

LOW IMPACT DEVELOPMENT (LID) – IT JUST MAKES SENSE

This past February, in the midst of a blowing snowstorm, a group of about 35 planners, engineers, landscape architects, state and town officials, and stormwater aficionados gathered in the LEED (Leadership in Energy and Environmental Design) certified community room at NRG Systems in Hinesburg to learn about low impact development (LID). LID is an approach to land development or redevelopment that works with nature to manage stormwater as close to its source as possible.

The evening began with an overview of LID planning principles that use or mimic natural processes to infiltrate, evaporate, or reuse stormwater on the site where it is generated. The session's presenter, Emma Melvin, Lake Champlain Sea Grant water quality educator, described LID systems and practices used to preserve and recreate natural landscape features, minimize the effect of impervious surfaces (e.g. roads, parking lots, driveways, and roofs), create functional and appealing site drainage, and treat stormwater as a resource rather than a waste product.

During the second half of the workshop, the participants divided into five teams to try their hands at using LID practices in an interactive design exercise. Armed with Mylar paper, orthophotos (aerial photographs), engineering scale rulers and multicolored markers, the participants designed a hypothetical development in Hinesburg's Geprags Park using LID site planning and management practices. (See sidebar.) The teams were directed to choose an appropriate spot for a subdivision consisting of ten 1,500 square foot units of independent living elderly housing, a 2,000 square foot common building, and parking and roads. The orthophotos identified site restrictions including large forested tracts, steep slopes, streams, wetlands, and flood hazard areas.

The teams had an hour to complete their designs, after which they took turns presenting them to the group. Although there were variations, each group used a variety of LID systems to create attractive and effective designs. Plan proposals included an assortment of LID practices including rain gardens and bioretention, sub-surface gravel wetlands, vegetated swales and buffers, limited vegetation clearing, rain barrels and cisterns, permeable pavement, and reduced impervious surfaces. Ryan McCall, state watershed coordinator for the Winooski River basin, commented that one of the things he kept hearing from participants throughout the design exercise was, "This makes sense."

For comparison, Kevin Worden of Engineering Ventures of Burlington showed a so-called "conventional design" of the same dimensions, which used a stormwater detention pond to capture and store the increased stormwater runoff generated from a development with less vegetation and more impervious surfaces.

Alex Weinhagen, Director of Planning and Zoning for the Town of Hinesburg, was encouraged by the gathering. "It was excellent to see so many engineers at this workshop," he said. "Given the level of interest, I'm optimistic that we'll see more and more LID practices in stormwater plans for new development here in Hinesburg."

Dean Grover of Grover Engineering in Huntington summed it up this way: "I enjoyed rubbing elbows with mostly familiar faces – other engineers, landscape architects and other consultants, planners and state and town personnel – to brainstorm a hypothetical LID subdivision in Hinesburg. Part of the enjoyment was in sharing the difficulty we're all having with the current stormwater rules. The exercise reinforced my impressions that the next set of state stormwater rules needs fundamental revisions. We have to stop collecting stormwater, treating and detaining it in centralized

structures, then trying to spread it out again in a way that does not cause erosion problems. Alternatively, using concepts from LID design, stormwater treatment needs to happen at the source – at the margins of impervious roads, driveways and buildings. I believe that by incorporation of LID concepts, new state stormwater rules can be much simpler to administer and to adhere to during land development, with water quality results that are as good (as) or better than (those) provided by the current rules.”

Thanks to Alex Weinhagen and Emma Melvin, Kevin Worden, Paul Boisvert and Sarah Thyng of Engineering Ventures, and Marty Illick of the Lewis Creek Association for making this workshop happen. Special thanks also to NRG Systems for providing the comfortable accommodations.

If your town or board is interested in hosting a Low Impact Development workshop, please contact Milly Archer, Water Quality Coordinator, VLCT Municipal Assistance Center, at marcher@vlct.org or (800) 649-7915.

LID Site Planning and Management Practices

Construction site practices:

- * Minimize land disturbance
- * Preserve natural areas (wetlands, streams, lakes, steep slopes, floodplains, vegetated riparian buffers, large forested tracts)
- * Avoid compacting heavy soils
- * Erosion prevention and sediment control

Design considerations:

- * Narrow roads
- * Shorter driveways
- * Mixed-use parking
- * Reduced building footprint

Stormwater management practices:

- * Bioretention/infiltration – rain gardens
- * Vegetated swales
- * Sub-surface gravel wetlands
- * Permeable pavement
- * Cisterns and rain barrels

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