



Alternative Water Source Program Public Service Committee Update

June 14, 2021

CITY COUNCIL & STAKEHOLDER COORDINATION



☐ City Council

- May 17, 2021
- August 17, 2021
- November 9, 2021*
- January 18, 2022 (IGA)
- April 5, 2022

* Workshop

☐ Finance Committee

- April 20, 2021
- September 21, 2021
- December 21, 2021

☐ Public Service Committee

- Informal Monthly Updates

☐ Stakeholder Meetings

- **June 17, 2021**
- October 2021 (Date TBD)
- February 2022 (Date TBD)



WATER AUDIT UPDATE

CALCULATING NON-REVENUE WATER



Water Losses = Water Supplied – Authorized Consumption

Non-Revenue Water = Water Losses + Unbilled Authorized Consumptions

Examples of Water Loss:

- Watermain Breaks
- Water Theft
- Meter Inaccuracies

Examples of Unbilled Authorized Consumption:

- Hydrant Flushing
- Street Sweepers

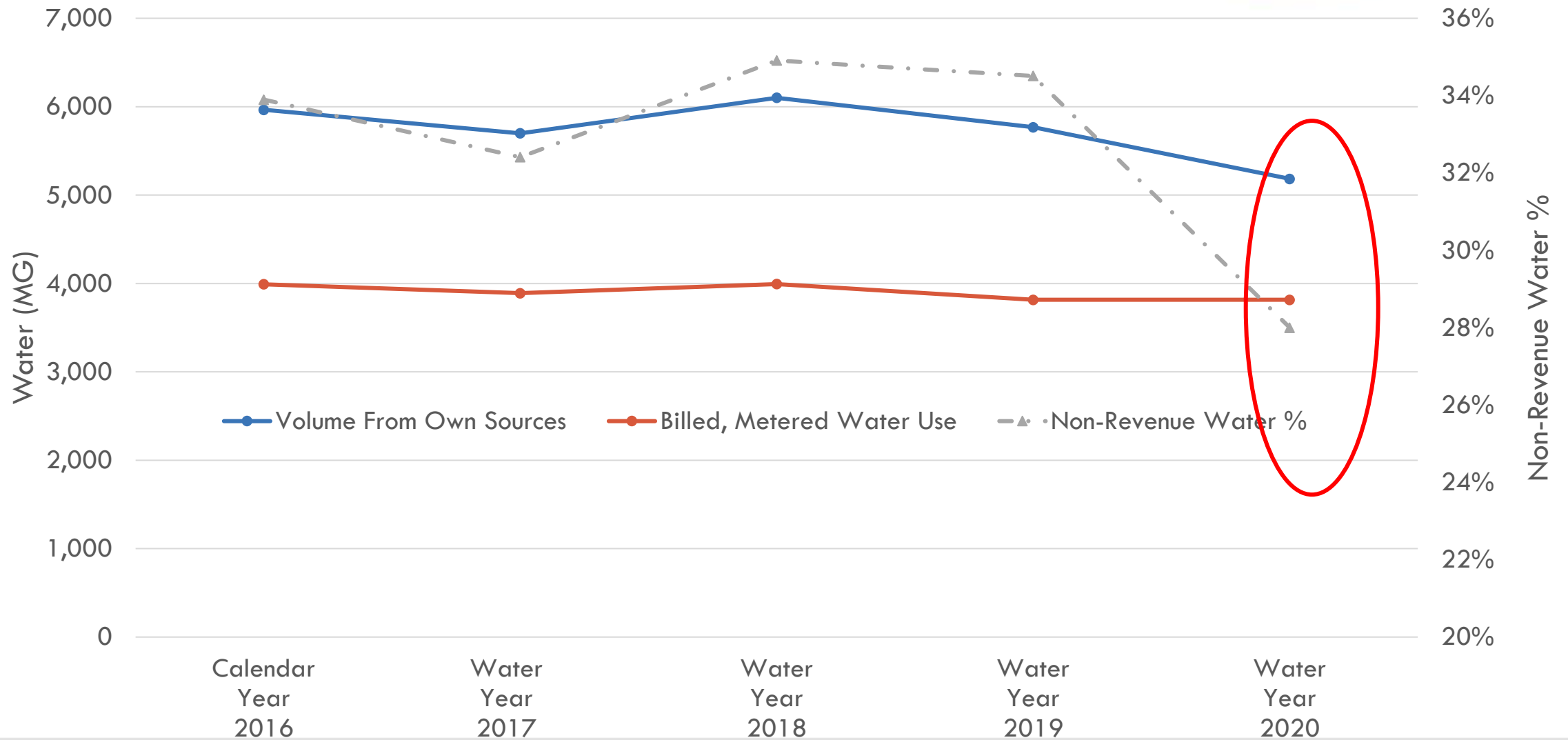
HISTORICAL COMPARISON



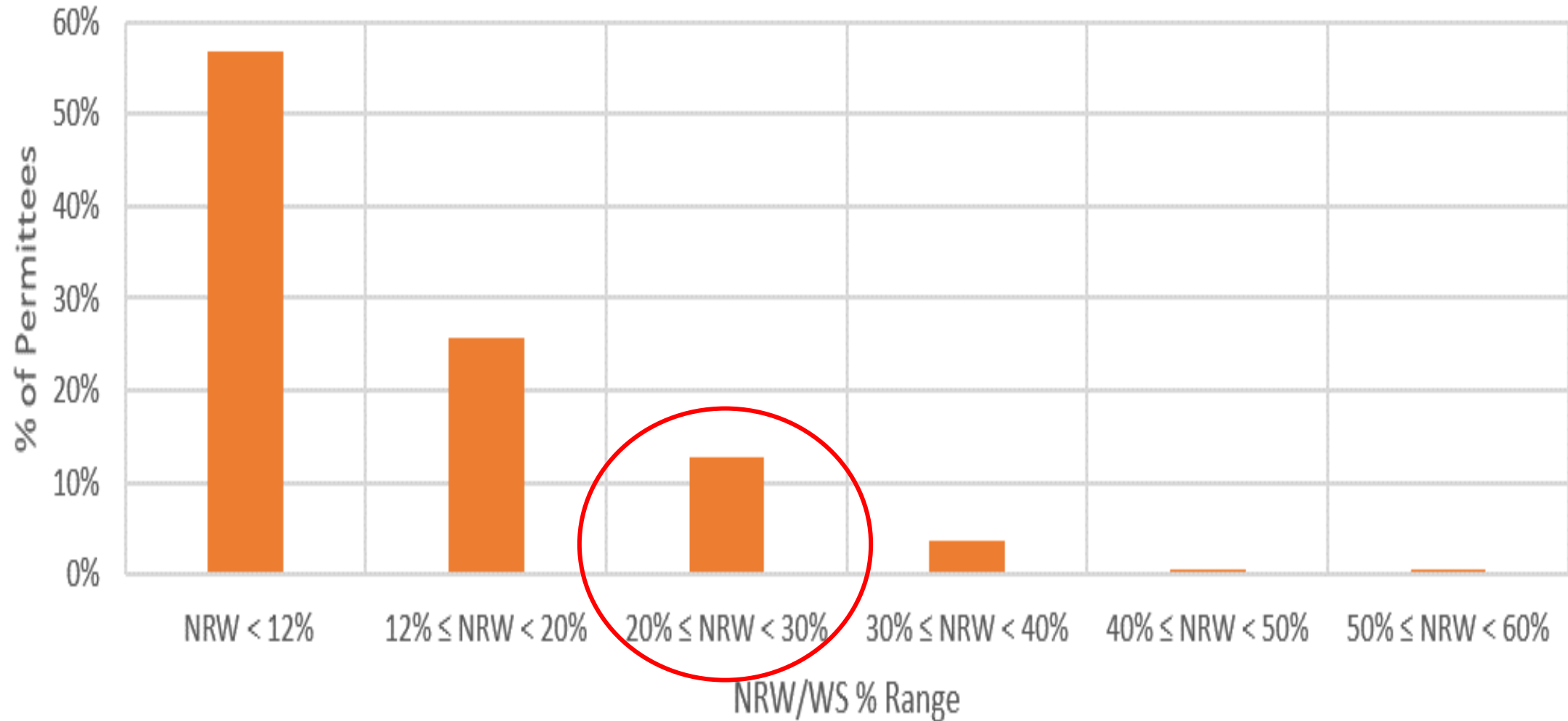
Water Audit Line Item	Unit	Calendar Year 2016	Water (Federal Fiscal) Year 2017	Water (Federal Fiscal) Year 2018	Water (Federal Fiscal) Year 2019	Water (Federal Fiscal) Year 2020
WATER SUPPLIED						
Volume From Own Sources	MG/Yr	5,964.83	5,698.51	6,100.45	5,766.87	5,183.51
Master Meter Correction	%	-1.68%	-1.62%	-1.35%	-1.62%	-2.03%
Corrected Volume From Own Resources	MG/Yr	6,065.10	5,790.83	6,182.88	5,860.39	5,288.60
Water Exported	MG/Yr	30.83	38.80	49.25	37.96	39.42
Export Meter Correction	%	-0.01%	-0.14%	-0.13%	-0.18%	0.31%
Corrected Volume of Exported Water	MG/Yr	30.83	38.74	49.19	37.89	39.55
WATER SUPPLIED - Total	MG/Yr	6,035.98	5,753.49	6,134.69	5,823.90	5,251.47
AUTHORIZED CONSUMPTION						
Billed Metered	MG/Yr	3990.63	3889.21	3993.39	3814.57	3778.68
Billed Unmetered	MG/Yr	0	0	0	0	0
Unbilled Metered	MG/Yr	2.89	2.89	4.61	1.16	30.75
Unbilled Unmetered	MG/Yr	34.55	34.55	34.55	34.55	8.52
AUTHORIZED CONSUMPTION - Total	MG/Yr	4,028.07	3,926.65	4,032.56	3,850.28	3,817.95
NON-REVENUE WATER						
Water Supplied - Total	MG/Yr	6,035.98	5,753.49	6,134.69	5,823.90	5,251.47
Less Authorized Consumption - Total	MG/Yr	-4,028.07	-3,926.65	-4,032.56	-3,850.28	-3,817.95
WATER LOSSES - Total	MG/Yr	2007.91	1826.84	2102.13	1973.62	1433.52
Plus Unbilled Authorized Consumption (Unbilled Metered and Metered Water)	MG/Yr	37.44	37.44	39.17	35.72	39.27
NON-REVENUE WATER-Total	MG/Yr	2045.35	1864.28	2141.30	2009.33	1472.79
NON-REVENUE WATER %	%	33.9%	32.4%	34.9%	34.5%	28.0%

**Water Year
2020
NRW = 28.0%**

HISTORICAL COMPARISON



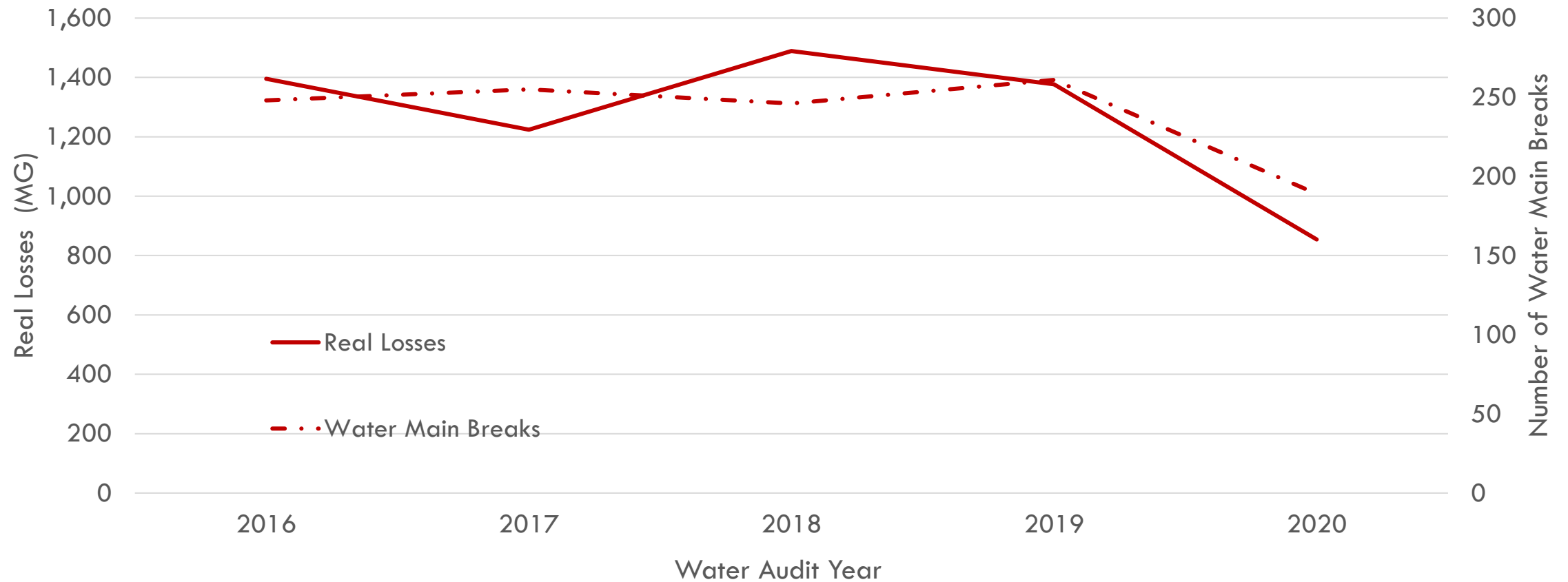
NRW OF LAKE MICHIGAN USERS



PERFORMANCE INDICATORS



Real Losses vs Water Main Breaks



NRW REDUCTION PLAN



Apparent Losses	
Short-Term	Anticipated Deadline
Annual water loss audit completion	On-going
Flowchart the customer billing process for various users (residential, commercial, exported)	2021
Initiate an Education and Outreach Program to City Staff Regarding Water Efficiency and Water Loss Reduction Strategies for Operations	Complete
Provide fire hydrant meters to all Public Works staff to better track water used by City Staff	2021
Implement bulk water stations	2021
Perform bench testing on customer meters for accuracy	2021
Audit billing records and visit sites/customers to determine potential missed billings	On-going
Implement new ordinance/procedures to meter all construction related water use	Complete
Implement Sensus Analytics at Joint meeting(s) with Water Staff, Billing, and meter manufacturer	Complete
Request the third-party contractor who performs customer meter testing to provide a summary spreadsheet in Excel of the meters, size, and meter accuracy	On-going
Prepare and implement illegal water use policies/ordinances	On-going
Exported Water Users Improvement	
Install meter(s) for SEJSD	Complete
Inventory Customer Meters and Develop a Customer Meter Change-out Program	2021
Long-Term	
Implement improvements based on discovered AMR capabilities	TBD
Consider simplifying rate structure to minimize potential billing errors	2025
Conduct exported water meter replacement programs	TBD

NRW REDUCTION PLAN



Real Losses		
Short-Term		Anticipated Deadline
	Conduct water main break analysis	Complete, Continue to Monitor
	Hydraulic analysis to review pressures	Complete, Continue to Monitor
	Leak detection (Annual)	On-going
	Increase water main replacement program based on NRW desired goals	2022
	Investigate the Potential of implementing District Metered Areas (DMAs) or, at a minimum, areas that could potentially just be monitored to better narrow down the locations of water loss.	Complete
Mid-Term		
	If applicable (once DMAs are reviewed), construct the necessary valves, meters, and distribution improvements to implement smaller metered areas or DMAs to better narrow down the location of the water loss.	2023
Long-Term		
	Monitor water main replacement rate and water reduction to determine impact on NRW and adjust accordingly	On-going

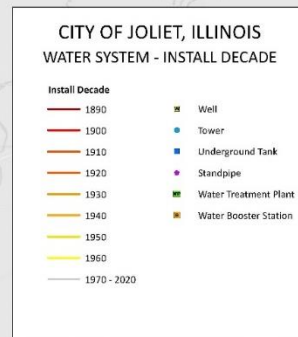
WATER MAIN REPLACEMENT



Water Main Replaced per Decade																
Project Year	1890	1900	1910	1920	1930	1940	1950	1960	1970	1980	1990	2000	2010	2020	Total (ft)	Total (miles)
2017	149	4,211	5,608	0	0	2,063	1,337	6,385	0	51	0	30	52	0	19,887	3.8
2018	0	0	0	0	0	381	15,886	598	0	0	112	308	0	0	17,285	3.3
2019	0	161	0	1,420	0	14,416	17,026	0	124	0	0	0	132	0	33,279	6.3
2020	0	0	0	0	0	0	24,451	3,462	0	1,200	0	0	0	0	29,113	5.5
2021	0	3,711	0	0	0	0	20,998	7,840	0	0	0	0	0	0	32,549	6.2
Total (ft)	149	8,083	5,608	1,420	0	16,860	79,698	18,286	124	1,251	112	338	184	0	132,112	
Total (miles)	0.0	1.5	1.1	0.3	0.0	3.2	15.1	3.5	0.0	0.2	0.0	0.1	0.0	0.0		25.0
Water Main To Be Replaced per Decade																
Project Year	1890	1900	1910	1920	1930	1940	1950	1960	1970	1980	1990	2000	2010	2020	Total (ft)	Total (miles)
Miles of Main	7.6	27.4	18.0	20.5	3.6	42.9	28.4	32.4	49.3	23.6	145.1	188.6	66.0	11.7	3,511,694	665.1
Target Replacement Rate (mi/yr)	0.8	3.1	2.0	2.3	0.4	4.8	4.1	3.8	-	-	-	-	-	-	-	-
Target Replacement Rate (ft/yr)	4,457	16,054	10,586	12,052	2,091	25,143	16,685	19,023	-	-	-	-	-	-	-	-
2022	1,700	13,100	10,600	12,100	2,100	27,000	23,800	20,000	0	2,000	0	0	0	0	112,400	21.3
2023	1,000	13,000	10,600	12,100	1,000	27,000	19,200	19,300	0	0	9,200	0	0	0	112,400	21.3
2024	2,000	15,400	10,400	12,100	2,100	27,000	21,600	21,800	0	0	0	0	0	0	112,400	21.3
2025	4,500	13,000	10,000	11,000	2,100	25,700	23,200	19,600	3,300	0	0	0	0	0	112,400	21.3
2026	4,500	15,200	8,000	11,000	2,100	27,000	25,500	19,100	0	0	0	0	0	0	112,400	21.3
2027	3,000	11,300	11,000	12,500	2,100	27,000	23,500	20,000	2,000	0	0	0	0	0	112,400	21.3
2028	5,000	16,900	11,000	15,000	2,100	27,000	13,400	20,000	2,000	0	0	0	0	0	112,400	21.3
2029	7,300	24,000	11,000	17,000	2,100	27,000		20,000	4,000	0	0	0	0	0	112,400	21.3
2030	11,100	22,600	12,700	5,700	3,100	11,600		11,400	34,200	0	0	0	0	0	112,400	21.3
Total (ft)	40,100	144,500	95,300	108,500	18,800	226,300	150,200	171,200	45,500	2,000	9,200	0	0	0	1,011,600	
Total (miles)	7.6	27.4	18.05	20.5	3.6	42.9	28.4	32.4	8.6	0.4	1.7	0.0	0.0	0.0		191.6

WATER MAIN REPLACEMENT

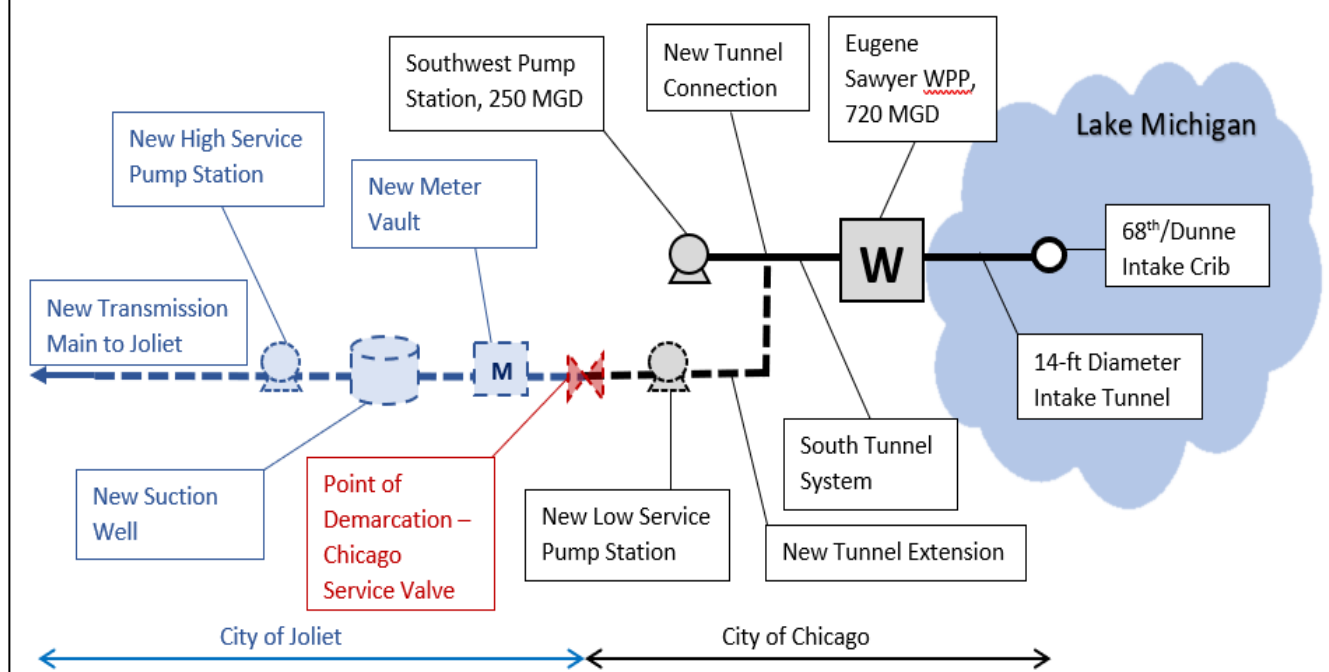
Replacement of all water mains constructed prior to the 1970s at a rate of 20 miles and a cost of \$34 million annually over the next 8 years (2022 to 2030)



CHICAGO COORDINATION

CHICAGO CONNECTION FACILITIES

- Tunnel Connection
- Tunnel Extension
- Low Service Pump Station
- Chicago Service Valve
- Meter Vault
- Suction Well
- High Service Pump Station





SOUTHWEST PUMP STATION/DURKIN PARK SITE



CHICAGO ENGINEERING COORDINATION



- **Meeting every week** – one week on development of Final Water Supply Agreement and other week on technical coordination for Chicago Connection Facilities
- **Survey** completed at Southwest Pump Station/Durkin Park Site
- **Geotechnical investigation** planned to start this month
- **IGA** between **Chicago and Chicago Park District** will be introduced to Chicago City Council on June 23rd
- **Meetings have been held** with CDOT, Chicago Stormwater, Chicago Department of Building, Chicago Planning and Development and Chicago and Chicago Security

CHICAGO SITE VISITS



- Project Team designing proposed facilities at **Southwest Pump Station/Durkin Park** conducted site visit on May 21st
- Project Team currently completing **comprehensive audit** of Chicago 2018 and 2019 cost of service studies
- Cost of service comprehensive audit **site visit** held June 9th and June 10th and included the following sites:
 - 68th/Dunne Crib
 - Eugene Sawyer Water Purification Plant
 - Jardine Water Purification Plant Laboratory Facilities (that performs testing for Eugene Sawyer Water Purification Plant)

Thank you.



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 RETHINKWATERJOLIET.ORG

