

# Getting the Green Out:

## Key Findings and Recommendations from NRDC Workshops on Promoting Green Stormwater Infrastructure on Commercial Property

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### EXECUTIVE SUMMARY

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#### BACKGROUND

Cities throughout the United States are embracing green stormwater infrastructure (GSI) as a means to reduce polluted stormwater runoff and satisfy the Clean Water Act, while also realizing public health, environmental, economic, and quality of life benefits of urban green space. GSI includes green roofs, rain gardens, cisterns, and other mechanisms that mimic natural hydrologic functions or that otherwise capture runoff on-site for productive use.

More and more communities are making major capital investments in GSI in the public right-of-way and on other public property. However, to fully protect and restore urban waterways, these cities will also need private landowners to manage more of the stormwater on their own properties. Therefore, many are actively seeking—or are already implementing—ways to motivate private landowners to implement GSI projects. To date, GSI implementation on private property has mostly been limited to (1) development projects held to local or regional regulatory requirements; (2) developers aiming to “do the right thing” or to capture the brand value associated with “green” development; or (3) on a more limited scale, retrofit projects motivated by local financial incentive programs.

To help accelerate GSI implementation in the private sector, NRDC previously published *The Green Edge: How Commercial Property Investment in Green Infrastructure Creates Value*. This piece reviewed the lucrative benefits green infrastructure can bring to owners and tenants of commercial properties, including office, retail, and multi-family residential buildings. That report was widely circulated among leaders in the commercial real estate industry, with the aim of educating property owners about the potential benefits of GSI.

As a follow-up to *The Green Edge*, NRDC has engaged with interested representatives of the commercial real estate sector to further explore how property owners and developers think about GSI; its economic benefits and challenges; and the information, data, or strategies needed to increase adoption. NRDC convened two all-day workshops on this topic with commercial developers, property owners and managers, appraisers, GSI designers (e.g., engineers, landscape architects), municipal and utility representatives, trade associations, and others. One workshop was held in Philadelphia in late 2014, and the other was held in San Francisco in early 2015.

#### KEY WORKSHOP FINDINGS AND RECOMMENDATIONS

NRDC worked with participants to develop and prioritize recommendations for implementing GSI at commercial development sites. Table S-1 summarizes the top four consensus recommendations from each workshop.

The recommendations generally fall within three broad programs of action: (1) developing or refining effective government regulations and incentives, (2) filling in data gaps, and (3) communicating the value of GSI.

## Developing and refining effective government regulations and incentives

Two of the top priority recommendations from the East Coast workshop, and the top priority recommendation from the West Coast workshop, were directly related to this topic. Specifically, East Coast participants identified the need to research and develop recommendations to improve government incentives. Participants noted that the public sector needs to better understand incentives and other drivers that have catalyzed investments in GSI throughout the United States and internationally. East Coast participants also recommended the development of guidelines and best practices to help local governments remove barriers to implementation. On the West Coast, the highest priority recommendation focused on developing and revising stormwater regulations to facilitate creative, cost-effective design to meet volume-based performance standards. This recommendation was made, in part, in response to one of the key barriers identified during workshop discussions: inflexible design standards associated with some state and local stormwater regulations.

## Filling information gaps, and providing analytical tools, concerning the benefits and costs of GSI

Participants identified a shortage of hard data on the benefits and costs of GSI as a key barrier to implementation. For example, on the West Coast, the second top priority recommendation was to create tools to help assess and quantify the “total” (i.e., aggregate) value of GSI improvements. This includes benefits not always accounted for in calculations of return on investment (ROI), such as increased rents and occupancy rates, energy and water savings, reduced or avoided “grey” infrastructure costs, lifecycle costs (including operations, maintenance, and replacement), and personal and public health benefits from

the vegetated elements of GSI (i.e., “biophilic” designs that reconnect people to nature). West Coast participants also prioritized developing hard data on how GSI can increase property values to educate appraisers about its value. This would allow appraisers to develop comparable value estimates when establishing financing, thereby enabling financing terms that provide a market-based incentive for GSI implementation. At both workshops, participants identified the need to use hard data from a diverse set of actual projects representing a range of market segments. These recommendations all require additional data—or improved accessibility of existing data—on the benefits and costs of GSI. East Coast participants also expressed a need to understand how GSI can help to increase resiliency and manage extreme rain events expected to increase with climate change.

## Communicating the value of GSI through case studies, peer testimonials, and other networks

At both workshops, the development of case studies to communicate the value of GSI was frequently discussed. Participants stressed the importance of basing case studies on monitored results and actual built projects, as well as diverse representation by geography, types of GSI, and building and development types. Participants also noted the power of peer testimonials or stories from developers to educate those less familiar with GSI and inspire healthy competition for implementation. Participants agreed that case studies and peer testimonials should be provided in a non-advocacy format and should be published in widely circulated publications and newspapers, as well as in the trade press. Participants also generally favored creating formal venues for the exchange of GSI-related information (e.g., through existing trade associations).

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Mixed-use development at Hill Center Green Hills, Nashville, Tennessee.

**Table S-1. Top four priority recommendations from the East and West Coast workshops**

	East Coast workshop	West Coast workshop
Priority #1	Research and develop recommendations to <b>improve government incentives for GSI</b> . This includes evaluating the effectiveness of existing incentives across the United States, and developing a compendium of best practices.	Adopt or revise stormwater <b>regulations that allow for creative, cost-effective design to meet volume-based performance standards</b> .
Priority #2	Develop and widely disseminate a <b>diverse set of case studies</b> , based on actual projects and data, showing GSI benefits for property owners and tenants. Case studies should highlight both immediate and lifecycle benefits and costs.	Develop <b>tools to capture all benefits and assess “total” (i.e., aggregate) value</b> , including how to quantify (where possible) and accurately characterize all values.
Priority #3	As a supplement to full case studies, develop <b>peer testimonials</b> to highlight specific aspects of GSI projects, including benefits of implementation.	Develop and widely disseminate a <b>diverse set of case studies</b> and stories, based on actual projects and data, showing GSI benefits for property owners and tenants. Case studies should highlight both immediate and lifecycle benefits and costs.
Priority #4	Develop guidelines or roadmaps for utilities and local governments outlining how to <b>remove barriers to help facilitate GSI implementation</b> .	<b>Educate appraisers</b> on the benefits of GSI, and learn to speak their language.

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Commercial office building at 1050 K Street, Washington, D.C.

## NEXT STEPS

A wide variety of actors—from both the public and private sectors—will need to collaborate to accelerate GSI implementation in the commercial real estate sector. The workshop participants agreed that both the public and private sectors have good reasons to work together towards that goal.

Municipalities and utilities, which have responsibilities to reduce stormwater pollution from their sewer systems, will benefit from cost-effective approaches to compliance, while simultaneously improving neighborhood quality of life. State and federal agencies charged with protecting our rivers, lakes, bays, and beaches can accelerate the cleanup of polluted waterways. Commercial property owners, managers, and tenants can reap substantial economic benefits and life-cycle cost savings. The design and engineering community can foster innovation and grow a larger market for GSI-related services. Non-profit organizations, trade and professional associations, academic researchers, and philanthropic foundations that share some or all of these objectives can, likewise, advance their own missions by helping to catalyze change.

The following table lists key activities corresponding to the workshop recommendations described in this report. Further, it provides a targeted call to action, by identifying which types of entities are well-suited for leading roles and supporting roles to implement each action. See Table S-2 on page 4.

**Table S-2. Next Steps for Public and Private Sector Actors**

	Local governments and utilities	State and federal governments; and regional utilities and governmental bodies	Non-profits (local, regional, and national)	Trade and professional associations (local, regional, and national)	Private firms/practitioners in the development and design communities	Appraisers	Academics	Foundations
<p>●● = Leading role ○ = Supporting role</p>								
<b>Develop/refine effective government regulations and incentives</b>								
Study existing local incentives to determine the most effective approaches	○	○	●●	●●			●●	
Develop "how to" guides for local governments and utilities on improving regulations, policies, incentives	○	●●	●●	○				
Adopt or revise regulations and site plan review processes	●●	●●	○	○	○			
Adopt or revise incentive programs	●●	●●	○	○	○			
Communicate with the development community to better understand local drivers that motivate or inhibit GSI	●●	●●	○	●●	●●			
Develop regionally-specific manuals, guides, and other materials to assist private sector in designing, obtaining approval for, and maintaining GSI projects	●●	●●	○	●●	○			
<b>Fill data gaps</b>								
Develop standardized data collection methods/metrics	○		●●	●●	●●		●●	
Generate and share data from GSI projects	○				●●			
Collect, make publicly accessible, and analyze data from GSI projects	○	○	●●	●●			●●	
<b>Communicate values of GI</b>								
Develop detailed case studies & narrative testimonials	○		●●	●●	●●		●●	
Create venues for peer-to-peer learning	○		○	●●				
Present first-hand peer testimonials					●●			
Disseminate written materials and information to developers and designers (directly and through media)	●●	●●	●●	●●	●●		○	
Disseminate materials and information to "consumers" of commercial real estate	○	○	●●	●●	●●		○	
<b>Facilitate use of data for project-specific decisionmaking</b>								
Create "tools" for developers to easily calculate life-cycle ROI based on project-specific characteristics (including ranges of uncertainty in costs/benefits)			●●	●●	●●		●●	
Educate appraisal community on GSI benefits	○		○	○	○	●●	○	
Publish methods for incorporating GSI benefits into project valuation			○	○	○	●●	○	
<b>Provide funding to support the above actions</b>								
Provide grants to support efforts by local governments and NGOs	○	●●		○				●●