GODFREY & KAHN S.C.

Going green and saving green: Strategies for meeting phosphorus requirements in Wisconsin waterways

March 9

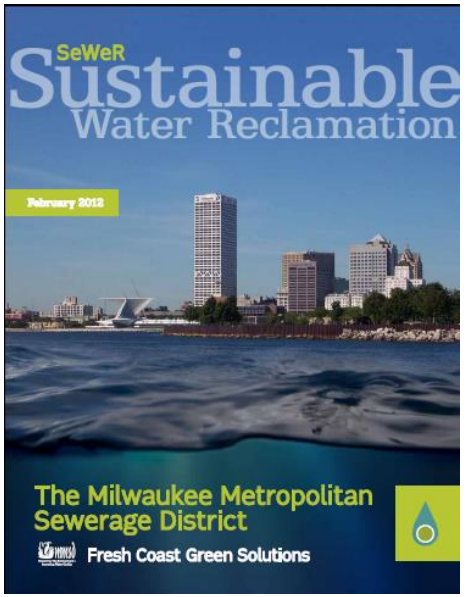
The presentation and materials are intended to provide information on legal issues and should not be construed as legal advice. In addition, attendance at a Godfrey & Kahn, S.C. presentation does not create an attorney-client relationship. Please consult the speaker if you have any questions concerning the information discussed during this seminar.

Keynote presentation

Keynote speaker: Kevin Shafer, executive director - MMSD

GOING GREEN AND SAVING GREEN: STRATEGIES FOR MEETING PHOSPHORUS REQUIREMENTS IN WISCONSIN WATERWAYS

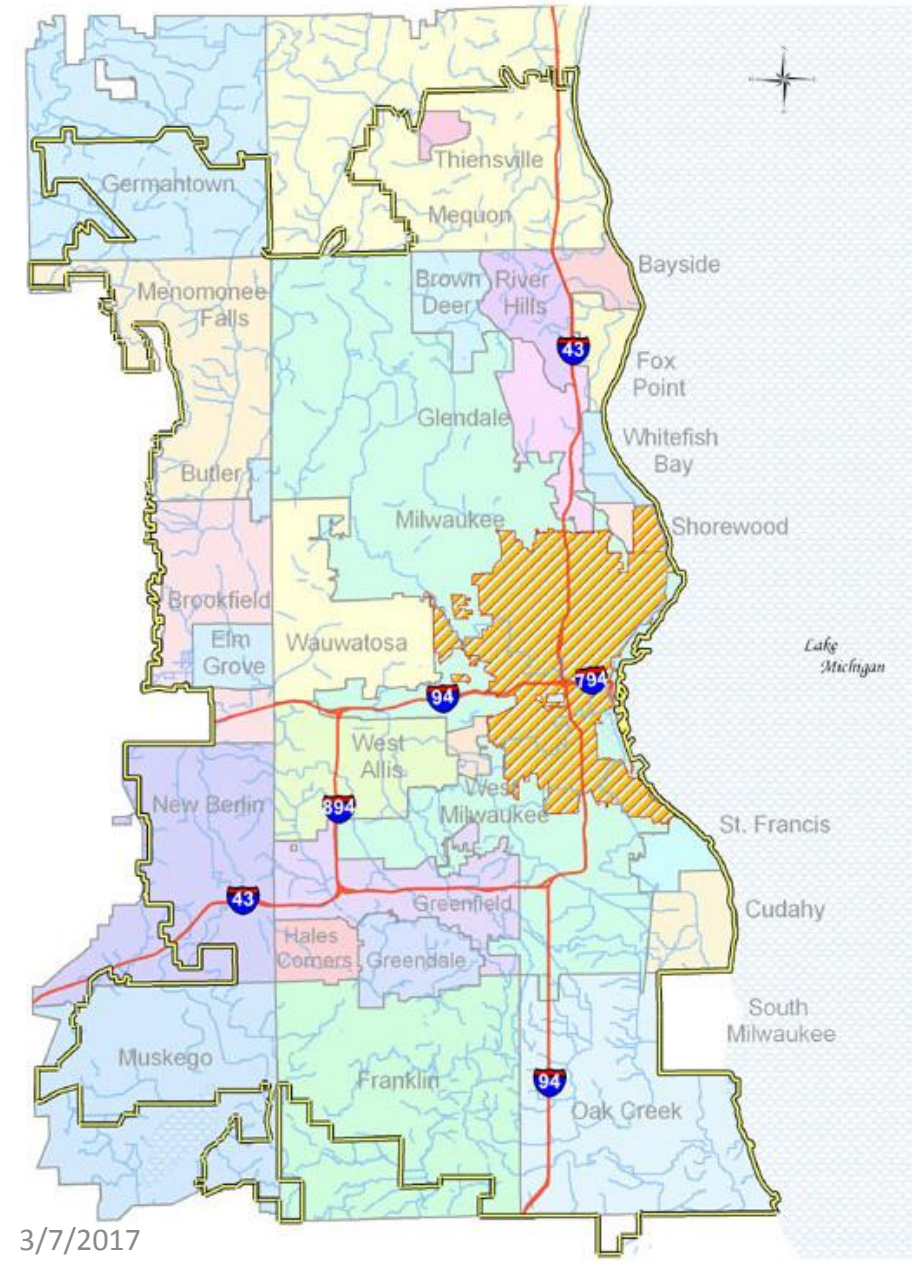
Kevin L. Shafer, P.E.
Executive Director



MMSD
PARTNERS FOR A CLEANER ENVIRONMENT

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

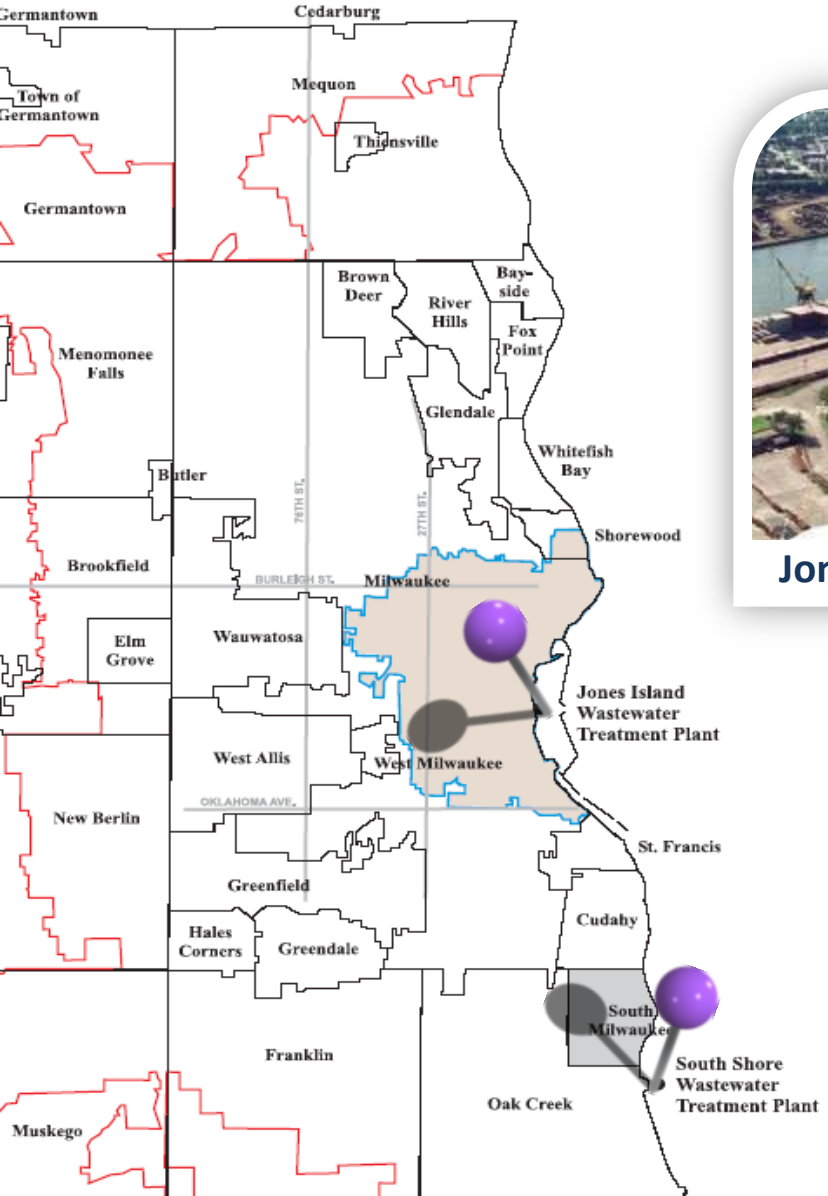
We Have:

300 Miles of sewers (municipalities and individuals have 6,000 miles!)

521 MG Tunnel System

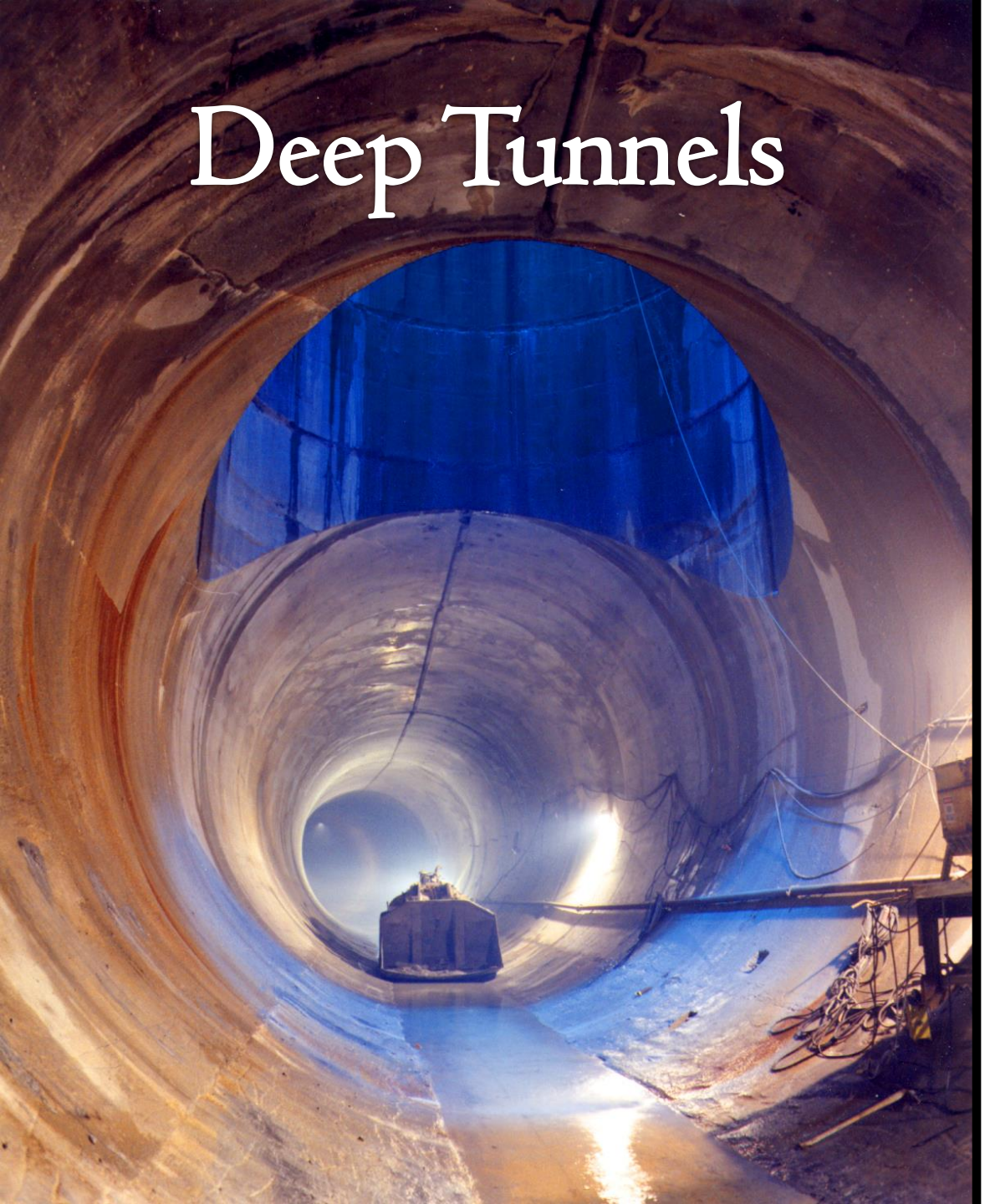
2 Water Reclamation Facilities

MMSD's Water Reclamation Facilities (WRFs)



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.


98.4%
Capture & Clean
Since 1993
Photo by: David Stefanik
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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

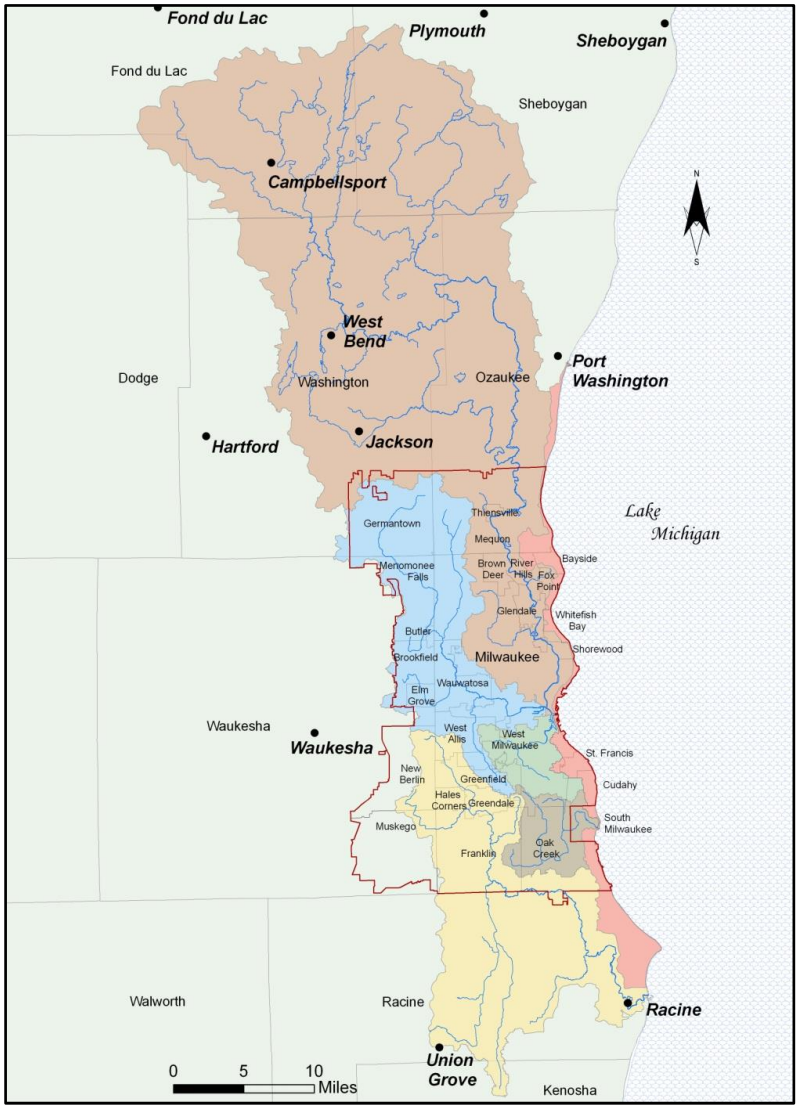
Meet 80% of MMSD's energy needs with internal, renewable sources

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

Greater Milwaukee Watersheds

- Watershed Boundaries ≠ Political Boundaries
- We're all upstream and downstream.



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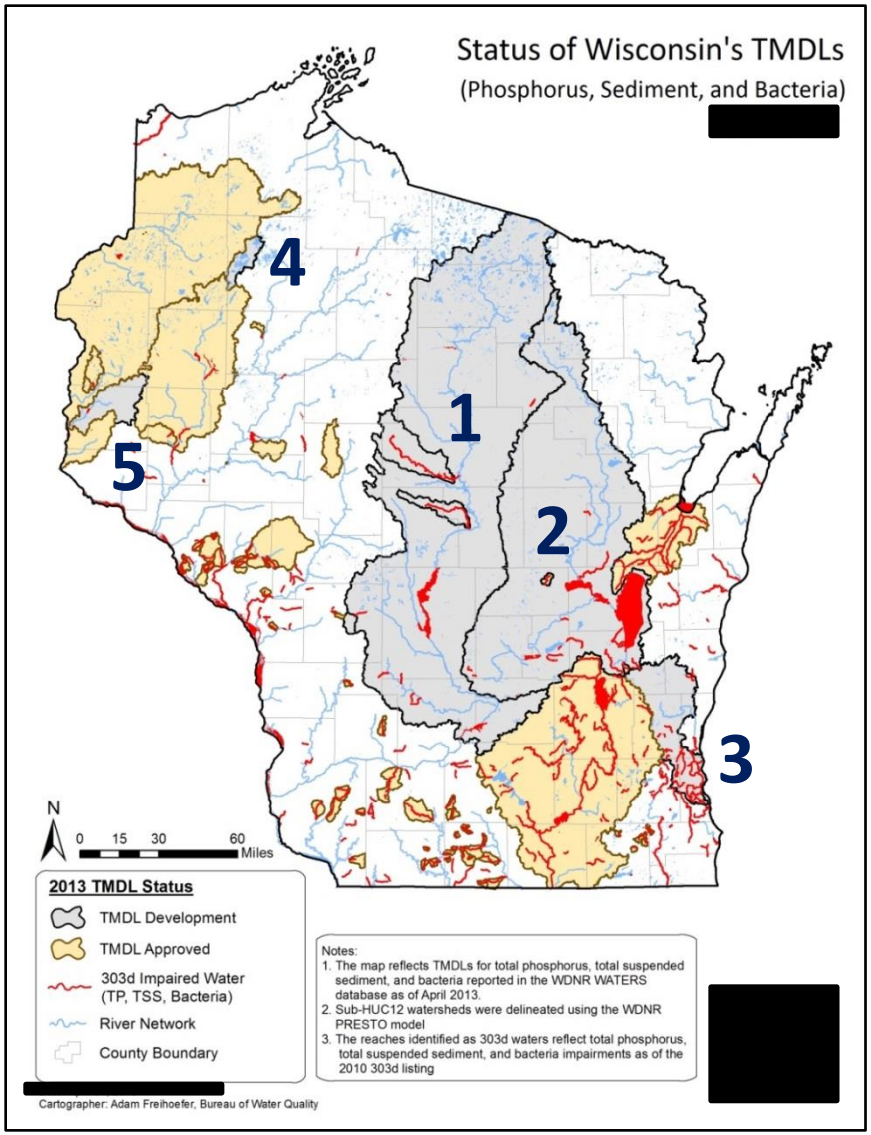
Milwaukee Metropolitan Sewerage District

Statewide TMDL development

1. Wisconsin River Basin
   Phosphorus
2. Upper Fox-Wolf Basin
   Phosphorus and TSS
3. Milwaukee River Basin
   Phosphorus, TSS, and Bacteria
4. Lac Courte Oreilles
   Phosphorus
5. Lake Mallalieu
   Phosphorus



http://dnr.wi.gov/topic/tmdls/tmdldevelopment.html

Water quality standards

- Designated Uses:
  - Fish & Aquatic Life
  - Public Health
  - Recreation
- Water quality criteria:
  - Numeric: dissolved oxygen, pH, bacteria, toxic substances, phosphorus, etc.
  - Narrative: "no objectionable deposits," "substances in concentrations or combinations shall not be harmful to humans, fish, plants, or other aquatic life."

Phosphorus criteria NR 102.06

- Rivers $_{\text{NR 102.06(3)(a)}}$ = 100 µg/L
- Streams = 75 µg/L
  - All unidirectional flowing waters not in NR 102.06(3)(a)
- Reservoirs
  - Stratified = 30 µg/L
  - Not Stratified = 40 µg/L
- Lakes range from 15-30 µg/L
- Lake Michigan =7 µg/L
- Lake Superior = 5 µg/L
- Exclusions
  - Ephemeral Streams
  - Wetlands
  - Lakes <5 ac

TMDL allocations

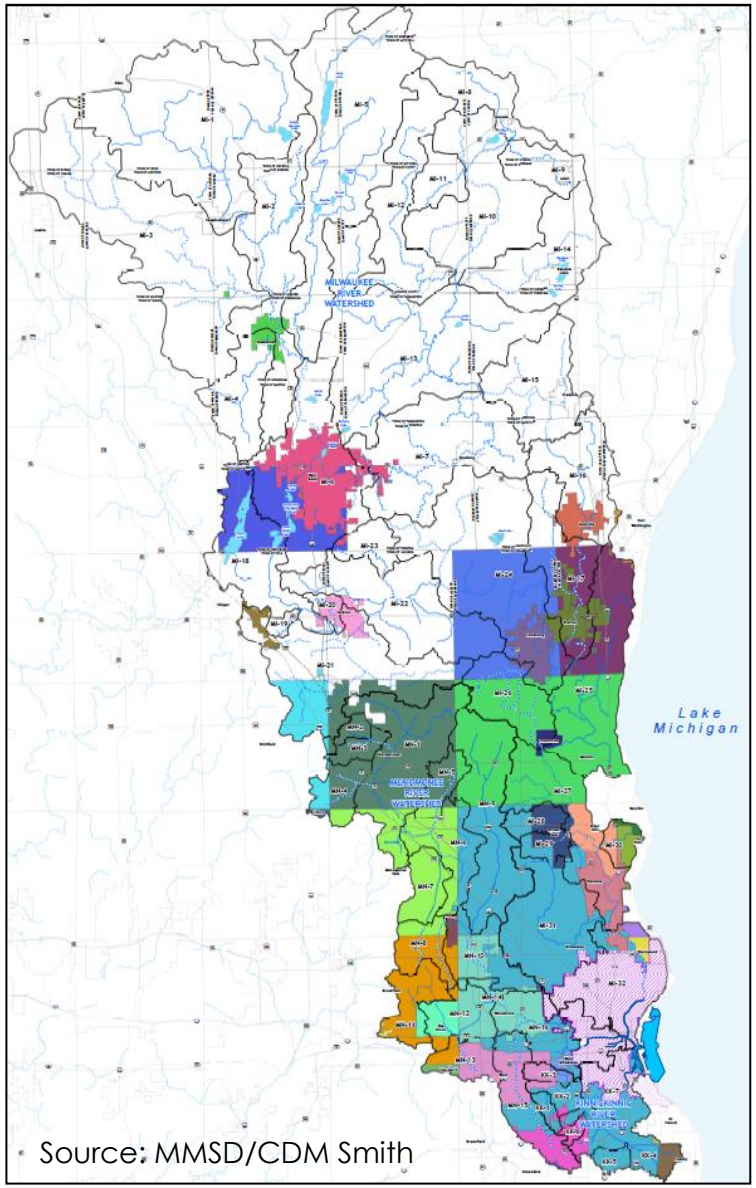
Waste load allocation

- WWTPs / POTWs
- Industries
- **Permitted MS4s**
- Non-Metallic Mines
- Construction Sites
- NCCWs

Load allocation

- Agricultural (includes load from CAFO land spreading)
- Non-permitted Urban
- Background

MS4s within the Basin



- 43 permitted MS4s
  (Sheboygan and Fond Du Lac Counties do not have permitted area in the Basin)
- 12 General Permits
  (3 '-01' permits)
- 7 Individual Specific
  (2 non-municipal)
- 24 Individual Group
  (5 groups total)

MS4 percent reductions

- TSS percent reductions range – 58% to 90%
- TP percent reductions range – 14% to 88%

TMDL permit requirements

- Once EPA has approved a TMDL that contains permitted MS4s, the next permit issued must contain **an expression of the WLAs consistent** with the assumptions and requirements contained in the TMDL.

- EPA approves the WLAs and generally these WLAs are mirrored directly in the permit.

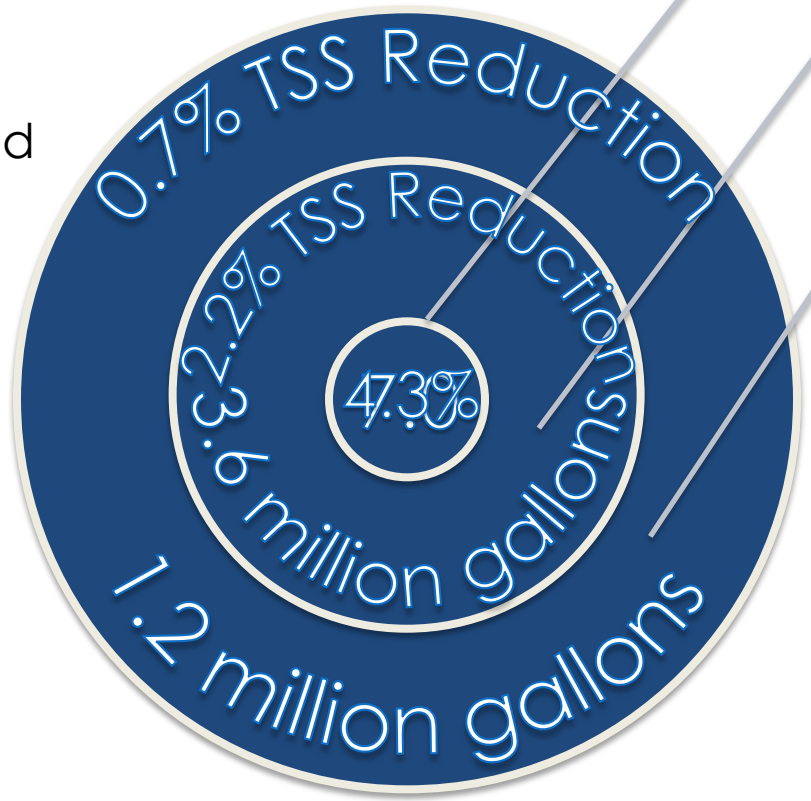
- The direct application of the WLA presents certain challenges in implementation due to assumptions required during the development of the TMDL.

SMART benchmarks

MEASURABLE GOAL: Reduce total connected imperviousness by **30%** in drainage areas K-1 and K-2 through implementation of *Downspout Disconnection Program* and *Green Streets*

On the ground:

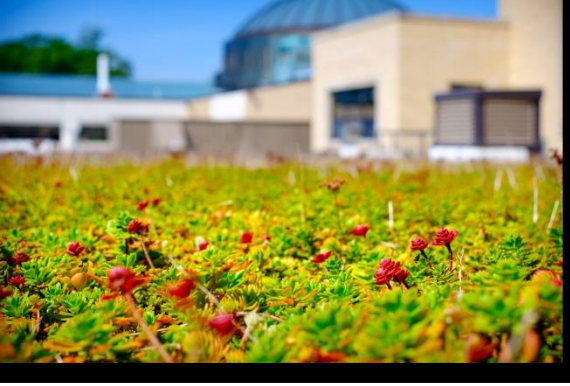
- 100 ac watershed
- 1.4 acres of permeable pavement (4,850 linear ft)
- ~180 homes outfitted

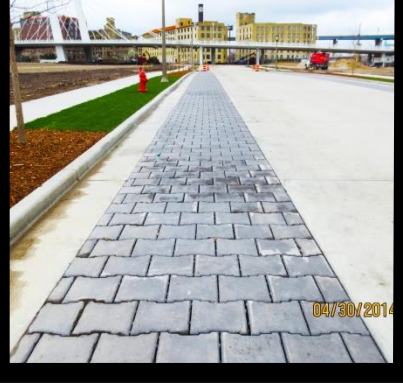


3rd Permit Term: 30%

2nd Permit Term: 15%

1st Permit Term: 5%





Green Infrastructure

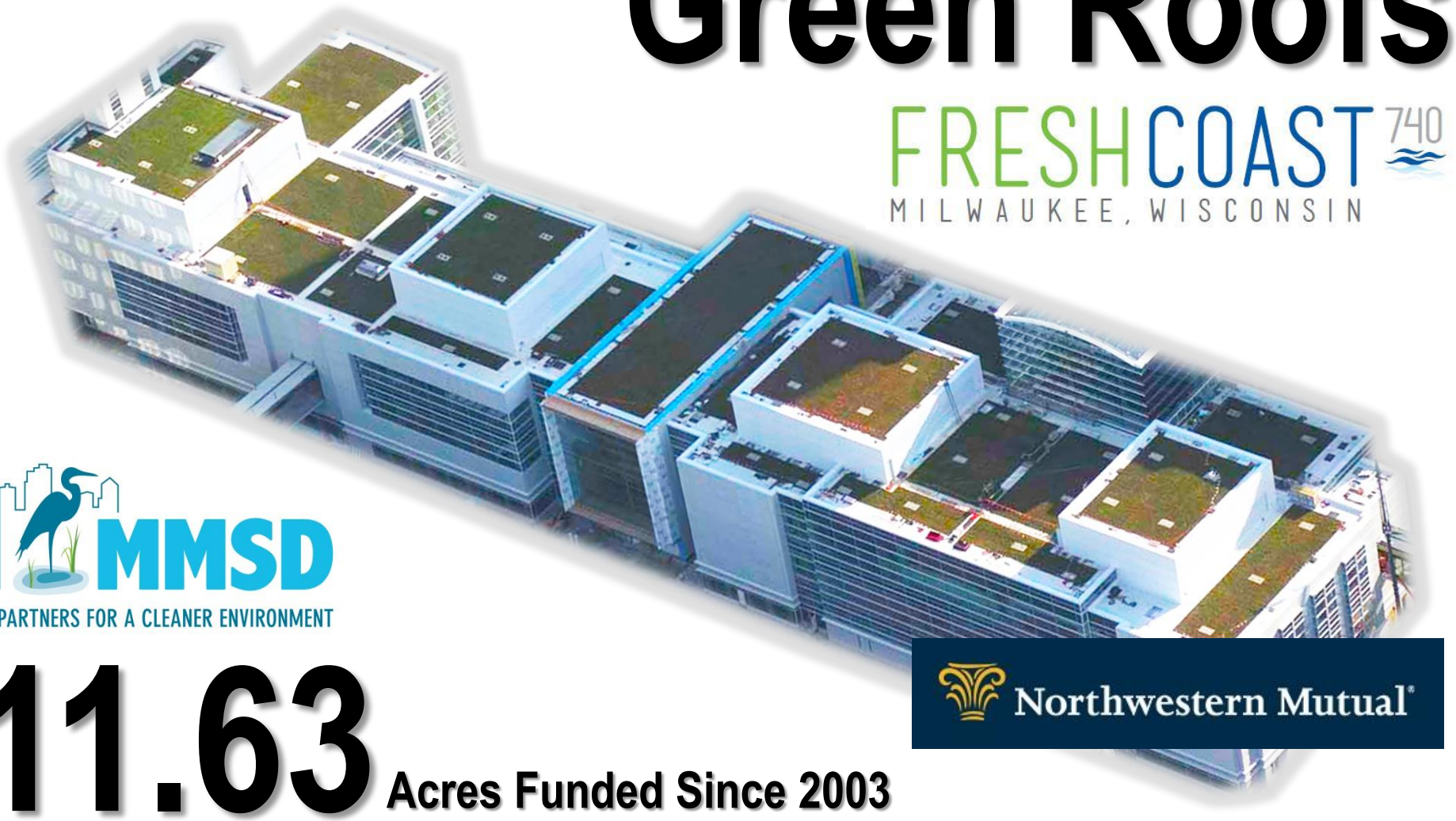
FRESHCOAST 740
MILWAUKEE, WISCONSIN

Funded in 2016 = 10,440,000 Gallons

Since 2002 31.9 Million Gallons

Green Roofs

FRESHCOAST 740
MILWAUKEE, WISCONSIN



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Northwestern Mutual®

11.63 Acres Funded Since 2003

506,000 Gallons per storm

Rain Barrels

22,280 since 2004 (Sold & Donated)

= 1,225,400

Gallons

FRESHCOAST 740
MILWAUKEE, WISCONSIN

Green Summer 2016

FRESHCOAST 740
MILWAUKEE, WISCONSIN

13,700 Gallons

St. Francis

7,000 Gallons

Greenfield

GREENSEAMS®

3,433

Acres

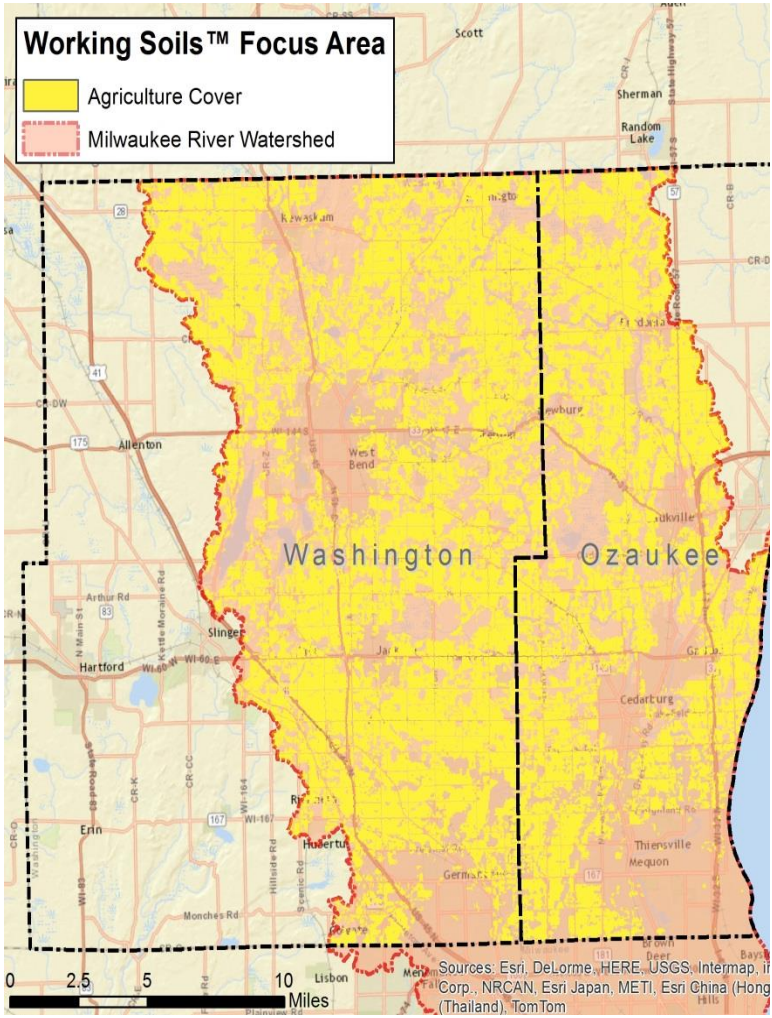





Working Soils™ geographic focus

The Working Soils® Program:

- Acquires agricultural conservation easements (ACEP)
- Allows farmland to remain productive, privately owned
- Partnership between MMSD, NRCS, Counties, & landowners



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Milwaukee Metropolitan Sewerage District

Questions

Kevin Shafer
Executive Director
Milwaukee Metropolitan Sewerage District
kshafer@mmsd.com
414.225.2088

Overview of point source phosphorus regulation in Wisconsin

Speaker: Diane Marchik **–** Godfrey & Kahn, S.C

Overview of point source regulation

- The problem:
  - Too much phosphorus in water bodies accelerates algae growth, which can harm water quality, food resources and habitats
  - Phosphorus can reduce recreational use of water bodies, property values, and public health due to increased algae and aquatic plant growth

Phosphorus sources

- Phosphorus sources include:
  - Point sources (e.g., municipal and industrial wastewater treatment plants)
  - Non-point sources (e.g., farm fields, feedlots, parking lots)

The regulations

- Clean Water Act ("CWA")
  - States must establish water quality standards for state waters
    - These standards designate the use of the waterbody, establish water quality criteria to protect the waterbody, and adopt requirements to protect the waterbodies
  - Section 303(d) of the CWA requires delegated states to determine biennially if water bodies are not meeting their designated uses or water quality criteria (known as the Impaired Waters List)
  - States must then develop a TMDL for each pollutant/waterbody combination on the list
  - In Wisconsin, the TMDL wasteload allocations are then implemented through WPDES permits

The regulations

- Water quality standards for phosphorus in surface waters set maximum phosphorus thresholds
- WPDES permits contain procedures to implement these phosphorus standards

The regulations

- Any WPDES permit issued or reissued after Dec. 2010 is evaluated for phosphorus water quality based effluent limits
- Meeting these phosphorus limits can be very challenging

The regulations

- Key Wisconsin statutes and regulations:
  - Wis. Stat. s. 281
  - Wis. Stat. s. 283
  - Wis. Admin. Code NR s.102
  - Wis. Admin. Code NR s.151
  - Wis. Admin. Code NR s. 217

Phosphorus limits

- Types of phosphorus limits in the Wisconsin Administrative Code:
  - Technology-based limits (TBELs)
  - Water quality-based effluent limits (WQBELs)
  - Total maximum daily load (TMDL)
  - Interim limits
  - Mass limits
  - Adaptive management interim limits

Compliance options

- Facility upgrades
- Water quality trading
- Adaptive management
- Economic hardship variance
- Multi-discharger variance

Presentation overview

- Multi-discharger variance
- Trading and adaptive management strategies
- Legal strategies
- Panel discussion

Multi-discharger variance (MDV)

Speaker: Joseph Nicks – Godfrey & Kahn, S.C.

MDV history

- MDV Legislation Enacted in 2014 and amended in 2016 (s. 283.16)
- Department of Administration prepares Economic Impact Analysis that confirms widespread social and economic impacts of Wisconsin's phosphorus regulation on 12/29/2015
- Submitted to EPA for approval on 3/29/16
- Approved by EPA on 2/6/17

Who qualifies for MDV?

- Existing sources only – WPDES Permit holders
- Certify major facility upgrade required to comply with water quality standards
- Meet screening tests as approved by EPA
- Separate screening tests for POTW's and industries

The screening tests

- Primary screener based on cost of phosphorus removal. Compliance costs as % of Median Household Income (MHI)
  - Evaluated by county
  - 2% is important threshold
- Different secondary indicators for municipalities and industries
- For Municipal POTWs points assessed for secondary indicators based on five economic factors including
  - Transfer Receipts as Share of Personal Income
  - Jobs per square mile
  - Population change
  - Net earnings change
  - Job growth

Qualification examples

1. If cost 2% or more of MHI then two points on secondary screening test required
2. If cost between 1% and 2% of MHI then three points on secondary screening test required
3. If cost less than 1% of MHI – not qualify.
4. If less than two points on secondary screening test – not qualify (four counties)

- Based on actual costs, not on cost curves from Economic Analysis

- See Appendix C to Economic Impact Report

Watershed project requirements

1. Payments to county of $50/lb (adjusted for inflation) times difference in discharged amount and Target Value
2. Agreement with DNR for plan or project to reduce phosphorus equal to difference between discharged amount and Target Value
3. Agreement with third party approved by DNR to reduce phosphorus equal to difference between discharged amount and Target Value

“Target Value” is TMDL limit or .2 mg/L if no TMDL

Interim limits

Permit term 1: 0.8 mg/L

Permit term 2: 0.6 mg/L

Permit term 3: 0.5 mg/L

Permit term 4: MDV concludes - TP WQBEL included in WPDES Permit

But, DNR retains option to require optimization and set more stringent effluent limits than statutory interim limits (s. 283.16(7))

DNR review of MDV program

Triennial Standards Review to determine if MDV is necessary based on technological improvements or economic changes (s. 283.16(2m))

Five-year Highest Attainable Condition Review to determine if interim limits consistent with highest attainable condition (s. 283.16(3m))

Timing issues

- EPA approval for 10-years only – until Feb. 2027
- Facility may apply for MDV
  - in application for new permit
  - with 60 days of DNR Permit with WQBEL for P
  - During permit term if permit was reissued with WQBEL for P before 4/25/2014

MDV might not be in place for entire permit term

The next session will start in:

00 15 00

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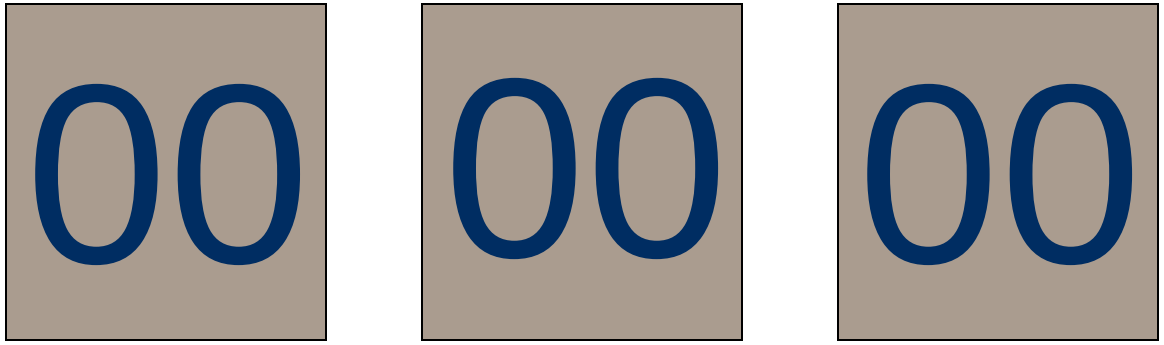

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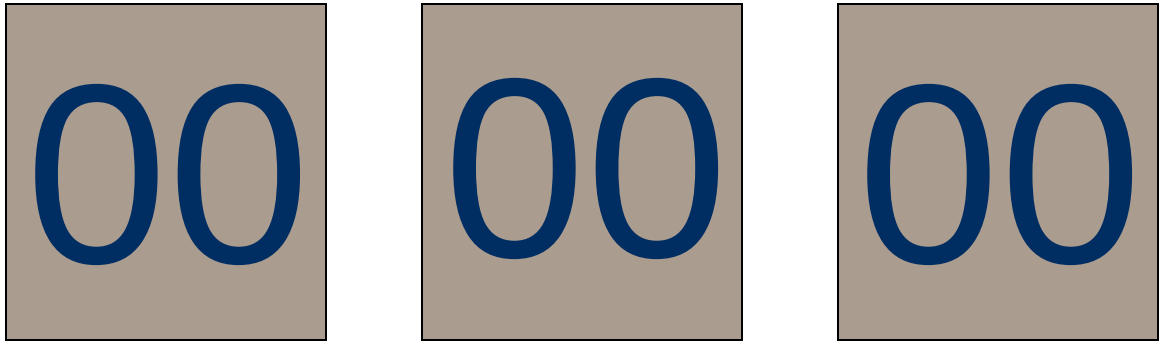


Trading and adaptive management strategies

Speakers: Sarah Schenck **–** Godfrey & Kahn, S.C. and Ned Witte – Godfrey & Kahn, S.C.

Water quality trading

- Typically involves a point source facing high pollutant reduction costs
- The point source compensates another party to reduce pollutants in the watershed to offset its load
- Requires trade ratios to be used to quantify reductions used to offset the point source's permit limit

Reason for water quality trade

- Very stringent phosphorus requirements for new discharges

- Trading may allow for a more economic way to meet stringent discharge levels by allowing point sources to avoid considerable additional expense in installing and operating costly phosphorus removal system

Water quality trading

- Partnership between a point source and landowners, municipalities, private or public entities, or trading affiliates

- Must result in an overall reduction in pollutant load

WQT parties

- Credit user
- Credit generator

Feasibility

- Determine offset needed
- Identify whether there is a credit generator in the watershed
- Assess whether there is sufficient credit in the watershed for the needed offset
- If feasible and preferred over other compliance options, develop a WQT plan

WQT plan

- Key document prepared by applicant
- Incorporated into requirements of wastewater permit
- Outlines how WQT meets all water quality trading requirements
- Sets forth and attaches Establishment Plan and Operation and Maintenance Plan for phosphorus reducing activities
- Includes modeling to set forth and demonstrate the phosphorus reductions that occur with phosphorus reduction practice

WQT plan

- Includes calculation of trade ratio (min. of 1.2:1), which is based on:
  - Delivery factor (based on whether within the same HUC12 sub-watershed)
  - Downstream factor (required if reduction practices occur downstream of outfall and is based on pollution load ratio)
  - Equivalency factor (not needed if same pollutant)
  - Uncertainty factor (permanent vegetative cover has lowest factor of 1)
  - Habit adjustment factor (could be beneficial)

Reporting requirements

- Monthly certification regarding pollution reduction practice
- Annual inspections:
  - In 1st growing season, fields inspected one month after installation, in mid-Sept. and Nov.
  - During 2nd , 3rd and 4th growing seasons, fields will be inspected once each during the spring, summer and fall
  - Thereafter, annual inspections

Reporting requirements

- Annual water quality trading report:
  - Indicates number of total phosphorus reduction credits (lbs/month) used each month during previous year to demonstrate compliance
  - Includes inspection reports from previous year and reporting of any non-compliance or failure issues

WQT Trading Agreement

- Relatively simple compared to WQT Plan
- If permittee performs pollution reduction activity, the agreement is between the permittee and WDNR
- If a third party performs pollution reduction activity, the agreement is between permittee and the third party
- The agreement sets forth elements to ensure pollution reducing activity occurs and stipulates what happens if it does not occur
- Provides protections if third party fails to perform stepped approach if WDNR has concerns

Adaptive management in 15 minutes

- What is the adaptive management (AM) option?
- What are the benefits of using AM?
- When is AM an available option?
- How is AM implemented?
- How does AM work with other tools (MDV and Trading)?
- Practical advice regarding AM

What is AM?

- AM is a voluntary phosphorus (P) compliance option that allows point and nonpoint sources (NPS) (e.g., polluted runoff from agriculture/stormwater discharges/development) to work together in waters that do not meet P standards – collaborative watershed P reduction
- In certain cases, it may be less expensive for PSs to pay cost of reducing P from NPSs to improve water quality and meet P standards
- Wis. Adm. Code s. NR 217.18

What are the benefits of using AM?

- Compliance through AM may cost less than other compliance options (treatment, MDV, trading)
- PS and NPS of P can demonstrate commitment to cooperatively protecting water resources – potentially lower overall P loadings
- PS gets less restrictive interim P limit while pursuing AM; these standards could be fixed if WQC are met
- AM is flexible – implementation timeframe can be three five-year permit terms
  - PS can work with partner with stakeholders to fine tune AM solution

When is AM an available option?

- P exceedance is cause by PS(s) and NPS(s)
- Either:
  - NPS/MS4 P contribution is >50% of watershed P loadings, or
  - P criterion cannot be met w/o NPS control
- PS must implement filtration or similar technology
- PS submits AM plan showing how AM will achieve reductions

How is AM implemented?

- Determine AM is preferred compliance option
- Present AM eligibility form to WDNR (notice)
- Develop AM plan
- Apply for/modify permit to include AM plan
- Work through public comment period on AM plan
- Permit reissued, modified, or revoked and reissued to include AM Plan

WDNR's nine steps of AM Plan

1. Identify partners of PS (county, NPS)
2. Describe watershed and set load reduction goals
3. Conduct watershed inventory (use and features)
4. Identify where reductions will occur
5. Describe management measures (PS and NPS)
6. Estimate P reductions expected by permit term
7. Measure success (monitoring strategy)
8. Financial concerns (document AM cost agreements)
9. Implementation schedule with milestones

How does AM work with other tools (MDV and trading)?

- MDV requires PS to achieve basin P reductions – this could be achieved through AM
- AM implementation may be more “organic” than trading, with multiple partners and programs
- AM P reduction is measured over 15-years - trading credit must be in hand at permit outset
- Trading requires trade ratios/verified modeling, but AM requires in-stream monitoring
- Evaluate degree of reduction needed

Practical advice regarding AM

- AM may be preferred standalone option, but AM PS commits to work with partners to reduce P
  - In-stream monitoring, effluent monitoring, meeting interim limits, providing annual reports
- Progress reports allow AM PS to change/improve AM implementation plan
- Meet AM interim limits through PS optimization/upgrades or water quality trading
- Allow time to find funding and to readjust
- Communication with all parties will be critical

Legal strategies

Speaker: Arthur Harrington – Godfrey & Kahn, S.C.

Background

- A publicly owned treatment works (POTW) facility in Wisconsin discharges to a river that has been designated as impaired for phosphorous
- The facility has historically been able to fully comply with its previous WPDES Permits with its existing technology

New proposed Water Quality Based Effluent Limit

- The Wisconsin Department of Natural Resources (DNR), after consultation with the United States Environmental Protection Agency (EPA), issues a WPDES Permit to the POTW which contains a Water Quality Based Effluent Limit (WQBEL) for phosphorous that the POTW is unable to meet with its existing technology
- Although the WPDES Permit is for a five-year term, it includes a 10-year compliance schedule for the POTW to comply with the WQBEL for phosphorous
- In the meantime, a more achievable interim limit for phosphorous is in effect
- The POTW estimates that it may cost up to $50 million to comply with the final phosphorous limit

TMDL process

- The DNR has also informed the POTW and other point and nonpoint sources located within the water shed that it is developing a total maximum daily load (TMDL) for the river which is likely to be completed during the term of the recently issued WPDES Permit
- The DNR has indicated that the TMDL report will be used to establish a WQBEL for phosphorous in the POTW's next WPDES Permit
- It is unclear whether the TMDL limit for phosphorous will be more or less stringent than the WQBEL for phosphorous in the recently issued permit

State-wide variance

- In the meantime, EPA has approved, with conditions, Wisconsin's MDV procedure available under Wisconsin law for WPDES Permit holders
- The DOA report, included in the EPA approval, suggests that the POTW would likely qualify for a variance.
- If the POTW obtains a variance, it could receive 10 additional years to comply with the WQBEL for phosphorous, provided that it pays up to $640,000 per year to the county for each year that the variance is in effect and meets interim limits
- At the end of the variance period, the POTW would still have to comply with the final WQBEL for phosphorous established through the TMDL process

Questions

Under these hypothetical facts, the POTW must consider the following issues:

- Should the POTW file a legal challenge to the WPDES Permit? If so, what is the correct procedure to challenge the permit?
- If the POTW legally challenges the WPDES Permit, what are its obligations to comply with the permit while the legal challenge is pending?
- What must the POTW do, if anything, to preserve its legal rights to challenge a WQBEL for phosphorous established as a result of the TMDL?
- Should the POTW consider applying for a variance under the MDV procedure in order to obtain an extended compliance period?
- Should the POTW consider adaptive management or trading under NR283 as options to comply with the WQBEL for phosphorous?
- What negotiating strategy should the POTW follow in dealing with the DNR?
- Should the POTW conclude that nothing can be done except to hire engineers to start designing updated facilities?

Panel discussion

Moderator: Arthur Harrington, Godfrey & Kahn, S.C.
Panelists: Tom Sigmund, executive director of NEW Water
Michael Mucha, chief engineer and director of MadMSD
Lynn Lorenson, city attorney for the City of Oshkosh

Opportunities & challenges to reduce phosphorus in the Lower Fox River Basin

Tom Sigmund

Executive Director | NEW Water

G&K Phosphorus Seminar

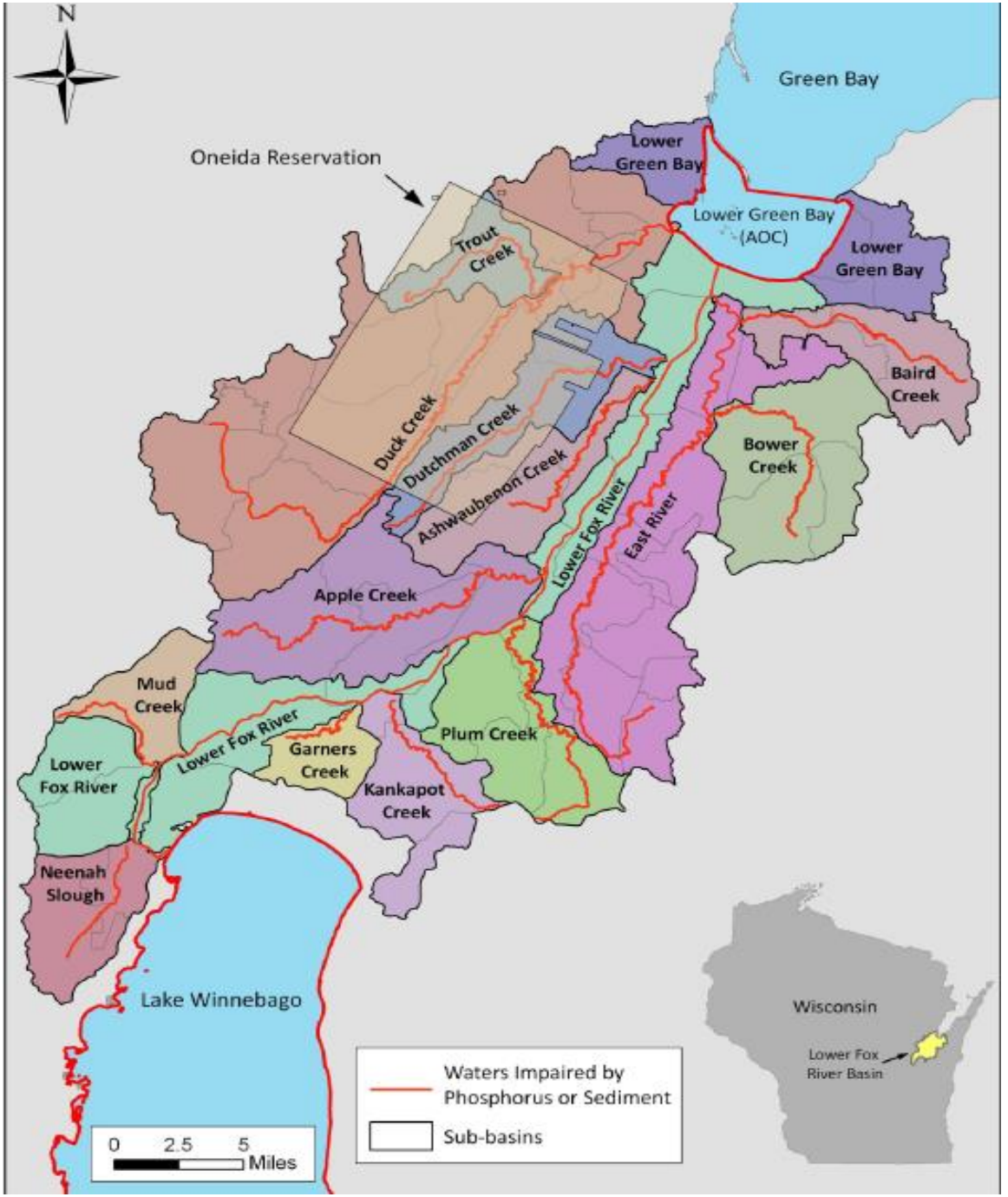
March 9, 2017

NEW Water

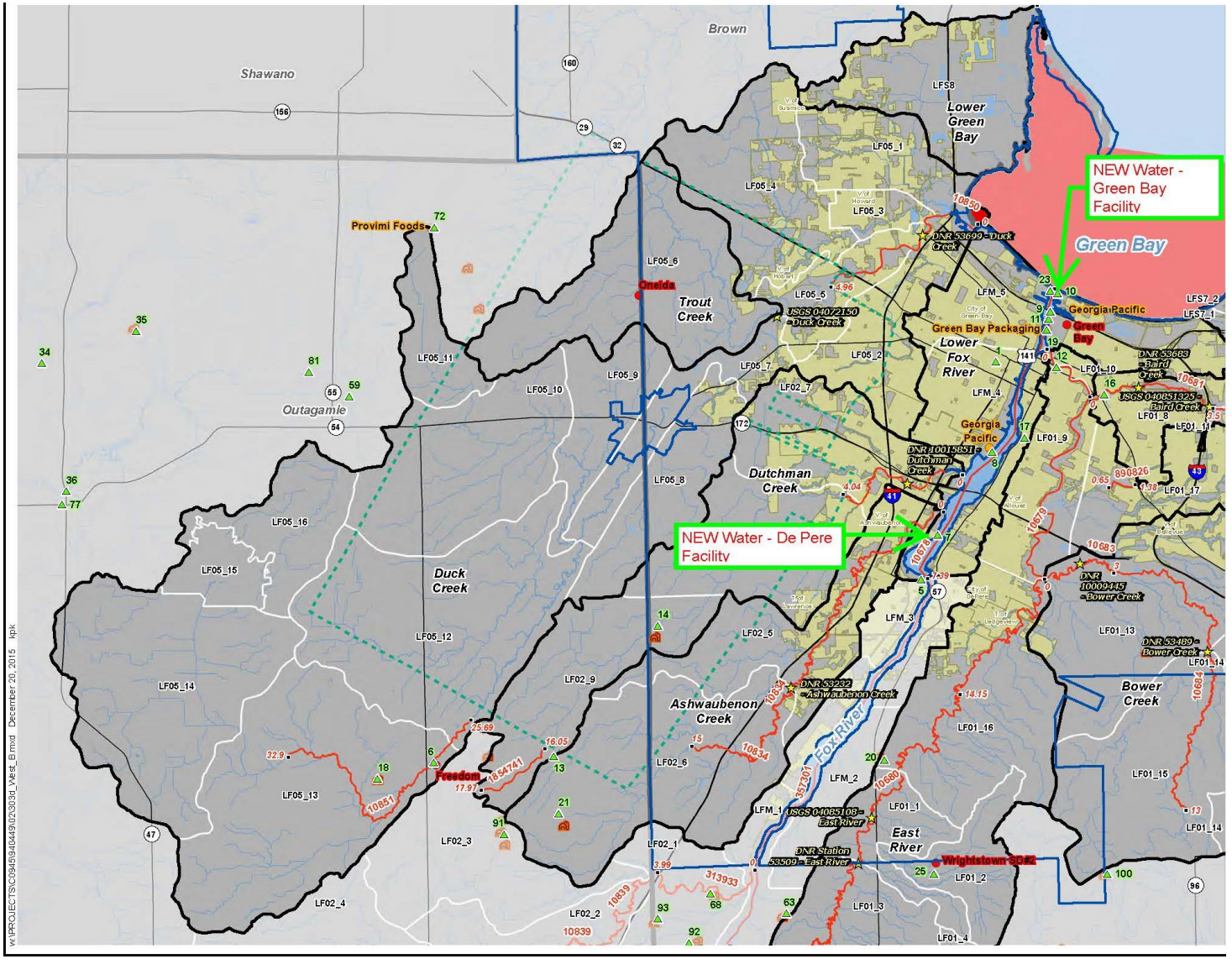
The brand of the Green Bay Metropolitan Sewerage District


NEW Water
The brand of the Green Bay
Metropolitan Sewerage District
Protecting our
most valuable
resource, water

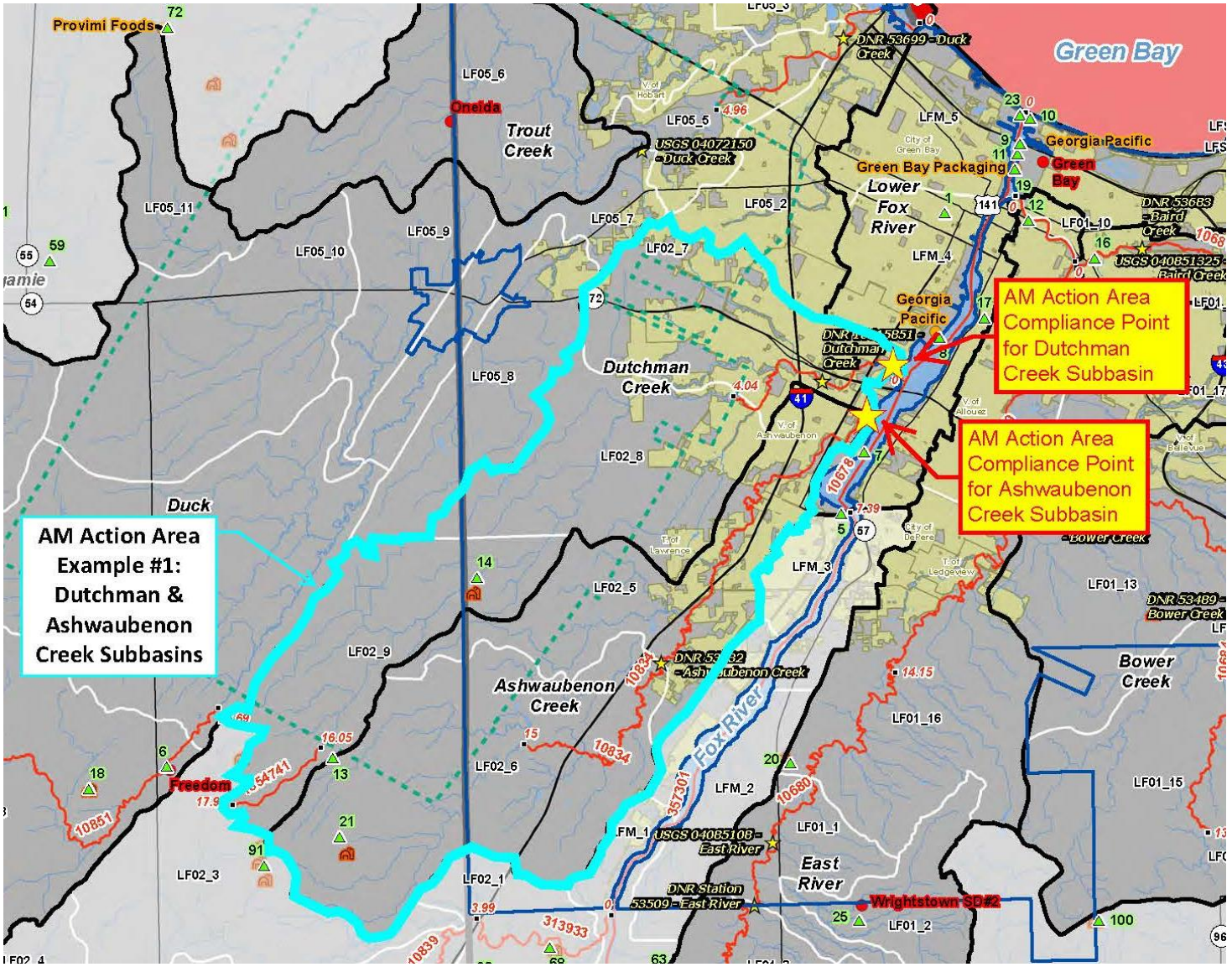
Lower Fox River Sub-basins



NEW Water Discharges to the Lower Fox River



Example adaptive management action area



Opportunities & challenges

- Spend the least amount of dollars to accomplish greatest water quality improvements
- Estimated capital cost $220 – $390 million for additional P treatment
- Next WPDES Permit is expected July 1, 2019
- Working with WDNR and EPA to clarify AM implementation
- MS4 Partnerships may not align with NEW Water timeline
- Building one on one relationships with agriculture producers
- Capacity at state and local level to implement AM is not in place
- NEW Water may have to install treatment at the end of 20-year AM timeline

NEW Water
The brand of the Green Bay Metropolitan Sewerage District

Impacts from one field can be substantial

https://www.youtube.com/watch?v=pEilCFpEo4U

Tom Sigmund

tsigmund@newwater.us

920-438-1095

www.newwater.us

NEW Water

The brand of the Green Bay Metropolitan Sewerage District

Panel discussion

Moderator: Arthur Harrington, Godfrey & Kahn, S.C.
Panelists: Tom Sigmund, executive director of NEW Water
Michael Mucha, chief engineer and director of MadMSD
Lynn Lorenson, city attorney for the City of Oshkosh

Thank You

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