Village of Romeoville

Alternative Water Supply Study

PRESENTATION OVERVIEW – October 20, 2021 Update

1. Current Understanding of Source Water Impact and Phase 1 Summary
2. Current Water Demands and Future Water Demand Projections
3. Alternate Water Sources
4. Next Steps

Village of Romeoville

Alternative Water Supply Study

PRESENTATION OVERVIEW – OCTOBER 20, 2021 UPDATE

1

Current Understanding of Source / Impact on Water

Phase 1 Summary

Romeoville's Current Water Supply

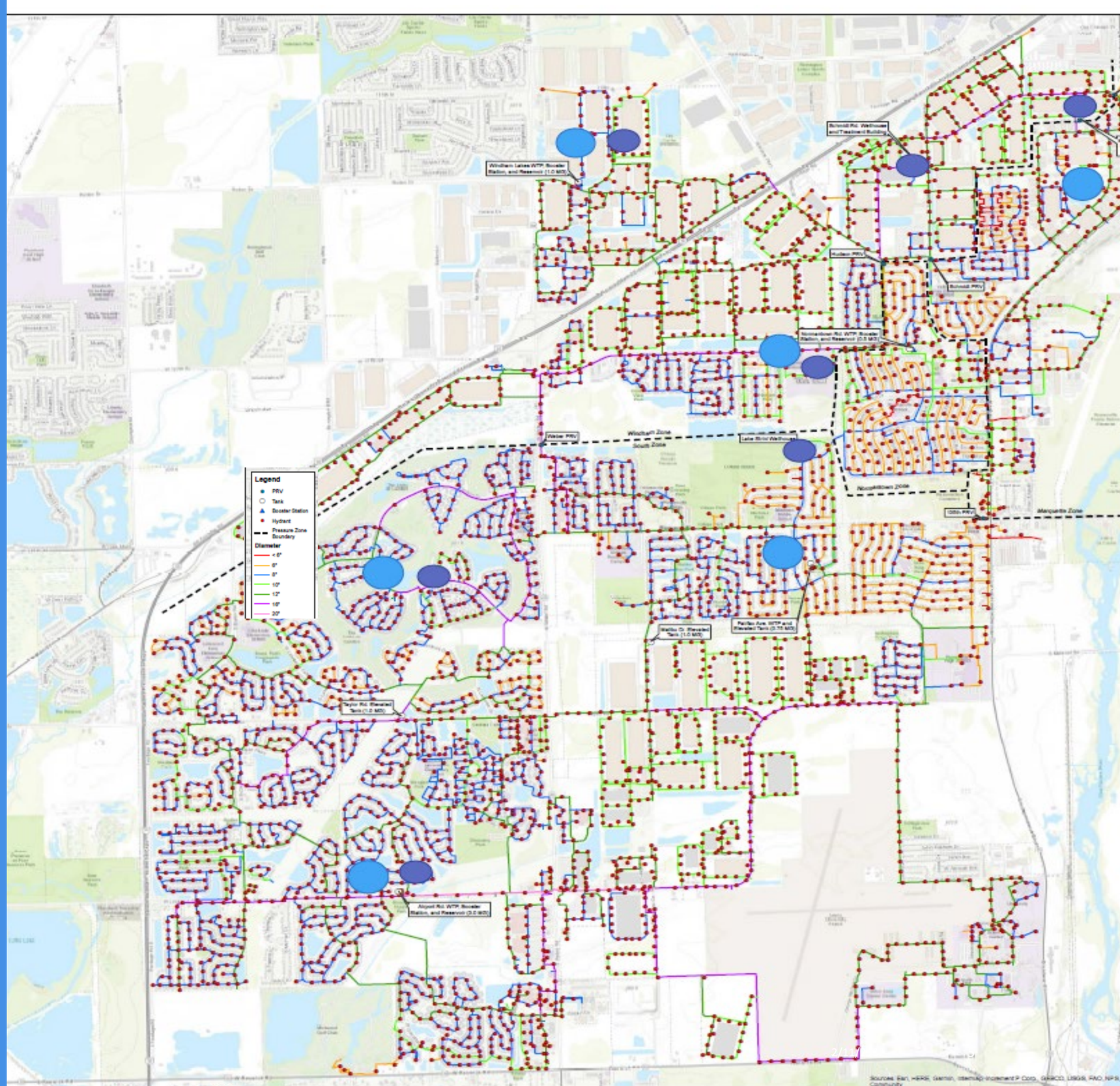
The Village of Romeoville currently draws its groundwater supply from 6 deep wells (1,500 feet deep) and 7 shallow wells (150-300 feet deep) located throughout the community.

Legend

- PRV
- Tank
- Booster Station
- Hydrant
- Pressure Zone Boundary

Diameter

- < 6"
- 6"
- 8"
- 10"
- 12"
- 16"
- 20"

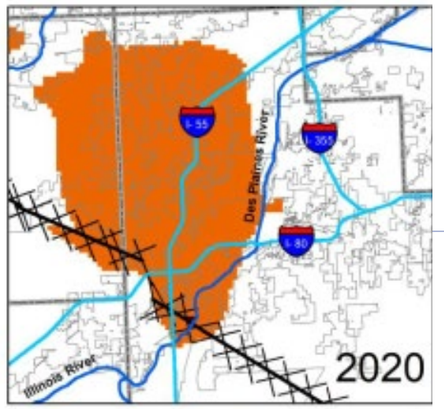


Illinois State Water Survey Commissioned to Study Deep Sandstone Aquifer

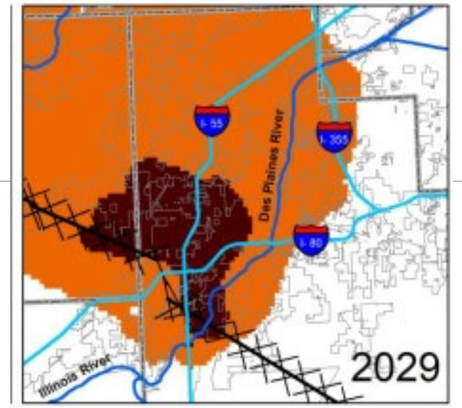
Many communities in this region currently rely on deep groundwater aquifers as their primary water source.

ISWS has been investigating northeastern Illinois' groundwater supply for over 150 years. The ISWS study, released in September of 2020, confirms that the deep groundwater supply is low. Our region is depleting our primary water source faster than it's able to replenish itself. Without a new water source, our water demands will exceed our water supply

Some communities are in need as soon as

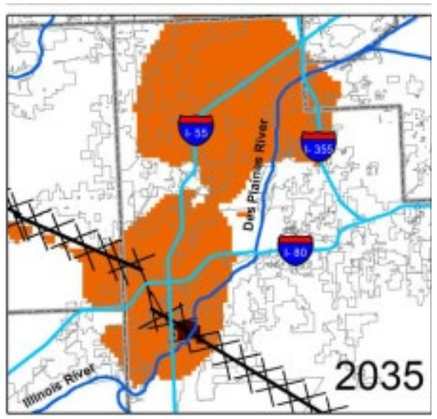


2020 (current conditions)

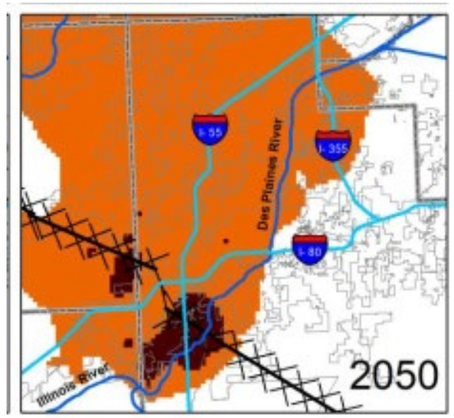


2029 (before Joliet switched off the sandstone aquifer to Lake Michigan)

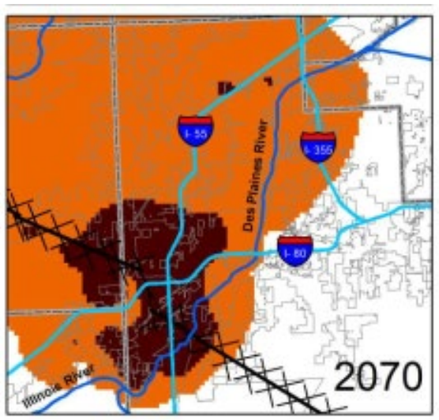
2030 (after Joliet switches)



2035 (after Oswego, Yorkville and Montgomery are assumed to switch)



2050 and 2070 (future peak demand conditions)



Risk Zones

- Risk of declining well performance
- Risk of well inoperability
- Interstates
- County Boundary
- Municipal Boundaries
- Major Rivers
- Sandwich Fault Zone

PREDICTIONS OF REMAINING TIME DEPEND ON MANY VARIABLES

TABLE 1: Risk table for the model simulations representing average conditions.

	LRI		CT		CT + 1.5 MGD[1]		CT + 3 MGD[1]	
	Risk of declining production	*Risk of inoperability*	*Risk of declining production*	*Risk of inoperability*	*Risk of declining production*	*Risk of inoperability*	*Risk of declining production*	*Risk of inoperability*
2	1991	-	1991	-	1991	2068	1991	2039
4	1991	-	1991	-	1991	2064	1991	2039
10	1989	-	1989	~2070~[2]	1989	2059	1989	2043
11	2001	-	2001	-	2001	-	2001	2068
13	1990	-	1990	-	1990	~2070~	1990	2061
14	2020	-	2020	~2070~	2020	2053	2020	2039

TABLE 2: Risk table for the model simulations representing peak conditions.

	LRI		CT		CT + 1.5 MGD[1]		CT + 3 MGD[1]	
	Risk of declining production	*Risk of inoperability*	*Risk of declining production*	*Risk of inoperability*	*Risk of declining production*	*Risk of inoperability*	*Risk of declining production*	*Risk of inoperability*
2	1979	-	1979	2066	1979	2039	1979	2039
4	1979	-	1979	2029 / 2062	1979	2029 / 2039	1979	2029 / 2039
10	1979	2029 / -[3]	1979	2027 / 2050	1979	2027 / 2039	1979	2027 / 2039
11	1982	2029 / -	1982	2027 / 2070	1982	2027 / 2057	1982	2027 / 2039
13	1979	2027 / -	1979	2025 / 2066	1979	2025 / 2047	1979	2025 / 2039
14	2020	-	2020	2035 / 2045	2020	2035 / 2039	2020	2035 / 2039

[1]Additional pumping is added in the year 2039

[2]Indicates that water levels are close to the "Risk of well inoperability" zone and would likely enter that zone in the years following 2070.

[3]The year that water levels reach a risk zone for different scenarios at each community well. If two years are listed, the first year indicates when risk conditions are reached before Joliet switches from the sandstone aquifer, while the second year indicates when water levels reach the risk zone again after an initial recovery in water levels. If the year listed is followed by a dash, then water levels rebound from the risk zone and do not return prior to 2070.

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Village of Romeoville Where Community Matters

Illinois State Water Survey
Water Quality

Communities Facing the Same Issues

- Channahon
- Coal City
- Crest Hill
- Diamond
- Homer Glen
- Joliet
- Lemont
- Minooka
- Montgomery
- Oswego
- Rockdale
- Romeoville
- Shorewood
- Yorkville

Some communities also rely on the shallow groundwater aquifer as their primary water source. In addition to water scarcity, we're also experiencing deteriorating water quality. The shallow groundwater chloride levels are rising due to decades of road salt applications, leading to drinking water that tastes salty and is highly corrosive.

The presence of per- and polyfluoroalkyl substances (PFAS) has also been observed in the shallow groundwater. Within the next few years, state and federal PFAS regulations are anticipated. As a result, our shallow groundwater supply will require greater treatment measures just to maintain adequate water quality.

Village of Romeoville

Alternative Water Supply Study

2

Current /Future Water Demands Projections

UNDERSTANDING POTENTIAL FUTURE GROWTH DETERMINES WATER DEMAND AND POPULATION EQUIVALENT (PE) PROJECTIONS

Projected PE & Water Use Data					
Year	**Projected PE**	**Projected Average Day Demand (MGD)**	**Projected Maximum Day Demand (MGD)**	**Projected Max:Avg Ratio**	**Projected Average GPCD**
2020	52,000	4.38	6.57	1.50	84.2
2025	54,334	4.57	6.85	1.50	84.0
2030	56,667	4.75	7.13	1.50	83.9
2035	59,001	4.94	7.41	1.50	83.7
2040	61,334	5.13	7.69	1.50	83.6
2045	63,668	5.31	7.97	1.50	83.5
2050	66,001	5.50	8.25	1.50	83.3

Village of Romeoville

Alternative Water Supply Study

3 Alternate Water Sources

CONSIDERATIONS

Alternative water sources have been evaluated for their ability to provide sufficient water quantity and water quality to serve the Village of Romeoville for many years to come.

Staff has been identifying viable options for a long term water supply solution for the Village and will make a recommendation in November on optimal options to pursue further. The following was considered when researching alternate solutions.

- Cost
- Raw water quality
- Sustainability/water quantity
- Implementation risk
- Operation & maintenance
- Control (governance)

Village of Romeoville

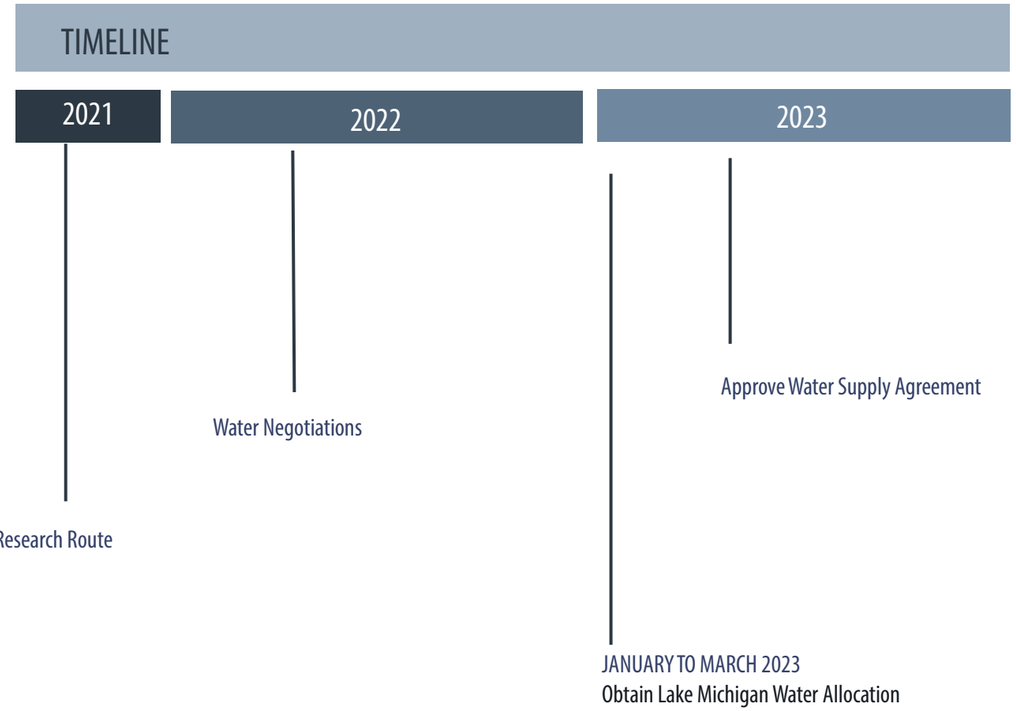
ALTERNATIVE WATER SUPPLY STUDY PHASE 1 SUMMARY

- Lake Michigan Water - Dupage Water Commission
- Lake Michigan Water – Joliet – Regional Commission – From Chicago
- Lake Michigan Water - Joliet Regional Commission – From Indiana (eliminated)
- Lake Michigan Water- Chicago Direct
- Lake Michigan - Northern Will County Water Agency or Illinois American Water Company
- Des Plaines River
- Illinois River – Marseilles Pool
- Kankakee River

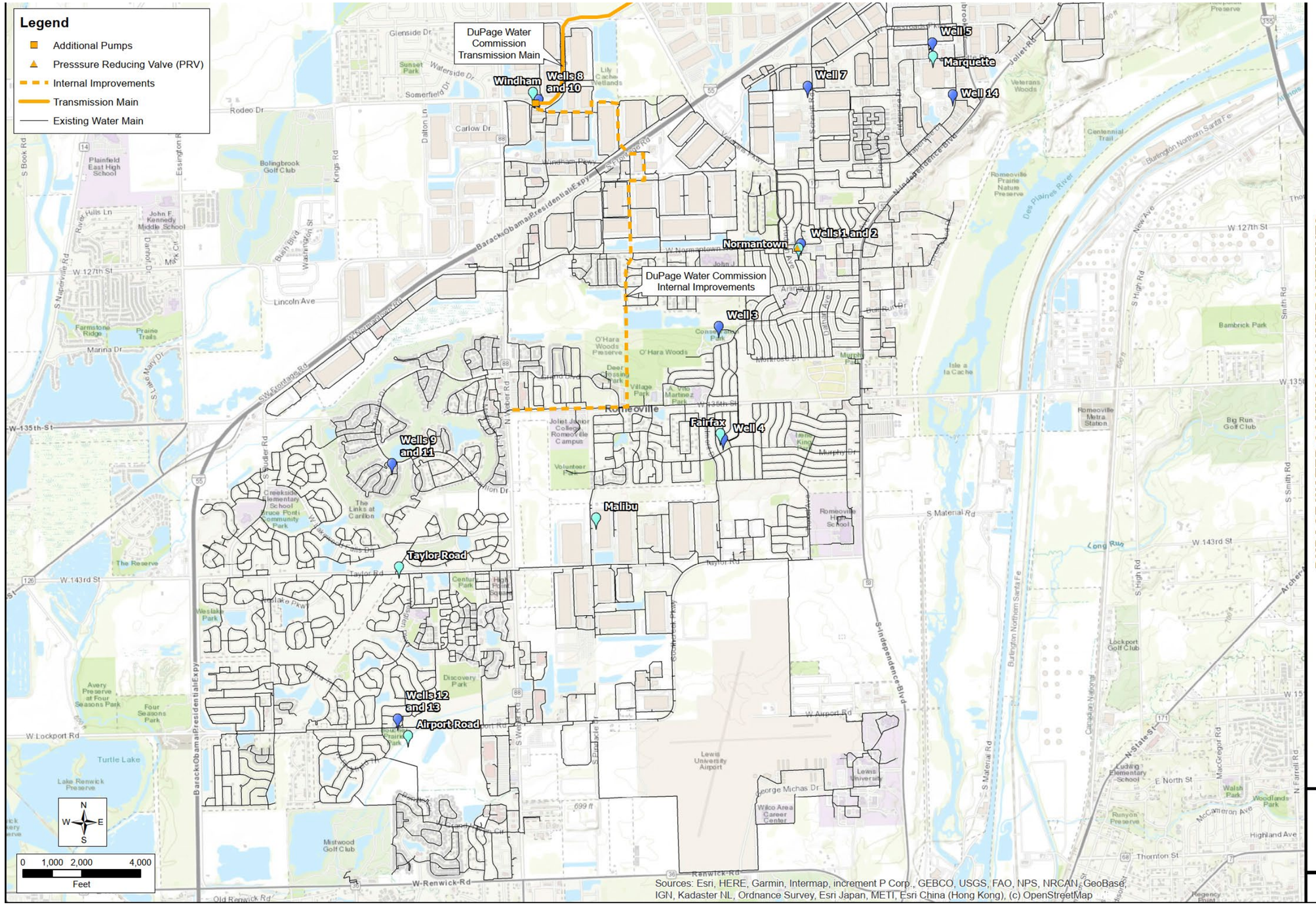
Lake Michigan Water
Dupage Water Commission

A REGIONAL SOLUTION:

1. Addison
2. Argonne Labs
3. Bartlett
4. Bensenville
5. Bloomingdale
6. Carol Stream
7. IAWC
8. Clarendon Hills
9. Darien
10. Downers Grove
11. DuPage County
12. Elmhurst
13. Glen Ellyn
14. Glendale Heights
15. Hinsdale
16. Itasca
17. Lisle
18. Lombard
19. Naperville
20. Oak Brook
21. Oak Brook Terrace
22. Roselle
23. Villa Park
24. Westmont
25. Wheaton
26. Willowbrook
27. Winfield
28. Wood Dale
29. Woodridge



LAKE MICHIGAN WATER VIA DUPAGE WATER COMMISSION



DUPAGE WATER COMMISSION IMPROVEMENTS

ALTERNATIVE FUTURE WATER SUPPLY OPTIONS ANALYSIS

VILLAGE OF ROMEOVILLE

WILL COUNTY, ILLINOIS

Village of Romeoville
Where Community Matters

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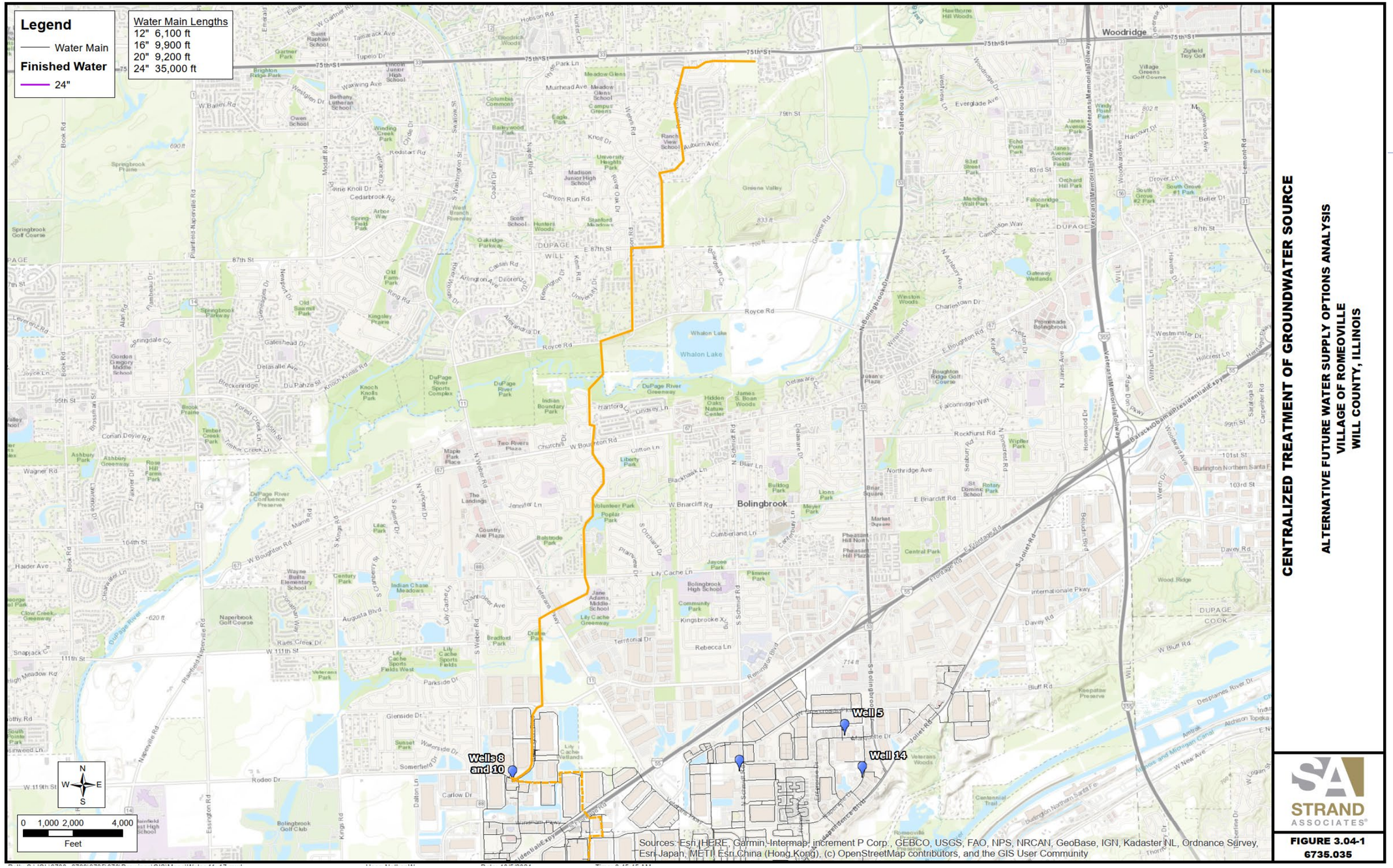
FIGURE 1

6735.070

LAKE MICHIGAN WATER VIA DUPAGE WATER COMMISSION



CENTRALIZED TREATMENT OF GROUNDWATER SOURCE

ALTERNATIVE FUTURE WATER SUPPLY OPTIONS ANALYSIS
VILLAGE OF ROMEOVILLE
WILL COUNTY, ILLINOIS

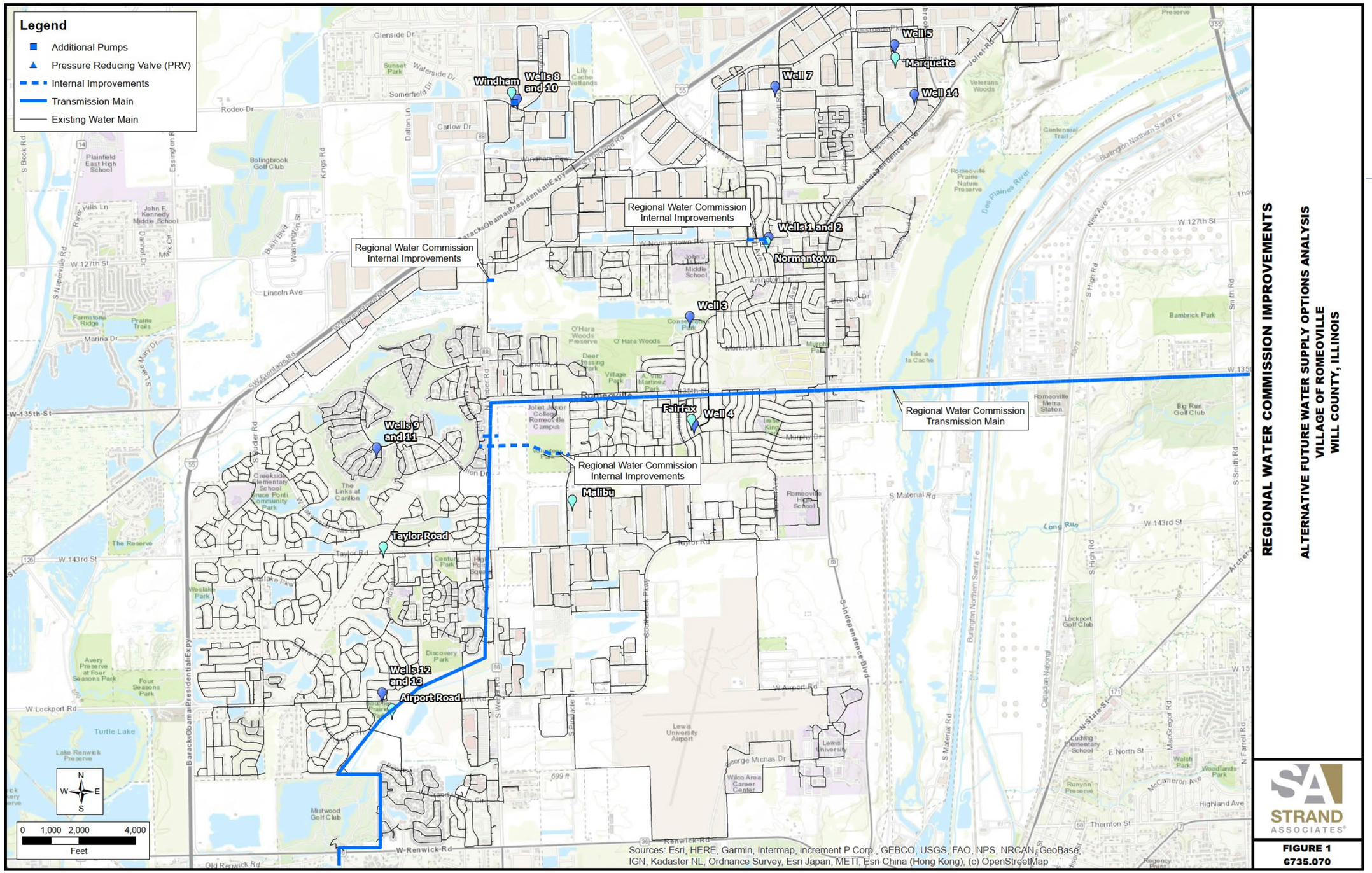
STRAND ASSOCIATES

FIGURE 3.04-1
6735.035

Village of Romeoville
Where Community Matters

Lake Michigan Water – Joliet – Regional Commission – From Chicago

LAKE MICHIGAN WATER VIA REGIONAL WATER COMMISSION



Village of Romeoville
Where Community Matters

A REGIONAL SOLUTION

WATER COMMISSION FORMATION TIMELINE

2021

OCTOBER 2021
Legislation presented for approval in Veto Session

2022

Q4 2021
Reach consensus on Key Principles & Prepare Preliminary Agreement

JANUARY 31, 2022
Member communities Approve Preliminary Agreement to participate in Water Commission

BY MARCH 31, 2022
Member communities Apply for Lake Michigan Allocation Permit

10-12 MONTHS
Member communities obtain Lake Michigan Allocation

2023

JANUARY TO MARCH 2023
After obtaining Lake Michigan Allocation, member communities approve Intergovernmental Agreement to form the Regional Water Commission

END OF Q2 2023
Promptly after Commission is formed:
- Approve By-laws/Organizational Ordinance
- Approve Water Supply Agreement with member communities and Program Management Agreement with Joliet
- Accept assignment of Chicago Water Supply Agreement

Q3 & Q4 2023
- Permitting &Bidding of first construction contracts
- Commission WIFIA Loan Application Submitted

POTENTIAL REGIONAL PARTNERS

- Channahon
- Crest Hill
- Homer Glen
- Joliet
- Lemont
- Minooka
- Montgomery
- Oswego
- Rockdale
- Romeoville
- Shorewood
- Yorkville

Lake Michigan Water - Joliet Regional Commission – From Indiana (Eliminated)

Exhibit 6-1

Intake Structure

Intake Tunnel and Pipe
- 30 MGD: 60" diameter pipe
- 60 MGD: 72" diameter pipe

Raw Water Pump Station and Screening Facility
- 30 MGD for Joliet Only
- 60 MGD for Commission

Regional Network (60 MGD)

Intermediate Pump Station and Reservoir
- 30 MGD for Joliet Only
- 60 MGD for Commission

Joliet Distribution Improvements (30 MGD)

Water Treatment Plant and High Service Pump Station
- 30 MGD for Joliet Only
- 60 MGD for Commission

Raw Water Transmission Main
- 30 MGD: 48" diameter
- 60 MGD: 60" diameter

Wolf Lake

Grand Calumet River

Little Calumet River

Lake

Water JOLIET

Joliet

Figure No.
6-1

DRAFT

Title
Lake Michigan Water - New Indiana Intake Overall System Plan

Client/Project
City of Joliet Department of Public Utilities
Alternative Water Source Program

Project Location
Will, Cook, and Kendall, IL. Lake County, IN

Prepared by JV on 2020-10-29

N

0 2 4 8 Miles

(At original document size of 22x34)
1 Inch = 10000 FT

Legend

- Water Transmission Main
- Regional Network
- Water Distribution System Modifications

Facilities

Facilities

- Approximate Proposed WTP Location
- Proposed Facility
- County Boundaries

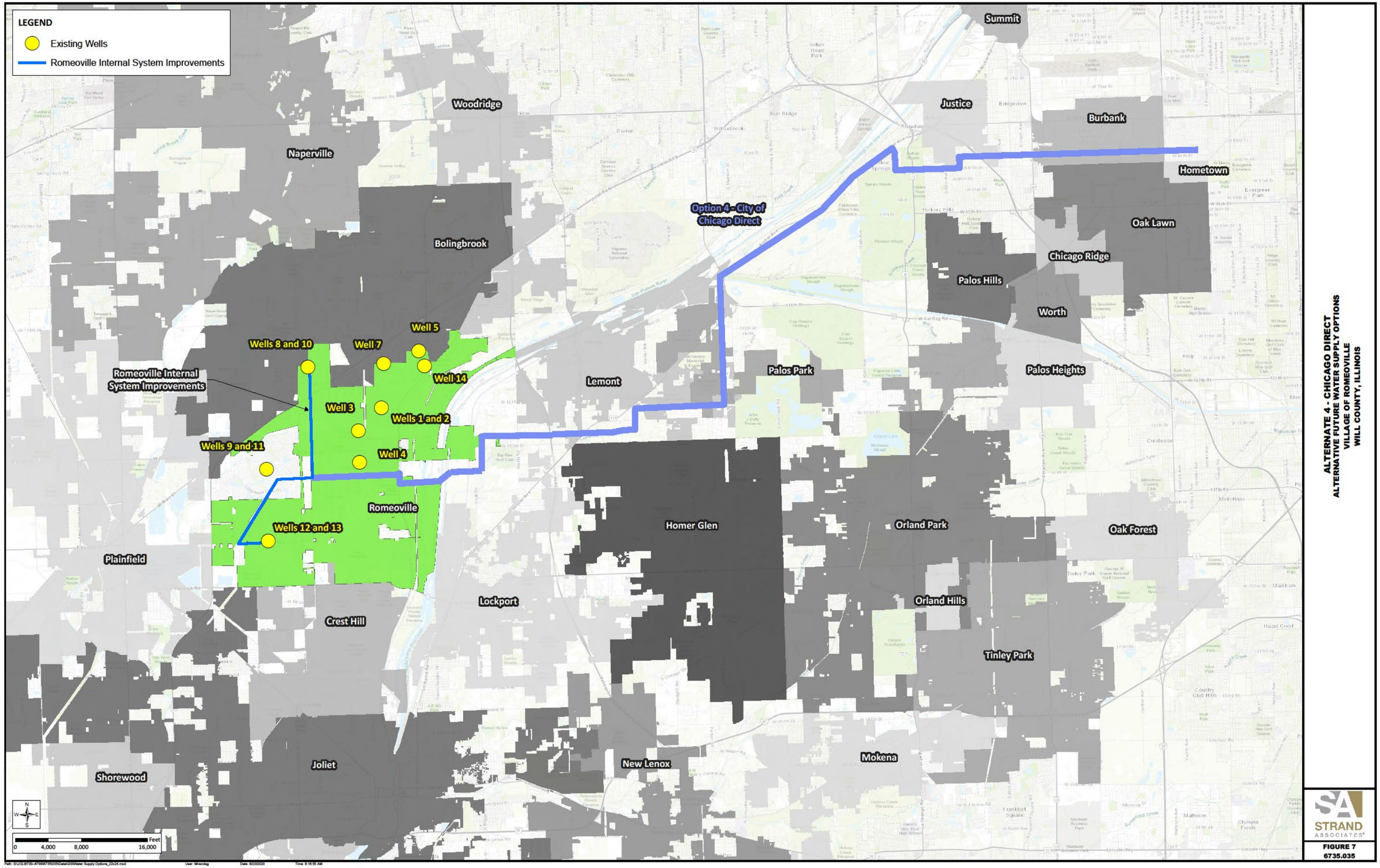
Location Map: Not to Scale

Stantec CMT Crawford, Murphy & Tilly

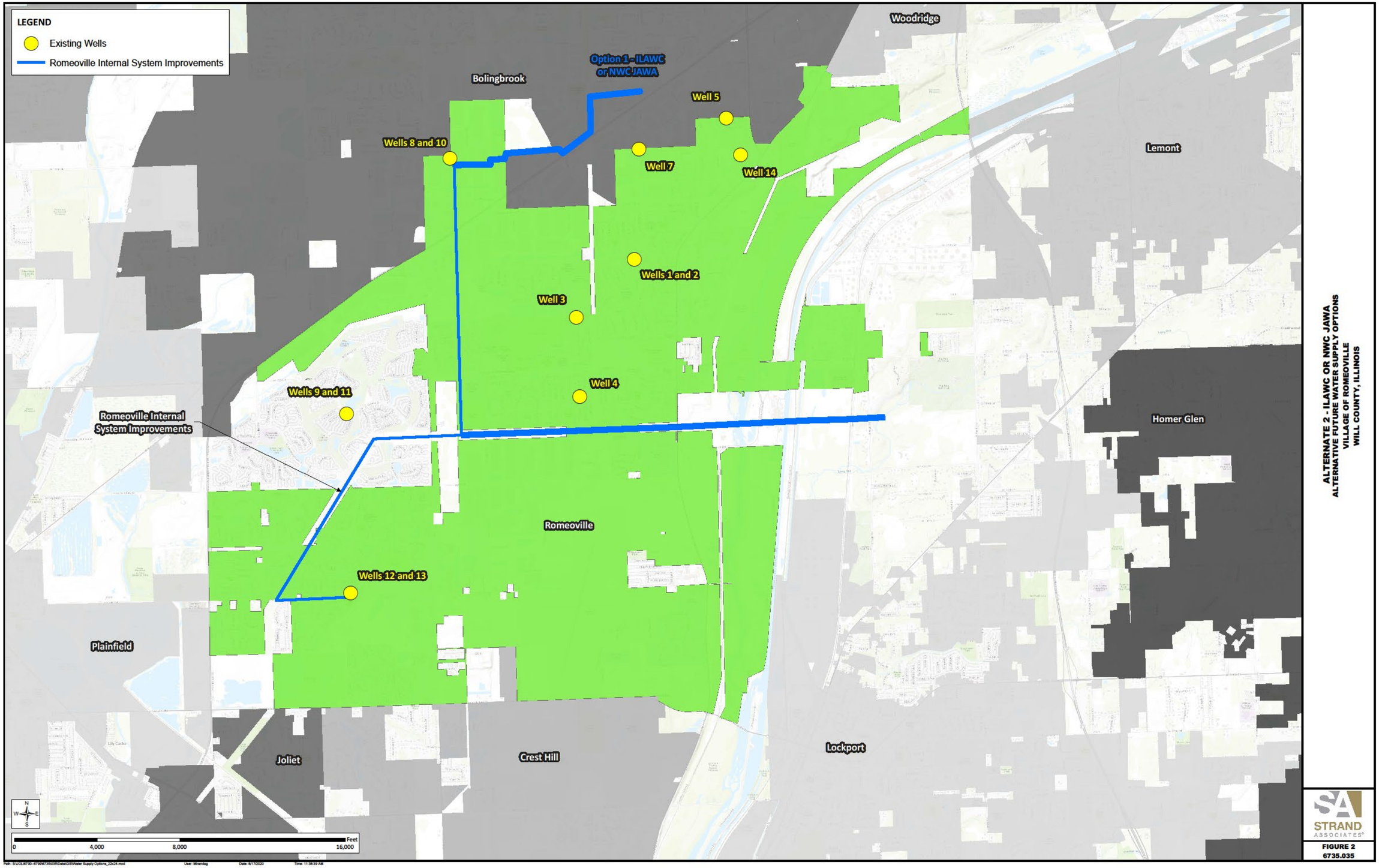
SA STRAND ASSOCIATES

CORNWELL ENGINEERING GROUP

Lake Michigan Water - Chicago Direct


LEGEND
Existing Wells
Romeoville Internal System Improvements
Summit
Justice
Burbank
Hometown
Woodridge
Naperville
Option 4 - City of Chicago Direct
Bolingbrook
Oak Lawn
Chicago Ridge
Palos Hills
Worth
Well 5
Wells 8 and 10
Well 7
Well 14
Romeoville Internal System Improvements
Lemont
Palos Park
Palos Heights
Well 3
Wells 1 and 2
Wells 9 and 11
Well 4
Romeoville
Wells 12 and 13
Homer Glen
Orland Park
Oak Forest
Plainfield
Lockport
Orland Hills
Crest Hill
Tinley Park
Joliet
New Lenox
Mokena
Shorewood
N
W
E
S
0
4,000
8,000
16,000
Feet
ALTERNATE 4 - CHICAGO DIRECT
ALTERNATIVE FUTURE WATER SUPPLY OPTIONS
VILLAGE OF ROMEOVILLE
WILL COUNTY, ILLINOIS
STRAND ASSOCIATES®
FIGURE 7
6735.035

Northern Will County Water Agency or Illinois American Water Company


LEGEND
Existing Wells
Romeoville Internal System Improvements
Option 1 - ILAWC or NWC JAWA
Bolingbrook
Woodridge
Lemont
Homer Glen
Well 5
Wells 8 and 10
Well 7
Well 14
Wells 1 and 2
Well 3
Well 4
Wells 9 and 11
Romeoville Internal System Improvements
Romeoville
Wells 12 and 13
Plainfield
Joliet
Crest Hill
Lockport
N
W
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0
4,000
8,000
16,000
Feet
ALTERNATE 2 - ILAWC OR NWC JAWA
ALTERNATIVE FUTURE WATER SUPPLY OPTIONS
VILLAGE OF ROMEOVILLE
WILL COUNTY, ILLINOIS
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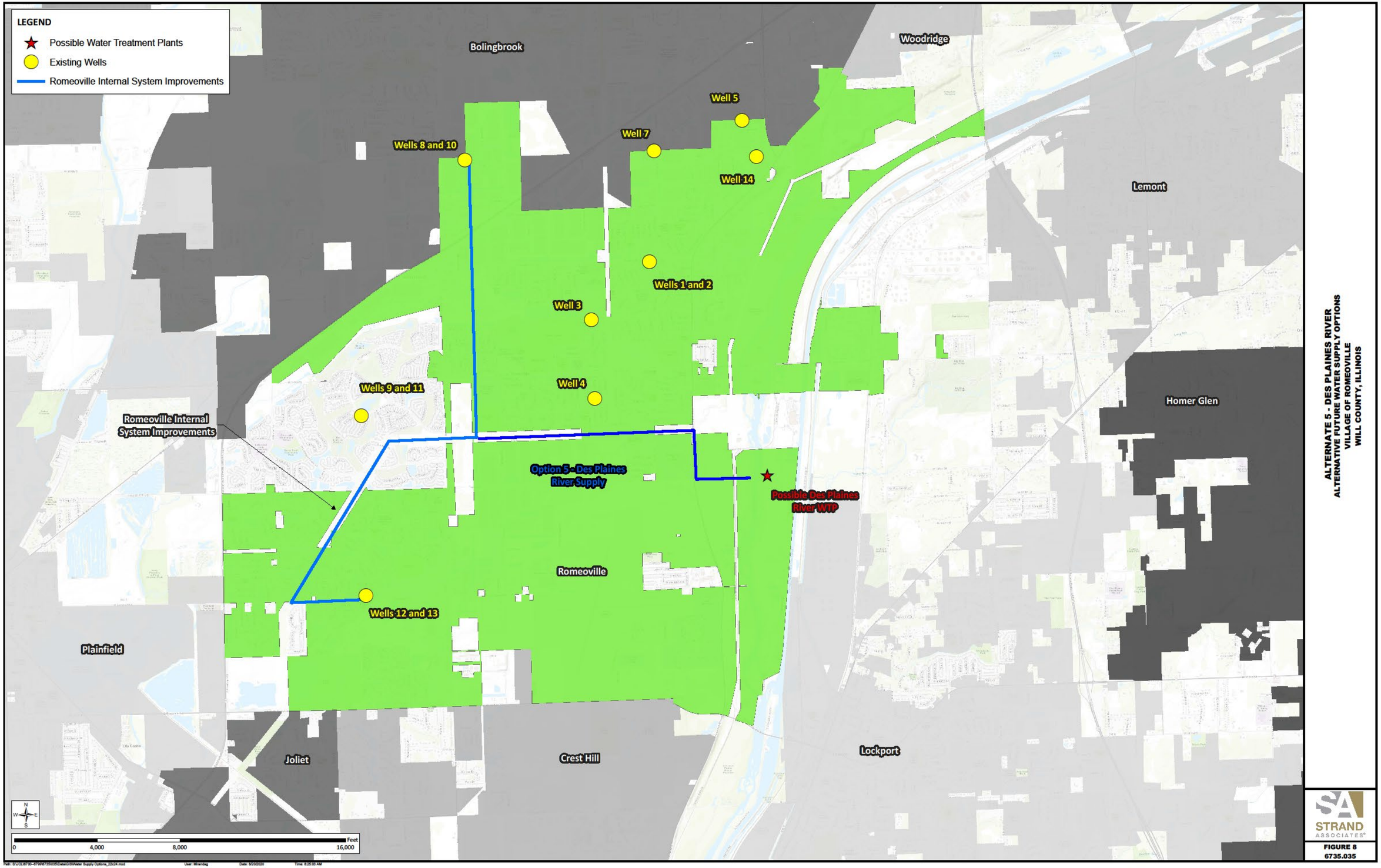
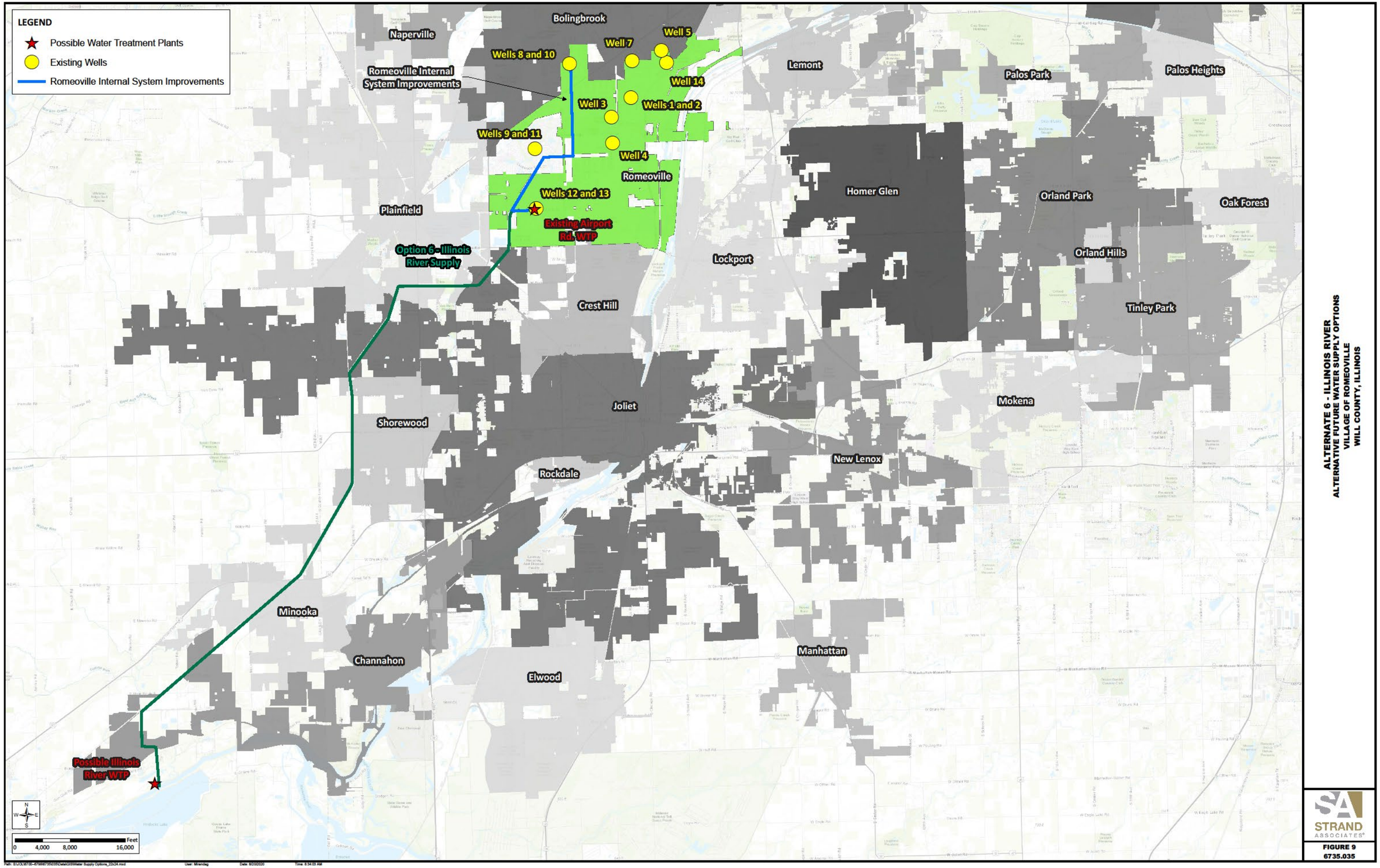
FIGURE 2
6735.035

Des Plaines River


LEGEND
Possible Water Treatment Plants
Existing Wells
Romeoville Internal System Improvements
Bolingbrook
Woodridge
Lemont
Homer Glen
Well 5
Well 7
Wells 8 and 10
Well 14
Wells 1 and 2
Well 3
Well 4
Wells 9 and 11
Romeoville Internal System Improvements
Option 5 - Des Plaines River Supply
Possible Des Plaines River WTP
Romeoville
Wells 12 and 13
Plainfield
Joliet
Crest Hill
Lockport
0
4,000
8,000
16,000
Feet
ALTERNATE 5 - DES PLAINES RIVER
ALTERNATIVE FUTURE WATER SUPPLY OPTIONS
VILLAGE OF ROMEOVILLE
WILL COUNTY, ILLINOIS
STRAND ASSOCIATES®
FIGURE 8
6735.035

Illinois River – Marseilles Pool


LEGEND
Possible Water Treatment Plants
Existing Wells
Romeoville Internal System Improvements
Bolingbrook
Naperville
Well 5
Well 7
Wells 8 and 10
Romeoville Internal System Improvements
Well 14
Lemont
Palos Park
Palos Heights
Well 3
Wells 1 and 2
Wells 9 and 11
Well 4
Romeoville
Homer Glen
Orland Park
Oak Forest
Wells 12 and 13
Plainfield
Existing Airport Rd. WTP
Option 6 - Illinois River Supply
Lockport
Orland Hills
Crest Hill
Tinley Park
Joliet
Mokena
Shorewood
New Lenox
Rockdale
Minooka
Channahon
Manhattan
Elwood
Possible Illinois River WTP
N
W
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4,000
8,000
16,000
Feet
ALTERNATE 6 - ILLINOIS RIVER
ALTERNATIVE FUTURE WATER SUPPLY OPTIONS
VILLAGE OF ROMEOVILLE
WILL COUNTY, ILLINOIS
STRAND ASSOCIATES®
FIGURE 9
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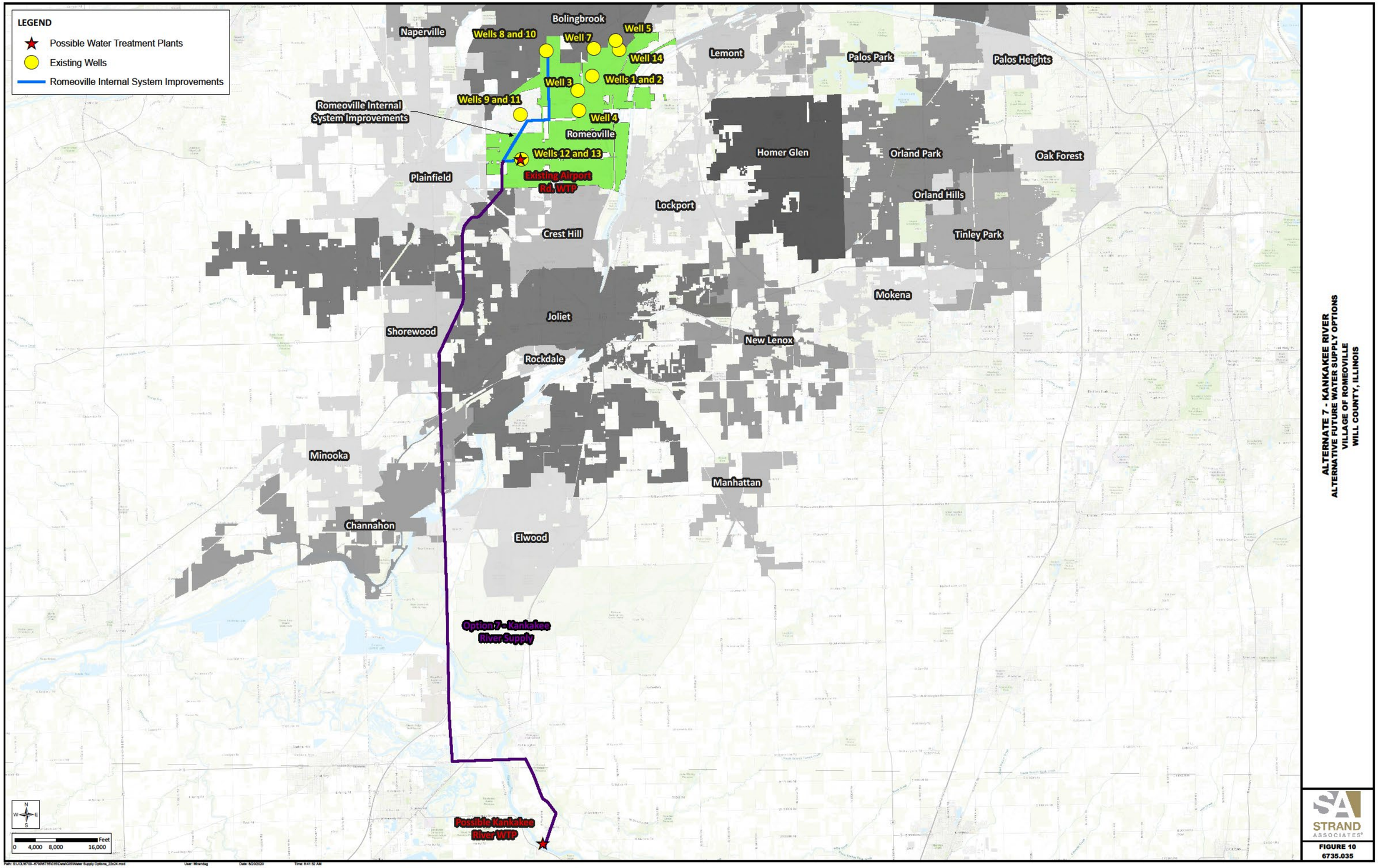
Kankakee River



ALTERNATE 7 - KANKAKEE RIVER
ALTERNATIVE FUTURE WATER SUPPLY OPTIONS
VILLAGE OF ROMEOVILLE
WILL COUNTY, ILLINOIS

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FIGURE 10
6735.035

Village of Romeoville

Alternative Water Supply Study

9

NEXT STEPS/TIMELNE

NEXT STEPS / TIMELINE

Previous Water Studies Predicted Longer Term Availability

Original Illinois State Water Survey

2019

Joined SW Planning Group Requested Additional Modeling from Illinois State Water Survey

2020

Initial Draft Report Received (September) from Illinois State Water Survey

2020-21

- 1st half 2021 received report from Il. State Water Survey
- Started Research Alternate Water Sources
- Contracted Strand Eng to Begin Detailed Study

2022

- 1st quarter 2022 Decision for Joliet Regional Partnership
- Continue Evaluation of other Alternatives