QMS Review and Provision of Infrastructure Report

A copy of this report, once completed, is to be forwarded to the Owner.

Date of Review	Tuesday August 29, 2023	
Review Cycle	Sep 2022-Aug 2023	
Drinking Water Systems Included	☒ Alexandria DWS	☒ Glen Robertson DWS

Infrastructure Review Participants	
Name	**Signature**
Tim Wright	
Dean McDonald	
Angela Cullen	
Roch Seguin	
Jacob Rheaume	

Conclusions and Recommendations *(attach any supporting documents and records)*

- No source shortfalls or capacity issues at this point for both Glen Robertson and Alexandria
- No major changes to risk or processes for both systems
- System growth
  - No major expansion to system planned in the next year
  - Processes and standards being created at County Level, to add additional TWP requirements
  - Other limiting factors such as wastewater system capacities and servicing areas shortfall
- Infrastructure refurbish/replacement in WTP/Distribution
  - Planned equipment repair/refurbishment
  - Planned watermain replacement program in Alexandria
  - Planned future work towards Alexandria on-going water loss
  - Maxville Water Project follow-up requirements (to be determined)

Discussion Item	Notes, Comments
1. Purpose Review	• discuss rational and reasons for review
2. Agenda	• review topics to be discussed
3. Growth	• Limited to no growth in DWS to date – EVB mapping for future development, Alx done/Max being developed. ▪ but no service agreements to date – Alx limiting factors: pump stns needs, force main limitations, lagoon capacity, treatment decline under ice cover; lack of industry/opportunities, – Max limiting factors: pump stn needs, lagoon capacity; lack of industry/opportunities – Gln limiting factors: well capacity; lack of industry/opportunities • Maxville Water – 34 residents still on flat rate and not inspected to date ▪ to determine next steps on connections • as unconfirmed connections are paying flat rate, proposed to submit listing of residences to Building Department to monitor for sale of residence • a TWP condition of residence sale is meter connection through lawyers report/inquiry which can be tracked through Building/Planning • Growth Tools/Mechanisms/Processes – To be formalized on management side, currently large developer submits engineering plans with hydraulic calculations which is reviewed through third-party consulting hydraulic model ▪ results of modelling and comments from environmental service manager are discussed with contractor and all issues must be addressed before service agreements are approved – Counties are working on standardized construction specs for all municipalities for large scale project or multi-residential ▪ to ensure ECA requirements are added as an appendix or as a condition to any applicable projects
4. Input from Public Planning Departments	• Population Growth: – SDG Study Draft complete (growth forecasting) ▪ projected 0.5% increase annually (includes pre-planned development) ▪ expect steady employment and population growth ▪ North Glengarry does not have any deficient land needs to support or promote growth – No specific area targeted for expansion at this time ▪ limiting factors include current sewage infrastructure/lagoon capacity ▪ not all areas within village boundaries are serviceable • Projects in Planning Stages – IHA development: no movement due to sanitary connection, but they have submitted plans for which are currently under review.

Discussion Item	Notes, Comments
	– Maxville Subdivision: no movement all preliminary discussions layout development – McDougald St Muti-Residential: site development only, no service agreement to date (drawings are being peer reviewed) – Other multi-phase projects or large residential: no movement ▪ East Boundary/St James Multi-unit: no service agreement to date ▪ Cnty 22/Carr St East: inquiry for sub-division development, land sales required so no imminent project expected ▪ Elgin St West: inquiry for low-income apartment/multi-story ▪ Bishop/Maple: inquiry for development ▪ West Boundary/Front: inquiry for multi-storey building
5. Previous Outcomes from last Review and Provision of Infrastructure Report	• No source shortfalls or capacity issues to not in Alexandria and Glen Roberston – reviewed various studies from 2003-2011 • No major changes to risk levels in Alexandria and Glen Robertson • System Growth – No major expansion to system planned in the next year – Other limiting factors such as wastewater system capacities • Plans are in place to maintain or refurbish areas in WTP/Distribution – Equipment in need of repair/refurbishment – Watermain relining program – Water meter replacement (Glen Robertson) – Capital or Major Projects • Concerns – questions if Management Meeting can incorporate items from various reviews to ensure more communication – to work at delegating tasks to ensure task completion – previous budgeting forecasting model to be evaluating for usefulness • Outstanding Issues – To create processes for large expansion where Waterworks Dept not installing water mains (eg: subdivision) but as per chief building inspector counties are working on county wide plan – questions about adjusting the management meeting structure to include QMS elements
6. Maintenance records (and outcomes of QMS SYS-P4)	• Maintenance programs are intact as per design – schedules and tracking forms are in good shape – Determined Roch is now in control of updates and version codes • To ensure work is completed as per schedule – issues with staff change over, new operators are gaining experience which should alleviate some of issues (time/knowledge) – to ensure deficiency follow-up (Roch) – external contracted maintenance work drifting from original dates, this may be a concern for achieving annual requirements • Documentation – some duplication of work form eRIS and Access E11 ✓Roch determined proper work flow, to ensure operational continue to follow processes

Discussion Item	Notes, Comments
	• Concerns – Alx: to start equipment indexing; pro-active equipment replacement; elevated water loss; concern about completed construction documentation; unresolved equipment deficiencies – Gln: coupling leak on piping; mineral deposits in well and potential impact on well pump; intermittent chlorine pump operating issues (P2); intermittent system flows
7. New regulatory requirements	No regulatory changes to note
8. Compliance inspection reports	• MECP Inspections (September 8, 2022) – Alx DWS: 100%, no issues identified – Gln DWS: 100%, no issues identified • QMS Audits & Conformance Status – Internal: Oct 28, 2022 ▪ 1 Non-Conformance (internal audit) ▪ 10 OFI (transferred to Action Item Tracking QMS SYS-T3) ▪ Next scheduled Sep 21/Oct 10 – External: Oct 6, 2022 / Dec 1, 2022 ▪ Surveillance: Mj Non-Conformance (Multiple Issues-Resolved Dec 1) ▪ Re-Accreditation: Mn Non-Conformance (Construction Reports-Resolved Jan 31) ▪ Next scheduled Nov 28, 2023
9. Staff input	• 2023 Capital Program Update (Tim/Dean/Roch to summarize) – Alx Intake Dyke: Completed August, ▪ waiting for final report and CCTV footage – Alx WTP VFD Replacement: ▪ ETA for receipt was cahgned from Sept 2023 to Feb 2024 ▪ Other option would be to source new equipment from different manufacturer – Alx WTP Cl2 Gas Switch Replacement ▪ moved to 2024, ▪ complete system refurbishment no planned versus minor equipment replacement – Valve and Hydrant Replacement: ▪ Dominion St S/Peel St E completed for future main replacement (4) ▪ construction planned for Thursday Aug 31 for remaining valves – Glen Meter Replacement: 21 changed, 17 outstanding – Glen WTP Building Expansion: engineering/design to be completed (2023); to add well casing cleaning to project specs – North Glengarry Master Plan (10yr Capital Plan) ▪ EVB project, progressing, report due Oct 31, 2023 – Cancelled Project: funds re-allocated (Flow metering and Watermain relining)

Discussion Item	Notes, Comments
	• 2024 Proposed Capital Projects (Tim/Dean/Roch to summarize) – Dominion St Watermain Replacement 4" to 6" – Chlorine Switch Over Replacement (from 2023) – Infrastructure Locating Equipment ▪ to replace older equipment with more advanced, easier to use – Leak Survey in regard to water audit ▪ to discuss need in Water Trending ▪ triggered from elevated water loss through internal tracking, External Contractor report identified need for next step – Bulk Water Fill for contractors
	• 2024 Proposed Budget Requests (Operations Water Related Only) Water Treatment – chlorine analyzer replacement – electronic logbook expansion to performance logbooks (Alx WTP/Booster/Gln WTP/Water Towers) – DR3900 replacement (lab equipment day to day ops) – system certificate replacement (Gln DWS) Water Distribution – line post locating and indexing (Alx/Max) – electric submersible pump for construction sites – electronic hydrant meter – hydrant meter calibration program (to send in current meter) – signage/numbering for all hydrants and chambers (transmission main/Max) Other Items/Multi-System – vac trailer drum relining/refurbishment – vac trailer water pump – portable snow blower and trailer for remote station cleaning ▪ Max hydrant cleaning possibly working with Rds dept, Dean to reach out to Robbie (Tim to determine feasibility)
10. Flow data and trends	Flow Data and Trends • Alx/Max – Raw Water: ▪ slight drop in overall flows ▪ noted drop in daily flow after main break ▪ algae still visible in source water, microcystin sample on-going increases noted in raw water after Jun 27 but levels have started to drop ▪ dkye installation to help with sedimentation issues ▪ no significant changes in raw water noted → quality findings from various reports, → no major changes noted from operational monitoring – Treated Water: ▪ decrease in flows from previous years ▪ observed drop after main break repair ▪ process water slightly increased from previous year → no major changes noted from operational monitoring

Discussion Item	Notes, Comments
	– Distribution: ▪ water loss/water audit results and next steps ▪ quality discussion and trends → similar to previous years, degradation not as sever due to proactive flushing and monitoring techniques → noted minor increase in distribution turbidity May/Jun but levels leaving the WTP have decreased; no significant impact to date levels are still well below limits • Gln – Raw Water: ▪ flows are consistent with previous years and seasonal variations, minor increase observed ▪ improved trending and monitoring due to SCADA ▪ minor fluctuations in TDS/UVT – Treated Water: ▪ improved trending and monitoring due to SCADA ▪ minor fluctuations in CT/pH – Distribution: ▪ Water loss/water audit results ▪ quality discussion and trends → similar to previous year trending, degradation not as severe → consumption minor increase from year to year
11. Other items (describe)	Risk Assessments: • 36mth: completed 2022; next review 2025 • Annual: completed July 2023, no issues identified Action Items: • Open Items: highlights to open items ▪ Bst Stn generator, new contractor looking into repair of possible leak ▪ Easten Welding looking at Gln WTP leak and singer valve replacement options ▪ noted that basin 1 effluent valve defective not drain valve ▪ hydrant maintenance 25 hydrants completed to date (19 Max/6 Alx)
Other Notes • Comments/Questions/Concerns – Request to look into water loss for Alx and Maxville ▪ Angela to compare dist flow vs sewage flows ▪ to report showed non-revenu loss to determine if that included flushing values ▪ request to send Tim graphs for 2023 WTP Flows and Water Loss tracking – Angela to send draft Council Report for council update • Additional Source Information – Raisin Region Conservation Authority: 2022 Annual Report – Garry River Watershed Report: 2007	

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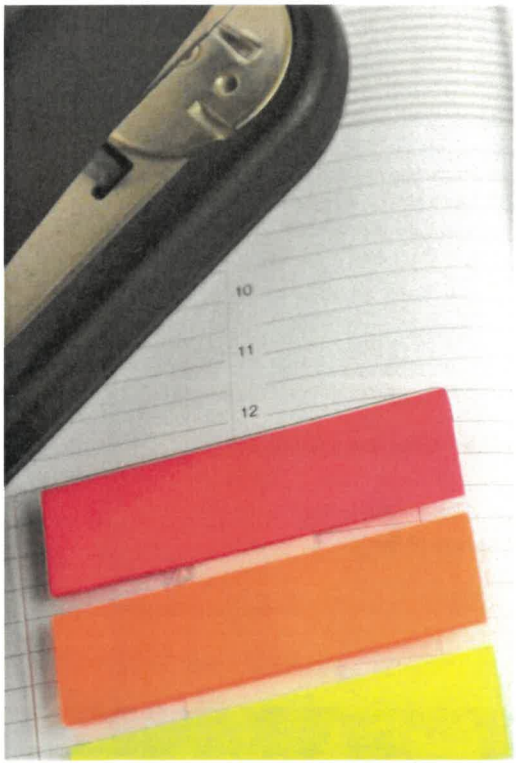

Purpose

Ensure effective communication in regard to operations and maintenance of drinking water system

Ensures a consistent and regular review of the drinking water systems conditions and capacities

To be used as a tool for budgeting and planning

- Report should be communicated to council through staff report by Director of Public Works
- to give council understanding and advanced warning of potential budget requests

Results should be discussed during annual budget reviews

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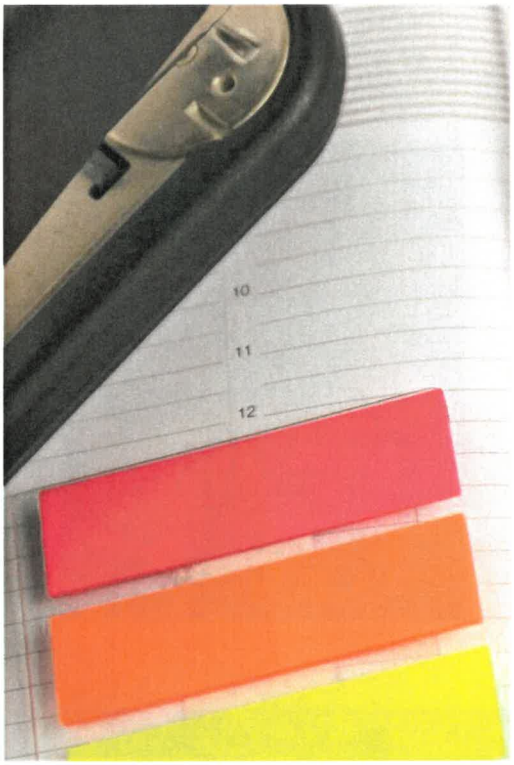

Agenda

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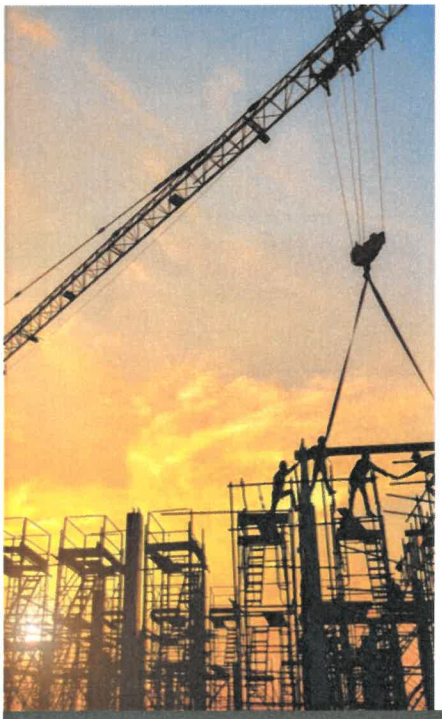

Growth

- No planned system expansion for 2024 for Alexandria/Maxville and Glen Robertson
  - EVB mapping for future development for Alx but no service agreement in place
  - EVB mapping for future development for Maxville is being developed
  - Limiting Growth Factors
    - Pump station issues/needs (SE Alx/NE Max)
    - Forcemain limitations (Bishop PS)
    - Lagoon capacity issues (Alx/Max)
    - Poor treatment under ice cover (Alx)
    - No connections on Transmission Main due to residual degradation
    - Lack of system redundancy/storage (Gln)
    - Lack of industry and opportunity, area more targeted for retirement vs working class
- Maxville Water
  - 34 residents on flat rate and not confirmed on water meter to date
  - 332 connection completed and inspected to date; 16 Exemptions
  - To determine next step to enforce connection
- Growth Tools/Mechanisms/Processes

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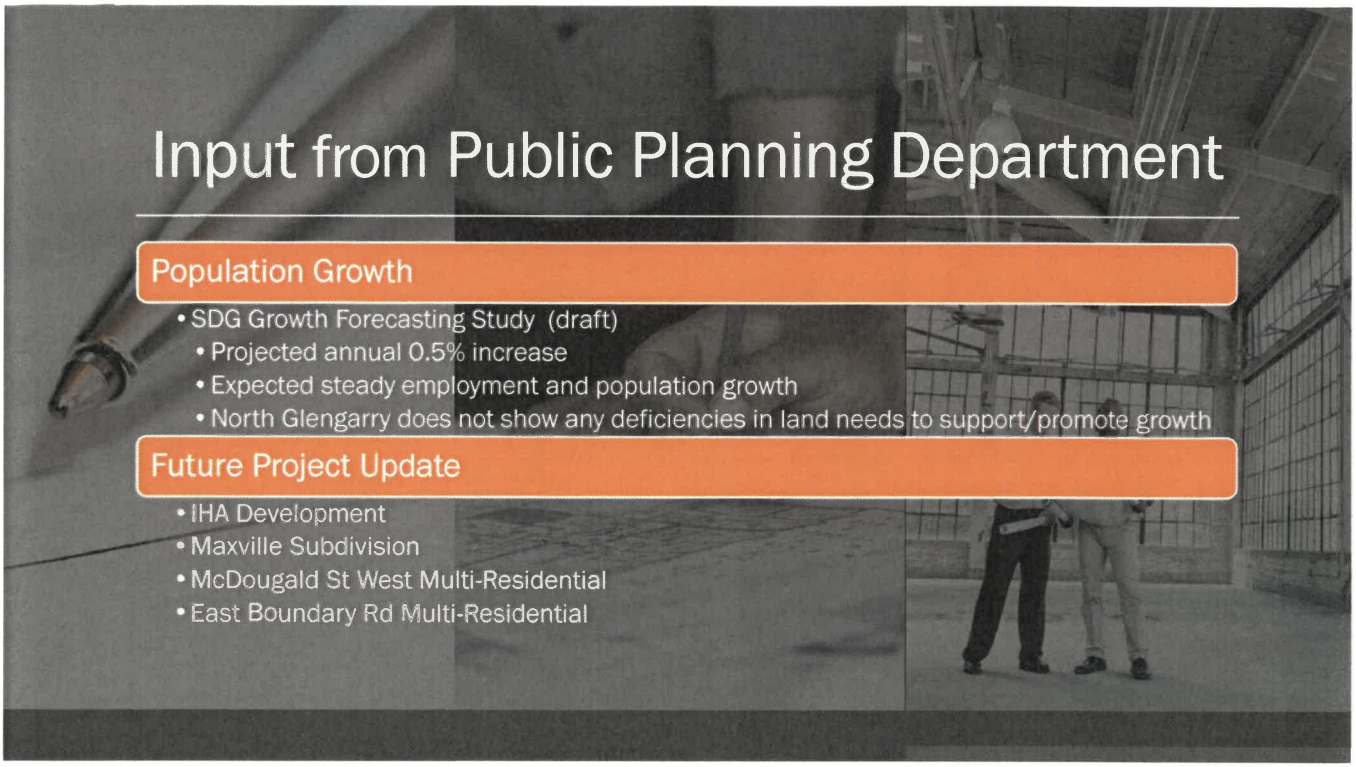

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Review and Provision of Infrastructure Previous Outcomes

PREVIOUS REVIEW DATE: SEPTEMBER 2022

- No raw water shortfalls or capacity issues identified in Alexandria and Glen Robertson
  - Review various studies RRCA/South Nation
- No major changes to system risk identified
  - 36mth & Annual Review
- No DWS system expansion planned or targeted areas
- No significant growth/development identified
  - Some potential future projects IHA/Maxville Subdivision
  - Limiting factors include wastewater system capacities
- Infrastructure maintenance is covered through various planning methods
  - Operational Budget/Capital Planning/Replacement Programs
- Concern about task delegation to ensure system coverage and task completion, minor changes to roles/responsibilities

OUTSTANDING ISSUES IDENTIFIED

- To create process/contractor package for large scale expansion where WW not installing works but will be handed back to WW for management.
  - As per Chief Building Inspector: Counties are creating set of county wide construction standards
- Suggested that management meeting structure change to incorporate other elements to ensure communication
  - No changes to date, can review structure to determine what can be included

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Maintenance and Infrastructure Review Previous Outcomes

REVIEW DATE: JUNE 2023

- Maintenance Programs are intact and operating as per design
  - Schedules and tracking forms are up to date
  - Roch to head changes and document control processes
- To ensure work is being completed as scheduled
  - Staff changeover not as frequent as previous cycles
  - Ensure equipment deficiencies followed-up is completed
  - External contractors annual targets are starting to drift, may cause issues with maintaining "annual" requirements
- Documentation
  - Some noted duplication of work, Operational staff prefer to record work in eRIS and Access E11 (flushing) as completed

OUTSTANDING ISSUES

- Alx DWS
  - Proactive equipment indexing and replacement scheduling
  - Elevated water loss/water audit
  - Construction documentation
  - Open defective equipment
- Gln DWS
  - Coupling leak on main discharge line
  - Mineral deposits in well casing and potential impacts on well pump operation
  - SHP2 intermittent dosing issues
  - Intermittent high flow issues

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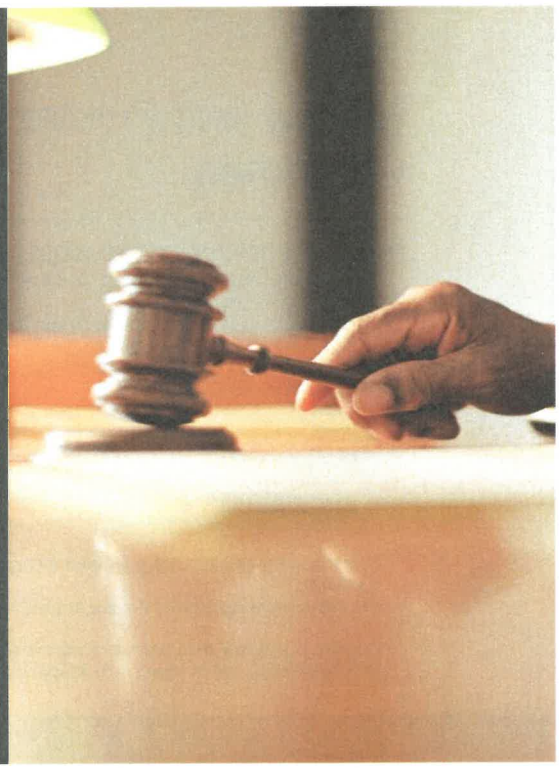
New Regulatory Requirements

Drinking Water

No regulatory changes that impact the system during this time frame



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Inspection/Audit Reports

MECP COMPLIANCE INSPECTION

- Alexandria DWS
  - September 8, 2022
    - 0 Non-Compliance or Best management Practices
  - 100% Risk Ranking
  - 2023: to be scheduled by Ministry Staff (assume Sep/Oct)
- Glen Robertson DWS
  - September 8, 2022
    - 0 Non-Compliance or Best management Practices
  - 100% Risk Ranking
  - 2023: to be scheduled by Ministry Staff (assume Sep/Oct)

DWQMS CONFORMANCE AUDITS

Internal Auditor: Ewen McDonald

- Oct 28, 2022: Internal Audit
  - 10 OFI (added to Best management Practices Listing) &
  - Non-Conformance (Internal Audit)
- 2023: Scheduled Oct 10

External Auditor: SAI Global

- Oct 6, 2022: Surveillance Audit
  - Mj Non-Conformance (Multiple Elements/Management Review/Internal Audits-Resolved Dec 1, 2022)
- Dec 1, 2022: Re-Accreditation Audit
  - Mn Non-Conformance (Construction Reports-Resolved Jan 31, 2023)
  - Re-Accreditation Jan 2023/Certificate June 2023
- 2023: Scheduled Nov 28, 2023

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Staff Input: 2023 Budget Summary

- Alx Intake Dyke Installation
- Alx WTP VFD Replacement
- Alx WTP Chlorine Gas Switch Over Refurbishment
- Valve and Hydrant Replacement Program
- Glen Robertson Meter Replacement
- Gln WTP Building Expansion
- North Glengarry Master Plan
- Cancelled Projects
  - Flow Metering
  - Main Relining (Jean St/Clement St)

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Staff Input: 2024 Proposed Capital Projects

- Dominion St Watermain Replacement
- Alx WTP Chlorine Switch Replacement
- Infrastructure Locating Equipment
- Leak Survey
- Bulk Water Fill Station

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Staff Input: 2024 Proposed Budget (Operations)

Water Treatment

- Chlorine analyzer replacement
- Electronic logbook expansion into performance logbooks
- Equipment replacement DR3900
- System replacement certificates

Distribution

- line post locating and indexing (Alx/Max)
  - physical record and GIS entry
- Electric submersible pump for construction
- Electronic hydrant meter (flushing)
- Hydrant meter calibration program
- Signage/Numbering for hydrants and chambers on transmission main & in Max

OTHER

- Vac trailer drum relining/refurbishment
- Vac trailer water pump replacement
- Portable snow blower for remote stations

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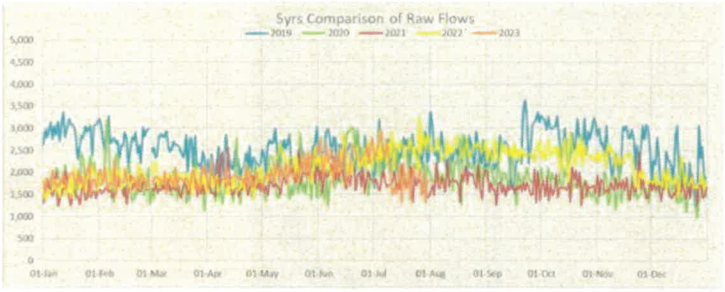
Alexandria WTP Raw Flows and Trending

- Flows slightly decreased from previous year
  - 2019 increased due to commissioning
  - 2022 increased due to increased flushing for quality
  - 2023: noted flow reduction after main break repair (Jul)
- Rated Capacity 5,616m^3/day
  - 2021: 30.4% (Jan-Dec)
  - 2022: 38.1% (Jan-Dec)
  - 20233: 34.7% (Jan-Jul)
- Algal growth still occurring in raw water
- Dyke was installed around intake (Jul) to prevent mounding and sediment issues
- No additional treatment measures or process changes required at this time



	Total Monthly Flows				
Total	2019	2020	2021	2022	2023
Jan	90,594	57,549	48,388	53,925	56,126
Feb	76,382	53,566	45,142	52,876	51,074
Mar	77,822	51,813	50,688	57,829	56,729
Apr	66,505	50,254	52,432	53,171	55,816
May	76,524	57,317	57,300	66,755	63,258
Jun	73,216	63,082	57,374	67,773	69,882
Jul	75,240	64,099	53,799	79,067	61,672
Aug	76,929	62,926	55,819	78,665	
Sep	76,589	56,567	49,419	73,567	
Oct	88,817	53,996	51,727	75,471	
Nov	78,249	48,009	50,964	66,218	
Dec	64,644	48,899	49,889	56,456	
Annual	921,510	668,079	622,942	781,773	414,557

	Average Monthly Flows				
Avg	2019	2020	2021	2022	2023
Jan	2,922	1,856	1,561	1,740	1,811
Feb	2,728	1,847	1,612	1,888	1,824
Mar	2,551	1,693	1,637	1,874	1,815
Apr	2,217	1,675	1,748	1,772	1,861
May	2,469	1,849	1,848	2,153	2,041
Jun	2,441	2,103	1,912	2,259	2,329
Jul	2,427	2,068	1,735	2,551	1,989
Aug	2,482	2,030	1,801	2,538	
Sep	2,553	1,886	1,647	2,452	
Oct	2,865	1,742	1,669	2,435	
Nov	2,608	1,600	1,699	2,207	
Dec	2,085	1,577	1,609	1,821	
Annual	2,529	1,827	1,707	2,141	1,953

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Alexandria Raw Water Quality/Quantity

Source Protection: 2022 Annual Progress Report

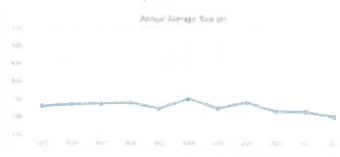
- 99.5% of activities identified as a significant drinking water threat in the assessment have been mitigated or removed through risk management measures
- All policies and risk management plans that address significant threats have been implemented
- No issues identified in the local assessment reports regarding quality of the source water

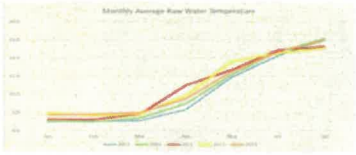
RRCA: 2022 Annual Report (Watershed Management)

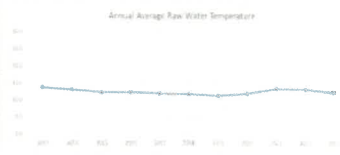
- 9 groundwater monitoring wells/9 surface water quality monitoring sites
- no low water level warnings issued
- Detailed structural inspection of Mill Pond Dam & annual inspection of upstream dams

2019 Canada Changing Climate Report

- Seasonal timings of spring peak streamflow has shifted earlier due to warming temperatures
- Reduced summer flows in some area, but projected increase in extreme precipitation events/impacts
- No indication of long-term changes to lake and wetland levels, but potential for increased evaporation which may exceed precipitation levels







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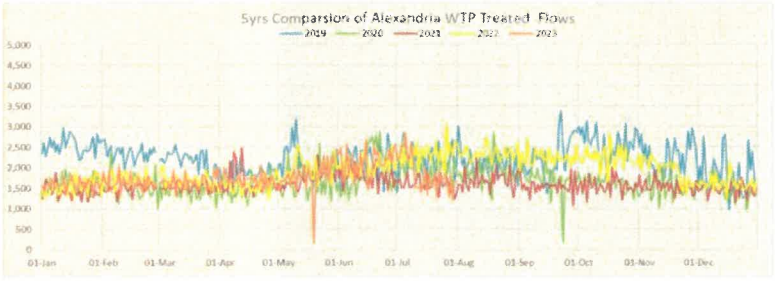
Alexandria WTP Treated Flows and Trending

Alexandria Water Treatment

- Flows decreased from previous year
  - 2019 increased due to commissioning
  - 2022 increased due to increased flushing for quality
  - 2023: noted flow reduction after main break repair (Jul)
- Rated Capacity 8,014m^3/day
  - 2021: 19.8% (Jan-Dec)
  - 2022: 24.3% (Jan-Dec)
  - 2023: 22.0% (Jan-Jul)
- Process Water Used
  - 2021: 7.2% of raw water
  - 2022: 9.1% of raw water
  - 2023: 9.8%of raw water
- No treatment shortfalls or capacity issues observed during this period



Total Treated Water Monthly Flows

Total	2019	2020	2021	2022	2023
Jan	79,124	49,650	44,216	48,391	49,304
Feb	65,997	44,786	42,250	48,714	45,908
Mar	67,307	45,665	47,417	52,259	51,234
Apr	56,326	44,538	48,912	47,442	50,583
May	65,851	51,059	53,742	60,837	55,643
Jun	63,195	57,287	53,513	61,894	64,375
Jul	66,901	59,623	49,424	73,015	57,023
Aug	66,157	59,324	52,581	72,921	
Sep	66,611	51,464	46,280	67,411	
Oct	80,110	50,259	48,227	69,521	
Nov	68,470	44,840	46,136	58,328	
Dec	56,636	46,343	45,357	49,839	
Annual	802,684	604,837	578,057	710,571	374,071

Total WTP Process Water Monthly Flows

Total	2019	2020	2021	2022	2023
Jan	11,470	7,899	4,172	5,534	6,823
Feb	10,385	8,780	2,892	4,162	5,166
Mar	10,516	6,148	3,271	5,570	5,495
Apr	10,180	5,717	3,519	5,729	5,232
May	10,674	6,259	3,558	5,918	7,615
Jun	10,021	5,795	3,861	5,879	5,507
Jul	8,339	4,476	4,374	6,052	4,648
Aug	10,772	3,602	3,238	5,744	
Sep	9,978	5,103	3,138	6,156	
Oct	8,707	3,738	3,500	5,950	
Nov	9,778	3,170	4,829	7,890	
Dec	8,007	2,556	4,532	6,617	
Annual	118,826	63,241	44,885	71,202	40,486

Average Treated Water Monthly Flows

Avg	2019	2020	2021	2022	2023
Jan	2,552	1,602	1,426	1,561	1,590
Feb	2,357	1,544	1,509	1,740	1,640
Mar	2,171	1,473	1,530	1,686	1,637
Apr	1,878	1,485	1,630	1,581	1,686
May	2,124	1,647	1,734	1,962	1,795
Jun	2,107	1,910	1,784	2,063	2,146
Jul	2,158	1,923	1,594	2,355	1,839
Aug	2,134	1,914	1,696	2,352	
Sep	2,220	1,715	1,543	2,247	
Oct	2,584	1,621	1,556	2,243	
Nov	2,282	1,495	1,538	1,944	
Dec	1,827	1,495	1,463	1,608	
Annual	2,200	1,652	1,584	1,945	1,762

Average WTP Process Water Monthly Flows

Avg	2019	2020	2021	2022	2023
Jan	370	255	135	179	220
Feb	371	303	103	149	184
Mar	352	202	107	180	178
Apr	339	191	117	191	174
May	344	202	115	191	246
Jun	334	193	129	196	184
Jul	269	144	141	195	150
Aug	347	116	104	185	
Sep	333	170	105	205	
Oct	281	121	113	192	
Nov	326	106	161	263	
Dec	258	82	146	213	
Annual	327	174	123	195	191

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Alexandria Treated Water Quality/Quantity

- No significant changes in the average pH, temperature, alkalinity, or turbidity
  - average filter effluent turbidity below 0.05ntu
  - chlorine consumption consistent with previous years
  - no changes to phosphate dosing program, contractor on site quarterly to check system
- Monochloramine increased since 2019 avg 1.8mg/L)
  - Average from 1.5mg/L to 1.8mg/L

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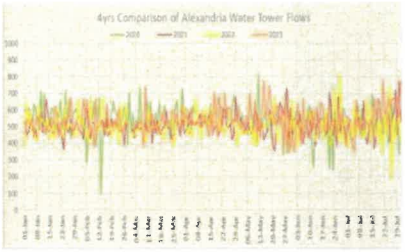
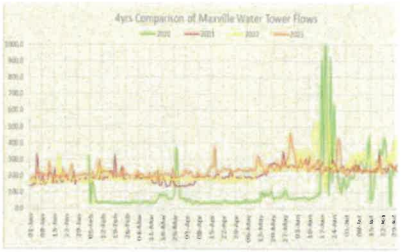
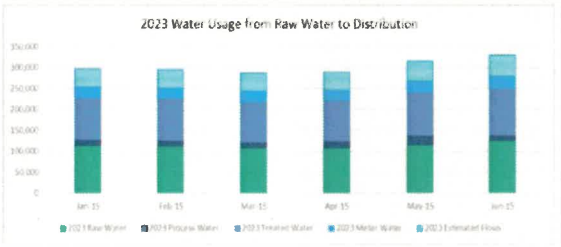
Alexandria/Maxville Distribution Flows Trending

- Flows in distribution up slightly but metered values appear to be slightly decreasing from year to year
  - Overall Water Consumption (2023)
    - Alexandria 87%
    - Maxville 13%
- Water Audit was undertaken due to increasing water loss observations
  - Draft report received
    - Alx Non-Revenue Water (NRW): 55%
    - Non-Revenue Water Max: 49%
    - Flushing values are included in NRW, please note this is not considered water loss
  - Next steps
    - Discovered multiple contractors taking water without approval or notification
      - Budget for Bulk Fill Station (2024)
      - Hydrant Use By-Law Creation
    - Bottom-Up night flow analysis to try to find system leaks
    - Improve various water data inputs from review of data



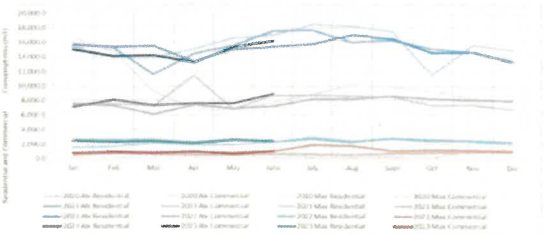




Billing Cycle	Treated Water	Alx & Max Metered Water	
2023	2023	Actual	Estimated
Jan-15	100,359	25,488	42,786
Feb-15	99,658	25,486	42,675
Mar-15	96,273	24,829	42,845
Apr-15	97,782	23,954	41,904
May-15	103,194	26,291	46,839
Jun-15	111,731	28,479	51,452

Annual Meter Reading Totals

Year	Alx DWS	Max DWS	Total
2020	304.767	11.266	316.033
2021	280.477	34.829	315.306
2022	274.099	43.560	317.659
2023	134.898	19.628	154.526



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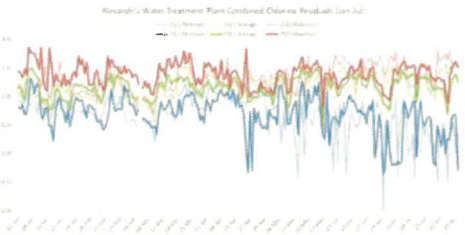
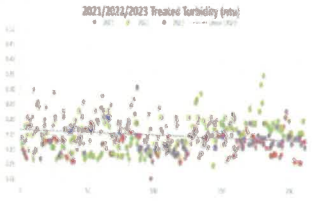
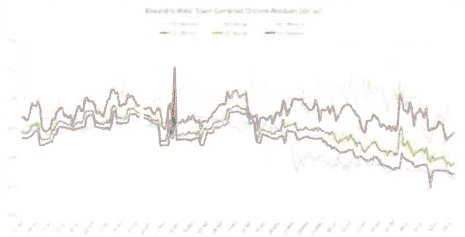
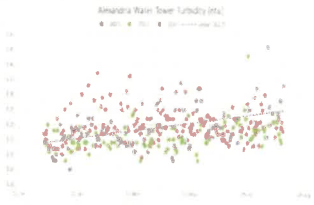
Alexandria/Maxville Distribution Trending

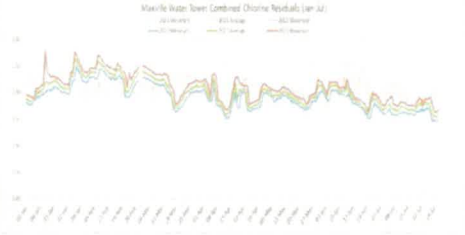
- Chlorine Residual
  - Distribution residual monitoring has improved due to closer tracking on WTP residuals, inputting operational objectives
  - Observing typical drops, adjusting processes to help turn over water
- Turbidity
  - overall from WTP levels are decreased as treatment improves
  - minor increases noted in distribution monitoring
- Dead End Check
  - Being completed (as scheduled or intermittently?)
  - Auto flushers installed ensure residuals
    - Maxville: 4 units (May)
    - Alexandria: 3 units (July)
    - Residuals around 1mg/L as per most recent testing

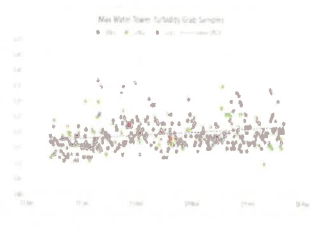












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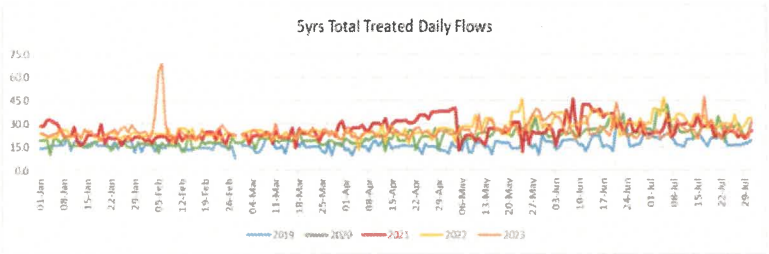
Glen Robertson Flows and Trending

- Flows are slightly elevated from previous year,
  - consistent with seasonal fluctuation
  - Gradual increase in annual total flows
- Rated Capacity 224m^3/day
  - 2021: 11.1% (Jan-Dec)
  - 2022: 12.2% (Jan-Dec)
  - 2023: 11.5% (Jan-Jul)
- SCADA system was installed and commissioned in Sep 2022
  - Improved trending and data collection
  - UV trending is now compliant with Permit conditions
- No treatment shortfalls or capacity issues at this point



TOTAL	2019	2020	2021	2022	2023
January	511.0	534.6	717.9	715.1	743.9
February	418.2	486.8	597.0	652.9	760.4
March	487.7	588.1	714.4	735.0	716.6
April	453.5	605.6	929.3	710.5	713.1
May	496.3	759.6	780.9	929.5	871.7
June	586.7	780.5	950.5	968.9	839.1
July	605.3	875.6	816.6	1022.9	813.9
August	514.0	783.7	856.6	997.8	
September	412.6	678.5	706.2	938.3	
October	447.6	662.9	696.7	766.9	
November	493.6	632.2	675.7	729.4	
December	574.5	716.4	663.5	793.4	
Annual	6,000.8	8,104.4	9,105.4	9,960.8	5,458.7

Average	2019	2020	2021	2022	2023
January	16.5	17.2	23.2	23.1	24.0
February	14.9	16.8	21.3	23.3	27.2
March	15.7	19.0	23.0	23.7	23.1
April	15.1	20.2	31.0	23.7	23.8
May	16.0	24.5	25.2	30.0	28.1
June	19.6	26.0	31.7	32.3	28.0
July	19.5	28.2	26.3	33.0	26.3
August	16.6	25.3	27.6	32.2	
September	13.8	22.6	23.5	31.3	
October	14.4	21.4	22.5	24.7	
November	16.5	21.1	22.5	24.3	
December	18.5	23.1	21.4	25.6	
Annual	16.4	22.1	24.9	27.3	25.7

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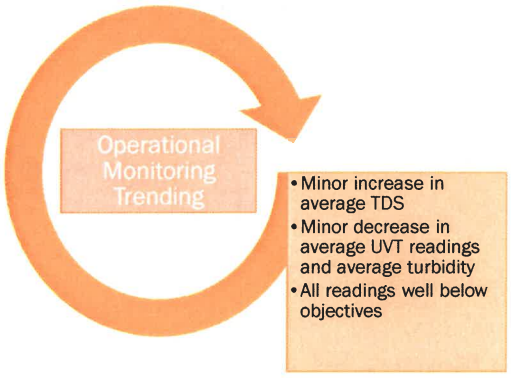
Raw Water Quality/Quantity



- Minor increase in average TDS
- Minor decrease in average UVT readings and average turbidity
- All readings well below objectives

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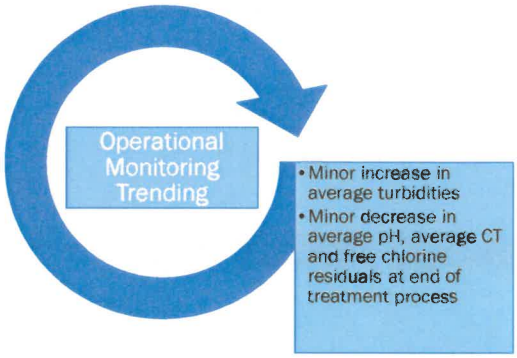
Treated Water Quality/Quantity



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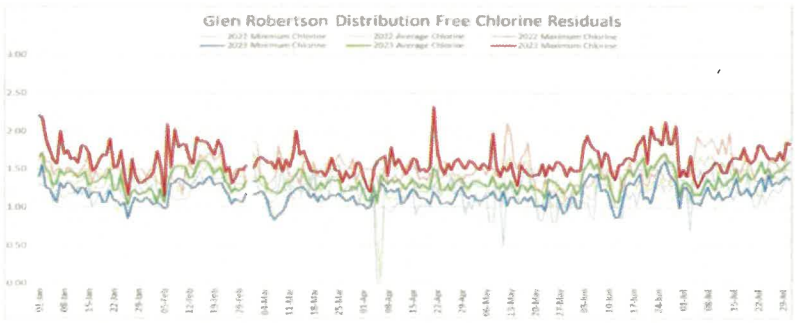
Glen Robertson Distribution Trending

Glen Robertson

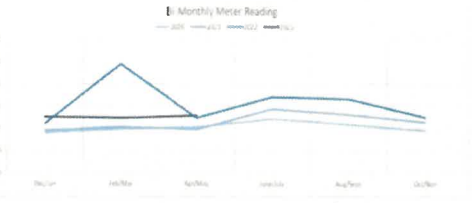
- Residual Degradation
  - Distribution residual has improved, lowest point is well above previous observations
- Water Loss
  - 2021 Annual Average: 19.6%
  - 2022 Annual Average: 16.7%
  - 2023 Annual Average: 14.8%
    - External Water Audit showed system was too small to get accurate data
    - Small amount of loss, water breaks easily detectible
    - No potential for water taking from other departments



Billing Cycle	WTP Metered	Dist Metered	Assumed/ Known Loss	Difference	% Water Loss
Jan/Dec	1504.3	1265.0	4.6	234.7	15.6
Feb/Mar	1505.1	1241.9	4.7	258.5	17.2
Apr/May	1467.3	1290.0	4.6	172.7	11.8

Bi-Monthly Meter Totals

Month	2023	2022	2021	2020
Dec/Jan	1,265	1,118	959	910
Feb/Mar	1,242	2,447	1,038	988
Apr/May	1,290	1,241	977	1,029
Jun/Jul		1,707	1,435	1,219
Aug/Sep		1,667	1,315	1,102
Oct/Nov		1,261	1,149	956



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DWS Risk Assessment

3yr System Re-Evaluation

- Alx DWS
  - Last version: November 2022
  - No change to risk level or major system changes
  - Next review: due November 2025
- Glen DWS
  - Last version: March 2022
  - No change to risk level or major system changes
  - Next review: due September 2025

Annual Tabletop Exercise

- Alx DWS
  - Last version: Jul 2023
  - No change to risk, system/process, or documentation
- Glen DWS
  - Last version: Jul 2023
  - No change to risk, system/process, or documentation

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Action Items

Equipment Deficiencies

- Capital Project
  - Alx WTP: HLP1630 VFD Replacement
  - Bst Stn Generator
  - Gln WTP: Singer Valve/Man Pipe Coupling
- Operational Projects
  - Alx WTP: F3 Surface Wash Repair
  - Clearwell Level Transmitter
  - Defective Valves (floc tank drain, coagulant tank, basin 1&4 drain)
  - Bleeder lines (water loss)

Asset Management Plan

- Indexing Equipment
  - No action to date
- Hydrant Maintenance Program
  - Target is 50 per year
  - Work on-going, staffing change limited ability to reach target

Documentation: OM/SOP/CAP

- Various Documents Required
  - no action to date, once OM manuals are updates work on SOP development can begin

By-Laws

- Hydrant Usage
  - no action to date
- Backflow Devices
  - draft bylaw

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Conclusions

- No source shortfalls or capacity issues at this point for both Glen Robertson and Alexandria
- No major changes to risk or processes for both systems
- System growth
  - No major expansion to system planned in the next year
  - Processes and standards being created at County Level, to add additional TWP requirements
  - Other limiting factors such as wastewater system capacities and servicing areas shortfall
- Infrastructure refurbish/replacement in WTP/Distribution
  - Planned equipment repair/refurbishment
  - Planned watermain replacement program in Alexandria
  - Planned future work towards Alexandria on-going water loss
  - Maxville Water Project follow-up requirements (to be determined)

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