

The City of Waukesha Application for Lake Michigan Diversion with Return Flow



**Great Lakes Commission
2013 Annual Meeting**

Moderator: Ken Johnson, Chair
Dan Duchniak, General Manager, Waukesha Water Utility

September 9, 2013

Agenda

- Waukesha Background
- Water Needs
- Water Supply Alternatives
- Summary



Waukesha Background

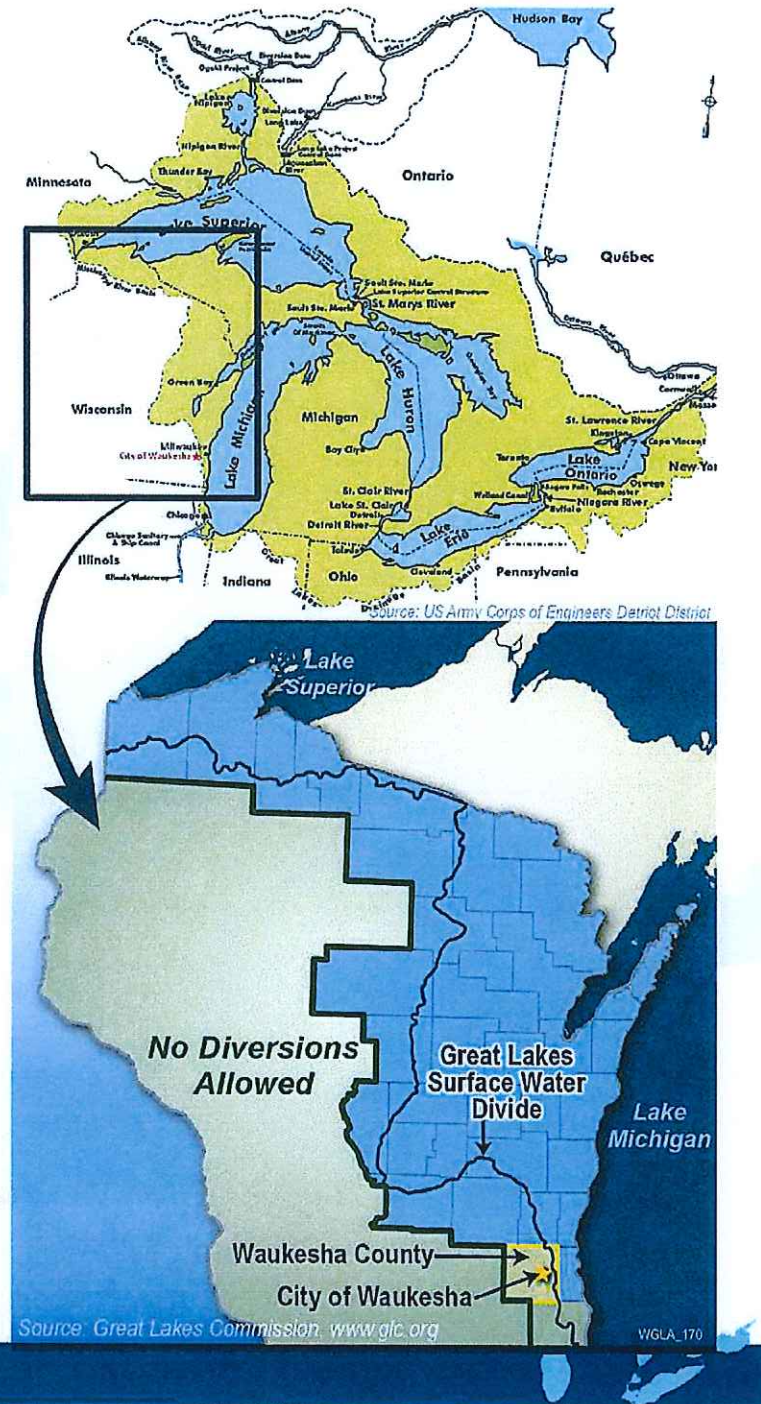


Waukesha location

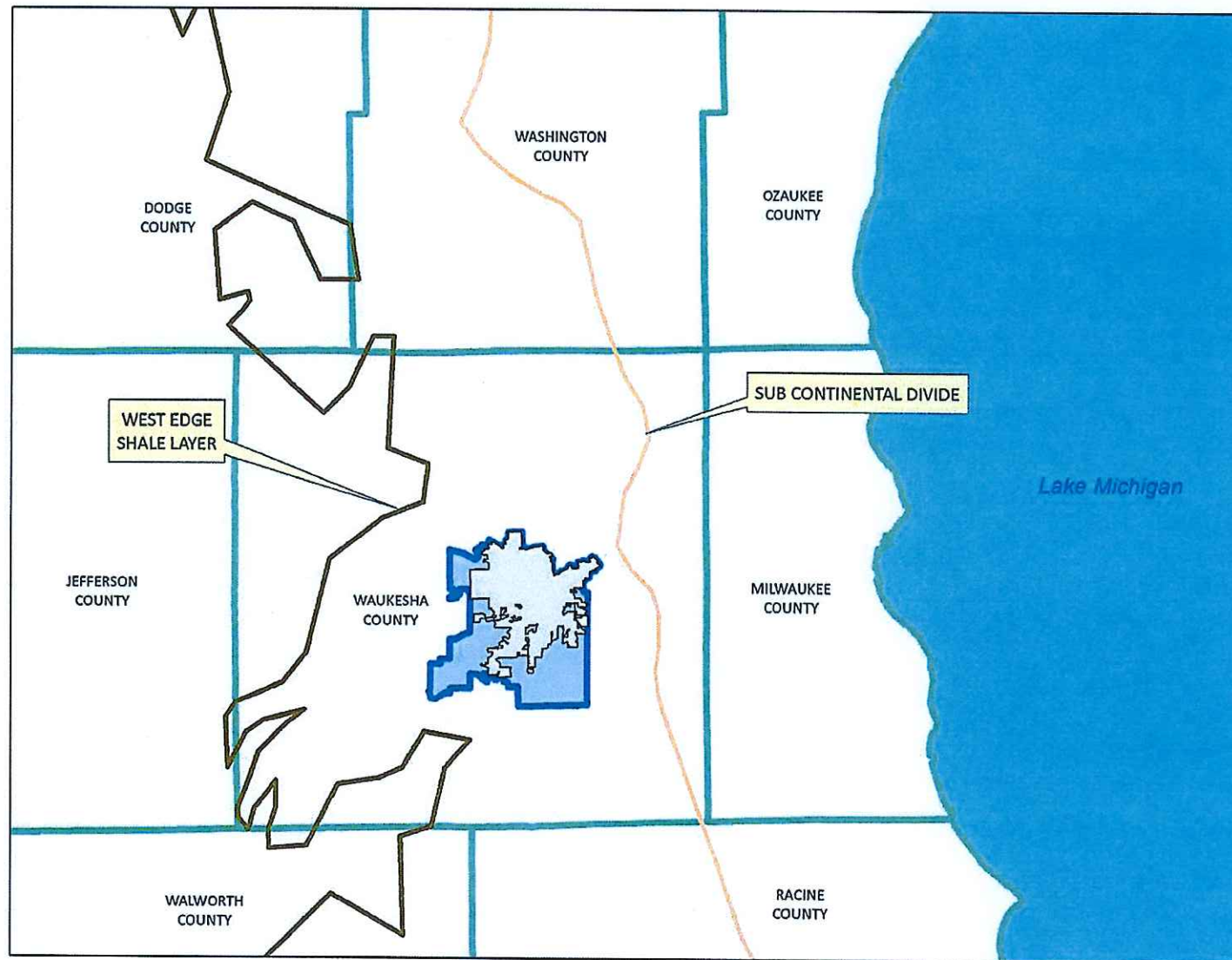
- City of Waukesha is 1.5 miles west of Great Lakes surface water divide in straddling county

Great Lakes Compact – Exceptions to the Diversion Ban

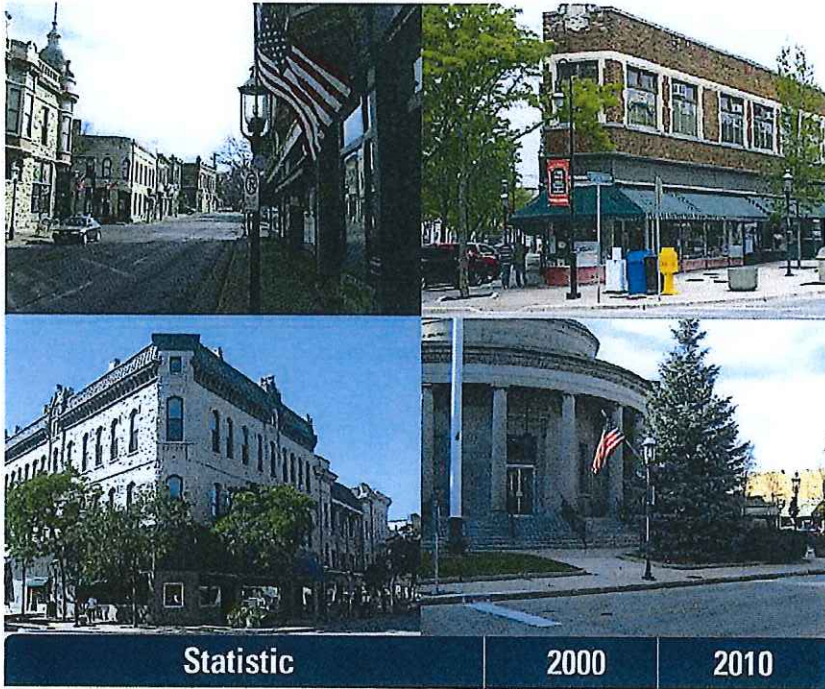
- Straddling community
- Community in a straddling county



About the City of Waukesha



City of Waukesha



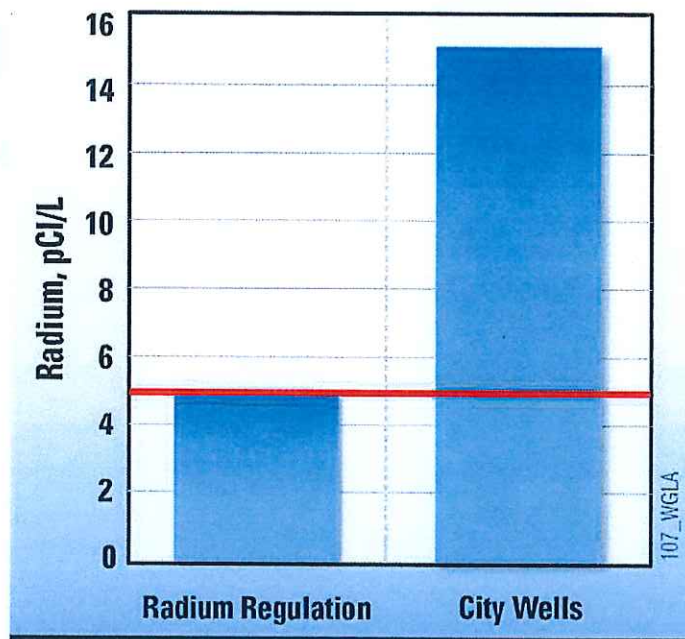
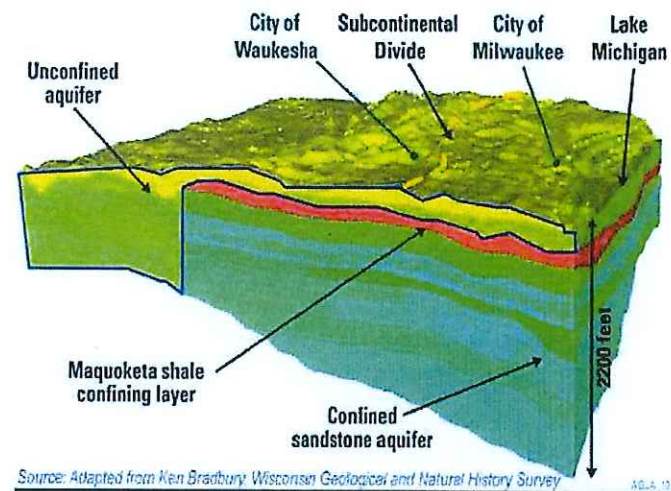
- 2010 population 70,718
- Urban hub of Waukesha County
- House county services
- Own/operate transit system

Statistic	2000	2010
Population	64,825	70,718
Demographics		
White	91%	88%
Non-white	9%	12%
Median Household Income	\$50,085	\$57,001
Population below poverty level	5.9%	10.6%



Waukesha needs a new water supply

- Deep groundwater levels are declining (over 400 - 600 ft below ground) and capacity decreasing.
- Deep groundwater water quality is getting worse (high radium, salts). Court order to comply with radium by 2018.
- Adverse impacts on the Great Lakes Basin water resources.
- Deep groundwater wells are old (30 to over 80 years). Several are no longer usable.
- Deep groundwater is not sustainable.
- Pumping shallow wells adversely impact wetlands and streams.
- Even with conservation of existing supplies within the Mississippi River Basin, Waukesha does not have an adequate long-term supply.

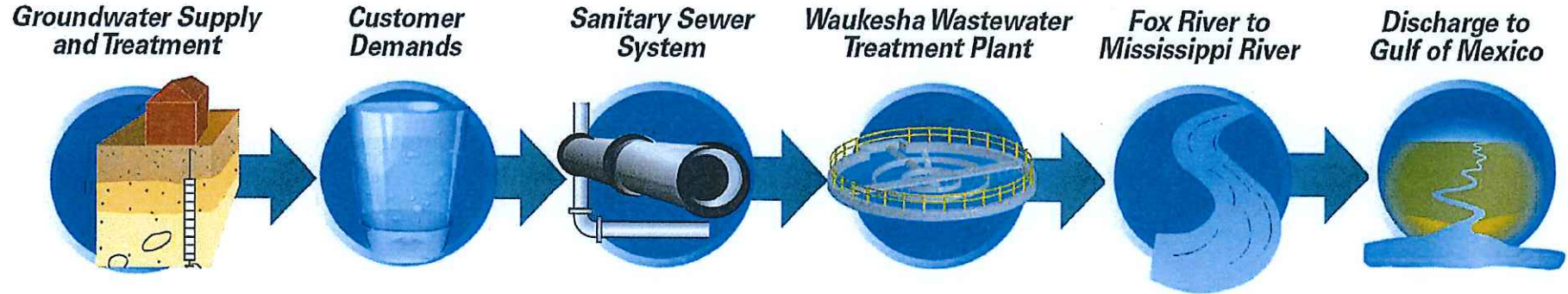


Conserving water makes sense for Waukesha

- Outdoor sprinkling restrictions
- Inclining block water rates to encourage conservation
- High efficiency fixture rebates
- Public education and outreach



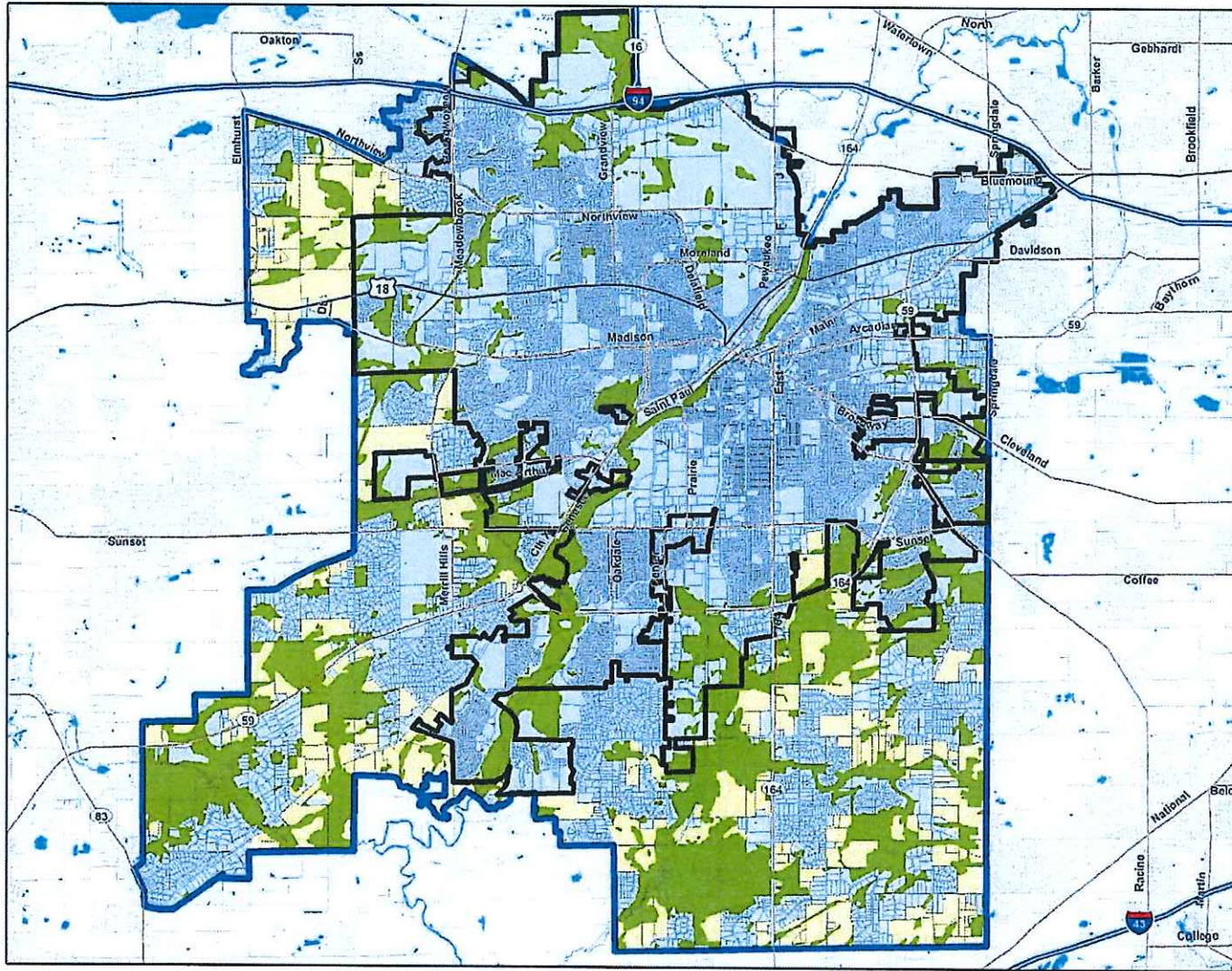
Waukesha's groundwater supply is not sustainable



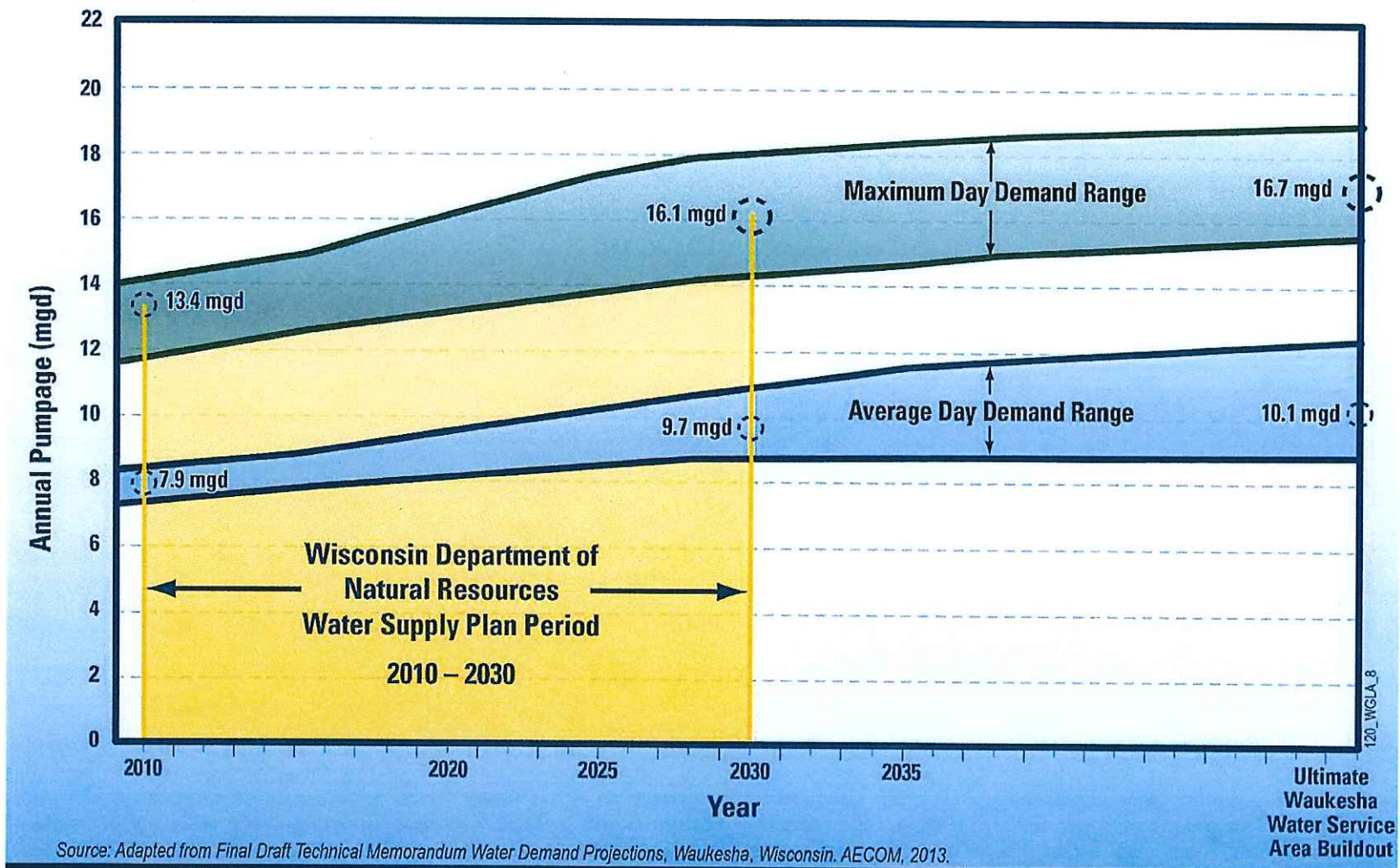
Water Needs



Waukesha Water Supply Service Area



Requesting a reasonable amount of water



Water Supply Alternatives



Legislative and legal considerations

- Act 310 – Groundwater Quantity Act (2003)
- Great Lakes Compact
 - Wisconsin Implementation Legislation
- Lake Beulah Management District
 - State Supreme Court Decision
 - DNR Must consider impacts when issuing high capacity well permits
- All New Water Supply Alternatives are Outside the Current City Limits



Water supply alternatives studied

14 Water Sources Considered

Deep Confined Aquifer	Dam On The Fox or Rock River
Deep Unconfined Aquifer	Waukesha Quarry
Shallow Aquifers	Waukesha Springs
Dolomite Aquifer	Pewaukee Lake
Fox River	Milwaukee River
Rock River	Wastewater Reuse
Lake Michigan	

Initial screening
for water quantity or
major environmental and
regulatory issues.
Eliminated 10 as sole
water sources.

6 Water Supply Alternatives Evaluated Further

- Shallow/Deep Aquifers
- Lake Michigan/Shallow Aquifer
- Shallow Aquifers
- Deep Unconfined Aquifer
- Multiple Sources
(Shallow and Deep Aquifers,
Surface Waters)
- Lake Michigan

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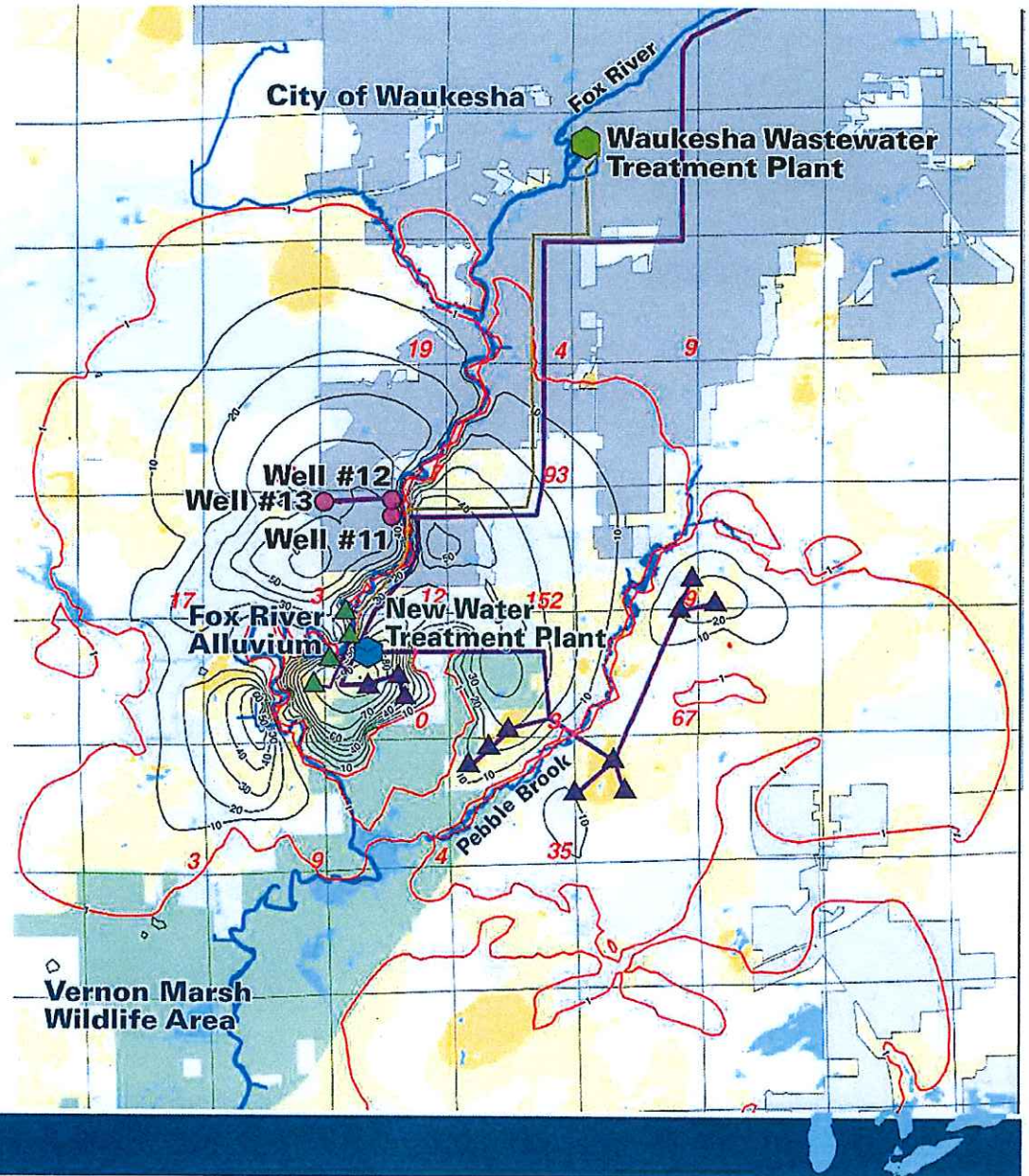
Waukesha supply alternatives evaluation criteria

- Environmental impact
- Public health
- Implementability
- Long-term sustainability

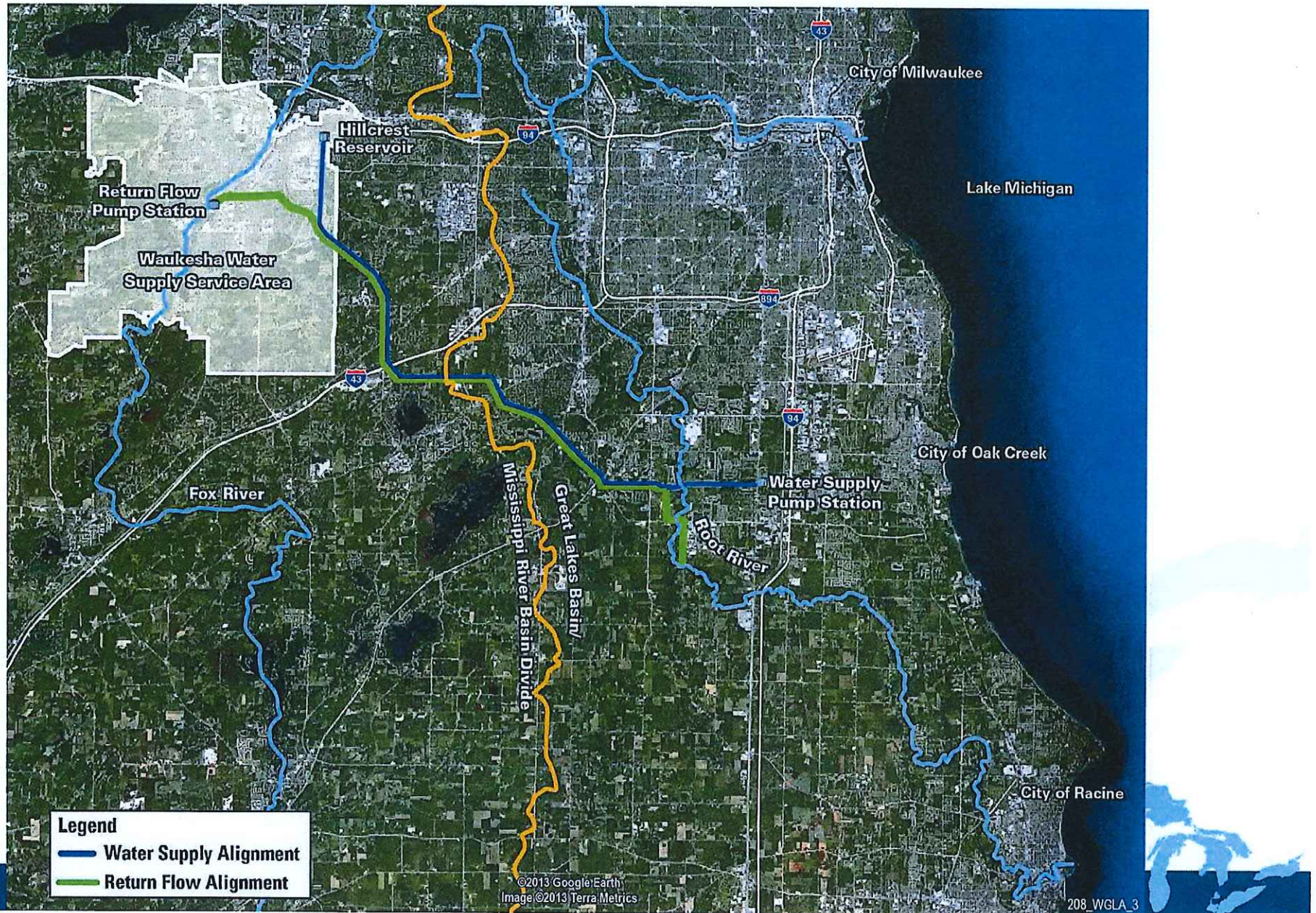


Alternatives to a Lake Michigan water supply:

- Greater adverse environmental impacts
- Are not sustainable
- Increase risk to public health
- Outside the city limits
- Greater impact to other water users



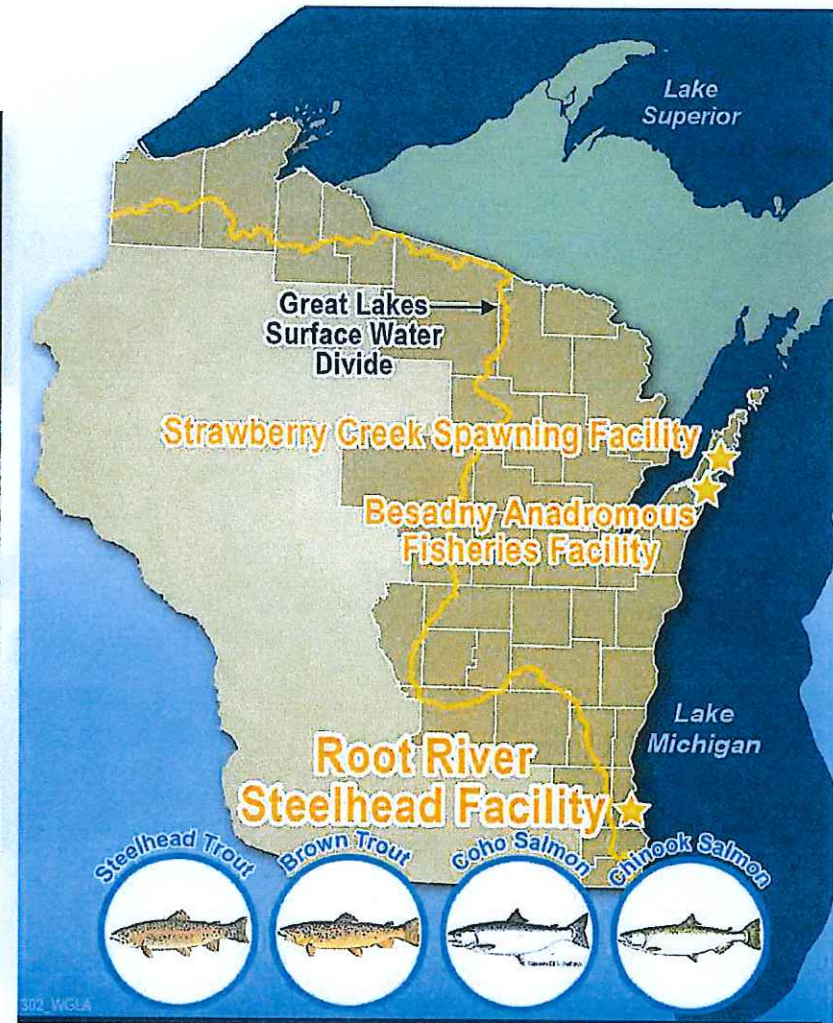
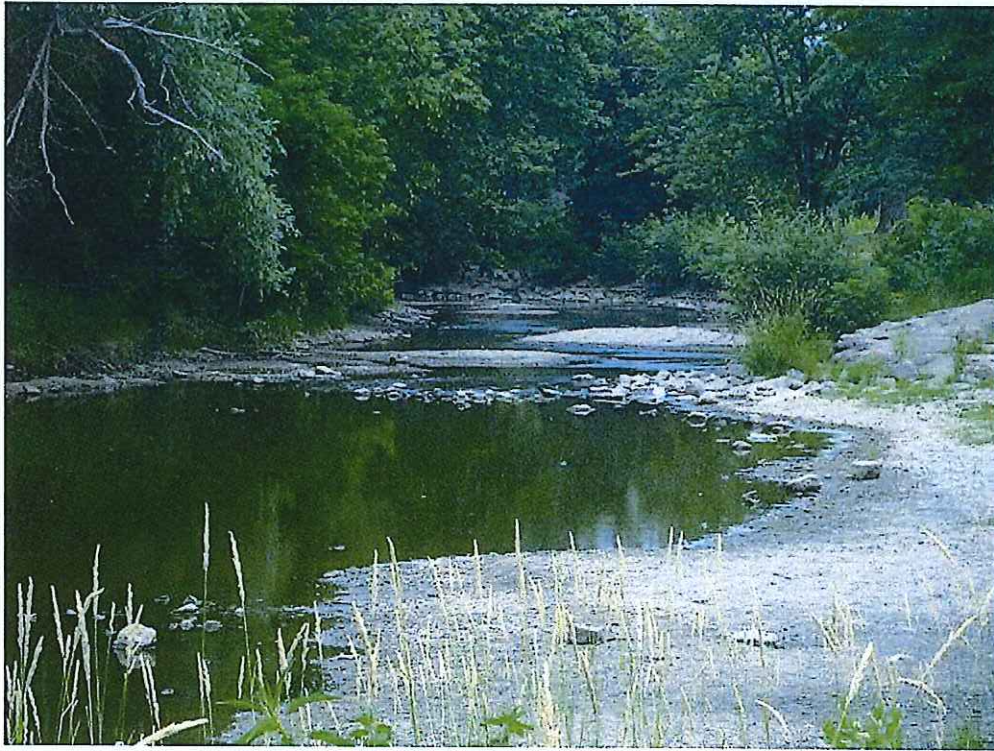
Lake Michigan alternative



Root River comparison



Benefits to Root River



No other reasonable water supply for Waukesha

Wisconsin Compact Implementation Statute defines reasonable water supply:

“Reasonable water supply alternative” – “a water supply alternative that is similar in cost to, and as environmentally sustainable and protective of public health as, the proposed new or increased diversion and that does not have greater adverse environmental impacts than the proposed new or increased diversion.”

Reference: Wis. Stat. § 281.346(1)(ps).

***None of the other water supply alternatives
are reasonable for Waukesha***



Lake Michigan is the only reasonable alternative

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Deep Confined Aquifer
Deep Unconfined Aquifer
Shallow Aquifers
Dolomite Aquifer
Fox River
Rock River
Lake Michigan
Dam On The Fox or Rock River
Waukesha Quarry
Waukesha Springs
Pewaukee Lake
Milwaukee River
Wastewater Reuse

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6 Water Supply Alternatives Evaluated Further

- Shallow/Deep Aquifers
- Lake Michigan/
Shallow Aquifer
- Shallow Aquifers
- Deep Unconfined Aquifer
- Multiple Sources
(Shallow and Deep
Aquifers, Surface Waters)
- Lake Michigan

Eliminated 5
alternatives based on
environmental
impacts, public
health, long-term
reliability, and
implementability.

1 Final Reasonable Alternative

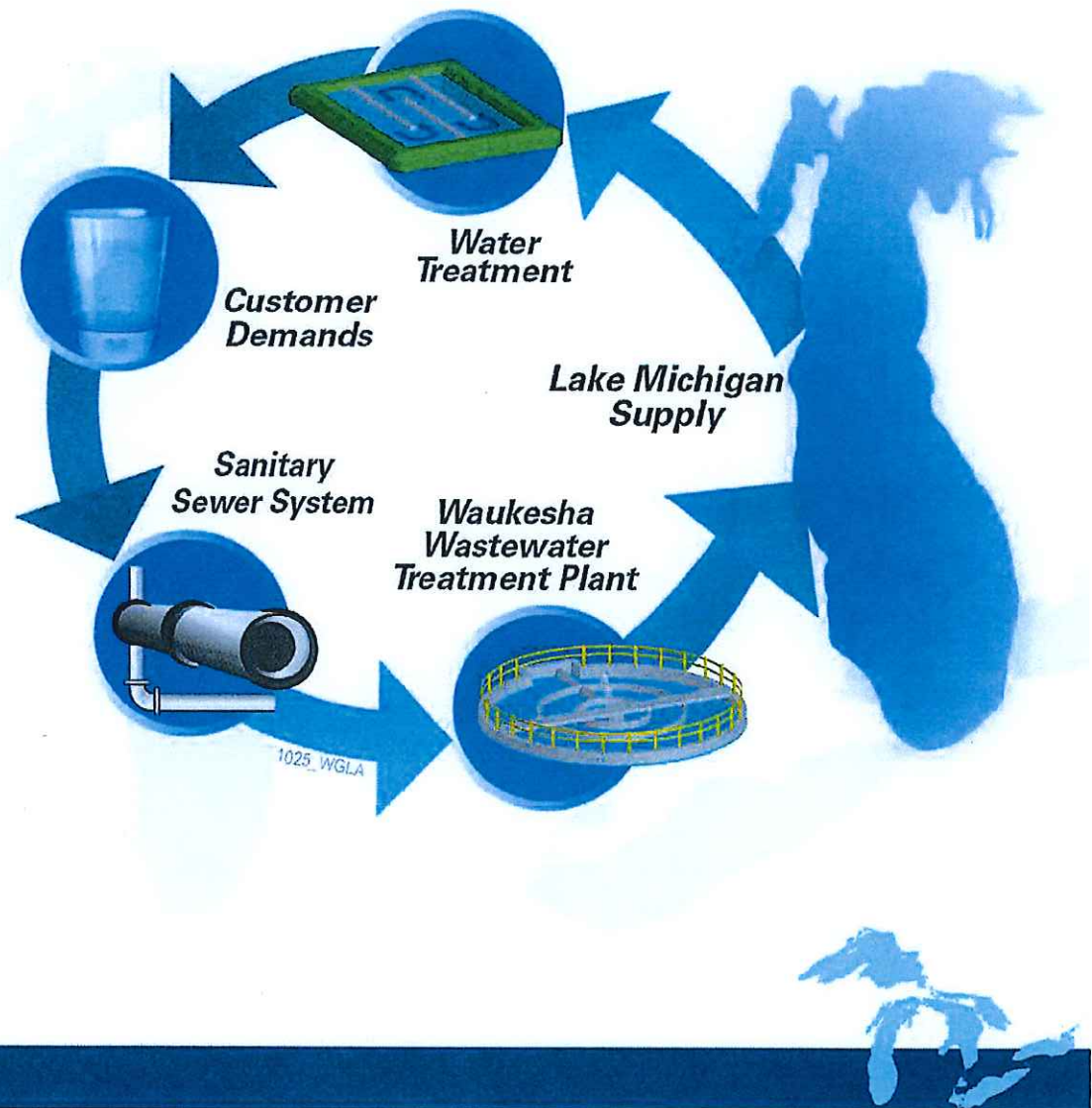
Lake
Michigan

Summary



Benefits – Waukesha diversion with return flow

- Help restore natural groundwater flow towards Great Lakes basin
- No Impact on lake levels
- Enhance habitat and fisheries in Great Lakes tributary
- Reduce radium and salt released to environment

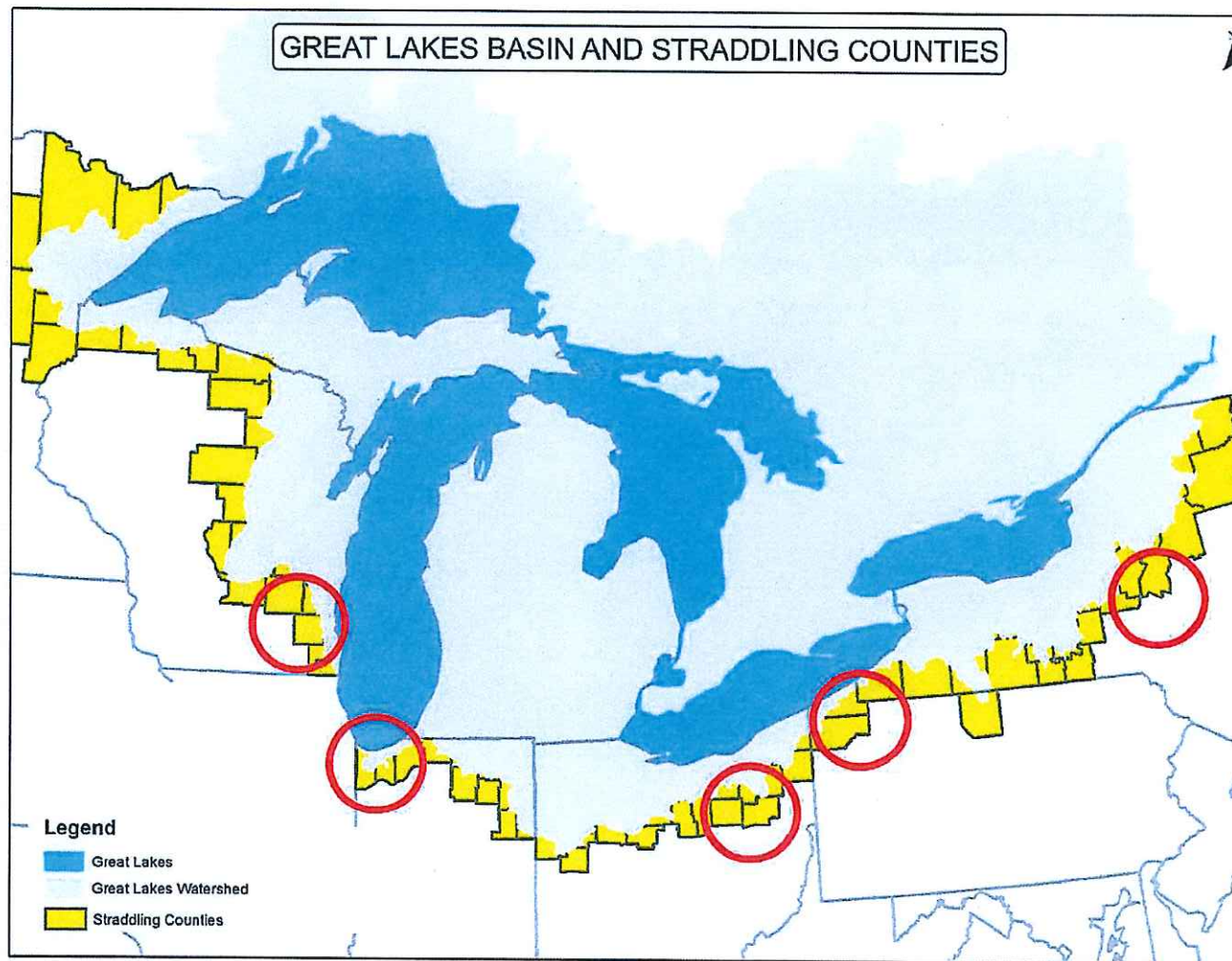


Waukesha meets exception standard criteria

- Need for water cannot be reasonably avoided through efficient use of water and conservation.
- No other reasonable supply is available.
- Reasonable amount of water requested.
- All water, less consumptive use, is returned.
- Restorative of hydrologic conditions of Basin.
- No significant individual or cumulative adverse environmental impacts to Basin waters and water dependent resources.



Great Lakes Basin and US Straddling Counties Precedents



Take home points

- Conservation alone can't resolve the water supply issue.
- Service area is consistent with Wisconsin laws and regional water planning.
- The volume of water requested is based on sound planning principles and is reasonable.
- Extensive Water Supply alternative analyses concluded Lake Michigan was the only reasonable alternative.
- Return flow insures no change in lake levels and provides tremendous benefits to a Great Lakes tributary's habitat and fisheries.



Thank You



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