GREEN and Complete Streets: The Power of Green Infrastructure in Street Design

New Jersey Complete Streets Summit
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New Jersey Future’s Focus on Water

JERSEY WATER WORKS
A collaborative effort working to transform New Jersey's inadequate water infrastructure through sustainable, cost-effective solutions that provide communities with clean water and waterways; healthier, safer neighborhoods; local jobs; flood and climate resilience; and economic growth.

MAINSTREAMING GREEN INFRASTRUCTURE
A program to make green infrastructure the first choice for stormwater management in New Jersey.
A street for people

Source: NACTO, NYC DOT
A street for water

Source: NACTO, NYC DOT
What is a Green Street?

A green street is a stormwater management approach that incorporates vegetation (perennials, shrubs, trees), soil, and engineered systems (e.g., permeable pavements) to slow, filter, and cleanse stormwater runoff from impervious surfaces (e.g., streets, sidewalks). Green streets are designed to capture rainwater at its source, where rain falls. Whereas, a traditional street is designed to direct stormwater runoff from impervious surfaces into storm sewer systems (gutters, drains, pipes) that discharge directly into surface waters, rivers, and streams.

Source: EPA
Wait…What is green infrastructure?

An approach to managing stormwater by either enabling it to infiltrate into the ground where it falls or by capturing it for later reuse.

Green Street Practices:
- Stormwater tree trenches
- Curb bump outs
- Permeable Pavement
How does it work?
So, why do we want to put GI in the right-of-way?
A growing problem...

- Heavier & more frequent rain + More pavement
- More stormwater
- More frequent flash flooding
- Street closings
  - Property damage
  - Sewer overflows
  - Damaged infrastructure
  - Impaired waters

Heavy Downpours Increasing

Percent increase from 1958 to 2012 in the amount of precipitation falling in very heavy events. Very Heavy Precipitation is defined as the heaviest 1% of all daily events from 1958-2012.
Stormwater never travels alone.
Why should streets be green?

**Economy:** Construction cost savings, Energy costs savings, maintenance costs, higher property values, jobs creator

**Environment:** Improved water quality and groundwater quantity, cleaner air

**Society:** Public health benefits, safer neighborhoods, slower and safer streets

Streets = large percentage of a municipality’s impervious cover
Why Green Streets?

Land Area by Use in New York City

- Building & Parking Lots: 5%
- Streets: 17%
- Parks & Open Space: 49%
- Vacant Land: 29%

Source: Urban Impact Lab

Land Area by Use for a Residential Development in Olympia, WA

- Roof: 6%
- Street: 3%
- Lawn: 58%
- Parking/Driveways: 16%
- Sidewalk: 17%

All Transportation Surface = 26%

Identifying Green Street Opportunities

- New Streets
- Street retrofits
- Municipal capital plans
Washington Street in Hoboken, NJ
Takeaways

• GI is a powerful tool with big benefits. If you dismiss it, you might be opting for higher-cost alternatives.

• No need to reinvent the wheel, but GI is different. Requires a team approach and sharp attention to detail in design, construction and maintenance.

• Think outside the curb. Talk to local DPW and engineers. Is there a problem green infrastructure can help solve?

• You have expensive assets to protect. Green infrastructure can help.

• Complete streets = green streets
Resources

- EPA: Learn about Green Streets
- WERF's Green Streets Basics and Design
- A Conceptual Guide to Effective Green Street Design Solutions: Green Streets (PDF)
- Managing Wet Weather with Green Infrastructure - Municipal Handbook - Green Streets (PDF)
- The City of Portland Oregon: A Green Street Overview
- National Association of City Transportation Officials, Urban Street Stormwater Guide
- City of Philadelphia Green Streets Design Manual
Thank You!

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