

Corporation of the City of Quinte West

Trenton/Bayside Drinking Water System (Trenton Service Area)

2020 Annual Drinking Water System Report



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The Corporation of the City of Quinte West
 Public Works and Environmental Services
 Water/Wastewater Division
2020 Annual Drinking Water System Report
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Drinking Water System Information

Drinking Water System Number:	220001619
Drinking Water System Name:	Trenton/Bayside Drinking Water System (Trenton Service Area)
Drinking Water System Owner:	The Corporation of the City of Quinte West
Drinking Water System Category:	Large Municipal-Residential System
Period being Reported:	January 1, 2020 through December 31, 2020

Does your Drinking Water System service more than 10,000 people?

Yes

Is your Annual Report available to the public at no charge on a website

Yes, please visit www.quintewest.ca

Location where Summary Report required under O.Reg.170/03 Schedule 22 will be available for inspection

Water/Wastewater Division Administration Office

25 Couch Crescent

Trenton, ON, K8V 1GB

List all Drinking Water Systems (if any), that receive all of their Drinking Water from your System:

Carrying Place/Consecon Water Distribution System, DWS number 260005099



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Indicate how you notified system users that your annual report is available, and is free of charge.

- Public access/notice via City website
- Public access/notice via Government Office
- Public access/notice via newspaper
- Public access/notice via City social media platform(s)
- Public access/notice via a Public Library
- Public access/notice via other method:

Description of the Drinking Water System

The Trenton Water Treatment Plant draws water from the Trent River upstream of Dam No. 1 through two intake pipes; one 53 m long, 400 mm diameter raw water intake pipe, and a second, 18 m long, 600 mm diameter intake. This conventional, chemically assisted filtration plant has a rated capacity of 35,800 cu.m/day. Processes used at the filtration plant include flocculation, sedimentation, and Granular Activated Carbon Filtration. Chlorine gas is applied as a disinfectant before filtered water enters two interconnected baffled clearwells with a combined capacity of 5,454 cu.m. The potable (drinkable) water is then pumped into the distribution system through a set of four (4) highlift pumps. There are two elevated water storage tanks in service. The first is the 2nd Dug Hill Road Water Tower; capacity 2,273 cu.m, the second is the Oak Street Water Tower; capacity 2,273 cu.m. Three Booster Pumping Stations are located within the Trenton WDS; they are Catherine Street Booster Pumping Station, Mount Pelion Booster Pumping Station, and Telephone Road Booster Pumping Station. These stations are used to boost system pressure, and supply water into areas at a higher elevation than the Water Treatment Plant.

The Trenton distribution system services approximately 22,000 people in the Trenton community, in addition to part of CFB Trenton. The Trenton Water Treatment plant also supplies all drinking water to the Carrying Place and Consecon Water Distribution System in



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Prince Edward County. In 2015 the City installed a watermain along Old Hwy 2 that effectively connected the Trenton Water Distribution System (WDS) to the Bayside WDS. On April 21, 2017 the Trenton, and Bayside Drinking Water System’s were consolidated and governed under one Drinking Water Works Permit (DWWP) # 163-202, and Municipal Drinking Water Licence (MDWL) # 163-102. Each system is still assigned a separate Drinking-Water System number by the Ministry of Environment, Conservation and Parks.

List all water treatment chemical used over this Reporting Period:

- ✓ Aluminum Sulphate (Tradename: Alum)
- ✓ Chlorine Gas

Were any significant expenses incurred to:

- ✓ Install Required Equipment?
- Repair required Equipment?
- ✓ Replace required Equipment?

Provide a brief description, and a breakdown of monetary expenses incurred to facilitate Equipment upgrades:

Preventative Maintenance (PM) activities for lubrication, inspections, testing and cleaning of equipment is scheduled and completed routinely, along with other lifecycle replacement needs. In addition to the PM activity, the following Capital expenditures were incurred this Reporting Period:

Rebuild outer shell of Telephone Road Booster Station complete with asphalt paving for pest control	~\$28,000
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Victoria Avenue watermain replacement	\$80,500
Catherine Street watermain replacement	\$171,000
King Street watermain replacement	\$527,000
Queen Street watermain replacement	\$390,400
Campbell Street watermain replacement	\$104,000

Notices submitted in accordance with subsection 18(1) of the Safe Drinking Water Act or section 16-4 of Schedule 16 of O.Reg. 170/03 and reported to Spills Action Centre during this Reporting Period:

Incident Date (DD-MM-YY)	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date (DD-MM-YY)
14-JUL-20	<i>Total Coliform</i>	1	cfu/100mL	Resample and Test upstream/downstream/point of adverse, all sample results clear. No further Corrective Actions required.	16-JUL-20



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Microbiological Testing completed in accordance with Schedule 10, 11, or 12 of Regulation 170/03 during this Reporting Period:

	Number of Samples	Range of E.Coli (min - max)	Range of Total Coliform (min - max)	Number of Heterotrophic Plate Count Samples	Range of HPC results (min - max)
Raw	52	1 - 200	18 - 7400	NA	NA
Treated	52	0 - 0	0 - 0	52	0 - 5
Distribution	396	0 - 0	0 - 1	185	0 - 89

Operational Testing completed in accordance with Schedule 7, 8, or 9 of O.Reg.170/03 during this Reporting Period:

Parameter	Number of Grab Samples	Range of Results (min-max)
Turbidity, (NTU)	8760	0.000 ¹ - 0.616
Primary Disinfection FAC ² , (mg/L)	8760	0.97 ³ - 2.94
Secondary Disinfection FAC, (mg/L)	8760	0.52 - 3.24

¹ Value obtained when analyzer fails. Five (5) events occurred throughout reporting period. Desiccant Pouch (analyzer component) required replacement. Lasts less than 1 min. Before alarm interlock shuts filter down.

² Free Available Chlorine. Defined as the free amount of chlorine available in water.

³ Suspected erroneous reading. CT calculation performed using this value. CT(req) = 16.34mg/L*min, CT(ach) = 236.13 mg/L*min.



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Summary of additional testing and sampling carried out in accordance with the requirement of an Approval, Order, or other Legal Instrument:

In accordance with Condition 4.0 of MDWL #163-102, monthly samples must be collected and tested for Total Suspended Solids, and Total Residual Chlorine, from the following waste streams that may impact the natural environment:

- Waste Residual Management Sedimentation Tank - Clear Water Discharge

Condition 1.5 of the MDWL outlines the maximum annual average concentration for each of these parameters. As a result of detectable Total Chlorine⁴ in cold water temperatures in 2018, the decant system had to be shut down and a dechlorination system installed. The system resumed operation February 24, 2020. Outlined below are sample results obtained throughout those months that the system was in service. Of note, the system was offline for maintenance or repair between May 21, 2020 - June 10, 2020, and again between July 8 - July 13, 2020.

Monitoring month	Total Flow (cu.m)	Total Suspended Solids (mg/L)	Minimum Total Residual Chlorine (mg/L)	Maximum Total Residual Chlorine (mg/L)
January, 2020	<i>No Data, no discharge</i>	<i>No Data, no discharge</i>	<i>No Data, no discharge.</i>	<i>No Data, no discharge.</i>
February, 2020	2,049	3	0.02	0.02
March, 2020	11,007	4	0.00	0.04
April, 2020	10,203	< 2	0.01	0.02

⁴ Total Residual Chlorine. Defined as the total amount of chlorine available in water.



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May, 2020	5,408	6	0.00	0.03
June, 2020	8,697	< 2	0.00	0.02
July, 2020	7,786	ND ⁵	0.00	0.04
August, 2020	10,167	3	0.02	0.06
September, 2020⁶	10,153	2	0.02	0.02
October, 2020⁷	10,393	2	0.00	0.03
November, 2020	9,489	2	0.01	0.02
December, 2020	9,771	2	0.01	0.02
Annual Average	8,648	2.8		0.02

Summary of Inorganic parameters tested during this Reporting Period or the most recent Sample Results:

Inorganic Compound Results				
Parameter	Sample Date (dd/mmm/yy)	Result Value	Unit of Measure	Exceedance?
Antimony	07-JAN-20	0.09	ug/L	NO
Arsenic	07-JAN-20	0.2	ug/L	NO
Barium	07-JAN-20	31.7	ug/L	NO
Boron	07-JAN-20	8	ug/L	NO
Cadmium	07-JAN-20	0.003	ug/L	NO

⁵ ND means No Data. Sample submission missed due to system being inoperational for a period of time.

⁶ Sample submitted 06-OCT-20 for monthly composite.

⁷ Sample submitted 03-NOV-20 for monthly composite.



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Chromium	07-JAN-20	0.09	ug/L	NO
Mercury	07-JAN-20	0.01	ug/L	NO
Selenium	07-JAN-20	0.06	ug/L	NO
Sodium	07-JAN-20	10.6	mg/L	NO
Fluoride	07-JAN-20	0.06	mg/L	NO
Uranium	07-JAN-20	0.044	ug/L	NO
Nitrate	07-JAN-20 07-APR-20 07-JUL-20 06-OCT-20	0.312 0.302 0.122 0.044	mg/L	NO
Nitrite	07-JAN-20 07-APR-20 07-JUL-20 06-OCT-20	0.003 0.003 0.003 0.003	mg/L	NO

Summary of Lead Testing under Schedule 15.1 during this Reporting Period:

Lead Sampling Results				
Sampling Period	Location Type	Number of Samples	Range of Lead Results (ug/L), 'min-max'	Number of Exceedances
Winter Sampling Period ⁸	Drinking Water System exempt from sampling in accordance with Section 15.1-5(9) under Schedule 15 of O.Reg.170/03. Sampling and testing for Lead not required until Winter 2021/2022 for sampling period.			
Summer Sampling	Drinking Water System exempt from sampling in accordance with Section 15.1-5(9) under Schedule 15 of O.Reg.170/03. Sampling and			

⁸ Winter Sampling Period runs from December 15 - April 15. The last sample collected in accordance with the Regulation was sampled on April 9, 2019.



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Period ⁹	testing for Lead not required until Summer 2022 sampling period.
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Summary of Organic parameters sampled during this Reporting Period:

Organic Compound Results				
Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Alachlor	07-JAN-20	0.02	ug/L	No
Atrazine + N-dealkylated metabolites	07-JAN-20	0.01	ug/L	No
Azinphos-methyl	07-JAN-20	0.05	ug/L	No
Benzene	07-JAN-20	0.32	ug/L	No
Benzo(a)pyrene	07-JAN-20	0.004	ug/L	No
Bromoxynil	07-JAN-20	0.33	ug/L	No
Carbaryl	07-JAN-20	0.05	ug/L	No
Carbofuran	07-JAN-20	0.01	ug/L	No
Carbon Tetrachloride	07-JAN-20	0.17	ug/L	No
Chlorpyrifos	07-JAN-20	0.02	ug/L	No

⁹ The Summer Sampling Period runs from June 15 through October 15. The last sample collected in accordance with the Regulation was sampled on September 16, 2019.



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Diazinon	07-JAN-20	0.02	ug/L	No
Dicamba	07-JAN-20	0.20	ug/L	No
1,2-Dichlorobenzene	07-JAN-20	0.41	ug/L	No
1,4-Dichlorobenzene	07-JAN-20	0.36	ug/L	No
1,2-Dichloroethane	07-JAN-20	0.35	ug/L	No
1,1-Dichloroethylene (vinylidene chloride)	07-JAN-20	0.33	ug/L	No
Dichloromethane	07-JAN-20	0.35	ug/L	No
2-4 Dichlorophenol	07-JAN-20	0.15	ug/L	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	07-JAN-20	0.19	ug/L	No
Diclofop-methyl	07-JAN-20	0.40	ug/L	No
Dimethoate	07-JAN-20	0.06	ug/L	No
Diquat	07-JAN-20	1	ug/L	No
Diuron	07-JAN-20	0.03	ug/L	No
Glyphosate	07-JAN-20	1	ug/L	No
Malathion	07-JAN-20	0.02	ug/L	No



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2 methyl-4-chlorophenoxyacetic acid (MCPA)	07-JAN-20	0.00012	mg/L	No
Metolachlor	07-JAN-20	0.01	ug/L	No
Metribuzin	07-JAN-20	0.02	ug/L	No
Monochlorobenzene	07-JAN-20	0.3	ug/L	No
Paraquat	07-JAN-20	1	ug/L	No
Pentachlorophenol	07-JAN-20	0.15	ug/L	No
Phorate	07-JAN-20	0.01	ug/L	No
Picloram	07-JAN-20	1	ug/L	No
Polychlorinated Biphenyls(PCB)	07-JAN-20	0.04	ug/L	No
Prometryne	07-JAN-20	0.03	ug/L	No
Simazine	07-JAN-20	0.01	ug/L	No
THM (NOTE: show latest annual average)	06-OCT-20	54	ug/L	No
HAA (Running Annual Average)	06-OCT-20	59.1	ug/L	No
Terbufos	07-JAN-20	0.01	ug/L	No



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Tetrachloroethylene	07-JAN-20	0.35	ug/L	No
2,3,4,6-Tetrachlorophenol	07-JAN-20	0.20	ug/L	No
Triallate	07-JAN-20	0.01	ug/L	No
Trichloroethylene	07-JAN-20	0.44	ug/L	No
2,4,6-Trichlorophenol	07-JAN-20	0.25	ug/L	No
Trifluralin	07-JAN-20	0.02	ug/L	No
Vinyl Chloride	07-JAN-20	0.17	ug/L	No

Inorganic or Organic parameter(s) that have exceeded half the standard prescribed in Schedule 2 of Ontario Drinking Water Quality Standards:

None.



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2020 Summary Report to Council

In accordance with Schedule 22 requirements outlined in Ontario Regulation 170/03, a Summary Report shall be prepared no later than March 31 for the preceding year, and supplied to members of municipal council.

The Report shall list the requirements of the Act, Regulations, Drinking Water Works Permit, Municipal Drinking Water Licence, and any Orders applicable to the system that were not met at any time during the period covered by the Report.

The Report must also include a summary of the quantities and flow rates of potable (drinkable) water supplied during the Reporting Period, including monthly average and maximum daily flows. A comparison of these flows to the rated capacity and flow rates approved in the system Drinking Water Works Permit, and Municipal Drinking Water Licence, must also be provided.

Prescribed Instruments applicable to the Trenton DWS

The Trenton DWS is governed by, and must operate their DWS primarily in accordance with, the following Acts and Regulations at minimum:

- Safe Drinking Water Act, 2002;
- O. Reg. 128/04 – Certification of Drinking Water System Operators and WQA
- O. Reg. 170/03 – Drinking Water Systems
- O. Reg. 169/03 – Ontario Drinking Water Quality Standards
- Environmental Protection Act, where applicable;
- Clean Water Act, where applicable;
- Municipal Drinking Water Licence 163-102;
- Drinking Water Works Permit 163-202;
- Permit to Take Water 1007-9HJP6L, expires April 30, 2024.



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Councillors wishing to obtain a copy of any Act or Regulation are welcome to contact the Compliance Coordinator at amyr@quintewest.ca to obtain a current consolidated copy and interpretation of the legislation.

Compliance with Prescribed Instruments, Acts and Regulations

Safe Drinking Water Act

In addition to the single Adverse Water Quality event detailed in section [Notices submitted in accordance with subsection 18\(1\) of the Safe Drinking Water Act or section 16-4 of Schedule 16 of O.Reg. 170/03 and reported to Spills Action Centre during this Reporting Period](#), the following noteworthy activities occurred through the Reporting Period.

NSF International conducted an offsite Surveillance Audit on October 27, 2020. The intent of the audit is to confirm continued conformance to the Drinking Water Quality Management Standard. There were no Non-Conformances identified in the Audit Report; three (3) Opportunities for Improvement to the documented Operational Plan were suggested.

After a successful re-accreditation audit in 2019, the City was required to apply for a Municipal Drinking Water Licence renewal in 2020.

Clean Water Act

The Source Protection Plan was approved by the Minister of Environment, Conservation and Parks, and came into effect on January 1, 2015. The City has put the necessary internal processes in place with the Planning, Building, and Public Works Departments to screen applications and ensure compliance with the Source Protection Plan. In 2020 there were 10



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applications submitted to the Risk Management Official for review and approval specific to the Trenton system. In general the screening, application, and approval processes implemented by staff seem to be working reasonably well. Throughout the screening and verification process it has been determined that currently there are three (3) Risk Management Plans required for affected properties in the Intake Protection Zone surrounding the Trenton Intake. Draft RMP's have been distributed to affected property owners for review, and to start the consultation/negotiation process.

Permit to Take Water

The City operates its Trenton Water Treatment Plant in accordance with Permit to Take Water (PTTW) number 1007-9JHP6L which expires on April 30, 2024. This Permit allows the City to take 35,800 cu.m/day from the Trent River watershed at a maximum flow rate of 530.4 L/s. The maximum recorded daily taking was 17,978.3 cu.m/day on July 21, 2020. The maximum recorded flow rate was 495.2 L/s on December 1, 2020.

For a detailed summary of water quantities and flow rates, see [2020 Water Quantity and Flow Rates \(Raw Water Assessment\)](#).

Drinking Water Works Permit/Municipal Drinking Water Licence

The City applied for renewal of its Municipal Drinking Water Licence, and Drinking Water Works Permit in 2020. The Trenton/Bayside DWS is now governed by Number: 05 of Municipal Drinking Water Licence number 163-102, and Issue Number: 08 of Drinking Water Works Permit number 163-202. The Municipal Drinking Water Licence will expire September 28, 2025. Noteworthy changes to the City's Licence are listed below:

- The new Licence requires development of a Harmful Algal Bloom monitoring, reporting and sampling plan by March 28, 2021.



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- The Watermain Disinfection Procedure was revised in August, 2020. This version 2.0 requires adoption by March 28, 2021.

In accordance with Condition 1.1 of the MDWL, the Trenton Water Treatment Plant has a rated capacity to treat and distribute 35,800 cu.m/day. Over the Reporting Period the maximum daily volume of treated water distributed to the distribution system was 16,402 cu.m/day on July 21, 2020. The Annual Average Daily Flow pumped to the Distribution System was 10,371 cu.m/day. For a detailed summary of treated water quantities and flow rates, see [2020 Water Quantity and Flow Rates \(Treated Water Assessment\)](#).

The City achieved a 100% Inspection Rating on its 2020 MECP Compliance Inspection, however, one regulatory non-compliance was cited as water quality monitoring requirements imposed by the MDWL (or DWWP) issued under Part V of the SDWA were not met for the month of July, 2020. Staff received an email from the Compliance Coordinator advising of correct sampling procedures, no further action was required by MECP.



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2020 Water Quantity and Flow Rates (Raw Water Assessment)

Raw Water Flow: PTTW Limit = 35,800 cu.m/d			
Month	Average Daily Flow (cu.m/d)	Maximum Daily Flow (cu.m/d)	Total Monthly Flow (cu.m/month)
January	9,313	10,288	288,693
February	9,663	10,581	280,229
March	9,782	10,910	303,245
April	10,027	11,639	300,797
May	11,017	13,871	341,528
June	13,546	16,194	406,371
July	15,234	17,978	472,249
August	12,960	15,561	401,754
September	11,853	12,919	355,582
October	10,331	11,840	320,266
November	10,140	12,375	304,204
December	10,759	13,374	333,535
Total Raw Water Flow =			4,108,453



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2020 Water Quantity and Flow Rates (Treated Water Assessment)

Treated Water Flow: Facility Rated Capacity = 35,800 cu.m/day			
Month	Average Daily Flow (cu.m/d)	Maximum Daily Flow (cu.m/d)	Total Monthly Flow (cu.m/month)
January	8,461	9,444	262,280
February	8,844	9,626	256,463
March	8,933	9,833	276,930
April	9,124	10,574	273,714
May	10,140	12,611	314,325
June	12,416	14,373	372,488
July	14,198	16,402	440,128
August	12,113	14,775	375,497
September	11,048	12,226	331,434
October	9,600	11,049	297,587
November	9,330	11,462	279,910
December	9,833	12,270	304,811
Total Treated Water Flow =			3,785,565

- Annual Average Daily (Treated Water) Flow = 10,371 cu.m/day. This accounts for 29% of the facility Rated Capacity.
- Maximum Daily (Treated Water) Flow = 16,402 cu.m/day. This accounts for 46% of the facility Rated Capacity during record peak daily flow conditions.



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Historical Flow Comparison

The facility has operated at 27% of its rated capacity over the past five years. The facility saw a 10% increase in demand from 2019 to 2020. This is likely attributed to a dry summer and increase in demand from an increase in population. Water/Wastewater Services calculates population figures for regulatory reporting requirements using service connection numbers as their baseline. The population is calculated to have increased by 4.8% in 2020. Further demand will be placed on the Trenton DWS once the Frankford/Batawa DWS is connected to the Trenton water supply. Booster Pumps will be sized to supply 30LPS and are being designed to supplement flows to the Frankford/Batawa system. The Tender to construct a Booster Station and install a watermain, will be distributed in the Spring of 2021.

