

Corporation of the City of Quinte West

# Trenton/Bayside DWS (Bayside Service Area)

2022 Annual & Summary Drinking Water System Report

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## A Natural Attraction

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**The Corporation of the City of Quinte West**  
 Public Works and Environmental Services  
 Water/Wastewater Division  
**2022 Annual Drinking Water System Report**  
**(Bayside Service Area)**

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## 2022 Annual Drinking Water System Report

### Drinking Water System Information

Drinking Water System Number:	220008079
Drinking Water System Name:	Trenton/Bayside DWS (Bayside 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, 2022 through December 31, 2022

### 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](http://www.quintewest.ca)

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

Water/Wastewater Services Administration Office

25 Couch Crescent

Trenton, ON, K8V 1G8

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

None.



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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 Bayside Water Treatment Plant pulls water from the Bay of Quinte through a 404 m long intake pipe that extends approximately 370 m into the Bay. This conventional, chemically-assisted filtration plant has a rated capacity of 11,360 cu.m/day. The facility uses rapid-mix coagulation, flocculation, sedimentation, dual-media filtration, and granular activated adsorber cells. The facility uses sodium hypochlorite for disinfection, and fluoridates its drinking water supply. Drinking Water is pumped to the Water Distribution System (WDS) via two (2) vertical turbine highlift pumps that draw water from the onsite 980 cu.m. clearwell. The elevated water storage tower located at 10 Richards Way, has an effective usable volume of 6,050 cu.m. A dual-celled holding pond is used to provide natural filtration for process wastewater prior to final discharge into an adjacent wetland through ex-filtration.

The Bayside Water Treatment Plant services approximately 4,900 customers in the community of Bayside, in addition to a portion of CFB Trenton. In 2015, the City constructed a watermain that effectively connected the Bayside WDS to the Trenton WDS. On April 21, 2017, the Trenton and Bayside Drinking Water Systems, previously governed by their own Drinking Water Works Permit (DWWP) and Municipal Drinking Water Licence (MDWL), were consolidated under one DWWP # 163-202, and one MDWL # 163-102. Each



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system is still assigned a separate DWS number by the Ministry of Environment, Conservation and Parks.

**List all water treatment chemical used over this Reporting Period:**

- ✓ Polyaluminum Chloride (Tradename: SternPac)
- ✓ Sodium Hypochlorite
- ✓ Hydrofluosilicic Acid (Fluoride solution)

**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:

Water Meter Automation and Replacement	~ \$700,000 (combined with all Drinking Water Systems)
Water Tower Safety upgrades	~ \$70,000
Bayside Elevated Tank Mixing System	~ \$150,000
Replacement of Coagulant Flash Mixer	~ \$35,000



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**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:**

<b>Incident Date</b> <small>(DD-MMM-YY)</small>	<b>Parameter</b>	<b>Result</b>	<b>Corrective Action</b>	<b>Corrective Action Date</b> <small>(DD-MMM-YY)</small>
04-AUG-22	Turbidity	Flash mixer as part of coagulation process failed (around July 31, 2022), caused 'top of filter' turbidity to increase and corresponding increase in filter effluent turbidity. Flocculation/ sedimentation process remained operational. Filter effluent turbidity did not exceed 0.44 NTU. Post-chlorine averaging 2.2 mg/L since July 31, 2022.	New flash mixer installed Aug 8, 2022 at 1100H. Filters out of service and set to filter to waste (FTW). Aug 9, 2022 ~ 0940H DM filters back in service, ~ 1120H GAC filters back in service, FTW until 0.2 NTU. Treated water sample taken @ 1135H Cl2 1.54 mg/L.	10-AUG-22



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08-DEC-22	Turbidity	On Dec 8, 2022, the facility Operator observed elevated Filter Effluent turbidity, filter #1= 0.27 NTU, filter #2= 0.26 NTU. Investigated issue and observed that one of two coagulant pumps failed to operate when required to run. Normal coagulant dosage approx. 70 mg/L, coag dosage Dec 8= 24.8 mg/L.	Dec 8, 2022- Sed tanks 1 & 2 drained halfway down to waste tank and wetlands N side of plant. Inspected and corrected pump issue. Treatment plant returned to normal operation Dec 12, 2022 @ 2040H	12-DEC-22
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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	0 - NDOGT <sup>1</sup>	0 - NDOGT	NA	NA
Treated	52	0 - 0	0 - 0	52	0 - 4
Distribution	195	0 - 0	0 - 0	82	0 - 10

<sup>1</sup> NDOGT stands for No Data: Overgrown with Target Bacteria. Prior, and subsequent datasets within normal range.





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**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 <sup>2</sup> - 0.908
Primary Disinfection FAC <sup>3</sup> , (mg/L)	8760	0.50 <sup>4</sup> - 3.34
Secondary Disinfection FAC, (mg/L)	8760	0.00 <sup>5</sup> - 5.01 <sup>6</sup>
Fluoride <sup>7</sup> , (mg/L)	8760	0.20 - 1.07

**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, issue number 4, monthly samples were collected from the 'Filter to Waste' environmental Discharge, and 'Holding Pond' Influent discharge points. On September 28, 2020 MECP Approvals Branch issued a new MDWL to the City and removed the requirement to sample Holding Pond Influent and test for TSS, as environmental release is through exfiltration to adjacent wetland and therefore not an environmental risk. The ponds are monitored regularly, and solids removed on an as-needed basis, to ensure continued effective operation.

<sup>2</sup> Value obtained when the analyzer failed. Two (2) events occurred throughout the reporting period. First lasts less than 1 min, before the valve closes. Second shows flow through analyzer filtering to waste.

<sup>3</sup> Free Available Chlorine. Defined as the free amount of chlorine available in water.

<sup>4</sup> Isolated incident on August 9, 2022. Flow filtering to waste during reading. CT req'd 10.7, CT achieved 29.7.

<sup>5</sup> Isolated incident caused by power bump, lasting less than 1 minute.

<sup>6</sup> Isolated incident caused by power bump, lasting less than 1 minute. Annual average 0.87 mg/L.

<sup>7</sup> Fluoride System offline on two occasions throughout reporting period for analyzer maintenance (4 days) and tower maintenance (14 days)



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Condition 1.5 of the MDWL outlines the maximum annual average concentration for each of these parameters. Results of this sampling and testing are outlined in the table below.

<b>Residue Management, TSS Results, (mg/L)</b>	
<b>Date</b>	<b>Filter to Waste Discharge</b>
January 5, 2022	< 2
February 1, 2022	< 2
March 1, 2022	< 2
April 5, 2022	3
May 3, 2022	< 2
June 6, 2022	< 2
July 5, 2022	< 2
August 3, 2022	< 2
September 7, 2022	< 2
October 4, 2022	2
November 1, 2022	< 2
December 6, 2022	<2
<b>Annual Average Concentration (mg/L)</b>	<b>2.083</b>



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

<b>Inorganic Compound Results</b>				
<b>Parameter</b>	<b>Sample Date (dd/mmm/yy)</b>	<b>Result Value</b>	<b>Unit of Measure</b>	<b>Exceedance?</b>
Antimony	11-JAN-22	<6	ug/L	No
Arsenic	11-JAN-22	<2	ug/L	No
Barium	11-JAN-22	27.6	ug/L	No
Boron	11-JAN-22	<20	ug/L	No
Cadmium	11-JAN-22	< 0.03	ug/L	No
Chromium	11-JAN-22	<0.8	ug/L	No
Mercury	11-JAN-22	< 0.01	ug/L	No
Selenium	11-JAN-22	<0.4	ug/L	No
Sodium	11-JAN-22	13.5	mg/L	No
Fluoride	11-JAN-22	0.49	mg/L	No
Uranium	11-JAN-22	0.06	ug/L	No
Nitrate	11-JAN-22 05-APR-22 05-JUL-22 04-OCT-22	0.350 0.344 0.154 0.060	mg/L	No
Nitrite	11-JAN-22 05-APR-22 05-JUL-22 04-OCT-22	< 0.003 < 0.003 < 0.003 < 0.003	mg/L	No



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

<b>Lead Sampling Results</b>				
<b>Sampling Period</b>	<b>Location Type</b>	<b>Number of Samples</b>	<b>Range of Lead Results (ug/L), 'min-max'</b>	<b>Number of Exceedances</b>
Winter Sampling Period <sup>8</sup> (22-FEB-22)	Distribution	4	0.01 - 0.17	0
Summer Sampling Period <sup>9</sup>	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 are not required until the 2024 summer sampling period.			

**Summary of Organic parameters sampled during this Reporting Period:**

<b>Organic Compound Results</b>				
<b>Parameter</b>	<b>Sample Date</b>	<b>Result Value</b>	<b>Unit of Measure</b>	<b>Exceedance</b>
Alachlor	11-JAN-22	< 0.02	ug/L	No
Atrazine + N-dealkylated metabolites	11-JAN-22	< 0.01	ug/L	No

<sup>8</sup> Winter Sampling Period runs from December 15 - April 15.

<sup>9</sup> Summer Sampling Period runs from June 15 - October 15. The last sample collected in accordance with the Regulation was sampled on October 13, 2021.



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Azinphos-methyl	11-JAN-22	< 0.05	ug/L	No
Benzene	11-JAN-22	< 0.32	ug/L	No
Benzo(a)pyrene	11-JAN-22	< 0.004	ug/L	No
Bromoxynil	11-JAN-22	< 0.33	ug/L	No
Carbaryl	11-JAN-22	< 0.05	ug/L	No
Carbofuran	11-JAN-22	< 0.01	ug/L	No
Carbon Tetrachloride	11-JAN-22	< 0.17	ug/L	No
Chlorpyrifos	11-JAN-22	< 0.02	ug/L	No
Diazinon	11-JAN-22	< 0.02	ug/L	No
Dicamba	11-JAN-22	< 0.20	ug/L	No
1,2-Dichlorobenzene	11-JAN-22	< 0.41	ug/L	No
1,4-Dichlorobenzene	11-JAN-22	< 0.36	ug/L	No
1,2-Dichloroethane	11-JAN-22	< 0.35	ug/L	No
1,1-Dichloroethylene (vinylidene chloride)	11-JAN-22	< 0.33	ug/L	No
Dichloromethane	11-JAN-22	< 0.35	ug/L	No



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2-4 Dichlorophenol	11-JAN-22	< 0.15	ug/L	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	11-JAN-22	< 0.19	ug/L	No
Diclofop-methyl	11-JAN-22	< 0.40	ug/L	No
Dimethoate	11-JAN-22	< 0.06	ug/L	No
Diquat	11-JAN-22	< 1	ug/L	No
Diuron	11-JAN-22	< 0.03	ug/L	No
Glyphosate	11-JAN-22	< 1	ug/L	No
Malathion	11-JAN-22	< 0.02	ug/L	No
2 methyl-4-chlorophenoxyacetic acid (MCPA)	11-JAN-22	< 0.00012	ug/L	No
Metolachlor	11-JAN-22	< 0.01	ug/L	No
Metribuzin	11-JAN-22	< 0.02	ug/L	No
Monochlorobenzene	11-JAN-22	< 0.3	ug/L	No
Paraquat	11-JAN-22	< 1	ug/L	No
Pentachlorophenol	11-JAN-22	< 0.15	ug/L	No
Phorate	11-JAN-22	< 0.01	ug/L	No



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Picloram	11-JAN-22	< 1	ug/L	No
Polychlorinated Biphenyls(PCB)	11-JAN-22	< 0.04	ug/L	No
Prometryne	11-JAN-22	< 0.03	ug/L	No
Simazine	11-JAN-22	< 0.01	ug/L	No
Trihalomethanes (THMs) (Running annual average)	04-OCT-22	84.25	ug/L	No
<b>Haloacetic acids (HAAs) (Running annual average)</b>	<b>04-OCT-22</b>	<b>100.95</b>	<b>ug/L</b>	<b>YES</b>
Terbufos	11-JAN-22	< 0.01	ug/L	No
Tetrachloroethylene	11-JAN-22	< 0.35	ug/L	No
2,3,4,6-Tetrachlorophenol	11-JAN-22	< 0.20	ug/L	No
Triallate	11-JAN-22	< 0.01	ug/L	No
Trichloroethylene	11-JAN-22	< 0.44	ug/L	No
2,4,6-Trichlorophenol	11-JAN-22	< 0.25	ug/L	No
Trifluralin	11-JAN-22	< 0.02	ug/L	No
Vinyl Chloride	11-JAN-22	< 0.17	ug/L	No



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

During the reporting period the Running Annual Average for HAA's was exceeded during all four quarters.





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## **2022 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/ Bayside DWS**

The Trenton/Bayside 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 1000-9RFK23, expires December 4, 2024.



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Councillors wishing to obtain a copy of any Act or Regulation are free to contact the Compliance Coordinator at [collette.kingdon@quintewest.ca](mailto:collette.kingdon@quintewest.ca) to obtain a current consolidated copy and interpretation of the legislation.

## **Compliance with Prescribed Instruments, Acts and Regulations**

### **Safe Drinking Water Act**

Adverse Water Quality Incidents as defined by the Safe Drinking Water Act have been listed 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 a Re-certification Audit from December 13-15, 2022. The intent of the audit is to confirm continued conformance to the Drinking Water Quality Management Standard. The City received its Entire Full Scope Accreditation, with no Non-Conformances identified in the Audit Report. Four (4) Opportunities for Improvement (OFI) were identified.

The City achieved a 100% Inspection Rating on its 2022 MECP Compliance Inspection conducted on October 5, 2022. No regulatory non-compliances were cited.

### **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 2022, one (1)



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application was submitted to the Risk Management Official for review and approval surrounding the Bayside Intake Protection Zone. 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 no Risk Management Plans required for the properties identified surrounding the Bayside Intake.

### **Permit to Take Water**

The City operates its Bayside Water Treatment Plant in accordance with Permit to Take Water (PTTW) number 1000-9RFK23 which expires on December 4, 2024. This Permit allows the City to take 11,365 cu.m/day from the Bay of Quinte at a maximum flow rate of 262.8 L/s. The maximum recorded daily taking was 5,709.2 cu.m/day on October 24, 2022. The maximum recorded flow rate was 121.7 L/s on November 28, 2022.

For a detailed summary of water quantities and flow rates, see section [2022 Water Quantities and Flow Rates - Raw Water Assessment](#).

### **Drinking Water Works Permit/Municipal Drinking Water Licence**

The Bayside Drinking Water System is now governed by Issue Number: 05 of Municipal Drinking Water Licence # 163-102, and Issue Number: 08 of Drinking Water Works Permit # 163-202. The Municipal Drinking Water Licence will expire September 28, 2025.

In accordance with Condition 1.1 of the MDWL, the Bayside Water Treatment Plant has a rated capacity to treat and distribute 11,360 cu.m/day. Over the Reporting Period the maximum daily volume of treated water distributed to the distribution system was 5,709.2 cu.m/day on October 24, 2022. The Annual Average Daily Flow pumped to the Distribution



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System was 3,881.4 cu.m/day. For a detailed summary of treated water quantities and flow rates, see section [2022 Water Quantity and Flow Rates \(Treated Water Assessment\)](#).

**2022 Water Quantity and Flow Rates (Raw Water Assessment):**

<b>Raw Water Flow: PTTW Limit = 11,365 cu.m/d</b>			
<b>Month</b>	<b>Average Daily Flow (cu.m/d)</b>	<b>Maximum Daily Flow (cu.m/d)</b>	<b>Total Monthly Flow (cu.m/month)</b>
January	4280.4	4773.4	132693.7
February	4543.9	5018.1	127229.6
March	4357.8	4973.0	135092.8
April	3382.6	4095.9	101477.8
May	3881.2	4696.7	120317.2
June	4193.7	5035.1	125810.5
July	4026.4	4928.7	124817.9
August	3231.9	4559.1	100189.1
September	3492.5	3965.6	104776.5
October	3548.1	5709.2	109990.8
November	3886.7	4989.5	116601.0
December	3751.2	4576.0	116286.4
<b>Total Raw Water Flow =</b>			<b>1,415,283</b>



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**2022 Water Quantity and Flow Rates (Treated Water Assessment):**

<b>Treated Water Flow: Facility Rated Capacity = 11,360 cu.m/day</b>			
<b>Month</b>	<b>Average Daily Flow (cu.m/d)</b>	<b>Maximum Daily Flow (cu.m/d)</b>	<b>Total Monthly Flow (cu.m/month)</b>
January	4149.7	4586.8	128640.4
February	4398.4	4863.8	123155.9
March	4215.1	4628.0	130669.2
April	3201.7	4112.9	96052.4
May	3719.6	4527.2	115306.6
June	3957.9	4954.1	118738.1
July	3826.1	4455.5	118609.4
August	2860.1	4296.8	88663.2
September	3223.3	3802.6	96699.2
October	3301.1	5447.0	102334.2
November	3635.6	4960.9	109069.5
December	3543.8	4344.1	109858.9
<b>Total Treated Water Flow =</b>			<b>1,337,797</b>

- Annual Average Daily (Treated Water) Flow = 3,669 cu.m/day. This accounts for 32% of the facility Rated Capacity.
- Maximum Daily (Treated Water) Flow = 5,447 cu.m/day. This accounts for 48% of the facility Rated Capacity during recorded peak daily flow conditions.



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**(Bayside Service Area)**

### Historical Flow Comparison

The 5-year ADF is calculated to be 3,370 cu.m/day, accounting for 30% of the facility rated capacity. This facility should still be able to distribute, on average, approximately 5,000 cu.m/day more water to meet average daily flow requirements.

