



2022 Annual Water Quality Report

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

January 20, 2023



EXECUTIVE SUMMARY

The Corporation of the Town of Gananoque's Public Utilities Division is pleased to provide the 2022 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 and reliable drinking water supply while remaining compliant with all regulatory requirements. Achievement of those commitments is supported by a 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 system. The water delivered to the consumers in the Town of Gananoque continues to meet 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 and the Ontario Regulation 170/03, Section 11 and Schedule 22. Included with this report is the analytical data, flows, 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
Superintendent of Water and Wastewater Utilities



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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 2022 Annual Water Quality Report represents the period from January 1st to December 31st, 2022 and includes reporting for both the municipal water treatment plant 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:

- ✓ 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 2022 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 of each year to the 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, specifically 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. This includes 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

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.

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.

Table 1: Summary of Provincial Water Legislation

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 2022

The Town of Gananoque's Public Utilities Division is responsible for the James W. King Drinking Water System under O. Reg. 170/03. The staff's primary responsibility is to ensure the treatment and distribution process of water is following all applicable legislation, the Municipal Drinking Water Licence and the Drinking Water Works Permit. Routine water quality testing and continuous monitoring of water quality and quantity is conducted to ensure compliance is maintained. 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.

Table 2: Operational Testing

The following table is a summary of the operational testing completed in 2022 (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	0.09	7.73
Turbidity – Filter 1 (NTU)	Continuous monitoring	0.020	0.852
Turbidity – Filter 2 (NTU)	Continuous monitoring	0.023	0.463
Pre-Chlorination (mg/l)	Continuous monitoring	0.00	2.97
Post Chlorination (mg/l)	Continuous monitoring	1.74	3.69
Distribution Free Chlorine (mg/l)	534 Grab Samples	0.33	3.45
Distribution Total Chlorine (mg/l)	534 Grab Samples	0.49	3.85

Table 3: Microbiological Testing

Completed under Schedule 10 of O. Reg. 170/03 during 2022 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	3	2	300	n/a	n/a	n/a
Treated	52	0	0	0	0	52	<10	20
Distribution	204	0	0	0	0	204	<10	30

Table 4: Schedule 23 Testing

Summary of Inorganic parameters tested during the 2022 reporting period.

Parameter	Sample Date	Result Value	Unit of Measure	Exceeded the Standard	Exceeded Half the Standard
Antimony	Jan. 11/22	0.0001	mg/l	No	No
Arsenic	Jan. 11/22	0.0003	mg/l	No	No
Barium	Jan. 11/22	0.020	mg/l	No	No
Boron	Jan. 11/22	0.014	mg/l	No	No
Cadmium	Jan. 11/22	<0.000015	mg/l	No	No
Chromium	Jan. 11/22	<0.002	mg/l	No	No
Fluoride	Jan. 11/22	<0.1	mg/l	No	No
Lead	Jan. 11/22	<0.00002	mg/l	No	No
Mercury	Jan. 11/22	<0.00002	mg/l	No	No
Selenium	Jan. 11/22	<0.001	mg/l	No	No
Sodium	Jan. 11/22	14.4	mg/l	No	n/a
Uranium	Jan. 11/22	0.00009	mg/l	No	No
Nitrite	Quarterly (Displaying Max)	<0.1	mg/l	No	No
Nitrate	Quarterly (Displaying Max)	0.23	mg/l	No	No

n/a – not applicable

Table 5: Schedule 24 Testing

Summary of Organic parameters sampled during the 2022 reporting.

Parameter	Sample Date	Result Value	Unit of Measure	Exceeded the Standard	Exceeded Half the Standard
Alachlor	Jan. 11/22	<0.3	ug/l	No	No
Atrazine + N-dealkylated metabolites	Jan. 11/22	<0.5	ug/l	No	No
Azinphos-methyl	Jan. 11/22	<1	ug/l	No	No
Benzene	Jan. 11/22	<0.5	ug/l	No	No
Benzo(a)pyrene	Jan. 11/22	<0.006	ug/l	No	No
Bromoxynil	Jan. 11/22	<0.5	ug/l	No	No
Carbaryl	Jan. 11/22	<3	ug/l	No	No
Carbofuran	Jan. 11/22	<1	ug/l	No	No
Carbon Tetrachloride	Jan. 11/22	<0.2	ug/l	No	No
Chlorpyrifos	Jan. 11/22	<0.5	ug/l	No	No
Diazinon	Jan. 11/22	<1	ug/l	No	No
Dicamba	Jan. 11/22	<1	ug/l	No	No
1,2-Dichlorobenzene	Jan. 11/22	<0.5	ug/l	No	No



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1,4-Dichlorobenzene	Jan. 11/22	<0.5	ug/l	No	No
1,2-Dichloroethane	Jan. 11/22	<0.5	ug/l	No	No
1,1-Dichloroethylene	Jan. 11/22	<0.5	ug/l	No	No
Dichloromethane	Jan. 11/22	<5	ug/l	No	No
2-4 Dichlorophenol	Jan. 11/22	<0.2	ug/l	No	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	Jan. 11/22	<1	ug/l	No	No
Diclofop-methyl	Jan. 11/22	<0.9	ug/l	No	No
Dimethoate	Jan. 11/22	<1	ug/l	No	No
Diquat	Jan. 11/22	<5	ug/l	No	No
Diuron	Jan. 11/22	<5	ug/l	No	No
Glyphosate	Jan. 11/22	<25	ug/l	No	No
Malathion	Jan. 11/22	<5	ug/l	No	No
2-Methyl-4-Chlorophenoxyacetic acid (MCPA)	Jan. 11/22	<10	ug/l	No	No
Metolachlor	Jan. 11/22	<3	ug/l	No	No
Metribuzin	Jan. 11/22	<3	ug/l	No	No
Monochlorobenzene	Jan. 11/22	<0.5	ug/l	No	No
Paraquat	Jan. 11/22	<1	ug/l	No	No
Pentachlorophenol	Jan. 11/22	<0.2	ug/l	No	No
Phorate	Jan. 11/22	<0.3	ug/l	No	No
Picloram	Jan. 11/22	<5	ug/l	No	No
Polychlorinated Biphenyls (PCB)	Jan. 11/22	<0.05	ug/l	No	No
Prometryne	Jan. 11/22	<0.1	ug/l	No	No
Simazine	Jan. 11/22	<0.5	ug/l	No	No
THM (NOTE: shows latest annual average)	Quarterly (4 samples)	34.25	ug/l	No	No
HAA's (NOTE: shows latest annual average)	Quarterly (4 samples)	22.65	ug/l	No	No
Terbufos	Jan. 11/22	<0.5	ug/l	No	No
Tetrachloroethylene	Jan. 11/22	<0.5	ug/l	No	No
2,3,4,6-Tetrachlorophenol	Jan. 11/22	<0.2	ug/l	No	No
Triallate	Jan. 11/22	<10	ug/l	No	No
Trichloroethylene	Jan. 11/22	<0.5	ug/l	No	No
2,4,6-Trichlorophenol	Jan. 11/22	<0.2	ug/l	No	No
Trifluralin	Jan. 11/22	<0.5	ug/l	No	No
Vinyl Chloride	Jan. 11/22	<0.2	ug/l	No	No

Table 6: Winter Lead Sampling

Sampling Period – Winter (December 15 th 2021 to April 15 th 2022)	Residential	Non-Residential	Distribution
Number of individual samples	20	2	2
Number of sample points (locations)	10	1	2
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		

Table 7: Summer Lead Sampling

Sampling Period - Summer (June 15 th 2022 October 15 th 2022)	Residential	Non-Residential	Distribution
Number of individual samples	20	2	1
Number of sample points (locations)	10	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		

See **Appendix A** for information on the lead service line replacement program.

4. Gananoque Drinking Water System

4.1 Water System Description

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

Table 8: Water Treatment Plant Identification

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 Treatment Chemicals Used

All chemicals used in the operation of the drinking water system meet all the 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

4.1.2 Water Distribution System

The Town of Gananoque's Class II Distribution System consists 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 2022 Flow Summary

In 2022 the maximum or peak daily raw water flow was 154 L/s which occurred on October 1st. This is 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 2,394 m³/day also below the maximum approved permit to take water of 10,220 m³/day.

Table 9: Maximum Permitted Water Taking

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 2022 calendar year is provided in **Appendix B**.

4.3 Adverse Water Quality Incidents

In accordance with Schedule 16 of O. Reg. 170/03, all required notifications of adverse water quality incidents (AWQI's) are reported to the Medical Officer of Health (MOH) and the Spills Action Centre (SAC). There were no AWQI's which occurred in 2022.



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 water treatment and water distribution.

4.5 Capital Projects

The *2022 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 which 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, 2002* for the municipal drinking water system, and covers the period from January 1st to December 31st 2022. 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's regulations, and the systems' approval including any reportable events and the corresponding corrective actions undertaken in 2022. 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.



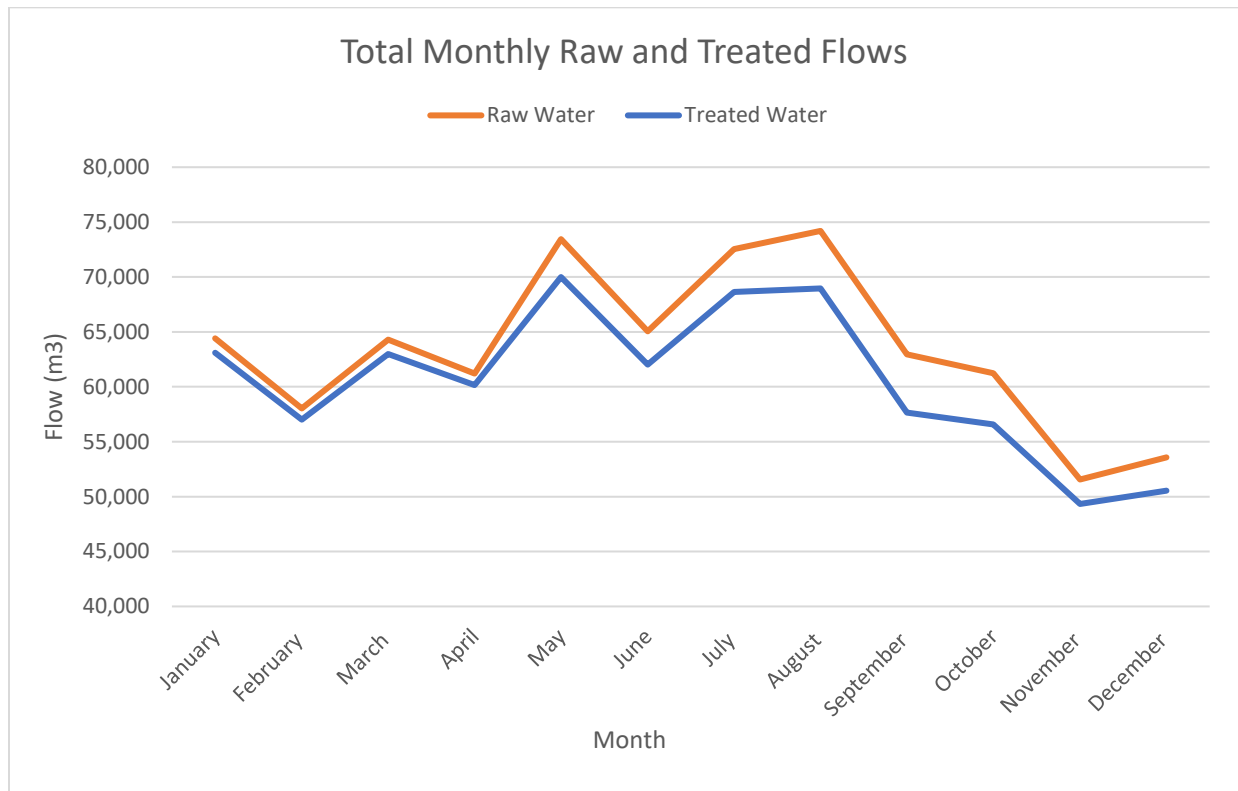
Appendix B



2022 Flow Report

The below charts are the summaries of the raw and treated water flows during the 2022 calendar year.

1. Total Monthly Raw and Treated Water Flows



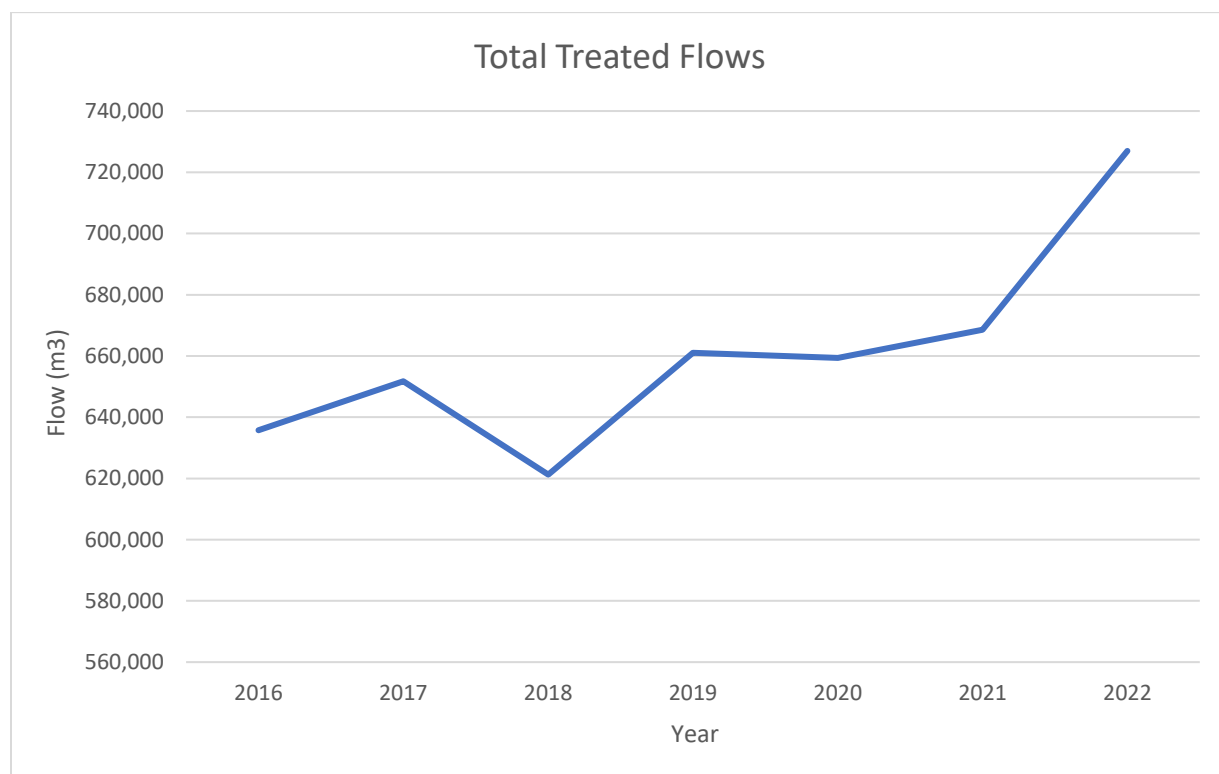


2. Flow Summaries

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	2,077	4,190	151	64,400	2,036	3,942	81	63,115
February	2,072	2,462	151	58,021	2,036	2,444	84	57,006
March	2,074	2,343	150	64,307	2,031	2,356	81	62,974
April	2,041	2,314	151	61,223	2,005	2,353	126	60,145
May	2,369	3,150	153	73,453	2,258	2,926	84	69,994
June	2,169	2,682	151	65,059	2,067	2,641	81	62,021
July	2,340	2,738	152	72,531	2,214	2,729	80	68,628
August	2,394	2,878	148	74,199	2,225	2,569	80	68,973
September	2,099	2,571	151	62,971	1,922	2,564	81	57,649
October	1,975	2,611	154	61,225	1,825	2,396	31	56,577
November	1,718	2,022	146	51,559	1,644	2,046	80	49,332
December	1,728	2,289	148	53,578	1,631	2,159	80	50,554

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
2022	726,968





Appendix C

WATER TREATMENT CAPITAL PROJECTS

PROJECT NAME: Water Treatment Equipment/Construction
YEAR: 2022
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: November 10, 2021
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:			
WATER TREATMENT PLANT:			
Process Treatment Upgrades	Engineering Services (HL P4&5 / VFD)	DR	10,000
Electrical MCC	MCC Breaker Upgrades	DR	50,000
Chemical Storage (1 bulk 2 day tanks)	Replace Alum Chemical Day Tanks	DR	7,500
High Lift #4 Motor	Motor Refurbishment	DR	15,000
High Lift #4 Pump	Pump Refurbishment	DR	90,000
VFD High Lift Pumps #4 & #5	New Variable Frequency Drive (VFD)	DR	220,000
Pressure Transducer/SCADA	New Discharge Header Pressure Transducer	DR	20,000
Backwash Water Holding Tank Actuators	Actuator Replacement Program	DR	17,500
SMALL EQUIPMENT			
Lab Equipment	Replace Jar Tester & Analyzers	DR	5,000
			435,000

WATER DISTRIBUTION CAPITAL PROJECTS

PROJECT NAME: Water Distribution/Construction
YEAR: 2022
COST CENTRE: Capital reserve funded through water revenues
LOCATION: Gananoque Water Distribution System
LENGTH: On-Going
YEAR FIRST INTRODUCED: 2019
PREPARED BY: D. Richards
DATE: November 10, 2021
SCOPE: Provides for the capital needs for the Gananoque Water Distribution System
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:
FULL RECONSTRUCTION:			
Project Planning	Arthur Street Reconstruction (Stone to Charles)	BW/DA	50,000
WATERMAINS, HYDRANTS & VALVES:			
Hydrant Replacement / Rebuild Program	Replace/Rebuild Hydrants	DR	25,000
Leak Detection	Hydrant Pressure Monitoring Units	DR	25,000
Engineering Services	Distribution Hydraulic Modeling	DR	10,000
OVERHEAD TANK			
Communications	Upgrades Communications from Tower to WTP	DR	50,000
SERVICES / METERING:			
Corrosion Control (Lead Service Replacement Program)	Lead service removal program - MECP corrosion control plan	DR	25,000
Water Meters	Replace Older RF Water Meters (400)	DR	225,000
			410,000

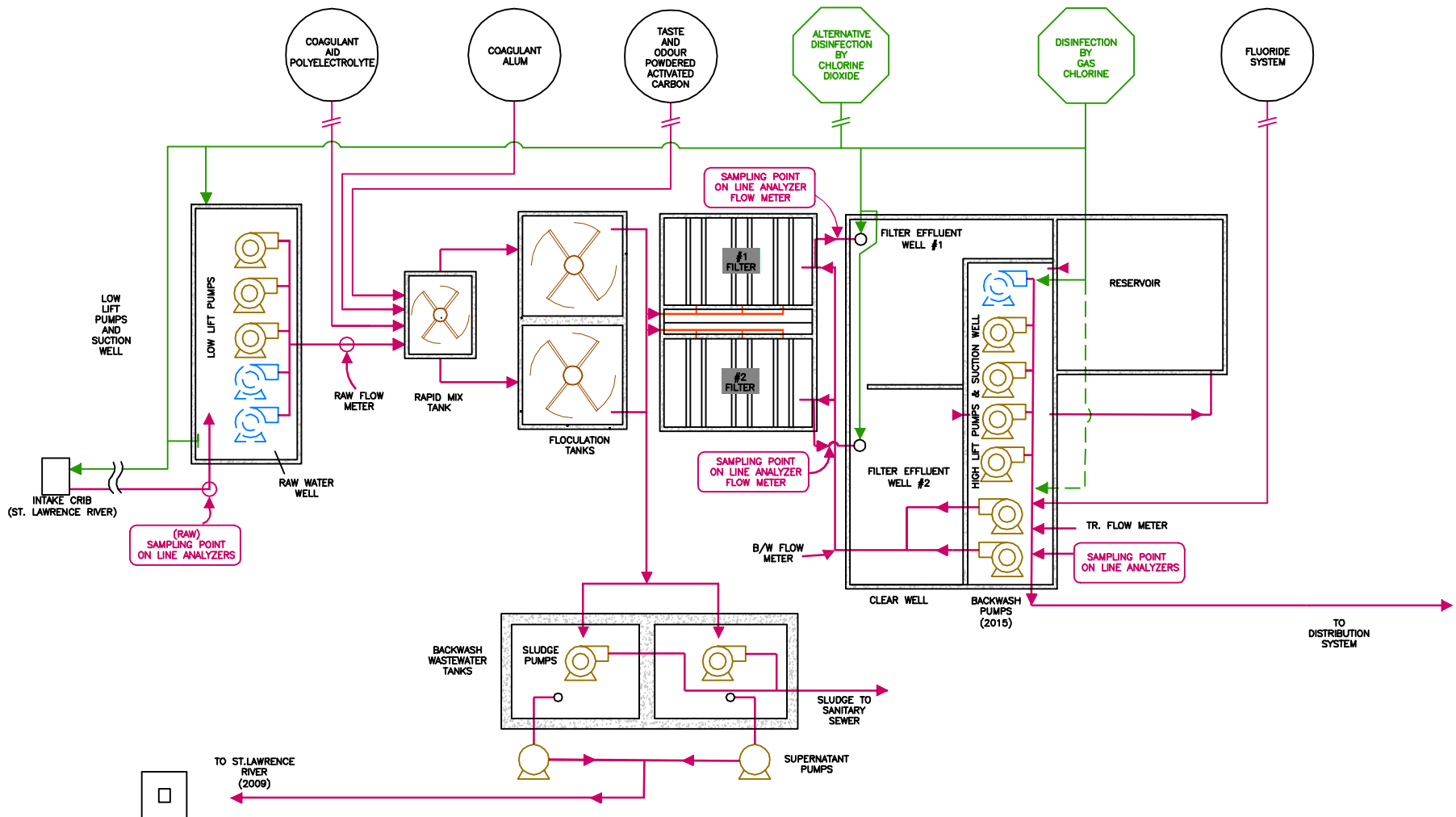
FLEET AND SMALL EQUIPMENT CAPITAL PROJECTS	
1	2025
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<u>PROJECT NAME:</u>	Utilities Fleet/Small Equipment
<u>YEAR:</u>	2022
<u>COST CENTRE:</u>	Capital reserve funded through water and wastewater revenues
<u>LOCATION:</u>	Utilities Fleet/Small Equipment
<u>LENGTH:</u>	On-Going
<u>YEAR FIRST INTRODUCED:</u>	2020
<u>PREPARED BY</u>	D. Richards
<u>DATE</u>	November 10, 2019
<u>SCOPE:</u>	Provides for the capital needs for the Gananoque Utilities Division Fleet and Small Equipment
<u>WHY REQUIRED:</u>	Allows for coordinated planning for fleet and equipment upgrades
<u>BENEFITS:</u>	Ensures that all costs are being captured and financed through the water & wastewater rates

[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