

Meeting Minutes

*National Disaster Resilience Regional Stormwater Infrastructure Toolkit
NJDEP Public Workshop – Held January 9, 2019*

National Disaster Resilience (NDR) Regional Stormwater Infrastructure Toolkit DEP Public Workshop Minutes

Dennis Reinknecht (DEP) and Taylor Forster (DEP) – Introduction NDR Toolkit Team and Overarching Goals of the Workshop

Alexis Taylor (DEP PM) – Team Introductions and Agenda Summary

Jonathan Carey (Louis Berger) and Dave Ksnyiak (CDM Smith) – Introductory Stormwater Infrastructure Presentation: *Introduction and project status of the National Disaster Regional Resilience Stormwater Infrastructure toolkit, including background (toolkit funding, toolkit details, Meadowlands pilot, and overview of Rebuild by Design), summary of modules (Module 1 Operations & Maintenance [O&M] and Module 2 Jobs Training), project tasks (timeframe, long-term goals and staying involved).*

- Question: There are growing technologies that encompass and address both green and grey infrastructure together (for example green infrastructure with grey infrastructure qualities). Are we separating the two into two separate types (example: surface or non-surface)?
- Answer: We do not want to define them strictly in that way and understand that they can be both.
- Question: When did the toolkit process start?
- Answer: We will cover that in the next section.
- Question: Is this project related to the other planning project that was part of the grant?
- Answer: The NDR grant includes \$15 million of which \$5 million is for the regional stormwater infrastructure toolkit and \$10 million is for the regional resilience planning grant program. The Office of Coastal and Land Use Planning (OCLUP) within DEP is managing the regional resilience project. DEP would be happy to direct questions about the regional resilience project to OCLUP if there are any.
- Question: I liked the literature review and that you are looking at other places that have done similar work. In the last 4 to 5 years, we have seen an explosion of resiliency platforms and a lot of new data. Did you review projects internationally or just within the United States?
- Answer: We did look at a few international case studies, but the scope of the project was focused in the United States. An upcoming presentation will include a map of the locations we reviewed.
- Question: What software do you recommend for asset management (AM) tracking?
- Answer: There will be an entire presentation on software based on situation and/or budget in an upcoming presentation that should address your questions.
- Question: How will this project differ from the FEMA Community Rating System (CRS) program? Does this toolkit count as points towards the CRS program?
- Answer: This toolkit was not evaluated in the context of the FEMA CRS program, but that does not mean we should not look for opportunities for the toolkit to reinforce that program.
- Question: In the theme of talking about looking at how much things will cost and the overall cost-benefit analysis, is long-term operation analysis being considered?
- Answer: The benefit cost analysis under preparation is intended to show the value of green infrastructure and maintenance. Although the analysis will be prepared specifically for the

Meadowlands, it will be available in a template for, so other towns can use it to help make the case for green infrastructure operation and management (O&M).

- Question: How closely aligned is the NDR Toolkit project to the green infrastructure proposal that DEP has out (the Rebuild By Design [RBD])? Is MS4 involved?
- Answer: RBD is a separate funding grant from this one. The NDR Toolkit project is not tied to any specific regulatory requirement.
- Question: MS4 is being updated but does not include any infrastructure best management practices; will this be consistent with future regulations?
- Answer: Yes, DEP is working to ensure the NDR Toolkit project is undertaken in coordination with future regulations.
- Question: There is a focus on municipalities; however, private entities are also affected by this. Have private sector practices around strengthening resilience been investigated?
- Answer: For Modules 1 and 2, we decided to focus on public entities; however, we have talked about future modules possibly addressing private sector issues as well as a broader public education campaign encouraging public involvement in stormwater management. We have been looking at places like Philadelphia where there is a training program for private contractors (SBN).

Virginia Roach (CDM Smith) – Green Infrastructure Design with Maintenance in Mind: *Introduction to green and grey stormwater infrastructure techniques and applications. Lessons learned from project experience, including why some techniques are preferred in different environments and settings, and how they can be implemented (e.g., rain garden vs. porous pavements).*

- Question: We have been having an issue finding affordable, experienced contractors – is there a way to work around this issue to use language to weed out contractors in a “low-bid” framework?
- Answer: The project team has encountered examples of language used by some government entities that helps address the weaknesses of a “low-bid” framework, which can assist in selection of experienced and skilled contractors.
- Question: A lot of green infrastructure implementation is taking place in older cities with lots of infrastructure – Is it difficult to install green infrastructure with the existing underground infrastructure? What is the amount of structural capacity since these are multiuse spaces? Can you convert these spaces to have subterranean capture with load distribution?
- Answer: In other locations, we were surprised about how many opportunities were lost because of utilities. Use subsurface storage if you want to preserve real estate. Porous pavement is very useful for places where you just want to replace the pavement and enhance infiltration. The subsurface storage units are designed for H-20 loading.
- Comment: There are newer green infrastructure technologies that accommodate subsurface utilities better.
- Comment: The New Jersey Cooperative Extension Water Resources Program also certifies contractors for rain garden programs but finding experienced contractors is a real problem. People are looking for ways to certify contractors in green infrastructure (NGICP).

Ed Carpenetti (Louis Berger) – Module 1 O&M Utility Asset Management and Brian Porter (CDM Smith) – Module 1 O&M Asset Management Software Assessment Tool (AMSAT): *Introduction to asset*

and utility management and best management practices for municipalities and regional communities, including asset registry and computerized maintenance management systems and asset management software.

- Question: Will these presentations be available online?
- Answer: Yes, they will be available. We just ask they not be distributed further because they are in draft format.
- Question from Bill Cesanek to audience: Is anyone currently doing AM in their municipalities?
- Audience Response 1: To some degree, but to formalize it like this is another step. We are mainly taking complaints by phone call. Having documentation of maintenance would help with more accountability. Some people have proposed it, but the cost was not well received by senior management.
- Answer to Audience Response 1: The purpose of AM is to migrate away from reactive maintenance, which is driven by complaints. Implementation of an AM Plan provides a system-wide, proactive and eventually a predictive maintenance plan. If AM is working well, the amount of reactive work decreases relative to proactive/predictive work. Additionally, as we all know, reactive work is far more expensive to complete than planned work because it drives up overtime costs for internal staff, and contractors charge higher rates to complete reactive work.
- Answer to Audience Response 1 (DEP): Using condition-based priority for O&M versus age-based priority will help with both the cost analysis and prioritization.
- Audience Comment 2: Something must be done to convince elected officials that this is a step to be taken; it is a hard pill to swallow from a cost standpoint. AM systems make it clear what needs to be replaced, and regulators do not like the cost of increased maintenance because there is an issue with a 2% annual cap on municipal budgets. That money must come out of someone else's pocket in the budget system.
- Audience Comment 3: Capital improvement planning in municipalities does not fall within the 2% cap. If towns focus on a low maintenance design during capital budgeting, they also have the opportunity to figure out how to include maintenance into the budget prior to capital investment.

Bill Cesanek (CDM Smith) – Module 1 O&M - Institutional Options for Improved Stormwater

Management O&M: *Presented on the current status of stormwater management O&M in New Jersey and how New Jersey can benefit from expanded, more regional O&M organization structures. A review of different existing tools for regional management of stormwater infrastructure.*

- Question: Is there legislation being proposed for better stormwater management in New Jersey?
- Answer: Senator Bob Smith introduced stormwater utility legislation last year and spoke about that legislation passing the New Jersey Senate, while presenting it at a Jersey Water Works conference last December. However, the New Jersey legislation has not yet passed the legislation.
- Comment: It is important to include the private sector, specifically developers, because poor stormwater management affects their bottom lines. We should provide private sector developers with information regarding cost-effective resiliency options for their properties, so that they can improve their on-site resilient designs.

- Answer: We agree there are significant benefits and opportunities for involvement and implementation by the private sector.
- Comment: It would be useful to have more information available to make the case that green infrastructure is effective and cost efficient.
- Answer: The EPA has done a lot of work making a stronger financial case for green technologies being cost effective. New green infrastructure systems are emerging, and they need to be maintained. It makes sense to get them off on the right foot. This topic needs to be explored further.

Module 1 Breakout Session – A summary of the breakout session is provided in the *Post-Workshop Summary and Evaluation* and Attachment 3. memo.

Don Torino (Bergen County Audubon Society) – Restoring Native Plants in the Meadowlands:

Introduction to native plant use for green infrastructure (GI) design and O&M, including aesthetic value, ecological value and upkeep considerations for plant selection.

- Question: Where do you get these plants?
- Answer: For the larger projects, we use Pinelands Nursey in South Jersey, and for the smaller projects, we use Rohsler’s Nursery in Allendale.
- Question: Why is the loss of milkweed affecting monarchs?
- Answer: Cutting milkweed down results in a loss of monarch environment and invites the establishment of invasive plants.
- Comment: Your comments about specific plants that can survive contaminated waters was helpful.
- Comment: For restoration purposes, the native plants that you suggest make a lot of sense.

Chris Perez (Rutgers University) – Green Infrastructure Case Studies and Fran Lawn (The Sustainable Business Network of Greater Philadelphia) – Advancing the Local Green Stormwater Infrastructure Industry, Innovation, and Economy:

Rutgers University’s case studies presented on the GI planning process and lessons learned, including maintenance agreements and memorandum of understanding (MOU), identifying the target audience, value in community engagement, and finding a local GI champion. Sustainable Business Network of Greater Philadelphia presented on the city’s 25-year comprehensive nature-based stormwater management plan, including environment, social and economic benefits, professional development, and opportunities and needs.

- Question: What kind of monitoring is done with your green stormwater infrastructure partners in terms of performance tracking?
- Answer: We prepared an Economic Impact Report, which outlines our monitoring approach. The report is available on our website. Performance tracking related to the stormwater management practices themselves is based on conversations with places like the Center for Resiliency and the levels of monitoring.
- Question: In your presentation you mentioned that the work you are doing is not sustainable as far as staff time. Can you explain that further?
- Answer: We did not have staff to do continued maintenance every year, which motivated us to create maintenance plans with the towns for all parties to sign. We maintain our projects for one year and provide a maintenance manual.

- Question: How do you maintain and ensure agreements with regard to maintenance, especially with 45-year agreements?
- Answer: The agreement is tied to the property (title) and not to a specific group.
- Question: Are the chemicals you use in your rain gardens sustainable?
- Answer: The chemicals are sustainable, and the maintenance guide outlines what plants went where and other similar information, so it makes it easier to identify what should and should not be there.

Melissa Harclerode (CDM Smith) – Responsibility Charting Management Tool: RACI Matrix and Breakout Session: *Introduction and exercise to responsibility charting as a management tool to determine roles and relationships among public stakeholders and municipal personnel in maintaining stormwater infrastructure.*

Margaret Stewart (Louis Berger) and Adriana Caldarelli (WEF) – Module 2 - Jobs Training Learning Session and Adriana Caldarelli (NGI) - National Green Infrastructure Certification Program (NGICP): *Overview of training programs to facilitate growth and expansion of skill sets for stormwater career professionals to develop long-term capacity for stormwater infrastructure O&M. Also, the role of community involvement in training programs and establishing stormwater management program goals at a municipal level.*

- Question: Who is hiring people with green infrastructure certifications?
- Answer: Entities in the region, such as DC Water, are hiring staff with green infrastructure certification. Procurement language is changing their contracts to require a certain percentage of professionals with certifications.
- Question: What about seasonal work?
- Answer: DC Water has begun incorporating more content into its workforce development, including basic utility training, so that workers can rotate among utility jobs and be more marketable in the off-season or for year-round work.
- Question: Not a lot of New Jersey green infrastructure is constructed yet. Is it something that universities or professional organization could take up?
- Answer: Green infrastructure is relatively new in New Jersey, so it will be important to grow the number of certified workers at the same rate as their as opportunities. New Jersey is getting to the point of requiring green infrastructure. It will be a slower market for workers, but it will get there. Training could be at a university or member association in New Jersey.
- Question: Does NGICP train trainers?
- Answer: NGICP does have a program. Participants need a bachelor's degree and professional development training and/or experience.
- Question: How many people has NGICP trained to date?
- Answer: Currently 403 individuals have been trained over 2 years.

Outstanding Question and Answer (Q&A) and Takeaways:

- Takeaways: In comparison to other countries and the rest of US, New Jersey is a difficult market to navigate. That challenge means that there is also a future here. New Jersey is the third most

vulnerable state to flooding. Some counties in New Jersey have more flood insurance payouts than some whole states combined.

- Comment about Jersey City: Zoning in flood zones requires a green ratio for new development and use of green infrastructure is required. The city is also updating its stormwater infrastructure zoning.
- Comment: Behavior and consequence is an issue. Local officials are not changing because there are no requirements. People who make the decisions do not comply.
- NJ Future: Developed a 3-part green infrastructure municipal toolkit that is available online.
- Comment by Louis Berger attendee: I have a green infrastructure project where the contractors are only low bid (paving companies). Is there specific language I could use in future bids that would require the low bid to have some percentage of green infrastructure training?
- Comment by a representative of a small engineering firm as a private contractor in Jersey City. We are undertaking a reactionary 15,000-gallon green infrastructure project as a result of \$4 million in flooding damage at a jobsite. Jersey City seems more open to these projects.
- Comment: Start in cities that are open to it like Jersey City and slowly it will spread.
- Suggestions about modules:
 - Policy changes
 - Module for officials or policymakers or municipal finance
 - Private industry involvement
 - Private/public partnership
 - Public education
 - Getting political will
- Comment: It would be helpful to have focus groups for different entities/stakeholders (e.g., officials, citizens, private, municipal).