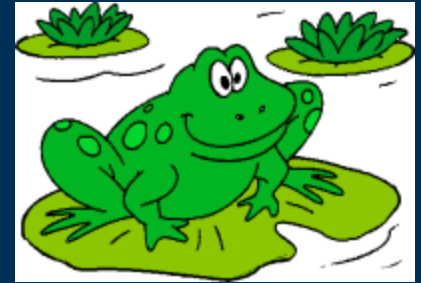


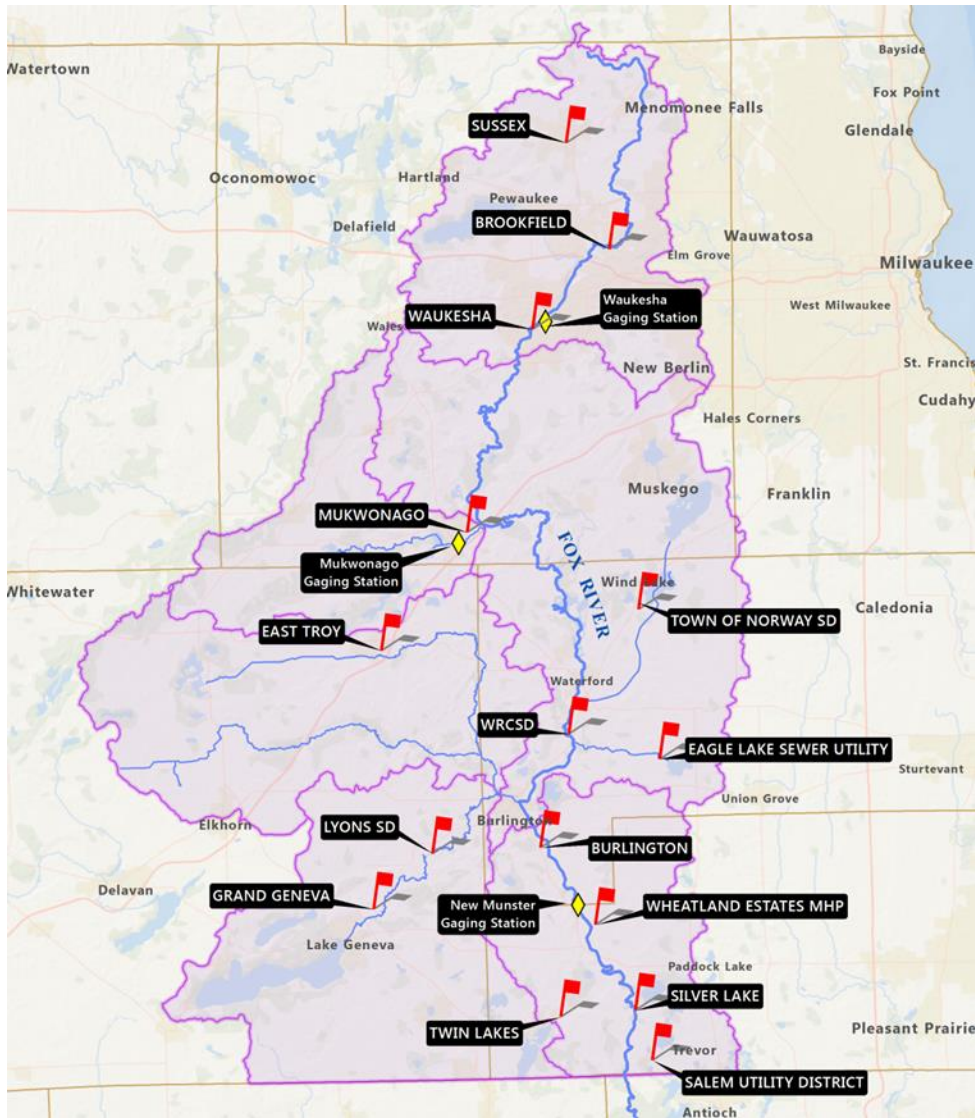
# ILLINOIS FOX RIVER GROUP IFRG

Presented by  
Jim Kleinschmidt, P.E., ENV SP

March 18, 2016



# Overview of Watershed and Group Members



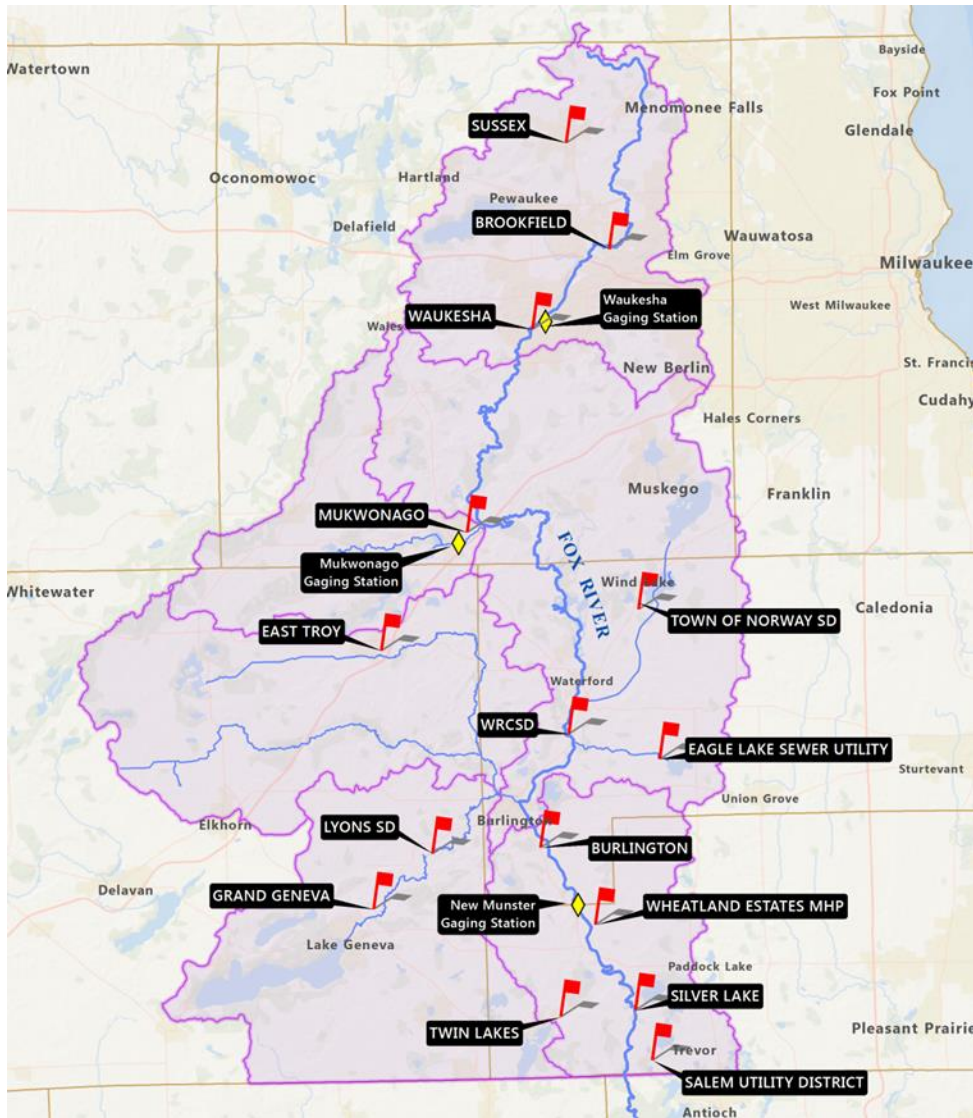
## Founding Members

Burlington  
Western Racine SD  
Eagle Lake SD  
East Troy  
Lyons  
Town of Norway SD

## Future Members?

Twin Lakes  
Silver Lake  
Salem Utility District  
MS 4 Communities

# History of WWTP Phosphorus Removal



Early 1970s- 1mg/L for Facilities  
Greater than 0.25 mgd  
Illinois Fox Issues

Early 1990s-1 mg/L for Facilities  
Greater than 0.15 mgd (NR 217)

2010  
Criteria Based Limits  
0.075 mg/L Streams  
0.100 mg/L

# Purpose of Illinois Fox River Group

Compliance Costs-Bricks and Mortar Solutions

Fund Watershed Science

Current State of River

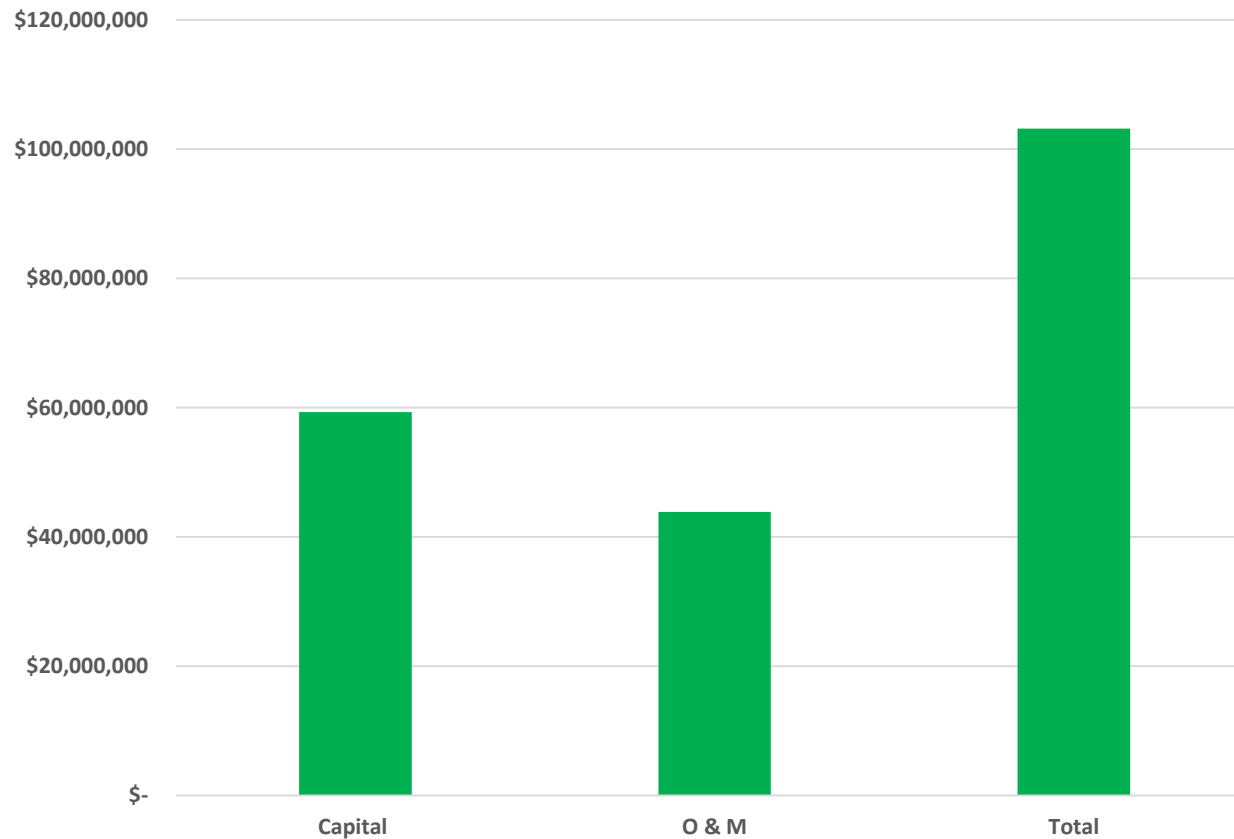
Qualification for a Site Specific Limit

Demonstrate Need for Projects to Rate Payers

Unified Voice for Municipal WWTPs on Fox River

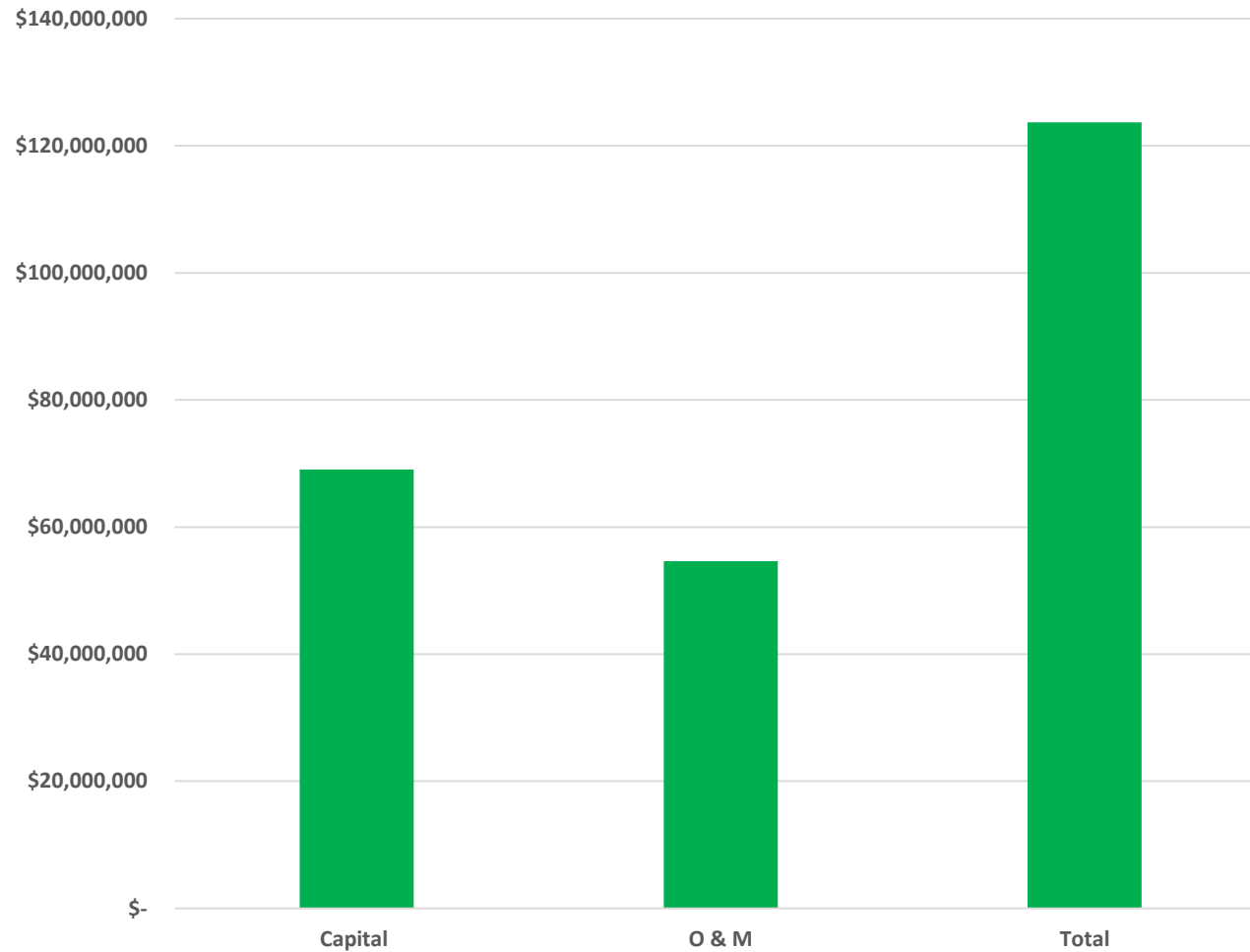
Public Information (Technical Support)

# Potential Compliance Costs-Lower Fox



20 Year Costs  
Source-Economic  
Impact Analysis  
done by Arcadis,  
Sycamore and  
UMass-April 2015

# Potential Compliance Costs-Upper Fox

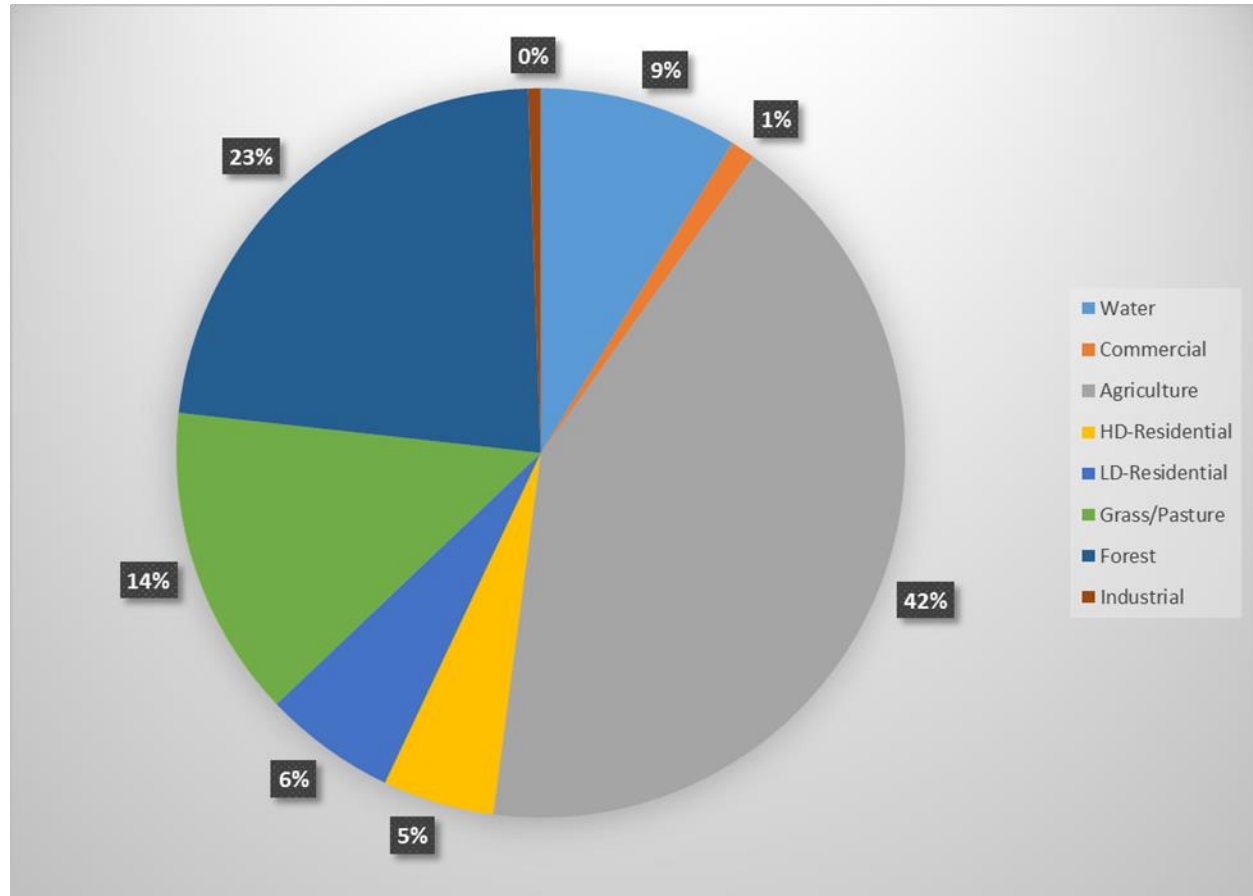


20 Year Costs  
Source-Economic  
Impact Analysis  
done by Arcadis,  
Sycamore and  
UMass-April 2015

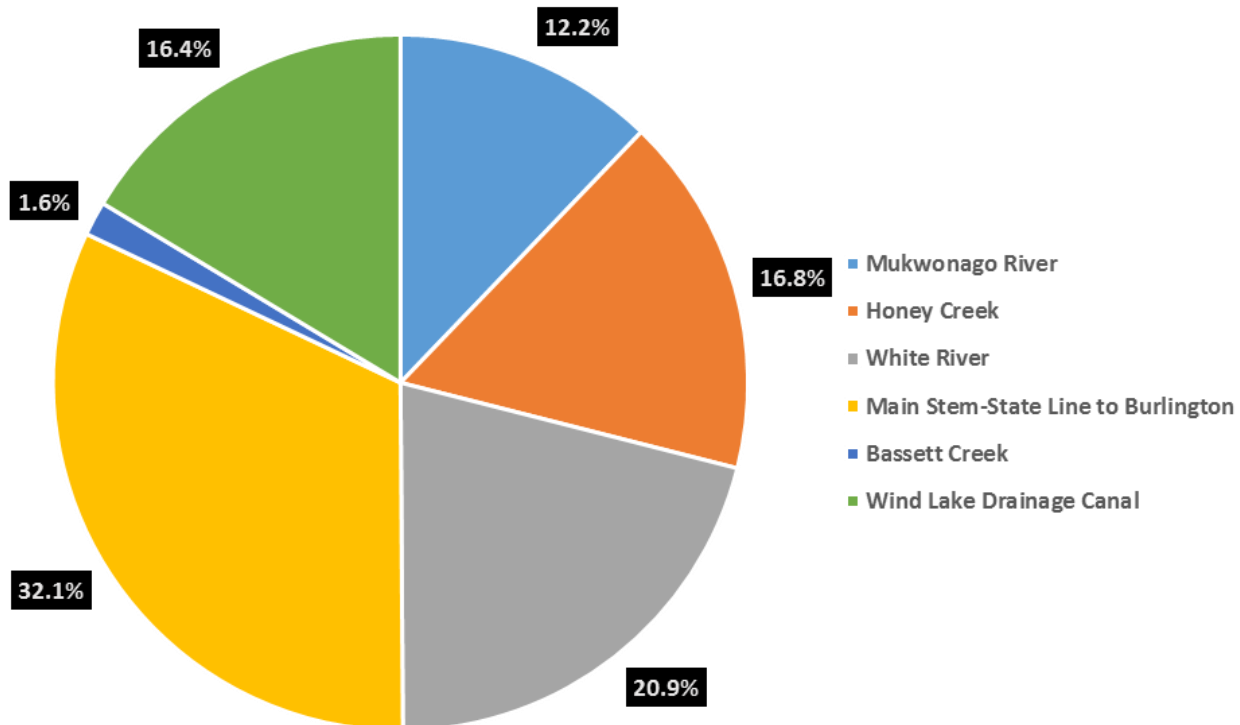
# Watershed Characteristics

87 % Rural  
Mukwonago River  
South Including  
Tributaries

542 Sq. Miles

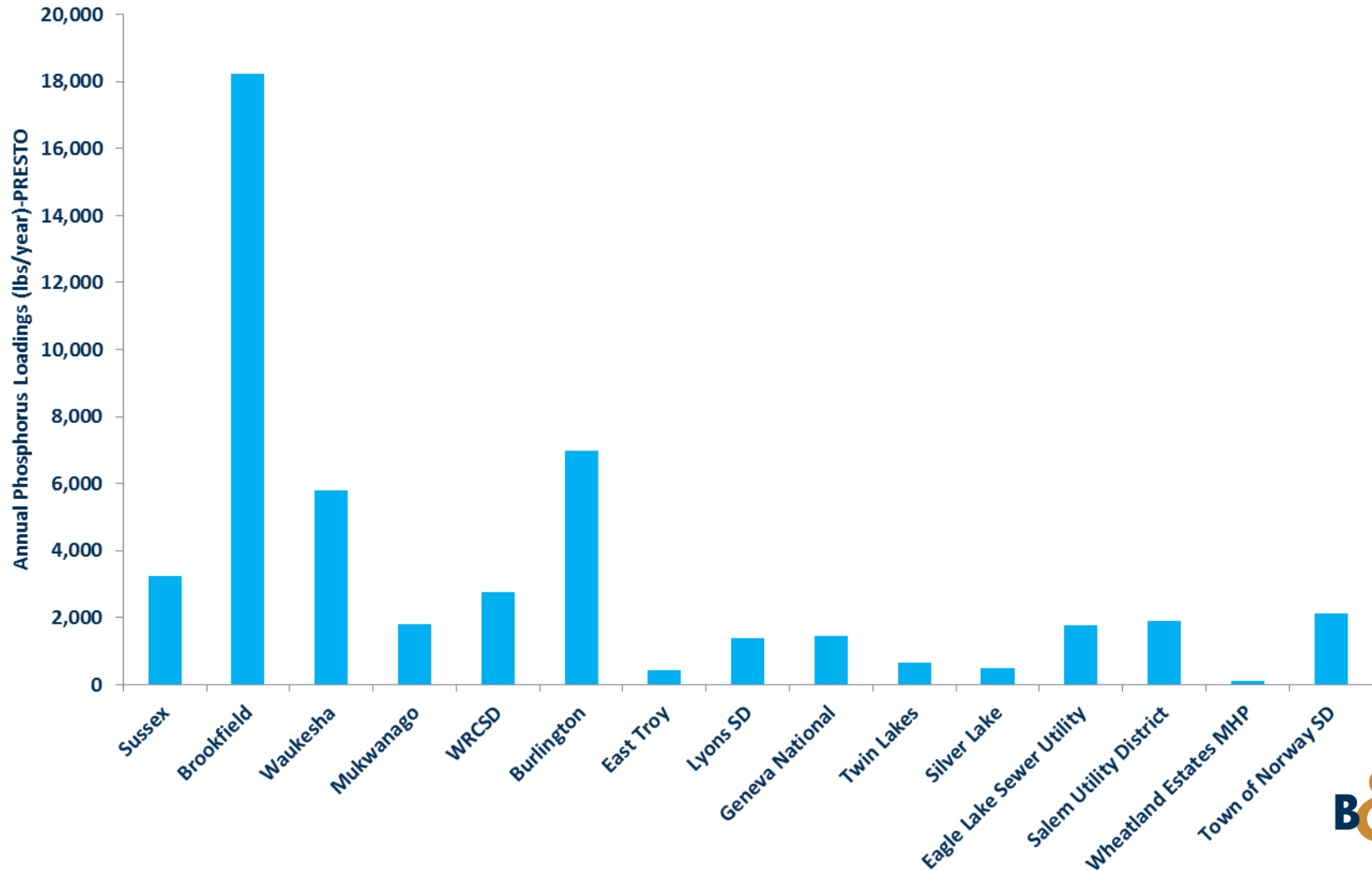


# Lower Fox Watersheds

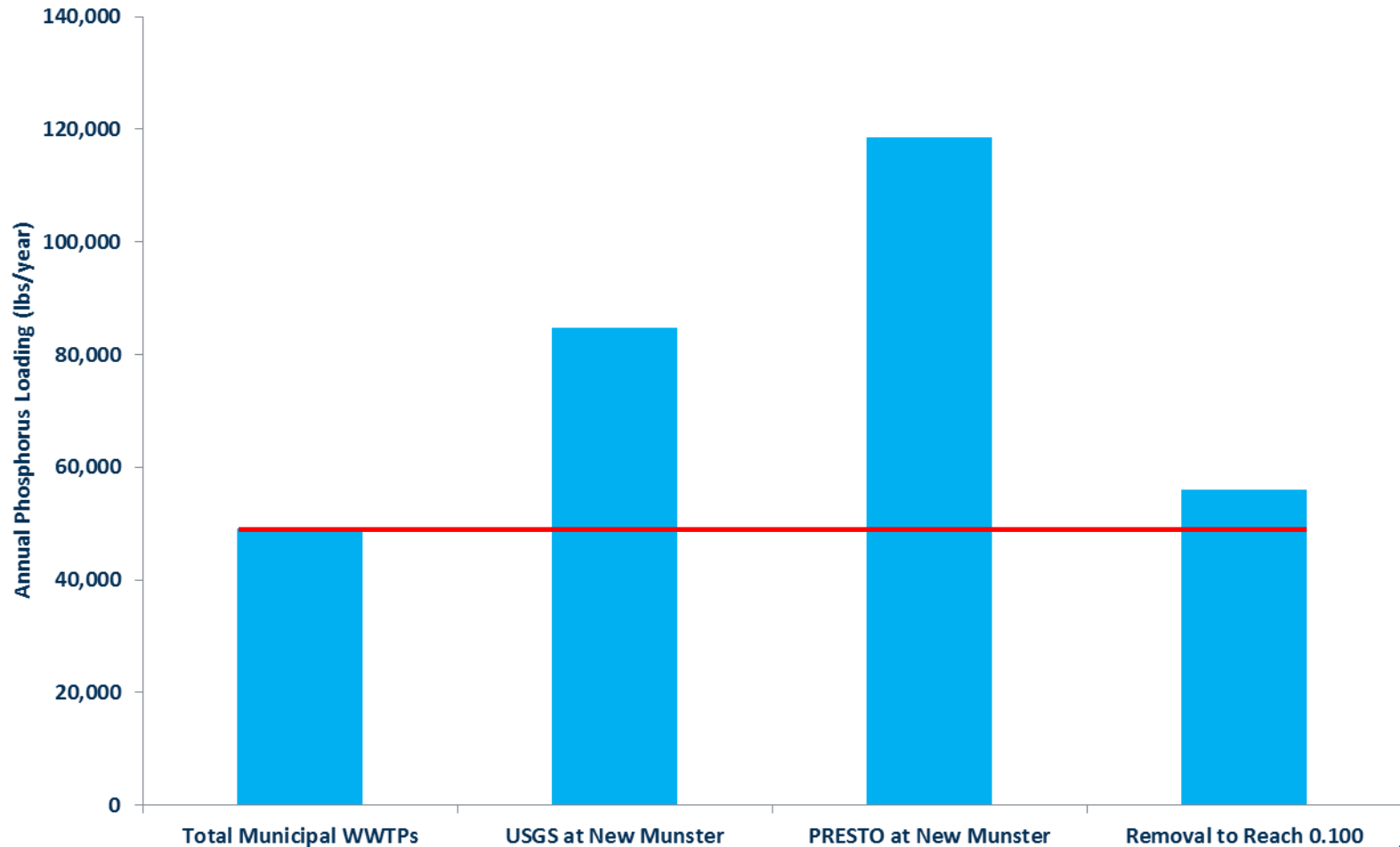




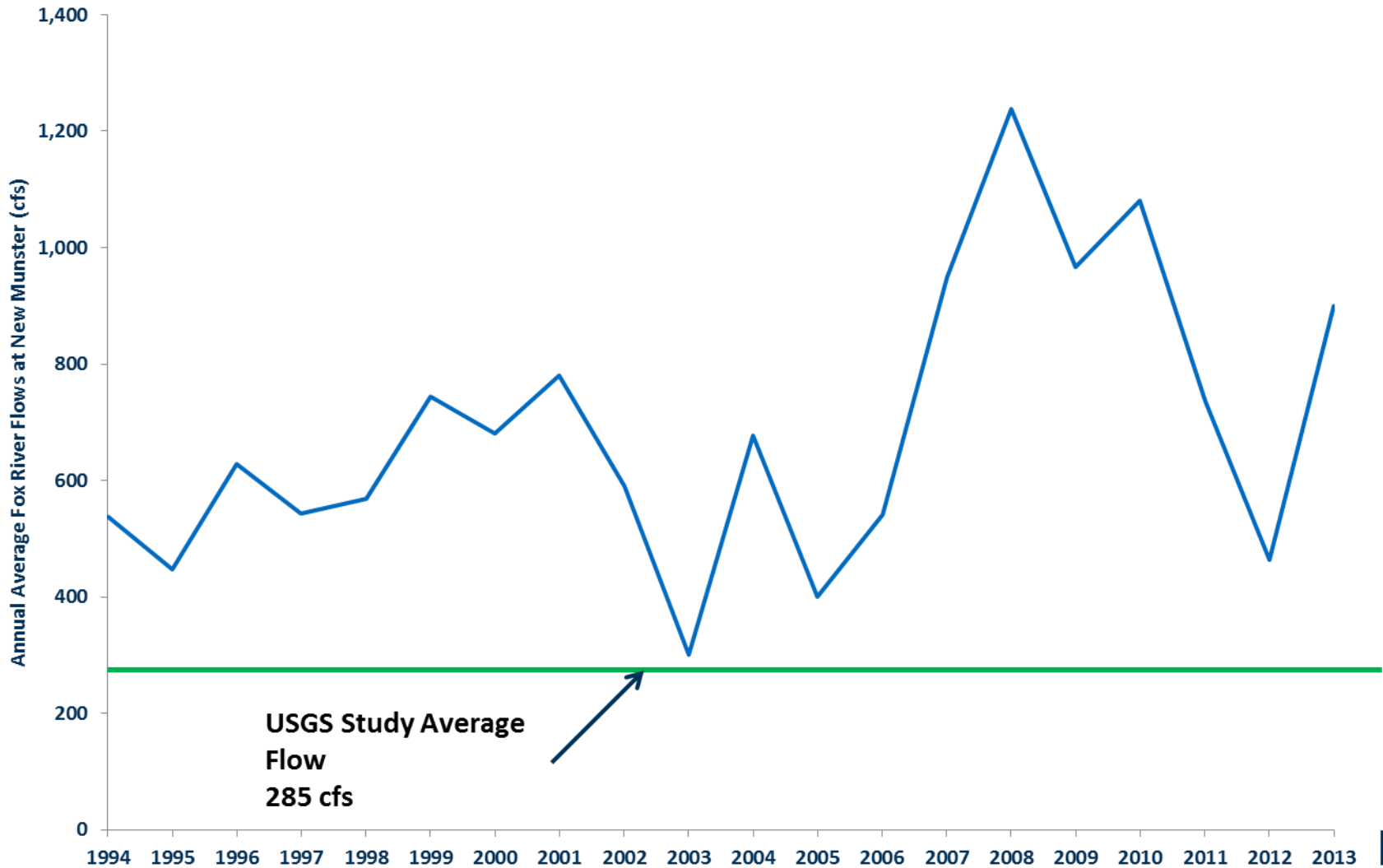
# Phosphorus Loadings-Municipal WWTPs



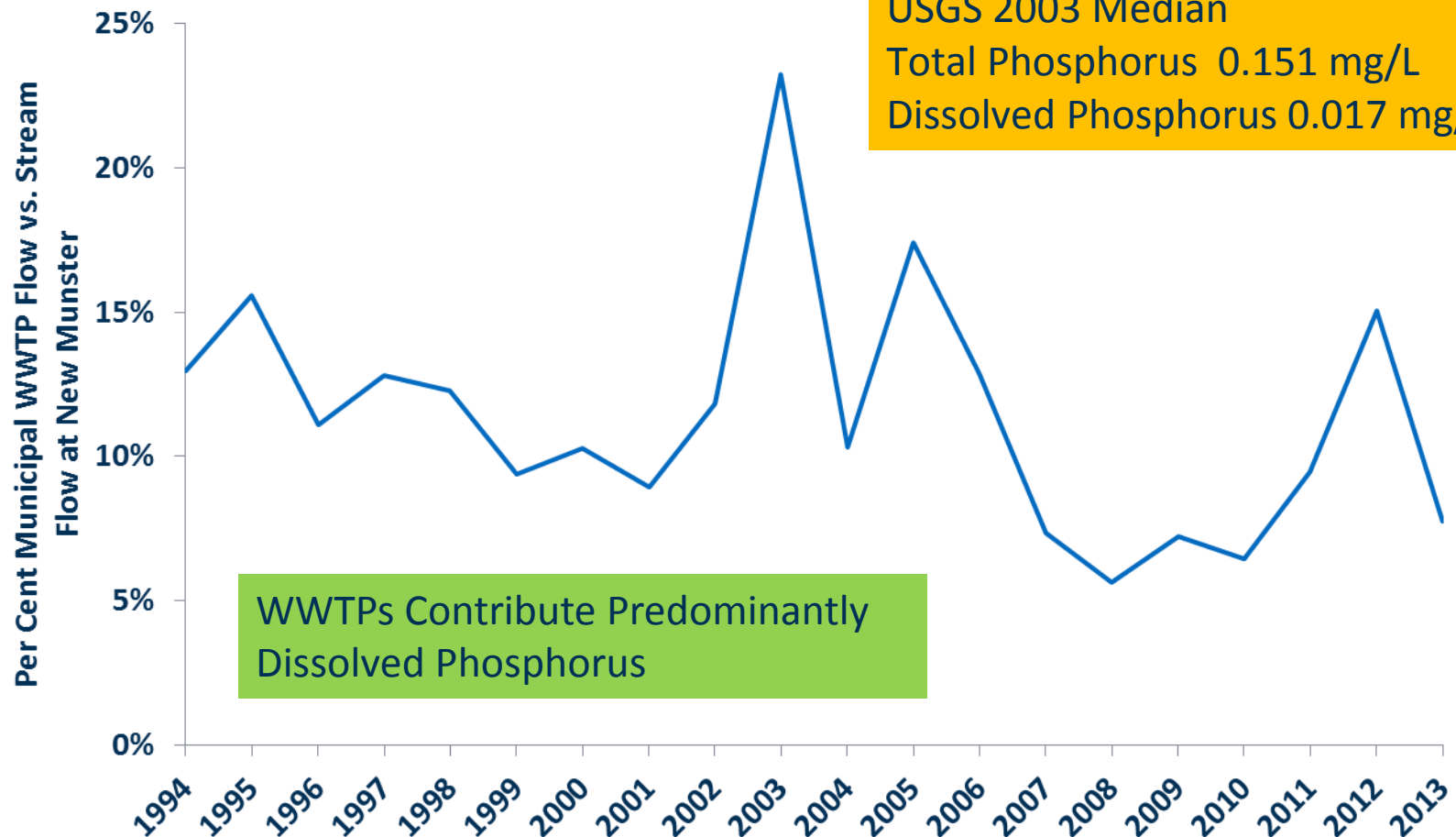
# Contributions-Global Overview



# Annual Flows-New Munster



# Municipal WWTP Contributions vs. Annual Flow



# Watershed Science-Site Specific Limit

Unique Characteristics of Watershed/Subwatersheds

- Land Use

- Prior Human Activity

- Tile Draining

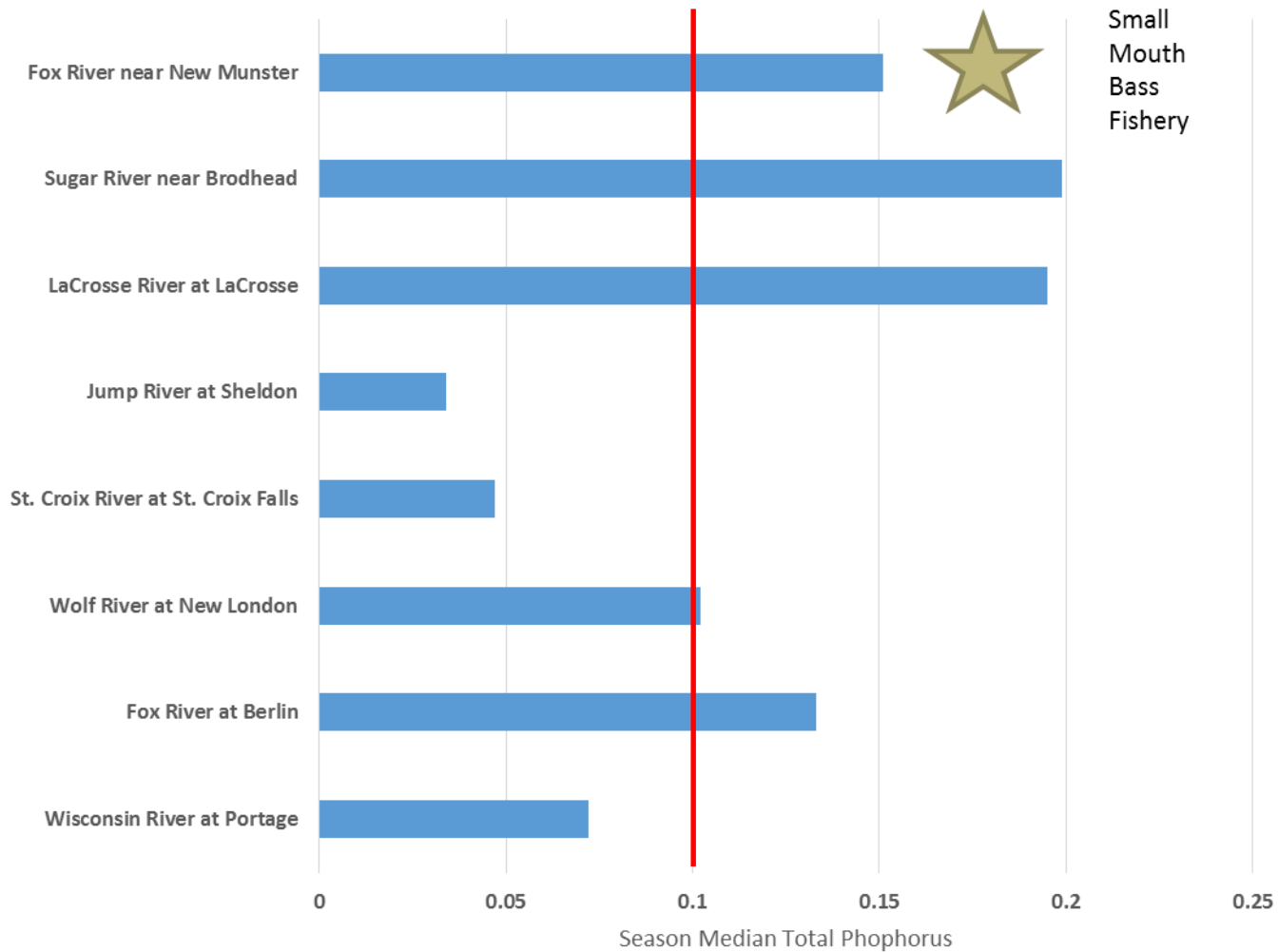
- Channelization

- Impoundments

Chemistry of Watershed or Sub-Watersheds

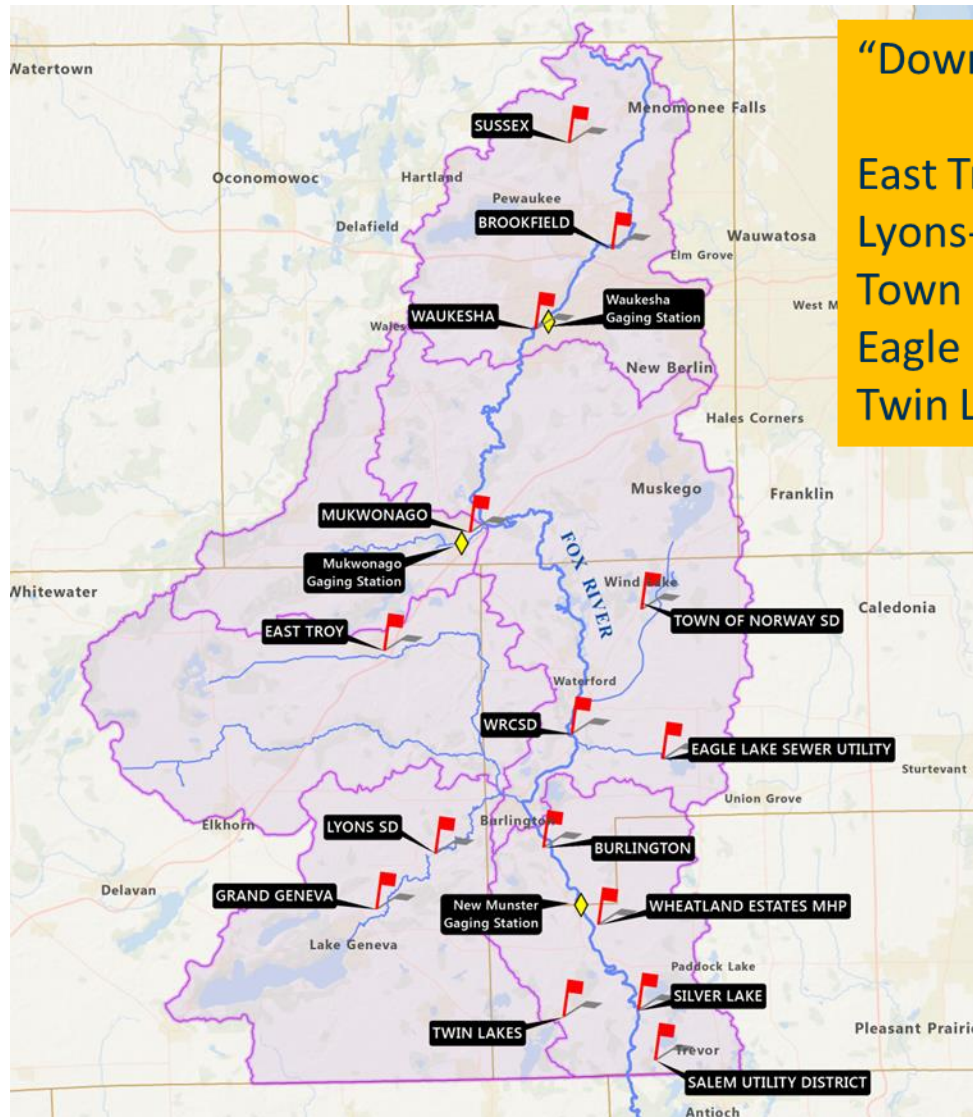
Biology of Watershed or Sub-Watersheds

# USGS Non-Wadeable Streams (Good Status)





# Fox River Tributaries-Variance or Site Specific



## “Downstream”-Fox River

East Troy-Honey Creek

Lyons-White River

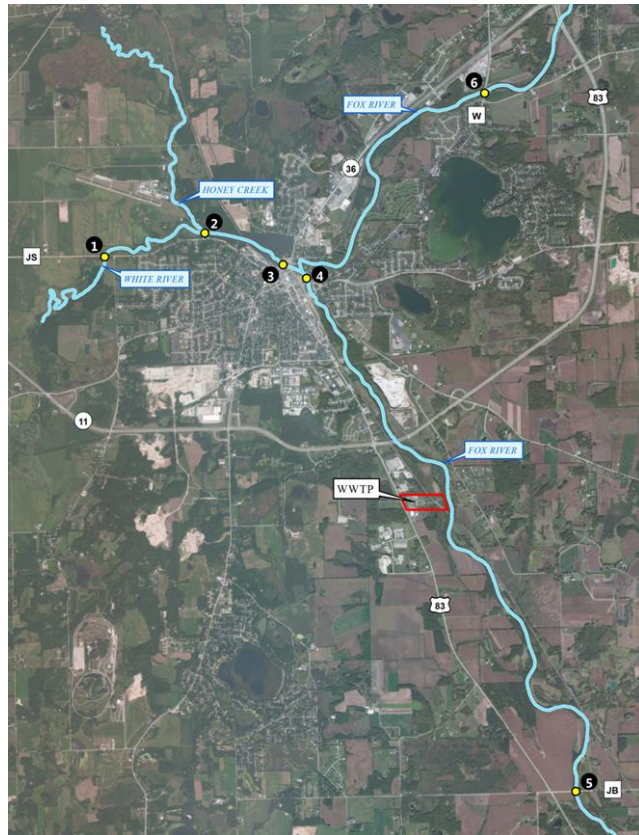
Town of Norway-Wind Lake Drainage Channel

Eagle Lake SD-Unnamed Trib. To Eagle Creek

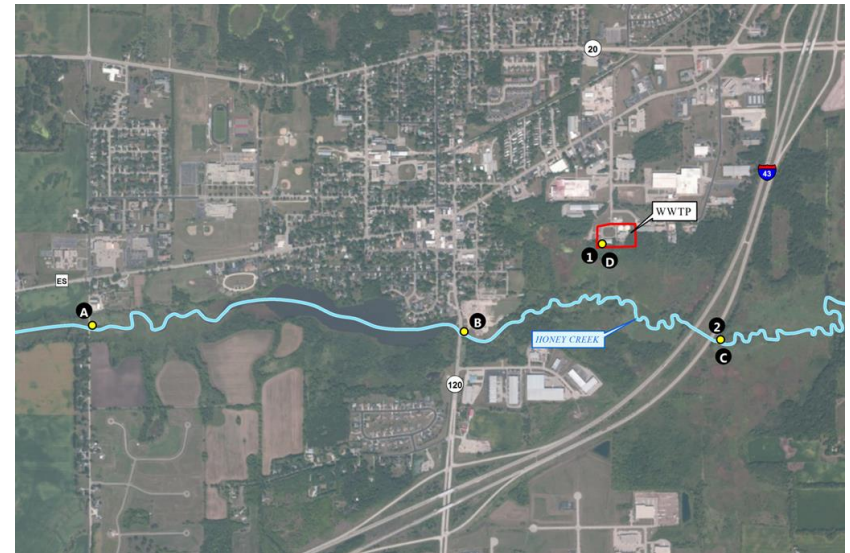
Twin Lakes-Bassett Creek



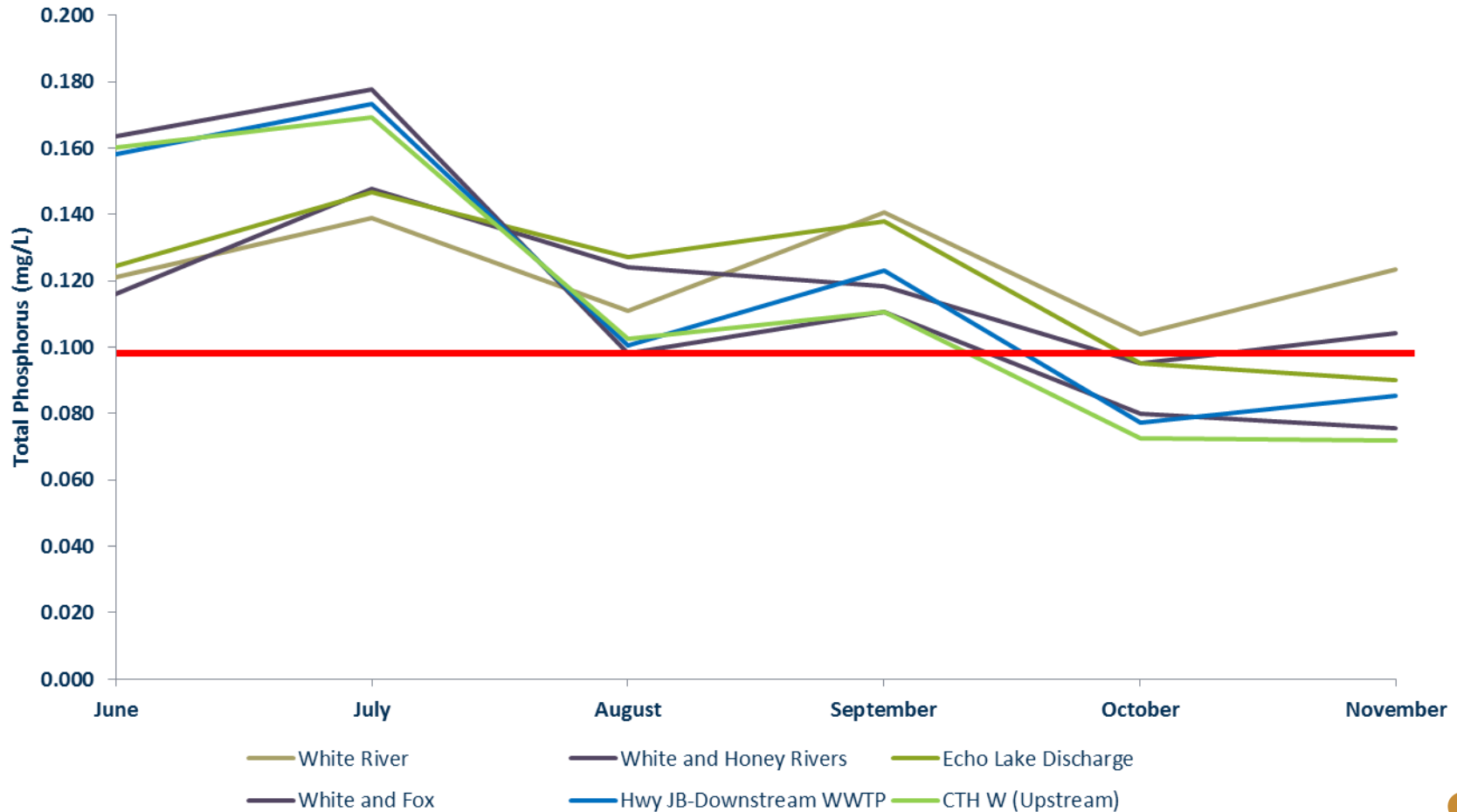
# Preliminary Sampling Efforts and Available Data



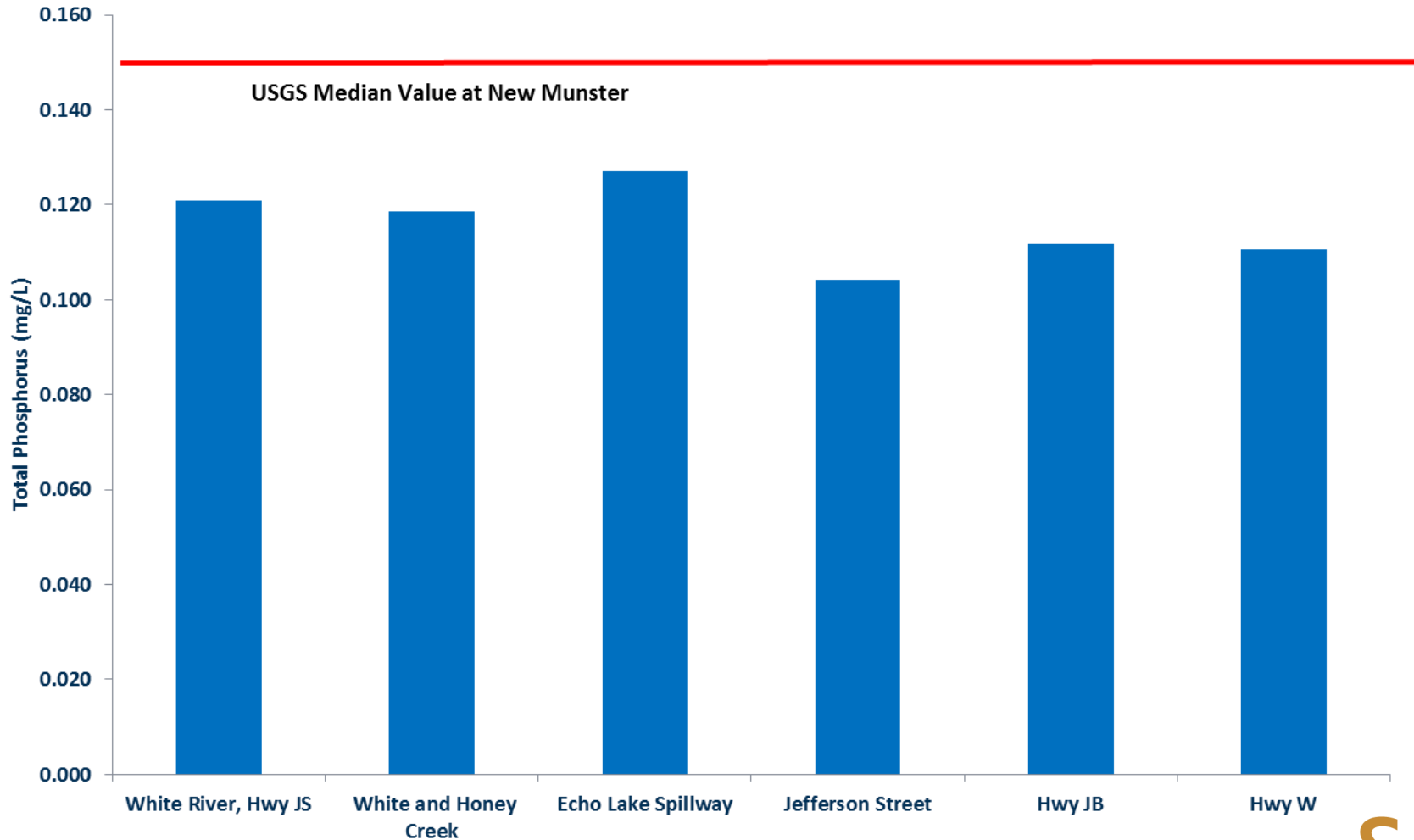
Burlington 2013 and 2014  
East Troy 2014



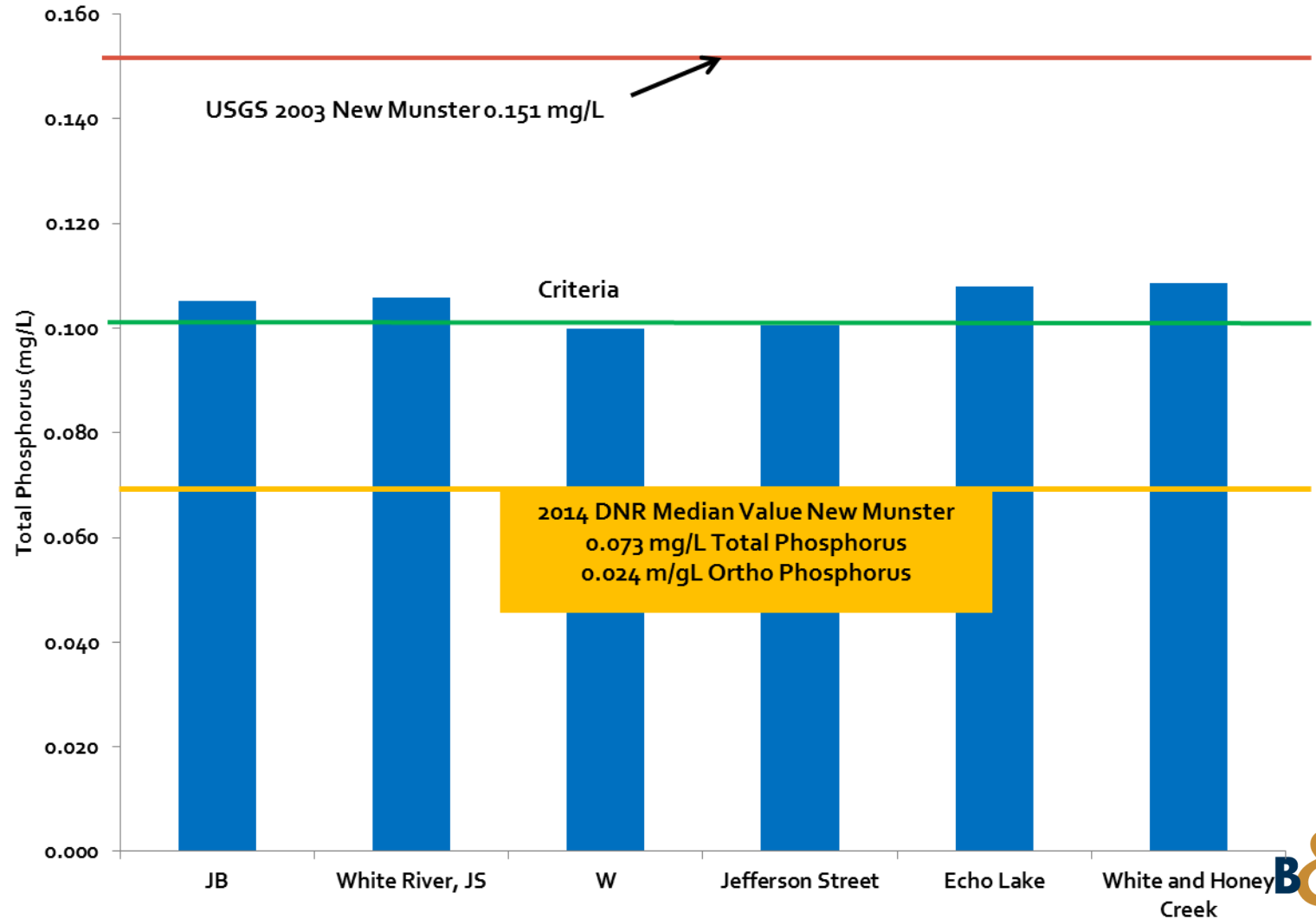
# Burlington Area Sampling-2013



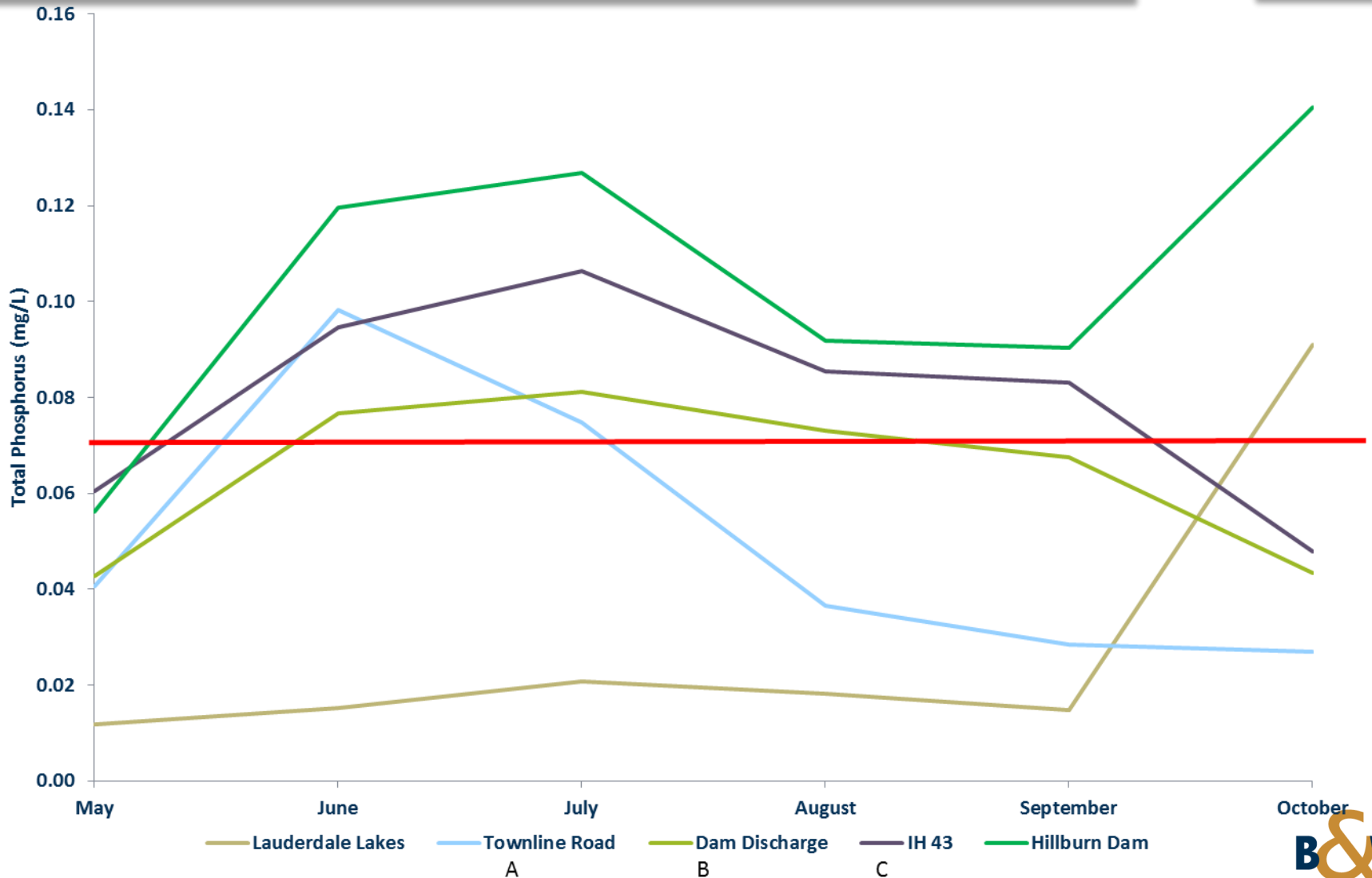
# Burlington Area Sampling-2013 Median Values



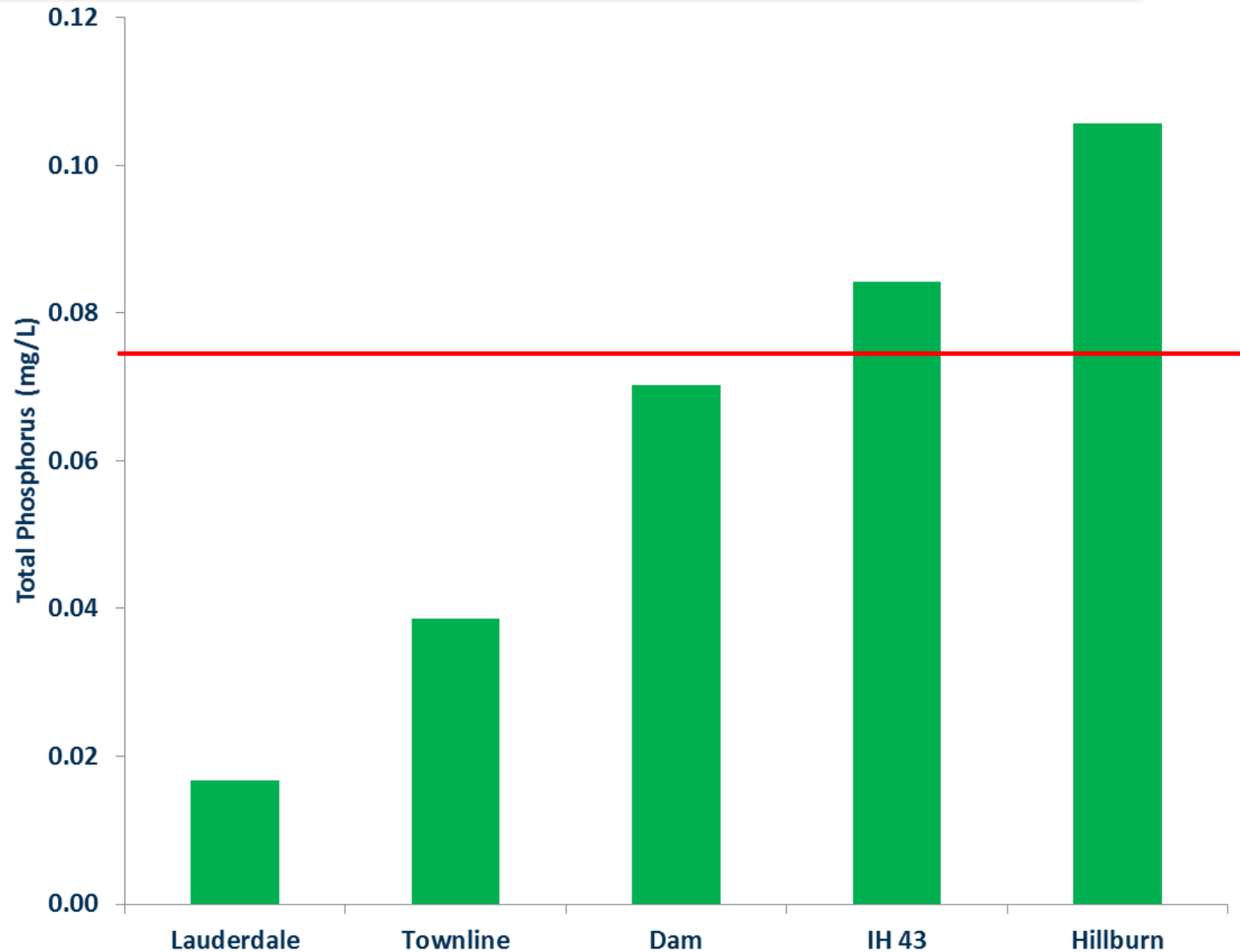
# Burlington Area Sampling-2014 Median Values



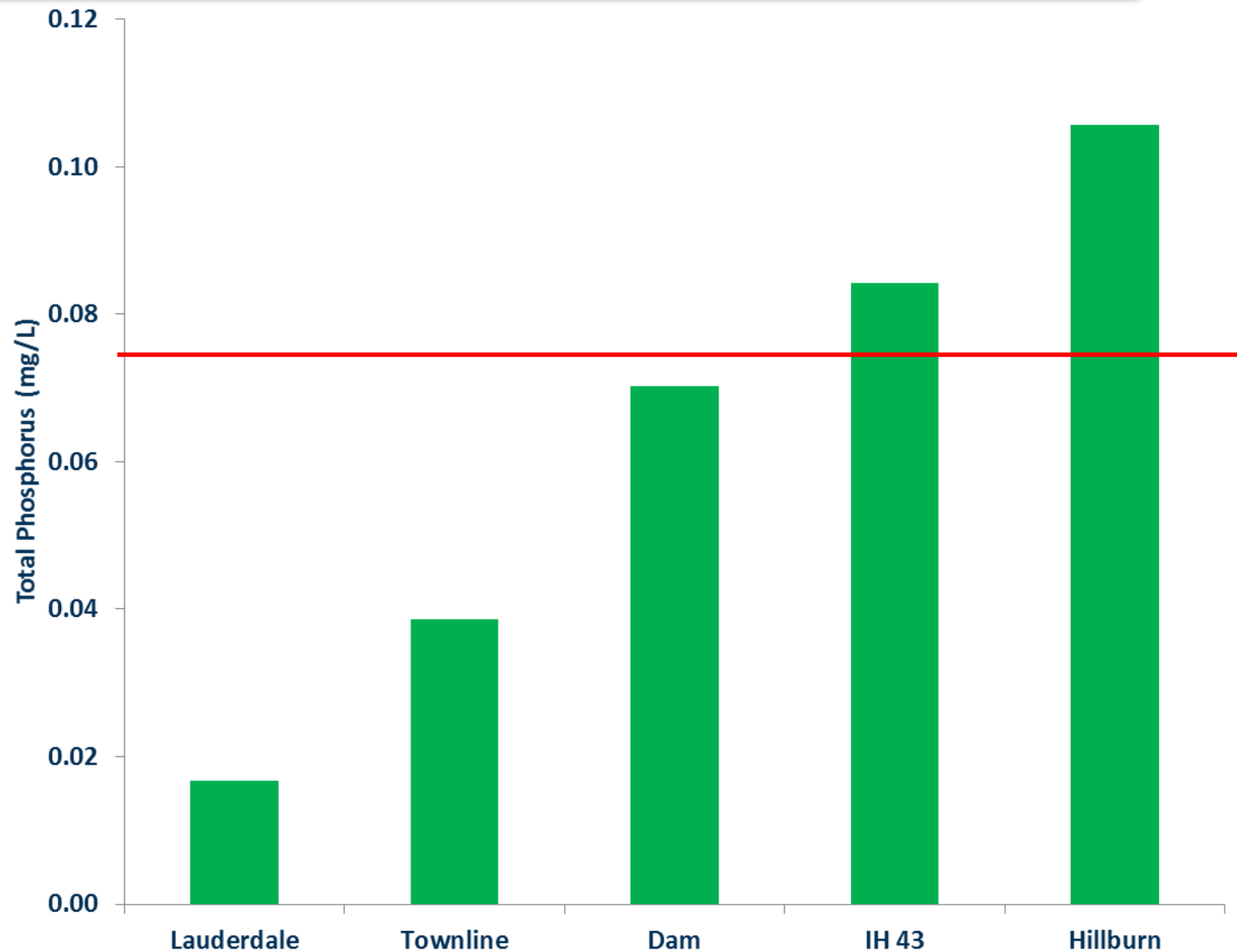
# East Troy 2013 Sampling



# East Troy Median Values-2013



# East Troy Median Values-2014



# Steps in Watershed Science

Delineate and Characterize Watersheds for Each WWTP and Main Stem

Watershed Wide Phosphorus Measurements

- Wetlands

- Source Water

- Tile Draining

- Impoundments

Stream Flow Monitoring

Performance and Characteristics of Existing Municipal WWTPs

Site Specific Science (NR 119-Technical Advisory and Draft Rules-End of 2016?)

- Fish IBI

- Macroinvertebrate IBI

- Biocriteria

Baseline for Watersheds



# Watershed Chemistry

Total Phosphorus

Dissolved Phosphorus

Ammonia Nitrogen

Nitrate/Nitrite

Total Kjeldahl Nitrogen

Dissolved Oxygen

Chlorophyll A-Non-Wadeable

Chlorophyll B-Wadeable

Conductivity

Surrogate for Chlorides

Flow Estimation at WWTPs

# Value of Watershed Science

Document Status of the Watershed

Point of Discharge

“Downstream”

Identify Overly Protective Water Quality Criteria

Document Individual Variance Conditions

Potential Long-Term Cost Savings

Site Specific Limit

Variance

Educate the Public on the Quality of the Lower Fox River

# Group Formation Process and Status

Organizational Structure (66.0301 Wisconsin Statutes)

Founding Members

Burlington

Western Racine Sewerage District

Eagle Lake Sanitary District

Town of Norway Sanitary District

East Troy

Town of Lyons SD 2

Formal Kick-Off Meeting-March 29, 2016

Tasks for 2016

Search for Funding Sources

Collate Available Data (Chemistry and Biology)

Sampling-Chemistry

Develop Work Plan for Study (SEWRPC and WDNR)

Tasks for 2017-Begin Field Biology and Additional Focused Sampling

Tasks for 2018-Complete Field Biology Work and Sampling

2019-Compile report for submittal to DNR and SEWRPC



# Acknowledgements

City of Burlington-Craig Workman, Jim Bergles, Donny Hefty and Carina Walters

Village of East Troy-Mike Miller, Kevin Hindeliter and Jake Kinkade

Western Racine County Sewerage District-Jeff Bratz

Eagle Lake Sanitary District-Jeff Bratz

Town of Norway Sanitary District-P.J.Nolan

Lyons Sanitary District No. 2-Bob Biedrzycki

Jim Smith-ATI

Paul Kent-East Troy Legal Adviser

Tim Pruitt-WRCSD Attorney

John Bjelajac-Burlington City Attorney

# Questions

