



May 14, 2019

Environmental Commission
Meeting

Joliet Alternative Water Source Study – Phase II





Status and Schedule Update

Alternative Water Source Study

Study Schedule



Phase I: August 2018 – January 2019 – Complete!

- Stakeholder Engagement and Strategic Planning
- Water Demand Projections, Groundwater Model Updates, Water Conservation Efforts and Short Term Emergency Planning
- Evaluation of 14 alternative water source options
- Identification of viable alternatives primarily based on quantity and quality

Phase II: February – December 2019

- Detailed analysis of 5 selected options identified in Phase I
- Identification of improvements for each viable alternative and their associated cost
- Refinement and prioritization of Phase II criteria (control, governance, maintenance, redundancy and risk to schedule)
- Selection of alternative water source at completion

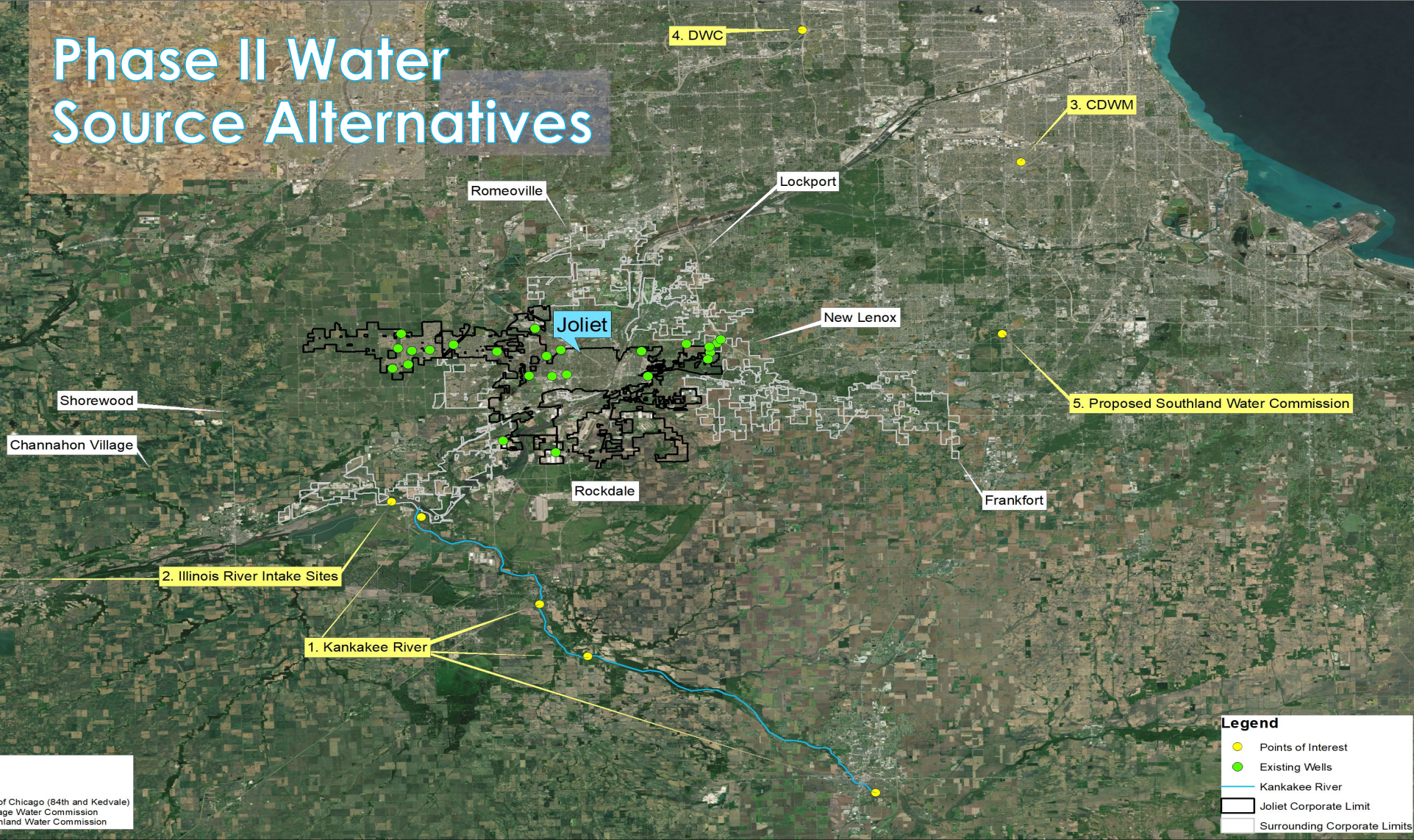
Phase II Study



The following alternatives were **advanced to Phase II** for further analysis:

- **Kankakee River**
- **Illinois River**
- **Lake Michigan Water – Chicago Department of Water Management**
- **Lake Michigan Water – DuPage Water Commission**
- **Lake Michigan Water – Southland Water Commission**

Phase II Water Source Alternatives



- Phase II Alternatives**
1. Kankakee River
 2. Illinois River
 3. Lake Michigan - City of Chicago (84th and Kedvale)
 4. Lake Michigan - DuPage Water Commission
 5. Lake Michigan - Southland Water Commission

Legend

- Points of Interest
- Existing Wells
- Kankakee River
- Joliet Corporate Limit
- Surrounding Corporate Limits



Phase II Study



Items completed since the last Environmental Commission meeting:

- **City Council and Environmental Commission Workshop (April 23, 2019)**
- **River Water Sampling planned for last week in April delayed due to rain/flooding (last sampling was March 26, 2019)**
- **Completed GIS Template for estimating pipeline alignments for the 5 alternatives**
- **Preparing Request for Statement of Interest for Potential Suppliers**
- **Preparing the Conceptual Design Parameter Technical Memorandum**

City Council and Environmental Commission Workshop – 4/23/19



Summary of Small Group Discussion on Decision Criteria

- **Cost:** Most groups wanted cost boiled down to increase in cost of water for typical resident, and most groups were concerned about financing of the improvements – source of funding, potential for grants, City available debt capacity, etc.
- **Governance/Control:** Three of the four groups wanted control - if not total control, at least proportional to cost responsibility. Purchasing from a private supplier or only have one vote is not preferred.
- **Risk:** All four groups noted concern with quantity of supply available from Kankakee River. Two of the groups noted lack of control as being a risk. Two of the groups noted schedule as being a risk for certain water source options.
- **Regional versus Joliet only:** Most groups thought Joliet should be a regional partner or supplier - initial increase in cost for upsizing would be offset by shared cost for infrastructure. Most groups talked about the opportunity to provide water to communities with existing supplier contracts once those contracts expire.

City Council and Environmental Commission Workshop – 4/23/19



Summary of Post-Discussion Survey Results

*Participants were asked to indicate how much these decision criteria will factor into their decision on a scale from 1 to 10 with 1 being “not at all” and 10 being “significantly”. Note that the baseline decision criteria of water quantity, water quality and sustainability were not included as they are essential.

Decision Criteria*	City Council	Environmental Commission	Other
Cost	8.9	6.4	6.3
Governance/Control	8.6	7.4	7.0
Risk	7	7.1	7.0
Regional versus City alone	8.9	6.8	6.3
Which criteria will factor most into your decision?	Cost (4), Control (2), Sustainability (2), Risk (1), Regional (1)	Control (3), Sustainability (2), Risk (1), Reliability (1), Regional (1)	Sustainability and Quality (2)
Which criteria will factor least into your decision?	Risk (5), Cost (1), Control (1)	Risk (3), Control (2), Cost (2)	Control (2)
Are you interested in Joliet being a regional water supplier?	Yes (8)	Yes (7), No Preference (1)	Yes (1), Depends (1)
Do you prefer that Joliet have complete control of the water source or be a member of a Commission?	Complete Control (5), Depends (2), Commission (1)	Complete Control (4), Depends (3), Commission (1)	Complete Control (1), Depends (1)

City Council and Environmental Commission Workshop – 4/23/19



What we are doing to address these concerns:

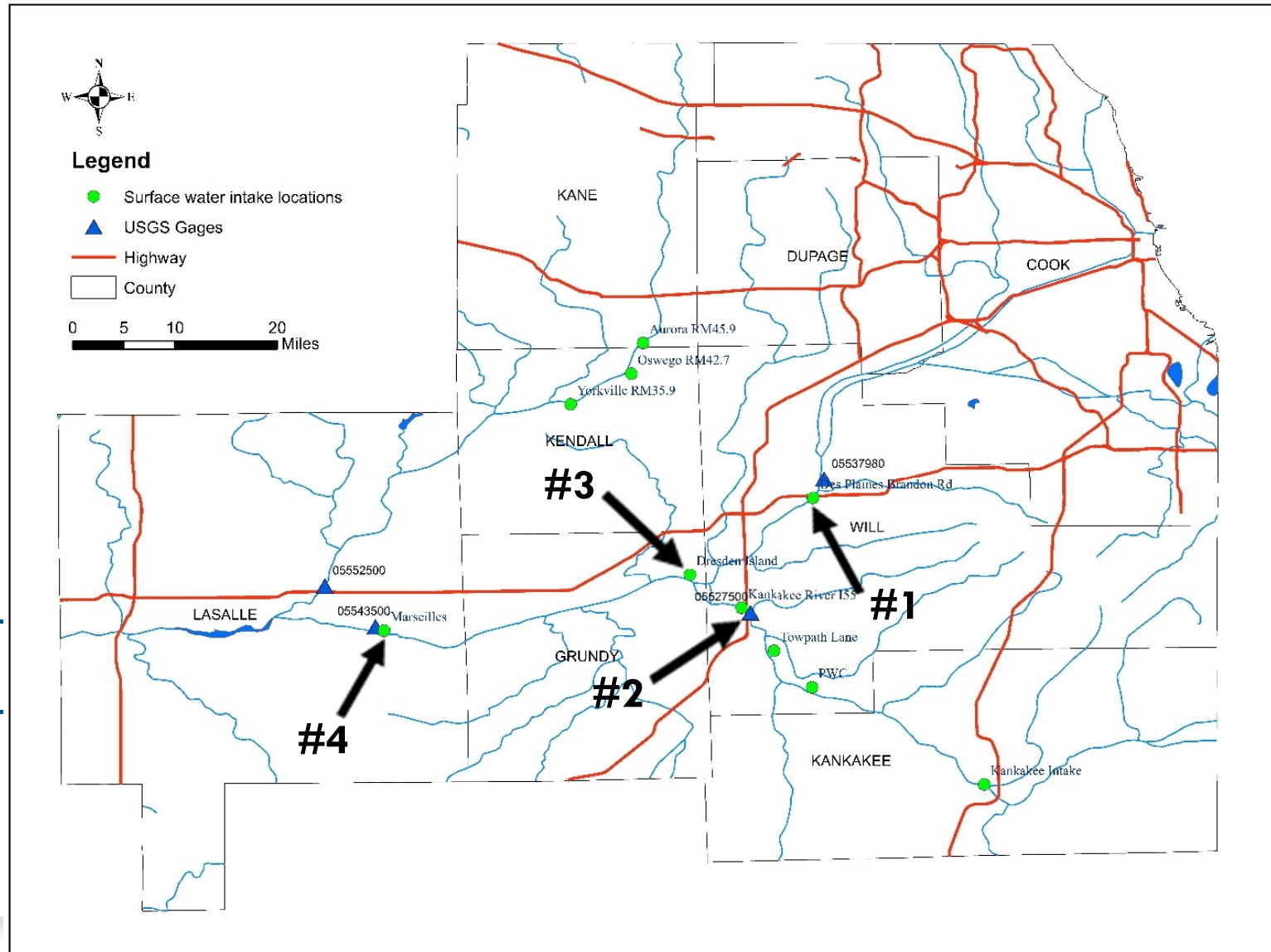
- **Regional Meetings:** The City is hosting regional meetings to identify potential partners.
- **Cost:** The project team is continuing with the evaluation of the alternatives. The full cost of each alternative will be presented as a typical increase to a customer's water bill.
- **Sustainability:** Additional modeling will be performed by ISWS on the Kankakee River to determine the number of low flow days at the higher low flow condition (600 cfs) given to recent permittees.

We recognize that these discussions are preliminary and may change once all the information is available. Once the evaluation is complete and costs for each alternative have been presented in a workshop planned for November 2019, we will repeat the survey to determine if decision criteria change once costs are known.

River Water Sampling

Sampling Locations:

- #1 – Des Plaines River
- #2 – Kankakee River
- #3 – Illinois River – Dresden Pool
- #4 – Illinois River – Marseilles Pool



River Water Sampling



- Initial 5 month sampling period from March 2019 to July 2019
- Sample results and conclusions will be submitted to IEPA for review in August/September 2019 (once all sample results are received)
- IEPA to make an initial determination on use of Illinois River as potable raw water source and level of treatment required

River Water Sampling



Comprehensive List of Sampling Parameters:

- **16 Water Quality Parameters**
- **Bacteriological Sampling (Total coliform, Fecal Coliform, E.coli)**
- **6 Surface Water Treatment Rule (SWTR) Parameters**
- **20 Inorganic Contaminants (IOCs)**
- **32 Synthetic Organic Contaminants (SOCs)**
- **7 Volatile Organic Contaminants (VOCs)**
- **2 Other Organic Contaminants**
- **13 UCMR Contaminants (including 10 algal toxins)**
- **11 Perfluoroalkyl (PFAAS)**
- **6 Perfluoroalkane sulfonic acids (PFSAS)**
- **22 Other Perfluoro Parameters**
- **7 WWTP NPDES Parameters**
- **8 Pharmaceuticals and personal care products**
- **7 Secondary Standards**

Public Relations Activities in Past Month



1. Greentown (October 26, 2018)
2. Will County Water Forum (November 8, 2018)
3. Joliet Rotary (February 5, 2019)
4. Will County Advisory Council (February 20, 2019)
5. Joliet Kiwanis Club (February 25, 2019)
6. Spanish Community Center (March 13, 2019)
7. ISAWWA WaterCon (March 19, 2019)
8. Cunningham Neighborhood Association (April 3, 2019)
9. National Hook-up of Black Women – Joliet Chapter (April 6, 2019)
10. St. Pat's Neighborhood Association (April 10, 2019)
11. Metropolitan Planning Council Water 1-2-3 (April 17, 2019)
12. City Center Partnership (April 25, 2019)
13. ISAWWA Source Water Summit (May 1, 2019)
14. Cathedral Area Preservation Association (May 13, 2019)

Upcoming Public Relations Activities



1. Eastside Neighborhood Meeting (May 14, 2019)
2. Bicentennial Bluffs Neighborhood Meeting (May 16, 2019)
3. Forest Park Neighborhood Meeting (May 20, 2019)
4. Bluestem Festival (May 18, 2019)
5. Collins Street Neighborhood Meeting (May 22, 2019)
6. Star Wars Day (June 1, 2019)
7. New Orleans North (June 8, 2019)
8. Paws on 66 (June 9, 2019)
9. Taste of Joliet (June 21-23, 2019)
10. Race Fan Rally (June 26, 2019)
11. Downtown Joliet Farmer's Market (second Wednesday of June, July, August, September, October)
12. In the Making (July 20, 2019)
13. Slammers Water Conservation Day (July 21, 2019)
14. Kidzfest (August 3, 2019)
15. Blues and Brews (August 17, 2019)
16. Joliet Prison Break-in (August 24, 2019)
17. Alianza Fiesta Street Festival En La Calle (September 14, 2019)




Ongoing Public Relations Activities

- Billboards – Rain Barrel Promotion
- Social Media Posts
- Newsletter Volume I
- Citizen Survey



Next Month:

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- ✓ Month Five (June 2019)
 - ✓ **Presentations** by Potential Water Supplier – Aqua Illinois
 - ✓ **Educational Topic** – Everyday ways to conserve water
 - ✓ **End-of-month Deliverable (May)**
- Draft Request for Proposals for Independent Cost Reviewer



Next Steps:


Phase II Deliverables:

- ✓ RFP for Independent Cost Estimate Reviewer (May)
- ✓ Technical Memorandums:
 - Conceptual Design Parameters (June)
 - Short-Term Groundwater Strategies (July)
 - Conceptual Water Loss Reduction Plan (August)
 - Funding Strategies (September)
- ✓ Draft Report (November)
- ✓ Final Report (December)





Next Steps:

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- ✓ Complete Phase II evaluation by December 31, 2019 and select new alternative water source
 - ✓ Discuss regional solution with neighboring communities
 - ✓ Proceed with preliminary design of selected alternative water source
 - ✓ New Alternative Water Source online by 2030



Educational Topic #8

History of Northeastern Illinois Water Sources (including Joliet) and what other communities are doing to address declining aquifer levels

History of Northeastern Illinois Water Sources (including Joliet) and what other communities are doing to address declining aquifer levels



- Emailed to City Council and Environmental Commission members on 5/8/19
- Gave ~40 year history of water sources in Northeastern Illinois and regional systems that were formed to switch from reliance on groundwater sources.
- Highlighted current water source evaluations occurring in Joliet, Oswego, Montgomery, Yorkville and Shorewood.
- Any questions?



Illinois American Water

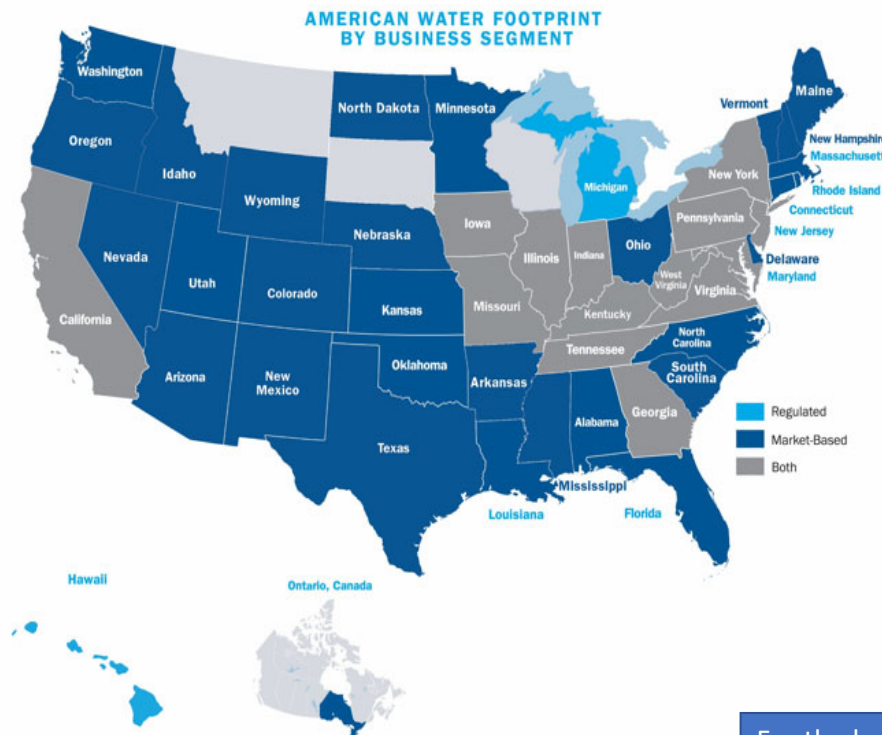


Joliet Environmental Commission Meeting

May 14, 2019 | Illinois American Water



About American Water (NYSE: AWK) and Illinois American Water



Illinois American Water Portfolio

- Water and Wastewater systems including locations in: Champaign, Urbana, Peoria, Bolingbrook, Homer Glen, Mt. Prospect, Orland Hills, Belleville, East Saint Louis
- 315,000 customers or about 1.25M customers served
- Wholesale water supply: Plainfield, Prospect Heights and many other areas across the state

American Water National Assets

- 51,000 miles of water main
- 621 water treatment plants
- 1,000 Wells
- 130 wastewater facilities
- 1,300 water storage facilities
- 1,400 pumping stations

American Water: Largest and most geographically diverse publicly-traded water and wastewater utility company in the United States.

For the last four years, Illinois American Water has ranked in the top quartile among water utilities in the Midwest for customer satisfaction according to J.D. Power’s Water Utility Residential Customer Satisfaction StudySM.

Illinois American Water Option

ILAW may respond to Joliet’s RFP offering a **public-private partnership (P3) arrangement** for its new water source. ILAW would be a business partner that designs, constructs, delivers, operates, maintains, finances some or all of the assets that are part of the overall wholesale water supply solution, e.g., treatment plant, pumping station, transmission line.

Decisions	Joliet	ILAW
Water Quality Water Source	Joliet would set requirements in RFP	ILAW would respond to the RFP
Governance & Control	Joliet would control its part of the system , e.g., distribution system	The ICC would have oversight of ILAW’s part of the system, e.g., wholesale water supply
Operations & Maintenance	Joliet would invest, operate and maintain its distribution system	ILAW would invest, operate and maintains the wholesale water supply pipeline and storage system
Financing	Joliet would fund its part of the system	The ICC would have oversight of ILAW’s expenses and rate setting
Redundancy	Joliet would set requirements for redundancy in its RFP	ILAW would respond to redundancy requirements set forth in the RFP
Schedule	Joliet would set schedule in its RFP	ILAW would include schedule in response to Joliet’s RFP

Questions You Asked Us:

- ILAW provides retail service to residential and business customers
 - Part of the retail rate includes wholesale water supply from American Lake Water Company (ALWC), sister Company of Illinois American Water
 - The contract provides wholesale water supply to Illinois American Water, Plainfield, and one industrial customer
 - Rate setting with the ICC for the ALWC
 - Long-term wholesale contracts and agreements including rate stability
- ICC Ratemaking Process

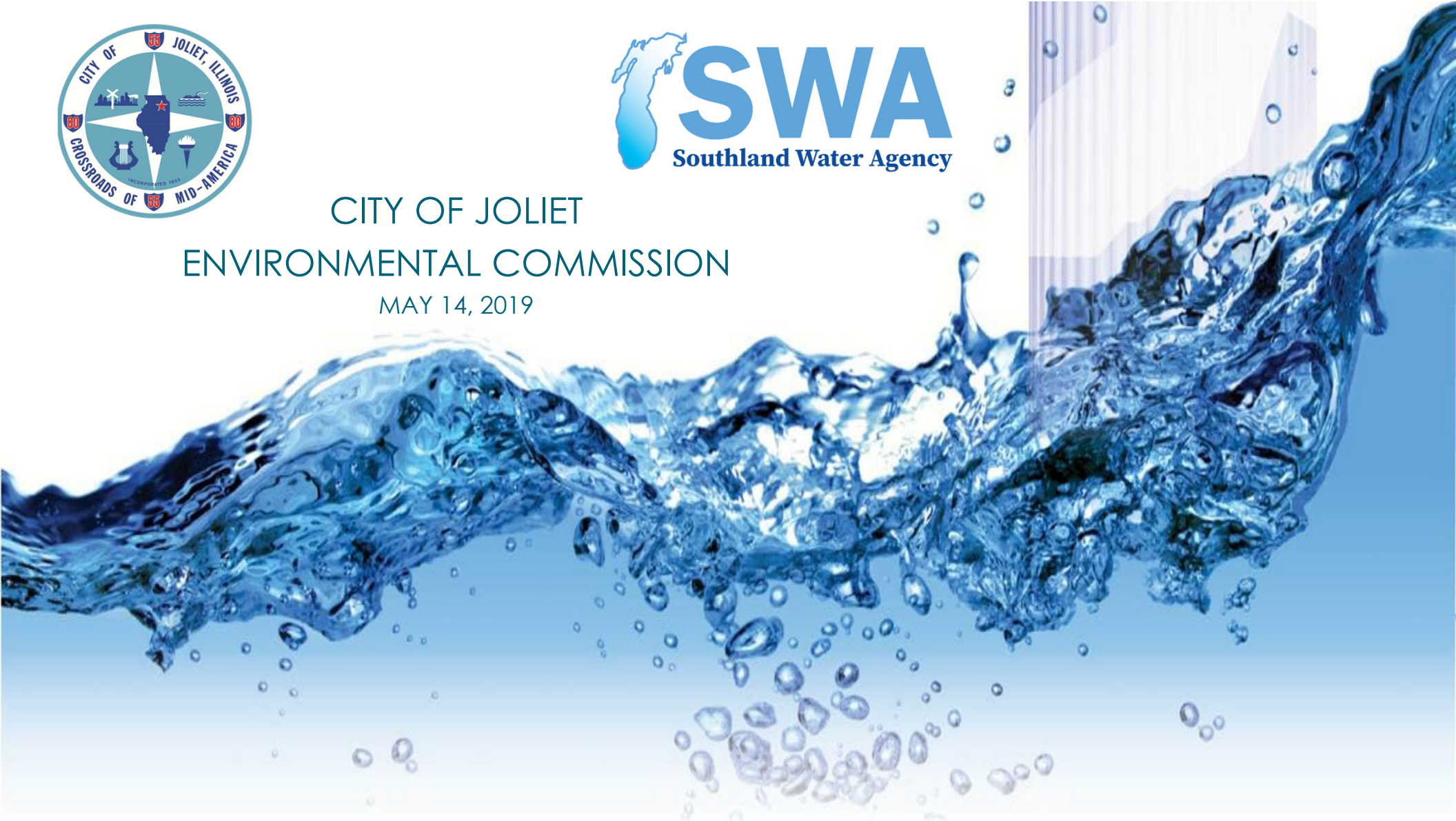
Other Questions



Southland Water Agency



CITY OF JOLIET
ENVIRONMENTAL COMMISSION
MAY 14, 2019



SOUTHLAND WATER AGENCY

TODAY'S SOUTHLAND WATER AGENCY DISCUSSION

- AGENCY INTRODUCTION / PURPOSE
- AGENCY CONCEPTS TO SERVE JOLIET
- AGENCY OPTION BENEFITS TO JOLIET



CHICAGO RATE HISTORY

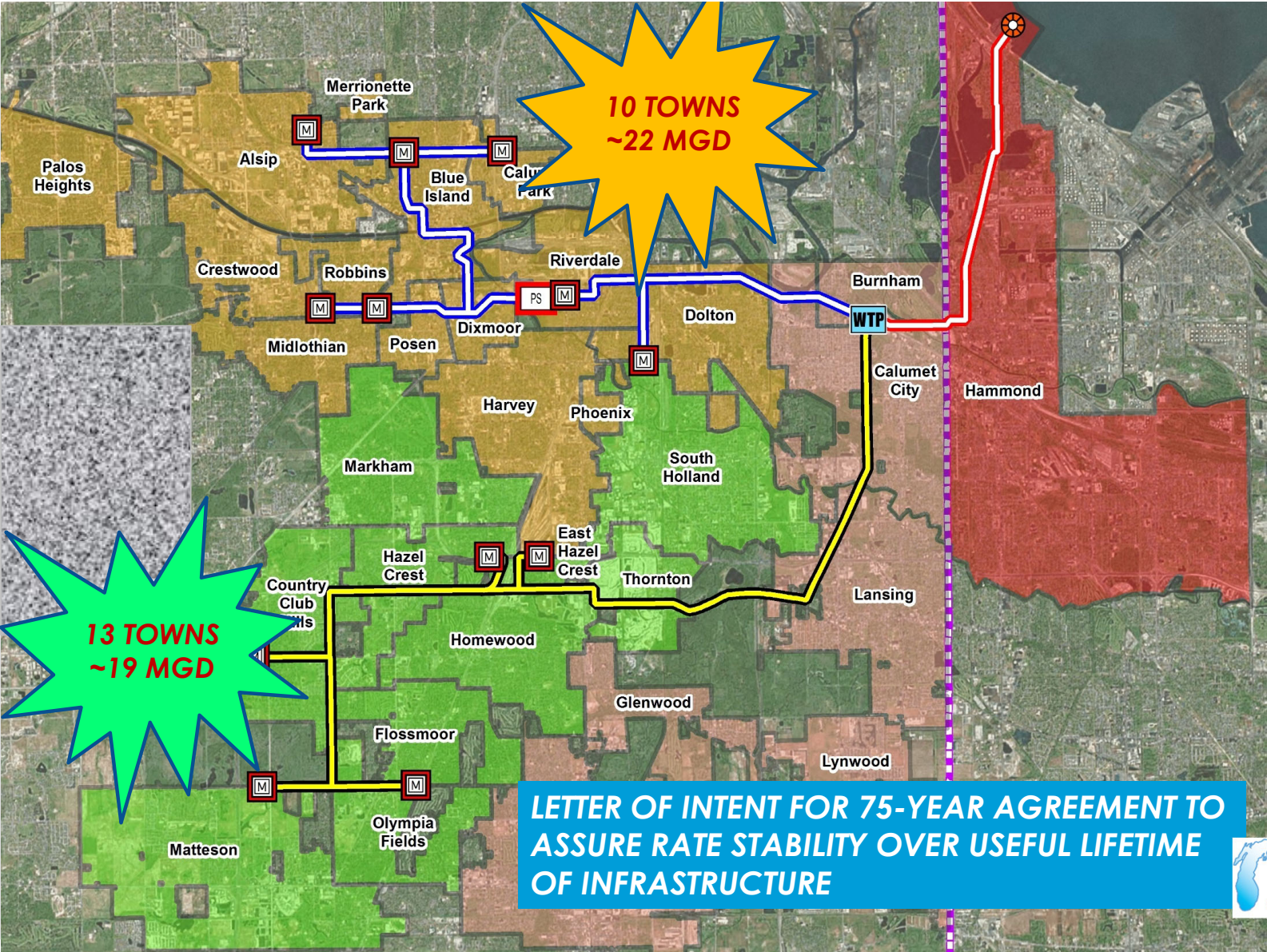


- From 1980-2015, Chicago wholesale water rate increased an average of **6% annually**. For 35 years.
- As recently as 2006, Chicago wholesale rate was **\$1.33/1,000 gal**
- Double-digit annual increases in 2007-09, and again in 2012-15, nearly tripled the rate over past decade to **\$3.82/1,000 gal** in 2015. Will be **\$3.98** on June 1, 2019.
 - Numerous agencies including Harvey, Oak Lawn, DWC & IAWC bump wholesale purchase cost further to downstream towns
- In March 2016, ten south suburban municipalities began meeting to analyze options to stabilize water costs

SWA CONCEPT PLAN

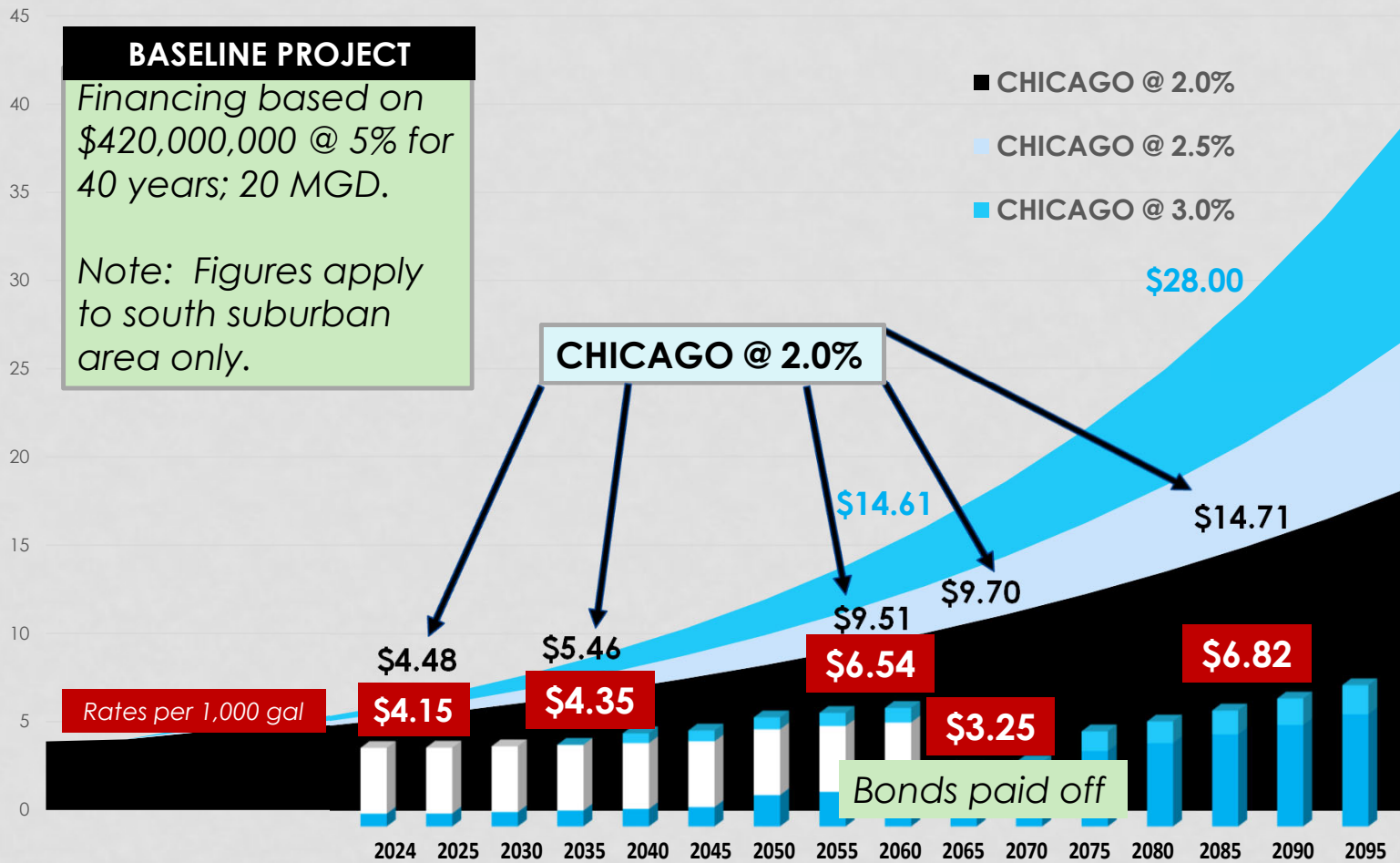


- **Construction of a new, independent water system from Lake Michigan to south suburbs**
 - *New Lake Michigan intake structure in Hammond, IN*
 - *Shorewell + Raw Water Pump Station and 10-mile transmission through Hammond to Illinois*
 - *New Water Treatment Facility in Illinois*
 - *Finished water transmission system to Southland towns*
- **Independent system owned and controlled by South Suburbs**
 - *Agency-owned infrastructure from Lake Michigan to each town*
 - *Water rates independent of both Chicago & Hammond*



LETTER OF INTENT FOR 75-YEAR AGREEMENT TO ASSURE RATE STABILITY OVER USEFUL LIFETIME OF INFRASTRUCTURE





Projected water rate includes 40 years fixed debt service. Hammond agreement terms and 2% annual O/M increase. Capital reinvestments modeled as 150% increase to O/M every 25 years.

Water rate below Chicago wholesale rate in Year 1, and ~1/3 when bonds/loans paid.



CURRENT AGENCY STATUS



- **Southland Water Agency became effective May 1, 2019**
 - South Holland, East Hazel Crest, Thornton
- **Inaugural Agency Board Meeting May 7, 2019**
- **Facilities Planning Report to be complete by July 1**
 - WIFIA Letter of Interest, IEPA Loan Applications
- **Purchase of existing multi-community water system currently being negotiated**
- **Water Supply Agreements currently being drafted for consideration by 13 initial Southland Communities**
 - 9 Additional Southland Communities in 2019-2020

AGENCY SCHEDULE

2019

2020

2021 - 2026

AGENCY FORMATION
MAY 1, 2019

FACILITIES PLANNING REPORT
JULY 1, 2019

INITIAL FUNDING APPLICATIONS
WIFIA - JULY 5, 2019

EXECUTE WATER SUPPLY CONTRACTS

COMMUNITY COMMITMENTS
SPRING 2020

**FINALIZE PROJECT SCOPE &
FINANCING PLAN**

**EXECUTE HAMMOND PROJECT
AGREEMENT**
SUMMER 2020

HIRE AGENCY EXECUTIVE DIRECTOR

**DESIGN / REAL ESTATE ACQUISITION /
PERMITTING**
2020-2022

**CONSTRUCTION, TESTING &
CERTIFICATION**
2023-2025

WATER FLOWING TO CUSTOMERS
2026

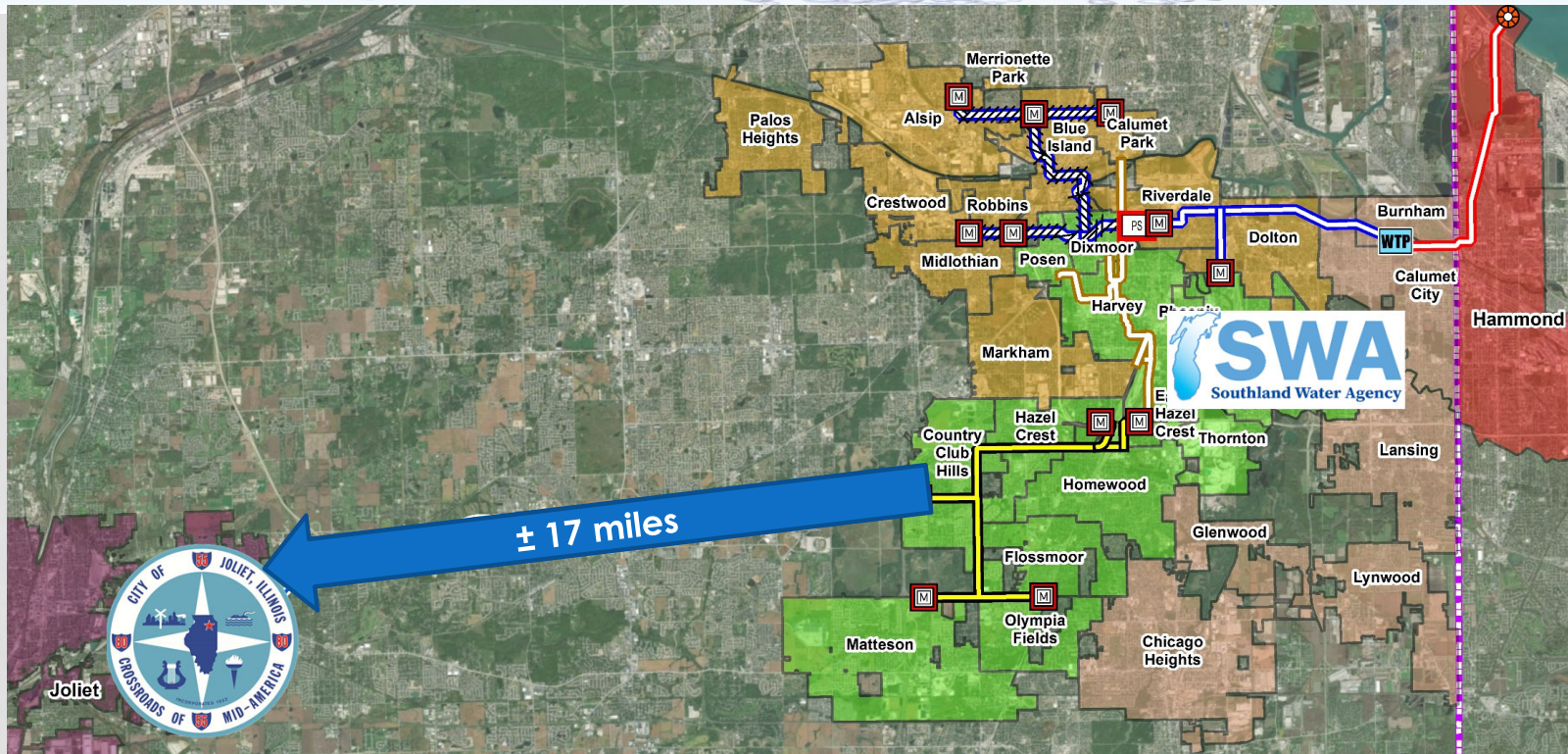
SWA OPTION FOR JOLIET

AGENCY OPTION - FACTORS KEY TO JOLIET

- PROJECT LIFE CYCLE WATER RATES
- WATER QUANTITY & QUALITY
- CITY-ONLY OR REGIONAL SOLUTION
- GOVERNANCE / CONTROL
- PROJECT RISKS



SWA OPTION - INITIAL CONCEPT



Finished Lake Water Delivery from Southland Water Agency

LIFE CYCLE COSTS



- **Upfront capital costs / initial water rates are just part of the equation**
- **Long-term rate difference over 75-year asset lifetime is more significant**
- **New infrastructure from source results in 70-80% of rate structure being fixed debt for 35-40 years**
 - Annual CPI increases for O & M applied to only 20-30% of rate
 - Minor O & M costs for brand new infrastructure compared to major rehabilitation costs for assets that are already decades old
 - Debt component of water rate disappears after initial financing
 - Year 41 rate will be similar to Year 1; roughly 1/3 of initial rate @ 2%

LIFE CYCLE COSTS

		EXAMPLE FUTURE RATES & COSTS				
		\$5.00		\$1.00 O-M Debt	\$4.00	
		2.00%	20 MGD	2.00%	20 MGD	DIFFERENCE
YEAR	1	\$5.10	\$37,230,000	\$5.02	\$36,646,000	\$584,000
	21	\$7.58	\$55,321,822	\$5.52	\$40,264,364	\$15,057,457
	41	\$11.26	\$82,205,317	\$2.25	\$16,441,063	\$65,764,253
	61	\$16.73	\$122,152,776	\$3.35	\$24,430,555	\$97,722,221
	75	\$22.08	\$161,177,994	\$4.42	\$32,235,599	\$128,942,395



LIFE CYCLE COSTS



COST SAVINGS WITH NEW WATER AGENCY @ 20 MGD			
		ANNUAL SAVINGS	CUMULATIVE SAVINGS
		2.00%	2.00%
YEAR	1	\$584,000	\$584,000
	21	\$15,057,457	\$154,730,319
	41	\$65,764,253	\$696,776,920
	61	\$111,911,885	\$2,466,306,133
	75	\$156,994,135	\$4,356,700,907



SWA WATER QUANTITY



WATER QUANTITY

Available quantity of Lake Michigan water to Illinois communities is the highest it's been in decades

- Regional water usage down 20-30% over past decade
- IDNR allocations to Joliet region applicants expected to be granted due to aquifer situation
- SWA representatives have Indiana DNR regulatory concurrence for Agency to draw Lake Michigan water off Hammond shoreline
- Agency design of new system is still in very early stages, so a 'fresh canvas' exists from which to plan, design, permit and construct a new system meeting Joliet's city and/or regional vision



SWA WATER QUALITY

WATER QUALITY

- Lake Michigan is one of the highest quality, large volume surface freshwater sources on the planet
- Agency water treatment facilities will use time-tested, proven water treatment methods comparable to other Lake Michigan water suppliers such as Chicago, Evanston, Waukegan and Hammond, IN
- The new facilities will also utilize state-of-the art equipment, telecommunications, security, and operational tools to provide safe, reliable and high quality drinking water for Agency customers



QUANTITY & QUALITY QUESTIONS

WATER QUALITY – All Lake Michigan Options

- The water treatment plant locations for all Lake Michigan options (DWC, Chicago, SWA) are 40+ miles from Joliet
 - Are treated water age and disinfection byproducts a concern?
 - Water age from Jardine to Elmhurst to Joliet will be exceed two days, excluding turnover delay in storage facilities.

WATER QUANTITY – All Lake Michigan Options

- Over time, older transmission pipelines experience reduced capacity due to reduced C factors
 - What impact will this have on sizing of new facilities toward a regional solution?



GOVERNANCE & CONTROL

Southland Water Agency Charter Agreement & By-Laws

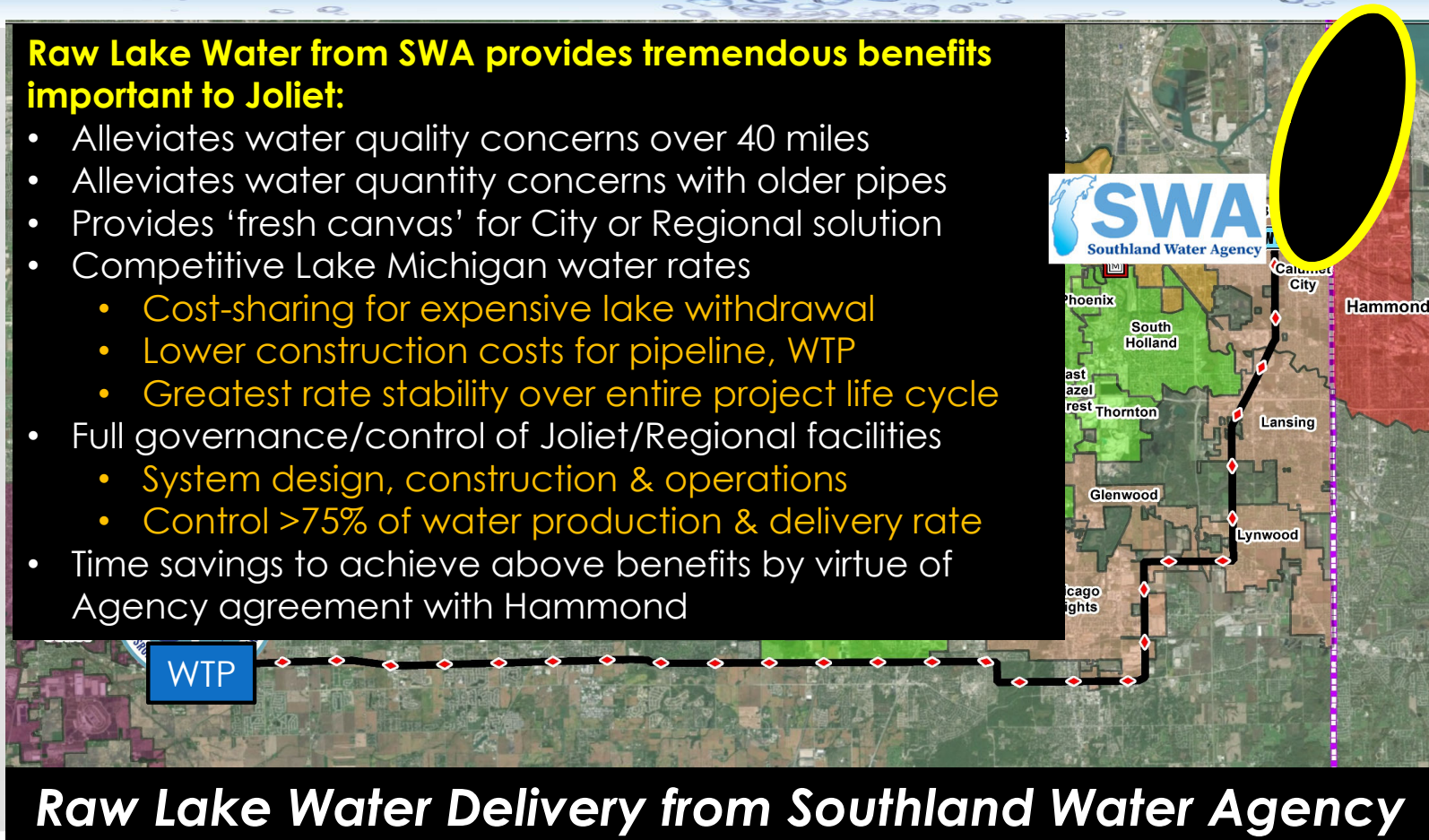
- Maximum of 4 Charter Members comprise Board of Directors
 - Charter Members guaranteed lowest Agency water rates
- Maximum of 2 Primary Members for whom full Charter privileges are reserved, including seats on Agency BOD & Executive Committee – Joliet is one.
- All other communities served by Agency will be Customers only without Board privileges
- As Primary Member under finished water option from SWA, Joliet would be guaranteed lowest water rates, voice in decision-making, rate-setting and operations of Agency facilities



SWA OPTION - RAW WATER

Raw Lake Water from SWA provides tremendous benefits important to Joliet:

- Alleviates water quality concerns over 40 miles
- Alleviates water quantity concerns with older pipes
- Provides 'fresh canvas' for City or Regional solution
- Competitive Lake Michigan water rates
 - Cost-sharing for expensive lake withdrawal
 - Lower construction costs for pipeline, WTP
 - Greatest rate stability over entire project life cycle
- Full governance/control of Joliet/Regional facilities
 - System design, construction & operations
 - Control >75% of water production & delivery rate
- Time savings to achieve above benefits by virtue of Agency agreement with Hammond

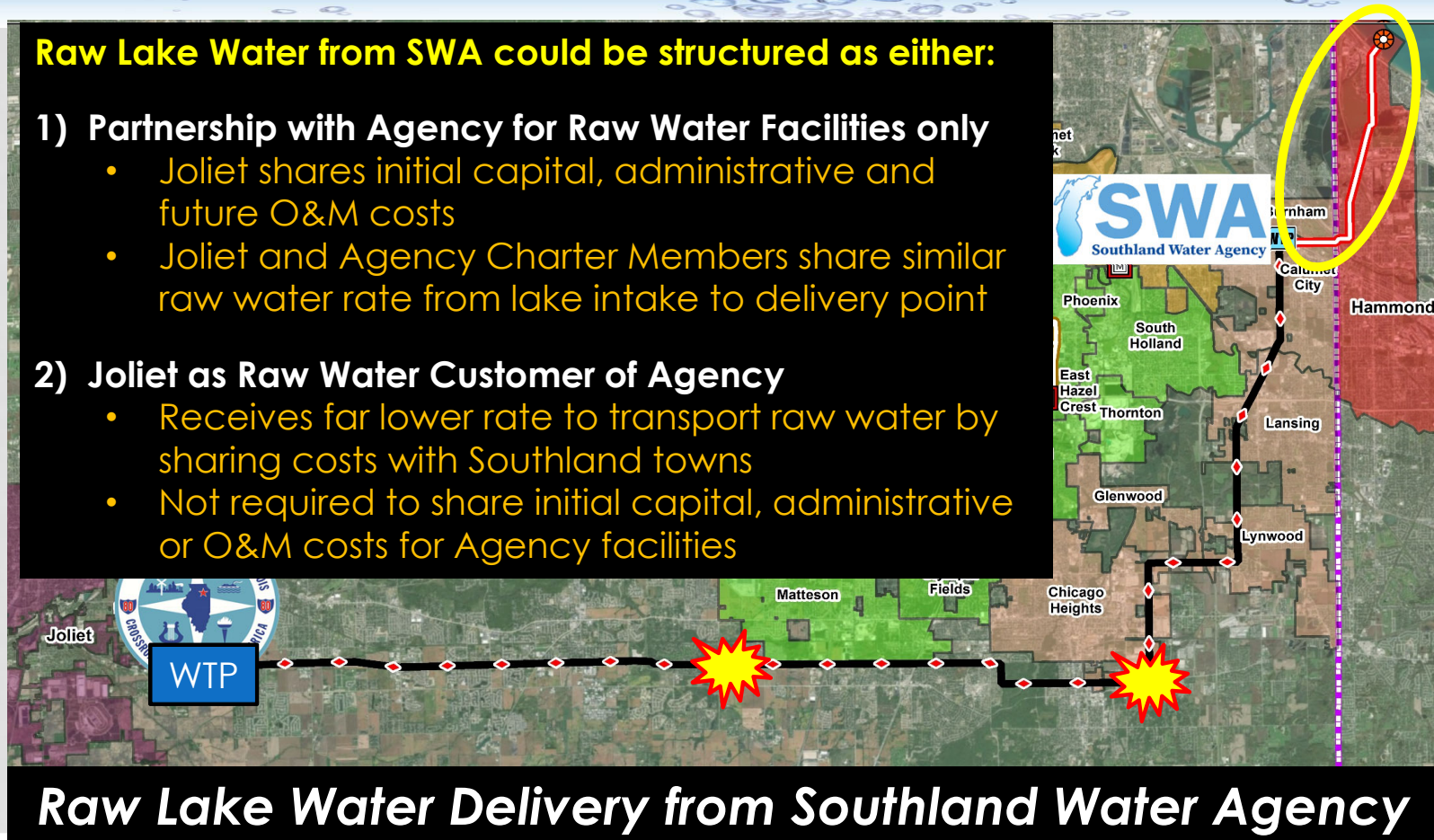


Raw Lake Water Delivery from Southland Water Agency

SWA OPTION - RAW WATER

Raw Lake Water from SWA could be structured as either:

- 1) Partnership with Agency for Raw Water Facilities only**
 - Joliet shares initial capital, administrative and future O&M costs
 - Joliet and Agency Charter Members share similar raw water rate from lake intake to delivery point
- 2) Joliet as Raw Water Customer of Agency**
 - Receives far lower rate to transport raw water by sharing costs with Southland towns
 - Not required to share initial capital, administrative or O&M costs for Agency facilities



Raw Lake Water Delivery from Southland Water Agency

SWA RISKS

- Southland Water Agency has no track record to date
- Number of communities to join not yet determined (known by mid-2020)
- Agency-Hammond LOI may not result in final project agreement within acceptable timeframe
- Agency-Joliet may not be able to negotiate mutually satisfactory agreement within acceptable timeframe
- Delays in project permitting, land acquisition, etc. could extend project schedule
- Cost overruns could impact project financing, schedule, projected rate structure
- Initial reliance on single water supply source

*Risks for all
LM options*



WHY SOUTHLAND WATER AGENCY?

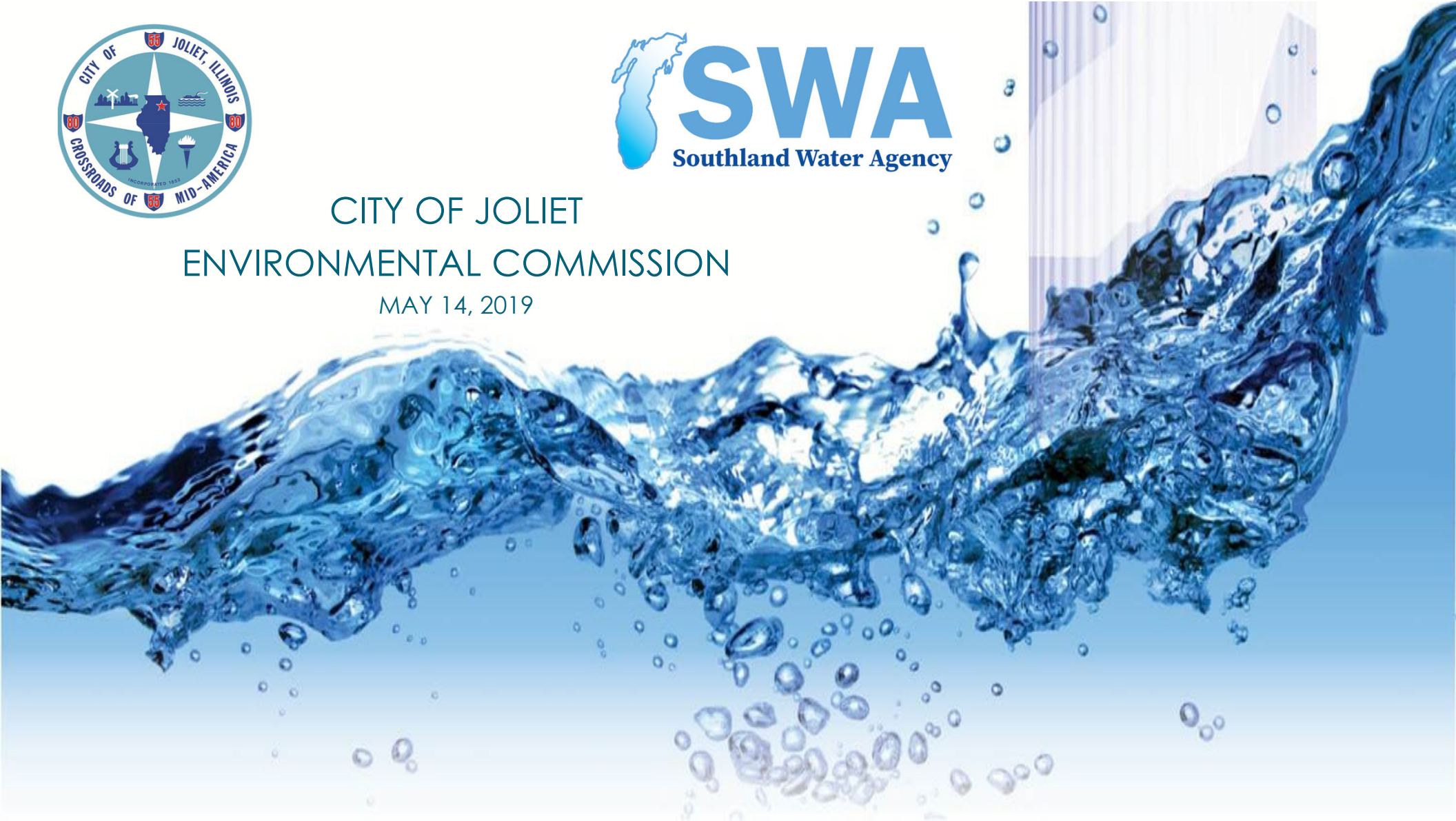
AGENCY BENEFITS - FACTORS KEY TO JOLIET

- **PROJECT LIFE CYCLE WATER RATES**
Significantly high level of rate control and stability.
- **WATER QUANTITY & QUALITY**
Complete design flexibility to optimize both.
- **CITY-ONLY OR REGIONAL SOLUTION**
Readily capable of raw or finished water regional solution.
- **GOVERNANCE / CONTROL**
Significantly high level of governance/control to Joliet.
- **PROJECT RISKS**
All options pose risk. SWA risks offset by numerous benefits.





CITY OF JOLIET
ENVIRONMENTAL COMMISSION
MAY 14, 2019



A close-up photograph of a person's hands holding several stalks of fresh green asparagus under a running faucet in a kitchen sink. The water is clear and splashing. In the background, there are blurred items including what appears to be a bunch of red radishes and some yellow produce. The entire scene is framed by a white border.

Questions?