**Case Study:**
Visually and numerically compare a 9 acre condominium development with traditional storm water management to one using low impact development storm water management practices. The storm water management must treat the quantity and quality of the site runoff and comply with applicable local, state and federal requirements.

**Low Impact Development (LID):**
Combines storm water management and site design to control non-point source pollutants and mimic natural site hydrology through site design focused on storing, infiltrating, and detaining storm water.

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**Traditional Practices**

**Centralized Storm Sewer System**
- Curb and gutter system.
- 4 water quality basins.
- Basins flow into wetland (USACE permit required).
- Wetland discharges to public storm sewer system.

**Benefits:**
- Standard practice well understood by designers, reviewers, installers and home buyers.

**Enhanced Swale System with Underdrain**
- Treats quality and reduces quantity.
- Drains to a wetland and then to the public storm sewer system. (USACE permit required).

**Benefits:**
- Reduces runoff volumes and peak storm water flows.
- Allows for smaller storm water conveyance system.
- Minimizes infrastructure costs.

**Total Cost**
- Storm Sewer Pipe = $58,630
- Storm Sewer = $41,000
- Water Quality Basins = $5,500
- **Total Cost** = $105,130

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**LID Practices**

**Enhanced Swale System with Underdrain**
- Treats quality and reduces quantity.
- Drains to a wetland and then to the public storm sewer system. (USACE permit required).

**Benefits:**
- Reduces runoff volumes and peak storm water flows.
- Allows for smaller storm water conveyance system.
- Minimizes infrastructure costs.

**Total Cost**
- Enhanced Swale System = $45,400
- Storm Sewer Structure = $8,900
- Sediment Trap/Basin = $325
- **Total Cost** = $54,625
Low Impact Development: Structural and Non-Structural Practices to Maintain Site Hydrology

Changing Land Use =
- Increase in impervious cover.
- Fewer riparian and wetland areas to absorb runoff.
- Increase in flooding, erosion, and water quality problems.
- Increase in public and private infrastructure.
- Increase in complaints from residents.
- Increase in local government costs.

Solution
- Better site design on new projects.
- More, and better, retrofits in built areas.
- Low Impact Development approaches to new development and redevelopment.

Non-Structural Tools
- Comprehensive Planning
- Riparian and Wetland Setbacks
- Conservation Development

Structural Tools
- Bioretention
- Disconnected Downspouts
- Pervious Pavements
- Road Side Swales
- Residential Rain Gardens

Contact Chagrin River Watershed Partners, Inc. for more information.

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