

Natural Floodplain Functions Alliance Webinar Series Presents:

Managing Water Where It Falls: Green Infrastructure in Milwaukee, Wisconsin

**Presented by:
Kevin L. Shafer, Executive Director
Milwaukee Metropolitan Sewerage
District (MMSD)**

Hosted by the Association of State Wetland Managers

Welcome!

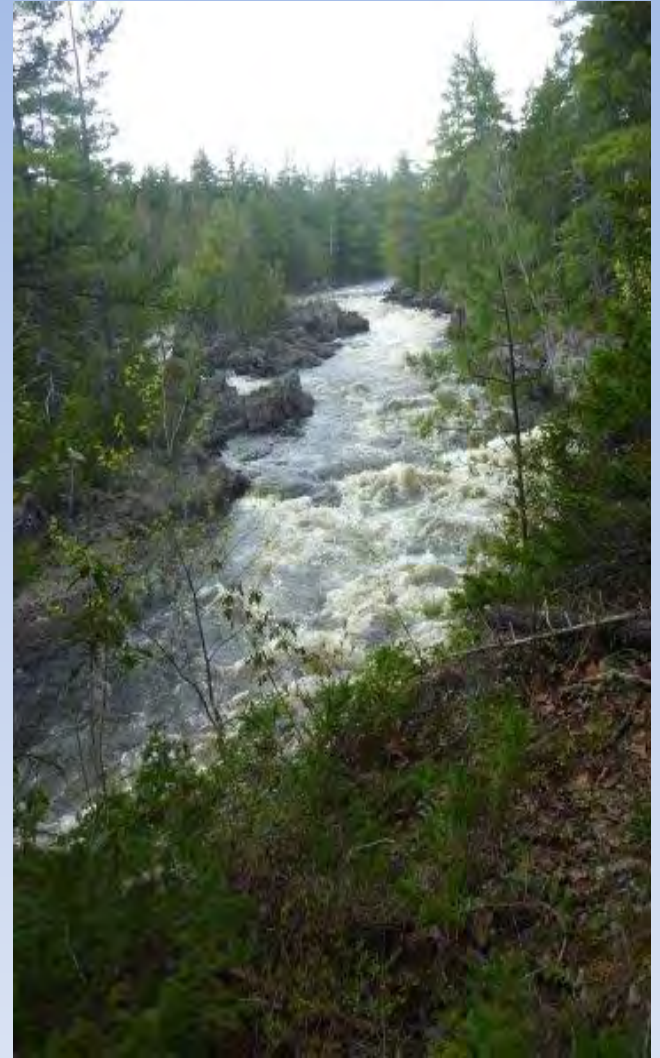
If you have any technical difficulties during the webinar you can send us



a question in the webinar question box or call Laura at (207) 892-3399.

Agenda

1. Welcome and Introductions
(5 minutes)
2. Managing Water Where It Falls:
Green Infrastructure in
Milwaukee, Wisconsin
(30 minutes)
3. Question and Answer
(15 minutes)
4. Wrap-up (5 minutes)



Today's Presenter

Kevin L. Shafer
Executive Director

Milwaukee Metropolitan
Sewerage District (MMSD)



NFFFA Webinar Series Moderator



Marla Stelk

Policy Analyst

Association of State
Wetland Managers

Webinar Schedule/Recordings

Association of State Wetland Managers - Protecting the Nation's Wetlands.



What's New:

- Less Than Half of Americans Make Anthropogenic Connection
- Clean Water Act 2.0: Rights of Waterways
- Virginia Coastal Partners Workshop: Save the Date
- FGCU appoints director for new Everglades Wetland Research Park
- LA: Expanded Louisiana Coastal Zone Boundary Approved
- Wetland Breaking News - Current Issue

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Conference Schedule

State Wetland Managers holds webinars on... of which relate to a specific project and work... ASWAM holds webinars as part of its members'... topics of interest to members. Please click on... name below for more details about individual... es, if you have any questions about... binar, please contact Laura at... if you are a member, and you missed a... part of the members' webinar series, please... post the recordings of the webinars going



A presentation given during a webinar.

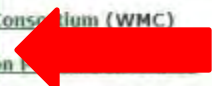
Series

Function Alliance (NFFA) [Future](#) [Past](#)

Consortium (WMC)

[Wetland Program Plans Project](#)

[Stream Identification/Delineation/Mitigation Project](#)



Webinar Schedule/Recordings

Association of State Wetland Managers - Protecting the Nation's Wetlands.



In the News:

- Great Barrier Reef's 'unprecedented' threat from dredging, dumping
- EPA Awards \$880K to Comm. for Climate Change
- European seafloor survey reveals depth of marine litter problem
- 100th anniversary of passenger pigeon's extinction reveals lessons
- "Alien" Plant Species Are Fighting Toxic Waste At Liberty State Park
- Wetland Breaking News - Current Issue

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ASWM Webinars/Conference Schedule

The Association of State Wetland Managers holds webinars on various topics, most of which relate to a specific project and work group. In addition, ASWM holds webinars as part of its members' webinar series on topics of interest to members. Please click on the webinar group name below for more details about individual webinars. In all cases, if you have any questions about registering for a webinar, please contact Laura at laura@aswm.org. If you are a member, and you missed a webinar that was part of the members' webinar series, please contact us. We will post the recordings of the webinars going ahead.



A presentation given during a webinar.

Special ASWM Webinars

Future:

[Special ASWM American Wetlands Month Webinar](#) - May 29, 2014 - 3:00pm EDT

Past:

[Special ASWM Webinar: Options for Financing Environmental Enhancement at the Local Level in Oregon](#) - January 23, 2014 - To view Webinar, [click here](#).

[Special ASWM Webinar: Wetland Link International North America](#) - October 29, 2013 - To view Webinar, [click here](#).

[Special ASWM Webinar - Koontz v. St. Johns River Water Management District: What Happened and Where Do We Go From Here](#) - Wednesday, July 17, 2013 - 3:00 p.m. ET - To view Webinar and PowerPoint Presentations, [click here](#).

Members' Wetland Webinar Series

[Future](#) [Past: Members Only](#) [Past: Nonmembers](#)

Natural Floodplain Functions Alliance (NFFA)

[Future](#) [Past](#)

Wetland Mapping Consortium (WMC)

[Future](#) [Past](#)

Main Menu

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ASWM Menu

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Hot Topics

- Ag News
- MS River & Wetlands
- Gulf Oil Spill
- Sea Level Rise Tools

OTHER ASWM WEBINAR SERIES:

- Wetland Mapping Consortium
- Improving Wetland Restoration Success
- Special Topic Webinars
- ASWM Members' Webinars

Latest NFFA Webinar Posted

From May 5, 2015

“Square Peg, Round Hole:
Maximizing Conservation
in a Flood-Insurance
Construct”

- Bonnie Shorin, NOAA



Part 1: Introduction: Marla, Stelk, ASWM
Presenter: Bonnie Shorin, NOAA



Part 2: Presenter: Bonnie Shorin, NOAA



Part 3: Presenter: Bonnie Shorin, NOAA



Part 4: Questions/Answers

Future Schedule

- **Tuesday, August 4 at 3:00pm ET**
 - Conference call
- **Tuesday, Sept. 1 at 3:00pm ET:**
 - Webinar: TDB
- **Tuesday, October 6 at 3:00 p.m. ET:**
 - conference call



Currently conference calls and webinars are usually held on alternating months on the second Tuesday of the month at 3:00 p.m. eastern, 2:00 central, 1:00 mountain, and 12:00 pacific.

Interested in Receiving CEUs?

Who can get CEUs?

- You must be a participant during the live webinar presentation.
- We are able to track webinar participation by registrants using our GoToWebinar software.
- **Documentation will state that you were a participant for X hours of a specific ASWM webinar.**

Receiving Documentation

*If you need CEUs for your participation in today's webinar, you **must request** documentation from ASWM.*

*Please note that we will send the documentation to you **for you to forward** to the accrediting organization.*

Please contact **Laura Burchill**

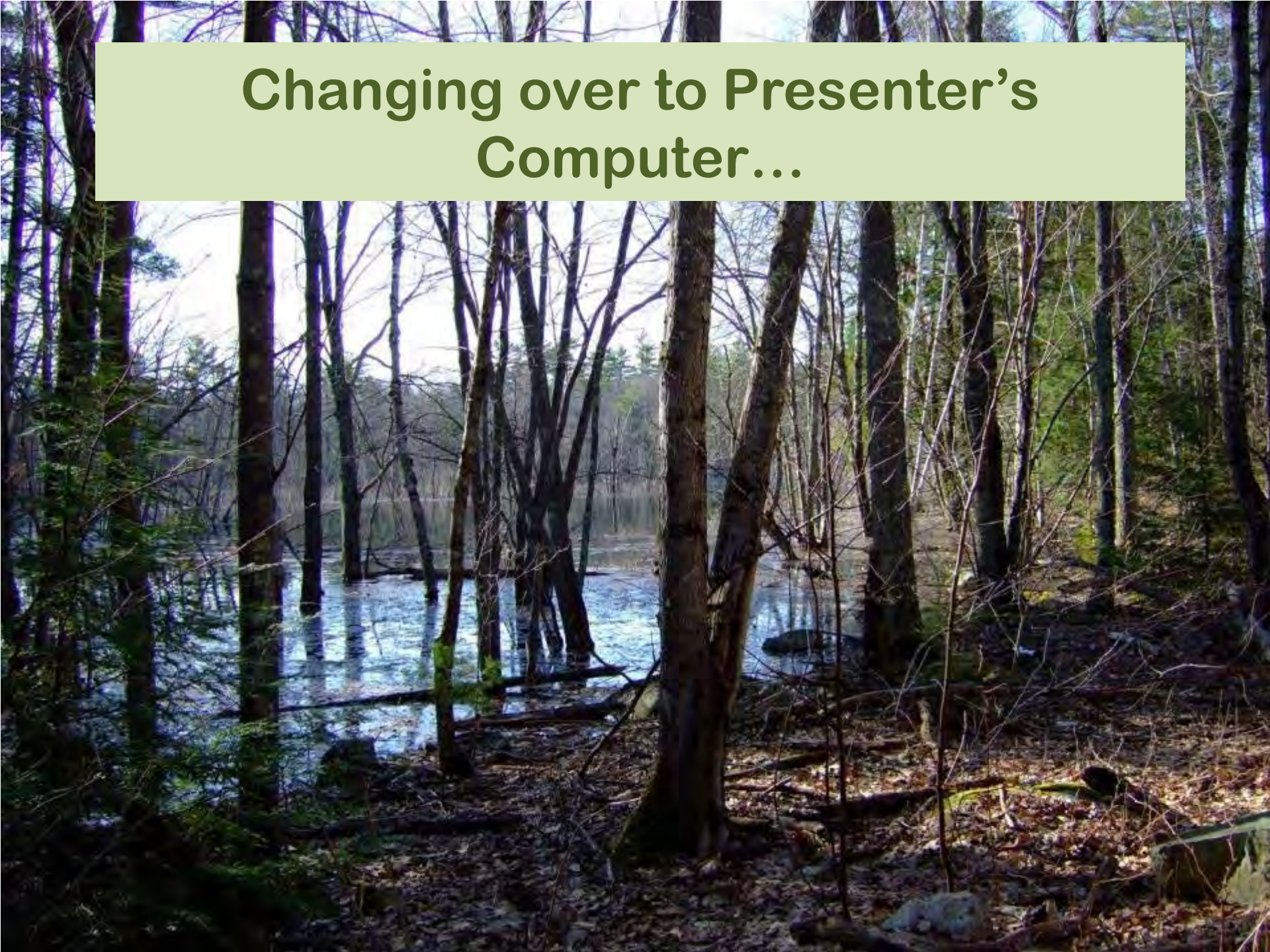
laura@aswm.org

(207) 892-3399

Provide:

- Your full name (as registered)
- Webinar date and Title

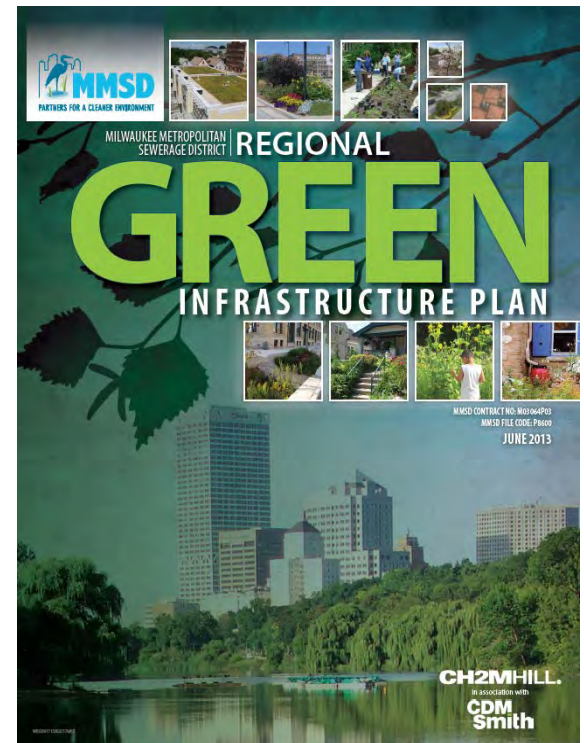
Changing over to Presenter's Computer...



Natural Floodplain Functions Alliance

Managing Water Where it Falls: Green Infrastructure in Milwaukee, Wisconsin

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

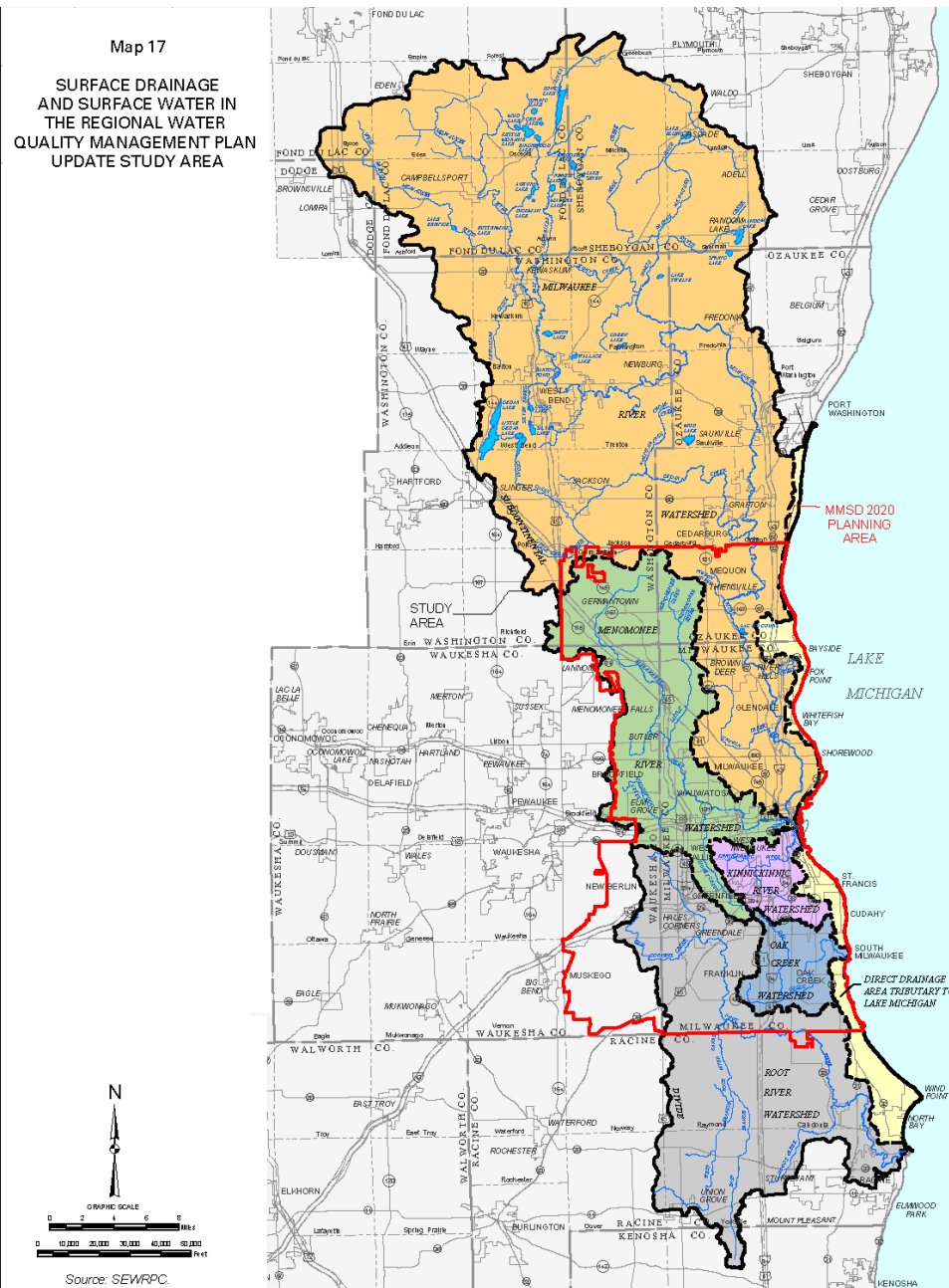


Milwaukee Metropolitan Sewerage District

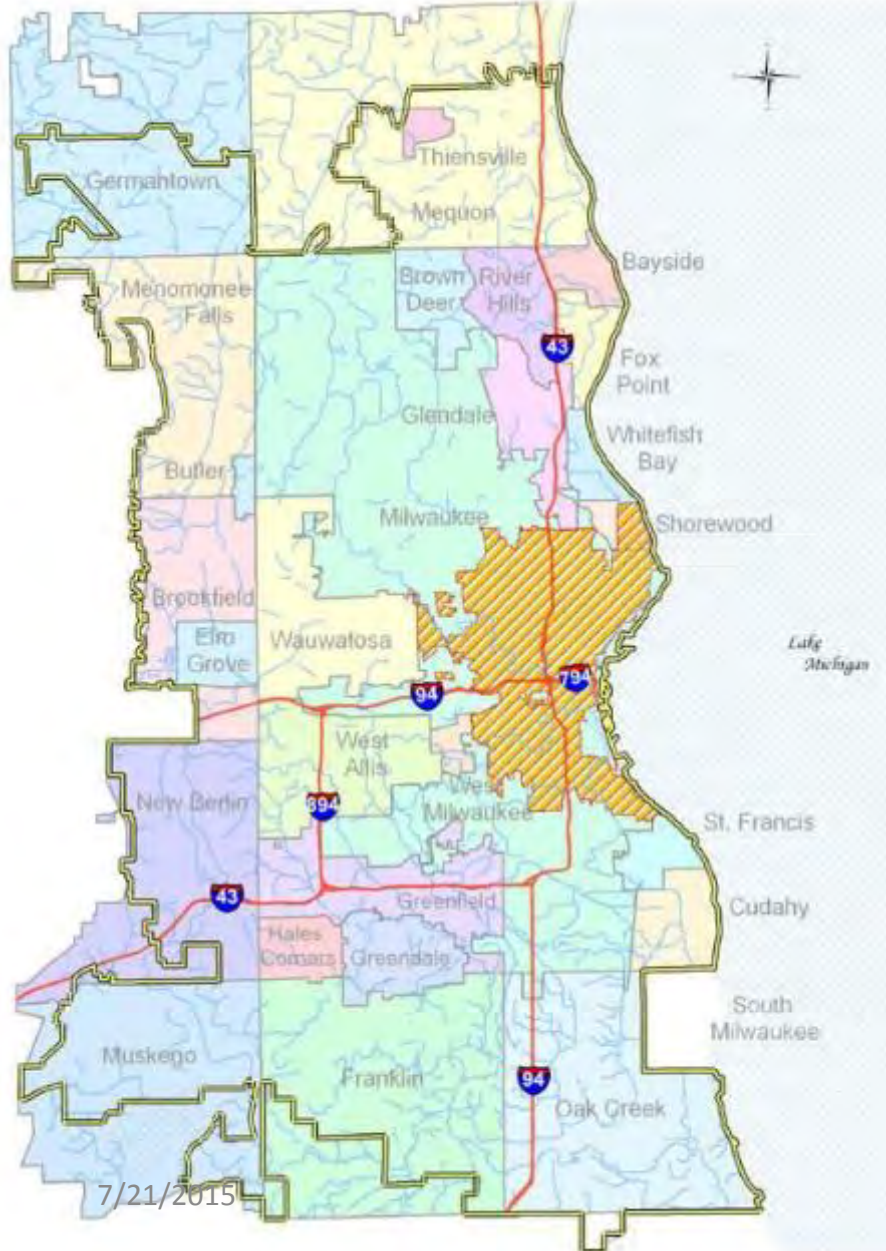
The Greater Milwaukee River Watersheds

<u>Watershed</u>	<u>Area (square miles)</u>
Kinnickinnic River	24.7
Menomonee River	135.8
Milwaukee River	700.0
Oak Creek	28.2
Root River	197.6
Lake Michigan Direct	40.7
Drainage Area	
Total	1,127.0
Number of Counties	9
Number of Local Municipalities	83

Map 17
SURFACE DRAINAGE
AND SURFACE WATER IN
THE REGIONAL WATER
QUALITY MANAGEMENT PLAN
UPDATE STUDY AREA



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



ORGANIC NITROGEN

Milorganite[®]

FERTILIZER



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.

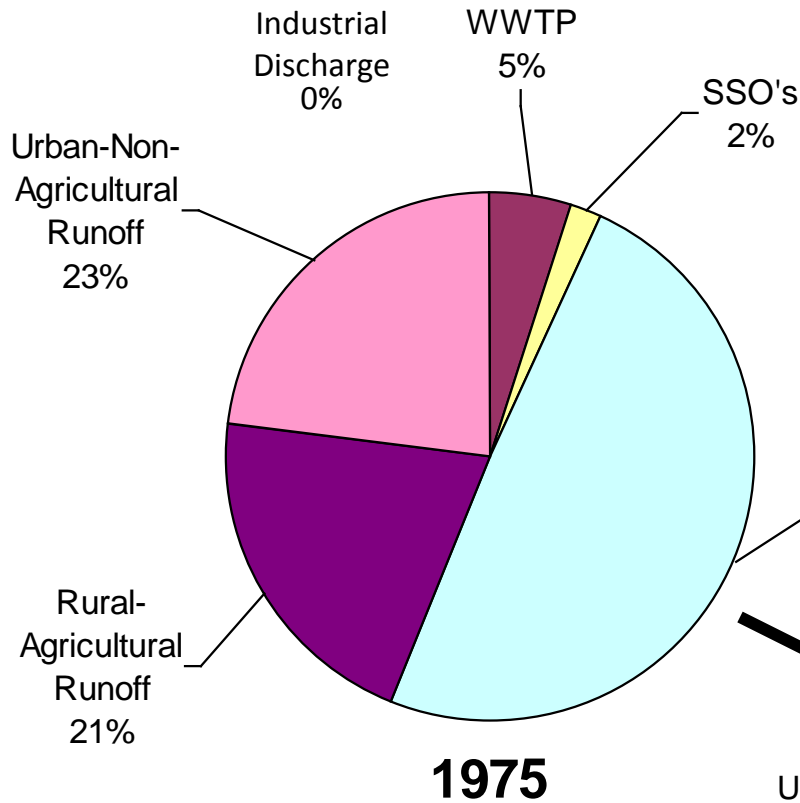
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Capture & Clean

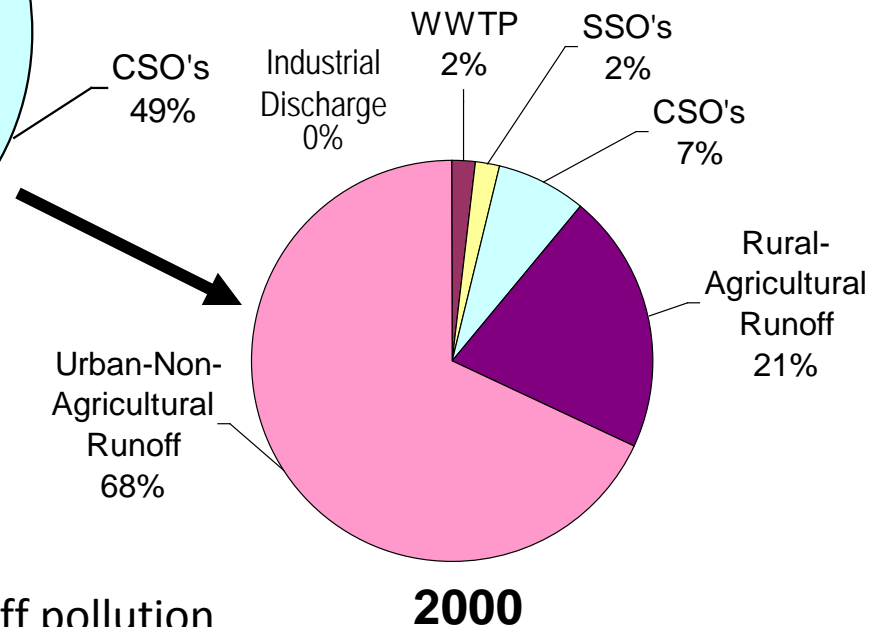
Since 1993



SEWRPC's Regional Water Quality Management Plan Update Pollution Sources Summary

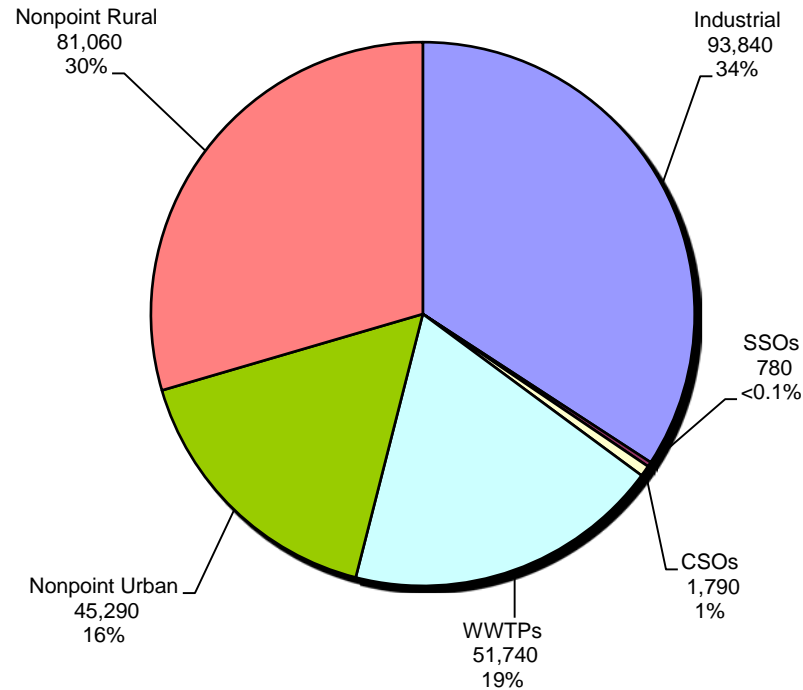


Greater Milwaukee Watersheds Fecal Coliform Loadings



CONCLUSION: Focus on abating stormwater runoff pollution

Milwaukee River Watershed - Existing (Year 2000) Loads Total Phosphorus (lbs/yr)



You have to start with a grey backbone...



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

To work with Green...

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

Valley Park Project

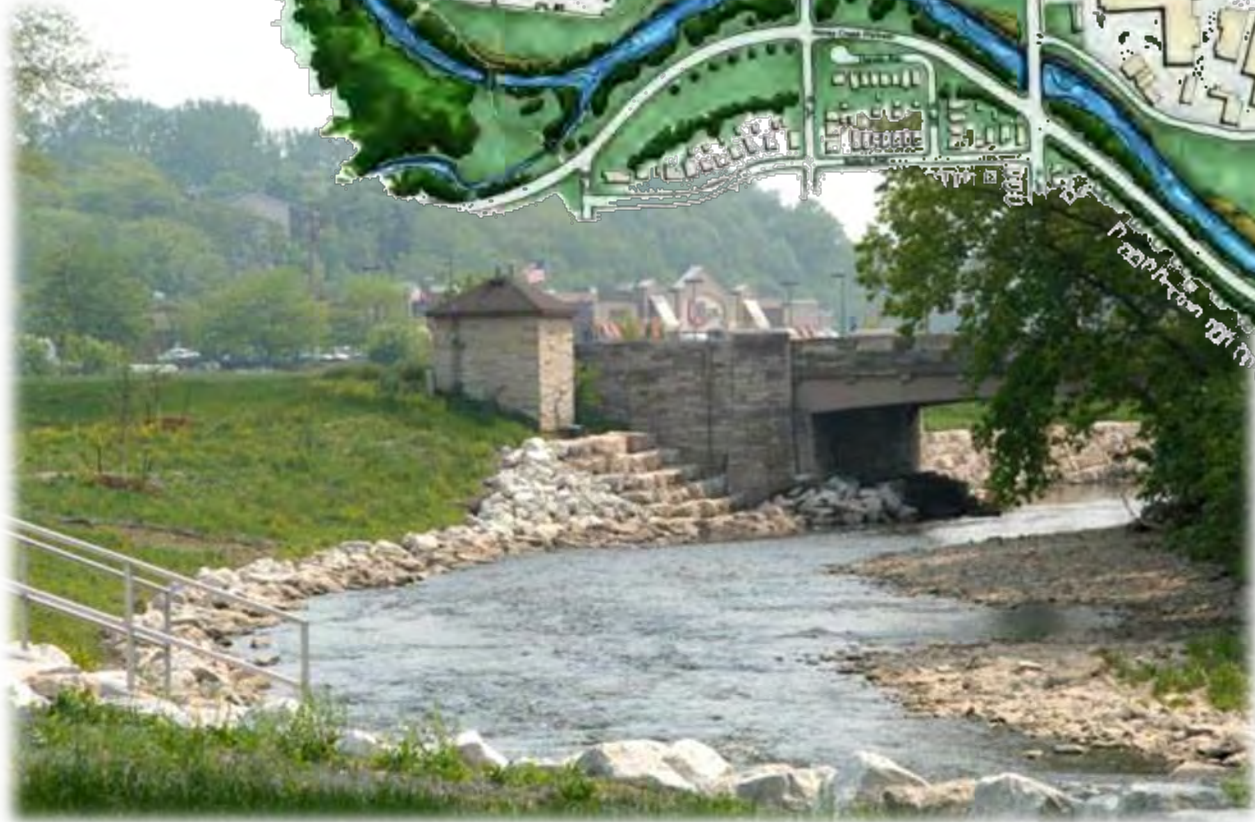


Hart Park



Plan

North



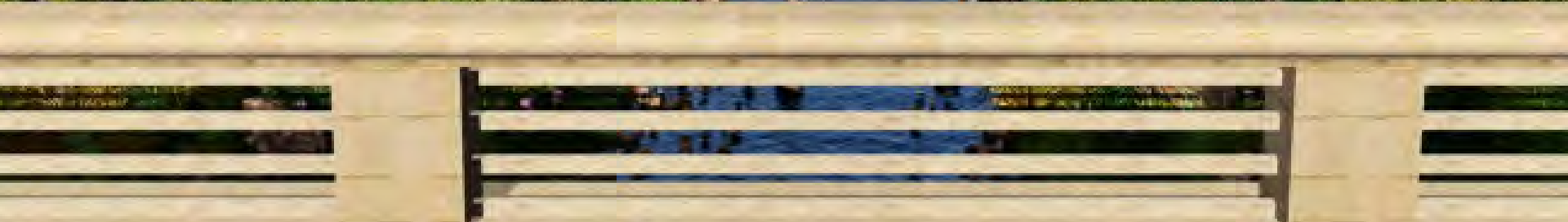
County Grounds



Menomonee River Concrete Removal



Kinnickinnic Concrete Removal



Since the Clean Water Act, water pollution has been managed from downstream to upstream



FRESH COAST 740
MILWAUKEE, WISCONSIN

Managing Water Where it Falls

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:

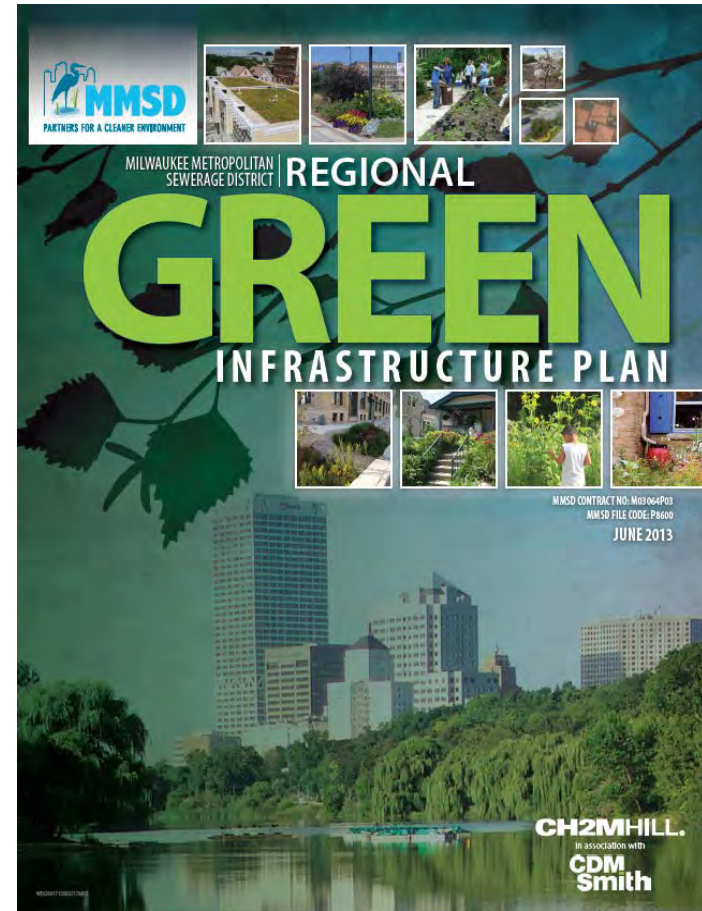
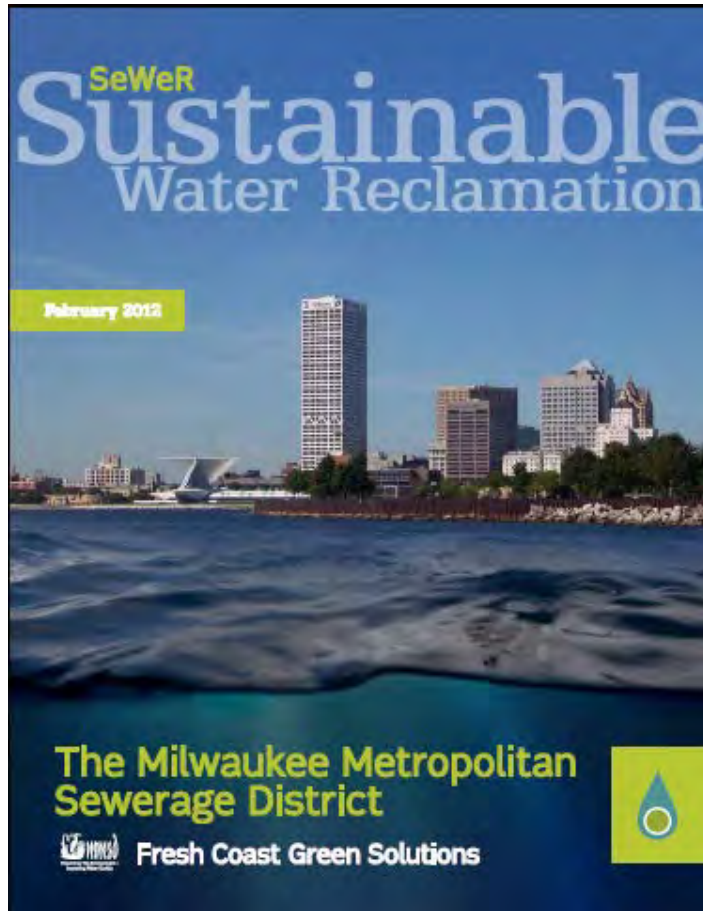
Meet 100% of MMSD's energy needs with renewable energy sources

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

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

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

MMSD's Sustainability Plan and Regional Green Infrastructure Plan



Milwaukee Metropolitan Sewerage District

Greenseamssm More than 3,000 Acres



Green Roofs



Managing up to

468,000

Gal. Per Storm



Up to

54,900

Gal. Funded

2014



More Green Roofs



More than **20,400** sold since 2002

FRESH COAST 740
MILWAUKEE, WISCONSIN

Total Storage =
1,100,000
Gallons



30th St. Corridor



90 Rain Barrels

8 Rain Gardens

Up to **8,593** gal.

Captured per Storm

Brown Deer



100 Rain Barrels - 12 Rain Gardens

Up to **16,940** gal. per Storm

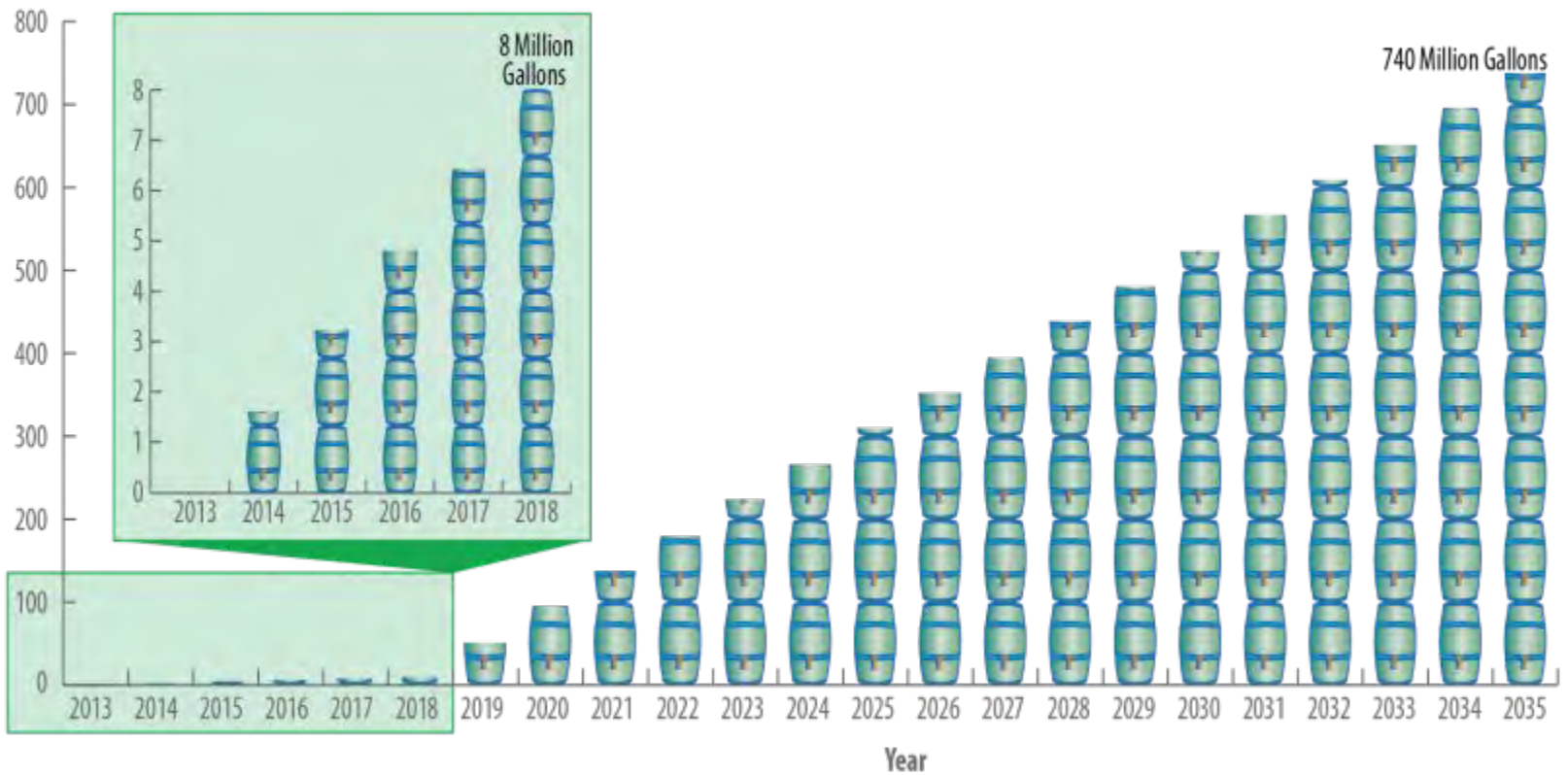


Menomonee Valley: Stormwater Park



One step at a time...

Planning Area Rainfall Capture Volume
(Million Gallons)



Aesop's Tortoise (Green) and the Hare (Grey) Story



Questions



Kevin Shafer

Executive Director

Milwaukee Metropolitan Sewerage District

kshafer@mmsd.com

414-225-2088

*Thank you for your
participation!*



www.aswm.org