to be the **single most important management practice** to protect water resources.



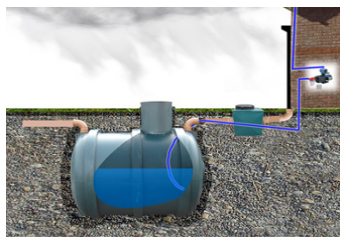
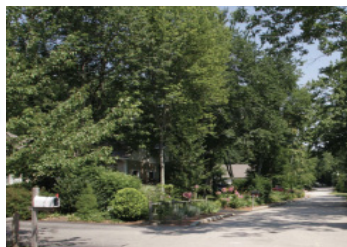
Circulation Design

can **maximize efficiency and decrease total impervious surface** by integrating a number of controls to help infiltrate stormwater and snow melt. Smaller parking lots, narrower sidewalks and driveways, porous pavements and replacing cul de sacs with vegetated islands can help mitigate polluted runoff.



LID Landscaping

Since native soils and plants play an important role in infiltrating stormwater, confine site disturbance to the smallest area possible. Replant disturbed areas with **low-maintenance, native plants** that encourage retention of water on-site and reduce lawns size to reduce water, fertilizer and pesticide use.



Filter and Infiltrate On-Site

by diverting runoff from rooftops, driveways and other impervious surfaces to a natural vegetated or landscaped area (Qualified Pervious Area). **Managing stormwater on individual lots** is more cost effective than conveying it off-site to a central drainage area.

Rain Gardens and Bio Retention Areas

are landscaped depressions that **collect and filter stormwater** through layers of mulch, soil and plants. Pollutants are retained, degraded and absorbed, while clean water is then infiltrated or discharged into a stormwater system. Small rain gardens can be integrated onto residential lots, while larger bioretention systems are suitable for cul de sacs, road sides or parking lot drainage.

Water Harvesting

is an economical way to **capture and re-use stormwater** that can increase your project's marketability. Cisterns collect runoff from roofs and roadways, storing it for landscape irrigation, fire control or other non-potable applications.

Vegetated Swales

are shallow, vegetated channels that **treat and convey stormwater**. Unlike underground pipes or concrete drainage channels, vegetated swales slow runoff velocity, filter pollutants, reduce runoff temperatures and can facilitate infiltration while eliminating the need for costly curbs and infrastructure.

catch it. clean it. slow it. soak it.

