

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



Waukesha Common Council

Dan Duchniak, General Manager, Waukesha Water Utility

July 7, 2015

Purpose of this Presentation

- An update on recent events
- A summary of the issues
- The path forward



Recent Events



Waukesha Application for Great Lakes Water

- May 2010:
 - Waukesha Makes Formal Application for Great Lakes Water under the terms of the Great Lakes Compact
- October 2013:
 - Waukesha Submits Revised Application for Great Lakes Water
- **June 2015:**
 - **Department of Natural Resources issues:**
 - **Draft Environmental Impact Statement (EIS)**
 - **Draft Technical Review**
- August 2015:
 - Public Hearings on Application Scheduled



DNR Findings

1. Water Supply

- Waukesha is Without Adequate Supplies of Potable Water
- Waukesha has No Reasonable Water Supply Alternative in Mississippi River Basin (MRB) even considering conservation
- MRB alternatives have greater adverse environmental impacts
- All alternatives are not as protective of public health
- All alternatives are similar in cost
- The proposed diversion is consistent with the required water supply service area plan

2. Water Conservation

- The proposed diversion cannot be reasonably avoided through efficient use and conservation of existing water supplies



DNR Findings (Continued)

3. Wastewater Return Flow

- Waukesha would meet the Compact's requirement to return all water withdrawn from Lake Michigan less an allowance for consumptive use
- Waukesha would return the previous year's average day volume in order to maximize the return of Great Lakes water and minimize the return of Mississippi River basin water
- Waukesha would meet all water quality discharge standards and applicable permit requirements to prevent the introduction of invasive species to the Great Lakes basin
- Waukesha would meet permit requirements that would protect the physical, chemical and biological integrity of the Root River



DNR Findings (Continued)

4. Impact Assessment

- The proposed diversion would not endanger the integrity of the Great Lakes Basin ecosystem
- The proposed diversion would not result in significant individual or cumulative adverse impacts to the Great Lakes Basin

5. Additional Criteria

- Waukesha's current water supply is derived from groundwater that is hydrologically interconnected to Waters of the Basin

These Findings are Consistent with the Analysis in Waukesha's Application

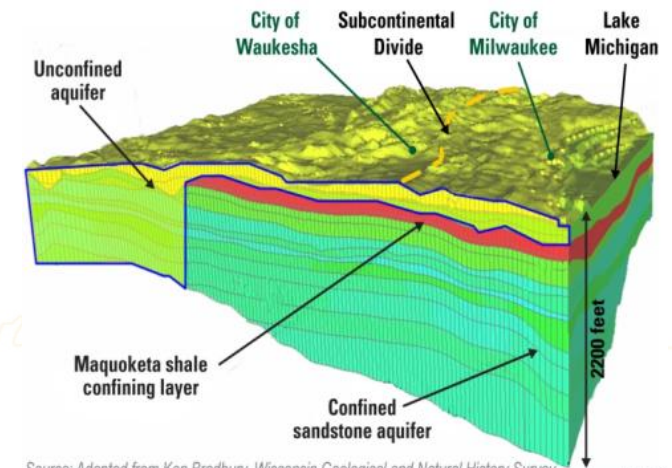


Waukesha Needs a New Water Supply

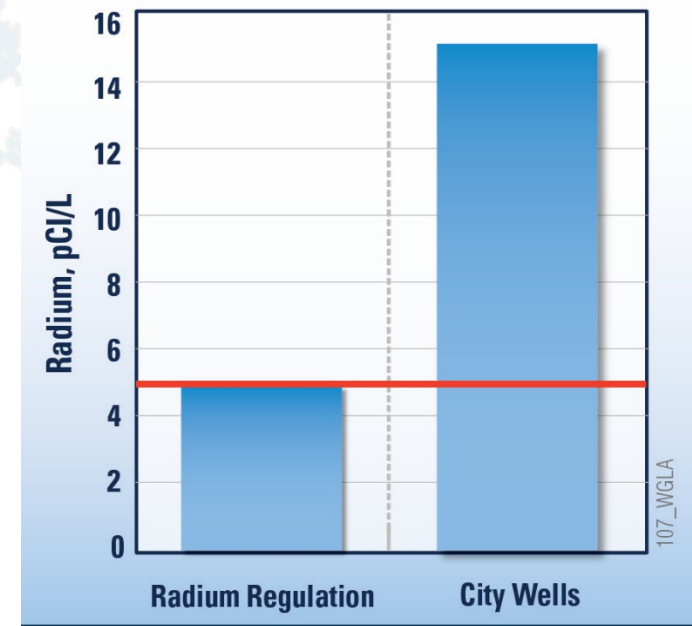


Waukesha needs a new water supply

- Deep groundwater quality doesn't meet regulations. Court order to comply with radium by 2018.
- Deep groundwater is depleted, and is not sustainable.
- Adverse impacts on the Great Lakes Basin water resources by using deep groundwater.
- Deep groundwater wells are old (30 to over 80 years). Capacity has decreased and several wells are no longer usable.
- Pumping shallow wells adversely impacts wetlands and streams.
- Even with conservation of existing supplies within the Mississippi River Basin, Waukesha does not have an adequate long-term water supply.



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



Waukesha Diversion with Return Flow is the First Test of the Compact Provisions for Communities in Straddling Counties

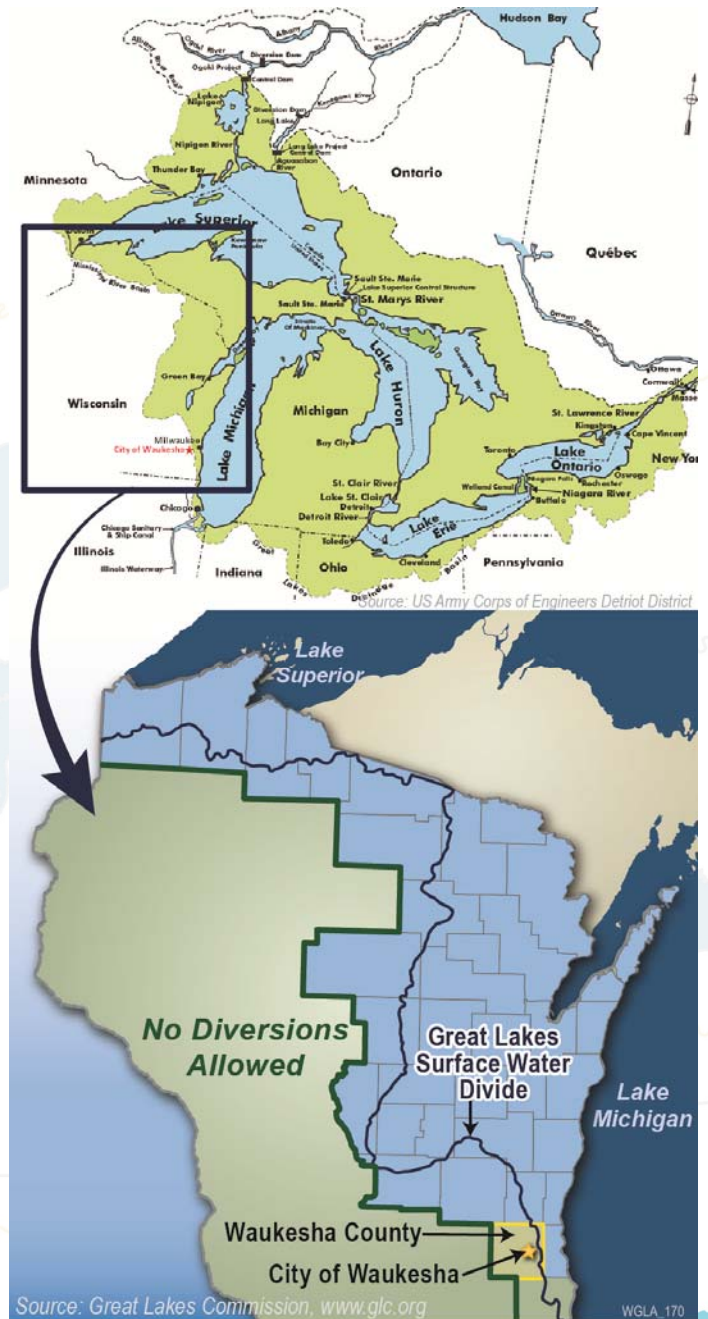


Waukesha location

- 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

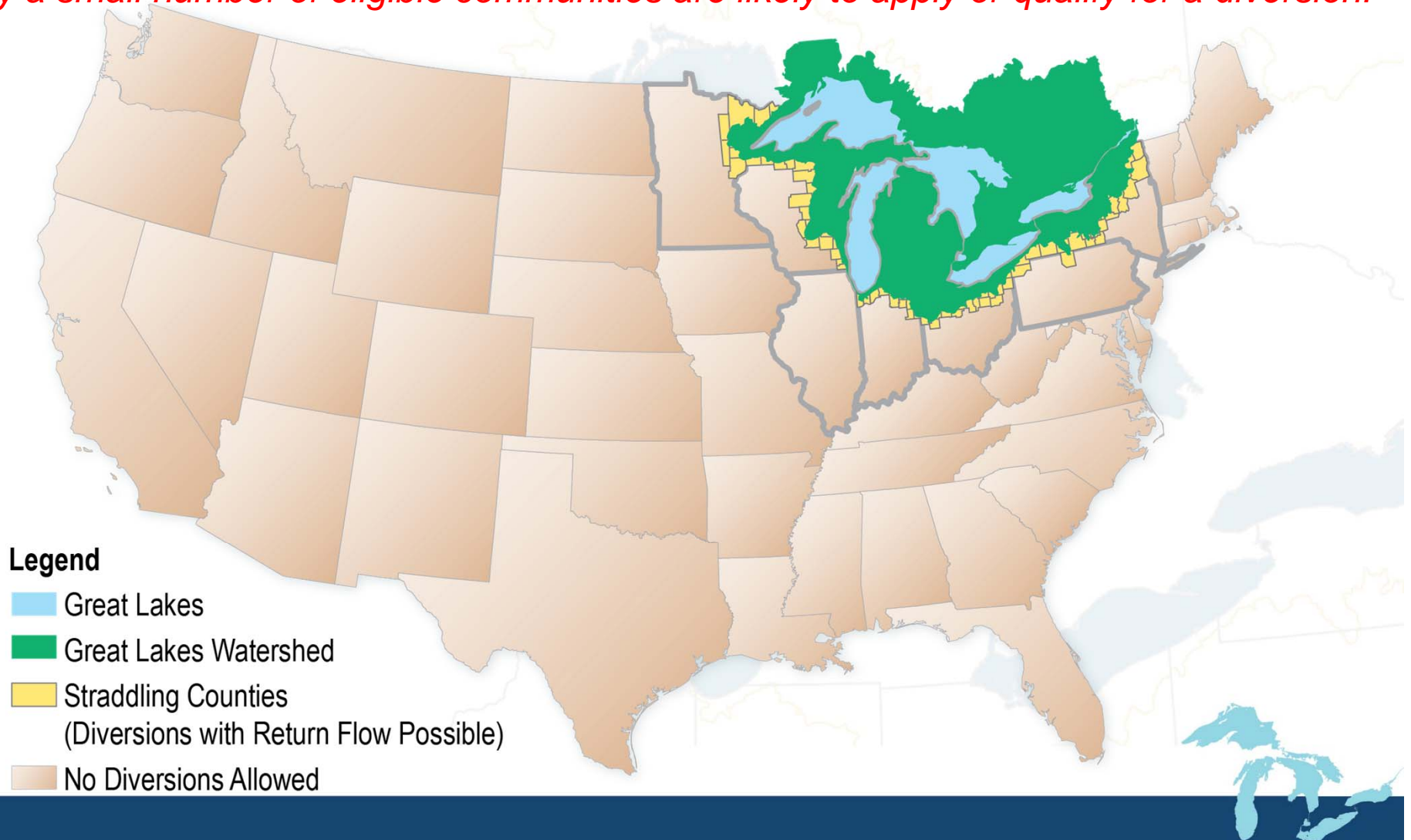
- Straddling community
- Community in a straddling county



Of people who reside in communities outside of the Basin:

Straddling County Eligible if have Need and with Return Flow =	0.9%
Ineligible US Population =	99.1%

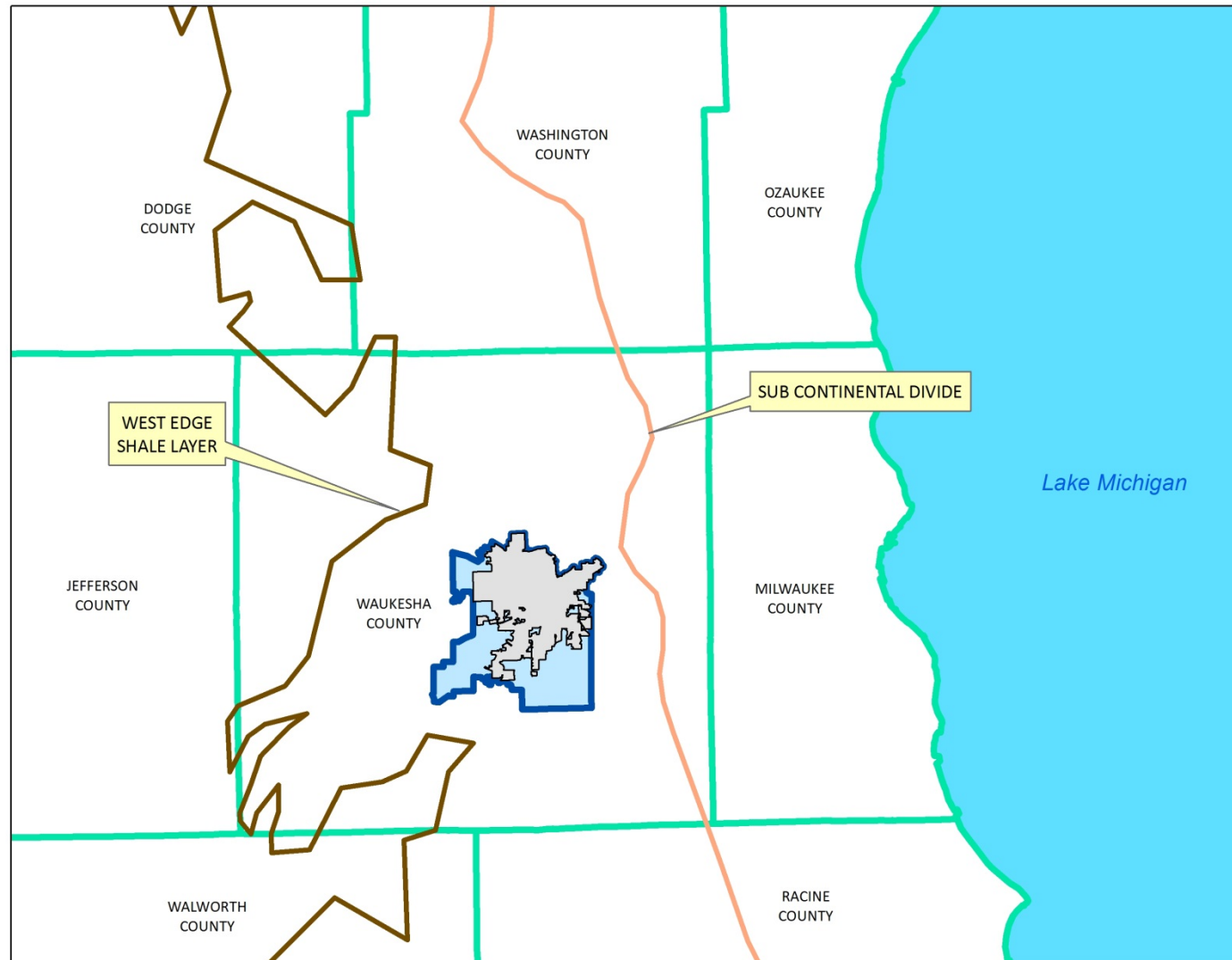
Only a small number of eligible communities are likely to apply or qualify for a diversion!



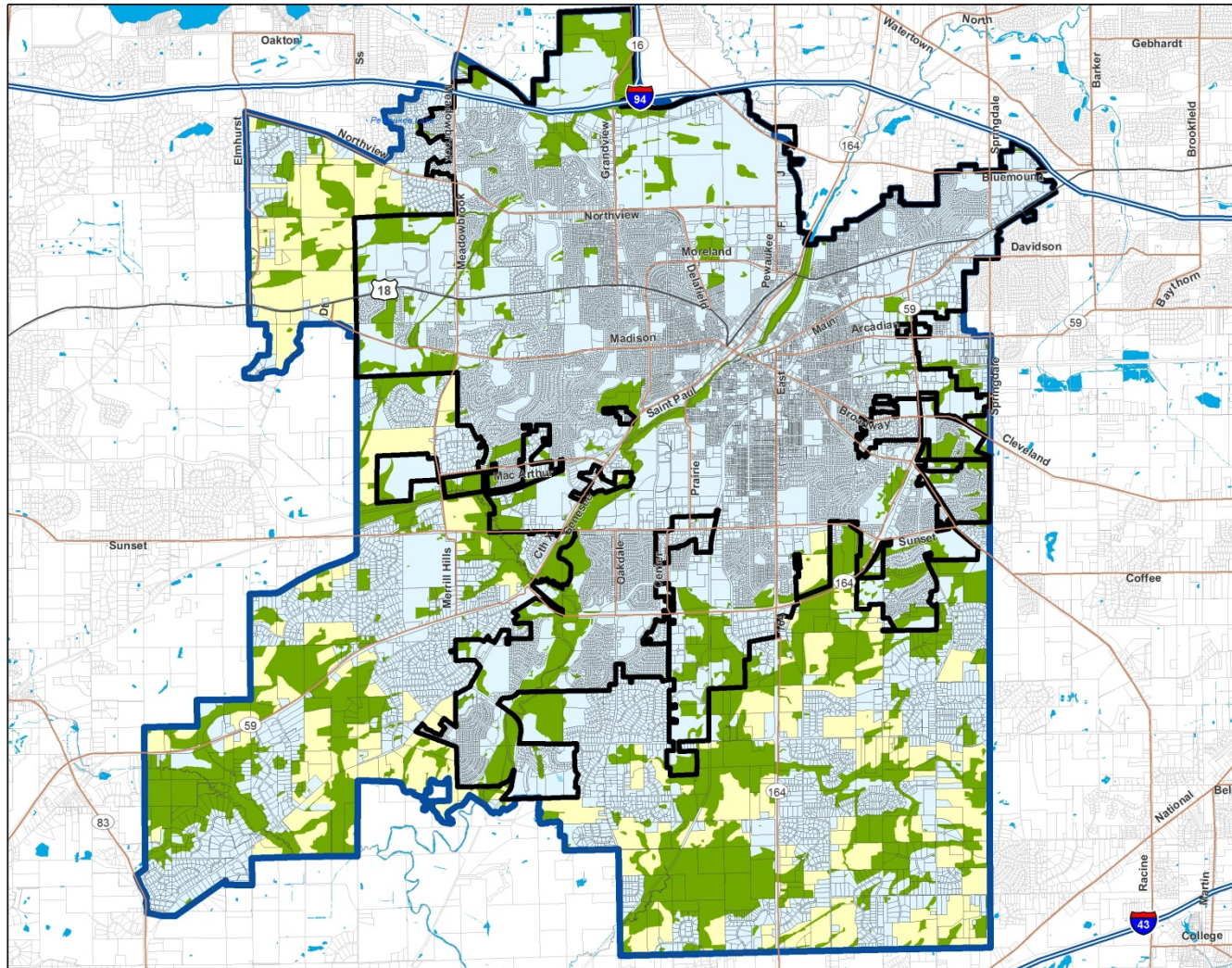
Waukesha Service Area Includes Areas Outside the City Limits



The water will serve a small portion of Waukesha County



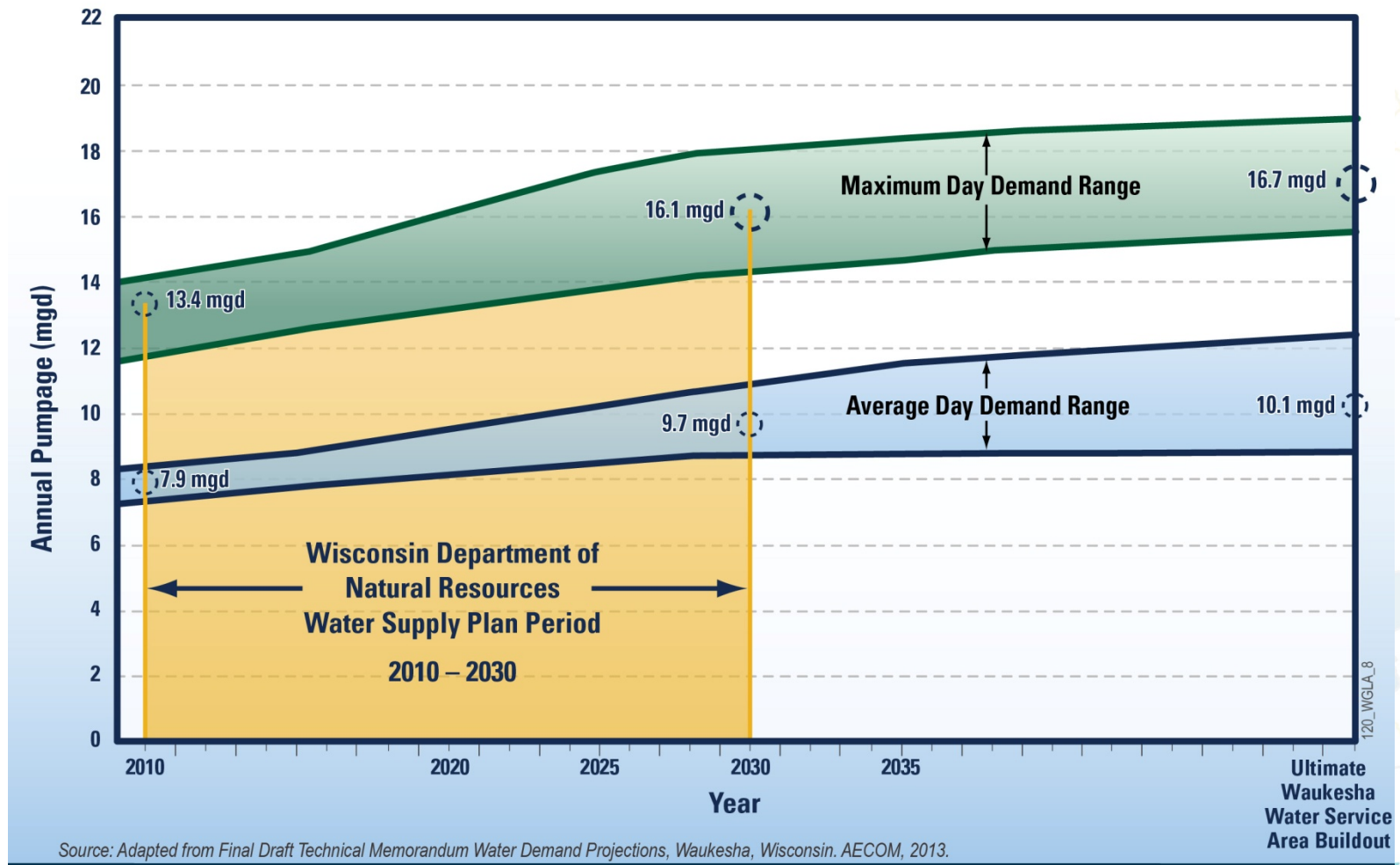
Waukesha Water Supply Service Area



DNR Analysis Concluded Volume of Water Requested was Reasonable



Requesting a reasonable amount of water



Water Supply Alternatives



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

DNR evaluation criteria

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

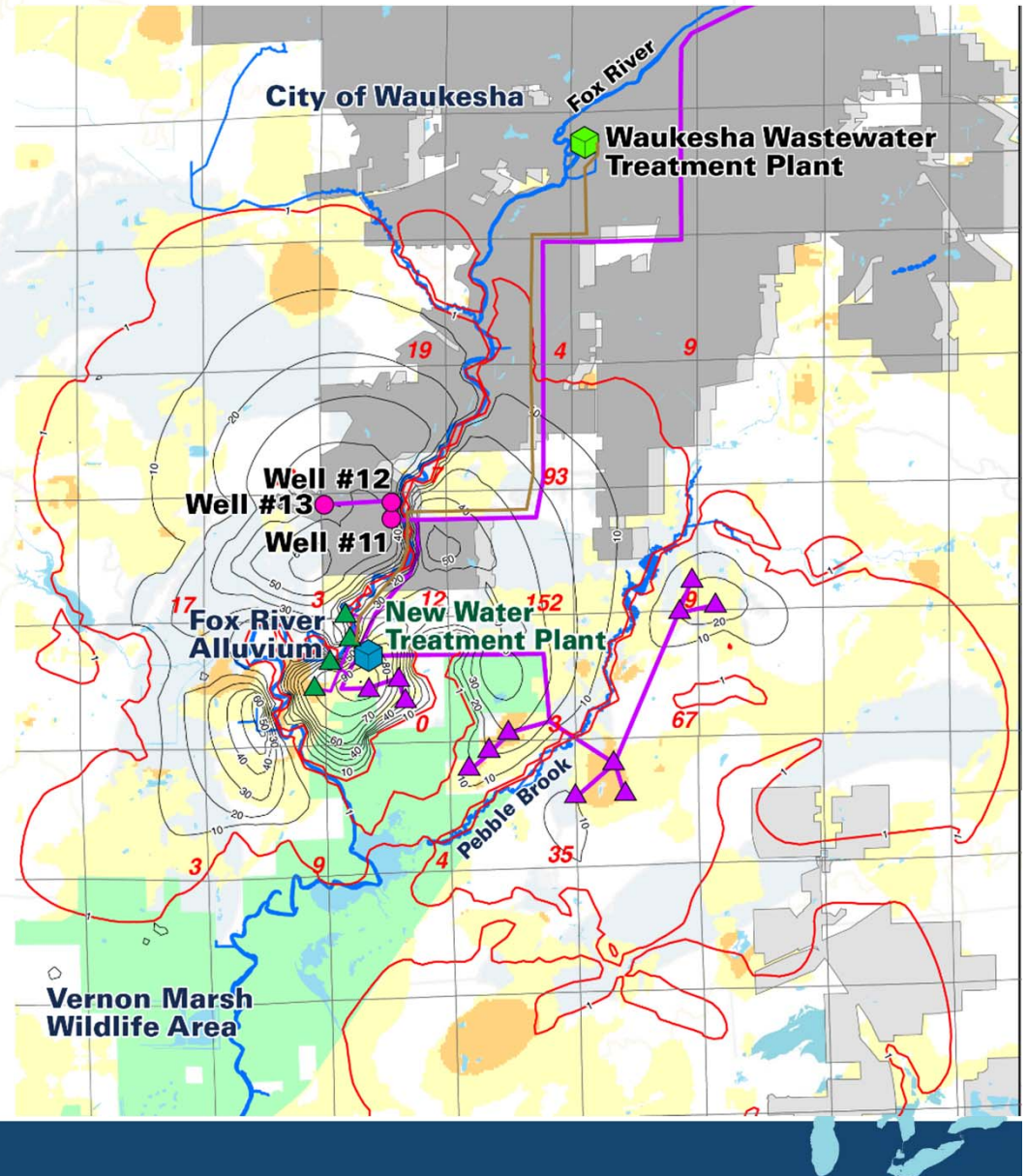


Alternatives to a Lake Michigan water supply:

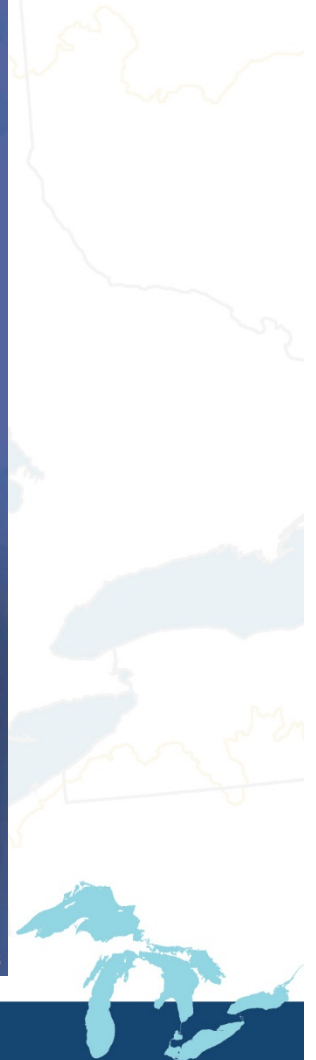
- Greater adverse environmental impacts
- Are not sustainable
- Increase risk to public health
- Outside the city limits
- Greater impact to other water users

DNR Analysis:

- 8.5 MGD instead of 10.1 mgd
- Conclusions remained the same



Lake Michigan alternative



Waukesha Return Flow Plan is Unique in Order to Comply with the Compact



Root River Low Flow Aquatic Habitat Enhanced



Return Flow

- Wisconsin has more than 500 municipal wastewater treatment plants
 - 22 flow to Great Lakes
 - 8 flow to inland lakes
 - 473 flow to rivers
- Return flow water quality will meet all WDNR and EPA requirements
 - WDNR permit limits include strict phosphorus standards
- Revised DNR plan
 - Return volume up to previous years average day
 - Returns Approximately 100% of the water



Lake Michigan is the only reasonable alternative

14 Water Sources Considered

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

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

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

- Fewer environmental impacts than all other alternatives
- Reduced risk to public health
- No impact on lake levels
- Enhanced habitat and fisheries in Great Lakes tributary
- Reduce radium and salt released to environment
- Help restore natural groundwater flow towards Great Lakes basin



***A sustainable way to
use and recycle water!***

Waukesha meets Compact exception standard

- No other reasonable water supply is available.
- Need for water cannot be reasonably avoided through efficient use of water and conservation.
- 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.
- All of the other water supply alternatives are:
 - Less Protective of Public Health
 - Have Greater Environmental Impacts



The Path Forward



Waukesha Schedule Moving Forward

- Reformatted Application Submitted to DNR – October 14, 2013
- Waukesha Informational Meetings
 - November 7, 2013 – Waukesha
 - November 13, 2013 – Oak Creek
 - November 14, 2013 – Racine
 - November 18, 2013 – Milwaukee
- DNR Issues Draft EIS and Technical Review– June, 2015
- Public Meetings and Comments on Draft EIS and Technical Review
 - August 17, 2015 in Waukesha
 - August 18, 2015 in Milwaukee and Racine
- Final EIS Issued and Technical Review – November, 2015
- Wisconsin Submittal to Regional Body – December, 2015
- Action on Application – May, 2016



Thank You



Dan Duchniak, P.E.

General Manager, Waukesha Water Utility

(262) 409-4440

dduchniak@waukesha-water.com