“Balancing Gray and Green Infrastructure”
NJ CSO Permittee Network – April 17, 2019

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Acknowledgements

• Jersey Water Works (JWW)
  • A cross-sector, statewide collaborative working to upgrade NJ’s water infrastructure

• JWW Combined Sewer Overflow Committee
  • Subcommittee on Balancing Green & Gray

• NJ Department of Environmental Protection

• Camden County MUA

• North Hudson Sewerage Authority

• City of Newark
Purpose & Background of Report

- New Jersey context for CSO plans
- JWW CSO Committee recognized that CSO communities and stakeholders may struggle with how to balance and integrate green with gray solutions
- Purpose of this report is to provide guidance and a proposed framework for determining an optimal green/gray balance
- “A Report on How to Balance Green and Gray Infrastructure in CSO Long Term Control Plans” released by JWW in December 2018
Factors for Balancing Green/Gray

• NJEIF Program offers 50% Principal forgiveness for GI
• Successful incorporation of GI to date led by grassroots efforts and forward-thinking utilities
• Private property incentives not widespread
• Stormwater utilities could help
• WWTPs not always in same communities that generate CSO
General Recommendations and Best Management Practices for Balancing Green/Gray

• Significant Regulatory Guidance is available from EPA and NJDEP
• Triple bottom line evaluations are recommended [Environmental/Economic/Social]
• Computer models incorporating performance and cost/benefit analyses are commonly used
• Community input should be incorporated into LTCP Program goals
• A measurable goal is helpful [gallons of stormwater captured, inches of rainfall managed, area controlled by GI]
• Piloting can reduce uncertainty of performance
• GI can be used to gather public support for the overall CSO reduction program
• Policy tools are available to encourage GI on private property
Specific Recommendations for New Jersey Communities – 3 Approaches

- Implementing while planning
- Green Additions to an all-gray solution
- Setting a Green target
Implementing while planning

- Start with most immediate, easier to implement Green and Gray projects
- Provides momentum and balance for program
- Addresses problems quicker
- Allows learning process from earlier work
- Applied by CCMUA
Green Additions to an all-gray solution

• Getting to a 100% Gray solution first helps compliance
• Add in GI to improve the benefits [cost, public acceptance, environmental]
• Amount of Green depends on opportunities and desire to push Green
Setting a Green target

• Setting a target based on initial analyses (as done by NYC, Philly and others)
• Ensures significant GI in program
• Target provides clarity to public and other stakeholders
• Perth Amboy & Newark looking at this approach
Other Recommendations

• Develop a Green CSO Certificate program
• Encourage NJDEP to increase funding for GI
• Continue to publicize benchmarks for consideration
Promoting best practices

• General guidance
• NJDEP GI Guidance Manual
• Applicant’s Guide for Obtaining Water Bank Financing for GI projects
NJDEP GI Guidance Manual

**Step 1:** Evaluate land use and drainage areas; community drivers; potential locations:
- Can include public property, vacant parcels, private property, rights-of-way
- Prioritize taking into consideration the amount of stormwater that can be managed, potential effect to reduce frequency and volume, etc.

**Step 2:** Identify needs and steps for implementation:
- A community vision resulting from outreach and education
- Development of a GI advisory committee
- Planning, design and construction standards
- Maintenance requirements (short- and long-term)
- Skilled workforce
- Pre- and post-installation monitoring program requirements
Issues to Consider in Balancing Performance

• Maintenance considerations
• Implementation schedule
• Sustainability/Triple Bottom Line
• Potential co-benefits of GI
• Regulatory Guidance
What Others are Doing

- New Jersey Permittees
- Other Permittees
Camden

• Looking to address “low hanging fruit first: Green or Gray

• Computer model of performance at various levels of Green in program; then check compliance

• Pulling in Green as much as possible for co-benefits
Newark

• Computer modeling of scenarios
• Looking to follow NYC GI program as a model
North Hudson Sewerage Authority

• Piloting GI
• Using Green Roofs
Onondaga County

• Moved from very Gray solutions to aggressively incorporating GI

• Big public support campaign

• Both public and private GI opportunities included
New York City

• Largest GI program in US; $2.5B over 25 years
• Set goal of capturing 1” of rainfall runoff from 10% of impervious surfaces
• Thousands of ROW Rain Gardens installed in first phase

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Philadelphia

- Major commitment of GI to reduce CSO
- GI performing as expected
- Looking to capture runoff from first 1” of storm for 1/3 of area
- Stormwater billing systems