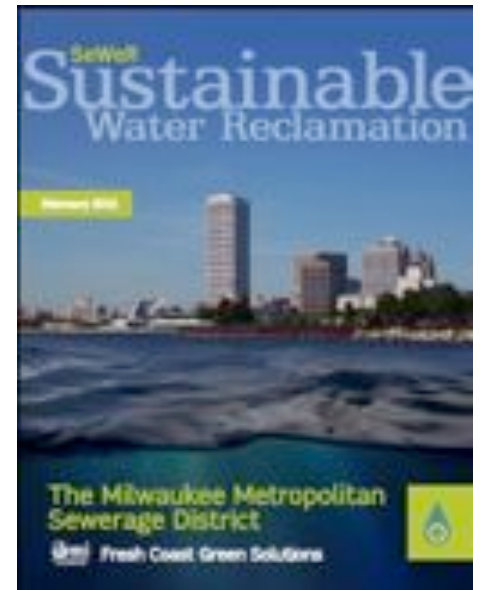


# *Milwaukee's Sustainable Green Vision*

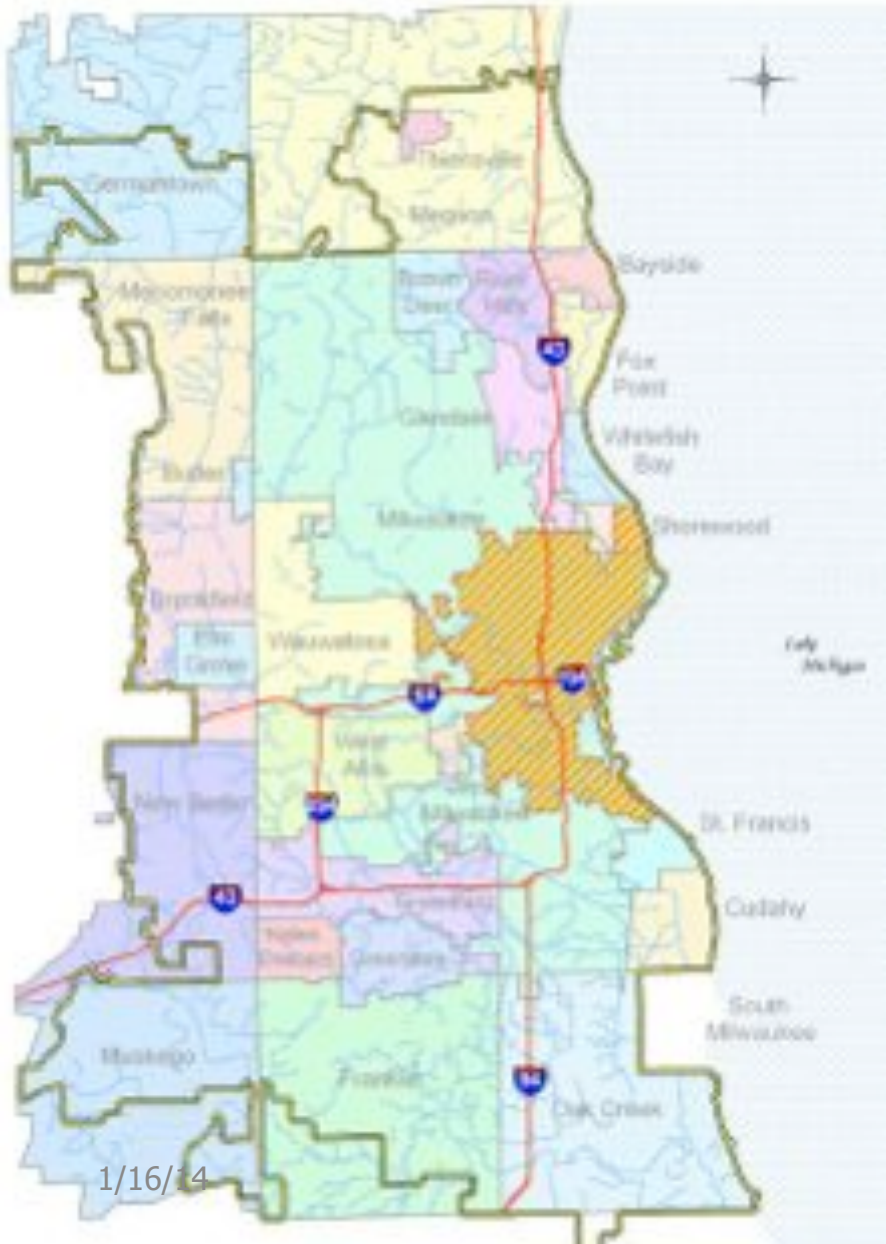
*Kevin L. Shafer, P.E.  
Executive Director*



**Milwaukee Metropolitan Sewerage District**



# Milwaukee Metropolitan Sewerage District



## **We Serve:**

- 1.1 Million Customers
- 28 Municipalities
- 411 Square Miles

## **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

# 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.**

# % OF VOLUMES CAPTURED & CLEANED

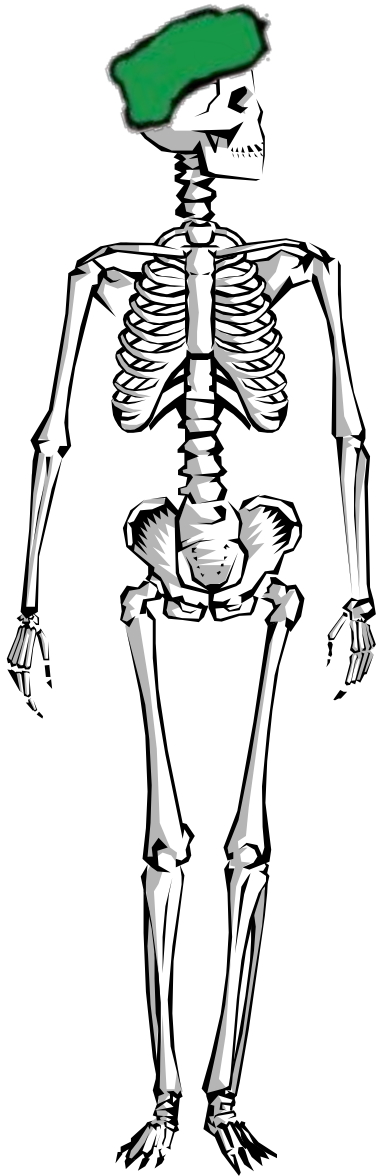
**TOTAL**  
PERCENT  
CAPTURE  
**98.3%**

<b>1994</b>	99%
<b>1995</b>	98%
<b>1996</b>	99%
<b>1997</b>	97%
<b>1998</b>	99%

<b>1999</b>	94%
<b>2000</b>	95%
<b>2001</b>	99%
<b>2002</b>	99%
<b>2003</b>	99%

<b>2004</b>	97%
<b>2005</b>	99%
<b>2006</b>	99%
<b>2007</b>	99%
<b>2008</b>	95%

<b>2009</b>	98%
<b>2010</b>	96%
<b>2011</b>	99%
<b>2012</b>	99%



**You have to start with a grey backbone...**

- **Treatment Plants**
- **Sewers**
- **Storage Vessels...**

**To go Green...**

- **Rain Barrels**
- **Rain Gardens**
- **Bioretention...**

# MMSD's 2035 Vision

(<http://v3.mmsd.com/NewsDetails.aspx>)

## ***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

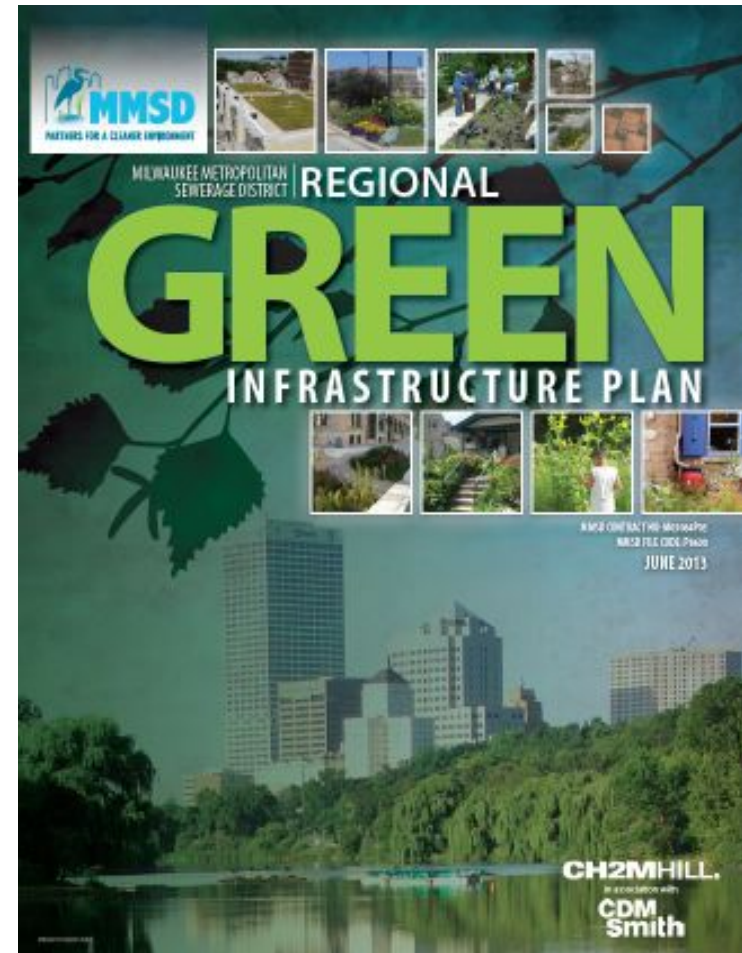
Reduce MMSD's carbon footprint by 90% from its 2005 baseline

# MMSD's Regional Green Infrastructure Plan

- Meet new discharge permit requirement
- Capture the first 0.5" that falls on impervious surfaces or an additional 740 MG
- Prioritize green infrastructure projects

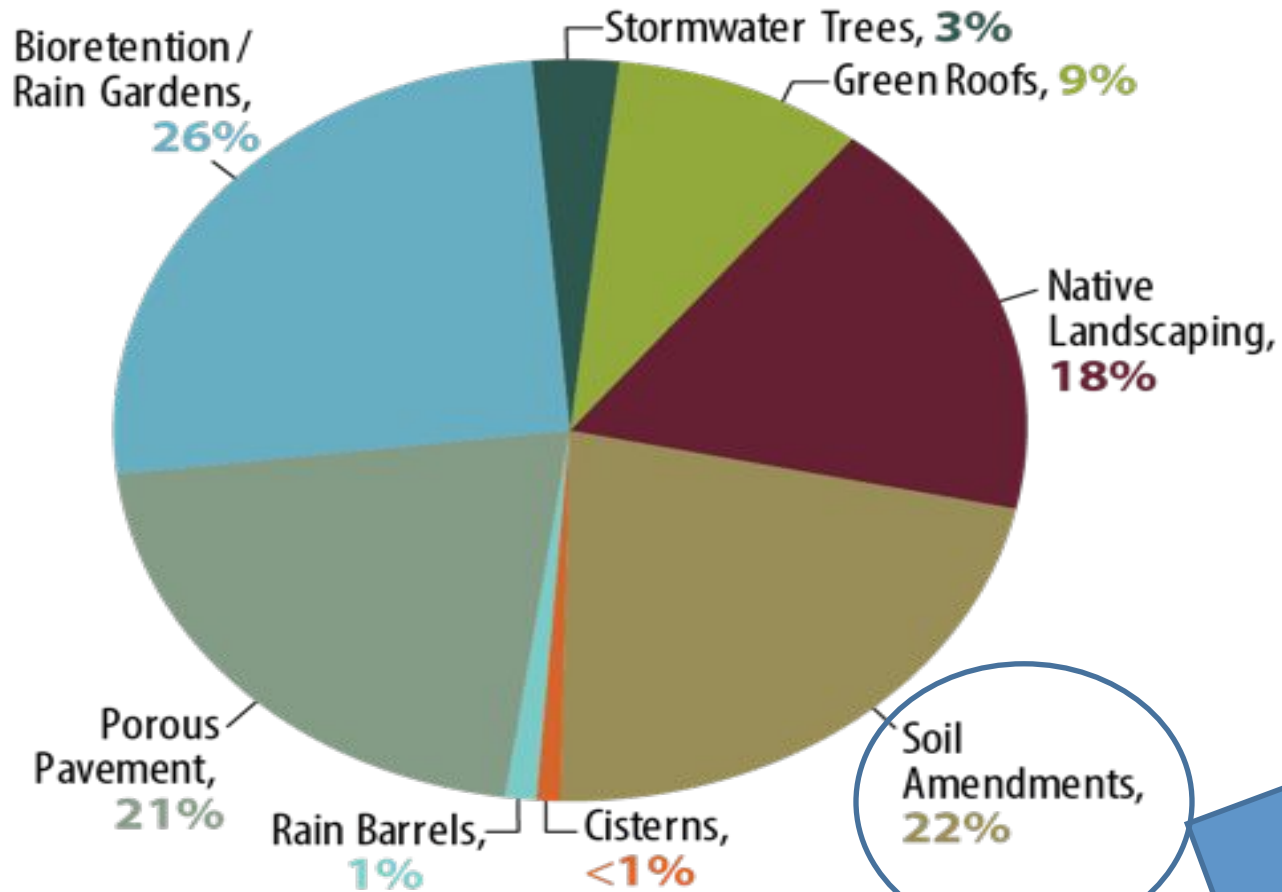


**Milwaukee Metropolitan Sewerage District**



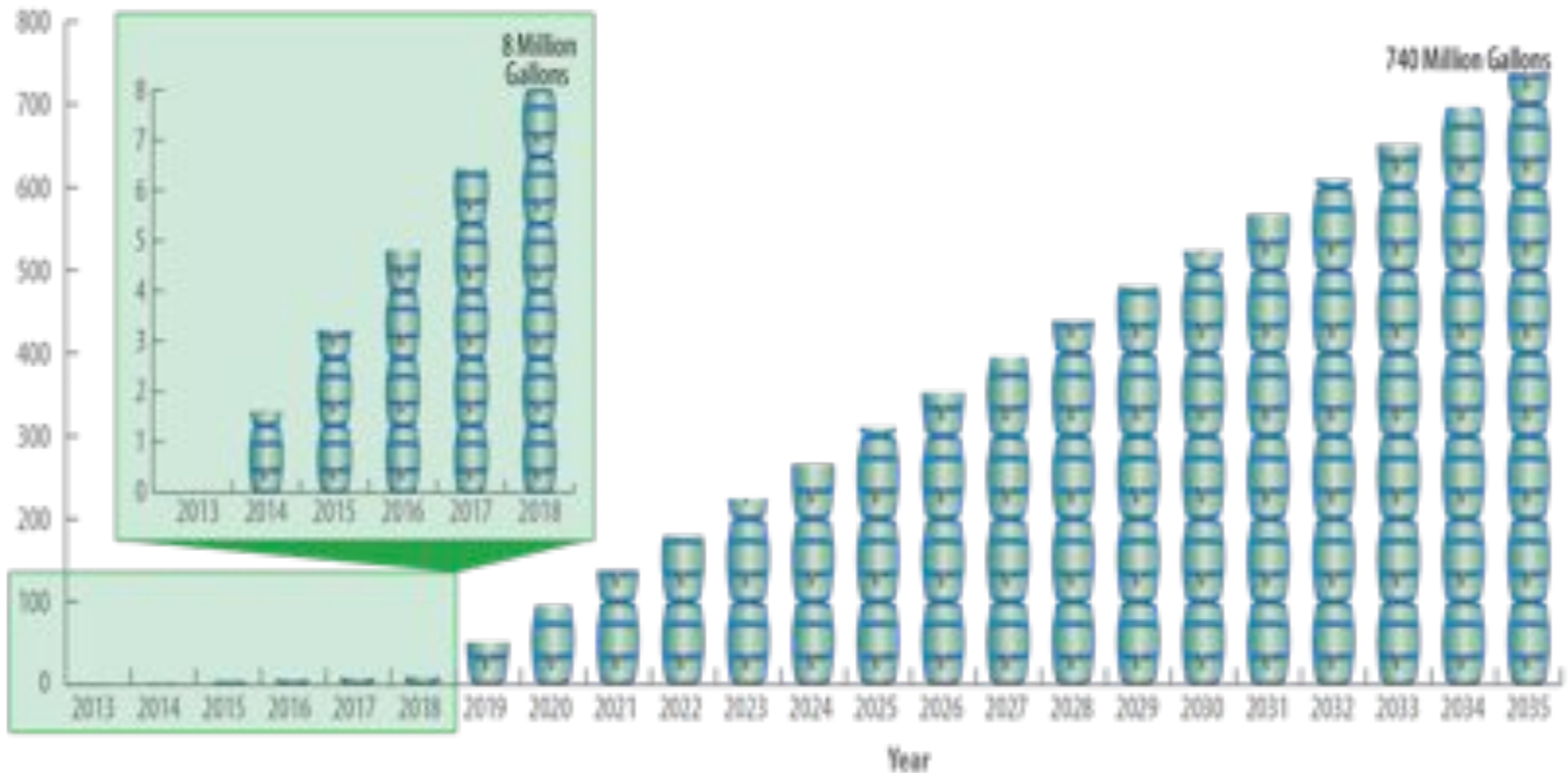


# The mix of Green



# One step at a time...

Planning Area Rainfall Capture Volume  
(Million Gallons)



**Before**



# Lincoln Creek

---

- **Concrete Removal**
- **Minimized Floodplain**
- **Habitat Enhancement**

**After**





# County Grounds





# Menomonee River Concrete Removal



# MMSD's Proposed Wetland Conversion







**18,000** Plants Sold Since 2006

# Summer Rain barrels



---

More than  
**18,000**  
**SOLD**  
Since 2002

---





Green

Roofs

+ 10 acres

since

2003



