Green Infrastructure – Why Should We Care?

State of Wisconsin Trends

CSWEA-Wisconsin Watershed Committee &
University of Wisconsin – Milwaukee School of Continuing Education

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Milwaukee Metropolitan Sewerage District
Milwaukee Metropolitan Sewerage District

We Serve:
• 1.1 Million Customers
• 29 Municipalities
• 411 Square Miles

We Protect the Public & Lake Michigan:
• Convey/Store/Reclaim Wastewater
• Manage Flooding
Why Protect Water Resources in Wisconsin?

For so many reasons...
Wisconsin Regulatory “Drivers” for Green Infrastructure

- TMDLs
- WPDES Permits
  - Municipal Stormwater Permits
  - Watershed-based Permits
  - WRF WPDES Permits
    - Quality: Adaptive Management
    - Quantity: Future Discharge Permits?
- Infiltration Standards
Wisconsin Non-regulatory “Drivers” for Green Infrastructure

- Institutional Goals
- TBL Analyses
- Watershed Thinking: Downstream Investment Protection with Upstream Resources
- Climate Change/Storm Change
- Branding/Community Partnership
- Innovation
- Cost Savings
TMDLs

• Impaired Waters Throughout WI

• Major TMDLs in the News:
  – Rock River
  – Fox River
  – Milwaukee/
    Menomonee/
    Kinnickinnic/Estuary
Municipal Stormwater Permits

- Requires Pollution Control
- Green Infrastructure Can Provide Acceptable Control
- Bradford Beach, WI
**Watershed-based Permits**

- Innovative MS4 Permit
- Achieves More Benefits
- Enables Permittees to Work Together
- Requires at Least One Watershed Project

Menomonee River Watershed
WRF WPDES Permits

Adaptive Management

• Madison MSD Example
• Yahara River Watershed
• MOU Agrees to Pilot Project, Other things...

Permit Condition

• Milwaukee MSD Example
• Entire Planning Area
• Permit Condition Requires 1 MG of Capacity be Added/Yr
Infiltration and Other Local Standards

Fitchburg Example:
• Infiltration Standards
• Zoning Code

Promega Corp., Fitchburg

Rowley Avenue, Madison

Madison Example:
• Infiltration Standards
• Standard Specification for Rain Gardens
Institutional Goals

MMSD’s 2035 Vision:

1. Integrated Watershed Management, including:
   - Use green infrastructure to capture the first 0.5 inch of rainfall
   - Harvest the first 0.25 gallon per square foot of area of rainfall

2. Climate Change Mitigation/Adaptation with an Emphasis on Energy Efficiency
   - Various Goals...
TBL Analyses

Example: Green Infrastructure in 3 MKE Sewersheds

<table>
<thead>
<tr>
<th>Benefits</th>
<th>Indicator</th>
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<tbody>
<tr>
<td>Economic (Profits)</td>
<td>Job creation</td>
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<tr>
<td></td>
<td>Reduced infrastructure cost</td>
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<tr>
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<td>Reduced pumping cost</td>
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<td>Increased property values</td>
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<tr>
<td>Social (People)</td>
<td>Improved quality of life and aesthetics</td>
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<td>Increased recreational opportunities</td>
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<tr>
<td>Environmental (Planet)</td>
<td>Reduced stormwater volume</td>
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<td>Reduced sediment loading</td>
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<td>Increased groundwater recharge</td>
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<td>Increased carbon sequestration</td>
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<td>Reduced energy use and heat island effect</td>
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Watershed Thinking: Downstream Investment Protection with Upstream Resources

North Branch Milwaukee River Wildlife & Farming Heritage Area

Greenseams
Climate Change/Storm Change

Projected Change in Annual Average Precipitation (inches)
from 1980 to 2090 (A2)

Source: Center for Climatic Research & Center for Sustainability and the Global Environment, Nelson Institute, University of Wisconsin-Madison
Branding/Community Partnership

$50M Schreiber Foods HQ, Green Bay, WI

- Significant Green Space
- 550 New Jobs
Innovation

• UW Milwaukee’s Zero Discharge Plan
• Goal: “...break new ground in the interdisciplinary art and science of designing green infrastructure.”
• Highlights:
  – Spiral Garden
  – Golda Meir Green Roof
Cost Savings
Why Cover All Drivers, Regulatory & Not?
Questions?

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