



rethink
water
JOLIET

November 13, 2019

Joint City Council and
Environmental Commission
Workshop

Joliet Alternative Water Source Study – Phase II

Introductions



- City Staff:
 - Allison Swisher, P.E. – Director of Public Utilities
 - Nick Gornick – Plant Operations Superintendent
 - Amy Wagner, P.E. – Deputy Director Engineering
- Project Team Members:
 - Theresa O’Grady, P.E. (CMT) – Project Manager
 - Joe Johnson, P.E. (Stantec) – Lake Michigan Alternatives Lead
 - Jeff Freeman, P.E. (EEL) – Groundwater, Conservation & Water Loss Lead
 - Ty Besalke, P.E. (CMT) - River Water Alternatives Lead
 - Janet Henderson (Images Inc.) – Public Relations Lead
 - Daniel Abrams (ISWS) – Groundwater Modeling

Workshop Agenda

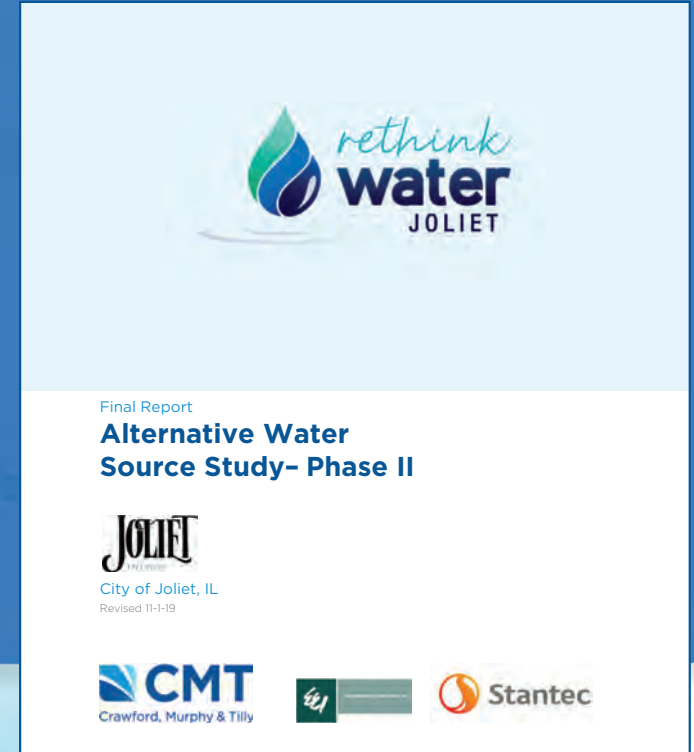


- 5:00 pm to 5:45 pm Group Presentation - Alternative Water Source Study, Phase II Report
- 5:45 pm to 6:00 pm Group Question and Answer Session – Phase II Water Source Alternatives
- 6:00 pm to 6:30 pm Small Group Sessions – Decision Criteria and Weighted Decision Matrix Tool
- 6:30 pm to 6:45 pm Group Presentation – Alternative Water Source Selection Schedule and Next Steps
- 6:45 pm to 7:00 pm Public Comments




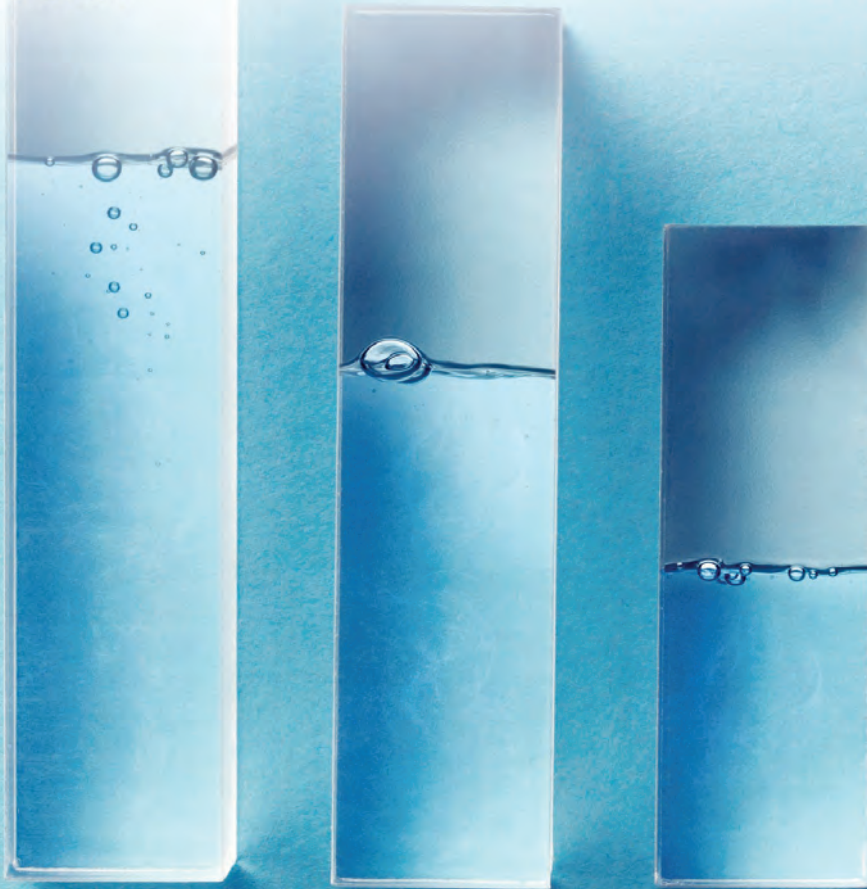
Phase II Study Results and Report

Alternative Water Source Study





Current Problem



Groundwater modeling completed in Fall 2018 found that at current usage rates, **the City's existing water source, the deep sandstone aquifer, will not meet maximum day demands by 2030.**

Study Objective & Goals



- Objectives:
 - Fresh look with all possible alternatives on the table for evaluation
 - Consistent application of engineering best practices to allow for an unbiased comparison of alternatives
 - Open and transparent process by team of experts under guidance and direction of Environmental Commission
- Project Goal:
 - Present total water cost and non-cost considerations for water source alternatives to meet the City's (and regions) 2050 water demands and the City's water quality goal that will allow the City to make a defensible decision when selecting an alternative water source

Phase II Stakeholder Engagement



- **Joint Workshops – April 2019, July 2019 and November 2019**
- **Monthly Environmental Commission Meetings**
- **Monthly Educational Topics**
- **Local Community Events/Meetings**
- **Billboards, Eblasts, Social Media Posts**
- **Community Survey**
- **Public Forum – December 2019**

Study History



Phase I: August 2018 – January 2019

- **Evaluation of 14 alternative water source alternatives**
- Water Demand Projections, Groundwater Modeling, Water Conservation Efforts and Short-Term Emergency Planning
- Identification of viable alternatives primarily based on water quantity and quality

Phase II: February – December 2019

- **Further evaluation of 5 alternative water source alternatives** (with a couple of variations)
- Identifications of alternative improvements and total cost associated with each alternative
- City to select alternative considering total cost as well as other key decision criteria

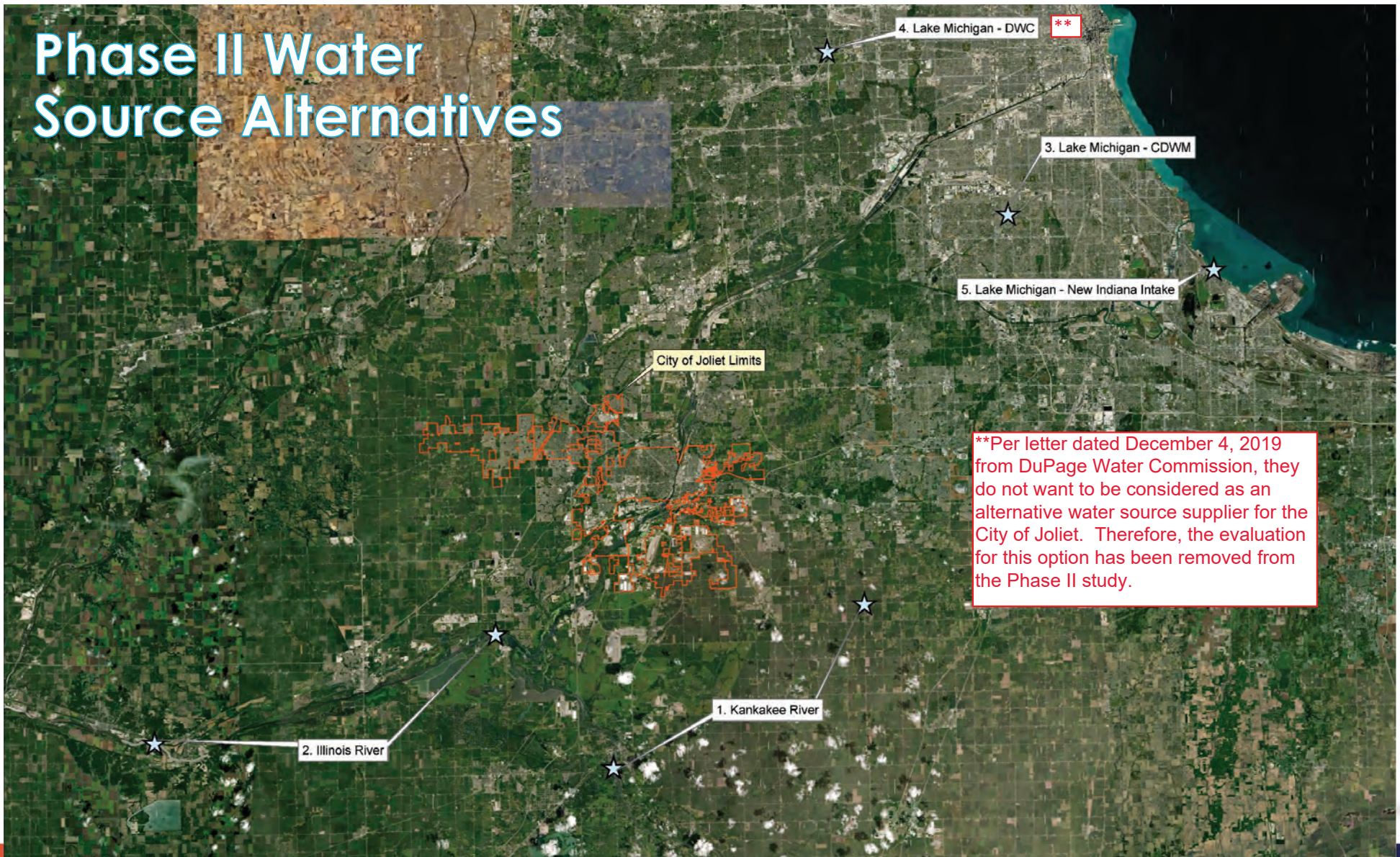
Phase II Water Source Alternatives



- **Illinois River**
 - Dresden Pool
 - Marseilles Pool
- **Kankakee River**
 - Towpath Lane
 - Aqua Illinois
- **Lake Michigan Water – DuPage Water Commission (DWC)****
 - City owned pipeline
 - DWC owned pipeline
- **Lake Michigan Water – Chicago Department of Water Management (CDWM)**
 - City owned pipeline
 - CDWM owned pipeline
- **Lake Michigan Water – New Indiana Intake**

**Per letter dated December 4, 2019 from DuPage Water Commission, they do not want to be considered as an alternative water source supplier for the City of Joliet. Therefore, the evaluation for this option has been removed from the Phase II study.

Phase II Water Source Alternatives



**Per letter dated December 4, 2019 from DuPage Water Commission, they do not want to be considered as an alternative water source supplier for the City of Joliet. Therefore, the evaluation for this option has been removed from the Phase II study.



Important Notes

- This study is conceptual.
- The location of facilities associated with each alternative, including intakes, transmission mains, pump stations, water treatment plants, etc. is approximate for the purpose of conceptually estimating cost. Siting of proposed facilities will be evaluated during preliminary design following the water source alternative selection.
- No negotiations have taken place – this will have to occur after alternative selection during preliminary design.
- Once alternative is selected, there will be significant effort to formulate final project.

Phase II Background Investigations



- **Population and Water Usage Projections – Demand Scenario #1 (30 MGD) and Demand Scenario #2 (60 MGD)**
- **Regional Community Partners Engagement**
- **Non-Revenue Water Reduction Strategies – less than 10% for Lake Michigan Allocation**
- **Groundwater Assessment**
- **Short-term Groundwater Strategies**

Phase II Background Investigations (continued)



- **River Water Assessment**
- **Water Supplier Information**
- **Conceptual Design Parameters**
- **Distribution System Modifications**
- **Back-up Water Source**
- **Funding Strategies**
- **Meetings with Illinois EPA, Illinois DNR, Indiana DEM, Indiana DNR**



- Conceptual raw and finished water transmission main routing
- Hydraulic analysis along route to determine pumping requirements
- Identified overall improvements required
- Developed cost estimates for improvements (including independent cost review)
- Regulatory/Permitting Considerations
- Implementation Schedule
- Key Considerations



Alternative Analysis

(30 MGD and
60 MGD)

Improvements Summary



Alternative	Raw Water Source	Water Supplier	Target for Non-Revenue Water	Demand Scenario	New Infrastructure Required													2020 Construction Cost (rounded)
					Intake	Raw Water Pumping Station (PS)	Raw Water Transmission Main	Intermediate Raw Water Pumping Station (PS)	Water Treatment Plant (WTP)	Finished Water Transmission Main	Immediate Finished Water Pumping Station (PS)	Finished Water Storage (not at Receiving Station)	Receiving Station Location	Receiving Station Improvements	Distribution System Improvements	Distribution System Storage (not at Receiving Station)	Back-up Supply Improvements	
ILLINOIS RIVER - DRESDEN POOL	Illinois River	--	12.5%	30 MGD	shoreline	33 MGD	48", 9.0 miles	--	33 MGD WTP, 5 MG Ground Storage, 30 MGD PS	42", 3.6 miles	--	--	Ridge Road Standpipe	3 MG Standpipe & 30 MGD PS	Ridge Road Standpipe Network	2 - 1.5 MG Elevated Tanks	online	\$563,600,000
				60 MGD	shoreline	66 MGD	60", 9.0 miles	--	66 MGD WTP, 10 MG Ground Storage, 60 MGD PS	54", 3.6 miles	--	--	Ridge Road Standpipe	3 MG Standpipe & 30 MGD PS	Ridge Road Standpipe Network	2 - 1.5 MG Elevated Tanks	online	\$713,300,000
ILLINOIS RIVER - MARSEILLES POOL	Illinois River	--	12.5%	30 MGD	shoreline	33 MGD	42", 32.6 miles	1 - 33 MGD	33 MGD WTP, 5 MG Ground Storage, 30 MGD PS	42", 3.6 miles	--	--	Ridge Road Standpipe	3 MG Standpipe & 30 MGD PS	Ridge Road Standpipe Network	2 - 1.5 MG Elevated Tanks	online	\$701,900,000
				60 MGD	shoreline	66 MGD	60", 32.6 miles	--	66 MGD WTP, 10 MG Ground Storage, 60 MGD PS	54", 3.6 miles	--	--	Ridge Road Standpipe	3 MG Standpipe & 30 MGD PS	Ridge Road Standpipe Network	2 - 1.5 MG Elevated Tanks	online	\$926,700,000
KANKAKEE RIVER - TOWPATH LANE	Kankakee River	--	12.5%	30 MGD	shoreline	33 MGD	42", 18.2 miles	1 - 33 MGD	33 MGD WTP, 5 MG Ground Storage, 30 MGD PS	42", 7.3 miles	--	--	Fairmont & Garvin PS	5 MG Standpipe & 30 MGD PS	Fairmont & Garvin PS Network	2 - 1.0 MG Elevated Tanks	online	\$689,000,000
				60 MGD	shoreline	66 MGD	54", 18.2 miles	1 - 66 MGD	66 MGD WTP, 10 MG Ground Storage, 60 MGD PS	54", 7.3 miles	--	--	Fairmont & Garvin PS	5 MG Standpipe & 30 MGD PS	Fairmont & Garvin PS Network	2 - 1.0 MG Elevated Tanks	online	\$885,200,000
KANKAKEE RIVER - AQUA ILLINOIS	Kankakee River	Aqua Illinois	12.5%	30 MGD	--	--	--	--	--	42", 17.8 miles	--	--	Fairmont & Garvin PS	5 MG Standpipe & 30 MGD PS	Fairmont & Garvin PS Network	4 - 1.5 MG Elevated Tanks	offline	\$306,800,000
				60 MGD	--	--	--	--	--	54", 17.8 miles	--	--	Fairmont & Garvin PS	5 MG Standpipe & 30 MGD PS	Fairmont & Garvin PS Network	4 - 1.5 MG Elevated Tanks	offline	\$362,600,000

Per letter dated December 4, 2019 from DuPage Water Commission, they do not want to be considered as an alternative water source supplier for the City of Joliet. Therefore, the evaluation for this option has been removed from the Phase II study.

LAKE MICHIGAN WATER - CHICAGO DEPARTMENT OF WATER MANAGEMENT (City Owned Pipeline or CDWM Owned Pipeline)	Lake Michigan	City of Chicago	10%	30 MGD	--	--	--	--	--	48", 30.3 miles	30 MGD	17.9 MG	Fairmont & Garvin PS	5 MG Standpipe & 30 MGD PS	Fairmont & Garvin PS Network	2 - 2.5 MG Elevated Tanks	offline	\$546,400,000
				60 MGD	--	--	--	--	--	60", 30.3 miles	60 MGD	17.9 MG	Fairmont & Garvin PS	5 MG Standpipe & 30 MGD PS	Fairmont & Garvin PS Network	2 - 2.5 MG Elevated Tanks	offline	\$651,400,000
LAKE MICHIGAN WATER - NEW INDIANA INTAKE	Lake Michigan	--	10%	30 MGD	8,000' Pipe	33 MGD	54", 43.5 miles	33 MGD	33 MGD WTP, 10 MG Ground Storage, 30 MGD PS	54", 3.9 miles	--	--	Fairmont & Garvin PS	5 MG Standpipe & 30 MGD PS	Fairmont & Garvin PS Network	2 - 1.0 MG Elevated Tanks	offline	\$909,800,000
				60 MGD	8,000' Pipe	66 MGD	66", 43.5 miles	66 MGD	66 MGD WTP, 10 MG Ground Storage, 60 MGD PS	66", 3.9 miles	--	--	Fairmont & Garvin PS	5 MG Standpipe & 30 MGD PS	Fairmont & Garvin PS Network	2 - 1.0 MG Elevated Tanks	offline	\$1,130,400,000

Abbreviations:
MGD = Million Gallons Per Day
MG = Million Gallons

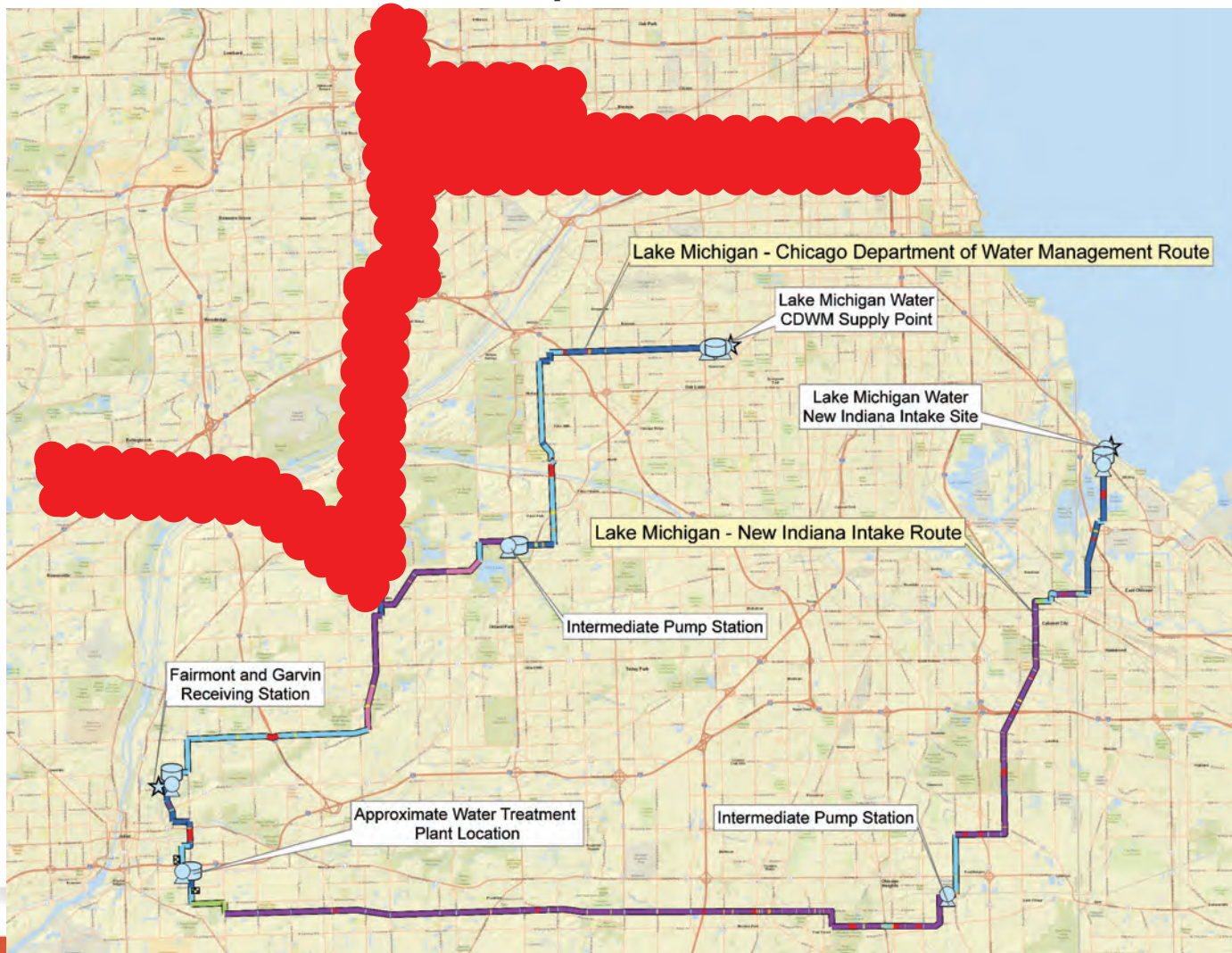
PS = Pumping Station
WTP = Water Treatment Plant

Alternative Improvements



River Water Options

Alternative Improvements



Lake Michigan Water Options

Per letter dated December 4, 2019 from DuPage Water Commission, they do not want to be considered as an alternative water source supplier for the City of Joliet. Therefore, the evaluation for this option has been removed from the Phase II study.

Total Cost of Water



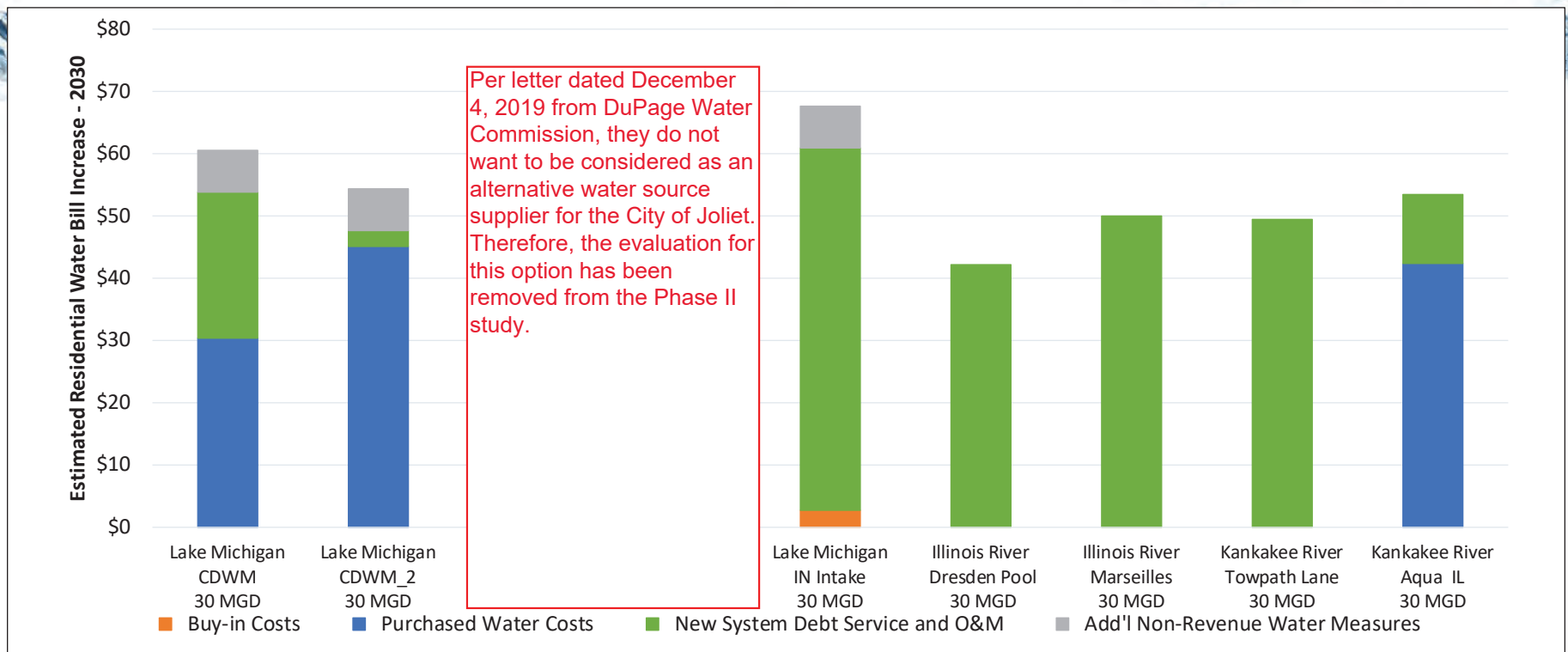
- Total cost of water
 - Water Supply Costs - Costs charged to Joliet by another entity responsible for the supply of water
 - Capital Improvement Costs - Costs for design and construction of Joliet-owned water supply infrastructure
 - Operating and Maintenance Costs - Costs associated with the sustainable operation of the new supply system

Total Cost of Water – Summary (30 MGD)



Alternative	Estimated 2030 Cost (\$ million)					
	2020 Est. Total Capital Cost (\$ millions)	Escalated Total Capital Cost (\$ millions)	Year 1 Buy-in and Access Cost	Year 1 Purchased Water Cost	Year 1 Add'l O&M Cost	Add'l Non-Revenue Water Measures
Illinois River – Dresden Pool	\$564	\$689	\$0	\$0	\$17	\$0
Illinois River – Marseilles Pool	\$702	\$943	\$0	\$0	\$18	\$0
Kankakee River – Towpath Lane	\$689	\$919	\$0	\$0	\$18	\$0
Kankakee – Aqua Illinois	\$307	\$454	\$0	\$0	(\$3)	\$0
Per letter dated December 4, 2019 from DuPage Water Commission, they do not want to be considered as an alternative water source supplier for the City of Joliet. Therefore, the evaluation for this option has been removed from the Phase II study.						
Lake Michigan Water – Chicago Dept of Water Management (Joliet owns pipeline)	\$546	\$668	\$0	\$37	(\$2)	\$8
Lake Michigan Water – Chicago Dept of Water Management (CDWM owns pipeline)	\$546	\$196	\$0	\$56	(\$4)	\$8
Lake Michigan Water – New Indiana Intake	\$910	\$1,112	\$49	\$0	\$18	\$8

Impact to Customer's Monthly Bills (30 MGD)



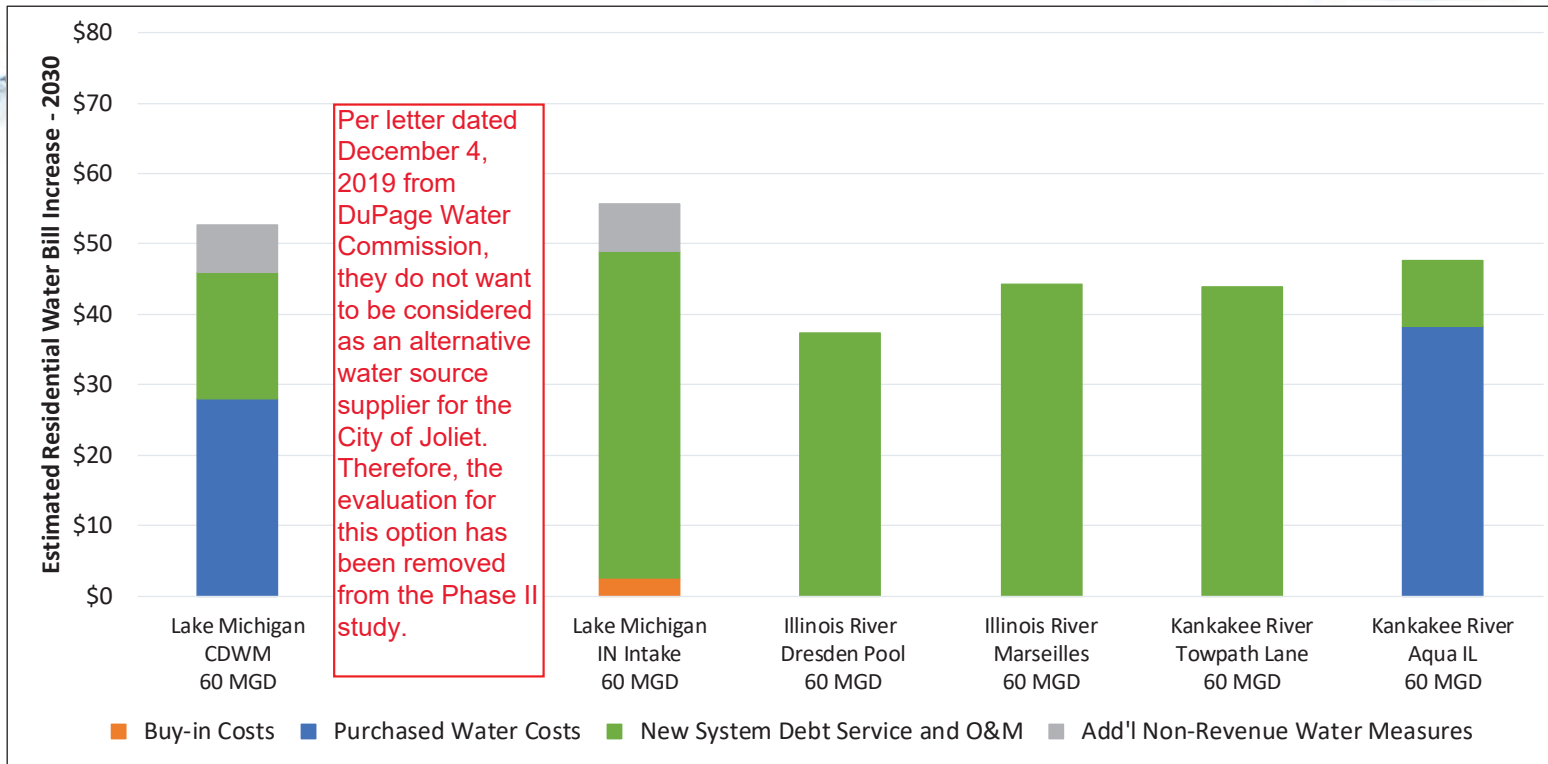
- Based on an average monthly usage of 700 cf
- Currently average monthly bill is \$30.75

Total Cost of Water – Summary (60 MGD)



Alternative	2020 Est. Total Capital Cost (\$ millions)	Escalated Total Capital Cost (\$ millions)	Estimated 2030 Cost (\$ million)			
			Year 1 Buy-in and Access Cost	Year 1 Purchased Water Cost	Year 1 Add'l O&M Cost	Add'l Non-Revenue Water Measures
Illinois River – Dresden Pool	\$713	\$873	\$0	\$0	\$29	\$0
Illinois River – Marseilles Pool	\$927	\$1,133	\$0	\$0	\$30	\$0
Kankakee River – Towpath Lane	\$885	\$1,222	\$0	\$0	\$30	\$0
Kankakee – Aqua Illinois	\$363	\$570	\$0	\$0	(\$3)	\$0
Per letter dated December 4, 2019 from DuPage Water Commission, they do not want to be considered as an alternative water source supplier for the City of Joliet. Therefore, the evaluation for this option has been removed from the Phase II study.						
Lake Michigan Water – Chicago Dept of Water Management (Joliet owns pipeline)	\$651	\$796	\$0	\$58	(\$2)	\$8
Lake Michigan Water – New Indiana Intake	\$1,130	\$1,382	\$76	\$0	\$29	\$8

Impact to Customer's Monthly Bills (60 MGD)

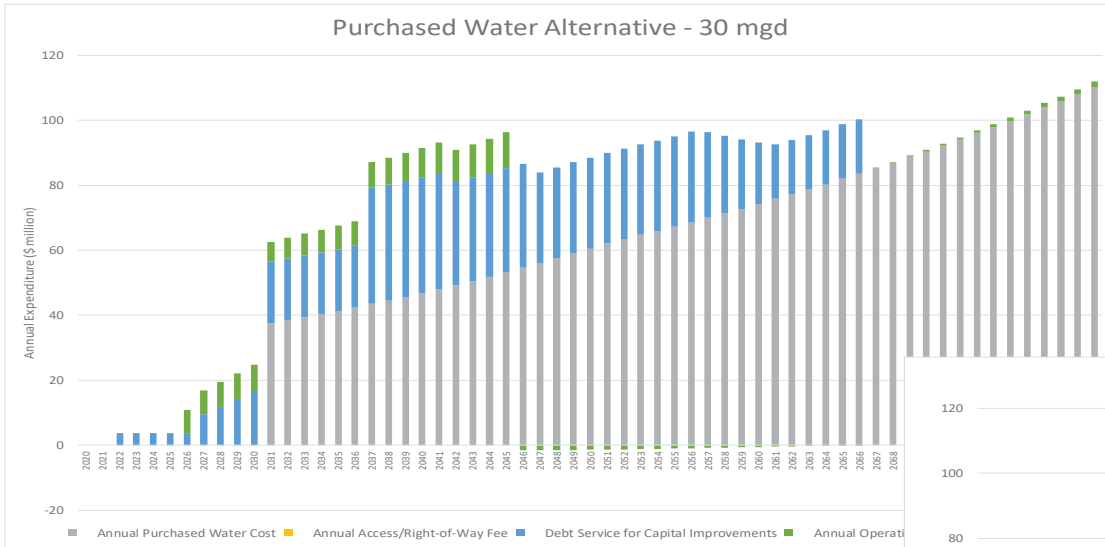


- Based on an average monthly usage of 700 cf
- Currently average monthly bill is \$30.75

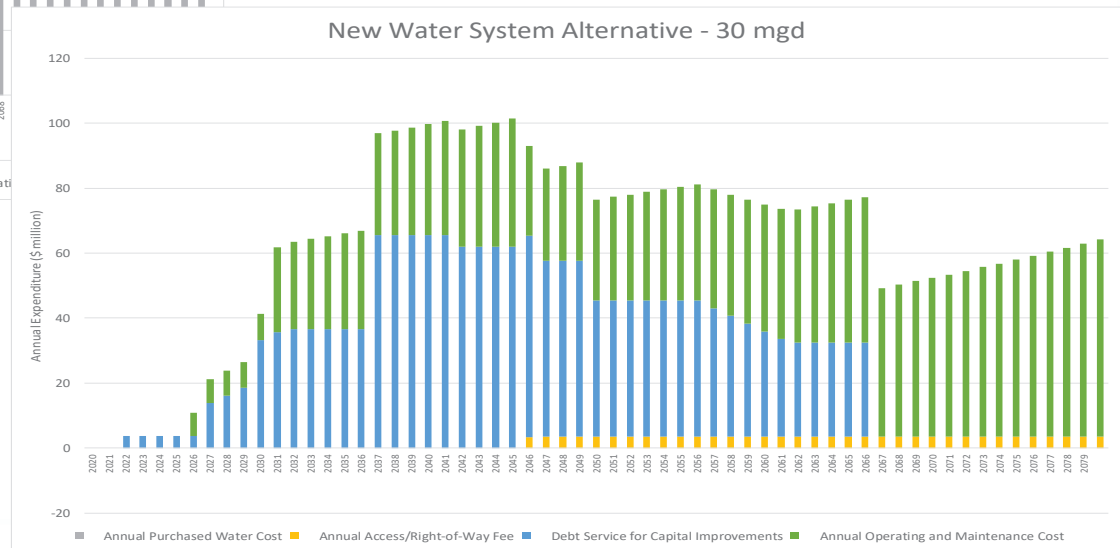
Cash Flow Projections



Purchased Water Alternative - 30 mgd

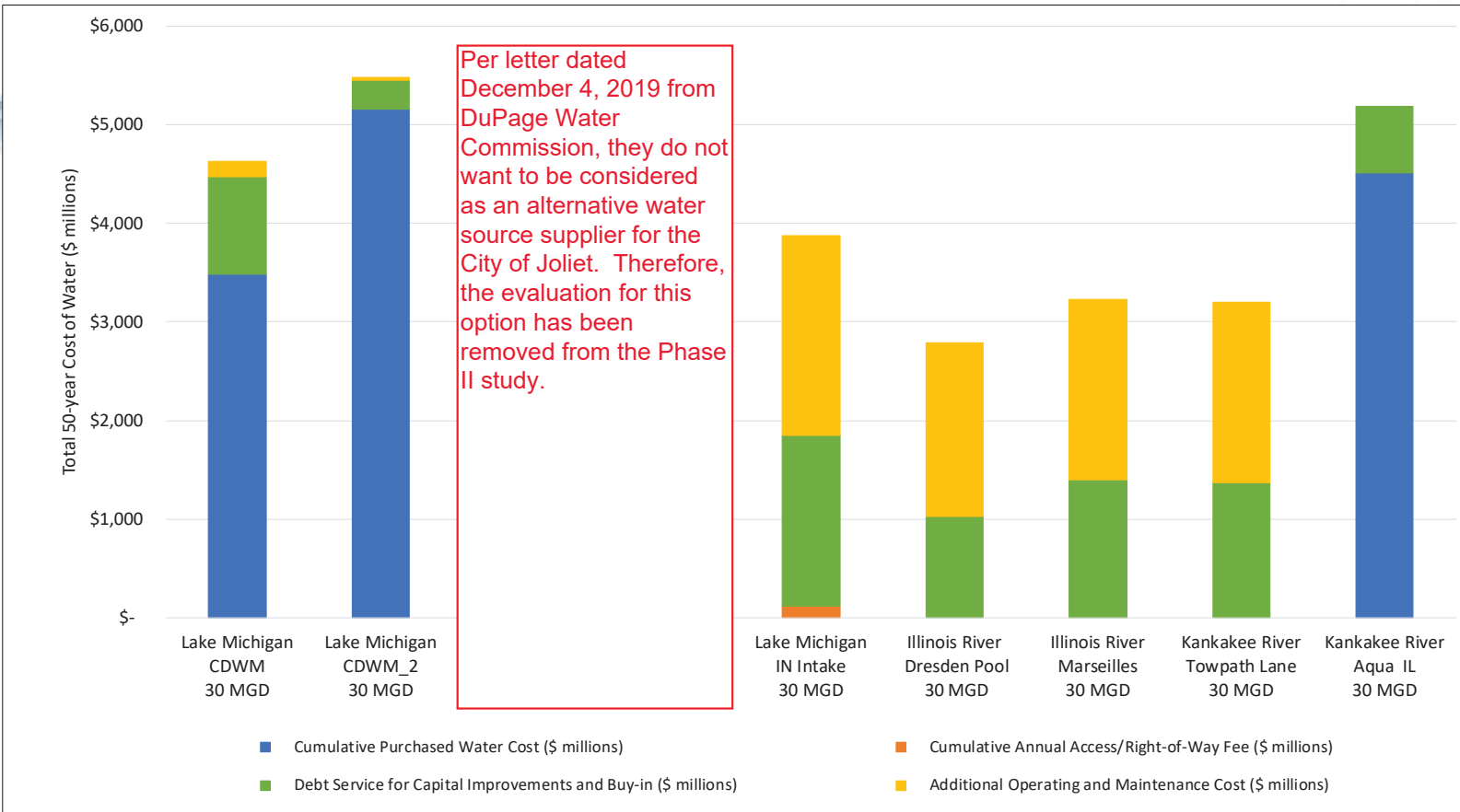


New Water System Alternative - 30 mgd



- Key parameters in calculation of Total Cost include:
 - anticipated future purchased water cost
 - anticipated future O&M expenditures

50-year Total Cost of Water (30 MGD)



Non-Cost Decision Factors



- Raw Water Quality
- Sustainability/Water Quantity
- Implementation Risk
- Operation & Maintenance
- Control (Governance)

Raw Water Quality



Considerations:

- What is the quality and variability of the raw water source for this alternative?
- No water is pure – contaminants exist in all alternative raw water sources
- IEPA has reviewed and stated that there are no red flags that would exclude any of the raw water sources or require advanced treatment
- Lake Michigan raw water quality is high and fairly consistent (easier to treat)
- Southern end of Lake Michigan is shallower and more susceptible to sediment (longer intake for New Indiana Intake option)
- River water sources have variable water quality (more difficult to treat)
 - Online well back-up source to maintain water quality during river water upsets

Sustainability/Water Quantity



Considerations:

- Does the raw water source have sufficient quantity to supply not only Joliet but also the region?
- Can the water source/alternative be a regional solution?
- Are regional partners willing to participate?
- Illinois River quantity is sufficient for Joliet & region (with online back-up supply)
- Low flow conditions on Kankakee River limit its ability to be a regional solution, would require water use restrictions during drought times and would limit Joliet's future growth
- Aqua Illinois' grandfathered IDNR permit capacity (80 MGD) limits its ability to be a regional solution and could limit Joliet's future growth
- Lake Michigan water quantity and available allocation is sufficient for Joliet & the region

Per letter dated December 4, 2019 from DuPage Water Commission, they do not want to be considered as an alternative water source supplier for the City of Joliet. Therefore, the evaluation for this option has been removed from the Phase II study.

Implementation Risk



Per letter dated December 4, 2019 from DuPage Water Commission, they do not want to be considered as an alternative water source supplier for the City of Joliet. Therefore, the evaluation for this option has been removed from the Phase II study.

Considerations:

- Is the alternative easy to implement (schedule, permitting, magnitude of improvements)?
- All alternatives can be constructed by 2030
- Construction timeframe of 5 years (2025 to 2030) assumed for all alternatives to maximize SRF funding
- Corrosion control study required for all alternatives
- Purchased water alternatives (Aqua, ~~DMC~~, & CDWM) are less complex – no treatment construction/permitting
- Alternatives with WTPs (Rivers & New Indiana Intake) are more complex – treatment construction/permitting
- Additional sampling required for Illinois River Alternative
- More complexity with crossing state lines (New Indiana Intake)

Operation & Maintenance



Per letter dated December 4, 2019 from DuPage Water Commission, they do not want to be considered as an alternative water source supplier for the City of Joliet. Therefore, the evaluation for this option has been removed from the Phase II study.

Considerations:

- Does the alternative require significant O&M responsibility or does the alternative require O&M for improvements outside City limits?
- More responsibility means more liability – if Joliet owns & operates facilities and there is an issue, it is Joliet's issue
- Two of the Lake Michigan Water alternatives (██████ and CDWM) have options where the supplier would construct, own, operate and maintain the transmission pipeline – less O&M for Joliet
- All other alternatives have varying levels of improvements outside City limits
- Alternatives with WTPs (Illinois River, Kankakee River and New Indiana Intake) have significant O&M responsibility for Joliet
- None of the sources are close to the City – Supply points range from 13 miles to 42 miles from Joliet



Control (Governance)

Considerations:

- Does the alternative give the City control of their water source?
- Limited/No control with purchased water alternatives (Kankakee River – Aqua Illinois, ~~Lake Michigan Water - DWE~~ and Lake Michigan Water - CDWM)

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- New water source alternatives (Illinois River, Kankakee River – Towpath Lane and Lake Michigan Water – New Indiana Intake) give the City total control – schedule, partnering, selling water & setting rates



- No perfect alternative
- We have a lot of information, but are still at a conceptual stage
- There are unknowns – recommend selecting a primary alternative as well as a secondary alternative to pursue
- A decision still needs to be made



Alternative Selection



- Based on the evaluation of Phase II decision criteria, some alternatives are no longer recommended for implementation:
 - Low flow conditions on Kankakee River limit its ability to be a regional solution, would require water use restrictions during drought times and would limit Joliet's future growth
 - Aqua Illinois' grandfathered IDNR permit capacity (80 MGD) limits its ability to be a regional solution and could limit Joliet's future growth

Per letter dated December 4, 2019 from DuPage Water Commission, they do not want to be considered as an alternative water source supplier for the City of Joliet. Therefore, the evaluation for this option has been removed from the Phase II study.



Alternative Selection (continued)

Technical Decision Considerations



- 3 Remaining Alternatives (Illinois River, Lake Michigan – CDWM and Lake Michigan – New Indiana Intake) vary in Cost, Raw Water Quality, Sustainability/Water Quantity, O&M and Control
 - Total cost lowest with Illinois River and highest with Lake Michigan – New Indiana Intake based on increase in 2030 average monthly residential water bill, however, looking at 50 year total water cost, the lowest is Illinois River and the highest is Lake Michigan Water - CDWM
 - Highest raw water quality with Lake Michigan – CDWM and New Indiana Intake
 - All 3 have sufficient water quantity to be regional solutions
 - Illinois River and Lake Michigan – New Indiana Intake have higher implementation risk due to additional sampling requirements and added permitting complexity respectively
 - O&M Responsibility highest with Lake Michigan – New Indiana Intake and lowest with Lake Michigan - CDWM
 - Total control with Illinois River and Lake Michigan – New Indiana Intake

How do we make a decision?



- Each alternative is very different, but we have incorporated components to provide a consistent basis for comparison
- Several considerations – more than just cost
- Several non-technical factors – public perception & acceptance of raw water source, regional partner interest in certain water sources and perception of water suppliers
- Can use a weighted decision matrix tool if you need help



Group Q&A Session

Phase II Water Source Alternatives



Tool: Weighted Decision Matrix

Alternative Water Source Study

Weighted Decision Matrix



- Tool to help City Council, Environmental Commission and public to decide for themselves which alternative they prefer
- You do not have to use it
- It will not be turned in

Weighted Decision Matrix



Input % for each consideration

Total Cost	Raw Water Quality	Sustainability/Water Quantity	Implementation Risk	Operation & Maintenance	Control
What alternative has the least total cost?	What is quality and variability of the raw water source for this alternative?	Does the raw water source have sufficient quantity to supply not only Joliet, but also the region?	Will this alternative be easy to implement (schedule, permitting, magnitude of improvements)?	Does this alternative require significant O&M responsibility or O&M required for improvements outside of the City?	For this alternative, does the City maintain complete control of their water source?
1 - Highest Total Water Cost	1 - Raw water quality is variable and can have upsets, making it more difficult to treat	1 - No, it cannot supply the City of Joliet's demands	1 - This alternative is risky to implement due to schedule, permitting or magnitude of improvements	1 - Yes, there is significant O&M responsibility or O&M for significant improvements outside of the City	1 - No, the City does not maintain control
5 - Lowest Total Water Cost	5 - Raw water quality is more consistent and has less upsets, which makes it easier to treat	5 - Yes, it has more than sufficient quantity to supply the City of Joliet and the region.	5 - While none of the alternatives are easy, this alternative has the least amount of risk to implement	5 - O&M responsibility for this alternative is low and O&M is not required for improvements outside the City	5 - Yes, the City maintains complete control
Weight 17%	Weight 17%	Weight 17%	Weight 17%	Weight 16%	Weight 16%

Adds up to 100%? 100%

Alternative	Source	Supply Agency(s)	Value	Weighted Value	Value	Weighted Value	Value	Weighted Value	Value	Weighted Value	Value	Weighted Value	Value	Weighted Value	Weighted Total Value
ILLINOIS RIVER - DRESDEN POOL	Illinois River	--	5	0.85	2	0.34	4	0.68	1	0.17	3	0.48	5	0.8	3.32
ILLINOIS RIVER - MARSEILLES POOL	Illinois River	--	4	0.68	2	0.34	4	0.68	1	0.17	2	0.32	5	0.8	2.99
KANKAKEE RIVER - TOWPATH LANE	Kankakee River	--	4	0.68	3	0.51	2	0.34	3	0.51	3	0.48	5	0.8	3.32
KANKAKEE RIVER - AQUA ILLINOIS	Kankakee River	Aqua Illinois	2	0.34	3	0.51	3	0.51	3	0.51	4	0.64	1	0.16	2.67
LAKE MICHIGAN WATER - DUPAGE WATER COMMISSION (City Owned Pipeline)	Lake Michigan	City of Chicago, DuPage Water Commission	1	0.17	5	0.85	2	0.34	4	0.68	4	0.64	2	0.32	3

Per letter dated December 4, 2019 from DuPage Water Commission, they do not want to be considered as an alternative water source supplier for the City of Joliet. Therefore, the evaluation for this option has been removed from the Phase II study.

LAKE MICHIGAN WATER - CHICAGO DEPARTMENT OF WATER MANAGEMENT (City Owned Pipeline)	Lake Michigan	City of Chicago	2	0.34	5	0.85	5	0.85	4	0.68	4	0.64	2	0.32	3.68
LAKE MICHIGAN WATER - CHICAGO DEPARTMENT OF WATER MANAGEMENT (CDWM Owned Pipeline)	Lake Michigan	City of Chicago	2	0.34	5	0.85	5	0.85	5	0.85	5	0.8	2	0.32	4.01
LAKE MICHIGAN WATER - NEW INDIANA INTAKE	Lake Michigan	--	2	0.34	4	0.68	5	0.85	2	0.34	1	0.16	5	0.8	3.17

Weighted Decision Matrix



Total Cost	Raw Water Quality	Sustainability/Water Quantity	Implementation Risk	Operation & Maintenance	Control
What alternative has the least total cost?	What is quality and variability of the raw water source for this alternative?	Does the raw water source have sufficient quantity to supply not only Joliet, but also the region?	Will this alternative be easy to implement (schedule, permitting, magnitude of improvements)?	Does this alternative require significant O&M responsibility or O&M required for improvements outside of the City?	For this alternative, does the City maintain complete control of their water source?
1 - Highest Total Water Cost	1 - Raw water quality is variable and can have upsets, making it more difficult to treat	1 - No, it cannot supply the City of Joliet's demands	1 - This alternative is risky to implement due to schedule, permitting or magnitude of improvements	1 - Yes, there is significant O&M responsibility or O&M for significant improvements outside of the City	1 - No, the City does not maintain control
5 - Lowest Total Water Cost	5 - Raw water quality is more consistent and has less upsets, which makes it easier to treat	5 - Yes, it has more than sufficient quantity to supply the City of Joliet and the region.	5 - While none of the alternatives are easy, this alternative has the least amount of risk to implement	5 - O&M responsibility for this alternative is low and O&M is not required for improvements outside the City	5 - Yes, the City maintains complete control
Weight	17%	Weight	17%	Weight	16%
Weight	17%	Weight	17%	Weight	16%

Adds up to 100%? 100%

Alternative	Source	Supply Agency(s)	Value	Weighted Value	Value	Weighted Value	Value	Weighted Value	Value	Weighted Value	Value	Weighted Value	Value	Weighted Value	Weighted Total Value
ILLINOIS RIVER - DRESDEN POOL	Illinois River	--	5	0.85	2	0.34	4	0.68	1	0.17	3	0.48	5	0.8	3.32
ILLINOIS RIVER - MARSEILLES POOL	Illinois River	--	4	0.68	2	0.34	4	0.68	1	0.17	2	0.32	5	0.8	2.99
KANKAKEE RIVER - TOWPATH LANE	Kankakee River	--	4	0.68	3	0.51	2	0.34	3	0.51	3	0.48	5	0.8	3.32
KANKAKEE RIVER - AQUA ILLINOIS	Kankakee River	Aqua Illinois	2	0.34	3	0.51	3	0.51	3	0.51	4	0.64	1	0.16	2.67
LAKE MICHIGAN WATER - DUPAGE WATER COMMISSION (City Owned Pipeline)	Lake Michigan	City of Chicago, DuPage Water Commission	1	0.17	5	0.85	2	0.34	4	0.68	4	0.64	2	0.32	3

Verify that total adds up to 100% - cell will be red if not 100%

Per letter dated December 4, 2019 from DuPage Water Commission, they do not want to be considered as an alternative water source supplier for the City of Joliet. Therefore, the evaluation for this option has been removed from the Phase II study.

LAKE MICHIGAN WATER - CHICAGO DEPARTMENT OF WATER MANAGEMENT (City Owned Pipeline)	Lake Michigan	City of Chicago	2	0.34	5	0.85	5	0.85	4	0.68	4	0.64	2	0.32	3.68
LAKE MICHIGAN WATER - CHICAGO DEPARTMENT OF WATER MANAGEMENT (CDWM Owned Pipeline)	Lake Michigan	City of Chicago	2	0.34	5	0.85	5	0.85	5	0.85	5	0.8	2	0.32	4.01
LAKE MICHIGAN WATER - NEW INDIANA INTAKE	Lake Michigan	--	2	0.34	4	0.68	5	0.85	2	0.34	1	0.16	5	0.8	3.17

Weighted Decision Matrix



Total Cost	Raw Water Quality	Sustainability/Water Quantity	Implementation Risk	Operation & Maintenance	Control
What alternative has the least total cost?	What is quality and variability of the raw water source for this alternative?	Does the raw water source have sufficient quantity to supply not only Joliet, but also the region?	Will this alternative be easy to implement (schedule, permitting, magnitude of improvements)?	Does this alternative require significant O&M responsibility or O&M required for improvements outside of the City?	For this alternative, does the City maintain complete control of their water source?
1 - Highest Total Water Cost	1 - Raw water quality is variable and can have upsets, making it more difficult to treat	1 - No, it cannot supply the City of Joliet's demands	1 - This alternative is risky to implement due to schedule, permitting or magnitude of improvements	1 - Yes, there is significant O&M responsibility or O&M for significant improvements outside of the City	1 - No, the City does not maintain control
5 - Lowest Total Water Cost	5 - Raw water quality is more consistent and has less upsets, which makes it easier to treat	5 - Yes, it has more than sufficient quantity to supply the City of Joliet and the region.	5 - While none of the alternatives are easy, this alternative has the least amount of risk to implement	5 - O&M responsibility for this alternative is low and O&M is not required for improvements outside the City	5 - Yes, the City maintains complete control
Weight	17%	Weight	17%	Weight	16%
Weight	17%	Weight	17%	Weight	16%

Adds up to 100%

100%

Alternative	Source	Supply Agency(s)	Value	Weighted Value	Value	Weighted Value	Value	Weighted Value	Value	Weighted Value	Value	Weighted Value	Value	Weighted Value	Weighted Total Value
ILLINOIS RIVER - DRESDEN POOL	Illinois River	--	5	0.85	2	0.34	4	0.68	1	0.17	3	0.48	5	0.8	3.32
ILLINOIS RIVER - MARSEILLES POOL	Illinois River	--	4	0.68	2	0.34	4	0.68	1	0.17	2	0.32	5	0.8	2.99
KANKAKEE RIVER - TOWPATH LANE	Kankakee River	--	4	0.68	3	0.51	2	0.34	3	0.51	3	0.48	5	0.8	3.32
KANKAKEE RIVER - AQUA ILLINOIS	Kankakee River	Aqua Illinois	2	0.34	3	0.51	3	0.51	3	0.51	4	0.64	1	0.16	2.67
LAKE MICHIGAN WATER - DUPAGE WATER COMMISSION (City Owned Pipeline)	Lake Michigan	City of Chicago, DuPage Water Commission	1	0.17	5	0.85	2	0.34	4	0.68	4	0.64	2	0.32	3
Per letter dated December 4, 2019 from DuPage Water Commission, they do not want to be considered as an alternative water source supplier for the City of Joliet. Therefore, the evaluation for this option has been removed from the Phase II study.															
LAKE MICHIGAN WATER - CHICAGO DEPARTMENT OF WATER MANAGEMENT (City Owned Pipeline)	Lake Michigan	City of Chicago	2	0.34	5	0.85	5	0.85	4	0.68	4	0.64	2	0.32	3.68
LAKE MICHIGAN WATER - CHICAGO DEPARTMENT OF WATER MANAGEMENT (CDWM Owned Pipeline)	Lake Michigan	City of Chicago	2	0.34	5	0.85	5	0.85	5	0.85	5	0.8	2	0.32	4.01
LAKE MICHIGAN WATER - NEW INDIANA INTAKE	Lake Michigan	--	2	0.34	4	0.68	5	0.85	2	0.34	1	0.16	5	0.8	3.17

If "FALSE" appears in this column, then the total % does not add up to 100%

Weighted Decision Matrix



Total Cost	Raw Water Quality	Sustainability/Water Quantity	Implementation Risk	Operation & Maintenance	Control
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Weight	17%	Weight	17%	Weight	16%
Weight	17%	Weight	17%	Weight	16%

Adds up to 100%? 100%

Alternative	Source	Supply Agency(s)	Value	Weighted Value	Value	Weighted Value	Value	Weighted Value	Value	Weighted Value	Value	Weighted Value	Value	Weighted Value	Weighted Total Value
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Weighted Total Value will calculate automatically. The alternative with the highest weighted total value is your preferred alternative.



Small Group Discussions

Small Group Discussions



- The public is welcome to participate in small group discussions
- For Small Group Discussions:
 - Focus will be helping group members to rank decision criteria and show how to use the weighted decision matrix tool
 - City Staff and Project Team members will be present to answer follow-up questions on study results



Alternative Water Source Selection Schedule and Next Steps



Selection Schedule:

- ✓ Presentation of Phase II Study at Joint Workshop Meeting on November 13th (today)
- ✓ Public Forum on December 5th
- ✓ Environmental Commission makes recommendation at December 10th Meeting
- ✓ Alternative Water Source Selection at January 7th City Council Meeting



Post-Selection Next Steps (by end of 2020):

- ✓ Identify regional partners
- ✓ Develop funding strategy
- ✓ Negotiate with water suppliers (if needed for selected alternative)
- ✓ Selection of design engineering team
- ✓ Proceed with preliminary design of selected water source
 - ✓ Transmission main routing
 - ✓ Water facilities siting
- ✓ Begin Land Acquisition/Easements
- ✓ Meetings with regulatory agencies (IEPA, USEPA, IDNR, IDEM, etc.)



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Public Comments

www.rethinkwaterjoliet.org