



2021 Annual Water Quality Report

Manager of Public Works, David Armstrong
Water and Wastewater Utilities Superintendent, Don Richards

February 8, 2022



EXECUTIVE SUMMARY

The Corporation of the Town of Gananoque's Public Utilities Division is pleased to provide the 2021 Annual Drinking Water Quality Report. The purpose of this report is to keep the public and Council informed regarding the quality of the Town's drinking water and the performance and maintenance of the water treatment and distribution system.

The Town of Gananoque is dedicated to delivering a safe, reliable, drinking water supply while remaining compliant with all regulatory requirements. Achievement of those commitments is supported by risk-based process evaluation, staff competency, effective communication, and appropriate contingency/incident response measures. The managers and employees of the Town of Gananoque who are directly involved in the production and delivery of safe drinking water are committed to and share the responsibilities for implementing, maintaining, and contributing to the continual improvement of the drinking water quality. The water delivered to the consumers in the Town of Gananoque continues to be safe, meeting all drinking water quality regulatory standards.

This Annual Drinking Water Quality Report is prepared in accordance with the Municipal Drinking Water Licence, Drinking Water Works Permit for the Gananoque Drinking Water System and Ontario Regulation 170/03, Section 11 and Schedule 22. Included with this report are analytical data, plant flow, adverse water quality incidents and corrective action resolutions, as well as a process flow schematic of the facility.

David Armstrong
Manager of Public Works

Don Richards
Water and Wastewater Utilities Superintendent



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LIST OF ACRONYMS & DEFINITIONS

AWQI	Adverse Water Quality Incidents
	Examples of adverse water results:
	<ul style="list-style-type: none">▪ An analytical result that exceeds a health-based water quality standard▪ Any evidence that disinfection may not have been effective▪ Low chlorine residuals
C of A	Certificate of Approval
CFU	Colony Forming Units
CGSB	Canadian General Standards Board
DWQMS	Drinking Water Quality Management Standard
GUDI	Groundwater Under the Direct Influence of Surface Water
L/s	litres per second
m ³ /d	cubic meters per day
mg/L	milligrams per litre
mL	milliliter
ML/d	Mega (million) litres per day
MECP	Ministry of the Environment, Conservation and Parks (Ontario)
MOH	Medical Officer of Health
PVC	Poly Vinyl Chloride
O. Reg.	Ontario Regulation
PTTW	Permit to Take Water
R.R.O.	Revised Regulations Ontario (1990)
SCADA	Supervisory Control and Data Acquisition
SDWA	Safe Drinking Water Act, 2002
WTP	Water Treatment Plant



1. INTRODUCTION

This 2021 Annual Water Quality Report represents the period from January 1st to December 31st, 2021 and includes reporting for both the municipal drinking water treatment and distribution system. The Town of Gananoque is the Owner and Operating Authority of the James W. King Drinking Water System.

This report contains three different reports required for the James W. King Drinking Water System:

- Section 11 Annual Report, as per Section 11 of O. Reg. 170/03.
- Summary Report as per Schedule 22 of O. Reg. 170/03.
- Summary of the raw water values submitted to the Ministry of the Environment, Conservation and Parks under O. Reg. 387/04.

The 2021 Annual Water Quality Report is available to the public at no charge at the following locations:

- Town of Gananoque's website - <https://www.gananoque.ca/>
- Town Hall – 30 King Street East Gananoque

2. LEGISLATED REQUIREMENTS

2.1 Drinking-Water Systems Regulation (O. Reg. 170/03)

Under Schedule 22 of the Drinking Water Systems Regulation (O. Reg. 170/03), summary reports for municipalities, annual reports to the Owners of large municipal residential systems and small municipal systems are required. The Summary Report must be submitted no later than March 31st to members of Council. The contents must list the requirements of the *Safe Drinking Water Act, 2002*, the regulations, the system's approval and any order that the system failed to meet at any time during the reporting period covered, specify the duration of the failure, and the measures taken to correct the failure.

In addition, the report must include a summary of the quantities and flow rates of the water supplied during the period covered by the report, including monthly averages, maximum daily flows and daily instantaneous peak flows. The summary must be compared to the rated capacity and flows provided in the system's Municipal Drinking Water Licence.

2.2 Summary of Regulatory Requirements

Acts and Regulations

Regulated systems must meet the requirements of Ontario's *Safe Drinking Water Act, 2002*. Most notably, the Drinking Water Systems Regulation provides the treatment and

testing requirements for all categories of regulated water systems, including small non-municipal and seasonal operations.

Safe Drinking Water Act, 2002

In the Part Two Report of the Walkerton Inquiry, Justice O'Connor recommended that the Ontario government enact the *Safe Drinking Water Act, 2002* to regulate matters related to the treatment and distribution of drinking water. As articulated by Justice O'Connor, the purpose of the *Safe Drinking Water Act, 2002* is to gather all legislation and regulations relating to the treatment and distribution of drinking water in one document.

Summary of Provincial Legislation Significant to Water Operations

ACT	O. Reg.
WATER OPPORTUNITIES and WATER CONSERVATION ACT	
➤ Water Opportunities and Water Conservation Act, 2010	Bill 72

CLEAN WATER ACT, 2006	
➤ Source Protection Areas and Regions	O. Reg. 284/10
➤ Source Protection Committees	O. Reg. 288/10
➤ Terms of Reference	O. Reg. 287/07

SAFE DRINKING WATER ACT, 2002	
➤ Drinking Water Systems Regulation	O. Reg. 170/03
➤ Certification of Drinking-Water System Operators and Water Quality Analysts	O. Reg. 128/04
➤ Drinking Water Testing Services - relating to laboratory licensing	O. Reg. 248/03
➤ Schools, private schools and day nurseries	O. Reg. 243/07
➤ Compliance and Enforcement Regulation	O. Reg. 242/05
➤ Ontario Drinking Water Quality Standards	O. Reg. 169/03
➤ Definitions of Words and Expressions Used in the Act	O. Reg. 171/03
➤ Definition of Deficiency and Municipal Drinking Water System	O. Reg. 172/03
➤ Licensing of Municipal Drinking-Water Systems	O. Reg. 188/07
➤ Financial Plans	O. Reg. 453/07

ONTARIO WATER RESOURCES ACT	
➤ Licensing of Sewage Works Operators	O. Reg. 129/04
➤ Approval Exemption	O. Reg. 525/98
➤ Wells	R.R.O. 1990, Reg. 903
➤ Revoking Ontario Regulation 459/00	O. Reg. 175/03
➤ Revoking Ontario Regulation 505/01	O. Reg. 176/03
➤ Water Taking	O. Reg. 387/04
➤ Charges for Industrial and Commercial Water Users	O. Reg. 450/07



ENVIRONMENTAL PROTECTION ACT	
➤ Certificate of Approval Exemptions - Air	O. Reg. 524/98

ENVIRONMENTAL BILL OF RIGHTS ACT	
➤ Prescribing the Safe Drinking Water Act, 2002	O. Reg. 257/03

3. ANNUAL WATER QUALITY SUMMARY FOR 2021

The Town of Gananoque's Public Utilities Division is responsible for the James W. King Drinking Water System under O. Reg. 170/03. Staff's primary responsibility is water treatment and distribution in compliance with all applicable legislation, the Municipal Drinking Water Licence and the Drinking Water Works Permits. Routine water quality testing and continuous monitoring of water quality and quantity is conducted to ensure compliance. All data from SCADA, process control point data, in-house laboratory results and external laboratory results are all captured in WaterTrax, a data management system.

3.1 Water Quality Data

Raw and treated water is sampled and tested for chemical, physical and microbiological parameters in accordance with the requirements of O. Reg. 170/03 and the individual municipal licences and permits. Sampling is also conducted in the distribution system primarily for bacteriological indicators and evidence of sustained chlorine residuals. Enhanced sampling programs are also defined by the Public Utilities Division, and testing procedures followed and where necessary submitted to external accredited laboratory for analysis. This level of water quality monitoring ensures public health and public confidence in the water supply.

The majority of the analysis is conducted by an external accredited laboratory, with some specialized analysis contracted to other accredited laboratories. In accordance with Schedule 16 of O. Reg. 170/03, all required notifications of adverse water quality incidents are provided to the Spills Action Centre and Medical Officer of Health.

Operational Testing:

The following table is a summary of the operational testing completed in 2021 (as per O. Reg. 170/03, Schedules 6 and 7).

PARAMETER TESTED:	# of Grab Samples	RANGE OF RESULTS:	
		Minimum	Maximum
Turbidity – Raw (NTU)	Continuous monitoring	0.03	20.00
Turbidity – Filter 1 (NTU)	Continuous monitoring	0.023	0.705
Turbidity – Filter 2 (NTU)	Continuous monitoring	0.021	0.335
Pre-Chlorination (mg/l)	Continuous monitoring	0.00	1.30
Post Chlorination (mg/l)	Continuous monitoring	1.48	4.18

Distribution Free Chlorine (mg/l)	556 Grab Samples	0.15	3.90
Distribution Total Chlorine (mg/l)	556 Grab Samples	0.23	4.04

Microbiological Testing: Completed under the Schedule 10, 11 or 12 of O. Reg. 170/03 during 2021 reporting period.

Sample Description:	Number of Samples	Range of E. coli Or Fecal Results CFU/100ml		Range of Total Coliform Results CFU/100ml		Number of HPC Samples	Range of HPC Results CFU/ml	
		Min.	Max.	Min.	Max.		Min.	Max.
Raw	52	0	4	1	>200	n/a	n/a	n/a
Treated	52	0	0	0	0	52	<10	110
Distribution	208	0	0	0	0	208	<10	50

Chemical Testing:

The following tables provide a summary of the chemical testing completed in 2021 (as per O. Reg. 170/03, Schedule 13).

Schedule 23: Summary of Inorganic parameters tested during this reporting period or the most recent sample results.

Parameter	Sample Date	Result Value	Unit of Measure	Exceeded the Standard	Exceeded Half the Standard
Antimony	Jan. 12/21	0.0001	mg/l	No	No
Arsenic	Jan. 12/21	0.0003	mg/l	No	No
Barium	Jan. 12/21	0.023	mg/l	No	No
Boron	Jan. 12/21	0.021	mg/l	No	No
Cadmium	Jan. 12/21	<0.000015	mg/l	No	No
Chromium	Jan. 12/21	<0.002	mg/l	No	No
Fluoride	Jan. 12/21	<0.1	mg/l	No	No
Lead	Jan. 12/21	0.00005	mg/l	No	No
Mercury	Jan. 12/21	<0.00002	mg/l	No	No
Selenium	Jan. 12/21	<0.001	mg/l	No	No
Sodium	Jan. 12/21	14.8	mg/l	No	n/a
Uranium	Jan. 12/21	0.00024	mg/l	No	No
Nitrite	Quarterly (Displaying Max)	<0.1	mg/l	No	No
Nitrate	Quarterly (Displaying Max)	0.3	mg/l	No	No

n/a – not applicable

Schedule 24: Summary of Organic parameters sampled during this reporting period or the most recent sample results.

Parameter	Sample Date	Result Value	Unit of Measure	Exceeded the Standard	Exceeded Half the Standard
Alachlor	Jan. 12/21	<0.3	ug/l	No	No
Atrazine + N-dealkylated metabolites	Jan. 12/21	<0.5	ug/l	No	No
Azinphos-methyl	Jan. 12/21	<1	ug/l	No	No
Benzene	Jan. 12/21	<0.5	ug/l	No	No



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Benzo(a)pyrene	Jan. 12/21	<0.006	ug/l	No	No
Bromoxynil	Jan. 12/21	<0.5	ug/l	No	No
Carbaryl	Jan. 12/21	<3	ug/l	No	No
Carbofuran	Jan. 12/21	<1	ug/l	No	No
Carbon Tetrachloride	Jan. 12/21	<0.2	ug/l	No	No
Chlorpyrifos	Jan. 12/21	<0.5	ug/l	No	No
Diazinon	Jan. 12/21	<1	ug/l	No	No
Dicamba	Jan. 12/21	<10	ug/l	No	No
1,2-Dichlorobenzene	Jan. 12/21	<0.5	ug/l	No	No
1,4-Dichlorobenzene	Jan. 12/21	<0.5	ug/l	No	No
1,2-Dichloroethane	Jan. 12/21	<0.5	ug/l	No	No
1,1-Dichloroethylene	Jan. 12/21	<0.5	ug/l	No	No
Dichloromethane	Jan. 12/21	<5	ug/l	No	No
2-4 Dichlorophenol	Jan. 12/21	<0.2	ug/l	No	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	Jan. 12/21	<10	ug/l	No	No
Diclofop-methyl	Jan. 12/21	<0.9	ug/l	No	No
Dimethoate	Jan. 12/21	<1	ug/l	No	No
Diquat	Jan. 12/21	<5	ug/l	No	No
Diuron	Jan. 12/21	<5	ug/l	No	No
Glyphosate	Jan. 12/21	<25	ug/l	No	No
Malathion	Jan. 12/21	<5	ug/l	No	No
2-Methyl-4-Chlorophenoxyacetic acid (MCPA)	Jan. 12/21	<10	ug/l	No	No
Metolachlor	Jan. 12/21	<3	ug/l	No	No
Metribuzin	Jan. 12/21	<3	ug/l	No	No
Monochlorobenzene	Jan. 12/21	<0.5	ug/l	No	No
Paraquat	Jan. 12/21	<1	ug/l	No	No
Pentachlorophenol	Jan. 12/21	<0.1	ug/l	No	No
Phorate	Jan. 12/21	<0.3	ug/l	No	No
Picloram	Jan. 12/21	<15	ug/l	No	No
Polychlorinated Biphenyls (PCB)	Jan. 12/21	<0.05	ug/l	No	No
Prometryne	Jan. 12/21	<0.1	ug/l	No	No
Simazine	Jan. 12/21	<0.5	ug/l	No	No
THM (NOTE: shows latest annual average)	Quarterly (4 samples)	46.2	ug/l	No	No
HAA's (NOTE: shows latest annual average)	Quarterly (4 samples)	21.8	ug/l	No	No
Terbufos	Jan. 12/21	<0.5	ug/l	No	No
Tetrachloroethylene	Jan. 12/21	<0.5	ug/l	No	No
2,3,4,6-Tetrachlorophenol	Jan. 12/21	<0.2	ug/l	No	No
Triallate	Jan. 12/21	<10	ug/l	No	No
Trichloroethylene	Jan. 12/21	<0.5	ug/l	No	No
2,4,6-Trichlorophenol	Jan. 12/21	<0.2	ug/l	No	No
Trifluralin	Jan. 12/21	<0.5	ug/l	No	No
Vinyl Chloride	Jan. 12/21	<0.2	ug/l	No	No

LEAD SAMPLING: See **Appendix A** for lead service line replacement program

Sampling Period – Winter (December 15 th 2020 to April 15 th 2021)	Residential	Non-Residential	Distribution
Number of individual samples	24	1	2
Number of sample points (locations)	11	1	1
Number of individual sample exceedances	1	0	0
Number of sample points with an exceedance during the period	1	0	0
Percentage of sample points with an exceedance	9%	0%	0%
Is the system required to have a Corrosion Control Plan prepared?	No (Requires a Lead Replacement Plan)		



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Do the reduced sampling & frequency requirements apply to the system?	No
Do the plumbing sample exemptions apply to the system?	No

Sampling Period - Summer (June 15th 2021 October 15th 2021)	Residential	Non-Residential	Distribution
Number of individual samples	22	1	1
Number of sample points (locations)	11	1	1
Number of individual sample exceedances	0	0	0
Number of sample points with an exceedance during the period	0	0	0
Percentage of sample points with an exceedance	0%	0%	0%
Is the system required to have a Corrosion Control Plan prepared?	No (Requires a Lead Replacement Plan)		
Do the reduced sampling & frequency requirements apply to the system?	No		
Do the plumbing sample exemptions apply to the system?	No		

4. GANANOQUE DRINKING WATER SYSTEM

4.1 Water System Description

Drinking-Water System Number:	220001254
Drinking-Water System Name:	Gananoque Drinking Water System
Drinking-Water System Owner:	Town of Gananoque
Accredited Operating Authority:	Town of Gananoque
Municipal Drinking Water Licence:	156-101
Drinking Water Works Permit:	156-201
Permit to Take Water:	85-P-4065
Drinking-Water System Category:	Large Municipal
Design Capacity:	10.2 ML/D
Treatment:	Direct Filtration Class II
Local Distribution:	Class II
Source Water:	St Lawrence River
Population Served:	5,500

4.1.1 Water Treatment Plant

The Town of Gananoque's Water Treatment Plant is a Class II direct filtration facility located at 110 Kate Street, on the St. Lawrence River and serves a population of 5,500.

The treatment process has a design maximum flow rate of 10.22 ML/d and is composed of a number of sub-units:

- Low lift pumping
- Coagulation and flocculation using aluminum sulfate
- Pre/post-filter disinfection with chlorine gas
- Two multi-media granular activated carbon filters



➤ High lift pumping

4.1.2 Treatment Chemicals Used

All chemicals used in the operation of the drinking water system meets all applicable standards set by both the American Water Works Association ("AWWA") and the American National Standards Institute ("ANSI") safety criteria standards NSF/60 and NSF/61.

Chemical	Application	Supplier
Chlorine Gas	Pre, Post Filter (Primary Disinfection)	Brenntag Canada
Aluminum Sulfate	Pre-Filter (Coagulant)	Kemira Water Solutions

4.1.3 Water Distribution System

The Town of Gananoque's Class II Distribution System consists of approximately 48 Km of underground pipes ranging in size from 100 mm in diameter to 400 mm diameter and are made of a variety of materials including, cast iron, ductile iron, poly vinyl chloride, concrete, steel, HDPE and asbestos cement. In addition, there are over 2,810 service connections, 238 fire hydrants and 350 valves. The system also consists of an elevated treated water storage tower.

- Elevated Storage Tank (Water Tower)
1,327 m³ overhead storage tank located on Charles Street North. It is a single cell, steel, non-baffled treated water storage tank.

4.2 2021 Flow Summary

In 2021 the maximum or peak daily raw water flow was 174 L/s which occurred on June 19th and was below the permitted maximum amount of 233 L/s as indicated in the table below. In addition, the maximum average daily raw water flow to the WTP was 3,193 m³/day or 31.2% of its maximum approved treatment capacity of 10,220 m³/day.

Maximum Permitted Water Taking – WTP

Condition:	Maximum Permitted Water Taking
Maximum Amount of Water Taken per Minute	233 (L/sec)
Maximum Amount of Water Taken per Day	10,220 (m ³ /d)

The summary of the volume of water taken and the flows of the water supplied during the 2021 calendar year is provided in **Appendix B**.

4.3 Adverse Test Results

In accordance with Schedule 16 of O. Reg. 170/03, all required notifications of adverse water quality incidents (AWQI's) are provided to the Medical Officer of Health (MOH) and the Spills Action Centre (SAC). In 2021 there were no AWQI's, however an overflow occurred at the Water Tower and was reported as a spill to the Spills Action Centre.

Incident	Result	Corrective Action	Corrective Action Date
Spill	Due to a Water Tower communication failure the high lift pump did not stop pumping at its designated level causing the water from the Water Tower to spill into the overflow pipe.	De-chlorination pucks were placed at the discharge location, and the water did not reach the creek. The spill occurred on July 17th, 2021 from 12:45 to 13:05 (20 minutes) spilling approximately 89m ³ of water onto the ground. The onsite Operator notified the Spills Action Centre (reference# 1-Y8D73) and the Ministry of Health of the incident. Communications upgrades have been requested in the 2022 capital budget.	July 17 th , 2021 – The spill occurred and the MOH and SAC were notified. July 20 th , 2021 – A follow up letter was sent to the MECP Inspector.

4.4 Operator Certification

The *Certification of Drinking-Water System Operators and Water Quality Analysts* (O. Reg. 128/04) requires Owners to ensure that every Operator employed in the facility holds a licence applicable to that type of facility. All Operators in the Public Utilities Division hold the required certifications for treatment and distribution.

4.5 Capital Projects

The 2021 Capital Project Highlights can be found in **Appendix C** of this report. All works are subject to the annual budget process and approval by Council. A 10 Year Capital Replacement Plan has been developed that includes an extensive breakdown of all capital equipment that requires allocated funds for refurbishment or replacement.

5. Conclusion

The Corporation of the Town of Gananoque serves approximately 5,500 residents. One of the Town's most important responsibilities is to protect the public health by providing its residents with clean, safe drinking water. Routine water quality testing and continuous monitoring of the water quality and quantity is completed by the Public Utilities Division at the Water Treatment Plant and throughout the distribution system. This demonstrates that the Town consistently meets the required standards set by the MECP.

In Ontario, water taking, treatment and distribution are governed by a number of Acts and Regulations. This report fulfills the reporting requirements of the Drinking Water System Regulation (O. Reg. 170/03) made under the Safe Drinking Water Act for the municipal drinking water treatment system, and covers the period from January 1st to December 31st 2021. As required under this same regulation, the report is prepared prior to March 31st and is filed for review and approved by Council.



The contents of this report highlight the requirements of the Safe Drinking Water Act, the regulations, and the systems' approval including any reportable events and the corresponding corrective actions undertaken in 2021. In addition, the report also includes a summary of the quantities and flow rates of the water supplied during the calendar year, including monthly averages, maximum daily flows, and daily instantaneous peak flow rates. The summaries are compared to the rated capacity and flow rates in the system approvals.

The Corporation of the Town of Gananoque has taken all necessary steps to comply with all regulatory requirements in the production and distribution of safe drinking water and to conform to the requirements of implementing and maintaining a Drinking Water Quality Management System.

6. KEY CONTACTS

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Appendix A

Lead Water Service Line Replacement Interest Free Loan Program Guidelines

Purpose

Some homes built prior to the mid 1950's have lead levels that exceed the Provincial Standards. The Town's goal is to get the lead out! The purpose of this program is to assist eligible homeowners with replacement of their lead service.

Loan Eligibility

In order to qualify for the program the applicant(s) for the loan must meet the following criteria:

- Must be owner-occupied dwellings of three or less dwelling units;
- All owners of the property must apply for the loan;
- Have obtained a minimum of two quotes for the work from qualified contractors;
- Has not commenced replacement of the service prior to loan approval;
- All property taxes must be paid in full at the time of the application and throughout the loan process;
- There must be no other outstanding debts to the town;
- The owner(s) must complete and sign the agreement; and
- The owner(s) must meet all conditions of this program.

Application approval is subject to the availability of funds at any given time. This program does not apply to commercial or industrial properties. The town reserves the right and absolute discretion to reject any application, which provides two or more quotes, which in the opinion of the town are excessive.

Loan Details

Loans may be available to cover all or part of the estimated cost of replacing the owner's service (located on private property from the water meter to the property line). Loans will not cover any other associated costs such as relocating internal plumbing, repaving of entire driveway, restoration of landscaping, or any other costs that are deemed unnecessary for the replacement of the owner's portion. Applicants will required a Water Service Permit.

Loan Payment to Homeowner

- The Contractor provides invoice(s) to the homeowner upon job completion. Contactor invoices must separately list eligible and ineligible costs and applicable taxes.
- Homeowner pays the Contractor for 100% of the completed work
- Homeowner submits Contractor invoices and proof of payment (Contractor payment receipt) to the Utilities Department
- If the homeowner has followed the agreement, the Utilities Department will forward all correspondence and cheque requisition to the Treasurer for payment.
- The Treasurer will add the annual loan payment to the homeowner's annual final tax bill. The loan is payable in full five years from the date of the issuance of the loan. Should any of the payments be missed, Penalty and Interest will be added monthly on the first business day of each month, at a rate of 15% per annum. If a loan is not paid in full after the five-year term, the town will register a lien against the property; the lien will be noted on the tax roll.

Loan Repayment

Repayment of the loan will be made through the tax account as set out in the agreement signed by the owner(s). Full repayment can be made at anytime during the five-year term. The minimum annual payment will be 1/5 of the amount of the loan over the term of the agreement (i.e. for a \$2000 loan, the minimum annual payment would be \$400/year). As the loan is applied to the tax roll, it is transferable to the new owner in the event of a sale. The outstanding balance will be included on tax certificates as a Local Improvement Charge.

Application Procedure

The applicant owner(s) will be required to complete an application form provided by the Town. Every person who is a registered owner on title of the property is required to sign the application.

In addition to the completed application form, the applicant owner(s) must provide:

- A minimum of two quotes for the work from qualified contractors. The quotes must detail the work to be completed, and separate out costs for each portion of work (i.e. separate line item prices for service replacement, driveway restoration, yard restoration, internal plumbing modifications up to the water meter, etc). **Any work started or completed prior to the loan application will be ineligible under this program.**
- The Town will review applications and supporting documents and decide whether to approve the loan amount and how much the loan amount will be. The town advises applicants in writing of its decision.
- Applicant obtains a Water Service Permit issued by the Building Department prior to work commencing. Failure to obtain a water service permit prior to work commencing will result in cancellation of any approved loan amounts.
- The contractor must co-ordinate work with the town well in advance. The contractor is responsible to obtain all utility locates for the work for both private property and town owned property.

Information to Accompany Application

- Completed application form signed by all owners;
- A minimum of two quotes for the work from qualified contractors. The quotes must detail what work is to be completed, and separate out costs for each portion of work (i.e. separate line prices for service replacement, driveway restoration, front yard restoration, internal plumbing modifications up to the water meter, etc.)
- Such other information or documentation as may be required by the town.

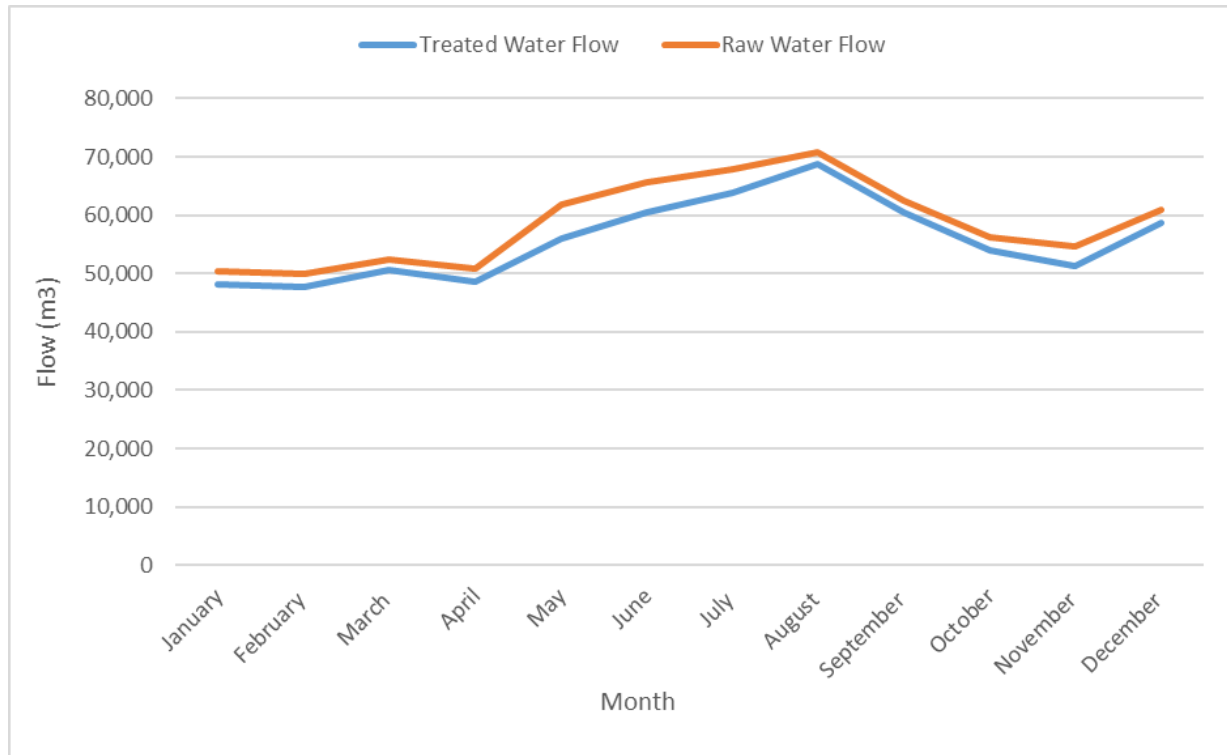
Town Not Liable

- In order to qualify for a loan, the owner agrees that the Town shall not be liable for any damages to the owner's property as a result of any lead water service line replacement.

Appendix B

Below are the summaries of water volume taken and the flows of the water supplied during the 2021 calendar year.

1. Total Raw and Treated Water Monthly Flows

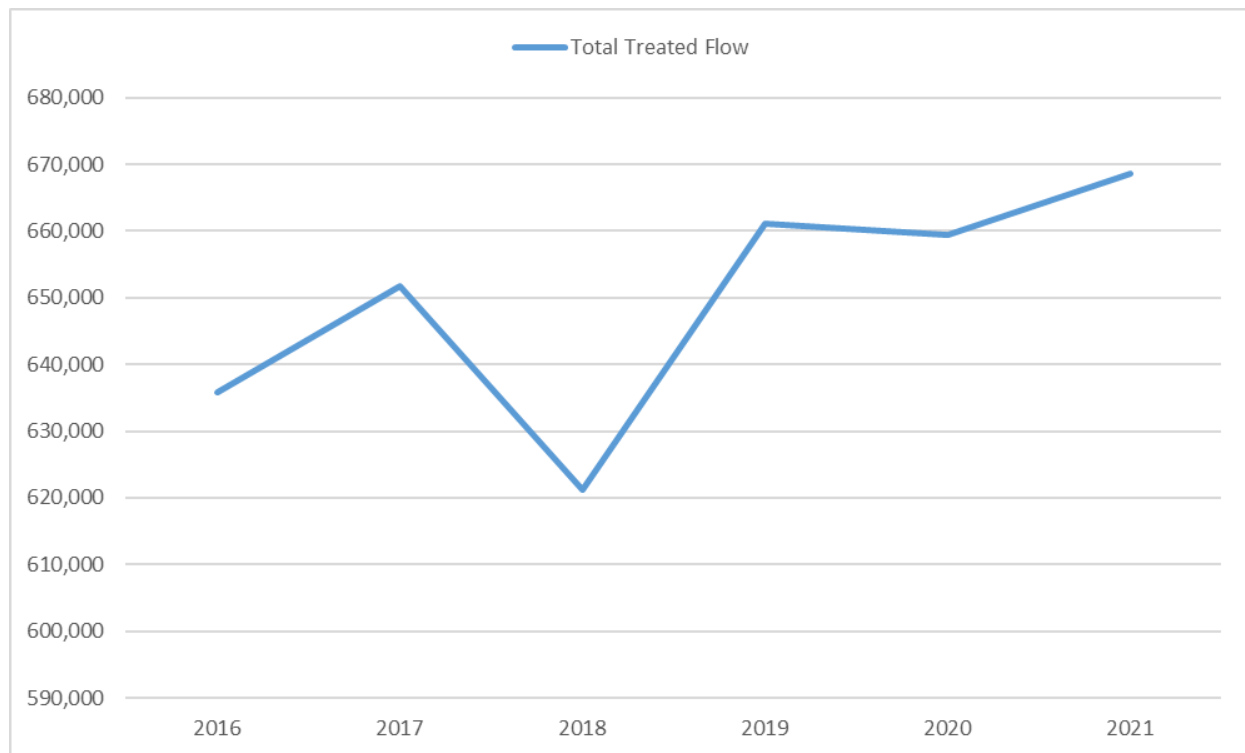


2. Flow Chart

Month	Raw Flow Rated Capacity 10,220 (m3/day), 233 (l/sec)				Treated Flow Rated Capacity 10,220 (m3/day)			
	Ave m3/d	Max m3/d	Max l/s	Total	Ave m3/d	Max m3/d	Max l/s	Total
January	1,628	1,857	139	50,467	1,552	1,939	77	48,111
February	1,781	3,101	143	49,862	1,700	2,339	77	47,611
March	1,694	2,226	147	52,513	1,635	2,133	87	50,689
April	1,691	2,217	151	50,744	1,622	2,082	78	48,674
May	1,998	3,193	151	61,923	1,807	2,564	77	56,015
June	2,192	2,979	174	65,747	2,012	3,168	83	60,370
July	2,190	2,547	151	67,886	2,061	2,501	77	63,881
August	2,287	2,610	151	70,893	2,217	2,651	78	68,714
September	2,082	2,983	150	62,451	2,014	2,816	79	60,413
October	1,816	2,126	153	56,311	1,745	2,200	77	54,081
November	1,820	2,399	151	54,608	1,708	2,290	78	51,228
December	1,965	2,339	150	60,902	1,895	2,442	78	58,738

3. Historical Annual Treated Water Volume

Year	Total Treated Flow
2016	635,769
2017	651,715
2018	621,249
2019	661,014
2020	659,379
2021	668,525



Appendix C

WATER TREATMENT CAPITAL PROJECTS

PROJECT NAME: Water Treatment Equipment/Construction
YEAR: 2021
COST CENTRE: Capital reserve funded through water revenues
LOCATION: Gananoque Water Treatment Plant
LENGTH: On-Going
YEAR FIRST INTRODUCED: 2020
PREPARED BY: D. Richards
DATE: October 5, 2020
SCOPE: Provides for the capital needs for the James W King Water Treatment Facility
WHY REQUIRED: Allows for coordinated planning for equipment upgrades and maintenance
BENEFITS: Ensures that all costs are being captured and financed through the water

PROJECT DESCRIPTION:	NOTES	MGR:	BUDGET:
WATER TREATMENT: BLDG. & PROPERTY MNTCE:			
Lighting	Replace facility lighting - end of useful life - energy conservation - Save on Energy Rebate	DR	30,000
WATER TREATMENT PLANT:			
Process Treatment Upgrades	Engineering services High Lift Pump Review VFD installation for High Lift Pumps	DR/EVB	10,000
Electrical MCC	Replace Main Breakers and emergency power transfer switch MCC	DR	50,000
Chlorine Analyzers (2)	Replace chlorine analyzers, end of useful life	DR	30,000
Raw Water Sample Pumps (2)	Replace raw water sample pump	DR	5,000
Low Lift #2 Pump Discharge / Actuator	New actuator - continuation of actuator replacement program	DR	10,000
Low Lift #3 Motor	Motor refurbishment	DR	10,000
Low Lift #3 Pump	Pump refurbishment	DR	15,000
Low Lift #3 Pump Discharge / Actuator	New actuator - continuation of actuator replacement program	DR	10,000
High Lift #2 Motor	Motor refurbishment	DR	10,000
High Lift #2 Pump	Pump refurbishment	DR	20,000
Plant Discharge Pressure Surge Relief valve	Replace surge anticipator valve high lift discharge	DR	20,000
Backflow Devices (2)	Replace or install new BF device as per facility inspection report	DR	25,000
			245,000

[illegible]

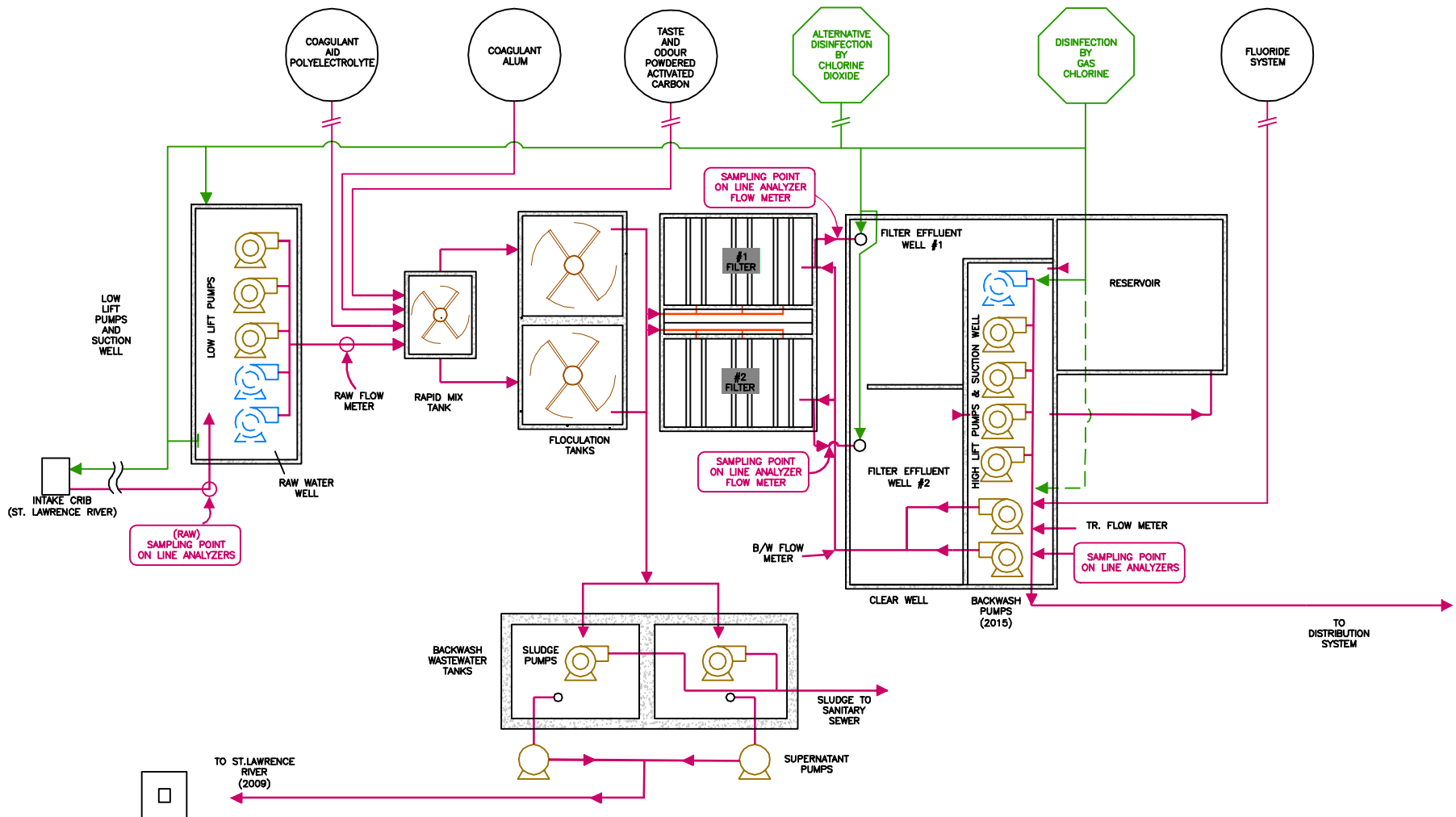
<u>PROJECT NAME:</u>	Water Distribution/Construction
<u>YEAR:</u>	2021
<u>COST CENTRE:</u>	Capital reserve funded through water revenues
<u>LOCATION:</u>	Gananoque Water Distribution System
<u>LENGTH:</u>	On-Going
<u>YEAR FIRST INTRODUCED:</u>	2020
<u>PREPARED BY</u>	D. Richards
<u>DATE</u>	October 5, 2020
<u>SCOPE:</u>	Provides for the capital needs for the Gananoque Water Distribution System
<u>WHY REQUIRED:</u>	Allows for coordinated planning for equipment upgrades and maintenance
<u>BENEFITS:</u>	Ensures that all costs are being captured and financed through the water

[illegible]

FLEET AND SMALL EQUIPMENT CAPITAL PROJECTS	
1	2025
2	2026
3	2027
4	2028
5	2029
6	2030
7	2031
8	2032
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160	2184

[illegible]

Appendix D



*DASHED LINES
FOR FUTURE USE
NOT IN SERVICE
OR REMOVED

NOTE:
UPDATED FROM TSH/AECOM PROCESS FLOW DIAGRAM
PROJECT NO. 108466 - 6/16/2009

PROJECT:

WATER TREATMENT FACILITIES GANANOQUE, ONTARIO

DRAWING:

PROCESS FLOW DIAGRAM



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DESIGN: SS/OTHERS
DRAWN: KTK/OTHERS
CHECKED:
JLR #: 27038-07

DRAWING #:

FIGURE 1