Stormwater Runoff | What Can Be Done to Minimize the Impact of Stormwater Runoff?

Low impact development (LID) and best management practices (BMPs) are effective tools for controlling the negative aspects of stormwater runoff. LID principles are most effectively implemented during the initial development of properties, when the layout and infrastructure of sites are being planned and designed. BMPs can be incorporated into LID, but can also be used to retrofit sites that were previously developed with minimal consideration given to stormwater management.

LOW IMPACT DEVELOPMENT

Traditionally, storm water management has involved the rapid conveyance of water via storm sewers to surface waters, often without any treatment. Low Impact Development (LID) is a different approach that emphasizes site design and planning techniques that mimic the natural infiltration-based, groundwater-driven hydrology of undeveloped landscapes. Incorporating green infrastructure BMPs into a development project is essential to a successful LID approach. There are a wide variety of BMP technologies which can be custom designed to perform under different conditions, accommodating various soil types, terrains, and land usage. Some examples of BMPs are discussed in the following section.

What are the benefits of LID to the community and the environment?

- Protects sensitive areas
- Increases habitat for wildlife by preserving trees and vegetation
- Protects local and regional water quality by reducing sediment and nutrient loads
- Reduces frequent high and low flows associated with surface runoff
- Stabilizes stream flow volumes
- Reduces streambank and channel erosion
- May reduce potential for flooding
- Increases recharge to groundwater aquifers
- Increases community character
- Improves quality of life
- More access to trails and open space
- More pedestrian-friendly
- Reduces land clearing and grading costs
- Reduces infrastructure costs (streets, curbs, gutters, sidewalks)
- Balances growth needs with environmental protection

Rain gardens can be an attractive way to manage stormwater runoff.

BEST MANAGEMENT PRACTICES

BMPs, also referred to as "green infrastructure," can be designed to intercept stormwater runoff, slow it down, spread it out over the land, allow it to slowly soak into the ground, or in some cases reuse it onsite. A lot of flexibility and creativity can be incorporated in the design of BMP structures to fit the conditions of the site where they are implemented. They can be basic functional hardscape structures (concrete, stone, prefabricated dry wells) or they can be attractive "rain gardens" with aesthetic value that blend into the landscape and enhance wildlife habitat. These practices also help to remove pollutants from runoff, by allowing plants and soil to filter out pollutants as water slowly infiltrates into the ground. Below are some examples of BMPs:

- Infiltration trenches
- Bioswales
- Rain Gardens
- Dry Wells
- Permeable pavement or pavers
- Green roofs
- Rain barrels
- Retention basins
- Infiltration basins
- Gravel wetland

Two examples of existing infrastructure that would benefit from retrofitting with the installation of simple BMPs.

Problem: *Stormwater runoff flows at high velocities through this narrow gully, causing erosion and carrying sediment and nutrients to surface waters.*

Solution: *Installation of crushed stone at stormwater outfalls slows the flow velocity and spreads out the runoff, allowing it to better infiltrate and reducing erosion.*

Problem: *Stormwater runoff flows directly into the storm drain and discharges to lake or stream without treatment.*

Solution: *Directing stormwater into a bioswale like this allows sediment to settle out and reduces nutrient loading before discharging to a lake or stream.*

Town of Wolfeboro

Wentworth Watershed Association
Conserving Wentworth-Crescent Lakes & Lands
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