CTE National Broadcast Series
Program No. TC-45

Best Practices in Addressing NPDES and Other Water Quality Issues in Highway System Management: Results of a U.S. Domestic Scan Tour

Live Video Webcast
Thursday, March 25, 2010
1:00 PM – 4:00 PM Eastern Time

Presented in partnership with the Federal Highway Administration and webcast from the studios of NC Agency for Public Telecommunications, Raleigh, North Carolina

Register for the Webcast
www.cte.ncsu.edu/cte/TechTransfer/Teleconferences/web_register.asp

Login to the Webcast
www.cte.ncsu.edu/cte/TechTransfer/Teleconferences/webcast_login.asp

Questions for Panelists
During the live webcast, email your questions to cte_email@ncsu.edu

Prior to the webcast, post your questions on the Pre-Broadcast Forum at www.cte.ncsu.edu/cte/techtransfer/teleconferences/forum/default.asp

CTE Broadcast Evaluation
Your comments and suggestions are important to us. Following the broadcast, please take a moment to complete the online evaluation form at www.cte.ncsu.edu/cte/TechTransfer/Teleconferences/evaluation.asp

Thank you for your participation!
WEBCAST PROGRAM AGENDA

Best Practices in Addressing NPDES and Other Water Quality Issues in Highway System Management: Results of a U.S. Domestic Scan Tour
Thursday, March 25, 2010, 1:00 PM – 4:00 PM Eastern Time

Login at [www.cte.ncsu.edu/cte/TechTransfer/Teleconferences/webcast_login.asp](http://www.cte.ncsu.edu/cte/TechTransfer/Teleconferences/webcast_login.asp)

<table>
<thead>
<tr>
<th>TIME</th>
<th>SEGMENT</th>
<th>PRESENTER</th>
</tr>
</thead>
<tbody>
<tr>
<td>12:30 PM ET</td>
<td>Webcast Test Period for Participant Login</td>
<td>Scott Taylor, RBF Consulting, Karuna Pujara, Maryland SHA, David Harris, North Carolina DOT</td>
</tr>
<tr>
<td>1:00 - 1:05</td>
<td>Welcome and Introduction of Panelists</td>
<td>Scott Taylor, Andy McDaniel, North Carolina DOT</td>
</tr>
<tr>
<td>1:05 - 1:20</td>
<td>Overview of Scan Tour Program and Presentation of Major Findings</td>
<td>Scott Taylor</td>
</tr>
<tr>
<td>1:20 - 1:35</td>
<td>Program Area 1 – Total Maximum Daily Loads (TMDLs): Discussion of Results and DOT Case Study</td>
<td>Scott Taylor, Andy McDaniel</td>
</tr>
<tr>
<td>1:35 - 1:50</td>
<td>Program Area 2 – Source Control and Stormwater Best Management Practices (BMPs): Discussion of Results and DOT Case Studies</td>
<td>Scott Taylor, Karuna Pujara, David Harris</td>
</tr>
<tr>
<td>1:50 - 2:20</td>
<td>Questions from Webcast Participants</td>
<td>All Panelists</td>
</tr>
<tr>
<td>2:20 - 2:30</td>
<td>Break</td>
<td>Scott Taylor, Karuna Pujara, Ken Pace, North Carolina DOT, Matt Lauffer, North Carolina DOT</td>
</tr>
<tr>
<td>2:30 - 2:35</td>
<td>Welcome and Re-Introduction of Panelists</td>
<td>Scott Taylor, Karuna Pujara, Ken Pace, North Carolina DOT, Matt Lauffer, North Carolina DOT</td>
</tr>
<tr>
<td>2:35 - 2:50</td>
<td>Program Area 3 – Agency Procedures and Reporting Practices: Discussion of Results and DOT Case Studies</td>
<td>Scott Taylor, Karuna Pujara, Ken Pace</td>
</tr>
<tr>
<td>2:50 - 3:05</td>
<td>Program Area 4 – Regulatory Communication and Permitting: Discussion of Results and DOT Case Studies</td>
<td>Scott Taylor, Matt Lauffer, Rachel Herbert</td>
</tr>
<tr>
<td>3:05 - 3:35</td>
<td>Questions from Webcast Participants</td>
<td>All Panelists</td>
</tr>
<tr>
<td>3:35 - 3:40</td>
<td>Break</td>
<td>Scott Taylor</td>
</tr>
<tr>
<td>3:40 - 3:50</td>
<td>Assessing the Strength of Stormwater Programs and Performance Metrics for Successful Programs</td>
<td>Scott Taylor, Rachel Herbert, Bryan Smith, FHWA Resource Center</td>
</tr>
<tr>
<td>3:50 - 3:55</td>
<td>Upcoming Events, Reference Materials, and Opportunities to Participate in the National Dialogue</td>
<td>Brian Smith, Rachel Herbert</td>
</tr>
<tr>
<td>3:55 - 4:00</td>
<td>Closing Remarks, Thanks and Program Credits</td>
<td>Scott Taylor</td>
</tr>
<tr>
<td>4:00 PM ET</td>
<td>Program Adjourns</td>
<td>Scott Taylor</td>
</tr>
</tbody>
</table>
**PANELIST PROFILES**

**Scott Taylor, P.E.** (Webcast Moderator and Subject Matter Expert)
Senior Vice President  
RBF Consulting, Carlsbad, CA  
staylor@rbf.com  

Scott Taylor is a Senior Vice President with RBF Consulting headquartered in Irvine, CA. Taylor earned a Bachelor’s degree in Civil Engineering from California State Polytechnic University at Pomona, and a Master’s degree in Civil Engineering from California State University at Long Beach, both with an emphasis in water resources engineering. He has more than 24 years of experience in flood control engineering and surface water quality. Taylor has taught undergraduate courses in hydrology and hydraulic design at the University of California at Irvine and California State University at Long Beach as well as continuing education courses in BMP design for the American Society of Civil Engineers. He is a Professional Engineer and also serves as an instructor and course coordinator for a Professional Engineer license review course. Taylor has completed stormwater research projects for municipalities, counties, and DOTs. He has completed flood control and stormwater quality infrastructure design projects throughout the Southwest and specializes in highway drainage and stormwater quality design. He has completed stormwater quality design projects throughout the Southwest for land development projects, roadways, toll ways, freeways, and other public works infrastructure. Taylor is an ASCE Fellow and a Registered Civil Engineer in California, Nevada, Arizona, Utah, and Tennessee. He provided a short course in construction and post-construction stormwater quality for the Government of Hong Kong. He has also provided stormwater training courses for states, municipalities, and private companies in California, Nevada, Arizona, and Tennessee. Taylor is Vice Chair and a member of the Board of Directors for the California Stormwater Quality Association.

**David Harris, P.E.**  
State Roadside Erosion Control and Vegetation Management Engineer  
Roadside Environmental Unit  
North Carolina Department of Transportation, Raleigh, NC  
davidharris@ncdot.gov  

David Harris is an engineering manager for the North Carolina DOT’s Roadside Environmental Unit. He is responsible for supervising the sections of the Unit that perform the preconstruction design aspects of erosion and sedimentation control as well as the vegetation management components that are utilized along the 78,000 miles of highway throughout the state. A graduate of North Carolina State University, Harris is a registered Professional Engineer in North Carolina, a Certified Professional in Erosion and Sediment Control, and a Certified Professional in Storm Water Quality. He is currently involved in implementing new erosion and sediment control technologies to the department’s construction operations as well as developing a sustainable landscape program known as C-ZIP to the department’s right-of-ways.

**Rachel Herbert**  
Physical Scientist, Water Permits Division  
U.S. Environmental Protection Agency, Washington, D.C  
herbert.rachel@epa.gov  

Rachel Herbert is a physical scientist in the U.S. EPA’s Office of Wastewater Management in Washington, D.C. She is currently a member of the National Pollutant Discharge Elimination System (NPDES) stormwater permitting team and focuses on stormwater issues pertaining to municipal and transportation facilities. She previously worked for the U.S. Department of Agriculture at the Beltsville Agriculture Research Center, where she participated in various
projects examining best management practices to control agricultural runoff. She has a Master of Science in Marine Estuarine Environmental Science and a Bachelor of Science in Natural Resources Management, both from the University of Maryland at College Park.

Matthew Lauffer, P.E.
Project Manager
Highway Stormwater Program, Hydraulics Unit
North Carolina Department of Transportation, Raleigh, NC
mslauffer@ncdot.gov
Matt Lauffer is a project manager for the North Carolina DOT Hydraulics Unit. He manages the NCDOT HSP, which complies with the department’s NPDES Statewide Stormwater Permit. The HSP manages stormwater runoff from 78,000 miles of highway through 14 program areas. Lauffer is a committee member of the Transportation Research Board’s Committee on Hydrology, Hydraulics, and Water Quality (AFB60). He holds a Bachelor of Science in Civil Engineering from The Ohio State University and has done graduate work in Remote Sensing and Geoinformation Systems at the University of Michigan. Before joining NCDOT in 1998, Lauffer worked with the U.S. Geological Survey Water Resources Division and a private engineering firm. He is a registered Professional Engineer in North Carolina.

Andrew McDaniel
Project Engineer, Water Quality Assessment
Highway Stormwater Program, Hydraulics Unit
North Carolina Department of Transportation, Raleigh, NC
amcdaniel@ncdot.gov
Andy McDaniel works in the NCDOT Highway Stormwater Program and assists with managing compliance activities for the Department’s statewide NPDES permit. In this capacity a primary focus of his work is supporting the NC Division of Water Quality in their TMDL development efforts from a transportation perspective, as well as developing policies and procedures for integrating the NCDOT’s permit compliance activities with TMDL wasteload allocations. Before joining the NCDOT in 2004, McDaniel worked in private consulting specializing in watershed-based restoration planning, and with the NC Division of Water Quality’s Modeling and TMDL Unit developing TMDLs and NPDES permit limits for WWTPs. He holds Bachelor degrees in Biology and Environmental Engineering from North Carolina State University.

Kenneth Pace, P.E.
State Environmental Operation Engineer
Roadside Environmental Unit
North Carolina Department of Transportation, Raleigh, NC
kpace@ncdot.gov
Ken Pace is an engineering manager for the North Carolina Department of Transportation’s Roadside Environmental Unit. He is responsible for managing the Unit’s Environmental Operations and Rest Area sections. The Environmental Operations section is tasked with coordinating the field implementation of the Department’s NPDES Stormwater Permit components throughout its construction and maintenance activities. The Rest Area section provides statewide management and consistency functions for the planning, construction, and maintenance of NCDOT rest area facilities. A graduate of North Carolina State University, Pace is a registered Professional Engineer in North Carolina and a Certified Professional in Erosion and Sediment Control.
Karuna Pujara, P.E.
Chief, Highway Hydraulics Division
Office of Highway Development
Maryland State Highway Administration, Baltimore, MD
kpujara@sha.state.md.us

Karuna Pujara has twenty-five years of experience in Civil Engineering with a focus in hydrologic and hydraulic analysis and design of hydraulic structures. She has worked with the Maryland State Highway Administration for the past sixteen years and is currently Division Chief of the Highway Hydraulics Division. Pujara has a Masters of Environmental and Water Resource Engineering and is a registered Professional Engineer. Her experience includes storm drain culvert analysis and design, channel hydraulic studies, storm water management (SWM), erosion and sediment control (ESC) design, watershed studies, Non-point Discharge Elimination System (NPDES) permitting and program, stream stabilization projects, pump station design, technical review of projects, consultant contract procurement, consultant management and division management of twenty-five full-time Civil Engineers. In her current position Pujara manages an annual budget of $12M to $15M for Storm Water Management facilities, NPDES efforts, and drainage improvement projects statewide for highways.

Brian Smith (Co-Chair of Scan Team)
Biology/Water Quality Specialist
Federal Highway Administration Resource Center, Olympia Fields, IL
bsmith@dot.gov

Brian Smith serves as Ecologist on the FHWA Resource Center Environment Technical Service Team and provides technical assistance, training, and technology deployment in soil ESC (SESC) and other environmental areas. Smith participated in a SESC peer exchange in September 2008 and observed the SESC programs and practices of Minnesota and Wisconsin DOTs. His experience includes stream bank and trail stabilization work with the U.S. Department of Agriculture Forest Service in Park Falls, WI, and construction inspection with U.S. Army Corps of Engineers, Chicago District, where he managed an Interagency Coordination Agreement (ICA) with local Soil and Water Conservation Districts to review SESC plans submitted under Section 404 permit applications. He also has five years of construction field experience with the Illinois DOT as an engineering technician. Smith earned a Bachelor's degree in Biological Sciences from Illinois State University and a graduate degree in Geology from Northern Illinois University. He is a Certified Professional in SESC (CPSESC) and a Certified Professional in Stormwater Quality (CPSWQ), and serves on the Transportation Research Board Committee AFP40 – Physicochemical and Biological Processes in Soils.
WEBCAST TECHNICAL INFORMATION

Best Practices in Addressing NPDES and Other Water Quality Issues in Highway System Management: Results of a U.S. Domestic Scan Tour
Thursday, March 25, 2010, 1:00 – 4:00 PM ET

Login at [www.cte.ncsu.edu/cte/TechTransfer/Teleconferences/webcast_login.asp](http://www.cte.ncsu.edu/cte/TechTransfer/Teleconferences/webcast_login.asp)

<table>
<thead>
<tr>
<th>Email Questions for Panelists</th>
<th><a href="mailto:cte_email@ncsu.edu">cte_email@ncsu.edu</a> (during live webcast)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Webcast Technical Support</td>
<td><a href="mailto:ctetechsupport@ncsu.edu">ctetechsupport@ncsu.edu</a> (send email describing your issue for faster response) or call (919) 515-8657</td>
</tr>
<tr>
<td>Webcast Tips &amp; FAQs</td>
<td><a href="http://www.cte.ncsu.edu/cte/TechTransfer/Teleconferences/tips.asp">www.cte.ncsu.edu/cte/TechTransfer/Teleconferences/tips.asp</a></td>
</tr>
<tr>
<td>Download the latest version of Windows Media Player</td>
<td><a href="http://www.microsoft.com/windows/windowsmedia/default.mspx">www.microsoft.com/windows/windowsmedia/default.mspx</a></td>
</tr>
<tr>
<td>Instructions on Viewing Closed Captions in Windows Media Player</td>
<td><a href="http://www.cte.ncsu.edu/CTE/TechTransfer/Teleconferences/webcast_files/captions.asp">www.cte.ncsu.edu/CTE/TechTransfer/Teleconferences/webcast_files/captions.asp</a></td>
</tr>
</tbody>
</table>

To Listen to Program Audio via Phone Bridge

1. Dial the toll-free conferencing access number: (866) 427-0083.
2. Dial the conferencing room number: * 8528560 *
   **NOTE:** The * Star key must be pressed before and after the room number.
3. Wait to be added to the conference.
4. Please mute your phone mic and **DO NOT** place your phone on hold; there may be music/background sounds on your phone system that would be heard by others connected to the bridge.

   **NOTE:** The phone bridge is **not required** to listen to the webcast; both the audio and video are transmitted over the Internet. Use the phone bridge if your computer does not have an audio card or speakers.

After the Broadcast Discussion Forum

Questions from participants not answered during the live webcast will be posted here for response from the panelists within a few days following the webcast: [www.cte.ncsu.edu/cte/techtransfer/teleconferences/forum/default.asp](http://www.cte.ncsu.edu/cte/techtransfer/teleconferences/forum/default.asp)

Webcast Archive and Transcripts

A video recording and transcript of this live webcast will be posted here within a few days following the program date: [www.cte.ncsu.edu/CTE/TechTransfer/Teleconferences/archive.asp](http://www.cte.ncsu.edu/CTE/TechTransfer/Teleconferences/archive.asp)
FOR MORE INFORMATION

Best Practices in Addressing NPDES and Other Water Quality Issues in Highway System Management: Results of a U.S. Domestic Scan Tour

The following is a sampling of websites, published literature, and other resources relating to the program topic. We hope you find these resources helpful.

Websites and Literature

- US EPA MS4 Program Evaluation Guidance
- International Stormwater BMP Database
  [www.bmpdatabase.org](http://www.bmpdatabase.org)
- National Highway Runoff and Data Methodology Synthesis (USGS/FHWA)

Ongoing Research

- Highway Runoff Predictive Procedures – SELDM
  Currently under review and testing; is not yet accessible to the public
- NCHRP 25-31 – Guidelines for Evaluating and Selecting Modifications to Existing Roadway Drainage Infrastructure to Improve Water Quality in Ultra-Urban Areas
  [http://144.171.11.40/cmsfeed/TRBNetProjectDisplay.asp?ProjectID=1642](http://144.171.11.40/cmsfeed/TRBNetProjectDisplay.asp?ProjectID=1642)
- NCHRP 25-25, Task 56 – Cost and Benefit of Transportation Specific MS4 and Construction Permitting
  [http://144.171.11.40/cmsfeed/TRBNetProjectDisplay.asp?ProjectID=2617](http://144.171.11.40/cmsfeed/TRBNetProjectDisplay.asp?ProjectID=2617)

Upcoming Conferences

- Connecting the DOTs through Collaboration in Stormwater Management
  April 27-29, Denver, Colorado
- National Hydraulics Engineering Conference
  August 31- Sept. 3, Park City, Utah
  [www.udot.utah.gov/nhec](http://www.udot.utah.gov/nhec)
- T&DI Green Streets and Highways Conference
  November 14-17, Denver, Colorado
  [http://content.asce.org/conferences/greenstreets-highways2010](http://content.asce.org/conferences/greenstreets-highways2010)

Training from the National Highway Institute

[www.nhi.fhwa.dot.gov](http://www.nhi.fhwa.dot.gov)

- Course #142047: Water Quality Management of Highway Runoff
- Course #142054: Design and Implementation of Erosion and Sediment Control