

## Center for Watershed Protection and Chesapeake Stormwater Network

Permeable Pavement Design, Installation, and Maintenance Webcast

September 1, 2010

## Speaker Contact Information

### David Smith

Interlocking Concrete Pavement  
Institute (ICPI)  
Herndon, VA  
703-657-6900 x201  
[dsmith@icpi.org](mailto:dsmith@icpi.org)  
[www.icpi.org](http://www.icpi.org)

### Kelly A. Collins, EIT

Center for Watershed Protection, Inc.  
Ellicott City, MD  
410-461-8323  
[kac@cwpc.org](mailto:kac@cwpc.org)  
[www.cwpc.org](http://www.cwpc.org)

### Chuck Taylor

Ecological Paver Systems  
Oswego, IL  
630-608-1190  
[crt@ecologicalpaversystems.com](mailto:crt@ecologicalpaversystems.com)

## Permeable Pavement Resources

### Permeable Pavement Design, Maintenance, and Installation Resources

- Bay-Wide Permeable Pavement Design Specification.  
<http://www.vwrrc.vt.edu/SWC/NonProprietaryBMPs.html>
- Structural Design of Permeable Pavements . *Guidelines for 1993 AASHTO Pavement Design*.  
<http://www.virginiadot.org/business/resources/bu-mat-pde-AASHTOForConsultants0503.pdf>
- Interlocking Concrete Paving Institute. PICP Resources. <http://icpi.org/>
- Portland Cement Association. Pervious Concrete Resources. [www.cement.org](http://www.cement.org)
- National Ready-Mix Concrete Association. Pervious Concrete Resources and Specifications.  
<http://www.perviouspavement.org/>
- National Asphalt Pavement Association. Porous Asphalt Resources.  
[http://www.hotmix.org/index.php?option=com\\_content&task=view&id=359&Itemid=863](http://www.hotmix.org/index.php?option=com_content&task=view&id=359&Itemid=863)
- UNHSC Design Specifications for Porous Asphalt Pavement and Infiltration Beds.  
[http://www.unh.edu/erg/cstev/pubs\\_specs\\_info/unhsc\\_pa\\_spec\\_10\\_09.pdf](http://www.unh.edu/erg/cstev/pubs_specs_info/unhsc_pa_spec_10_09.pdf)
- NCSU Urban Waterways Factsheet on Permeable Pavement. *Permeable Pavement: Research Update and Design Implications*. <http://www.bae.ncsu.edu/stormwater/pubs.htm>
- Chicago Green Alleys Handbook.  
[www.cityofchicago.org/webportal/COCWebPortal/COC\\_EDITORIAL/GreenAlleyHandbook.pdf](http://www.cityofchicago.org/webportal/COCWebPortal/COC_EDITORIAL/GreenAlleyHandbook.pdf)

### General Resources

- University of New Hampshire Stormwater Center. [http://www.unh.edu/erg/cstev/pubs\\_specs\\_info.htm](http://www.unh.edu/erg/cstev/pubs_specs_info.htm)
- Villanova Urban Stormwater Partnership. <http://www3.villanova.edu/vusp/>

## Center for Watershed Protection

Permeable Pavement Design, Installation, and Maintenance Webcast  
September 1, 2010

- Low Impact Development Center Website. *Watershed Benefits of Permeable Pavements*. [http://www.lid-stormwater.net/permpavers\\_benefits.htm](http://www.lid-stormwater.net/permpavers_benefits.htm)
- Ferguson, B.K. 2005. *Porous Pavements*. CRC Press. Boca Raton, FL.
- Adams, M.C. 2003. Porous Asphalt Pavement With Recharge Beds 20 Years and Still Working. *Stormwater Magazine*. May-June 2003. <http://www.stormh2o.com/may-june-2003/pavement-porous-bmps.aspx>

### Selected Research Journal Articles

Bean, E.Z., W.F. Hunt, D.A. Bidelspach. 2007. Evaluation of Four Permeable Pavement Sites in Eastern North Carolina for Runoff Reduction and Water Quality Impacts. *Journal of Irrigation and Drainage Engineering*, 133(6): 583-592.

Bean, E.Z., W.F. Hunt, D.A. Bidelspach. 2007. A Field Survey of Permeable Pavement Surface Infiltration Rates. *Journal of Irrigation and Drainage Engineering*, 133 (3): 249-255.

Brattebo, B. O., and Booth, D. B. \_2003\_. "Long-term stormwater quantity and quality performance of permeable pavement systems." *Water Res.*, 37(18): 4369–4376.

Collins, K.A., W.F. Hunt, J.M. Hathaway. 2010. Side-by-Side Comparison of Nitrogen Species Removal for Four Types of Permeable Pavement and Standard Asphalt in Eastern North Carolina. *Journal of Hydrologic Engineering*, 15(6): 512-521.

Collins, K.A., W.F. Hunt, J.M. Hathaway. 2008. Hydrologic Comparison of Four Types of Permeable Pavement and Standard Asphalt in Eastern North Carolina. *Journal of Hydrologic Engineering*, 13(12): 1146-1157.

Dreelin, E. A., Fowler, L., and Ronald Carroll, C. 2006. "A test of porous pavement effectiveness on clay soils during natural storm events." *Water Res.*, 40(4): 799–805

Fassman, E.A. and Blackbourn, S. 2010. Runoff Mitigation by a Permeable Pavement System over Impermeable Soils. *Journal of Hydrologic Engineering*, 15(16): 475-485.

Gilbert, J. K., and Clausen, J. C. 2006. "Stormwater runoff quality and quantity from asphalt, paver, and crushed stone driveways in Connecticut." *Water Res.*, 40(4), 826–832.

Roseen, R. M., et al. 2009. "Seasonal performance variations for stormwater management systems in cold climate conditions." *J. Environ.Eng.*, 135(3): 128–137.

Rushton, B. T. 2001. "Low-impact parking lot design reduces runoff and pollutant loads." *J. Water Resour. Plann. Manage.*, 127(3): 172–179.

Schwartz, S.S. 2010. Effective Curve Number and Hydrologic Design of Pervious Concrete Storm-Water Systems. *Journal of Hydrologic Engineering*, 15(6): 465-474.

Tyner, J. S., Wright, W. C., and Dobbs, P. A. 2009. "Increasing exfiltration from pervious concrete and temperature monitoring." *J. Environ. Manage.*, 90(8): 2636–2641.