

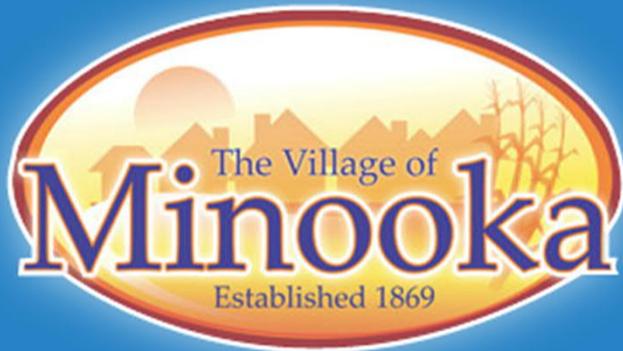
# Alternative Water Supply Public Meeting

JANUARY 12, 2022



# Alternative Water Supply Public Meeting Agenda

January 12, 2022



Current Water Supply Sources and Sustainability Concerns



Recent Studies and Investigations By Neighboring  
Communities



Details of Alternatives Investigated by the Village



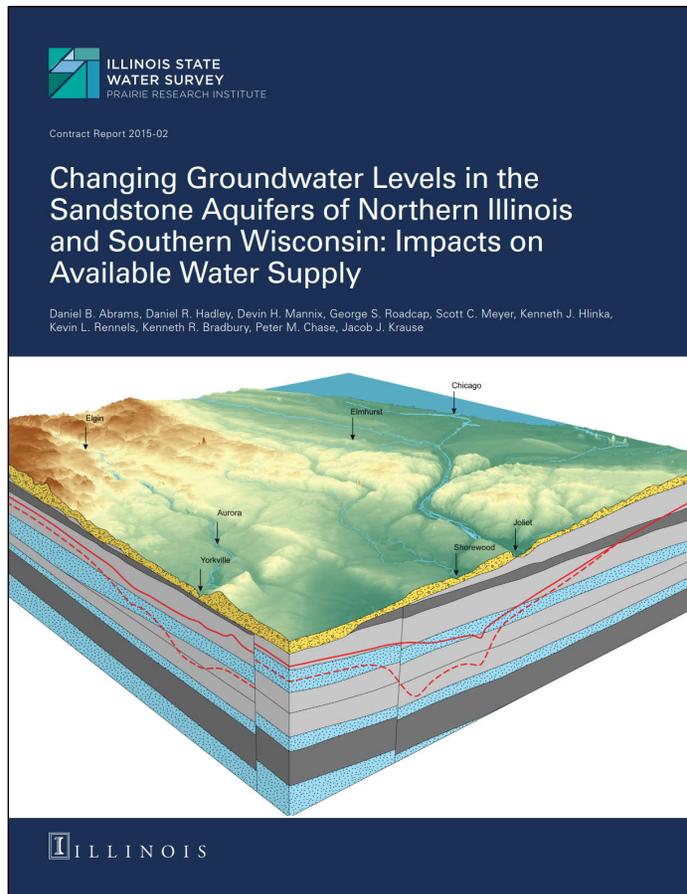
Cost Comparison of Feasible Alternatives



Open Discussion & Conversation

# Northern Illinois Ground Water Supply Study

## Illinois State Water Survey (ISWS)



- Illinois State Water Survey – University of Illinois Program – Urbana Champaign studies the State’s water resources.

“The University of Illinois' Illinois State Water Survey has been a leader in the study of water resources for more than a century. ISWS provides basic and applied scientific research, extensive expertise, and a wealth of objective data to benefit the people, economy, and environment of Illinois. ISWS is a division of the Prairie Research Institute (PRI).”
- Completed another round of study of the water resources in Northern Illinois in 2015, which included the creation of computerized models of the groundwater aquifers service the area.
- The model revealed reason for more concern than their past studies had shown.
- As a result, many of the area municipalities and industrial groundwater users commissioned and funded further research.

# ISWS Refined Groundwater Modeling to Help Area Communities Better Understand the Risk

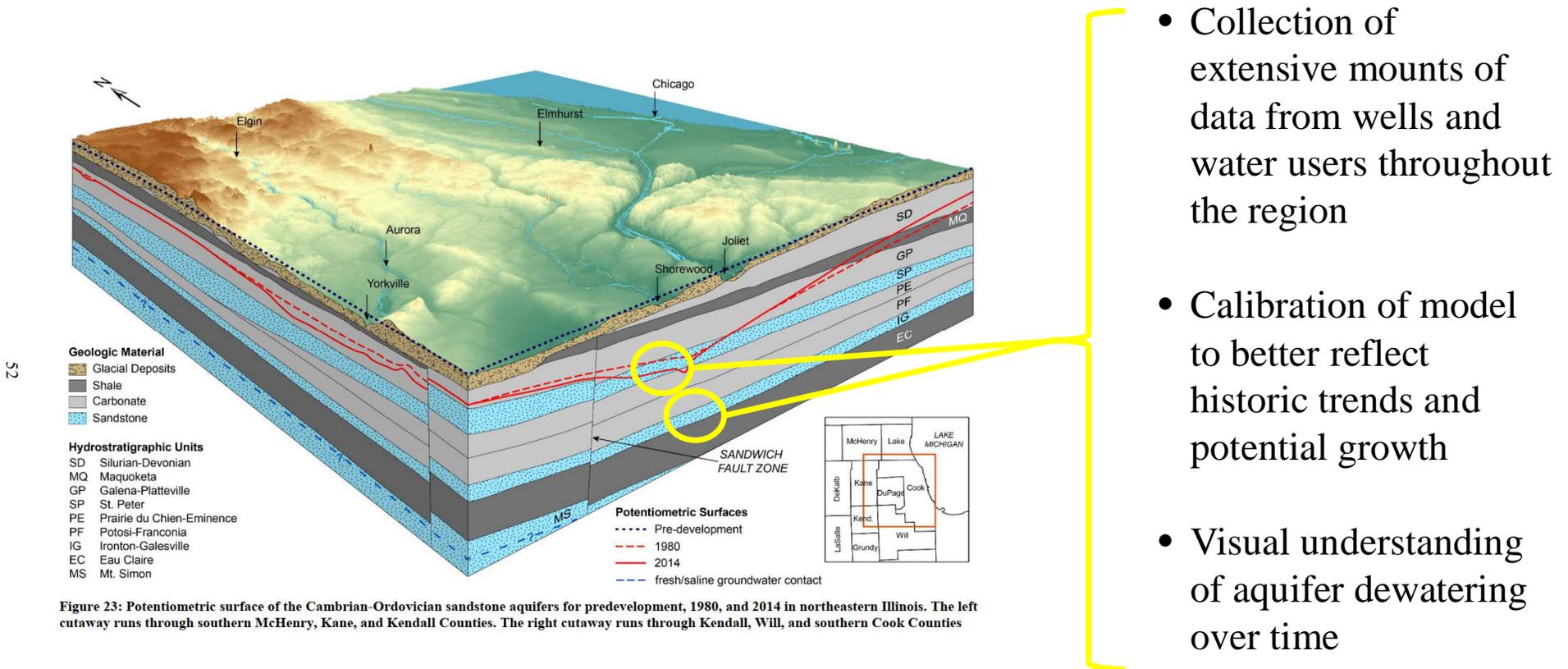


Figure 23: Potentiometric surface of the Cambrian-Ordovician sandstone aquifers for predevelopment, 1980, and 2014 in northeastern Illinois. The left cutaway runs through southern McHenry, Kane, and Kendall Counties. The right cutaway runs through Kendall, Will, and southern Cook Counties

- Collection of extensive mounts of data from wells and water users throughout the region
- Calibration of model to better reflect historic trends and potential growth
- Visual understanding of aquifer dewatering over time

# Dewatering of the Deep Sandstone is Eminent According to ISWS Findings

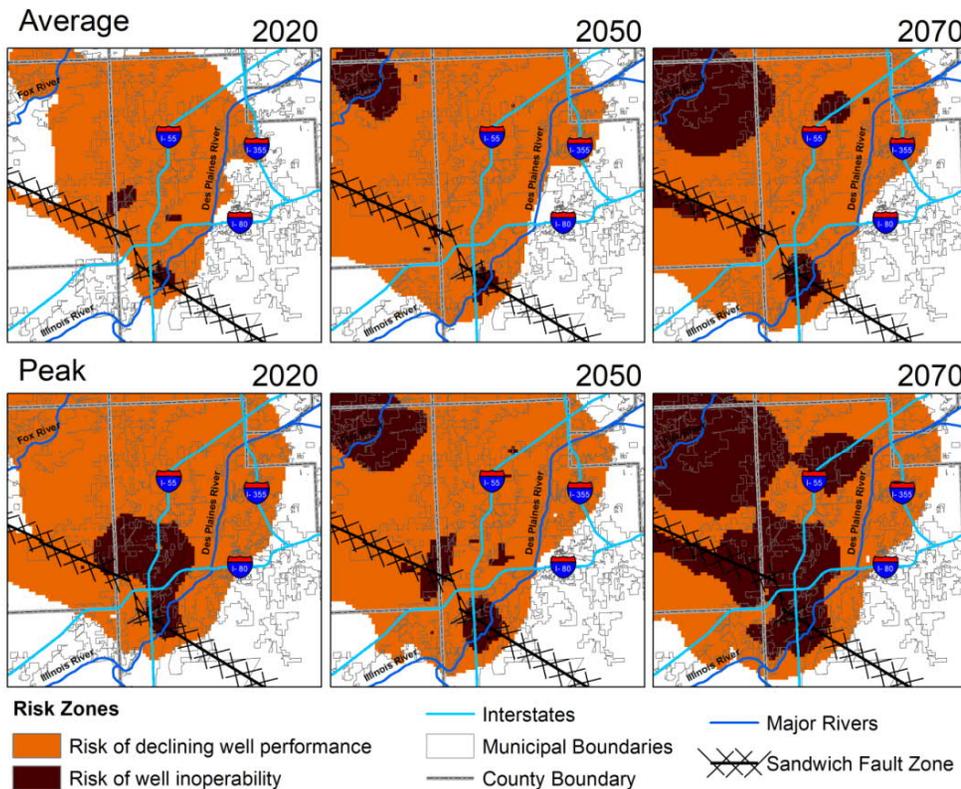
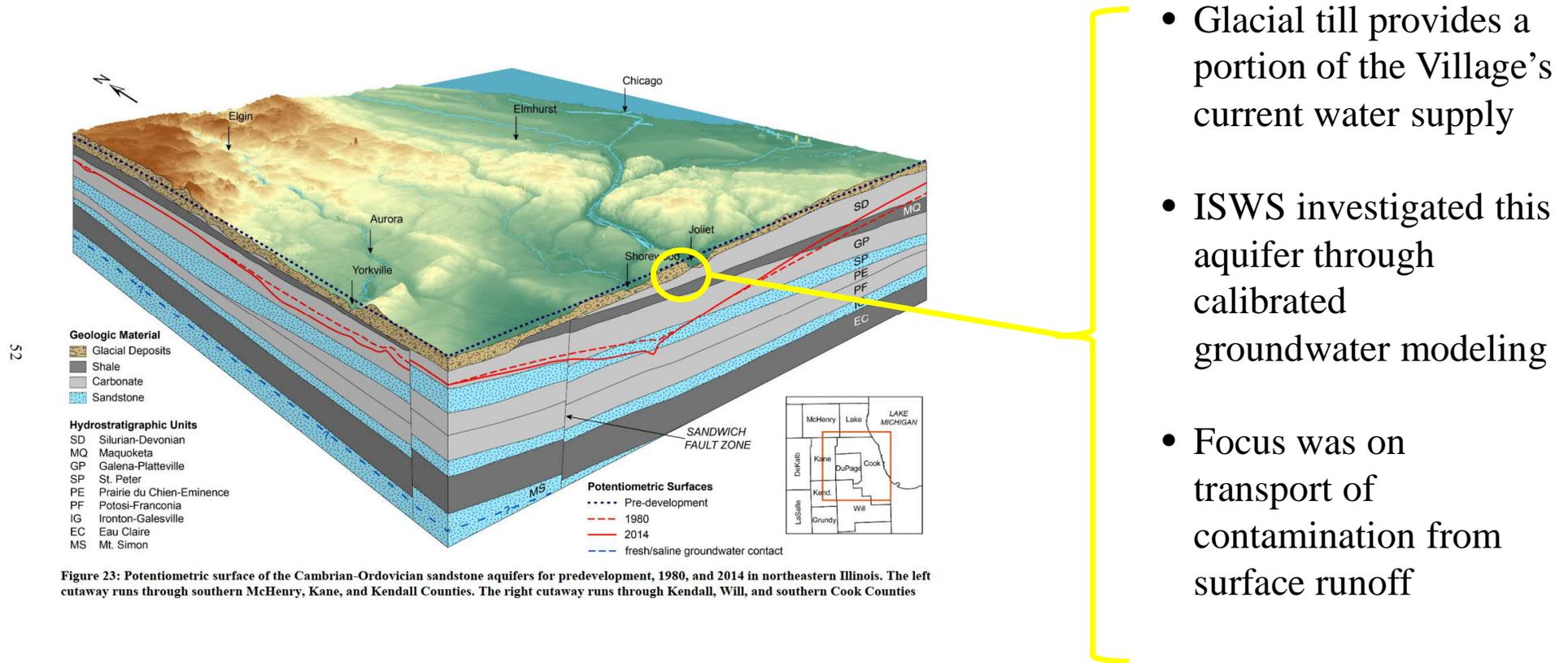


Figure 1. Risk associated with declining water levels in the deep sandstone aquifer in the Southwestern Suburbs of Chicago. The maps are for 2030, 2050, and 2070 during average (top row) and peak (bottom row) demands.

- Modeling included all current deep wells and communities projected additional deep wells, including Minooka
- Modeling was performed with the assumption that Joliet will find an alternative source and cease withdrawals from the deep aquifer.
- Withdrawals from neighboring communities still resulted in issues as early as 2050.
- Sustainable yield approximately 2 to 7 Million Gallons per Day (MGD)

# Other Available Water Aquifer Presents Different Complications to Long Term Sustainability



- Glacial till provides a portion of the Village's current water supply
- ISWS investigated this aquifer through calibrated groundwater modeling
- Focus was on transport of contamination from surface runoff

# Shallow Aquifer Source Not a Reliable or Sustainable Alternative



## Low-Capacity Wells

Water is rapidly recharged, but the fine sand layers limit the rate in which it can be withdrawing, resulting in the need for several glacial till wells to meet the same capacity of the deep aquifer.



## Possible Major **Future Obstacles:**

Elevated Chloride Levels Due to salting and industrial contamination.

Polyfluoroalkyl substances (PFAS).

Emerging or unknown?

# City of Joliet Studies Many Alternatives and Commits to Lake Michigan Water

## Phase 1 Study:

### Groundwater Source

- Mt. Simon Aquifer
- Aquifer Storage and Recharge

### River Water Source

- Kankakee River
- Illinois River
- Des Plaines River
- Fox River

### Lake Michigan Water Source

- City of Chicago
- DuPage Water Commission
- Southland Water Commission
- Illinois American Water Company
- Oak Lawn

## Phase 2 Study:

### River Water Source

- Kankakee River
- Illinois River

### Lake Michigan Water Source

- City of Chicago
- DuPage Water Commission
- Southland Water Commission

## Final Study:

### Lake Michigan Water Source

- Purchase from City of Chicago
- Construct Intake in Hammond

## Final Selection

Lake Michigan via City of Chicago By 2030



# Minooka Source Water Analysis Alternatives



Lake Michigan via Regional Water Commission



Illinois River, Marseilles Pool with Advanced Water Treatment Plant shared with Village of Channahon

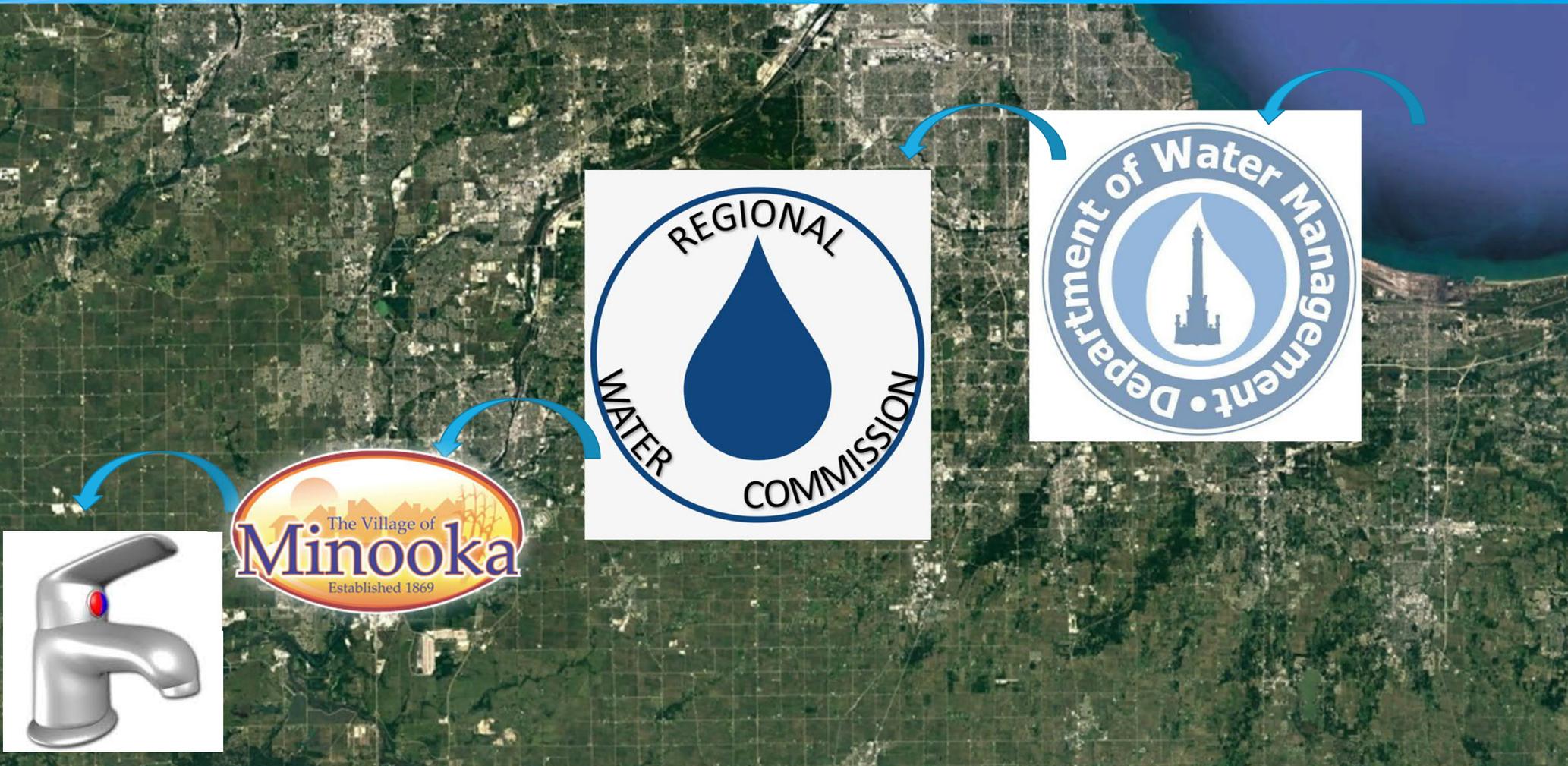


Kankakee River via Kankakee River Alliance

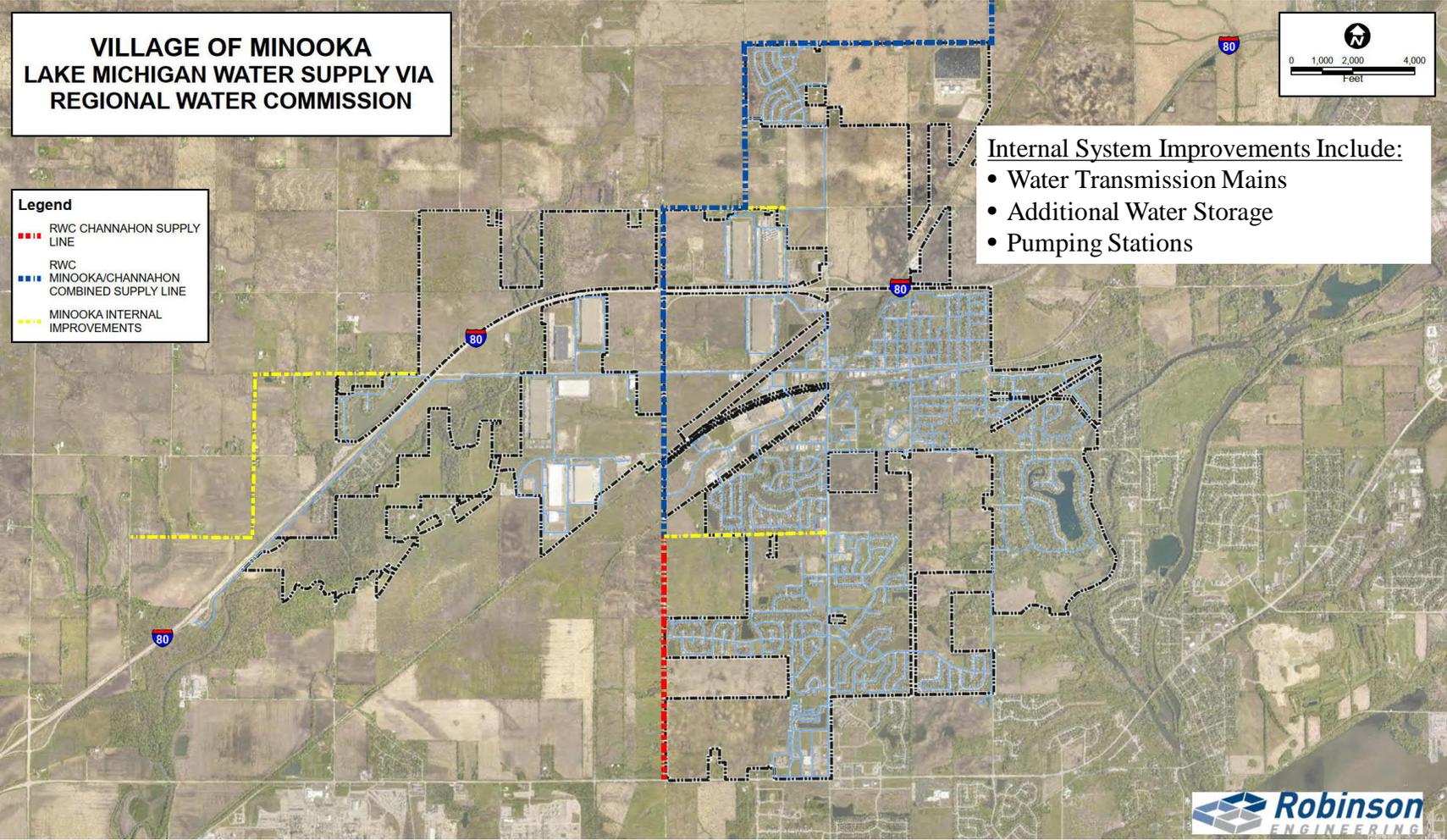


Remain on Current Aquifer

# Lake Michigan Via Regional Water Commission



# Three New Delivery Locations Results in Need for Minor Improvements to Village's System



Lake Michigan  
via New Water  
Commission  
Involves  
Partnership  
With Several  
Other  
Communities

Spreads Risks Over a Broader  
Base of Water Users

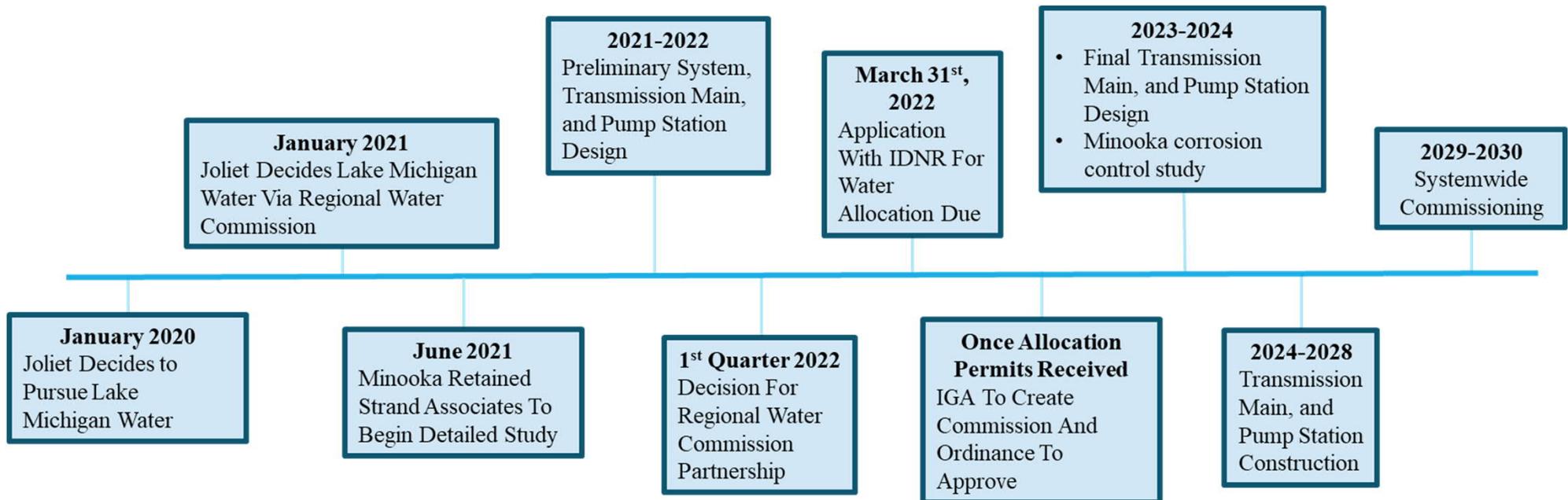
Results in Sharing of Costs By  
Combining Resources – Economy  
of Scale

Provides Consistency in Water  
Quality Throughout the Area

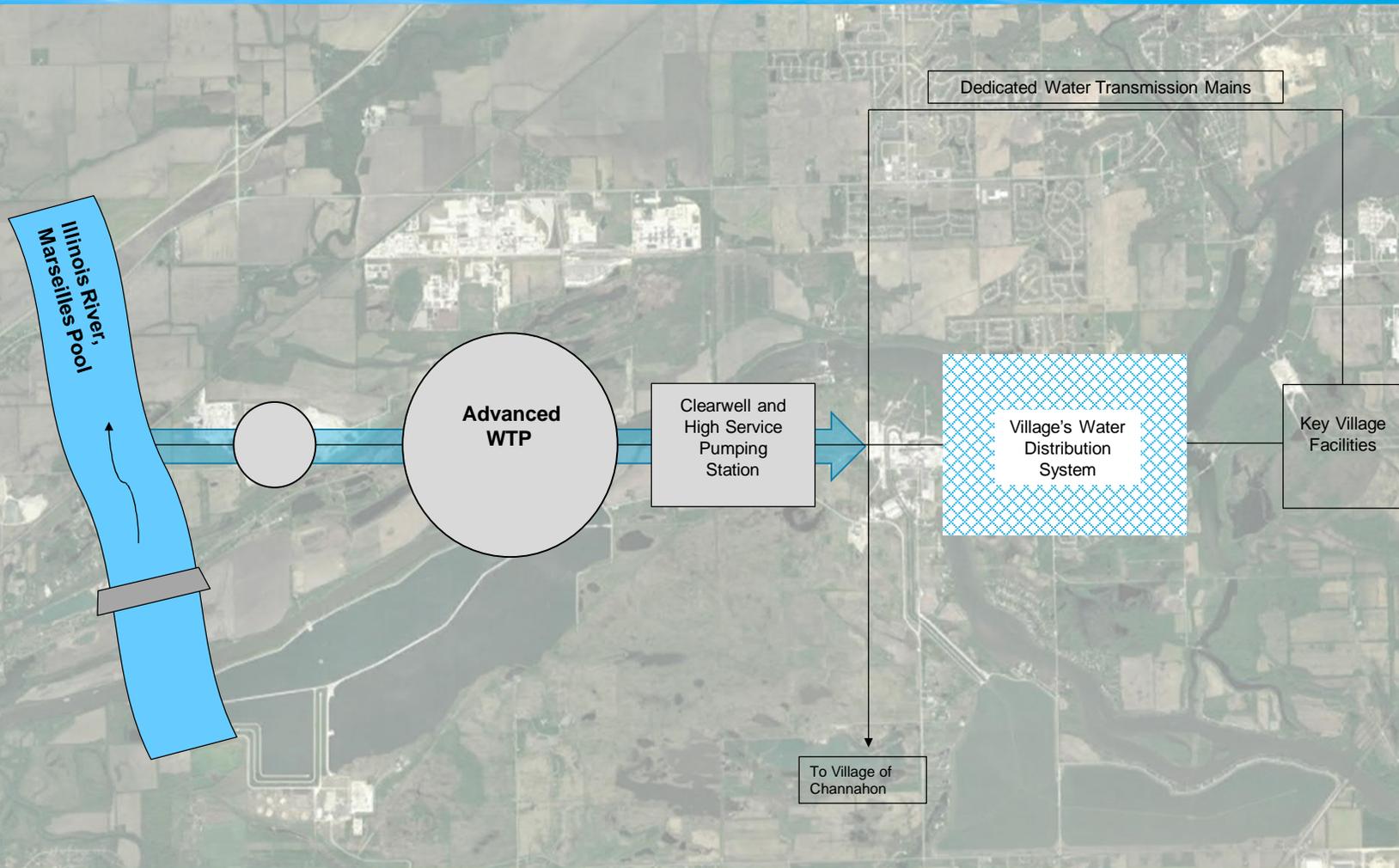
# Near Term Timeline for Lake Michigan Via RWC



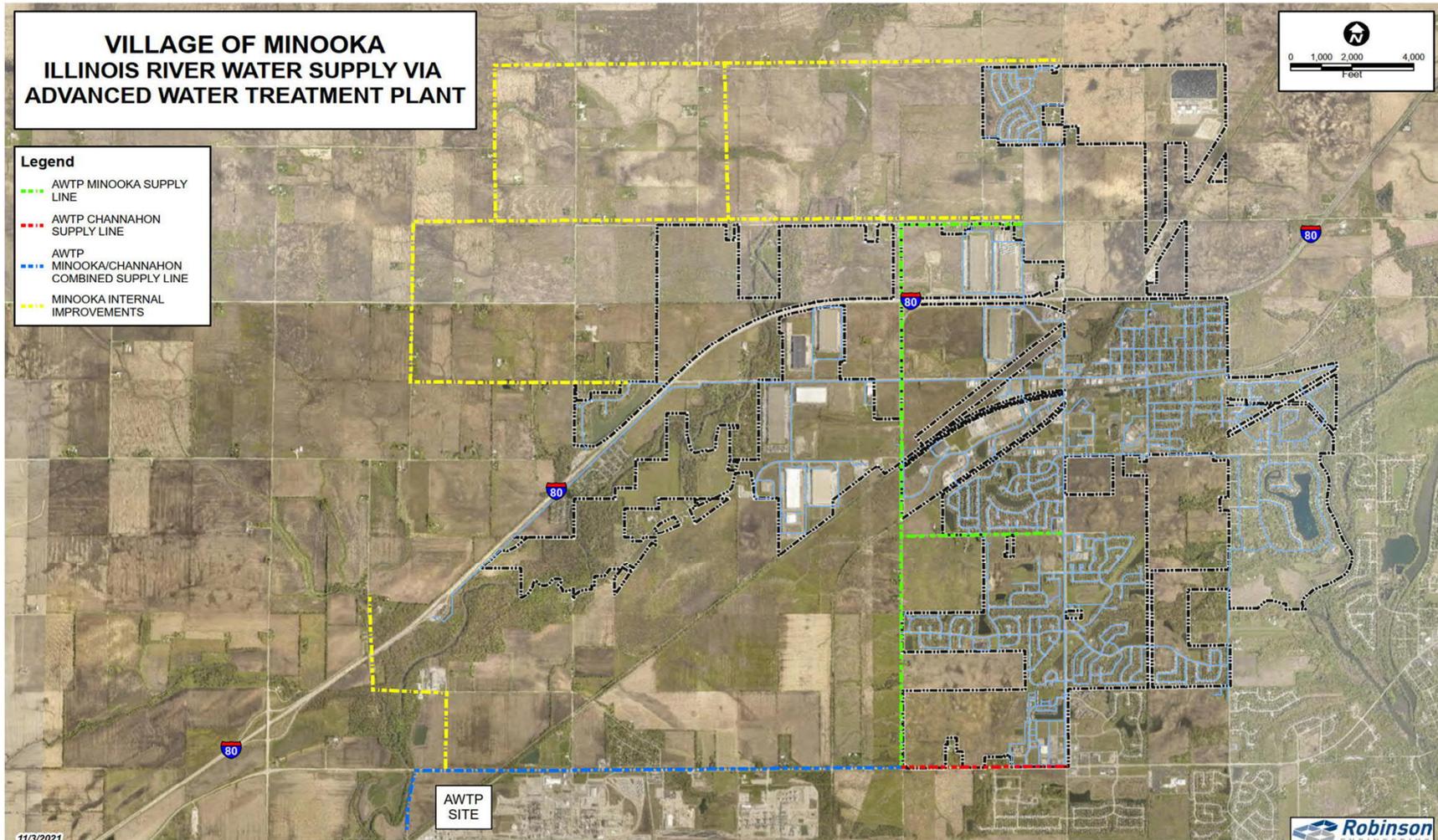
# Long Term Timeline for Lake Michigan Via RWC



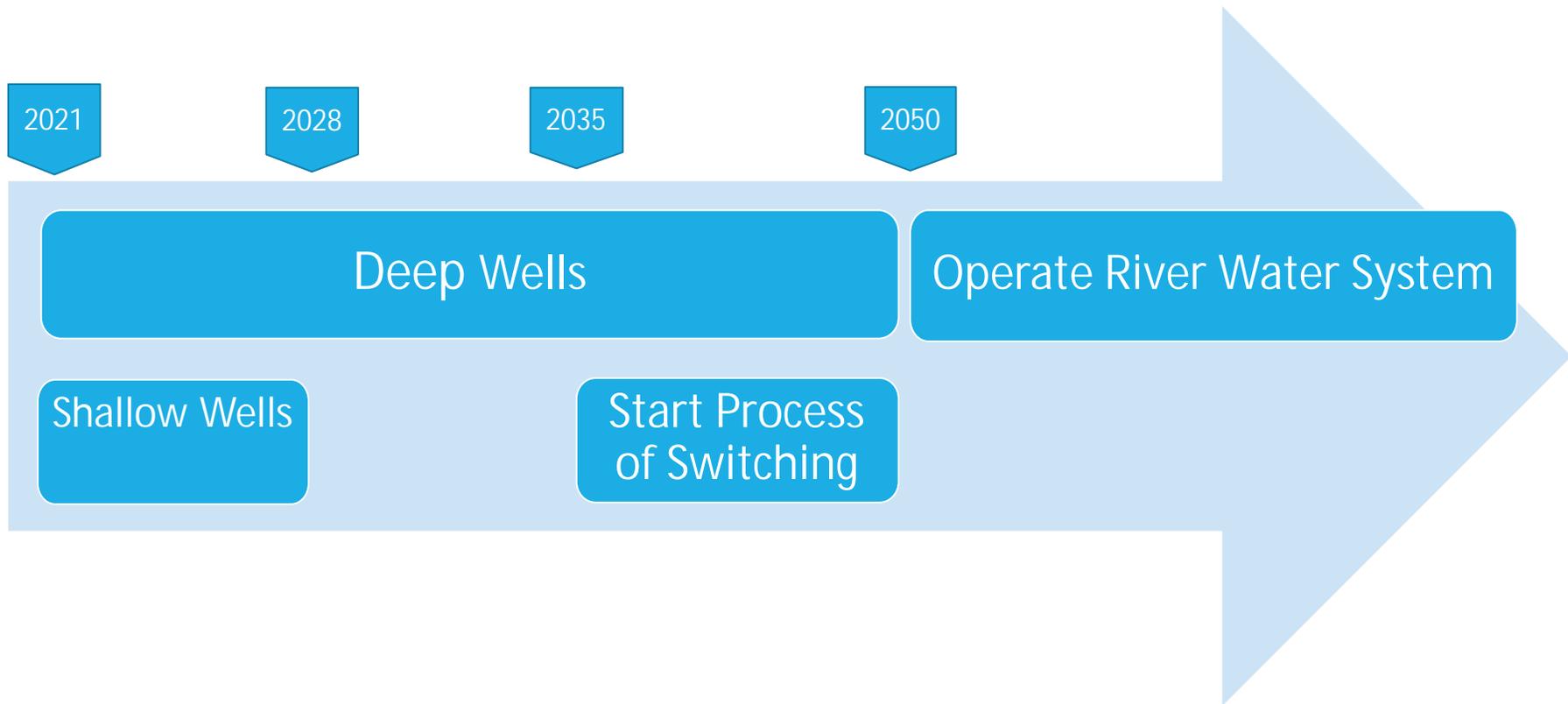
# Illinois River Via Advanced WTP Shared with Channahon



# Illinois River Results in Higher Capital Investment and More Village Responsibility



# Timeline for Switch to River Source



# Comparison of Conceptual Rates and Average User Utility Bills

**2020 Resident Average Bi-Monthly Utility Bill**

| Alternative                         | Water Rate | Water*  | Sewer   | Garbage | Total    |
|-------------------------------------|------------|---------|---------|---------|----------|
| No Change - With 3% Increase per yr | \$5.08     | \$40.64 | \$45.68 | \$29.23 | \$115.55 |

**2030 Resident Average Bi-Monthly Utility Bill**

| Alternative   | Conceptual Water Rate | Water*        | Sewer       | Garbage     | Total         |
|---|-----------------------|---------------|-------------|-------------|---------------|
| No Change - With 3% Increase per yr                             | \$6.83                | \$54.62       | \$61.39     | \$39.28     | \$155.29      |
| Regional Water Commission                                       | \$12.50 - \$13.50     | \$100 - \$110 | \$60 - \$65 | \$35 - \$40 | \$195 - \$215 |
| Remain on Wells Until 2042, Then Switch to Shared AWTP IL River | \$6.50 - \$7.00       | \$50 - \$55   | \$60 - \$65 | \$35 - \$40 | \$145 - \$160 |

**2050 Resident Average Bi-Monthly Utility Bill**

| Alternative   | Conceptual Water Rate | Water*        | Sewer         | Garbage     | Total         |
|---|-----------------------|---------------|---------------|-------------|---------------|
| No Change - With 3% Increase per yr                             | \$12.33               | \$98.64       | \$110.88      | \$70.95     | \$280.47      |
| Regional Water Commission                                       | \$15.50 - \$17.00     | \$125 - \$135 | \$110 - \$115 | \$70 - \$75 | \$305 - \$325 |
| Remain on Wells Until 2042, Then Switch to Shared AWTP IL River | \$25.00 - \$30.00     | \$200 - \$240 | \$110 - \$115 | \$70 - \$75 | \$380 - \$430 |

\*Based on resident average bi-monthly water usage of 8,000 gal/two months

# Lake Michigan Alternative: Pros and Cons

## Pros

- Lake Michigan Has a Very High Water Quality
- Low Risk of Running Out of Water/Water Restrictions
- Water Treatment by Other Entities
- Secure Lake Michigan Allocation While Available
- Simplified Operation and Maintenance
- Lower Cost than Treating Illinois River Supply
- Due to Significantly Larger Customer Base and Other Factors Costs Increase at Slower Rate Potentially Results in Lower Long-Term Rates

## Cons

- Switching Slightly Earlier than Needed
- Commission Infrastructure Control Shared with Several Partners
- Chicago Control of Treatment and Sale to Commission (Under 100-year Agreement with transparency)
- Higher Near-Term Rates Than Remaining on Groundwater

# Open Discussion, Question & Answers

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**THANK YOU!**

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