

Facts, Science and Common Sense Uniting Communities



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Waukesha Water Utility



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Greeley and Hansen





Who is Waukesha?

City of Waukesha

- **Population - 71,970 (2015)**
- **Incorporated in 1896**
- **Urban hub of Waukesha County**
- **Largely developed**
 - *Growth rate: less than 1% per year*
- **Median household income - \$58,126 (2015)**
 - *77% White*
 - *12% Hispanic*
 - *5% African American*
 - *6% Other minorities*
- **Waukesha Water Utility – 20,250 Customers**
 - *92% Residential*



Waukesha Water Utility

Rely on Groundwater:

3 active sandstone wells:

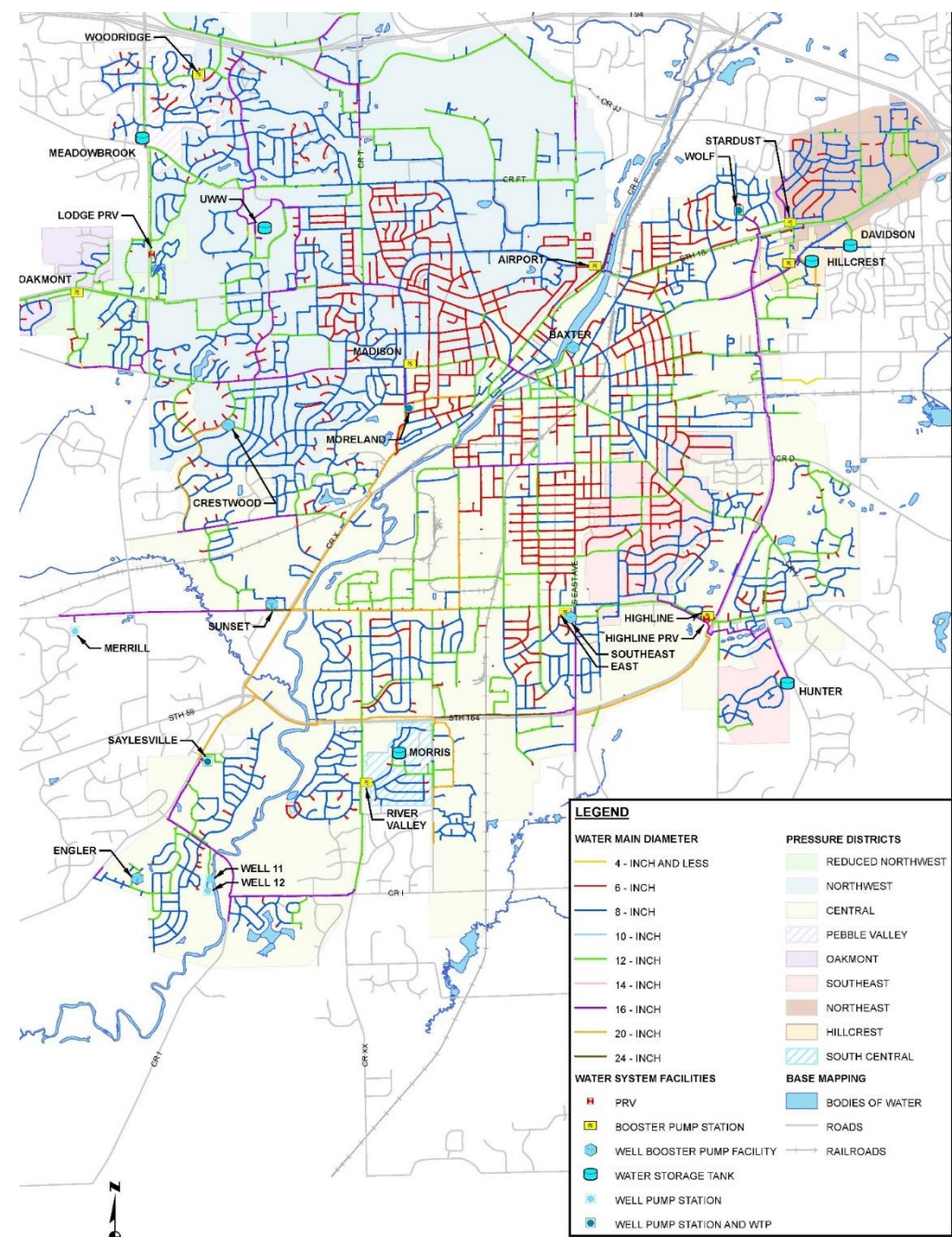
- 1,995 – 2,145 feet deep

3 active sand and gravel wells:

- 105 – 149 feet deep

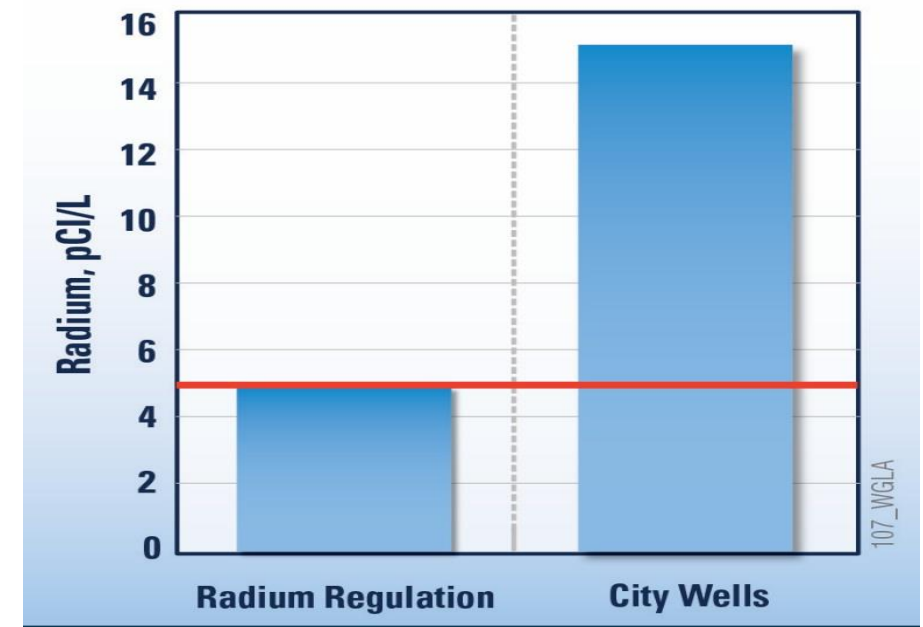
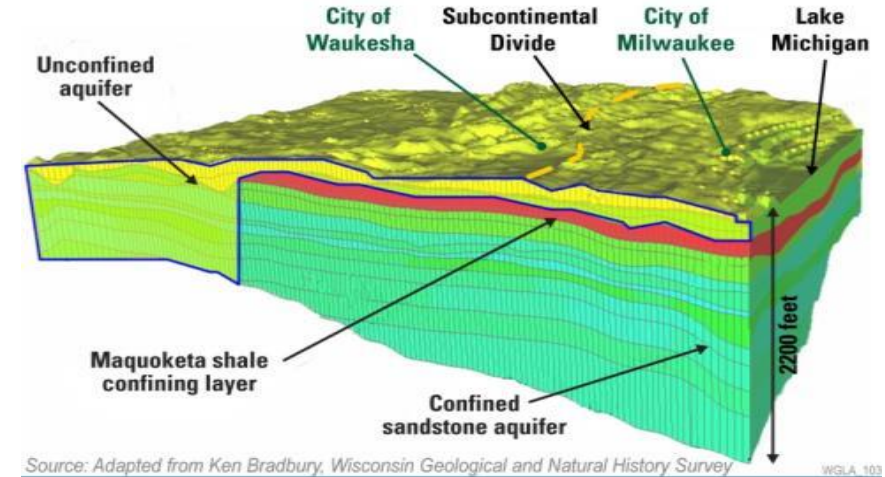
4 standby sandstone wells:

- 1,658 – 2,120 feet deep



Waukesha needs a new water supply

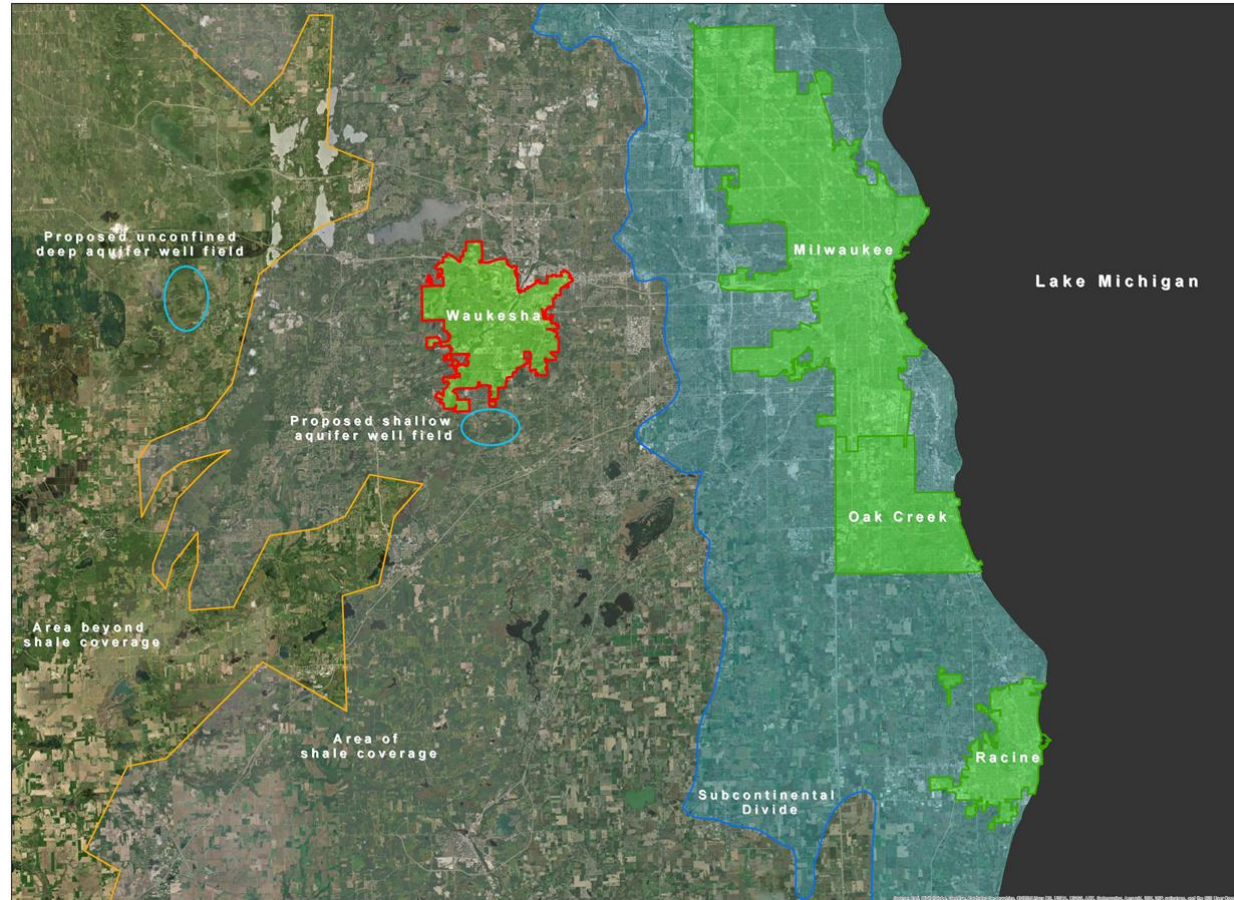
- **Health risk:** Waukesha deep aquifer wells are at 3X the limit set by EPA for radium.
 - Waukesha ordered by court to comply with the radium standard.
- **Sustainability:** Recharge of the current deep aquifer water supply is limited by a layer of shale rock.
 - Deep groundwater is down more than 350 feet. Not sustainable due to limited recharge and high use by numerous communities.
- **Location near environmentally sensitive areas** means that pumping shallow wells adversely impacts wetlands and streams.
- *Reverse osmosis treatment for radium would waste about 20% of water, increasing demands and drawdown.*

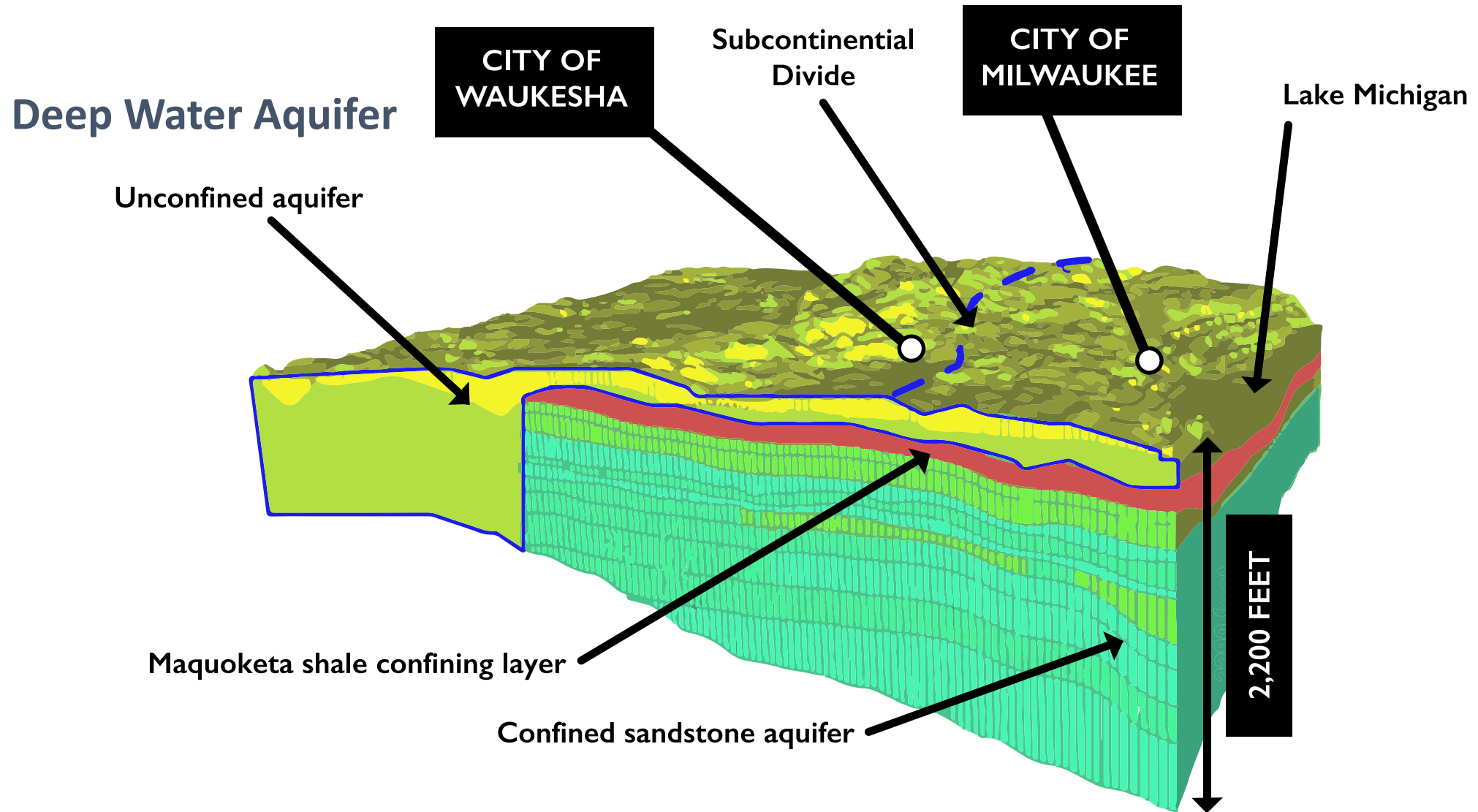




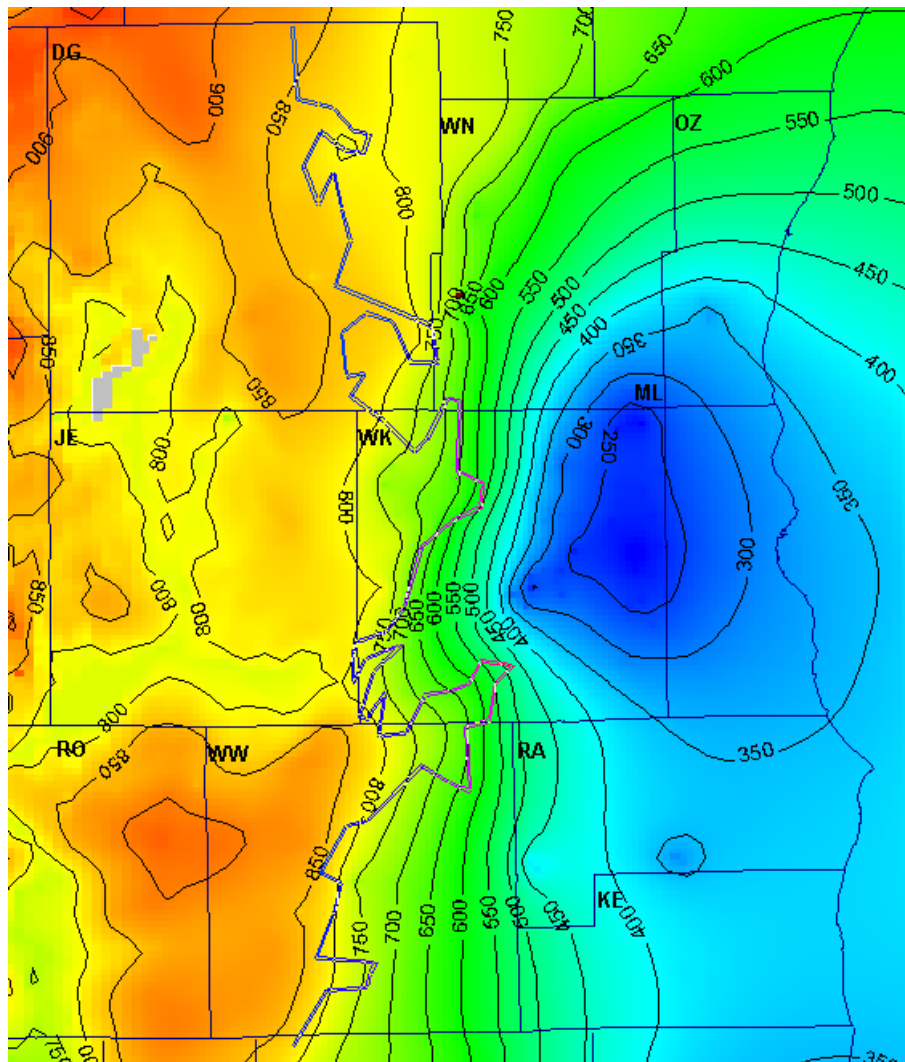
What are the Options?

Water Supply Options

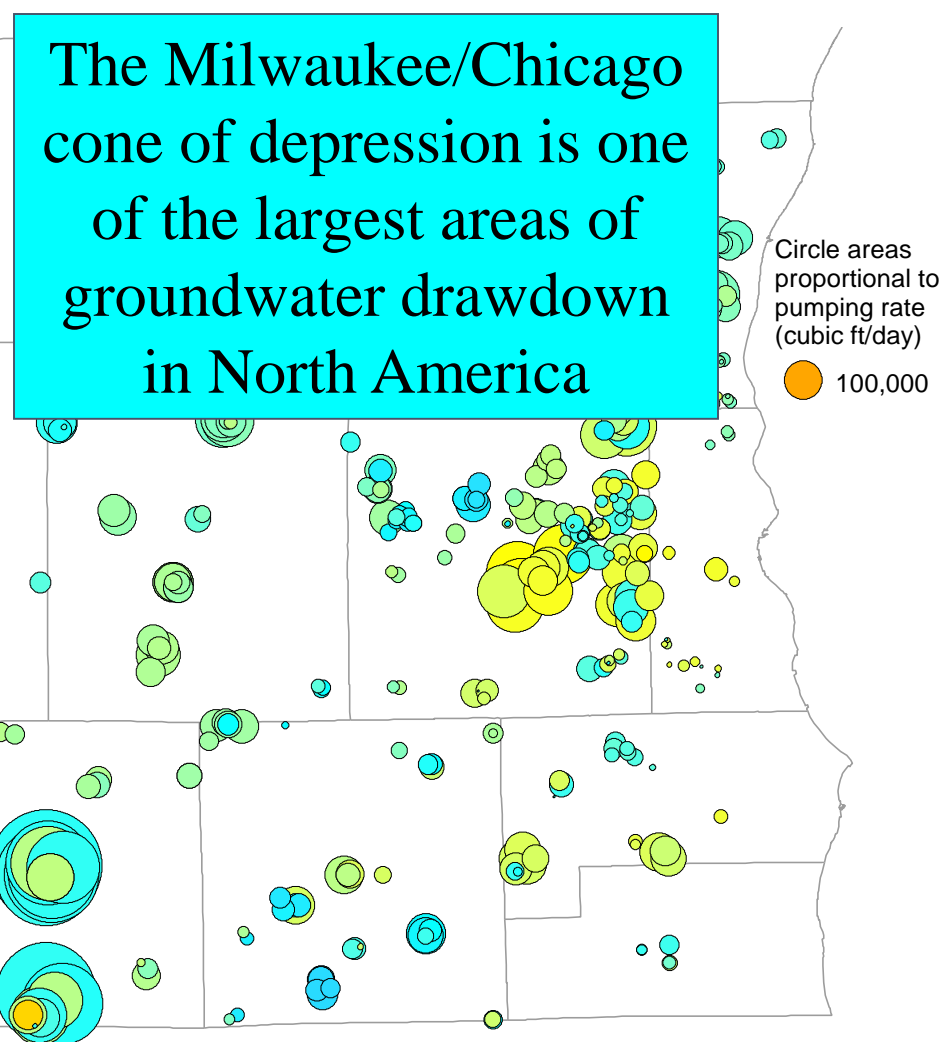
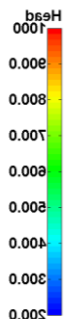




Source: Adapted from Ken Bradbury, Wisconsin Geological and Natural History Survey



Water Levels in the Sandstone Aquifer
(feet above sea level)



The Milwaukee/Chicago
cone of depression is one
of the largest areas of
groundwater drawdown
in North America

Well Locations and Pumping Rates

Shallow

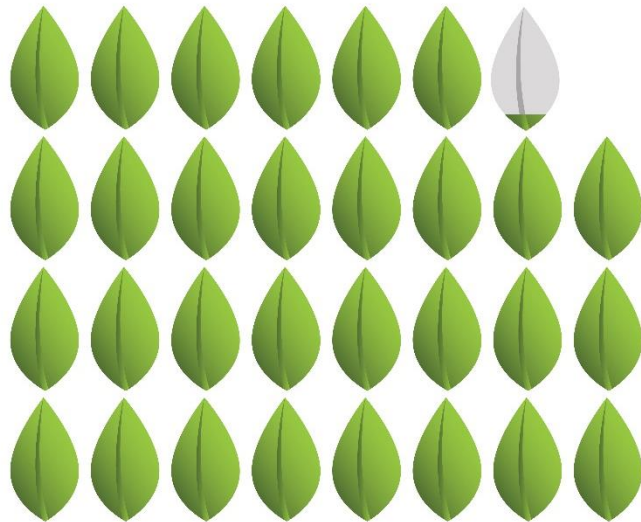
Deep

2010-2020

Impacts of Water Supply Alternatives on Wetlands

**Deep and Shallow Aquifers
1' Drawdown Impacts**

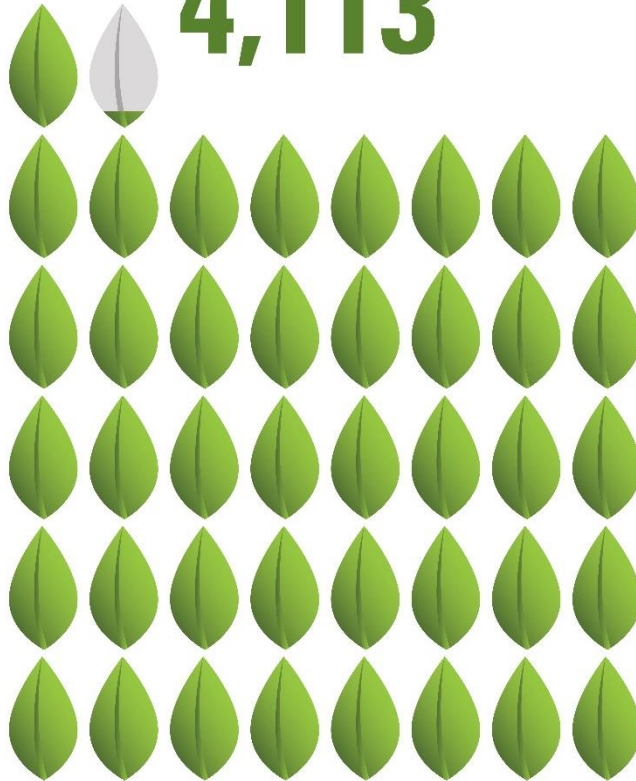
3,091



1 leaf = 100 acres

**Shallow Aquifer and Fox River
Alluvium 1' Drawdown Impact**

4,113



1 leaf = 100 acres

**Lake Michigan Supply and
Return Flow Alternatives**

≤6



1 leaf = 100 acres

Waukesha location

- City of Waukesha is 1.5 miles west of Great Lakes surface water divide in straddling county

Great Lakes Compact – Exceptions to the Diversion Ban

- Straddling community
- Community in a straddling county

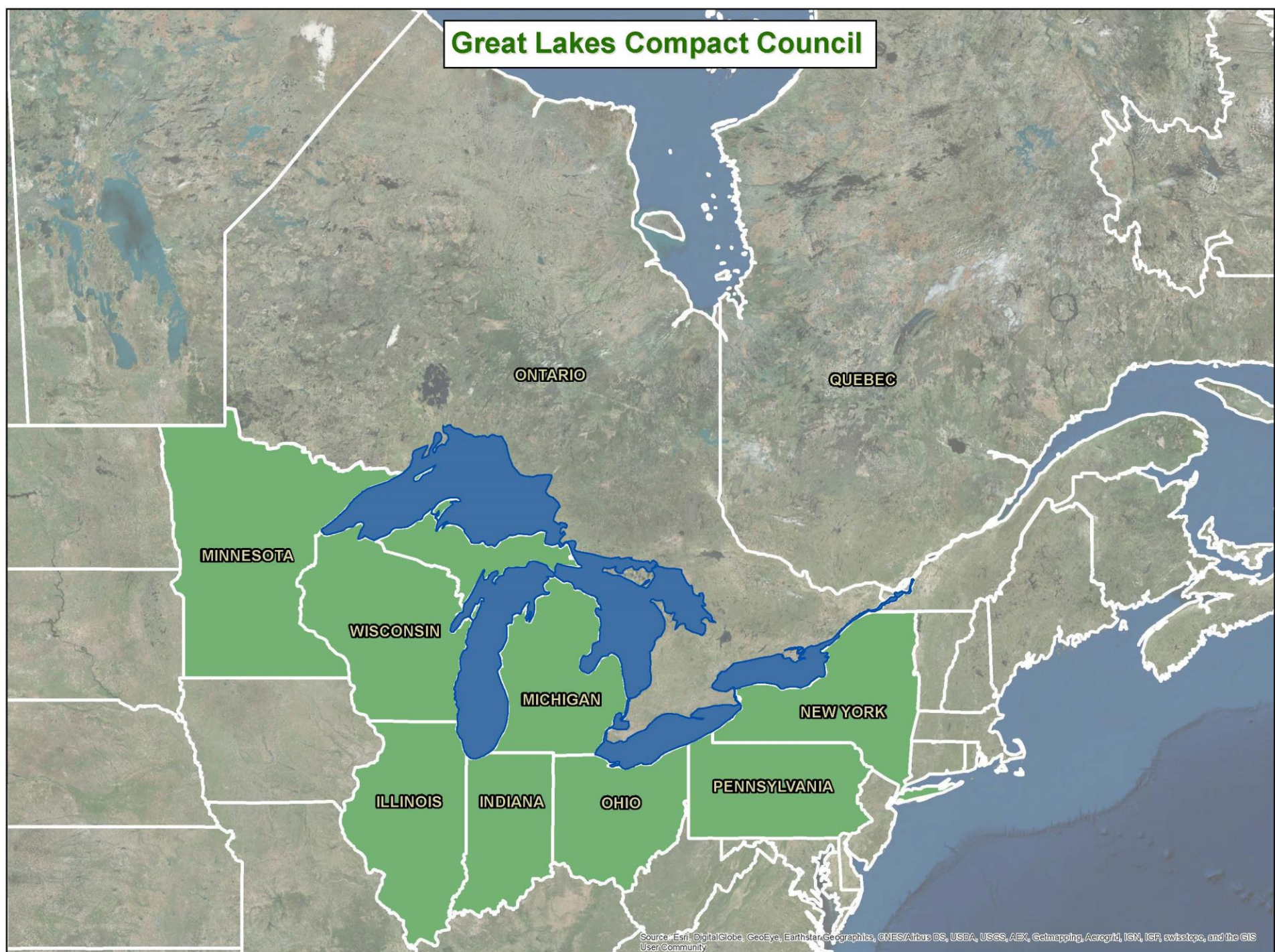


Great Lakes Regional Body

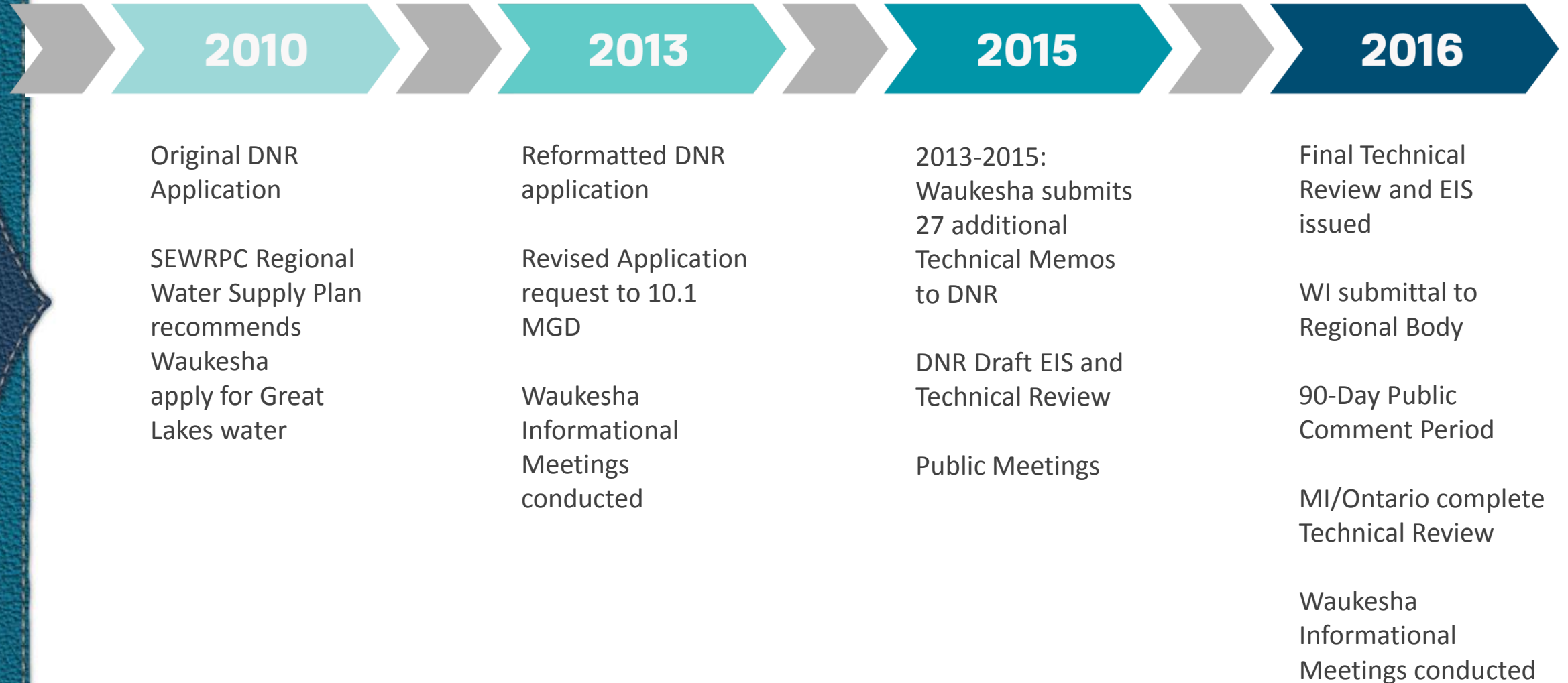


Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Great Lakes Compact Council



The Road to Diversion Application & Approval



DOJ Grants Extension

October 2016: WWU hires a PM/CM Team to assist with the path forward

July 2017: DOJ extends radium compliance deadline to 2023

- Recognizing City's effort to develop new water supply

Extension granted with conditions:

- Requires backup equipment for City's radium compliant wells
- Waukesha must install temporary treatment system if construction not 50% complete by May 2022

Partnerships

The Great Water Alliance is a group of partnerships formed to serve the the best interests of the residents of Waukesha.

At the end, the best partnership for Waukesha's water source came down to two: Milwaukee and Oak Creek.

Milwaukee's proposal represented the greatest savings for all involved.



Why Milwaukee?



Capitol Cost Savings of \$40 million

- *Shorter route*
- *Less labor*
- *Fewer materials*
- *Lower rate*

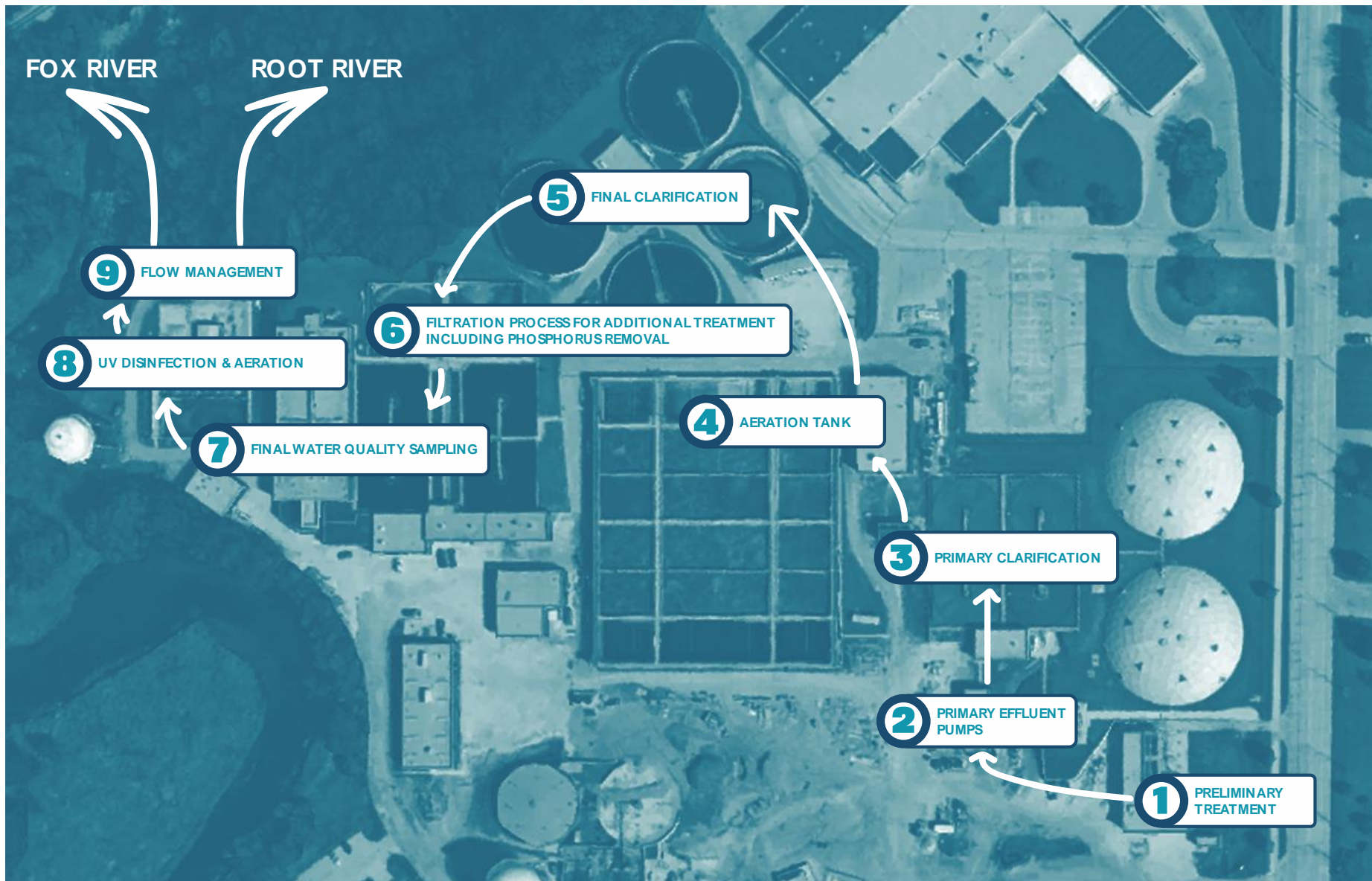
\$224 less per year per ratepayer

\$4 million per year kept in Waukesha

Return Flow

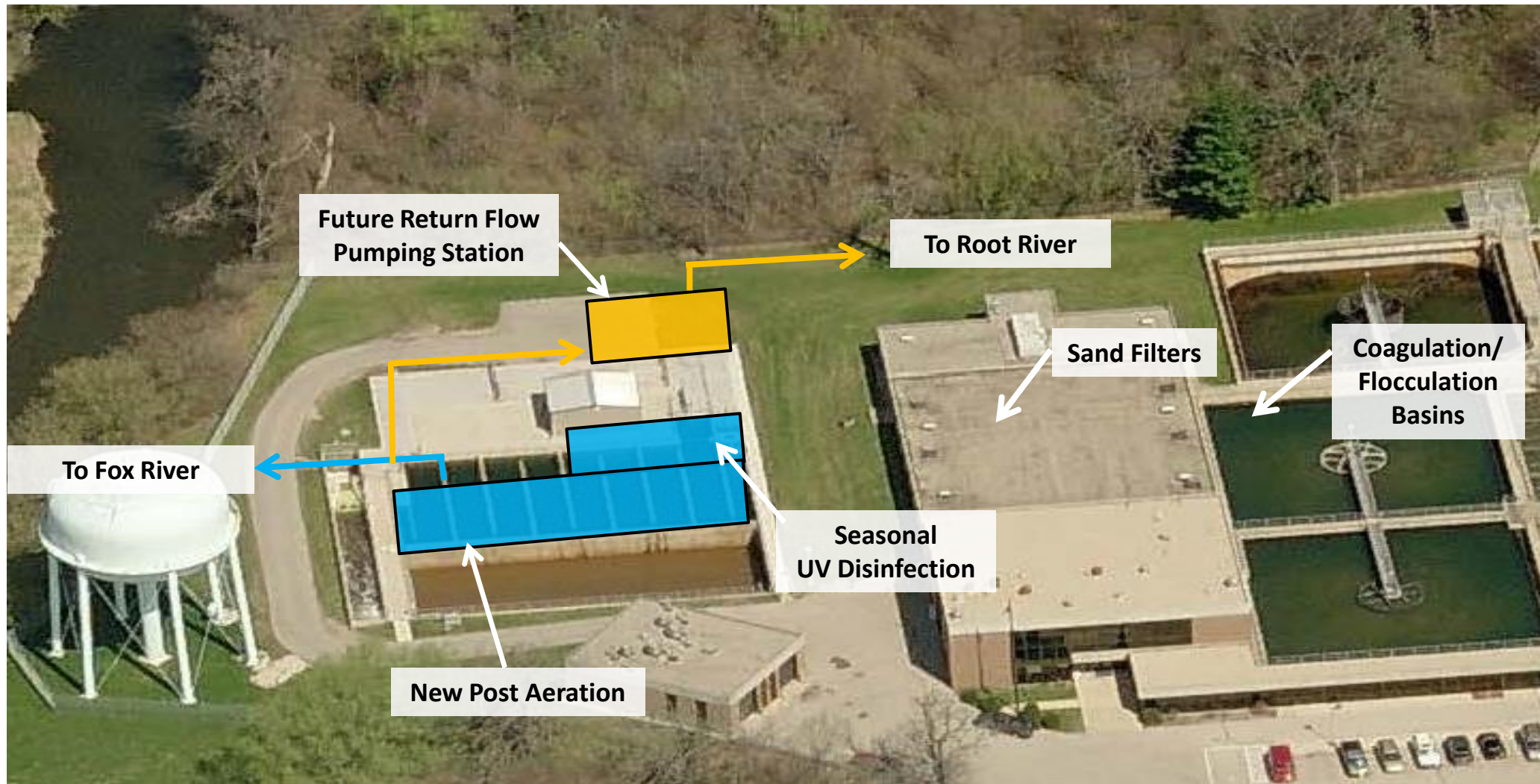
The diversion permit requires that the amount borrowed is returned to the great lakes basin.

The clean water plant produces highly treated effluent that will be returned to the root river.



WAUKESHA CLEAN WATER PLANT

Post-Secondary Treatment Flow Schematic



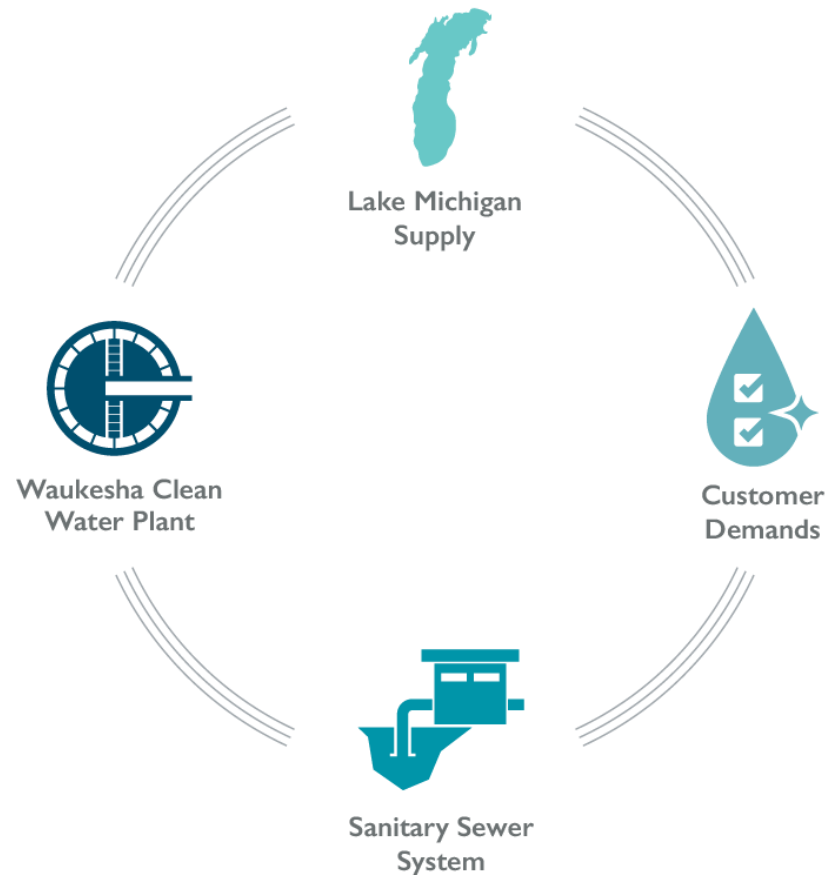
Return Water Quality

- Clean Water Plant currently treats to levels better than all permit requirements
- Advanced facility with Ultraviolet (UV) light disinfection and tertiary treatment, including dual media sand filters.
 - Few facilities in the State have effluent filtration



WAUKESHA CLEAN WATER PLANT

Benefits of the Return Flow



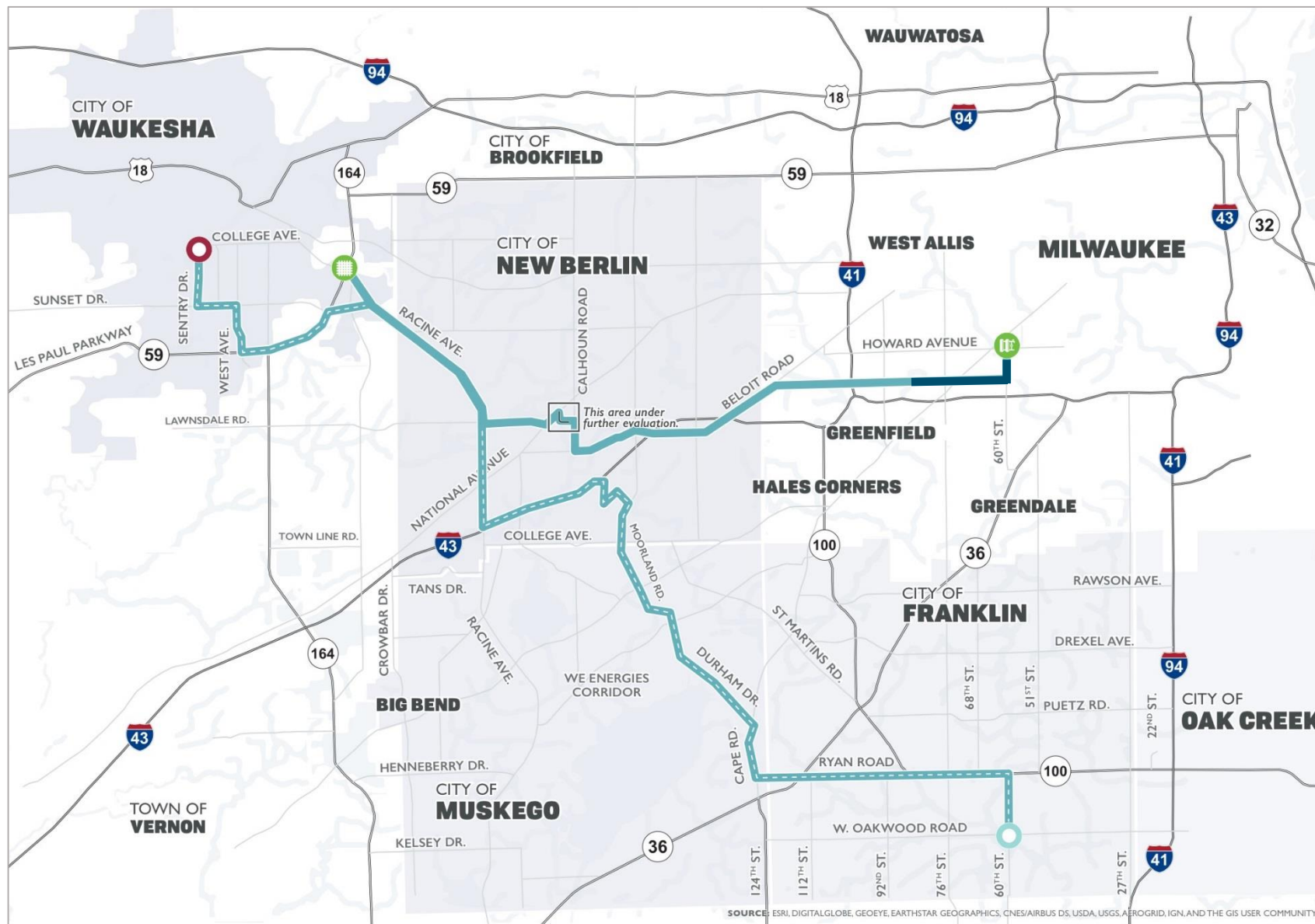
- **Helps restore natural groundwater flow towards Great Lakes Basin**
- **No impact on lake levels**
- **Enhance habitat and fisheries in Great Lakes Basin**
- **Reduce radium and salt released to environment**



Community Partnerships

Local Authorities having Jurisdiction

- US EPA
- US Fish and Wildlife
- US Army Corps of Engineers
- Federal Highways Administration
- Wisconsin Department of Transportation
- Waukesha County
- Milwaukee County
- City of Waukesha
- Town of Waukesha
- City of Milwaukee
- City of West Allis
- City of Greenfield
- City of New Berlin
- City of Muskego
- City of Franklin



Route Alternative D

Return Flow Pumping Station

Waukesha Distribution System

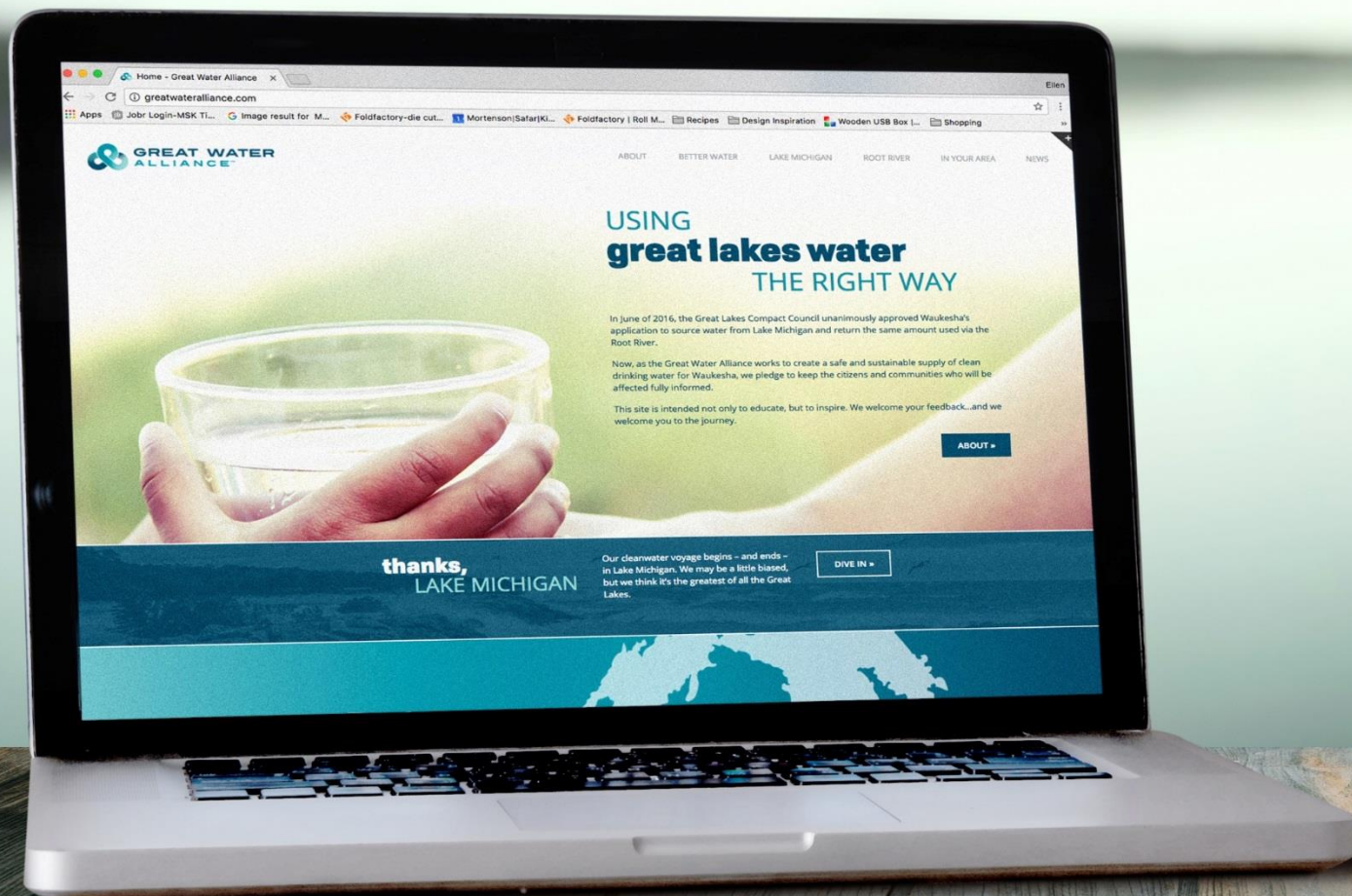
Return Flow

Outfall

Water Supply Pump Station

Communications Strategy

- Permitting and Coordination Meetings
- Weekly email updates
- Press releases
- Website
- Social Media





COMING TOGETHER FOR **great water**

The Great Water Alliance was launched to provide the people in the City of Waukesha with a safe and sustainable source of clean drinking water. But we're keenly aware that the success of this important program won't be possible without the cooperation and goodwill of our neighbors.

Without question, water is our most precious natural resource. And the Great Water Alliance is committed to working with our partner communities to safeguard it for the generations that follow.



allied communities

We've created a dedicated web page for each of the areas that will play a role in helping the Great Water Alliance succeed. It's a quick and easy way to learn more about what's going on in your community.

WAUKESHA

MUSKEGO

FRANKLIN

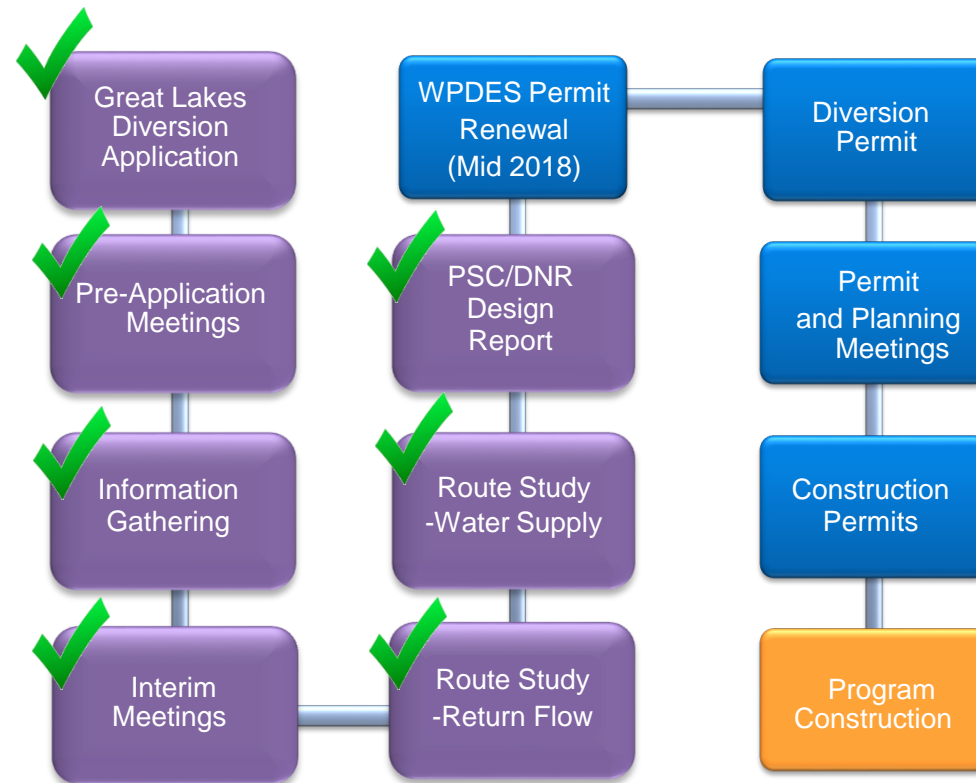
NEW BERLIN

MILWAUKEE

RACINE



Path Forward



We'd like to hear from you.

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262.409.4444

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greatwateralliance.com

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GREAT WATER
ALLIANCE™