

# Alexandria Drinking Water System Update

Annual Summary Report

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## Annual Report

 System Description

 Flow Summary

 Sampling Summary

 Operational Issues or Significant Expenses

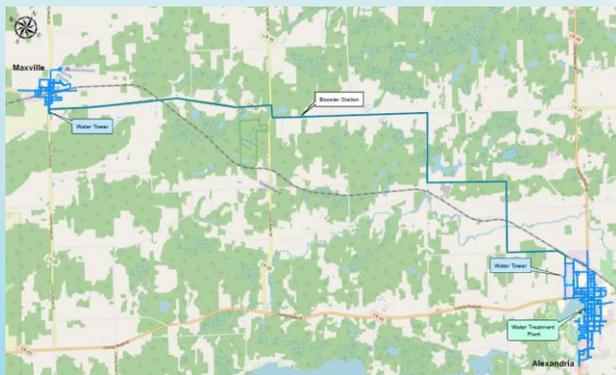
 Ministry Compliance

 Additional Information

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## System Description

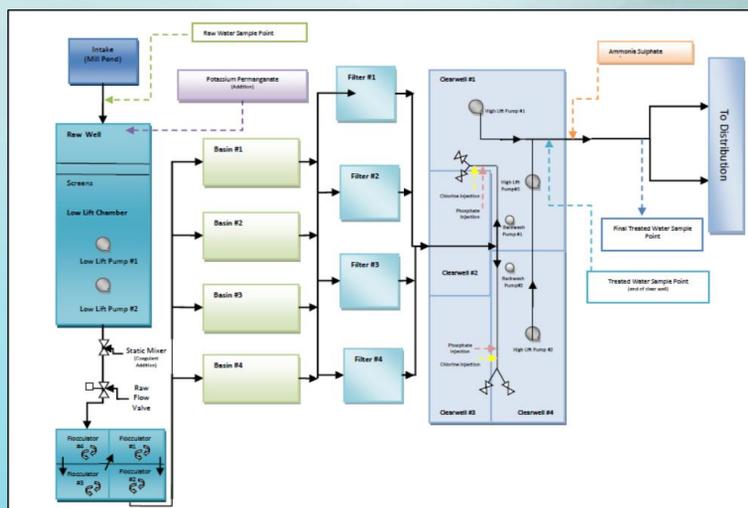
- Large residential drinking water system
- Surface Water System
  - higher potential for microbiological contamination
  - higher potential for effects from blue-green algae
- Services approximately 1,950 residences
- Rated flow capacity:  $8,014\text{m}^3/\text{d}$  or  $0.065\text{m}^3/\text{sec}$
- System expanded in 2020 to include Maxville distribution



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## Treatment System Description

- Screening (large debris only)
- Coagulation/Flocculation
- Sedimentation
- Filtration
- Chlorine Gas Disinfection and Phosphate Addition (corrosion control)
- Chloramination
- Water Distribution/Storage
  - Alexandria Distribution
  - Re-Chloramination and Pressure Boosting
  - Maxville Distribution
- Emergency Generators
  - Alexandria WTP: Diesel
  - Alexandria Water Tower: Natural Gas
  - Maxville Booster Station: Propane
  - Maxville Water Tower: Propane

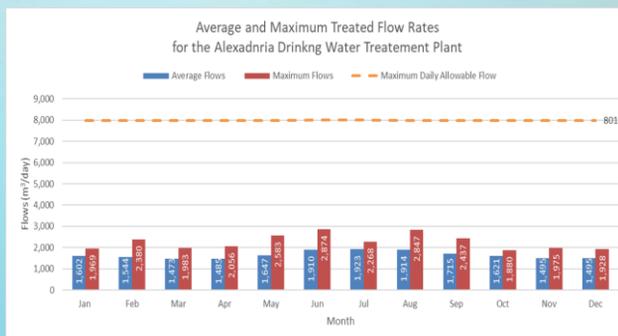


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# Flow Summary

- Total Raw Water Used  
– 668,079m<sup>3</sup>
- Current Usage within PTTW Allowance:  
– 32.5%
- Total Treated Water Produced  
– 604,837m<sup>3</sup>
- 2020 Daily Treated Average Flow:  
– 1,652m<sup>3</sup>
- Current Usage within Rated Capacity:  
– 20.6%
- Maximum Reported Daily Usage:  
– 2,874m<sup>3</sup> on June 22, 2020

2020 Treated Flow Summary	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Maximum Daily Flow (m <sup>3</sup> )	1,969	2,380	1,983	2,056	2,583	2,874	2,268	2,847	2,437	1,880	1,975	1,928
Monthly Average Flow (m <sup>3</sup> )	1,602	1,544	1,473	1,485	1,647	1,910	1,923	1,914	1,715	1,621	1,495	1,495
Monthly Average Daily Maximum Instantaneous Flow (m <sup>3</sup> /s)	0.041	0.040	0.041	0.040	0.039	0.039	0.038	0.037	0.037	0.037	0.036	0.039
Rated Maximum Daily Treated Flow for the approved system										8014 m <sup>3</sup> /day		
Rated Maximum Instantaneous Treated Flow										0.065 m <sup>3</sup> /s		



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# Sampling Summary

## Operational Monitoring

- Daily:
  - Raw/Treated Turbidity
  - Treated Free Chlorine
  - Distribution Free Chlorine
  - Distribution Turbidity
- Weekly
  - Treated pH
  - Distribution pH
- **1 Adverse Result for Distribution Pressure**
  - due to watermain relining project
  - from Sep 16-Oct 02

## Routine Weekly Sampling

- 52 Raw Water Samples
- 59 Treated Water
- 444 Distribution Water
- **6 Adverse Sampling Results**
  - Adverse sampling results for Total Coliform and E. coli.
  - From Jun 17-Jun 28

## Quarterly Sampling

- **No Issues or Adverse Samples**
  - 4 Treated Water Nitrite
  - 4 Treated Water Nitrate
  - 4 Distribution THM
  - 4 Distribution HAA

## Annual or Additional Sampling

- **No Issues or Adverse Samples**
  - Organic/Inorganics
  - Required Annually
  - No adverse results
- Lead Sampling
  - 3yr Spring/Fall sampling cycles
  - last sample Fall 2020
- Alkalinity/pH
  - Annual Spring/Fall sampling cycles
  - Last sample Fall 2020

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## Operational Issues

- ▶ Capital Work: Maxville Water Project
  - Maxville Distribution
  - Maxville Water Tower
  - Maxville Transmission Main
  - Maxville Booster Station
  - Alexandria Water Treatment Plant Upgrade
- ▶ Relining of Water Main under Mill Pond
  - In Coordination with SDG Counties relining program
  - To expand lifespan and ensure integrity
- ▶ Hydrant and Valve Replacement Program
  - Mostly rehabilitation work
- ▶ Low Lift Pump Refurbishment
  - Issues identified during third party maintenance
  - Preventative maintenance

## Significant Expenses

#	Item	Description	Cost		
1	Maxville Water Project	Maxville Distribution	\$ 161,249		
		• Placed into service in 2020			
		Maxville Water Tower	\$ 10,335		
		• Placed into service in 2020			
		Maxville Transmission Main	\$ 93,454		
		• Placed into service in 2020			
		Maxville Booster Station	\$ 52,456		
		• Placed into service in 2020			
		Alexandria Water Treatment Plant Upgrade	\$ 3,809,739		
2	Hydrant and Valve Replacement	• Construction of 2 additional flocculation tanks, including piping and valves			
		• Replacement of sludge removal equipment			
		• Replacement of all filter media, underdrain system, surface wash system,			
		• Relocation and upgrades to chemical pump panels			
		• SCADA system upgrade 2019-2020			
		• Replacement of exterior cladding and roof shingles			
		• Placed into service in 2020			
		• On-going annual project to replace defective or ageing equipment	\$ 4,305		
		3	Re-lining of Feeder Main	• Main located between Park Ave and Harrison St, section between valves	\$
				• Performed in conjunction with SDG Counties Program	
4	LLP220 refurbishment	• repair due to maintenance issues noted during inspection	\$3,000		

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## Ministry Compliance and Inspections

- MECP inspections on
  - January 29, 2020
  - 100%
  - No issues or best practices noted
- MECP inspections on
  - September 15, 2020
  - 100%
  - No issues or best practices noted

Inspection Module		Non-Compliance Rating
Capacity Assessment		0 / 30
Treatment Processes		0 / 85
Operations Manuals		0 / 28
Logbooks		0 / 14
Certification and Training		0 / 42
Water Quality Monitoring		0 / 112
Reporting & Corrective Actions		0 / 21
Treatment Process Monitoring		0 / 133
<b>TOTAL</b>		<b>0 / 465</b>

Maximum Question Rating: 465

Inspection Risk Rating: 0.00%

**FINAL INSPECTION RATING: 100.00%**

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Inspection Module		Non-Compliance Rating
Capacity Assessment		0 / 30
Treatment Processes		0 / 85
Operations Manuals		0 / 28
Logbooks		0 / 14
Certification and Training		0 / 42
Water Quality Monitoring		0 / 112
Reporting & Corrective Actions		0 / 66
Treatment Process Monitoring		0 / 133
<b>TOTAL</b>		<b>0 / 510</b>

Maximum Question Rating: 510

Inspection Risk Rating: 0.00%

**FINAL INSPECTION RATING: 100.00%**

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## Other Issues

- System operations not substantially affected by COVID,
  - personnel coverage was maintained at all times,
  - staff rotation was reduced at various point throughout 2020 to minimize risk top operational staff
- Maintaining quality and quantity of water production and distribution throughout capital upgrades
  - Addition of Maxville Water System and work in Alexandria WTP
  - new equipment, new processes, increased work load without staff increase
- Maxville Water Connection Program
- Internal DWQMS meetings and audits delayed, to be schedule asap
- 2021 Goals
  - Lochiel St watermain rehabilitation
  - Billing/Meter software upgrade (required)
  - Update all operations manuals