

TMDL OVERVIEW AND DEVELOPMENT PROCESS



Milwaukee River Basin TMDLs Stakeholder Workshop 1

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November 14, 2011

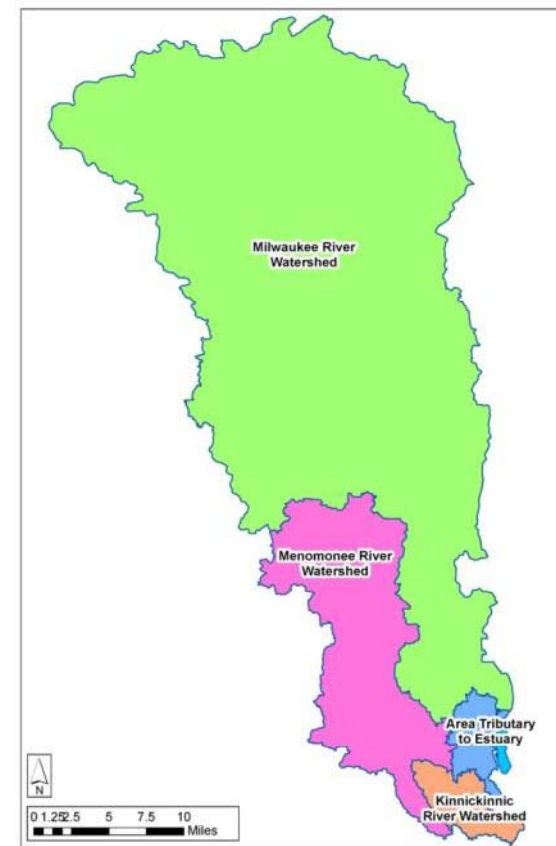
TMDL Development Consultant Team

- CDM
 - Baird
 - Great Lakes WATER Institute
 - Kapur & Associates
 - M Squared
 - OTIE
 - Environmental Consulting
 - Beth Foy & Associates

TMDL PROCESS OVERVIEW

Impaired Waters

- Effort focused on the waterbody reaches included in the State's 303(d) Impaired Waters List (draft 2012 303(d) List)
 - Milwaukee River Watershed
 - Kinnickinnic River Watershed
 - Menomonee River Watershed
 - Milwaukee Harbor Estuary
- Address beneficial use impairments in EPA's Milwaukee Estuary Area of Concern



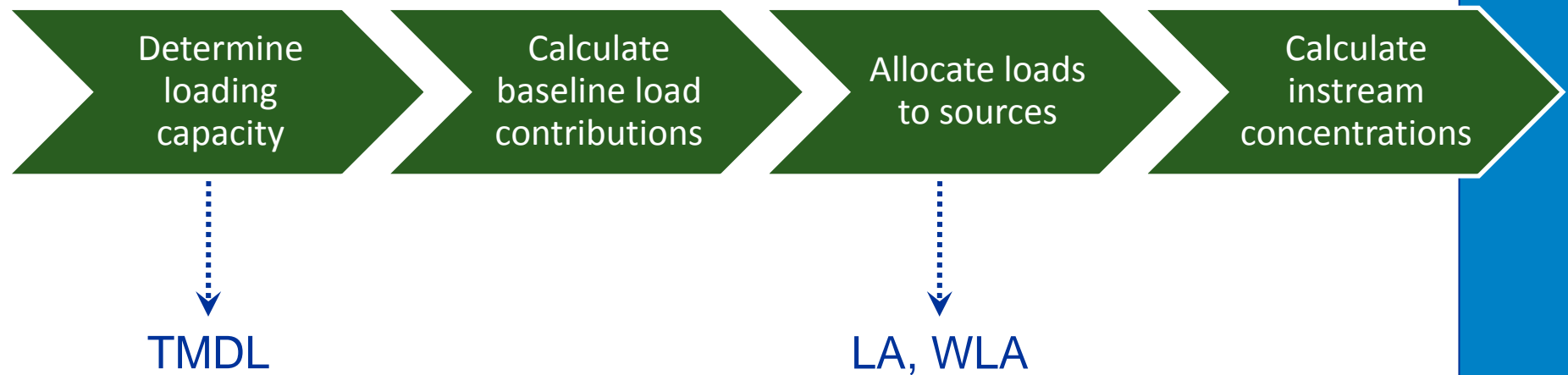
Total Maximum Daily Load (TMDL)

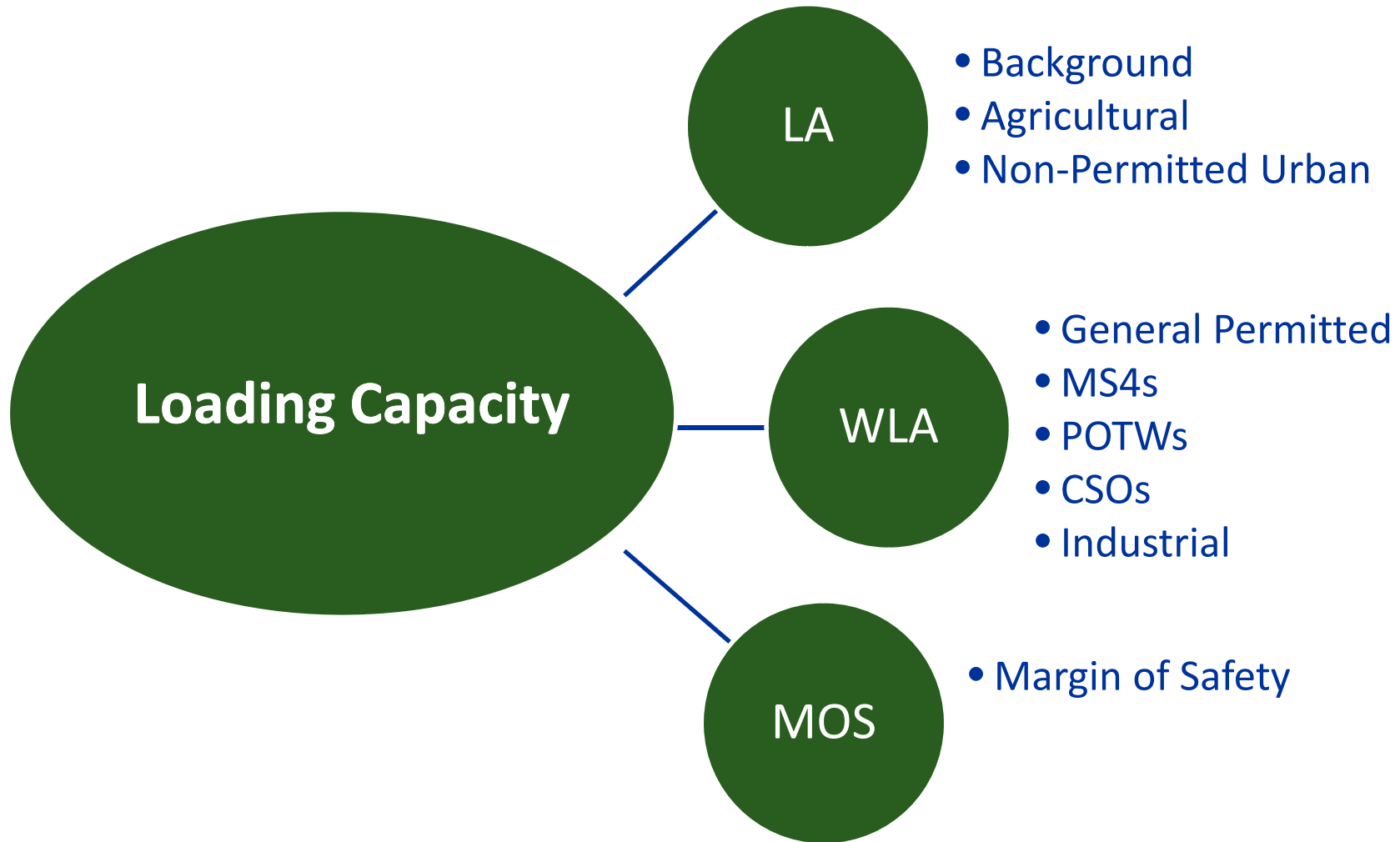
- TMDL - calculation of the amount of pollutant a waterbody can receive from both point and nonpoint sources and still meet water quality standards

Total Maximum Daily Load (TMDL)

- $TMDL = LA + WLA + MOS + RC$
 - LA = Load Allocation (Nonpoint Sources)
 - WLA = Wasteload Allocation (Permitted Point Sources)
 - MOS = Margin of Safety
 - RC = Reserve Capacity
- Expressed in pounds per day (lb/day)

TMDL Development Approach





TMDL Development Tasks

0. Prepare Quality Assurance Project Plans (QAPPs)
1. Identify Waterbody, Pollutants of Concern, Pollutant Sources, and Priority Ranking
2. Describe the Applicable Water Quality Standards and Numeric Water Quality Targets
3. Link Water Quality and Pollutant Sources
4. Calculate Loading Capacities (TMDLs)
5. Allocate to Promote Watershed-Based Permitting and Trading and Prepare Final TMDL Report
6. Make Recommendations Regarding Follow-up Monitoring/Effectiveness Monitoring
7. Prepare Implementation Plan

WATER QUALITY TARGETS

Water Quality Targets

- Total Phosphorus
 - 0.1 mg/l for nonwadable rivers and Estuary
 - 0.075 mg/l for wadable streams
- Total Suspended Solids
 - No water quality standard, allocations may be based on phosphorus allocations

Water Quality Targets

- Fecal Coliform
 - 400 cfu/100 ml sample (10% standard)
 - 200 cfu/100 ml sample (geomean standard)
 - Variance waters:
 - Estuary portions of Milwaukee River and Menomonee River
 - 1,000 cfu/100 ml sample (geomean)
 - All other variance waters
 - 1,000 cfu/100 ml sample (geomean) and 2,000 cfu/100 ml sample (10% standard)
- *E.coli* standards apply to the outer harbor
 - 126 cells/100 ml sample (geomean), 235 cells/100 ml max

Pathogens, Bacteria Translator

- The presence of pathogens is an impairment that is driving the need for the TMDL
 - Understanding of the relationships between indicator organisms and pathogens will be incorporated into setting the TMDL targets
- Fecal Coliform to *E.coli* Translator
 - The outer harbor standard for Lake Michigan is based on *E. coli* concentrations
 - A “translator” will be developed to convert the fecal coliform loadings to *E. coli* loadings for use in evaluating impacts to the Milwaukee Harbor Estuary

SOURCES AND LOADING ALLOCATIONS

Treatment Plants, CSOs, and Industrial Dischargers

- A WLA will be assigned to each facility
- The WLA will be expressed monthly and daily, but can be put into permits as daily, weekly, monthly, seasonal, or annual



Municipal Separate Storm Sewer System (MS4s)

- Will be assigned a WLA
- TMDLs express pollutant discharges in mass/day or mass/year
- Baseline will be developed to reflect NR 151 percent reduction framework



General NPDES Permits

- Will be assigned a WLA
- Precedent for 10% of the non-permitted urban load may be allocated to General Permits



Concentrated Animal Feeding Operations (CAFOs)

- Production area to be assigned a WLA = 0
- Spreading of manure will be accounted for in the nonpoint source load allocation



Nonpoint Source Load Allocation

- Break-out by watershed or sub-watershed
- Break-out by land use
 - Agricultural fields and pastures
 - Non-permitted urban areas
 - Woodland, natural areas, and background



TMDL DEVELOPMENT TIMELINE

TMDL Development Tasks

- Tasks currently underway
 - 0. QAPPs
 - 1. Identify Waterbody, Pollutants of Concern, Pollutant Sources, and Priority Ranking
 - 2. Describe the Applicable Water Quality Standards and Numeric Water Quality Targets
- Feb 2012 - 3. Link Water Quality and Pollutant Sources
- May 2012 - 4. Calculate Loading Capacities (TMDLs)
- Dec 2012 - 5. Allocations and Prepare Final TMDL Report
- Dec 2012 - 6. Recommendations for Follow-up Monitoring/Effectiveness Monitoring
- Sep 2013 - 7. Prepare Implementation Plan

Stakeholder Workshops

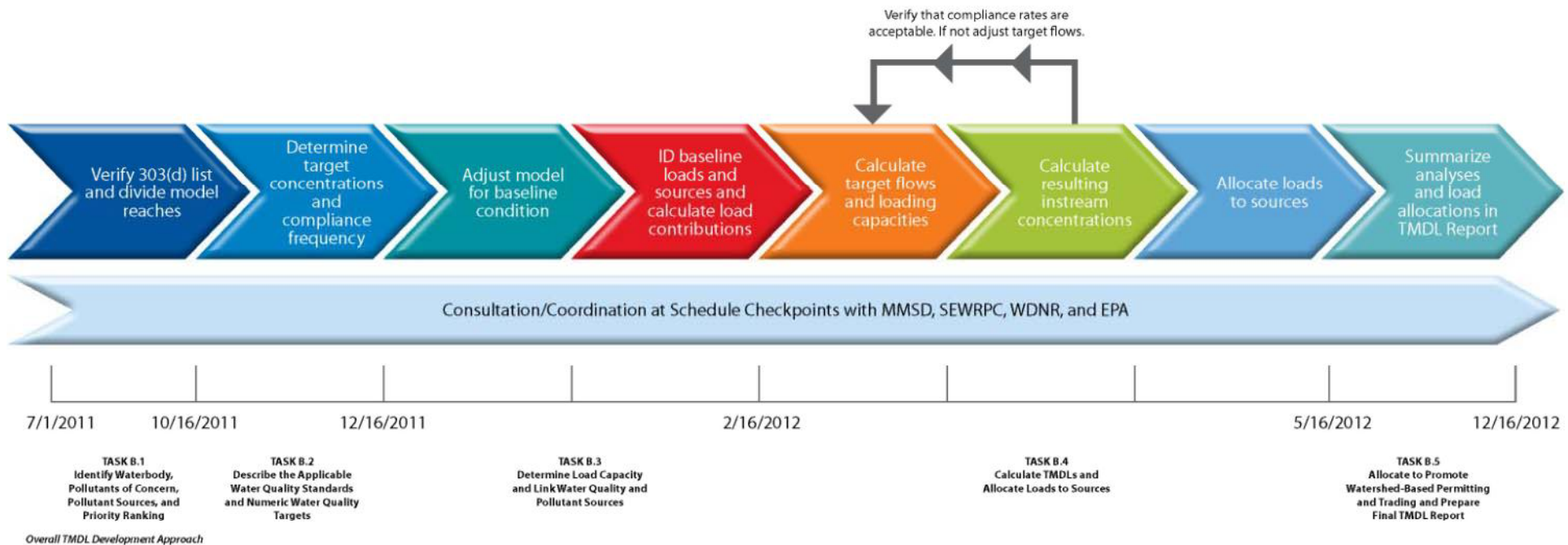
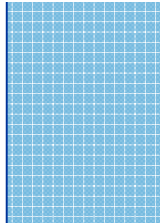
- Identify Waterbody, Pollutants of Concern, Pollutant Sources, and Priority Ranking – Nov 2011
- Describe the Applicable Water Quality Standards and Numeric Water Quality Targets – Early 2012
- Calculate TMDLs and Allocate Loads to Sources – Mar & May 2012
- Allocation Approach – Jun 2012
- Finalize TMDLs and Allocations – Nov 2012
- Initial Implementation Plan Development – Jan 2013
- Draft Implementation Plan – Jun 2013
- Finalize Implementation Plan – Aug 2013

Public Informational Meetings

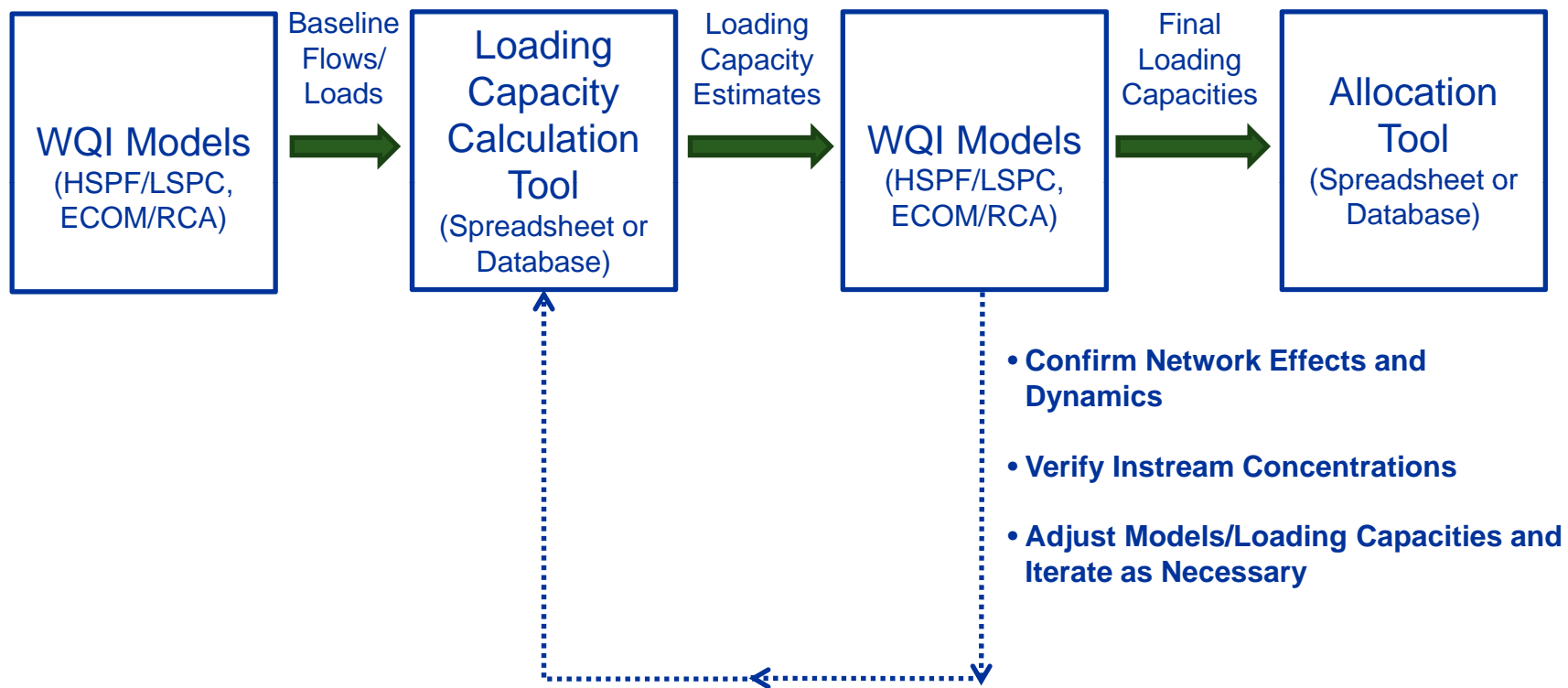
- Describe the Applicable Water Quality Standards and Numeric Water Quality Targets - Early 2012
- TMDL Allocation Approach Summary - Jul 2012
- Implementation Plan Development - Mar 2013
- Completed Implementation Plan - Sep 2013

TMDL DEVELOPMENT APPROACH INFORMATION, TOOLS, AND DATA

TMDL Development Approach



TMDL Development Approach

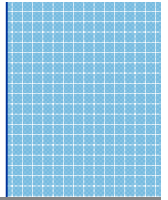


TMDL Development Data

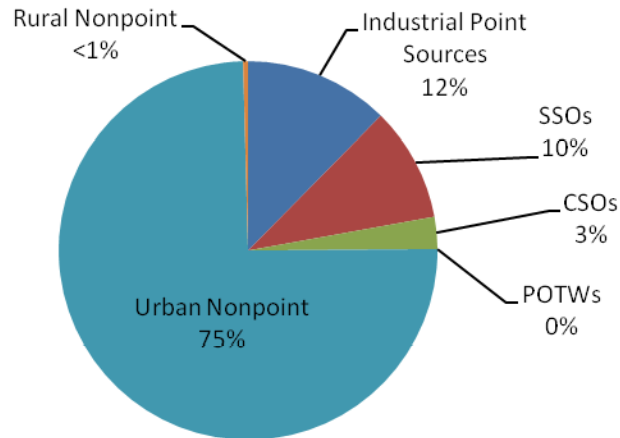
- Watershed Boundaries
- Draft 2012 303(d) List
- WQI Model Files and Documentation
- WQI Model Subbasins
- Land Use Data
- Hydrography
- Municipal Civil Divisions
- List of Permitted MS4 Areas
- List of Permitted Point Source Dischargers
- List of General Permit Holders
- Municipal WWTP Permits
- Discharge Monitoring Reports
- Combined Sewer Area Extents
- CSO/SSO Locations
- Precipitation and Air Temperature Timeseries

Total Phosphorus Loads

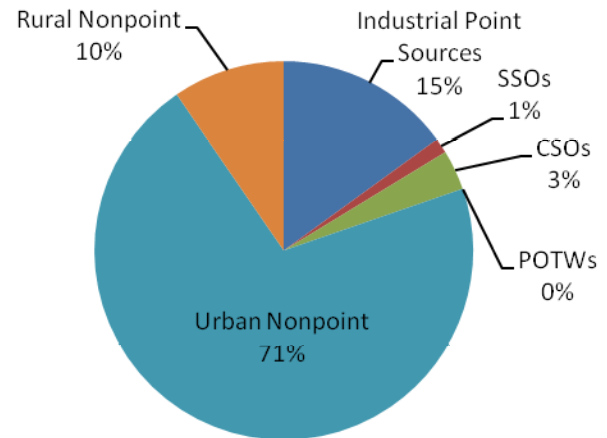
Year 2020 Baseline Condition, SEWRPC RWQMPU



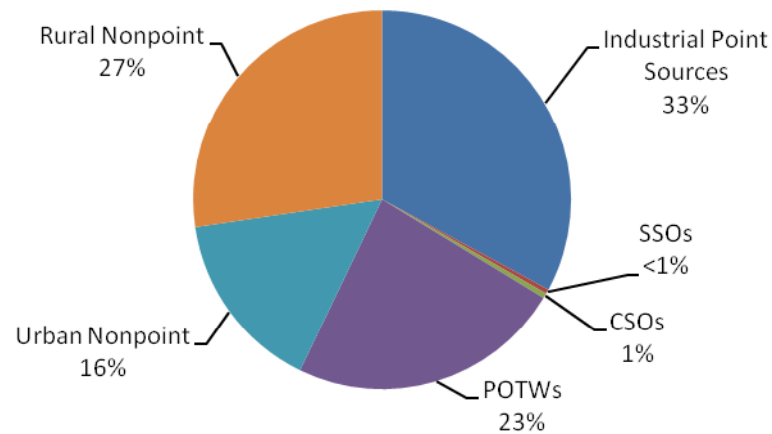
Kinnickinnic River Watershed



Menomonee River Watershed

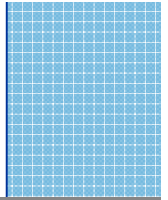


Milwaukee River Watershed

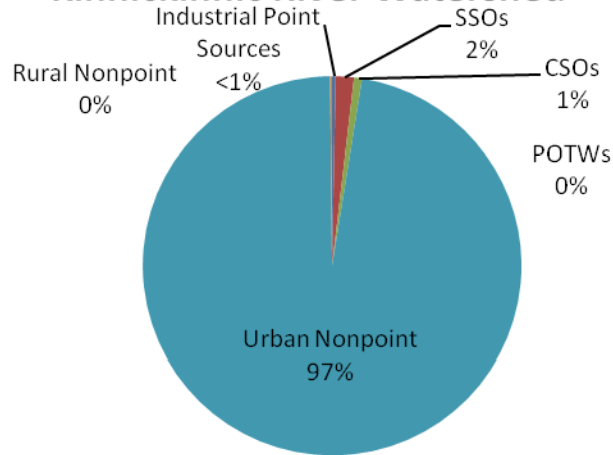


Total Suspended Solids Loads

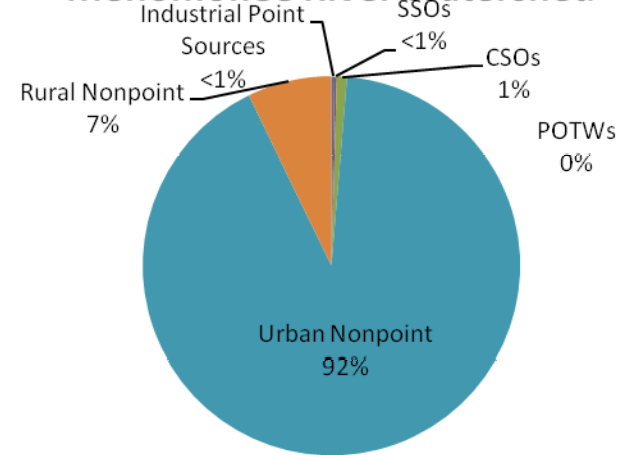
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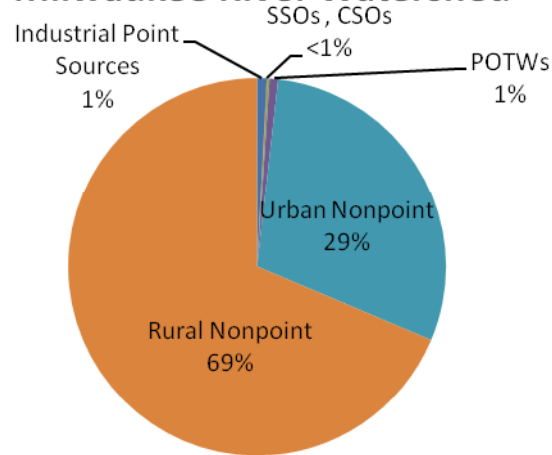
Kinnickinnic River Watershed



Menomonee River Watershed

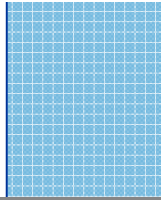


Milwaukee River Watershed

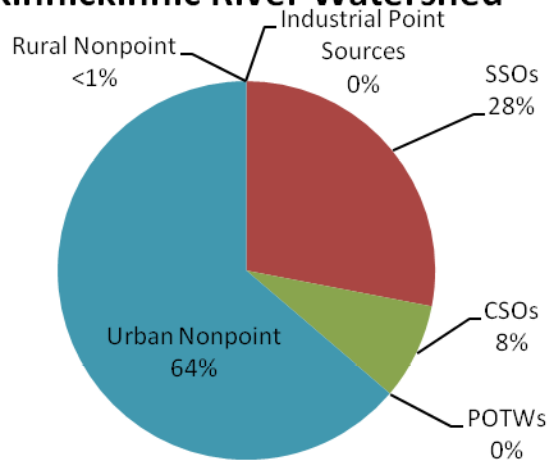


Fecal Coliform Loads

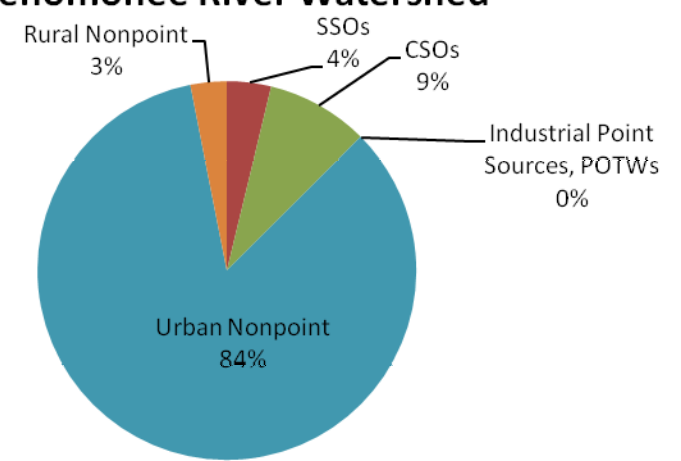
Year 2020 Baseline Condition, SEWRPC RWQMPU



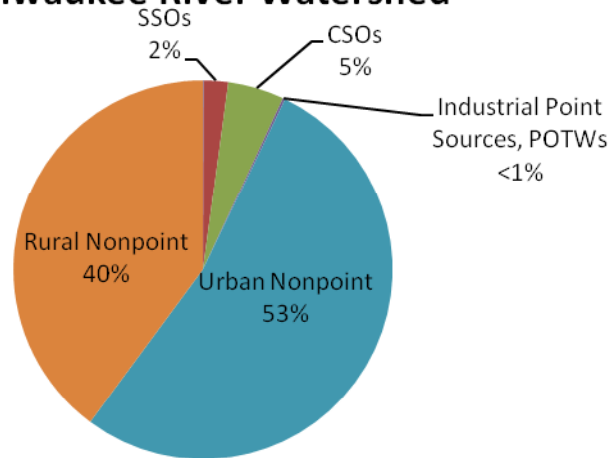
Kinnickinnic River Watershed



Menomonee River Watershed



Milwaukee River Watershed



NEXT STEPS

Next Steps for TMDL Development Team

- Complete data collection
 - Confirm water quality targets
 - Determine loading capacities
 - Establish baseline loadings
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- Next stakeholder workshop - Early 2012