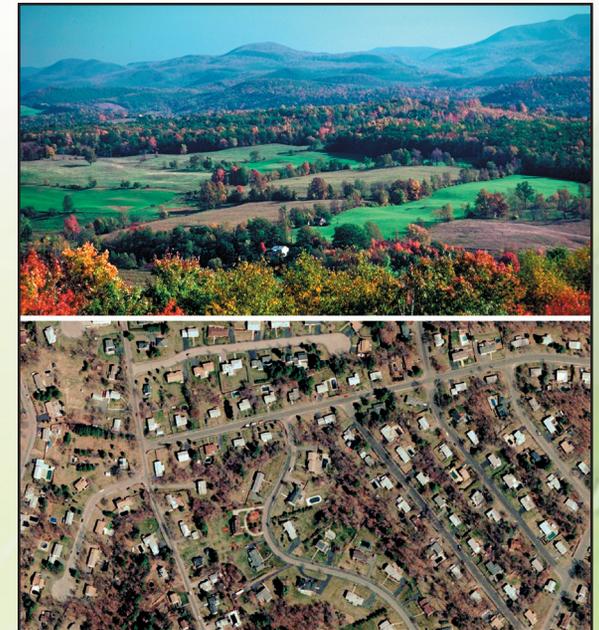




Low Impact Development (LID)



LID is a land development technique that combines innovative site design with advanced stormwater treatment to maintain the pre-existing hydrologic system of a site and mitigate impacts of stormwater pollution. The technique provides a means to develop more aesthetically pleasing projects that simultaneously protect open space and water resources.

Low Impact Development Stormwater BMPs

Bioretention

Vegetated areas that collect, treat, and infiltrate rainwater.



Low-Impact Roadways

Narrow roadways and cul-de-sac alternatives that reduce runoff.



Cisterns and Rain Barrels

Tanks and containers that store rainwater for landscaping.



Green Roofs

Vegetated roof systems that capture rainfall and return it to the atmosphere.

Permeable Paving
Paving surfaces that allow rainwater to percolate into the ground.



Vegetated Swales

Shallow drainage channels that slow runoff and filter it.



Financial Considerations

More concentrated (cluster) design, with less impervious area and stormwater drainage and other utilities, means significant cost savings to developers. Less impervious surface creates less surface runoff, which will decrease the burden to municipal drainage infrastructure. These techniques also reduce non-point source pollution to drinking water supplies, recreational waters, and wetlands.

For More Information:

Massachusetts Smart Growth Toolkit
<http://www.mass.gov/ocd>

Low Impact Development Center
<http://www.lowimpactdevelopment.org>

MAPC LID Toolkit
<http://www.mapc.org/lid.html>

Stormwater Manager's Resource Center
<http://www.stormwatercenter.net/>

EOEA's LID Website
<http://www.mass.gov/envir/lid/default.htm>

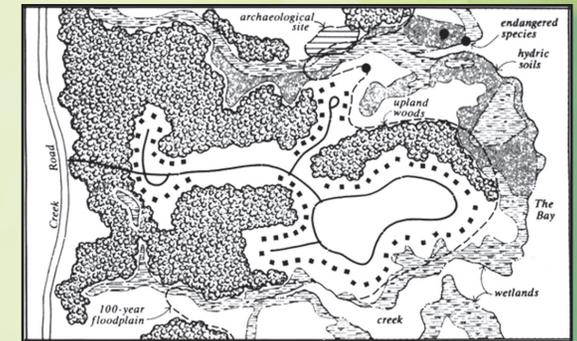
The Problem

Development patterns based on conventional zoning codes in Massachusetts often result in “sprawl” where entire sites are cleared and leveled without regard for natural features. Large impervious areas prevent water from infiltrating into the ground, which normally replenishes groundwater supplies and supports nearby wetlands and streams. In order to deal with water that runs off of these sites, structural stormwater controls such as catch basins, pipes, and detention ponds are used to convey polluted water to nearby surface waters or underlying aquifers.

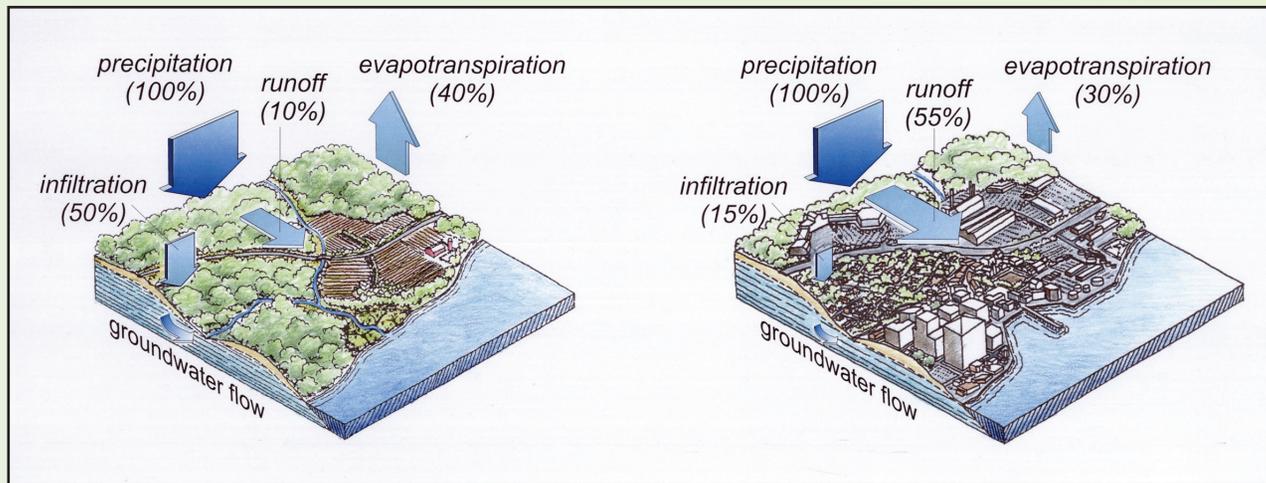


Site Planning

The LID approach provides opportunities to improve site planning by identifying buildable areas that account for opportunities and constraints within the natural or developed landscape.



Altering a Region's Hydrology



Rainfall that would otherwise infiltrate the natural landscape and recharge the underlying groundwater reserves is diverted via roads, driveways, rooftops into stormdrain systems that often discharge directly to surface waters. Changing stormwater flow in this manner can create flooding, deliver large amounts of unmitigated pollution to surface waters, and deplete groundwater reserves that would otherwise provide long-term recharge to wetlands and surface waters.

Natural features such as vegetated buffers and viewsheds will also play an integral role in any LID planning exercise.

Once a sustainable development area is identified, design techniques such as shared driveways, clustered development and stormwater bioretention are used to reduce the level of impervious cover and improve the quantity and quality of stormwater recharge. Through these techniques, natural drainage pathways are conserved, open space is preserved, and the overall impact from development is significantly reduced.