

What is Low Impact Development?

Low Impact Development, or LID, is the practice of developing with stormwater in mind. It encompasses a variety of design practices aimed at mimicking or preserving natural stormwater drainage processes, like allowing for infiltration in beds rather than letting water become runoff that then collects in ditches or low points on impervious surfaces. The alternative is to channel stormwater into the Municipal Separate Storm Sewer System (MS4), but the various pollutants picked up along the way, such as sediment, road salts, oil, and heavy metals, are largely responsible for the widespread degradation of our local waterways.

What are the Benefits of LID?

Improved water quality is not the only benefit of LID. A more stormwater-centric approach to design is also associated with a lower risk of flooding events, improved groundwater recharge, and enhanced beautification of developments, which in turn increases property values.

LID techniques can be applied at any stage of development and are scalable to any project size. Contrary to popular belief, they can also be cost effective. According to a 2007 study by the EPA on reducing costs of LID strategies and practices, total LID capital costs range, on average, 15 to 80 percent lower than conventional methods.

Additional Resources

For more information on LID practices and how LID can benefit communities, please refer to the websites linked below. Additional stormwater information can be found on the MS4 Information subpage of the Town website.

Benefits of Low Impact Development
<https://www.epa.gov/sites/production/files/2015-09/documents/bbfs1benefits.pdf>

National Management Measures to Control Nonpoint Source Pollution from Urban Areas
https://www.epa.gov/sites/production/files/2015-09/documents/urban_guidance_0.pdf

Addressing Barriers to LID
<https://www3.epa.gov/region1/npdes/stormwater/assets/pdfs/AddressingBarrier2LID.pdf>

Walkersville Town Code
<http://walkersvillemd.gov/government/town-code/>

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LID Practices

Permeable Pavement

Permeable pavement allows for stormwater infiltration unlike conventional asphalt and concrete. It is recognized by EPA as a Best Management Practice (BMP) that helps filter out pollutants and reduce the need for deicers. Pervious concrete, porous asphalt, and interlocking pavers are ideal for parking lots, sidewalks, and road shoulders. While more expensive up front than traditional pavements, permeable alternatives have been shown to have longer lifespans and less maintenance costs over their lifetimes.

Stormwater Reuse & Rainwater Harvesting

Rain barrels capture runoff from a roof and store it for future use on community lawns and gardens. For a cost-effective option, rain barrel kits can be purchased inexpensively and in varying capacities and designs. Cisterns provide a larger scale solution for diverting runoff from roofs, and even can include their own underground collection and infiltration systems.

Curbless Streets and Parking Lots

By designing curbless streets and parking lots sloped towards areas of pervious cover, stormwater can be diverted away from the MS4 and allowed to infiltrate into designated areas.

Considerations During Construction

In addition to how the development is constructed, construction activity itself also has the potential to negatively impact water quality. To mitigate the effects, the following rules should be followed on active construction sites:

- Sequence construction activities to minimize the amount of exposed soil at one time
- Fence off and clearly mark sensitive environmental areas to protect them from disruption
- Install key sediment control practices before construction begins
- Remove mud and dirt from construction vehicles before they enter roadways
- Keep construction entrances clear of excessive soil
- Keep all seed and dirt stockpiles covered
- Vegetate, mulch, or otherwise stabilize any exposed soil as soon as land alterations are complete
- Inspect silt fences after each rain event
- Stabilize slopes or divert stormwater away from them

Rain Gardens

Rain gardens are another option for managing runoff in a useful way. They are shallow vegetated basins, typically planted with native perennials, designed to collect and absorb rainwater. Rain gardens offer a versatile and aesthetic solution to stormwater that can be scaled to your particular project's needs.

Trees & Shrubs

Planting trees and shrubs also helps improve stormwater quality. Tree roots don't just aid the infiltration of rainwater, they absorb it too. Maybe that's why they're known as "vertical rain gardens!" Trees can be planted alongside permeable pavement or in green spaces, and shrubs can be used in container gardens in existing developments.

Open Space Development

Designating as much of your site as possible to open space is the best way to improve stormwater site design. Other LID practices such as permeable walkways, rain gardens, and tree plantings can be implemented in the open space. BMPs like detention basins can be placed in areas requiring large scale stormwater management. For smaller areas, adding a park or recreational area can add beauty and increase property value in new developments.