

NATIONAL COMMUNITY SUMMIT ON GREEN INFRASTRUCTURE

OCTOBER 20–22, 2013 | SYRACUSE, NY



SUMMARY REPORT, CONCLUSIONS, AND RECOMMENDATIONS

SYRACUSE UNIVERSITY ENVIRONMENTAL FINANCE CENTER

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Event Description

The event was sponsored by the US Environmental Protection Agency (EPA) and Onondaga County, New York and held at the State University of New York, College of Environmental Science and Forestry (SUNY-ESF) in Syracuse, NY. It was coordinated and facilitated by the Syracuse Environmental Finance Center (EFC) and co-hosted by Syracuse University (SU), SUNY-ESF, the Syracuse Center of Excellence in Energy and Environmental Systems (SyracuseCoE), Onondaga Nation, and the New York State Environmental Facilities Corporation (NYS-EFC).

Event Goals

- Enrich the value and role of green infrastructure (GI) in communities across the country; and
- Elevate attention to wastewater and stormwater management issues, and watershed health revitalization efforts.

These goals were successfully reached using a facilitated discussion format and by providing invited delegates a platform to discuss relevant issues in an open forum. The bulk of the Summit occurred over a day and a half, and consisted of five guided dialogue sessions surrounding the following green infrastructure themes, which were refined during numerous preparatory discussions with the EPA throughout the summer of 2013.

Dialogue Themes

- **Program development and project selection:** Identifying locally appropriate technologies, fine-tuning project selection, and allocating program resources
- **Innovative financing:** Generating revenues and allocating expenditures to sustainably finance green stormwater management programs

- **Operations and maintenance challenges and opportunities:** Changes, challenges, and opportunities for maintaining sustainable systems
- **Performance, new science, and technology:** Monitoring and improving existing technologies, and generating new approaches to green infrastructure
- **Promoting adoption:** Identifying and engaging key stakeholders for the purposes of accelerating acceptance of GI as the technology of choice

Participants at the event included both Summit “delegates,” as well as observers of the discussion forum. Delegates were invited from the ten 2011 EPA Green Infrastructure Partner Communities and seventeen 2012 EPA Technical-Assistance Recipients, as well as representatives from watershed planning and stormwater management agencies in other major metropolitan areas, identified by the EPA as making advancement in progressive stormwater management (see Appendix A).

The list of invited observers included faculty and researchers from Syracuse University (SU) and the State University of New York College of Environmental Science and Forestry (SUNY-ESF); federal, New York State, and local officials; students from SU and SUNY-ESF; local nonprofit organizations; and additional interested individuals (see Appendix B).

Each 80-minute dialogue session started with a 10-minute introduction by one of the delegate communities, followed by discussions focused on benefits, challenges, and opportunities that GI presents to different types of communities. The communities introducing the dialogue topics were: Onondaga County (NY), Anacostia River Watershed (MD), Los Angeles (CA), Milwaukee (WI), and Cleveland (OH).

Other community representatives from Baltimore (MD), Lancaster (PA), New York City (NY), Philadelphia (PA), and Pittsburgh (PA) also played additional leadership roles throughout the event. The dialogue sessions were facilitated by Mark Lichtenstein (Syracuse EFC), assisted by Jennifer Cotting (Maryland EFC) and Khristopher Dodson (Syracuse EFC). The facilitated forum format allowed only the Summit delegates to engage in verbal dialogue; however, observers were able to write questions or comments on index cards (see Appendix C), many of which were read aloud by the Summit Facilitator for the Summit delegates to discuss or answer.

In addition to devoting time to the five dialogue sessions, during the Summit, Bob Perciasepe (EPA Deputy Administrator), Nancy Stoner (EPA Acting Assistant Administrator for Water), and Judith Enck (EPA Region 2 Administrator) held a joint press conference with honorable Joanne Mahoney (Onondaga County Executive) to release the EPA’s 2013 National Green Infrastructure Strategic Agenda (see Appendix D).

In total there were 165 participants (124 convened at Summit), including 49 Summit delegates (representing 27 communities, 6 EPA officials, 1 NYS agency-head, and 3 host institutions). There were 75 observers in attendance (including 6 EPA officials, 15 staff members, and 55 other observers). Additional people participated in a tour of green infrastructure in Syracuse, an opening reception, and a press conference on Monday to hear the announcement about the new national strategic agenda.



Summary of Dialogue Discussion and Recommendations

Dialogue 1: Program Development and Project Selection

(Led by Matt Millea and Matt Marko representing Onondaga County, NY; facilitated by Mark Lichtenstein, Syracuse EFC)

Key Points

I. Use a holistic, comprehensive watershed approach

- A. Need to focus on a suite of projects and tools, not a single project type
 - 1. Move beyond parochial boundaries to ecosystem boundaries, and create thinking around watershed management
 - 2. Move beyond the perpetual “pilot project”
- B. Need to adjust priorities so that we don’t compromise water quality goals in order to have more even distribution

II. Site selection

- A. Ownership of property – public vs. private; spending public dollars on private land
- B. Environmental justice – need to engage communities on the neighborhood level where partners are stressed by tremendous challenges other than combined sewer overflows (CSO)
 - 1. Create a Citizen Advisory Committee to help selection process
 - 2. Base decisions on qualitative data
- C. Incentivize reuse and recovery of abandoned, marginalized, or damaged lands
 - 1. Brownfields provide great opportunity for reuse
 - 2. Permanent vacancies and/or abandoned buildings should be targeted

III. Improving community engagement

- A.** Environmental justice – water quality needs and distribution
 - 1. Make the message personal and valuable to citizens/residents
 - 2. Recreational spaces are valuable – work with parks departments
- B.** Focus on “greening” from a public health perspective - consider ways that the project could improve local health and/or safety
- C.** Build risk management into revitalization plans
- D.** Evaluating success
 - 1. Community engagement
 - 2. Gain support of local leaders
 - a. Seek consent of municipality
 - b. Bring stormwater issues to the neighborhood level

IV. Challenges to project selection and siting

- A.** Compliance with local, state, and federal law
- B.** Funding
- C.** Financing ownership vacancies
- D.** Investments
- E.** Politics
- F.** Geographic scope of the city and distribution of projects, funds, and resources

V. Future opportunities

- A.** Ancillary benefits – i.e. beautification, community development, and adjoining property values
- B.** EPA is committed to enforcing GI
- C.** Permits – less enforcement (e.g., Milwaukee is a leader with this)
- D.** CSO reduction (reduction of impervious areas)

Discussion Recommendations

In order to move green technology beyond the perpetual “pilot project” stage, an integrated suite of tools and structures must be developed that manages stormwater in a networked fashion to benefit the watershed and the community, not simply a single installation site or project type. Development of these tools must take into account both technical standards and operational needs, so that policymakers, engineers, and the general public can make informed and reasonable decisions in a way that allows inclusive communication with community residents and landowners. The delegates recognized that existing technical standards set for traditional infrastructure may not be appropriate for green infrastructure, and existing standards could act as a barrier to development of green technologies. Nevertheless, the EPA is committed to promoting and enforcing green infrastructure, and is willing to be flexible and nimble in developing new standards for green technology.



Dialogue 2: Innovative Financing

(Led by Larry Coffman, representing Anacostia River Watershed and Prince George's County, MD; facilitated by Jennifer Cotting, Maryland EFC)

Key Points

I. Need to determine who has authority to manage stormwater and who can coordinate and integrate watershed goals with existing site plans

- A. Encourage innovative thinking and investing by tapping into private sector creativity and flexibility
- B. Decrease risk associated with project(s) to increase funds – risk mitigation strategies
- C. Show/advertise positive impacts
- D. Address public expectations – the public is very unfamiliar with GI

II. Build resilience (longevity) into financial plans

- A. Do the research
 1. Center for Neighborhood Technology addressed how to excel with a “technology of choice”
 2. Contact other locations that have had successful financing plans
- B. Quantify and promote ancillary job creation and economic development
- C. Look at other funding opportunities such as universities

III. Look into the logistics of other partnerships

- A. With the EPA (Regional Administrator, etc.)
- B. With businesses
- C. Between cities and counties
- D. Interagencies
- E. With Urban Waters communities

- F. As part of federal sustainable community partnerships
- G. Multiple objectives project(s) widens funding opportunities – engage other agencies

IV. Research opportunities and potential matching funds

- A. State Revolving Loan funds (SRFs)
- B. Leverage SRFs to secure bonds
- C. Beneficiaries
- D. FEMA – turn demolition vacancies into flood plains
- E. Partnerships and “partnering dollars”
- F. EPA
- G. Departments of Transportation (exp: bike lanes)
- H. Departments of Education
- I. Block grants
 1. Challenges:
 - a. “Top-down” politics – disconnect between community and state water priorities
 - b. How to incentivize participation

V. Community examples to learn from

- A. Onondaga County, NY – State Revolving Loan Funds (SRFs)
- B. La Crosse, WI – high credit policy, low exemption
- C. Portland, OR – early adopter
- D. Los Angeles, CA – “Save Our Streets” program (cannot pave streets if they are flooded, creates GI opportunities)
- E. New York City – stormwater features for recreational spaces by partnering with schools
- F. Lake George, NY – piggy-backed on already initiated road reconstruction project (“partnering dollars”)

VI. Other specific financing ideas and options

- A. “Net metering” – rewards and incentives
 1. How to build resilience (longevity) into financial plans – always applying for the next grant is a challenge
 2. Moving from water quantity to water quality
 3. How to leverage non-water dollars?
 4. Impervious surface in the right of way – design challenges
- B. “Environmental fee” (stormwater fee, etc.) – make others accountable for their costs
- C. Carbon credits

Discussion Recommendations

Although green infrastructure is dollar-for-dollar less expensive than comparable gray infrastructure treatment systems, barriers to financing green infrastructure remain extremely high. Incentivizing responsible behavior via implementation of a stormwater “fee” or hotel room “beautification tax” has resulted in mixed success based on regional and cultural values.



Many communities are unable to assess a stormwater fee, or offer incentives, and building projects solely based on grant funding is not a reliable method of implementing GI technology across the watershed. Therefore, there is a need to build resilience, or sustainability into funding stormwater projects. This entails determining long-term or recurring funding pools that will become available to the community for ongoing projects.

There is frequent disconnection between state and community water priorities, and that increases polarization of the issues and creates political barriers to funding. Communities grappling with funding stormwater needs may want to collaborate with each other, or with other organizations to better advocate at the state and federal levels to attempt to get more SRF funds dedicated to stormwater management. Public-private partnerships will drive innovation, but might also develop sustainable funding strategies that many communities may not be nimble enough to administer without private sector support. Green stormwater infrastructure can have the strategic advantage of aligning with a number of other community-related goals and objectives, which might help leverage funds that are not directly designated for water improvements or allow partnership with existing improvement projects. For example:

- Job creation and economic development
- Disaster preparedness and community resilience
- Reclamation of vacant properties, neighborhood safety, and property values
- Improvement of existing transportation infrastructure
- Enhanced neighborhood walkability and public health
- Reduced load on gray infrastructure
- Traffic calming and reduced air pollution
- Education
- Community parks and open spaces, localized aesthetics
- Migratory wildlife habitat, “re-wilding” efforts



Dialogue 3: Operations & Maintenance Challenges and Opportunities

(Led by Adel Hagekhalil representing the City of Los Angeles Bureau of Sanitation, Los Angeles, CA; facilitated by Mark Lichtenstein, Syracuse EFC)

Key Points

I. Using a holistic approach

- A.** Deploy asset management systems from gray infrastructure to manage green infrastructure
- B.** Apply concept of “stewardship”
- C.** Create a clear plan for roles and necessities – build a collective “neighborhood mind” (conservancy model)
- D.** Think about scale of installation, care, and maintenance (efficiency with density)

II. Standardization of design

- A.** Aesthetics vs. function – need to educate and integrate different disciplines
- B.** Incorporate triple bottom line into GI lifecycle
- C.** Think long-term investment
- D.** Performance standards can decrease long-term costs
- E.** Efficiencies can be gained given long timeline (use water as a resource)

III. Opportunities

- A.** Blue belts around waterways
- B.** Voluntary “adopt-a-swale” program
- C.** Use conservation corps
- D.** Evolve landscape contracts

- E. Services to private sector – shift risk (e.g., private developer responsible for maintenance)
 1. Job creation – train and employ locals
 2. Look to American Ecological Engineering Society (national association)
 3. Create a web-based platform for discussion – bring together “information science community” and “GI content community”

IV. Challenges

- A. Public perception
- B. Cannot rely on volunteers
- C. Lack of research, manuals, resources, etc.
- D. Green roof “one species fits all” approach is not optimum
- E. Taking care of what has already been built
- F. RFPs create competitive process – winners may only be interested in money, rather than managing an intricate GI project
- G. Measuring success rate

V. Community examples to learn from

- A. Ithaca, NY – room tax for beautification
- B. Philadelphia – offers 90% off stormwater bill
- C. Baltimore – video guides
- D. Omaha, NE – looking to existing experts (maintenance managers) in terms of maintenance; putting concepts in layman’s terms
- E. Philadelphia – monitoring based on salamander health
- F. Milwaukee – monitoring based on migrating patterns of salmon

Discussion Recommendations

Up to this point, maintenance of green stormwater infrastructure has primarily relied on volunteer organizations, which has resulted mostly in maintenance failures; maintaining a strong volunteer base requires full-time effort. Therefore, following the example of traditional gray infrastructure, which requires regular inspection and maintenance, it was expressly recommended that funds be allocated to support the upkeep of green infrastructure. Public perception of green infrastructure is keenly driven by the maintenance effort.

The value of funds allocated for maintenance will be augmented by the density of installed projects in a given region, as will the efficiency of maintenance programs. Reiterating the need for standardization of structures and implementation tools as a resource for professionals, maintenance also plays a key role in extending the useful lifetime of the installed project; thus extending the period of benefit amortized from initial investment and allowing long-term savings for future projects.



Dialogue 4: Performance, New Science and Technology

(Led by Kevin Shafer representing Milwaukee Metropolitan Sewerage District, Milwaukee, WI; facilitated by Mark Lichtenstein, Syracuse EFC)

Key Points

I. Lessons learned

- A. Relationship to public health
- B. It's "all about volume reduction"
- C. The value of "gray is a given, but because green assets are installed as part of a regulatory construct, they have to be proven" (the negative impacts of gray infrastructure are not considered during planning)
- D. Permeable pavement is "difficult to maintain" and should be used wisely

II. Opportunities / new technology

- A. Blue-green roof combinations, linked systems
 - 1. Blend gray infrastructure with GI
 - 2. Bioretention with compost?
- B. Stormwater for irrigation?
- C. Phytotechnologies and regional optimization of planted species
- D. Bioretention soil and hydrology specifications
 - 1. Rain gardens for nitrogen removal
 - a. Managing in-ground flux
- E. Wet weather policy

III. Alternatives

- A. Sloped porous pavement installations, bio swales – using new geometries
- B. Research for soil types – brownfields and earthworms
- C. Colored glass has little market value – could be reused in soil/media mix rather than landfilled

IV. Challenges

- A. Needs are different for GI projects based on different climates – what works for one, may not work for all (esp. southwest)
- B. Need to standardize methods in order to share data
- C. Identified a disconnect between all of the research that is going on – everyone feels like they are reinventing the wheel – is this a communications issue?
- D. Projects need to align with community regulations
- E. How to incentivize priorities/research goals
- F. Public health
- G. Liability compliance

V. Communities to learn from

- A. Lancaster, PA – colored glass in place of or mixed with sand in soil mix in bioretention beds/gardens



Discussion Recommendations

New technologies must be developed regionally to meet the needs of communities in differing climates and to keep pace with the diverging pressures of future climate changes. The EPA recognizes there is no “one size fits all” universal design or structure that is appropriate for all cases. Universities are leading resources for cutting-edge research, and have played a limited role as early adopters of new technologies; however, there is a strong cultural disconnect between emerging research and practical installation, which embodies a need for translational resources.

In order to successfully overcome these challenges, it was recommended to standardize a method of communicating research findings with the public that prioritizes knowledge and supports informed decision-making while taking into account existing community regulations, needs, and expectations. Paradoxically, both the economic costs and the negative environmental impacts associated with traditional gray infrastructure are well documented, and not viewed as unproven or unfounded by the majority of experts in the engineering and scientific communities; however, the lack of a regulatory construct for green infrastructure sustains a persistent need to prove the performance of green systems.





Dialogue 5: Promoting Adoption

(Led by Kyle Dreyfuss-Wells and Kellie Rotunno representing Northeast Ohio Regional Sewer District in Cleveland, OH; facilitated by Khristopher Dodson, Syracuse EFC)

“We need to stop the ‘run silent, run deep’ attitude, which has pervaded infrastructure planning and obstructs open public discourse. We the engineers, planners, and policy makers are the very individuals responsible for change and construction, so we need to let the public know what and why we are doing what we are doing.”

Key Points

I. Use “Straight Talk” and engage using a transparent, holistic approach

- A. Start small – small projects (i.e. rain barrels increase acceptance)
- B. Create atmosphere of “open process”
- C. Increase visibility and communication in order to appeal to public

II. Target multiple stakeholder groups

- A. Provide information that informs the right audiences, from 6th grade to very technical document users
- B. Approach as if selling a product to particular audience
 1. Elected officials
 2. Internal staff
 3. Public (and there are many “publics”)
 4. Commercial/industry
 5. Also engage the EPA Region and Regional Administrator for support and resources

III. Provide opportunities for the community to become informed

- A.** Prioritize and fund outreach efforts and increase GI education
 - 1. Use language the public can understand
 - 2. Provide resources and maps
 - 3. Implement GI in schools/campuses and stadiums
 - 4. Tell project stories – before vs. after pictures

IV. Building relationships/partnerships

- A.** Engage next generation – after the “inconvenience” of construction, there is value/benefit
- B.** Use NGOs for help
 - 1. Locating and reaching out to public
 - 2. Use mediation and coordination to make construction efficient
- C.** Leave room for input – project becomes theirs, not yours
- D.** “The community is your host. Be a nice guest!”

V. Challenges

- A.** Influencing politics and policy
 - 1. Be sensitive – choose language wisely
 - 2. Answer the question of “why should we care?”
 - 3. Talk about their benefits and how GI can make the world a “better place”
- B.** Proving economic benefit – “green” costs more until other benefits are considered (value externalities)

VI. Opportunities

- A.** Greater opportunities in medium-sized/smaller communities
- B.** Positive impacts on the intended audiences

Discussion Recommendations

The previous model of engaging the public in stormwater infrastructure decisions was “run silent, run deep”; that is, keep infrastructure decisions as siloed as possible. Use of transparent public involvement is a key factor in determining public satisfaction with a project. There is a definite role for NGO’s and other community outreach efforts when engaging public input, since they may help facilitate depolarized compromise between policymakers and the public.

Coming to communities with fully designed projects tends to result in public disempowerment and discontent. Policymakers and engineers produce successful projects when they remember they are a guest in the community and allow a non-political entity to act as discussion facilitator. Lay community members are frequently an untapped resource; for instance, for information about local flooding, and other existing site complications. Using GIS to better demonstrate all of the benefits of GI, including the socioeconomic benefits, may be a tool worth exploring.



General Conclusions – Synthesis

I. What is the best way to incentivize Green Infrastructure?

- A.** Partner paradigm shift (improve proof that GI really works, while helping change the perspective on gray infrastructure)
- B.** Recognize the cost of maintaining the status quo and overcome political reluctance
- C.** Green infrastructure is living, breathing, and adapting
 1. GI offers flexibility to perfect and troubleshoot – there is always “room to grow”
 2. Adaptation is an advantageous quality in the face of expected climate change – gray infrastructure cannot adapt
- D.** Incorporate GI at all levels
 1. Stress the concept of individual stewardship
 2. Educate and improve organizational dedication
 3. Understand existing motivations in existing system
- E.** Recruit communities
 1. Develop mechanisms to label costs and benefits of GI
 2. Answer questions and engage groups in the process
- F.** Integrate green and gray components
 1. The public wants to prioritize GI
 2. Lead by designing projects with green components from the beginning, instead of adding after
 3. Retrofits and redesigns are more costly than up-front integration
- G.** Try not to reinvent the wheel
 1. Increase communication/share ideas and information
 2. Standardize design
 3. Share successes with bond proceedings and other financing strategies
 4. “Shamelessly steal others’ ideas!”



II. What are the next steps for implementation and adoption?

- A.** Acknowledge the progress that's been made such a short period of time
 1. Success stories spur funding opportunities
 2. Use resources from other communities' success for proof of long-term benefits
- B.** Internal steps to begin with each other
 1. Generate more dialogue and greater consensus
 - a. Regional meetings and cross-regional meetings
 - b. Hold 2nd National Summit in 2014
 2. Synthesize research questions and share results
 - a. Support new, critical work to develop GI technologies
 - b. Share work/reports/documents
 - c. Send information and resources to EPA to disseminate
- C.** Develop training materials
 1. Get data to support ancillary benefits in establishing of GI
 2. Important to give evidence as part of argument
 3. Job creation, transportation efficiency, etc.
 4. Share and standardize triple bottom line analyses that can be applied to each community
 5. Create boilerplate language for inclusion of GI in Consent Decrees
 6. Create a project almanac to demonstrate cost-effective GI case studies
- D.** External steps for engaging communities and stakeholders
 1. Keep this conversation going, and educate newcomers
 - a. Connect public works people – facilitate engineer-to-engineer conversation
 - b. Add the EPA GI logo to outreach materials – provides clout
 - c. Work with Army Corps of Engineers
 - d. Training sessions for state agencies and/or public
 2. Work off of existing projects (including other agencies' projects)
 - a. Develop GI University Fellows
 - b. EPA steps

3. Support and develop a Federal mandate to help overcome legal hurdles
 - a. Continue to push GI to forefront of federal agenda
 - b. Create an EPA GI logo
 - c. Train (and retrain) state EPA offices on GI
4. Develop an EPA fund to support transportation and lodging of local government GI ambassadors
 - a. Connecting leadership communities and early adopters with new communities
 - b. Identify and relate the lessons that have been learned

