Summary of Survey Results
RI Stormwater Design and Installation Standards Manual:
Part #4 Detailed Specifications and Measurements for BMP
Construction and Maintenance Systems
March 24, 2011

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.

<table>
<thead>
<tr>
<th>Question</th>
<th>Strongly Disagree</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>Strongly Agree</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>4. This workshop was relevant and practical for my work.</td>
<td>0%</td>
<td>0%</td>
<td>3.1%</td>
<td>53.1%</td>
<td>43.8%</td>
<td>4.41</td>
</tr>
<tr>
<td>5. I will be able to use what I learned in this workshop.</td>
<td>0%</td>
<td>0%</td>
<td>6.3%</td>
<td>46.9%</td>
<td>46.9%</td>
<td>4.41</td>
</tr>
<tr>
<td>6. The exercises were useful.</td>
<td>21.9%</td>
<td>0%</td>
<td>12.5%</td>
<td>37.5%</td>
<td>28.1%</td>
<td>3.28</td>
</tr>
<tr>
<td>7. I plan to share the information I learned with others.</td>
<td>0%</td>
<td>0%</td>
<td>12.5%</td>
<td>43.8%</td>
<td>43.8%</td>
<td>4.31</td>
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<tr>
<td>8. I feel better prepared to use the new standards.</td>
<td>0%</td>
<td>0%</td>
<td>9.4%</td>
<td>50.0%</td>
<td>40.63%</td>
<td>4.31</td>
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</tbody>
</table>

9. What was the most useful part of the program?
Only 4 people did not respond to this question, and many people had very enthusiastic answers, some indicating that this workshop was better than any of the previous ones. Among all the respondents, the Q&A session was a particularly popular answer, as well as the panel discussions. It seems that most people like these segments because they get to have discussions with people who work in different areas. Many people mentioned that the specific examples of how the BMPs were designed, with pictures, and especially explanations of how they went wrong were very helpful. It was also commonly mentioned that direct and specific references to the manual and regulations was very beneficial.

Actual Responses:
- N/A
- Todays workshop was the most useful to me. Spending more time on each BMPs elements w/ application examples and photos was beneficial (and easier to follow)
- The panel session and the ‘q’&’a’ period
• Relating manual to existing projects and being able to answer question extremely well
• Examples, design
• Excellent illustrations of BMP components. Comparisons- how previously done (as w/ filter fabric under entire biorention basin) vs. updated specs and recommendations. Also, mention and examples of common pitfalls/ BMP failures from improper construction (or poor design application of BMP)
• Materials info; maintenance info. General Q+A
• Examples
• The open question portion of session w/ panel
• Q+A
• Infiltration
• Interesting hearing from the audience’s concerns/questions
• Specific theoretical examples of proper application of various different BMPs
• Q and A + design examples of previously designed BMPs
• Questions and Answers
• All good info
• Talking w/ other engineers and municipal/state officers about new regs/new manual and their interpretation of them
• Repeated information in a variety of formats
• Seeing samples
• Examples and experience, explanations and coordination with the manual/regulations
• Questions and Answers
• Samples and photos talking through real projects and issues that came up with solutions; panel discussions- very helpful! And Q/A sessions were great
• General Review and understanding
• The little tidbits about when required inspection points are; all of the slides were very informative, also the question and answer sessions were very good.
• Well-balanced…everything was relevant and presented well.
• The review of specific designs was most useful and the extended Q &A sessions.
• Examples of what went wrong, and construction site photos were very helpful. Like having handouts online prior to workshop. Panel discussion were great. Good discussions about maintenance most Las don’t design w/ that in mind! Inspection points- great to know!

10. What was the least useful part of the program?
15 people left this answer completely blank, and many mentioned that all of the information was useful or put n/a as an answer. There were very few redundant answers, mainly just that there was repeat information from previous workshops. 3-4 people made very specific comments, so it would be good to read the comments in this section individually.

Actual Responses:
• Some repeat material but it was reviewed quickly
• n/a
• n/a
• Going over examples in the book on Tuesdays (3/22/11). Different examples with complex constraints would provide valuable insight.
• It was all pretty useful
• Do not read directly from manual enough to get us more familiar w/ manual set-up/organization
• Going over previous covered material
• ?
• All Good info
• Questions to CRMC/RIDEM about specific projects being worked on now. Suggest a pre.application MTG w/ CRMC or RIDEM
• Fast review of slides
• Difficultly hearing audience questions
• n/a
• I heard complaints about mayo in sandwiches-fresh fruit would have been great!
• Should not use term gravel for stone, there was confusion between them. In construction will cause problems!
• It was all pretty useful for me- I hope you will post the slides on the website like you did for Tuesdays workshop
• The redundant review of some of the design specifications for the various stormwater practices (ie specs on bioretention mix, filter fabric pipes etc.)
• Reviewing details, specs that are in the manual at great length. Its helpful to say “here’s why we need to use washed stone…” but the list the sieve sizes is TMI for this format. Would have been nice to have a list of contact info for panelists.

12. How do you plan to use the information presented today, and is there anything you will do differently?
7 people did not answer this question and a few mentioned that they did not have any plans. Many of the answers indicate that they will be using the information while working on current and future projects, also mentioning that the information is very relevant to certain projects. Many of the people who work in private organizations mentioned bringing the information back to the office and sharing it with coworkers and employees. Many also said that the information would make them more aware or give them a better understanding in certain areas as opposed to directly applying the information to their work. Also, some particular examples are described that would be worth reading.

Actual Responses:
• I’ll be using it in evaluating submissions for planning approval
• Start looking at how to incorporate BMPs in town projects and new land dec.
• Will refer to notes and slide presentation once it is on the web as part of mr renew materials
• When I am assigned a project including new BMPs, will better know what to expect and inspect during construction/installation and plan/contract review-where specifications/requirements need to be made explicit to ensure contractor compliance- functional end product.
• Review of stormwater management plans and single family lot development thru our local ordinance.
• Take what I have learned to understand new and original requirements for road projects.
• It is relevant to current project reviews
• No immediate plans
• Present to my company during a training session
• As a guideline in the future designs and submissions to regulatory agencies. I feel like I have a better understanding of BMP options and how to design them. Will meet w/ RIDEM if needed to discuss projects before full design.
• Distribute to fellow designers in the office (private engineering firm) and implement in design of projects to which the manual would be applicable.
• Towards future projects
• Site designing
• I like to grow my skills and knowledge, keeping current is important as rules and regs. Change.
• Inform clients of the new requirements and design accordingly
• Reverse the contents of Tuesday and Thursday
• Will review specifications with more detail and request/require clients to provide see for service of construction admin. As part of future projects
• Projects in office are requiring present info
• Convey to my staff and clients how we must adapt to new manual and regs.
• Good way to jump start using the new manual.
• I will defiantly refer to design manual and notes from today for a project im working on, even though its not in RI
• I plan to use this information to help identify potential stormwater retrofits for existing developments to collaborate w/ towns on pursuing funding for these projects.
• Provide some meaningful input to various planning boards if and when developers start re-appearing
• I will use the info for updating my Land Development and subdivision regulations and the checklists. Also good for pre-construction meetings and just in general while reviewing plans.
• Working on several potential designs in town

13. What topics would you like to see addressed in future training?
12 people did not answer this question. Many of these answers have to do with future classes with updated information based on how the information in this workshop has been applied and used over time, and what complications and problems have arisen. Many seem to want to re-discuss the same topics after everyone has had time to use the information from these workshops. Many are also concerned about educating planning boards, developers, contractors, and government officials who may not be aware of new regulations. Many people also mentioned that they would like to see and hands on or on site segment of the workshop.

Actual Responses (municipal officials):
• No
• Urban, densely developed BMPs (ie Providence, Olneyville)
• Design examples; getting comfortable with and using new equations
• Training for developers, contractors, and planning commissions
• More in depth discussion involving LUHPPLs in urban settings. How can planning board members be convinced that they need to be aware of these new regulations and practices?
• How to get the mayor and council on board. How much this will cost to implement. How to enforce (and maintain). (municipal town engineer)
• With the down-turn in the economy, planning boards should have fairly “light” agendas...and therefore an hour or so to have a video-based presentation or powerpoint given during their meeting...in very broad terms:
  o MS4 training
  o LID training
  o Field tour of sites (1) under development, (2) recently completed, (3) completed a few years ago...or...create a GIS-based self guided tour of (1)(2) and (3) from above...with hyperlinked factsheets +/- detailed drawings...this would allow professionals to visit sites on their own under varying weather conditions.
• How best to ensure and enforce proper construction; hands on workshops for DPW and landscape contractors (for private sites) on how to maintain the bmps-team up w/ the T2 center!

(All Others: mostly engineers, some landscape architects and others)
• “sample” projects based on real-world (submitted for permit) projects of various types which demonstrate successful design and implementation of difficult BMPs. These projects could be presented in detail at ½-day workshops, as well as made available on the DEM/CRMC web sites.
• In the future, how current systems are doing and how designs held up. As suggested, meet back in a year or so to discuss problem areas in projects and submissions. Review any significant addendums or future changes to the manual
• Case studies of reviewing based on new regulations
• Manual application to road projects (DOT engineer)
• Updates on any proprietary BMPs once approved, should be on list servs
• Operational best practices, street sweeping and veg. management. This may have been covered at an earlier workshop, but I think it would be helpful to clarify new DEM/CRMC regs for designers and home owners (and for local regulators) it seems like a lot of people are not clear on this.
• It would be helpful to have a case study of a specific watershed that has had a TMDL completed for it and to highlight sites identified for stormwater management and what specific techniques could be used for retrofits
• How do towns adapt manual since state didn’t mandate this? What is MS4? When will there be more training? What is RIDES? Is there training? Who can clean out dry wells on private property?
• On site review of construction and planting and later maintenance.
• Site visits of implemented projects and review process + success and failures of overall process.
• Reviews for landscape architects, review planting zones.
• RIDEM/CRMC/municipalities MUST require designers of record to be inspectors of record and must mandate inspections

14. Parting thoughts and suggestions about what’s needed to move ahead with the new stormwater standards.
14 people who filled out evaluations left this questions blank, and many repeated or reinforced ideas that they had stated in previous questions. There were a number of concerns about the workshops being geared mostly towards designers, leaving contractors, planning boards, homeowners, etc. uneducated. Many suggested future workshops directed towards other groups besides designers. Many people also mentioned that onsite training as well as online support and information would be very helpful. There are also many individual comments and concerns about the content of the workshop.

**Actual Responses:**

- That CRMC/RIDEM can coordinate w/ RIDOT to develop a guide to use the concepts towards RIDOT projects that designers can use.
- (Also mentioned in previous question) See above- maintain periodic “review & refresher” workshops which can use real-world local examples (annual basis)
- Contractor awareness on the proper way to construct BMPs in accordance with the manual
- Thanks!
- Encourage preapplication meetings and liberalize use of them. Improve inspection during construction and monitoring and allow this info to feed back into the review process
- ? Interactive web site to get feedback clarification and see what other questions/concerns have been raised and how RIDEM has responded. I will join stormwater list serve!
- Keep available an efficient and productive question and answer mechanism to continue to answer questions about manual and requirements.
- Education for contractors; education for homeowners; excellent program for designers- spring is a busy time for them, hopefully you will offer more workshops? Need mics for panelists. Great workshop- Thank you!
- It would also be helpful to show examples for other regions as to the water qual and habitat benefits of targeted stormwater practices. Are there studies that document water qual improvements post implementation of stormwater BMPs in a sub-watershed? Thanks for organizing it, I’m glad I was finally about to make it to one of the stormwater manual workshops.
- I have all the confidence in the world that these things will be designed properly, but I have no confidence that they will be constructed properly. I’m not as worried about long term maintenance as I am about how they will be constructed. The presenters did a really excellent job.
- Address certification/inspection etc to ensure stormwater facilities are properly constructed. Why not a requirement or condition of RIDEM permit .
- Must educate not only designers, but reviewers, contractors, planning boards, etc,
- Great job- Need to start these 2 days over again! =) Great start!! Thanks for Lunch. Onsite review of different applications would be great.
- Perhaps would be nice to see DEM/CRMC more involved w/ project; rather than reviewing plans. Perhaps charging an application fee DEM/CRMC staff for site visit? Maybe increase Bonds& requirements so contractors stay more involved with the project?
- What about using compost rather than erosion control blankets?
- O & M of these BMPs is going to be a major issue, state and local governments lack manpower and funding to enforce O&M.
- More consideration for allowances for/of redevelopment of commercial and industrial uses to help promote economy
• Lots of patience and pre-application review/support.