



**Stormwater Management Implementation
~ Moving Toward Sustainability~**

Proceedings of the 2007 Pennsylvania Stormwater
Management Symposium Held at Villanova
University October 17-18, 2007

Mission Statement -The purpose of the symposium is to advance the knowledge and understanding of comprehensive stormwater management for those dealing in all aspects of land development planning, design, implementation and regulatory compliance. A workshop entitled ‘Transforming Stormwater Management – Converting Runoff Problems to Community Resources.

Steering Committee

Public Partners	VUSP Corporate Partners and Members
Pa Department of Environmental Protection	Down to Earth Design
Bureau of Watershed Management	Cahill and Associates
Southeast Regional Office	Langan Engineering and Env. Services
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	Weston Solutions, Inc.

And the VUSP friends, Bohler Engineering and Penn Environmental

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Editor:

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The Department of Civil and Environmental Engineering- has a complete evening graduate school conferring the Master of Civil Engineering, Master of Water Resources and Environmental Engineering, and the Master of Transportation degrees. Classes are held both on-campus and through distance education. Call 610 519 4960 for further information, or visit the University Web site at;

<http://www.villanova.edu/engineering/departments/civil/>

PREFACE

The 2007 Pennsylvania Stormwater Management Symposium follows the Commonwealth 1998, 2001, 2003 and 2005 Symposiums all held at Villanova. In 1998 the Symposium focused on the successes, failures, and future prospects of stormwater management, while in 2001 the symposium the focus was on re-thinking comprehensive stormwater management, integrating quality, volume and peak controls. For 2003, with NPDES Phase II in force for the first time, the focus turned to the integration of planning, regulation, design, and operations. In 2005 the title was *Stormwater Management Implementation~Are we getting it right?*, and the symposium was broadcast live over the internet for the first time. This year we continued on the theme of implementation, but turned our focus towards the goal of stormwater sustainability.

The Symposium started a day early with a workshop entitled *-Transforming Stormwater Management – Converting Runoff Problems to Community Resources*. Thanks go out to representatives of the PA Department of Environmental Protection Southeast Regional Office, Chester County Water Resources Authority, Borton Lawson Engineers, Natural Lands Trust, Pennsylvania Environment Council, and Tredyffrin Township for their efforts. The workshop was directed toward elected and appointed municipal officials and other individuals involved in aspects of the land development process outside of the engineering design elements. The workshop covered topics to include forested and vegetated stream-side corridors for capturing runoff and its pollutants, reducing stream water temperature, and reducing stream channel erosion; renovating and revegetating existing stormwater basins to improve their volume control, infiltration, and pollutant removal efficiencies; vegetated green-roofs for reducing rooftop runoff and reducing thermal stormwater pollution; and exploring financing needs and alternatives for long-term operation and maintenance of stormwater management facilities and for solving existing problems. Bern Sweeney (Director of the Stroud Water Research Center opened with a talk on the critical role of stream-side forested buffers for stormwater management and our regional ecosystem.

To lead off the symposium, Robert Traver, Director of the Villanova Urban Stormwater Partnership, spoke on his view of what the term Stormwater Sustainability really means. Next, John Hines (Executive Director, Bureau of Watershed Management, PA Dep) updated the audience on Pennsylvania's Stormwater Management direction. For the next several hours concurrent sessions were held on topics such as Stormwater BMPS, Benefits of Green Strategies, Performance, Planning, VUSP Research to name a few. To showcase design and research efforts, a Poster Session was held for the first time, with many contributions from PSU- Harrisburg. At the end of the day participants heard from Barry Newman, Chief of Stormwater Planning and Management, PaDEP, who updated the symposium on Pennsylvania's Act 167 program. The day ended with a reception.

The second day started with more concurrent sessions and an address entitled *From the Rooftop to the Stream and Back to the Rooftop: sustainable stormwater strategies to protect and restore urban watersheds* by Tom Schueler, Director Chesapeake Stormwater

Network. The remainder of the second day consisted of multiple breakout sessions, a Stormwater Town Meeting discussing research needs, and several optional tours. Over forty papers were presented over the two days, and the tours included Villanova's BMP Research and Demonstration Park, Philadelphia Urban BMPs, Stormwater Innovations in Radnor Township, and a River Restoration Site.

I want to specifically thank the VUSP Partners, and members of the steering committee. Barry Newman, Ken Murin, Dennis Stum, Steve Burgo, Domenic Rocco and Desiree Henning-Dudley of PaDEP, Jan Bowers of CCWRA, Dan Greig of CCCD, Paul DeBarry of Borton-Lawson, Frank Browne of F.X. Browne, Al Brulo of Herbert Rowland and Grubic, Amy Leib of the Philadelphia Water Department, and many many more. Also I wish to thank the tour and session organizers and all the authors who prepared and presented papers for this Symposium are acknowledged for their commitment to the success of the sessions and the implementation of stormwater management.

The Villanova community also contributed greatly. Linda DeAngelis was instrumental in preparing and completing the correspondence required for the Symposium. I appreciate Pam Porters direction skills, and finally the tremendous contribution of the editor, Clay Emerson - the force behind the scenes. Finally I appreciate the work of the VUSP Graduate Students, Especially Matt, Krista and Hans.



Robert G. Traver, Symposium Chairman Villanova, Pennsylvania October 8th 2007