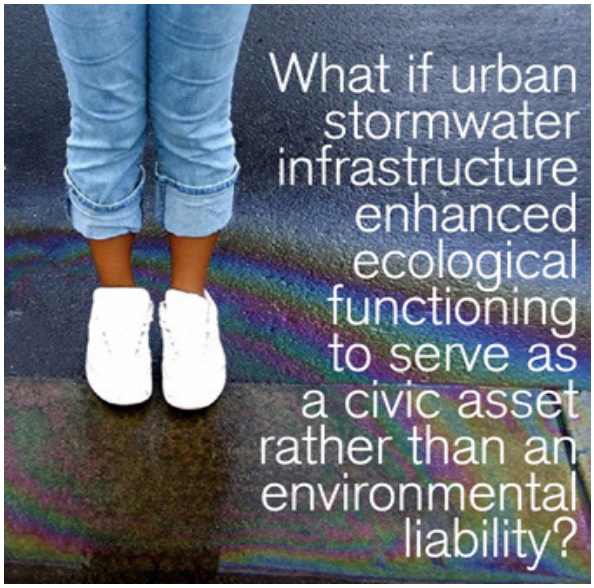
“Water is a resource. Why get rid of it?”

By Vanessa Quiroz

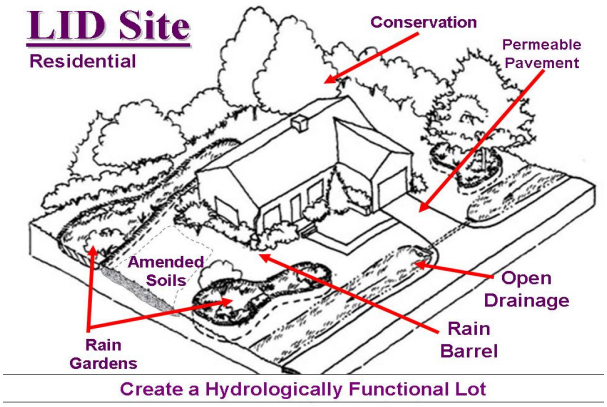
“Water is a resource. Why get rid of it?” Said Bruce Phillips, Senior Vice President of Stormwater Management for PACE Advanced Water Engineering, during his presentation on Sustainable Stormwater Management at the Sustainable Communities Initiative Council (SCIC) quarterly meeting. In his presentation, Bruce Phillips discussed the sustainable elements integrating into stormwater management, specifically, Low Impact Developments (LID) practices. LID is a technique that integrates stormwater management techniques to the site design. LID imitates predevelopment hydrology to store, infiltrate, and filter rainwater at its source to reduce stormwater runoff. As Bruce Phillips mentioned, by implementing LID techniques, “stormwater is treated with small cost effective landscape features through the site.”



EPA identified stormwater runoff as the number one source of surface water pollution. Bruce Phillips pointed out that the first rainfall “washes out about 85% of pollutants” which are quickly drained into the ocean. Conventional approaches to management focus on flood protection, water treatment, and quality control by rapidly removing stormwater. Through the “Best Management Practices”, water is treated to reduce pollutants, however, preventive measures lack in this practice. Because of urban development, specifically, impervious surfaces, rainwater is unable to infiltration and groundwater is unable to replenish. The high volumes of runoff water have negative impacts on the hydrologic cycle. LID looks to integrate urban planning with natural hydrology to minimize surface runoff.

Bruce Phillips presented the key features of LID practices; which are to conserve water, direct runoff to natural areas, recharge groundwater, and capture and reuse rainwater. As stated on the EPA website, through LID practices, “water can be managed to reduce the impact to the built environment and promotes the natural movement of water in watersheds.” Since LID focuses on site design, one key aspect is it can be integrated into smaller developments such as residential and commercial.

There are numerous types of LID techniques, for example, bioretention, rainwater harvesting, pervious pavement, and underground storage as well as creative techniques such as green walls and green roof. As stated in the Design Strategies, bioretention is a "practice to manage and treat stormwater runoff by using conditional planting soil bed and planted material to filter runoff". Rainwater Harvesting is applicable to both residential and commercial sites. Rainwater is collected in barrels that are "low cost, effective, and easily maintained" as mentioned in the Design Strategies. Permeable Pavement reduces runoff and surface water by allowing rainfall to infiltrate into the ground. These three LID techniques assist in replenishing, storing, and filtering stormwater on sites.



EPA has taken the lead in the push to implement LID practices to new developments. However, LID techniques may not be the appropriate solution to all projects. For example, as Bruce Phillips pointed out, some site conditions may preclude the use of infiltration techniques. Thus, as Bruce Phillips mentioned, "in order to ensure the LID techniques will function properly and be sustainable for the long term, careful planning and adequate site investigation is required."

For more information on the referenced material please visit
http://water.epa.gov/polwaste/green/index.cfm

*A special thanks to Bruce Phillips for providing his presentation for reference and for his help.

Reference:

Environmental Protection Agency. Low Impact Development. Retrieved January 20, 2013 at http://water.epa.gov/polwaste/green/index.cfm.
Prince George's County, Maryland. 1999. Low-Impact Development Design Strategies: An Integrated Design Approach. Retrieved January 20, 2013 at http://water.epa.gov/polwaste/green/upload/lidnatl.pdf