



Storm Water Phase II Public Outreach, Education, Involvement and Participation

Progress Report University of Rhode Island January 31, 2012

Reporting Period:	January 1, 2011 to December 31, 2011
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Project Period:	10/1/05 –12/31/11



Storm Water Phase II Public Outreach, Education, Involvement and Participation

Progress Summary January 1 – December 31, 2011

Project Description

With funding from the Rhode Island Department of Transportation and oversight by the Rhode Island Department of Environmental Management (RIDEM), the University of Rhode Island Cooperative Extension (URI) and the Southern Rhode Island Conservation District (SRICD) has developed public education materials, outreach methods and related tools to assist the RI Department of Transportation (RIDOT), Rhode Island municipalities, and other groups implement effective stormwater management programs. This education and outreach project has directly supported RIDOT and participating municipalities in complying with Phase II permit requirements.

The major project objectives were to:

- Promote public awareness of storm water impacts and control actions through a statewide media campaign;
- Develop educational materials and outreach methods for use by municipalities, state agencies, community organizations and others, in a readily accessible format;
- Provide model ordinances for local storm water management with related training; and
- Train government staff, local officials, and others in updated storm water management practices.

Major Accomplishments

A. State, Municipal and Private Sector Training

Organized and/or conducted **eleven** workshops/trainings, with supporting educational materials, outlined below:

Rhode Island Stormwater Design and Installation Standards Manual

Developed five new, major workshops on the *RI Stormwater Design and Installation Standards Manual* for MS4s. URI organizational support included workshop planning with state partners and trainers, publicity and registration materials, on-line registration, meeting arrangements, and managing contracts for training services:

- *RI Stormwater Design and Installation Standards Manual: Workshop Part #1 – Using the Revised Manual* (January 13, 2011; URI Kingston Campus). Copies of the Standards Manual were made available to state agency staff, MS4s, and other attendees..
- *RI Stormwater Design and Installation Standards Manual: Workshop Part #2 – Overview of BMP Construction and Maintenance* (January 19, 2011; URI Kingston Campus). This

program also featured displays of stormwater management products and services by private sector vendors and non-profit organizations.

- *RI Stormwater Design and Installation Standards Manual: Workshop Part #3 – A Detailed Look at the Required Sizing Calculations and Critical Elements of BMP Design* (March 22, 2011; URI Kingston Campus)
- *RI Stormwater Design and Installation Standards Manual: Workshop Part #4 – A Detailed Look at the Required Specifications and Measures for BMP Construction and Maintenance* (March 24, 2011; URI Kingston Campus) **LID for Linear Transportation Projects: Using the RI Stormwater Design and Installation Standards Manual to Design Green Streets** (a one-day training **held twice** on July 13 and August 25, 2011; RIDOT Training Facility, Warwick RI). Designed specifically for RIDOT staff and their consultants, this featured extensive case studies of roadway LID applications for new construction and redevelopment.

Stormwater Utility Districts

A three-part workshop series on Stormwater Utility Districts was organized by RIDEM in cooperation with Save the Bay, URI, RIDOT and other partners. URI support included workshop planning, publicity materials, extensive outreach to media outlets, registrations, hosting meeting one, and managing fees and travel expenses for invited speakers.

- *A New Approach to Financing Stormwater Management: Stormwater Utility Districts Workshop #1 – Managing Stormwater in Tough Budget Times* (October 25, 2011; URI Bay Campus, Narragansett, RI).
- *A New Approach to Financing Stormwater Management: Stormwater Utility Districts Workshop #2 – Success Stories From New England* (November 17, 2011; Johnson & Wales University, Providence, RI)
- *A New Approach to Financing Stormwater Management: Stormwater Utility Districts Workshop #3 – Stormwater Utilities: Rhode Island Moves Forward (scheduled for January 26, 2012, RI League of Cities and Towns Annual Conference, Warwick, RI)*

Rain Garden Training and Installation

Created a new RI Rain Garden Training and Installation training program for landscapers and MS4s and held twice. This 1 ½ day program included classroom instruction and hands-on construction of a rain garden. RI NEMO customized training materials for Rhode Island in cooperation with staff of Rutgers University and University of Connecticut.

- *RI Residential Rain Garden Training and Installation* (March 31/April 1, 2011; Roger Williams Park Botanical Center, Providence RI); Of 59 participants, 25 earned a certificate of completion.
 - This included design and installation of a 407-square-foot rain garden on the Roger Williams Park Botanical Center grounds in collaboration with the Providence Parks Department and CT NEMO.
 - Trainees affiliated with GroundWorks Providence completed their field training by installing a second 320 square-foot rain garden at the Manton Heights Housing

Development in Providence, RI under the direction of Gates, Leighton Associates in partnership with GroundWorks Providence.

- URI staff helped supervise trainees, assist with the installation, and coordinated with EPA on creation of a video, featured at the EPA Greenscapes home page at: <http://www.epa.gov/region1/topics/waste/greencapes.html>

- *RI Residential Rain Garden Training and Installation* (October 27/28, 2011; West Greenwich Library /Community Center); Of 28 participants, 16 earned a certificate of completion.
 - The Town of West Greenwich collaborated with URI to design and install a 200 square-foot rain garden at the Louttit Library in West Greenwich, RI.
 - NEMO developed a factsheet about the West Greenwich rain garden for town officials and library/ town hall visitors. The factsheet was also distributed as part of a self-guided field tour of the rain garden site for the Soil Science Society of Southern New England's annual meeting, held in West Greenwich, RI (Nov. 2, 2011).

- Produced a rain garden training module which consists of the *RI Residential Rain Garden Training Manual*, supporting documents, and a rain garden training content examination. Attendees who chose to take the exam and successfully completed it, were awarded a certificate of completion.
 - The Manual includes:
 - all presentations from the training;
 - site assessment checklist;
 - summary factsheet on rain gardens;
 - site assessment procedure; and
 - supporting soils information.

During the process of drafting the module, we conducted a comparative review of standards for small-scale rain garden sizing and design and provided recommendations to the Coastal Resources Management Council (CRMC) and RIDEM on our findings. As a result, CRMC section 300.6 (later developed into the *State of Rhode Island Stormwater Management Guidance for Individual Single-Family Residential Lot Development*) was significantly revised and expanded to include many of our recommendations.

Presentations and selected materials from the workshops listed above, and other previous workshops, can be accessed by visiting the Workshops page, linked from: <http://www.uri.edu/ce/wq/NEMO>.

Additional Presentations

- Integrating LID Education into the URI Natural Resources Science curriculum: Art Gold and Lorraine Joubert updated and conducted a class on LID Stormwater Management for Dr. Art Gold's NRS 361 Watershed Hydrology course in November 2011. This three-hour lab, created and first offered in 2010, included a tour of stormwater practices at the Center for Biotechnology and Life Science Building, class instruction, and a field exercise in rain garden design. Approximately 25 students participated time. This class will be offered annually.
- Summary of the Stormwater Solutions project and resources available, presented by Lorraine Joubert, MA Audubon workshop, *Putting Stormwater in its Place in Southeastern Massachusetts*, Dighton, MA (April 20, 2011).

- Summary of the RI Stormwater Solutions project by Lorraine Joubert at a RIDEM/Save the Bay stakeholder meeting on the topic of the Westerly TMDL (May 4, 2011).
- “Code Blue Implementation, RIStormwaterSolutions.org,” presented by Lorraine Joubert as part of a panel on municipal Phase II implementation at the Southern New England American Planning Association annual meeting in Providence, RI (October 20, 2011).
- “Managing Stormwater to Protect Drinking Water,” presented by Lorraine Joubert at the EPA/URI-sponsored workshop, *Communities Protecting Drinking Water Sources*, in North Kingstown, RI (Dec. 1, 2011).

Additional Workshop Planning

Offered support with workshop planning and publicity for stormwater workshops sponsored by RIDEM and others, including: review of materials for the DEM ERP Construction Site Stormwater Compliance Self Certification Program; planning for the EPA Bioretention Training program scheduled for spring, 2012; and publicity for the GridTech *Informational meeting for RI municipalities on use of innovative materials for local stormwater management* (August 20, 2011).

Model Ordinances and Enforceable Policies

The 3-Part Stormwater Utility Workshop Series was designed to support adoption of utility districts as a means of creating a steady and reliable source of funding for municipal stormwater management programs.

B. Statewide Stormwater Education Campaign

This year we expanded statewide outreach on stormwater problems and solutions in response to input from municipal stormwater managers received primarily through workshop discussions and/or evaluation forms. MS4 managers frequently noted that tight budgets and/or staff cutbacks severely limit their ability to educate residents about stormwater issues. They suggested that URI assume a greater role in getting the message out directly to the public, rather than rely on municipal staff to distribute materials created.

Mass Media Efforts

- Rejuvenated the statewide campaign to raise awareness of stormwater problems and solutions through “free” media outlets. This included contributing a series of stormwater-related articles to various publications, including:
 - “A New Way of Doing Business” to *Watershed, A Newsletter of the Wood Pawcatuck Watershed Association*, Vol. 27, No. 3, released March 2011
 - “Know Where It Goes: Helping Communities Be A Part of the Stormwater Solution” to the *Narragansett Bay Journal*, Issue #18, Spring 2011
 - “Lorraine Joubert: How to Prevent Filthy Storm Runoff From Polluting the Bay,” *Providence Journal*, June 29, 2011*
 - “Make Smart Moves as the Seasons Change” to *Watershed, A Newsletter of the Wood Pawcatuck Watershed Association*, Vol. 28, No.2, Summer 2011
 - “State, Stormwater Solutions Working for Safe Water” to *The Interchange*, Vol. 6, No. 3, Fall 2011

- “RI Cartoonist Lends Style to Stormwater Project” to *The Interchange*, Vol. 6, No. 3, Fall 2011 and “Don Bousquet Creates Cartoons for Cleaner Water” to GoLocalProv.com, September 13, 2011
- “RI Greening the Impacts of Development and Construction” to The Interchange, planned for Spring 2012
- “Paying for Paving: A Fair Way to Cleaner Water” to *Providence Journal*, publication pending

*This op-ed piece was also picked up by seven other publications: Narragansett Times (July 1, 2011); South County Independent (June 30, 2011); Newport Daily News (July 7, 2011); Newport Patch (June 29, 2011); Middletown Patch (June 29, 2011); Portsmouth Patch (June 29, 2011); EcoRI.org (July 1, 2011).

- Presented information to publications that led to multiple articles about stormwater and mentions of the project, including:
 - “Five Questions with Lorraine Joubert,” by Chris Barrett in *Providence Business News* (July 25, 2011)
 - “Watershed Action on the Island, Part 1 of a 2-Part Series,” by Jill Connors in *Newport This Week* (July 14, 2011)
 - “Island’s Watershed Council Takes Aim at Runoff, Part 2 of a 2-Part Series,” by Jill Connors in *Newport This Week* (July 21, 2011)
 - “Scouts Build Rain Garden to Improve Water Quality,” in North Kingstown Chamber of Commerce (July 2011)
 - “Eagle Scout Project Aims to Reduce Dirty Water Polluting the Bay,” by Elis Burroughs in North Kingstown Patch (July 10, 2011)
 - “LID Education Campaign Continues,” in *RI Builders’ Report* (July 2011)
 - “Will Middletown Get Rhode Island’s First Storm-water Utility?” by Lynne Tungett in *Newport Now!* (July 14, 2011)
 - “Will Middletown Get Rhode Island’s First Storm-water Utility?”, by Lynne Tungett, *Newport Now!* (July 14, 2011)
 - “Stormwater Management, What’s All The Buzz About” in *Watershed, A Newsletter of the Wood Pawcatuck Watershed Association*, Vol. 28, No. 2, Summer 2011
 - “Westerly Explores a Stormwater Utility” in *The Westerly Sun*, August 22, 2011
 - “Paying for Stormwater Management” in *Providence Business News*, November 28, 2011
 - “The Scoop on Pet Waste at RI Beaches” in *Narragansett Bay Journal*, Winter 2011
 - “Clean Water Getting Help From Nature” in *Newport Daily News*, December 7, 2011
 - “Middletown Town Council Hears DEM Report on Stormwater Utility” in *Middletown Patch*, December 8, 2011
 - “RI Development Needs to be Low Impact” on EcoRI.org, December 19, 2011

- Continued to expand and develop the website (www.ristormwatersolutions.org) as a public information center for stormwater management, including working with a web designer to improve the functionality and appearance of the website.

- Continued to collaborate with the URI Master Gardener Program to deliver stormwater outreach to the public through presentations and use of the EnviroScape Model. 2011 presentations included
 - "A New Perspective: Improving the Environment from your Back Yard", presented by Hal Hultgren to the Charlestown Town Council to help support the Council's 2009 resolution to reduce use of harmful pesticides, herbicides and fertilizers on lawns and gardens. Mr. Hultgren reported attendance was "standing room only" and a town council member suggested he come back and deliver the talk annually.
 - A presentation and watershed model demonstration to the Kingston Hill Garden Club by Rosemary Smith on April 27, 2011.

Public Outreach at Farmer's Markets

- Explored a new way to reach the public and expand statewide stormwater education by specifically targeting farmer's markets and other outdoor events as a venue for sharing the EnviroScape® Watershed/Nonpoint Source Model. This consisted of a table display at local markets with stormwater information, using the EnviroScape model to attract all ages, but especially children with their parents. Use of the model in this way was also intended to encourage volunteer interest in training on the model in order to create a self-sustaining outreach program and to encourage greater use of it by educators across the state.

Created training materials for volunteers and created new outreach products to enhance the display, including:

- lawn signs to attract market-goers to the display;
- a new factsheet with actions that individuals can take to reduce stormwater pollution for distribution specifically at the display tables;
- sign-up sheets for borrowing the watershed model;
- Bousquet cartoon stickers with simple steps for kids

Demonstrated the model to approximately **500** people at nine different markets or festivals from July through October, on **17** different dates (generally half day each). This included six farmer's markets throughout the State (Richmond, Charlestown, Fisherman's Memorial State Park in Narragansett, North Kingstown, Goddard Memorial State Park in Warwick and the Pastore Complex Market in Cranston) and three state-wide events (Rhode Island Environmental Awareness Day at Narragansett Town Beach, Governor's Bay Day at Misquamicut Beach, and Explore Cranston Event at Cranston West High School).

Produced a summary document of the Farmer's Market EnviroScape® Model Outreach Efforts.

Youth Education

- Presented information about stormwater, the watershed model, and the lessons plans and resources available on the RI Stormwater Solutions website to science teachers at the Watershed Science for Educators course, taught by Denise Poyer (March 9, 2011).
- Purchased three additional EnviroScape® Watershed/Nonpoint Source models to expand the loan program for teachers and environmental educators. The model was loaned to five school districts in 2011 and four additional educators, the latter reaching non-profit audiences.

- Continued to collaborate with the URI Outreach Center Learning Landscape Program to provide stormwater education through use of the EnviroScape Model. The model was presented 46 different days to more than 2000 children, grades Pre-K through 5.
- Conducted EnviroScape® Model teacher training on September 17, 2011, with Project SMILE and the CE Outreach Center, for 28 elementary, middle, and high school teachers participating in the 2011-2012 Project SMILE Program. Project SMILE teachers are currently working with 320 students from six different school districts throughout Rhode Island, including Central Falls, Woonsocket, Pawtucket, West Warwick, North Kingstown, and South Kingstown.
- Through weekly SMILE club meetings and other learning experiences, including district-wide family science nights and scientific and career exploration field trips, at least 200 students have already worked with the model by the end of 2011. The remaining students are expected to work with the model in 2012. Additionally, in 2012, Project SMILE is planning to pilot the Rain Garden Service Project Guide and complete installation of a rain garden. Project SMILE intends to continue its collaboration with URI and use of the watershed model in its curriculum.
- Presented an Introduction to Low Impact Development for Coventry High School Envirothon students (Lorraine Joubert, Dec. 16, 2011), as part of their annual contest focusing on stormwater management.

Rain Gardens

- Created a *Rain Garden Service Project Guide*, a manual for high school students and organizations with additional resources for educators. This guide was created to reflect current rain garden standards and the resources that high school students would need to design, install, and publicize a rain garden.
- Produced *Rain Gardens: A Design Guide For Homeowners in Rhode Island*, a general interest brochure adapted from the University of CT.
- Provided technical assistance in February 2011 to Ryan McNaughton in planning his Eagle Scout rain garden construction project. Then assisted with publicity for the construction event, including press releases, design and production of a rain garden sign, and photo documentation.
- The URI Outreach Center began planning a Rain Garden Maintenance program for URI Master Gardeners, who will be trained to support local stormwater managers in routine care, maintenance and troubleshooting of public rain gardens. The training program is tentatively planned for Spring, 2012 depending on availability of resources. It is expected that Master Gardeners participating in the program will “adopt” a rain garden for up to one year, providing assistance to municipal staff with maintenance, training and technical support in rain garden care.

Municipal Outreach Materials and Methods

All materials developed for mass media, youth education, and other statewide outreach are available for municipal stormwater managers and others to use directly or adapt. In addition, the following support for local education and involvement was provided, often in response to requests for assistance by municipal staff.

- Updated and organized a packet of easy-to use educational materials, including seasonal articles (monthly tips) with short or long formats, fact sheets, and annotated cartoons for use by municipalities, stormwater managers, watershed organizations or other interested civic groups conducting stormwater outreach. The materials are designed to be mixed and matched for public events, use in newsletters, web sites or other outreach materials and are easily accessed on the RI Stormwater Solutions web site. These materials were used by municipalities (although we did not have the ability to track their use), watershed organizations, and news outlets included local papers, EcoRI and others.
- To promote awareness and acceptance of innovative stormwater management methods, we continued to maintain the RI web-based inventory of RI LID projects. In 2011 we added 31 profiles to the inventory and investigated an additional 29.
- Supported MS4 storm drain marking:
 - Helped coordinate a storm drain marking event in Westerly, with the URI Feinstein Center for Service Learning, and Save the Bay, to assist MS4s in meeting outreach requirements. Thirty-two students from URI 101, led by two Save the Bay staff members and NEMO student Kathryn Schortmann, marked 104 drains in the half mile area between High Street and Canal Street using Save the Bay markers labeled “Drains to River”. The Town of Westerly participated in planning and provided maps (September 10, 2011).
 - URI Facilities provided storm drain marking materials (including safety equipment, factsheets, and stencils) to the town of Tiverton in support of a local boy scout storm drain marking project.
- Coordinated with Jim Turek of the Richmond Conservation Commission about their March 29 Livestock Workshop in order to include South Kingstown residents.
- Researched livestock waste management issues for South Kingstown and provided assistance with their brochure about that topic.
- Revised and edited Charlestown’s pet waste brochure.
- Researched materials available for North Kingstown on the topic of homeowner associations responsible for the maintenance of stormwater BMPs. Also provided North Kingstown with two rotating webpage headers about stormwater which were added to the Town’s website.
- Provided information to Johnston about potential rain garden or bioretention sites as well as information about permeable materials such as porous asphalt.
- Drafted two LID factsheets, one for business owners and one for land developers.

D. Project Coordination and Staffing

Continued to coordinate activities with the project advisory committee and seek their review and input through email notices and meetings with project staff. Committee input and involvement was sought in development of each training program.

Maintained communication with communities and other MS4s participating in the project - known as the Local MS4 Committee, through email notices and workshops. Those e-mails have now been archived on the website at:

http://www.ristormwatersolutions.org/SW_progress.html#Comm_archive

Provided supporting documentation for EPA Project Audit in February 2011.

Coordinated extensively with RI DEM to align their Community LID Guidance document and training with the needs of MS4s and these project efforts. This included participation in advisory committee meetings, review of draft documents and submittal of comments.

NEMO staffing effort was reduced throughout the year due to the absence of Lisa Philo, who took medical leave for one month prior to her maternity leave, beginning in May 2011. That 6-week leave was followed by vacation leave until September 2011. She returned at approximately 5 hours/week at the end of September 2011. Lisa Hollister was hired in April 2011 to fill in for Lisa Philo during her absence and was retained through December 2011.

Kate Venturini was hired in January 2011 as a temporary part-time member to assist with the rain garden training program.

Chip Young, a Senior URI Communications Fellow, was hired as a temporary, part-time contract employee to refresh and expand the statewide stormwater education campaign.

Shawn Mayers was hired as a temporary, part-time contract employee to assist with research, writing, and design of educational materials to support the use of the updated Rhode Island Stormwater Standards, focusing on managing impacts using LID.

Several students were hired during the year to assist in well-defined projects while also assisting in workshop organization as necessary. They included: Jill Phillips, a graduate student, who supported the rain garden training; Mike Viola, a graduate student who updated and expanded the online LID inventory; and Kathryn Schortmann, an undergraduate, who organized and developed the stormwater outreach display at farmer's markets.

Project End Activities

With the project ending December 31, 2011, we have completed all required tasks, and this report summarizes all 2011 activities. As a more complete record of accomplishments we are preparing the following:

- Prepare a binder of all final products generated by the project.
- Update the RI Stormwater Solutions website with final materials. Expected completion date is February 29, 2012.

**Storm Water Phase II Public Outreach, Education, Involvement and Participation Project
Progress by Task January 1 – December 31, 2011**

A. Local Needs Assessment and Advisory Committee Development

Tasks Progress 2011

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|---|---|
| <p>1. Form and facilitate an advisory steering committee with input from DEM and DOT</p> <p>a) Maintain communication by email, mail and web meetings.</p> <p>b) Organize a work group of municipal and non traditional stormwater managers (local groups) responsible for implementation of Phase II measures.</p> | <p>a) Continued to communicate with target audiences about upcoming workshops. Those e-newsletters are archived at: http://www.ristormwatersolutions.org/SW_progress.html</p> <p>b) Task completed in 2007, except to continue to work with MS4s participating in the project (the local MS4 committee) group, generally by contacting them about training opportunities or offering specific assistance, when requested.</p> |
| <p>2. Conduct a needs assessment.</p> <ul style="list-style-type: none"> ▪ Review available stormwater mgt plans ▪ Survey municipal stormwater management capacity | <p>2. Task completed in 2007.</p> |

Task A Issues and Future Activities
Task A is complete.

B. State, Municipal and Private Sector Training Curriculum Development

Tasks Progress 2011

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|--|---|
| <p>1. Prepare a list of training needs based on 7 training topics (listed below) and the local needs assessment. Solicit review and comment from the advisory committee.</p> | <p>1. Task completed in 2006.</p> |
| <p>2. Prepare outlines of training modules and solicit review and comment from the</p> | <p>2.1) DEM Stormwater Manual training</p> |

advisory committee on the following training topics:

- 1) DEM Stormwater manual:
 - Overview of manual and standards;
 - Proper use of LID mgt practices; and
 - TR55 for LID application.
- 2) Public Outreach
 - Scope of the stormwater problem and impacts on local waters in urban, suburban and rural areas;
 - Methods for effective community education and outreach by municipalities.
- 3) Pollution Prevention and Good Housekeeping for Municipalities to include:
 - Public works facilities O&M;
 - Roadway stormwater system maintenance; and
 - Grounds management.
- 4) Illicit Discharge Detection and Elimination
- 5) Development and Amendment of Enforceable Policies:
 - Soil erosion and sed. control; stormwater utility districts.
 - Post-construction stormwater maintenance and re-development standards; pet waste.

RI Stormwater Design and Installation Standards Manual: Workshop Part #1 – Using the Revised Manual (Jan. 13, 2011);

Part #2 – Overview of BMP Construction and Maintenance (Jan. 19, 2011);

Part #3 – A Detailed Look at the Required Sizing and Critical Elements of BMP Design (Mar. 22, 2011)

Part #4 – A Detailed Look at the Required Specifications and Measures for BMP Construction and Maintenance (Mar. 24, 2011)

LID for Linear Transportation Projects: Using the RI Stormwater Design and Installation Standards Manual to Design Green Streets (held twice: Jul. 13 and Aug. 25, 2011)

RI Residential Rain Garden Training and Installation (Mar. 31/Apr. 1 at Roger Williams Park Botanical Center and Oct.27/28 at West Greenwich Library)

2.2) Public outreach

Produced a rain garden training module, which is summarized in the *RI Residential Rain Garden Training Manual*. During the process of drafting the module, conducted a comparative review of standards for small-scale rain garden sizing and design and provided recommendations to the CRMC and RIDEM. As a result, CRMC Section 300.6 was revised and expanded.

Developed rain garden training content examination so that attendees at the training could be awarded a certificate of completion.

Produced *Rain Gardens in Rhode Island*, a design guide for homeowners.

Updated and organized a packet of easy-to-use educational materials, including seasonal articles (monthly tips) with short or long formats, fact sheets, and annotated cartoons for use by municipalities, stormwater managers, watershed organizations, or other interested civic groups conducting stormwater outreach. The materials are designed to be mixed and matched for public events, use in newsletters, websites, or other outreach materials and are easily accessed on the RI Stormwater Solutions website.

Integrated LID Education into the URI Natural Resources Science Curriculum. Updated and conducted a class on LID Stormwater Management for Dr. Art Gold's NRS 361 Watershed Hydrology course in Nov. 2011.

2.3) Pollution prevention and good housekeeping for municipal facilities

Completed in 2010.

2.4) Illicit discharge detection and elimination and related public education

Completed / DEM responsibility

2.5) Model ordinances and enforceable policies:

a) Model ordinances on post construction stormwater control and related public outreach

Assisted with the planning, publicity, and organization for a three-part workshop series:

A New Approach to Financing Stormwater Management: Stormwater Utility Districts Workshop #1 – Managing Stormwater in Tough Budget Times (Oct. 25, 2011)

A New Approach to Financing Stormwater Management: Stormwater Utility Districts Workshop #2 – Success Stories From New England (Nov. 17, 2011)

A New Approach to Financing Stormwater Management: Stormwater Utility Districts Workshop #3 – Stormwater Utilities: Rhode Island Moves Forward (to be held Jan. 26, 2012)

Supporting educational materials and outreach:

- Added 31 profiles to, and investigated and additional 29, for the web-based LID Inventory for Rhode Island.
- Drafted two LID factsheets, one for business owners and one for land developers.

b) Model ordinance on erosion and sediment control and related public outreach

Reviewed materials for the DEM Environmental Results Program Construction Site Stormwater Compliance Self-Certification Program.

6) Budget planning: NEMO provided monthly budget reports with effort and expenditures organized by project objective. This included progress summaries for each reporting period.

7) DOT Training: *LID for Linear Transportation Projects: Using the RI Stormwater Design and Installation Standards Manual to Design Green Streets* (held twice: Jul. 13 and Aug. 25, 2011)

Task B Issues and Future Activities

- Task B is completed.

C. Coordinated Stormwater Message for Use in Public Outreach

Tasks

Progress 2011

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| 1. Review and collect current outreach materials used in Rhode Island for | 1. Completed June 2006. |
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stormwater management (especially, FHWA, EPA, DOT and DEM materials).

2. Review national literature for comparative purposes and identify other appropriate outreach materials, messages and delivery methods.

2. Completed June 2006.

Continued to monitor national outreach materials through, the EPA library, NEMO National Network, the EPA NPS listserv, and other sources.
3. Prepare a consistent message for state agencies, communities and watershed organizations regarding why the public should be concerned about the impacts of stormwater on receiving waterbodies. Solicit review and comment from the advisory committee.

3. Completed in 2008, with the exception of continuing to update the messages based upon any new research findings.
4. Identify best available options for delivery of the messages and materials discussed in task 3 and 6.

4. Completed in 2009, with the exception of continuing to explore any improved or more relevant methods of delivery.
5. Deliver the consolidated state-agency message in task 3. Continue delivery of consolidated message.

5. Continued to expand and develop the website as a public information center for stormwater management, including working with a web designer to improve the functionality and appearance of the website.

Rejuvenated statewide campaign by contributing a series of stormwater-related articles to various publications, resulting in 13 separate publications authored by URI staff and at least 15 publications authored by others but referencing the Project. (Publication details are provided in the main section of the Report.)

Continued to collaborate with the URI Master Gardener Program to deliver presentations and use the EnviroScape Watershed/Nonpoint Source Model, resulting in at least 2 separate presentations.

Continued to collaborate with the URI Outreach Center Learning Landscape Program to provide stormwater education through use of the EnviroScape Model. The model was presented 46 different days to more than 2000 children, grades pre-K through grade 5.

Purchased 3 additional EnviroScape models to expand the loan program for teachers and environmental educators. The model was loaned to 5 different school districts and 4 additional educators, the latter reaching non-profits audiences.

Conducted EnviroScape Model teacher training (Sep. 17, 2011) with Project SMILE and the CE Outreach Center for 28 elementary, middle, and high school teachers. Project SMILE teachers are working with 320 students from 6 different school districts in RI. Through weekly SMILE Club meetings and other

learning events, at least 200 students have worked with the EnviroScape model. Project SMILE intends to continue its collaboration with URI and its use of the Model in its curriculum.

Added a rain garden focus to the public outreach by: creating the manual, *Rain Garden Service Project Guide*; providing technical assistance and publicity for an Eagle Scout rain garden construction project; designing and installing a rain garden at the Roger Williams Botanical Center; assisting with the installation of a rain garden at the Manton Heights Housing Development, and collaborating with the Town of West Greenwich to design and install a rain garden at the town library.

Presented RI Stormwater Solutions resources to science teachers at the Watershed Science for Educators course (Mar. 9, 2011).

Expanded the statewide campaign by targeting farmer's markets and other outdoor events as a venue for sharing the EnviroScape Model. Use of the model in this way was intended to encourage volunteer interest in training in order to create a self-sustaining outreach program. As part of this effort, created training materials and new outreach products. Demonstrated the model to approximately 500 people at 9 different venues during Jul. and Aug. 2011. Produced a summary document of the Farmer's Market EnviroScape Model Outreach Efforts.

Presented a summary of the RI Stormwater Solutions project and resources available at a MA Audubon workshop, Putting Stormwater in its Place in Southeastern Massachusetts (Apr. 20, 2011).

Presented "Code Blue Implementation, RIStormwaterSolutions.org" as part of a panel on municipal Phase II implementation at the Southern New England American Planning Association annual meeting in Providence, RI (Oct. 20, 2011).

Presented "Managing Stormwater to Protect Drinking Water" at the EPA/URI-sponsored workshop, Communities Protecting Drinking Water Sources in North Kingstown, RI (Dec. 1, 2011).

Presented an introduction to LID for Coventry High School Envirothon students as part of their annual contest focusing on stormwater management (Dec. 16, 2011).

6. Using the consistent message in task 3 as a starting point, develop source-specific contamination outreach messages and materials.

6. Revised and edited Charlestown's pet waste brochure.

Researched livestock waste management issues for South Kingstown and provided assistance with their brochure about that topic.

Coordinated with Richmond Conservation Commission about their March 29 Livestock Workshop in order to include South Kingstown residents.

Researched materials available for North Kingstown on the topic of homeowner associations responsible for the maintenance of stormwater BMPs. Also provided North Kingstown with two rotating webpage headers about stormwater which were added to the Town's website.

Provided information to Johnston about potential rain garden or bioretention sites as well as information about permeable materials such as porous asphalt.

Developed a rain garden factsheet specific to West Greenwich, and used it as part of a self-guided field tour for the Soil Science Society of Southern New England's annual meeting, held in West Greenwich, RI (Nov. 2, 2011).

Organized a storm drain marking event, with Save the Bay and URI Feinstein Center for Service Learning, to assist MS4s in meeting outreach requirements. Approximately 30 URI students participated in a storm drain marking day with the town of Westerly (Sep. 10, 2011), and they marked 104 drains.

Presented a summary of the RI Stormwater Solutions project and resources available at a RIDEM/Save the Bay stakeholder meeting on the topic of the Westerly TMDL (May 4, 2011).

7. Run a pre-survey followed up by post-survey after the outreach is conducted to see how effective the program was. Make adjustments to the outreach program as needed.

7. The pre-survey was completed in 2008. The post-survey was conducted in January 2009.

Task C Issues and Future Activities

Task C is complete.

D. Implementation Schedule, Evaluation and Assessment

Tasks

Progress 2011

1. Develop an implementation schedule each permit year for each set of tasks in the scope of work and solicit review and comment from the advisory committee.

1. URI met with DEM and DOT project staff to review the draft 2010 annual implementation schedule in August 2010. URI and SRICD also met to establish a subcontract with stormwater manual authors to develop and conduct training on the final standards manual. The SRICD subcontract was completed by Dec. 31, 2011.

2. Incorporate comments from the advisory committee and present to DOT and DEM for final approval.

2. DEM and DOT comments were incorporated and the annual plan updated in September 2010.

3. Draft annual evaluation and assessment reports for this scope of work each permit year and solicit review and comment from the advisory committee.

3. 2010 annual report prepared and submitted to the advisory committee. Summary of program effectiveness follows.

4. Incorporate comments from the advisory committee and present report to DOT and DEM

4. No substantive comments received from the advisory committee.

for final approval.

5. With assistance of advisory committee, adjust implementation schedule as needed based on annual evaluation. Provide any recommended changes to DOT/DEM for final approval

5. No substantive comments received from the advisory committee

Task D Issues and Future Activities

Task D is complete, although we plan to prepare two binders highlighting major products and accomplishments as well as trainings and workshops conducted under the auspices of this project.

2011 Project Evaluation Summary

MS4 Participation in the Phase II Stormwater Education and Outreach Project

Of the 45 MS4s (39 municipalities and 6 institutions) a total of 32 (71%) are officially participating the Stormwater Education and Outreach Project. However, most of the non-participating MS4s do attend workshops and information sessions and all receive our e-mails and notifications.

Mandatory training programs for MS4 staff included:

- *RI Stormwater Design and Installation Standards Manual: Workshop Part #1 – Using the Revised Manual* (January 13, 2011)
- *RI Stormwater Design and Installation Standards Manual: Workshop Part #2 – Overview of BMP Construction and Maintenance* (January 19, 2011)
- *RI Stormwater Design and Installation Standards Manual: Workshop Part #3 – A Detailed Look at the Required Sizing Calculations and Critical Elements of BMP Design* (March 22, 2011)
- *RI Stormwater Design and Installation Standards Manual: Workshop Part #4 – A Detailed Look at the Required Specifications and Measures for BMP Construction and Maintenance* (March 24, 2011)
- *A New Approach to Financing Stormwater Management: Stormwater Utility Districts Workshop #1 – Managing Stormwater in Tough Budget Times* (October 25, 2011)
- *A New Approach to Financing Stormwater Management: Stormwater Utility Districts Workshop #2 – Success Stories From New England* (November 17, 2011)

Workshop Descriptions

In an effort to reduce the number of attachments to this document, we ask that you consult the website, where detailed descriptions of all workshops can be found, in addition to materials presented, lists of attendees, and summaries of evaluations, when conducted.

Please visit: http://www.uri.edu/ce/wq/NEMO/Workshops-Support/Previous_Workshops.htm *

Workshop Effectiveness

RI Stormwater Design and Installation Standards Manual: Workshop Part #1 – Using the Revised Manual (January 13, 2011)

One hundred ninety-three (193) participants attended this workshop. A total of 31 MS4s were represented. The demographic composition of attendance was: Municipal: 42 (21.76%), Other MS4s: 5 (2.59%), State/Federal: 24 (12.43%), RIDOT: 14 (7.25%), Nonprofits: 4 (2.07%), Private Sector: 99 (51.29%), and Other: 5 (2.59%). The final attendance list is available on the NEMO website, provided above.

Of the 193 attendees, 102 returned a completed survey, a 53% response rate. Overall the participants of the workshop felt that the material presented was highly relevant to their work and would be useful for them. They also indicated that the exercises were generally useful, that they planned to share the information with others, and that they are better prepared to use the new standards. A complete summary of the evaluation data is provided on the NEMO website provided above.

RI Stormwater Design and Installation Standards Manual: Workshop Part #2 – Overview of BMP Construction and Maintenance (January 19, 2011)

One hundred sixty-six (166) participants attended this workshop. A total of 31 MS4s were represented. The demographic composition of attendance was: Municipal: 40 (23.80%), Other MS4s: 8 (4.76%), State/Federal: 22

(13.10%), RIDOT: 15 (8.93%), Nonprofits: 1 (0.60%), Private Sector: 80 (47.62%) and Other: 2 (1.190%). The final attendance list is available on the NEMO website, provided above.

Of the 166 attendees, 89 returned a completed survey, a 54% response rate. Overall the participants of the workshop felt that the material presented was highly relevant to their work and would be useful for them. They also indicated that the exercises were generally useful (although comments indicated that they could have been improved), that they planned to share the information with others, and that they are better prepared to use the new standards. Many respondents offered thoughtful and insightful comments about the workshops as well as about the manual in general. A complete summary of the evaluation data is provided on the NEMO website provided above.

RI Stormwater Design and Installation Standards Manual: Workshop Part #3 – A Detailed Look at the Required Sizing Calculations and Critical Elements of BMP Design (March 22, 2011)

One hundred twenty-four (124) participants attended this workshop. A total of 26 MS4s were represented. The demographic composition of attendance was: Municipal: 31 (25%), Other MS4s: 4 (3.23%), State/Federal: 14 (11.29%), RIDOT 13 (10.48%), Nonprofits: 0 (0%), Private Sector: 55 (44.35%), and Other: 6 (4.84%). The final attendance list is available on the NEMO website, provided above.

Of the 124 attendees, 61 returned a completed survey, giving a 49% response rate. Overall the participants of the workshop felt that the material presented was relevant to their work and would be useful for them. They also indicated that the exercises were generally useful, that they planned to share the information with others, and that they are better prepared to use the new standards. Many respondents offered thoughtful and insightful comments about the workshops as well as about the manual in general. A complete summary of the evaluation data is provided on the NEMO website provided above.

RI Stormwater Design and Installation Standards Manual: Workshop Part #4 – A Detailed Look at the Required Specifications and Measures for BMP Construction and Maintenance (March 24, 2011)

Ninety-two (92) participants attended this workshop. A total of 17 MS4s were represented. The demographic composition of attendance was: Municipal: 24 (26.09%), Other MS4s: 2 (2.17%), State/Federal: 11 (11.96%), RIDOT 11 (11.96%), Nonprofits: 2 (2.17%), Private Sector: 39 (42.39%), and Other: 3 (3.26%). The final attendance list is available on the NEMO website, provided above.

Of the 92 attendees, 32 returned a completed survey, giving a 35% response rate. Overall the participants of the workshop felt that the material presented would be useful for them. They also indicated that the exercises were generally useful, that they planned to share the information with others, and that they are better prepared to use the new standards. Many respondents offered thoughtful and insightful comments about the workshops as well as about the manual in general. A complete summary of the evaluation data is provided on the NEMO website provided above.

A New Approach to Financing Stormwater Management: Stormwater Utility Districts Workshop #1 – Managing Stormwater in Tough Budget Times (October 25, 2011)

Sixty-nine (69) participants attended this workshop. A total of 29 MS4s were represented. The demographic composition of attendance was: Municipal: 31 (44.93%), State/Federal: 10 (14.49%), Nonprofits: 9 (13.04%), Other: 9 (13.04%) Private Sector: 6 (8.7%), and Other MS4s: 4 (5.8%). The final attendance list is available on the NEMO website, provided above.

Of the 69 attendees, 29 returned a completed survey, giving a 42% response rate. The majority of attendees found this workshop to be relevant and meaningful. Perhaps most importantly to this workshop topic, the highest mean (4.32) is associated with question 7, "I plan to share this information with others". Twenty-six respondents ranked this question with a 4 or 5 out of 5, and several comments on the evaluation sheet indicate the attendees' intention to explore the topic of stormwater utilities within their communities. A complete summary of the evaluation data is provided on the NEMO website provided above.

A New Approach to Financing Stormwater Management: Stormwater Utility Districts Workshop #2 – Success Stories From New England (November 17, 2011)

Sixty-four (64) participants attended this workshop. A total of 26 MS4s were represented. The demographic composition of attendance was: Municipal: 37 (58.7%), Nonprofits: 9 (14.3%), State/Federal: 7 (11.1%), Other: 6 (9.5%), Private Sector: 3 (4.8%), and Other MS4s: 1 (1.6%). The final attendance list is available on the NEMO website, provided above.

Of the 64 attendees, 17 returned a completed survey, giving a 27% response rate. The majority of attendees found this workshop to be relevant and meaningful. The highest mean (4.47) is associated with question 6, "I have a better understanding of stormwater utility districts", which nearly all of the participants agreed or strongly agreed with. The majority of comments received were in response to question 9, "What was the most useful part of the program," to which nearly all of the respondents indicated hearing "real world" experiences in developing a stormwater utility district was most useful to them. A complete summary of the evaluation data is provided on the NEMO website provided above.

Note: The final attendance list and summary evaluations for each workshop held is provided on the NEMO website at Please visit: http://www.uri.edu/ce/wq/NEMO/Workshops-Support/Previous_Workshops.htm *

Web Documents

MS4 Participation List

This list was updated in January 2012.

http://www.ristormwatersolutions.org/SW_partners.html#ms4s

Materials Created by the Project

<http://www.ristormwatersolutions.org>

Workshop Descriptions

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Please visit: http://www.uri.edu/ce/wq/NEMO/Workshops-Support/Previous_Workshops.htm *

*In the event that this link changes in the future, please visit the NEMO homepage and follow the link to workshops.

Workshop Attendance Lists and Evaluations

Lists of attendees and summaries of evaluations, when conducted, are included with each workshop description and can be found by visiting:

http://www.uri.edu/ce/wq/NEMO/Workshops-Support/Previous_Workshops.htm *

*In the event that this link changes in the future, please visit the NEMO homepage and follow the link to workshops.