

JORDAN COVE URBAN WATERSHED NATIONAL MONITORING PROJECT

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The Jordan Cove Urban Watershed National Monitoring Project is one of 24 projects in the U.S. Environmental Protection Agency's Section 319 National Monitoring Program (NMP). The purpose of the NMP is to scientifically evaluate the effectiveness of watershed technologies designed to control nonpoint source pollution, and improve our understanding of nonpoint source pollution. The Jordan Cove project team comprises researchers from the University of Connecticut; federal, state, and local government officials; and the developer.

The Jordan Cove project, located in southeastern Connecticut in the town of Waterford, is a ten-year study to document the difference in stormwater quality and quantity between traditional subdivision development and a subdivision with best management practices (BMPs) incorporated into the design and construction. The 18-acre site is divided into two neighborhoods: one with building lots arranged in a traditional half-acre zoning pattern, the other with cluster housing using a variety of best management practices (BMPs). Runoff from the traditional section is collected by curbs and catch basins, then piped through a sediment removal system before entering a brook. The BMP neighborhood features grass swales; a vegetated infiltration basin; roof leader "rain gardens;" pervious driveways; low-mow, no-mow and conservation zones; and a pervious road with a cul-de-sac bioretention garden. Homeowners and town crews are encouraged to adopt pollution prevention techniques, i.e., controlled fertilizer and pesticide application, pet waste management, regular street sweeping/vacuuming, and reduced use of deicing agents.

University of Connecticut researchers are utilizing a "paired-watershed" approach to demonstrate the water quality benefits of incorporating BMPs into subdivision development. Baseline monitoring of the two subdivision sites, and a third "control" subdivision, was initiated in November 1995. Construction phase monitoring in the "traditional" neighborhood began in June 1997, and in the "BMP" neighborhood in March 1999. Post-construction monitoring of both sites has been underway since May 2003. Monitoring of the control subdivision has continued throughout the entire project period.

Post-construction monitoring of the BMP neighborhood indicate that the volume of stormwater runoff decreased significantly. Although pollutant concentrations increased from pre-construction conditions, the reduced flow actually results in reduced pollutant loadings. A study of several different driveway surfaces indicate that stormwater runoff and mass export of pollutants was greater from the asphalt than the paving stones, and greater from the pavers than the crushed stone driveways.

An important component of this project is outreach and education to municipal commissions, developers, and the public. Lessons learned from this project are already being shared with these target audiences through a variety of means, including presentations

at workshops and conferences; articles in journals, newsletters, and newspapers; and web sites. For additional information see: www.canr.uconn.edu/jordancove/ The Jordan Cove project is also used as a case study in the UConn/CES NEMO Project, and has its own web page in the NEMO web site: <http://www.nemo.uconn.edu>

Management Implications:

- Incorporating BMPs into residential subdivision development can significantly reduce the quantity, and improve the quality, of stormwater runoff as compared with traditional subdivision development; however, most local land use and subdivision regulations intended to protect public health and safety and ease maintenance preclude the use of many BMPs.
- Homeowners, developers, engineers, landscape architects, and land use regulators are key target audiences for education, technical assistance, and training on the importance of protecting water quality, how structural and non-structural BMPs can help reach that goal, and how to implement these practices within existing regulatory framework.
