

***Make effective planning-level decisions  
on development impacts and stormwater  
controls...***

**Using WinSLAMM to  
Meet TMDL, LID, and MS4  
Stormwater Requirements**

**January 20–21, 2011  
Baltimore, Maryland**

**April 26–27, 2011  
Madison, Wisconsin**

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Department of Engineering Professional Development  
432 North Lake Street Madison, Wisconsin 53706

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who would also benefit by attending.*



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# Using WinSLAMM to Meet TMDL, LID, and MS4 Stormwater Requirements

**January 20–21, 2011  
Baltimore, Maryland**

**April 26–27, 2011  
Madison, Wisconsin**

Use the Source Loading and Management Model (WinSLAMM) to measure the attainment of urban stormwater management goals:

- Meet TMDL requirements
- Reduce pollution load
- Control runoff volume
- Achieve LID/sustainability/green compliance



# Using WinSLAMM to Meet TMDL, LID, and MS4 Stormwater Requirements

January 20–21, 2011 in Baltimore, Maryland ■ April 26–27, 2011 in Madison, Wisconsin

## Attain Stormwater Management Goals

WinSLAMM is a Windows-based, continuous simulation computer program that helps water resources professionals make effective decisions by modeling the stormwater impacts of new development or existing developments, and the benefits of various control measures.

## Tool to Assess Cost-Effectiveness

The WinSLAMM batch processor provides data for decision-makers to select the most cost-effective of alternative stormwater control practices. WinSLAMM is typically used in continuous simulations of at least a year of actual rain events to examine these issues over a wide range of actual site conditions.

## Successful User Experience

The WinSLAMM model has been used for over 15 years to calculate urban stormwater runoff volume, pollution loads, and assessment of a wide range of management measures. The model enables accurate planning-level and design-level analyses. Wisconsin's Department of Natural Resources has adopted the model for regulatory compliance purposes.

## Bring Your Laptop

To participate fully in this WinSLAMM course, you will need to bring a laptop computer loaded with the most recent version of WinSLAMM. This program runs on a PC with Windows XP, Vista, or Windows 7, and you will need a CD drive and/or a USB port to load it. We strongly urge you to pre-load the program to your laptop before the class. You will need administrative privileges for the computer if the program is not pre-loaded. If you are coming with someone from your organization, you can also share a computer.

## Hands-On Applications

This hands-on computer-based course will demonstrate how WinSLAMM incorporates long-term local rain data along with soils, land use, source area, and other local watershed factors to:

- Quantify pollutant sources in complex urban watersheds
- Predict the performance and impact of many interacting development and control options, such as:
  - calculating pollutant loads and runoff volumes from various management scenarios
  - calculating the costs of conventional stormwater control practices
  - analyzing outlet options for wet detention ponds
  - calculating routing and storage impacts of porous pavement control
  - determining if biofilters meet regulatory requirements
  - analyzing street dirt washoff and catchbasin cleaning
- Estimate the effectiveness of:
  - filter strips
  - rain barrels and cisterns
  - hydrodynamic devices
  - stormwater media filters
  - grass swale drainage systems
  - beneficial uses of stormwater
  - disconnection of impervious areas

## Acquiring WinSLAMM Software

You must have the latest version of WinSLAMM loaded on your laptop prior to the course. You can either obtain a free trial version, or you may purchase the software. For information on how to acquire the WinSLAMM software, please contact Program Director Howard Rosen at [rosen@engr.wisc.edu](mailto:rosen@engr.wisc.edu).

## Version 10 Benefits Demonstrated

Attendees will get a preview of the much-anticipated Version 10 of WinSLAMM. You will see how the new program uses a graphical interface to evaluate control practices in series and how it provides the user with much greater flexibility to describe drainage basin systems.

## Who Should Attend

No previous modeling experience is necessary to understand WinSLAMM's uses and benefits. However, attendees should have a basic knowledge of hydrology and stormwater management principles. Plan to attend with:

- Design engineers
- Contractors
- Developers
- Regulators
- Reviewers
- Regional planners
- Local agency staff with stormwater management responsibilities

## Team Discounts Available

Multiple enrollees from the same firm or agency are eligible to receive a team discount. For more information about this offer, please contact Howard Rosen, program director, at 608-262-4341 or [rosen@engr.wisc.edu](mailto:rosen@engr.wisc.edu).

## On-site Option!

For larger groups, this course can be delivered at your site. To inquire about this and other courses we can bring to your site, including optimal group size and costs, call 800-462-0876 and ask for Corporate Education Director Carl Vieth (608-263-7424 direct or [vieth@wisc.edu](mailto:vieth@wisc.edu)). Or see <http://epd.engr.wisc.edu/onsite>

# Using WinSLAMM to Meet TMDL, LID, and MS4 Stormwater Requirements

## Course Outline

### Day One

**7:45 Registration and Continental Breakfast (provided)**

**Thursday, January 20 in Baltimore, Maryland:**

Admiral Fell Inn  
888 South Broadway

**Tuesday, April 26 in Madison, Wisconsin:**

The Pyle Center  
702 Langdon Street

**8:15 Welcome and Introduction**

- Course content and expectations
- Howard Rosen, Program Director*

**8:30 Meeting the Stormwater Regulatory Challenge**

**Addressing 303(d) Listed Waters Through TMDLs**  
*U.S. EPA*

**Stormwater Practices in the Chesapeake Bay Region**

*Center for Watershed Protection*

**Sources and Impacts of Urban Stormwater Pollution**

**11:00 WinSLAMM – Getting Ready to Use the Model**

- Modeling terminology
- WinSLAMM theory and practice
- Program setup and folder structure

**12:00 Lunch (provided)**

**1:00 WinSLAMM – Getting Ready to Use the Model (continued)**

- WinSLAMM model features and navigation
- Setting up a WinSLAMM model file
- Land use file applications

**2:30 Using WinSLAMM for Infiltration Practices**

- Site design with infiltration practices
- Grass swales
- Biofiltration/Infiltration
- Porous pavement
  - input data requirements
  - flow, volume, pollution tracking
  - variables
  - output options

**5:00 Adjournment**

### Day Two

**8:00 Using WinSLAMM for Settling Practices**

- Site design with settling practices
- Wet detention ponds
- Catch basins

**Manufactured Stormwater Control Practices**

**11:00 Using WinSLAMM for Residential LID Development**

- Measuring the impacts of:
  - reduced imperviousness
  - drainage system modifications
  - impervious area disconnections

**12:00 Lunch (provided)**

**1:00 Using the WinSLAMM Batch Processor**

- Estimate costs
- Compare management practices

**2:00 Classroom Exercise**

**3:00 Preview of Version 10**

**4:00 Final Adjournment**

## Your Instructors

**Jim Bachhuber**, AECOM national stormwater practice leader, is a nationally respected hydrologist with extensive experience in urban stormwater management planning, pollution modeling, stormwater permitting, ordinance development and the analysis of urban stormwater BMPs. At the Wisconsin DNR, he helped develop applications for rural and urban nonpoint source pollution load modeling. As a consulting engineer, he manages water resource projects dealing with urban stormwater runoff, environmental impacts, and TMDLs.

**Roger Bannerman**, environmental specialist, has worked for the Wisconsin DNR for over 35 years. For most of that time he has directed research projects investigating the solutions to problems caused by urban runoff. His research has served as the basis for the development of technical standards, administrative rules, and the calibration and verification of WinSLAMM.

**Caroline Burger PE**, AECOM water resource engineer, has years of experience in stormwater management planning, pollution modeling and monitoring, hydrologic and hydraulic modeling, stormwater permitting, ordinance development, and analysis of BMPs. She has extensive experience using WinSLAMM and has been a key part of the team involved with the calibration and development of the WinSLAMM model.

**Michael S. Haire**, TMDL team leader for EPA's Office of Wetlands, Oceans and Watersheds, works closely with states and regions to address technical and policy issues associated with the identification of impaired waters. He has led EPA efforts in issuing guidance on developing integrated reports. Additionally, he has been involved in developing and reviewing complex TMDLs, especially on the watershed scale. Prior to his employment with EPA, he worked for the Maryland Department of the Environment (MDE) as director of the Technical and Regulatory Services Administration.

**Robert Pitt PhD, PE, BCEE, D.WRE** is Cudworth Professor of Urban Water Systems at the Department of Civil, Construction and Environmental Engineering, University of Alabama. Professor Pitt is a nationally recognized authority on the modeling, detection and control of contaminants in urban drainage systems. He has been recognized for his work on the development of new analytical methods for the rapid and sensitive detection of toxicants. He is the author of more than 100 books, journal articles and reports and recipient of numerous honors and awards from various national engineering and environmental organizations.

**John Voorhees PE, PH**, AECOM senior water resource engineer, is co-author of WinSLAMM (Source Loading and Management Model). He has 21 years of experience on many aspects of stormwater management in both the public and private sectors, with extensive experience working on innovative BMP design, regulatory compliance, and evaluation of BMP effectiveness.

## Four Easy Ways to Enroll

**Internet:**

<http://epd.engr.wisc.edu/>

**Phone:**

800-462-0876 or  
608-262-1299 (TDD 265-2370)

**Mail to:**

Engineering Registration  
The Pyle Center, Dept. 106  
702 Langdon Street  
Madison, Wisconsin 53706

**Fax:**

800-442-4214 or  
608-265-3448

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TODAY!**

### Course Information

Please enroll me in **Using WinSLAMM to Meet TMDL, LID, and MS4 Stormwater Requirements**

- Course #M452** January 20–21, 2011 in Baltimore, Maryland Fee: \$1,095
- Course #M407** April 26–27, 2011 in Madison, Wisconsin Fee: \$995
- I cannot attend at this time. Please send me brochures on future courses.

### Personal Information (Please print clearly.)

Name \_\_\_\_\_

Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City/State/Zip \_\_\_\_\_

Phone (\_\_\_\_\_) \_\_\_\_\_ Fax (\_\_\_\_\_) \_\_\_\_\_

E-mail \_\_\_\_\_

### Additional Enrollees

Name \_\_\_\_\_

Title \_\_\_\_\_

E-mail \_\_\_\_\_

Name \_\_\_\_\_

Title \_\_\_\_\_

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## Related Stormwater Courses

*Advanced Steady Flow Modeling Using HEC-RAS*  
November 15–16, 2010, Madison, WI  
Course #L682

*Modeling Unsteady Flow Using HEC-RAS*  
November 17–19, 2010, Madison, WI  
Course #L683

*Storm Sewer System Design*  
April 12–13, 2011, Madison, WI  
Course #L917

*Designing Storm Water Detention Basin Facilities*  
April 14–15, 2011, Madison, WI  
Course #L918

*Watershed Modeling Using the New HEC-HMS*  
May 4–6, 2011, Madison, WI  
Course #L684

*Mastering the Fundamentals of HEC-RAS*  
May 9–11, 2011, Madison, WI  
Course #L685

For details go to:  
<http://epd.engr.wisc.edu/stormwater>

## Need to Know More?

Call toll free **800-462-0876** and ask for

### Program Director:

Howard Rosen PhD

### Program Associate:

Debbie Benell

Or e-mail [custserv@epd.engr.wisc.edu](mailto:custserv@epd.engr.wisc.edu)

## General Information

**Fee Covers** Notebook and other course materials, break refreshments, lunches and certificate.

**Cancellation** If you cannot attend, please notify us at least seven days before the course, and we will refund your fee. Cancellations received after this date and no-shows are subject to a \$150 administrative fee. You may enroll a substitute at any time before the course starts.

**Course Changes** The University of Wisconsin–Madison reserves the right to make changes in the course outline or instructors.

## Locations and Accommodations

### January 20–21, 2011 in Baltimore:

The course will be held at the Admiral Fell Inn, 888 South Broadway, Baltimore, Maryland. Phone messages: 866-583-4162

We have reserved a block of rooms at the special reduced rate of \$149 for course participants at the Admiral Fell Inn, 888 South Broadway in Baltimore. To reserve a room, please call 866-583-4162 and mention group code 558492 or "University of Wisconsin." Room reservations after December 20 will be subject to availability.

### April 26–27, 2011 in Madison:

The course will be held at The Pyle Center, 702 Langdon Street, Madison, Wisconsin. Phone messages: 608-262-1122.

We have reserved a block of sleeping rooms (\$106 single/\$116 double, including airport shuttle, pool, and exercise room) for course participants at the Madison Concourse Hotel and Governor's Club, One West Dayton Street, Madison, Wisconsin. To reserve a room, call 800-356-8293 or 608-257-6000 and indicate that you will be attending this course under group code 71225. Room requests made later than March 30 will be subject to availability. Your enrollment confirmation will include other hotel/motel information.

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