

Urbana High School Slated for Innovative LID Project

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In recent years Low Impact Development (LID) has emerged as an alternative technique to minimize the impact of storm water from developed areas.

Beth McCook's Biology class has studied the issue. Not only did they review and comment upon the plans for replacing their high school storm water management structures with innovative low impact development alternatives, they also researched and recommended native plants to use in the rain gardens and bioretention areas which will filter future storm water.

What is Storm water?

- Storm water is the rain that runs off of developed land. Developed land can include parking lots, roads, lawns, construction sites, houses, shopping centers, etc.

Why is Storm water Runoff a Problem?

- Increases rate and amount of water transported to stream channels as rainfall reaches impervious surfaces (roads, parking lots, rooftops)
- Increases pollutants
- Includes oil and grease, road salts, metals from road surfaces
- Includes nutrient fertilizers, pesticides from lawns
- Includes Sediment from bare ground at construction sites
- Increases flows, causing stream bank erosion and sedimentation
- Degrades stream water quality and habitat
- Affects downstream ecosystems (Monocacy River, Potomac River, Chesapeake Bay)

Most communities developed in the last 20 years were designed to meet certain requirements for catching and slowing down storm water. The requirements have changed over time as have the variety of techniques used to address them. Often projects were designed to collect all of the storm water at a central point in the site, usually in wet or dry ponds. Previously, planners were most concerned about managing the volume or quantity of storm water; now they are equally concerned about improving the cleanliness and temperature (or quality) of the run off.

A newer concept to minimize storm water impacts is the application of “source control” techniques such as Low Impact Development (LID). These techniques try to have water absorb into the landscape like it would in a predevelopment condition. This way, the strong erosive forces of water do not destroy streams and many pollutants are filtered out before the storm water reaches the streams. LID is particularly effective in urban settings and is becoming well accepted for controlling urban storm water impacts from new development and redevelopment.

Frederick County is planning to convert the centralized storm water management facilities at the Urbana High School (UHS) to decentralized small scale LID retrofits. Frederick County Division of Public Works has hired Tetra Tech, Inc. with its subcontractor Skelly and Loy to design LID features in the school courtyard and in the bus lot. They have incorporated the native plant recommendations from the Urbana high school biology class in their final plans.

In the courtyard, two rain gardens will trap the runoff from redirected roof drains and slow the flow of storm water, serving also as attractive landscape features. In the bus lot, a strip of bioretention will filter water before it gets to an existing pond and then Bush Creek. Bioretention is the on-site retention of stormwater through the use of vegetated depressions engineered to collect, store, and infiltrate runoff. In the bus lot, the curbs will be cut to allow storm water to flow into the bioretention facilities.