Milwaukee Metropolitan Sewerage District’s Integrated Watershed Management Programs

Kansas City’s Urban Stormwater Conference
Our view on water has evolved

“In wine there is wisdom, in beer there is freedom, in water there is bacteria.”
— Benjamin Franklin
Milwaukee – prior to the mid-1800’s

- No water treatment, drinking or sewage
- We:
  - Dumped our waste into the rivers,
  - The rivers flowed to Lake Michigan,
  - Lake Michigan was our drinking water supply
The Milwaukee River Flushing Tunnel was capable of pumping 500 millions gallons of Lake Michigan water into the Milwaukee River per day.
Milwaukee – Early 1900’s
Milwaukee – 1970’s to 1980’s

- 1972 Clean Water Act
- Deep Tunnel Storage System
- Result: Cleaner Rivers and Lake Michigan
This water revolution has changed the baseline!
Stormwater is the next Evolution!
Milwaukee Metropolitan Sewerage District

We Serve:
• 1.1 Million Customers
• 28 Municipalities

We Protect the Public & Lake Michigan:
• Convey/Store/Reclaim Wastewater
• Manage Flooding

We Have:
• 300 Miles of Sewers (municipalities and individuals have 6,000 miles!)
• 521 MG Tunnel System
• 2 Water Reclamation Facilities
MMSD’s Water Reclamation Facilities

Jones Island

South Shore
Deep Tunnels
300 Feet Below ground
521 Million Gallons of Storage
28.5 Miles Long
17- to 32-feet In Diameter

Designed to minimize basement backups and for 1-2 overflows per year.
Northwest Side Deep Tunnel

89 million gallons
7.1 miles long

27th Street Deep Tunnel

27 million gallons
2 miles long
98.5%

Capture & Clean

Since 1993

MMSD
PARTNERS FOR A CLEANER ENVIRONMENT
MMSD’s 2035 Vision

**Integrated Watershed Management Goals:**

- Zero sanitary sewer overflows
- Zero combined sewer overflows
- Zero homes in the 100 year floodplain

Acquire an additional 10,000 acres of river buffers through Greenseams®

Use green infrastructure to capture the first 0.5 inch of rainfall

Harvest the first 0.25 gallons per square foot of area of rainfall

**Energy Efficiency and Climate Mitigation & Adaptation Goals:**

Meet 100% of MMSD's energy needs with renewable energy sources

Meet 80% of MMSD's energy needs with internal, renewable sources

Use the Greenseams® Program to provide for 30% sequestration of MMSD's carbon footprint

Reduce MMSD's carbon footprint by 90% from its 2005 baseline
Climate Resiliency
Landfill Gas Project
# Greater Milwaukee River Watersheds

<table>
<thead>
<tr>
<th>Watershed</th>
<th>Area (square miles)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kinnickinnic River</td>
<td>24.7</td>
</tr>
<tr>
<td>Menomonee River</td>
<td>135.8</td>
</tr>
<tr>
<td>Milwaukee River</td>
<td>700.0</td>
</tr>
<tr>
<td>Oak Creek</td>
<td>28.2</td>
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<tr>
<td>Root River</td>
<td>197.6</td>
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<tr>
<td>Lake Michigan Direct</td>
<td>40.7</td>
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</tbody>
</table>

**Drainage Area**

Total: 1,127.0

**Number of Counties**: 9

**Number of Local Municipalities**: 83
Valley Park Project
County Grounds
Kinnickinnic River - 1961
Kinnickinnic River - 2024
Pulaski Park
Kinnickinnic River Flood Management Project
Pulaski Park
Kinnickinnic River Flood Management Project

Rendering of Proposed Conditions
Schoonmaker Creek
Underwood Creek
You have to start with a grey backbone…

- Treatment Plants
- Sewers
- Storage Vessels…

To go Green…

- Rain Barrels
- Rain Gardens
- Bioretention…
Managing Water
Where it Falls
22,187
Rain Barrels

Distributed since 2002

Total Storage = 1,264,300 Gallons
Green Roofs

Managing up to

512,000
Gal. Per Storm
MMSD’s Fresh Coast 740 brings you

WEST ALLIS green summer 2015

Up to 12,000 gal. per Storm

100 Rain Barrels

23 Rain Gardens
Green Infrastructure

Since 2002

39 Million Gallons
Greenseams®

More than 3,900 Acres

12,000 TREES PLANTED IN 2017
“I alone cannot change the world, but I can cast a stone across the waters to create many ripples.”

- Mother Teresa

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