

Green Infrastructure: Reaping the Benefits

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A Skeptic's View

Greater Energy Efficiency and Improved
Quality of Life are nice, but . . .

SHOW ME THE MONEY!

(Help me meet my CWA obligations)

Clean Water Act -- Points of Contact

- NPDES Permitting
 - CSO
 - SSO
 - MS4
- Nonpoint Sources
- TMDLs
- Enforcement

Link Green Infrastructure to Programs

1. Translate Green Infrastructure into the language spoken by the programs
2. Convert Green Infrastructure from a goal into a mandate
3. Develop guidance to ensure that CWA programs are Green Friendly

Quantifying Benefits

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Quantifying Benefits – Why (Part 1)?

- CSOs
 - To support design of smaller systems
 - To validate as element of LTCP
- SSOs
 - Part of your capacity, management, operations, and maintenance plan

Quantifying Benefits – Why (Part 2)?

- Nonpoint
 - To recalibrate traditional pollutant loading assumptions
 - To establish basis for credits
- TMDLs
 - To provide “reasonable assurance”
 - To reduce “Load Allocations”

Quantifying Benefits – Who (Part 1)?

- Fellow Municipalities
 - Milwaukee MSD estimated
 - Residential → 36% - 38% Reduction of peak flow
 - Commercial → 50% to 76% Reduction of peak flow
- European Sources
 - German Data → 66% peak flow reduction
- Vendor Data
 - Plentiful, but sometimes discounted by agencies

Quantifying Benefits – Who (Part 2)?

- Trade and Professional Associations
 - Nat'l Association of Home Builders
 - American Landscape Architects Association
 - ASIWPCA
- Academic (VanWoert, 2005)
 - Green Roof → 49% to 83% Retention
- EPA-ORD- Nat'l Risk Mgm't Research Lab
 - *Environmental Testing Verification* Program

Selecting Control Devices

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Techniques to Encourage Green

- Multiple Municipalities
 - Grants to *encourage* green infrastructure
- City of Alexandria, VA
 - *Demonstration Project* on City Building
- City of Oakland, CA
 - Ordinance Covering *City Building Projects and Public Works*
- Chicago, IL
 - Design requirement for planning approval of *broad range of projects*

The Chicago Model



Department of Planning and Development Building Green/Green Roof Matrix

Department of Planning and Development Denise M. Cavalino, Commissioner	Public Assistance		No Public Assistance
	(RFP/Negotiated Sale w/Land Write Down) (TIF) (DOH)	(Empowerment Zone Grants) (Industrial Dev. Rev. Bonds) (Enterprise Zone Fac. Bonds) (Bank Participation Loans) (Class L) (SBIF) (Class 5b)	(Planned Developments) (Lakefront Protection Ordinance Developments)
Project Type			
Residential			
Market Rate SF, TH, Multi-units (< 4 units)	Energy Star Certification <u>or</u> LEED Certified Building		
Market Rate (>= 4 units)	50% Green Roof <u>and</u> Energy Star Certification <u>or</u> LEED Certified Building*	50% Green Roof <u>and</u> Energy Star Certification*	25% Green Roof*
> 20% Affordable Units or CPAN	DOH Green Criteria		
Institutional			
Hospitals	50% Green Roof <u>or</u> 25% Green Roof <u>and</u> LEED Certified Building*	25% Green Roof <u>or</u> 10% Green Roof <u>and</u> LEED Certified Building*	25% Green Roof <u>or</u> 10% Green Roof <u>and</u> LEED Certified Building*
Community Centers and Schools**			25% Green Roof <u>or</u> 10% Green Roof <u>and</u> LEED Certified Building*
Industrial			
	10% Green Roof <u>or</u> Energy Star Roof <u>and</u> LEED Certified Building*	10% Green Roof <u>or</u> Energy Star Roof*	
Commercial			
Retail over 10,000 square feet (footprint)***	75% Green Roof <u>or</u> 50% Green Roof <u>and</u> LEED Certified Building*	50% Green Roof <u>or</u> 25% Green Roof <u>and</u> LEED Certified Building*	50% Green Roof*
Retail under 10,000 square feet (footprint)	25% Green Roof <u>or</u> LEED Certified Building*	Energy Star Roof	Energy Star Roof
Office over 80 feet	100% Green Roof	75% Green Roof*	50% Green Roof*
Office under 80 feet	50% Green Roof <u>or</u> Energy Star Roof <u>and</u> LEED Certified Building*	Energy Star Roof	



The Regulatory Frontier

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Regulatory Mysteries (Part 1)

- CSO
 - Are ordinances that will require green projects *in the future* recognizable in scoping LTCPs?
 - Can I shrink my existing LTCP?
- SSO
 - Too remote to count as part of your CMOM?
- MS4
 - Is Green Infrastructure an acceptable Source Control?

Regulatory Mysteries (Part Deux)

- Nonpoint
 - If not used in CSO or SSO, can I sell benefits derived as credits?
- TMDL
 - Will benefits be recognized as reducing LAs?
- Enforcement
 - A legitimate element of injunctive relief, or forever just another goofy SEP?

Make It Count

- Quantify your Benefits
- Mandate Progress on a Broad Front
- Work with EPA and your state to get Recognition for Green Infrastructure Benefits