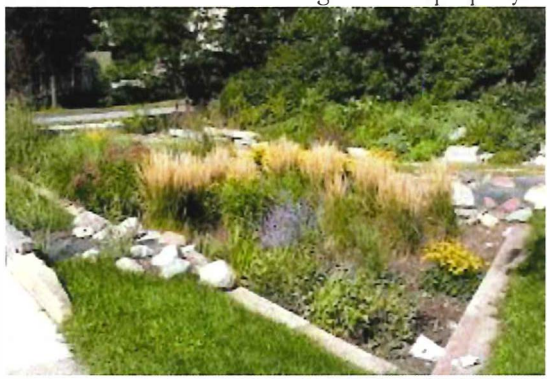
Rainwater Harvesting-water is collected to irrigate the landscape.

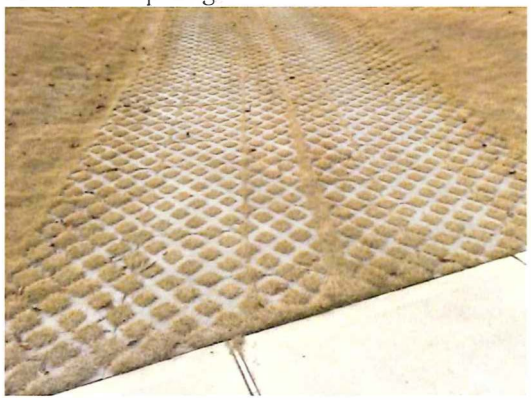
Rain Garden-water from a downspout collects, is treated and infiltrates into the ground on property.



Green roofs-rainwater is absorbed by vegetation and decreases the amount of water leaving

Bioretention-water flows into an area, is treated and infiltrates into the ground decreasing stormwater volume.

Concrete Grid Pavers-water infiltrates between the pavers decreasing the stormwater runoff compared to conventional paving.



Biofiltration Strip-water velocity is decreased as well as the amount of runoff.

Low Impact Development (LID)

What is Low Impact Development?

Low Impact Development (LID) practices work with nature to infiltrate, evaporate or reuse stormwater as close to the source(s) as possible.

Why is LID needed?

As land is developed, it is covered by structures, streets, driveways, and parking lots. These hard surfaces are commonly referred to as impervious surfaces. Rainwater cannot soak into impervious surfaces and the result is less water soaking into the ground (infiltration) and more water being transported into ditches and stormdrains that lead to the nearest waterway. This lack of infiltration and increase in flow rates into waterways can cause:

Lower Base Flow- The amount of water in a stream is sustained between rain events by groundwater seeping into the bed and banks of a stream. Without infiltration to replenish groundwater levels, stream levels are lower.

In-stream Erosion-Streams that have unnaturally large amounts of water flow due to impervious runoff, have their banks eroded or "deconstructed" at a much faster rate than what happens naturally. This can cause property damage.

Aquatic Habitat-The powerful flow of water and the sediment it carries quickly removes or fills in the "homes" and hiding places for all types of aquatic creatures. The preservation of this habitat means healthier ecosystems.

Water Quality Impairment-Stormwater runoff picks up pollutants from roads and other impervious surfaces. LID practices decrease runoff and help improve water quality.

Localized Flooding-As rainwater quickly travels to the nearest stream through the stormwater system, the amount of water can overwhelm the capacity of the infrastructure and the capacity of the receiving waterbody causing flooding.

Economic Benefits of LID

Many of the benefits of LID practices are both economic and environmental.

Reduced Building and Maintenance Costs- With less volume of water leaving sites, the need for the construction of curbs, gutters, and other conventional stormwater infrastructure is reduced thus decreasing cost. Construction costs can also be reduced by leaving more of the natural area untouched thus decreasing the cost of grading. Natural areas also have less construction and maintenance cost compared to landscaping a newly cleared area. Overall preserving natural areas has shown to increase the value of residential lots while decreasing the construction costs overall.

Added Value to Communities-The presence of more natural surroundings and improved aesthetics means increased marketing potential and desired properties. Access to open space and more possibilities for recreational opportunities all increase the desirability and value of property.

Reduced Property and Infrastructure Repair Costs- By decreasing the volume and speed of water entering a local waterway, the number of flooding events will be reduced. This can cause less damage to structures and roads meaning less money spent on rebuilding or repairing property and infrastructure.

Improved Water Quality and Reduced Water Treatment Costs-Since stormwater flows to the nearest waterbody untreated, it can transport oil, bacteria, sediment, metals, hydrocarbons, and nutrients. Using LID practices will reduce the amount of stormwater reaching local waterways thus improving the water quality. In areas that use surface waters such as lakes and rivers as sources for drinking water, good water quality means a reduction in water treatment costs.

Addition Resources

Low Impact Development Handbook for the State of Alabama
http://adem.alabama.gov/programs/water/waterforms/LIDHandbook.pdf

EPA's LID Barrier Buster Fact Sheet Series
https://www.epa.gov/nps/urban-runoff-low-impact-development

Diagrams below illustrate LID practices decreasing the amount of surface runoff.