



**City of Hamilton  
PUBLIC WORKS COMMITTEE  
AGENDA**

**Meeting #:** 22-004  
**Date:** March 21, 2022  
**Time:** 1:30 p.m.  
**Location:** Due to the COVID-19 and the Closure of City Hall (CC)

All electronic meetings can be viewed at:

City's Website:

<https://www.hamilton.ca/council-committee/council-committee-meetings/meetings-and-agendas>

City's YouTube Channel:

<https://www.youtube.com/user/InsideCityofHamilton> or Cable 14

Carrie McIntosh, Legislative Coordinator (905) 546-2424 ext. 2729

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	a.    Items Considered Complete and Needing to be Removed:	
	a.    Public Works Response and Actions to Roads Value for Money Audit - Cracked Sealing Process	
	Addressed at Item 7.2 on today's agenda - Report PW22012	
	Item on OBL: ABZ	
	b.    Items Requiring a New Due Date:	
	a.    Certificate of Recognition (COR™) Program	
	Item on OBL: AQ	
	Current Due Date: June 14, 2021	
	Proposed New Due Date: July 6, 2022	

- b. Municipal Class Environmental Assessment and Conceptual Design of Ancaster Elevated Water Reservoir

Item on OBL: AAP

Current Due Date: January 31, 2022

Proposed New Due Date: June 13, 2022

- c. Management of the Aviary at 85 Oak Knoll Drive

Item on OBL: AAY

Current Due Date: December 6, 2021

Proposed New Due Date: September 9, 2022

- d. Public Information Portal to Track Environmental Issues on City of Hamilton Projects

Item on OBL: ACD

Current Due Date: April 4, 2022

Proposed New Due Date: May 16, 2022

- e. Environmentally Sustainable Solutions for Food Trucks at Bayfront (and other) Park(s)

Item on OBL: ACE

Current Due Date: Q1, 2022

Proposed New Due Date: May 30, 2022

## 14. PRIVATE AND CONFIDENTIAL

### 14.1. Closed Session Minutes - February 14, 2022

Pursuant to Section 9.1, Sub-sections (e), (f), (j) and (k) of the City's Procedural By-law 21-021, and Section 239(2), Sub-sections (e), (f), (j) and (k) of the *Municipal Act, 2001*, as amended, as the subject matter pertains to litigation or potential litigation, including matters before administrative tribunals, affecting the City or a local board; advice that is subject to solicitor-client privilege, including communications necessary for that purpose; a trade secret or scientific, technical, commercial or financial information that belongs to the City or a local board and has monetary value or potential monetary value and a position, plan, procedure, criteria or instruction to be applied to any negotiations carried on or to be carried on by or on behalf of the City or a local board.

14.2. Appointments to the Hamilton Cycling Committee for the remainder of the 2018-2022 Term

Pursuant to Section 9.1, Sub-section (b) of the City's Procedural By-law 18-270, as amended, and Section 239(2), Sub-section (b) of the *Ontario Municipal Act, 2001*, as amended, as the subject matter pertains to personal matters about an identifiable individual, including City employees.

14.3. Material Recycling Facility Unsolicited Proposal (PW21050(a)) (City Wide)

Pursuant to Section 9.1, Sub-sections (j) and (k) of the City's Procedural By-law 21-021, and Section 239(2), Sub-sections (j) and (k) of the *Municipal Act, 2001*, as amended, as the subject matter pertains to a trade secret or scientific, technical, commercial or financial information that belongs to the City or a local board and has monetary value or potential monetary value; a position, plan, procedure, criteria or instruction to be applied to any negotiations carried on or to be carried on by or on behalf of the City or a local board.

15. ADJOURNMENT



**PUBLIC WORKS COMMITTEE  
MINUTES 22-003**

1:30 p.m.

Monday, February 14, 2022

Council Chambers

Hamilton City Hall

71 Main Street West

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**Present:** Councillors N. Nann (Chair), R. Powers (Vice-Chair), J.P. Danko, J. Farr, L. Ferguson, T. Jackson, S. Merulla, E. Pauls, M. Pearson and A. VanderBeek

**Absent with  
Regrets:** Councillor T. Whitehead - Personal

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**THE FOLLOWING ITEMS WERE REFERRED TO COUNCIL FOR CONSIDERATION:**

**1. Lincoln M. Alexander Parkway Overhead Sign Support Structures  
(PW22008) (City Wide) (Item 7.1)**

**(Pearson/Farr)**

That Item 7.1, Lincoln M. Alexander Parkway Overhead Sign Support Structures (PW22008) (City Wide), be received.

**Result: Motion CARRIED by a vote of 9 to 0, as follows:**

YES - Ward 2 Councillor Jason Farr  
YES - Chair - Ward 3 Councillor Nrinder Nann  
YES - Ward 4 Councillor Sam Merulla  
YES - Vice Chair - Ward 5 Councillor Russ Powers  
YES - Ward 6 Councillor Tom Jackson  
YES - Ward 7 Councillor Esther Pauls  
YES - Ward 8 Councillor John-Paul Danko  
YES - Ward 10 Councillor Maria Pearson  
NOT PRESENT - Ward 12 Councillor Lloyd Ferguson  
YES - Ward 13 Councillor Arlene VanderBeek  
NOT PRESENT - Ward 14 Councillor Terry Whitehead

**2. Provincial Funding to Improve Wastewater and Stormwater in Ontario  
(PW22010) (City Wide) (Item 10.1)**

**(Ferguson/Danko)**

- (a) That the By-law to Authorize the Signing of a Municipal funding agreement for the transfer of the Improving Wastewater and Stormwater Discharges in Lake Ontario Funding Program Funds between the Ministry of Environment, Conservation and Parks and the City of Hamilton, attached as Appendix “A” to Report PW22010, be passed;
- (b) That the By-law to Authorize the Signing of a Municipal funding agreement for the transfer of the Improving, Monitoring and Public Reporting of Sewage Overflows and Bypasses Funding Program Funds between the Ministry of Environment, Conservation, and Parks and the City of Hamilton attached as Appendix “B” to Report PW22010, be passed;
- (c) That certified copies of the approved by-laws authorizing the signing of the Municipal funding agreements be forwarded to the Ministry of Environment, Conservation, and Parks; and,
- (d) That should the City of Hamilton’s submission under the Ministry of Environment, Conservation, and Parks’ funding programs be approved, that staff be directed to report back to the Public Works Committee with a list of the approved projects and a financing strategy for any project costs that are not eligible under the programs.

**Result: Motion CARRIED by a vote of 10 to 0, as follows:**

YES - Ward 2 Councillor Jason Farr  
 YES - Chair - Ward 3 Councillor Nrinder Nann  
 YES - Ward 4 Councillor Sam Merulla  
 YES - Vice Chair - Ward 5 Councillor Russ Powers  
 YES - Ward 6 Councillor Tom Jackson  
 YES - Ward 7 Councillor Esther Pauls  
 YES - Ward 8 Councillor John-Paul Danko  
 YES - Ward 10 Councillor Maria Pearson  
 YES - Ward 12 Councillor Lloyd Ferguson  
 YES - Ward 13 Councillor Arlene VanderBeek  
 NOT PRESENT - Ward 14 Councillor Terry Whitehead

**3. Newlands Park Fitness and Rock-Climbing Equipment, Hamilton (Ward 8)  
(Item 11.1)**

**(Danko/Merulla)**

WHEREAS, Newlands Park is an existing neighbourhood park located at 137 Lynbrook Drive, Hamilton, Ward 8;

WHEREAS, the existing walkway loop and park space are well used by the community, and would benefit from enhancement to provide additional outdoor fitness opportunities, and;

WHEREAS, the City of Hamilton's existing parks do not have any rock-climbing elements and this park space offers a location to pilot a rock-climbing area.

THEREFORE, BE IT RESOLVED:

- (a) That the design and installation of new fitness equipment, including signage and safety surfacing at 137 Lynbrook Drive, Hamilton, (Newlands Park) be funded from the Ward 8 Special Capital Re-Investment Reserve Fund (#108058) to an upset limit of \$60,000, be approved;
- (b) That the design and installation of a rock-climbing area, including safety surfacing, at 137 Lynbrook Drive, Hamilton, (Newlands Park) be funded from the Ward 8 Special Capital Re-Investment Reserve Fund (#108058) to an upset limit of \$60,000, be approved;
- (c) That the annual operating impacts of \$2,500 for the inspection, maintenance, and repairs be included in the 2022 Public Works Department base operating budget; and

**Result: Motion CARRIED by a vote of 10 to 0, as follows:**

YES - Ward 2 Councillor Jason Farr  
 YES - Chair - Ward 3 Councillor Nrinder Nann  
 YES - Ward 4 Councillor Sam Merulla  
 YES - Vice Chair - Ward 5 Councillor Russ Powers  
 YES - Ward 6 Councillor Tom Jackson  
 YES - Ward 7 Councillor Esther Pauls  
 YES - Ward 8 Councillor John-Paul Danko  
 YES - Ward 10 Councillor Maria Pearson  
 YES - Ward 12 Councillor Lloyd Ferguson  
 YES - Ward 13 Councillor Arlene VanderBeek  
 NOT PRESENT - Ward 14 Councillor Terry Whitehead



**4. Incorporation of a Refurbished and Newly Branded City Motor Hotel Sign into the Site Development at 55 Queenston Road (Ward 4) (Item 11.2)****(Merulla/Farr)**

WHEREAS, the former City Motor Hotel sign, having significant nostalgic value, is currently stored at a Public Works Yard located at 1579 Burlington Street East for safekeeping with the purpose and intent of resurrecting the sign in the near future to a suitable location in the community;

WHEREAS, the most ideal location for the sign is 55 Queenston Road, the former location of the City Motor Hotel and the original location of the sign;

WHEREAS, the parcel of land at 55 Queenston Road is approximately 2 acres in size and is located on the eastern side of the Queenston Traffic Circle. The site is situated at the end of a long stretch of Main Street. The straight street creates a view corridor in the City which provides the opportunity to have a unique building that responds to its prominent location;

WHEREAS, on August 16, 2012, Council approved the expropriation of 55 Queenston Road (City Motor Hotel) and authorized and directed staff to complete the next steps in the expropriation process;

WHEREAS, the Board of Directors of CityHousing Hamilton Corporation (CHH), through the leadership of former Councillor and former President of CHH, Chad Collins, has approved the acquisition of 55 Queenston Road (City Motor Hotel) as an affordable housing development. With the site's ideal location for CHH to rebuild sold units due to its excellent transit connectivity, its continuation of social housing in the East end, as well as the fair market value of the land, and;

WHEREAS, CHH is currently developing 55 Queenston Road, to include a two-phase project which will contribute to neighbourhood renewal through an integrated mixed-income and mixed-use development. The first phase of the development will be a 40-unit mid-rise residential apartment complex with 25 1-bed and 15-3 bed units.

**THEREFORE, BE IT RESOLVED:**

- (a) That Public Works Facilities Management staff in collaboration with CityHousing Hamilton explore the suitability of a refurbished and newly branded City Motor Hotel sign to be incorporated into the site development at 55 Queenston Road, provided it meets all the required sign by-laws and setbacks;
- (b) That Public Works Facility Management staff be authorized and directed to retain a Design Consultant to assist in determining a strategy for the

signage as it relates to the Old City Motor Hotel, and ultimately creating a new branding to the sign while maintaining the shape and size, if feasible;

- (c) That the conceptual design and suitable site location of the sign at 55 Queenston Road be forwarded and presented to the CityHousing Hamilton board of Directors for their approval;
- (d) That the City Motor Hotel Sign Refurbishment Project be funded from the Ward 4 Capital Discretionary Account 3302009400 & 3302109400 at an upset limit, including contingency, not to exceed \$150,000 which will include the following; Design Consultant fees, feasibility and site review of appropriate location for the sign, refurbishing of the existing sign to include new branding and LED monitor, if applicable, and site preparation for installation; and
- (e) That the Mayor and City Clerk be authorized and directed to execute any required agreement(s) and ancillary documents, with such terms and conditions in a form satisfactory to the City Solicitor.

**Result: Motion CARRIED by a vote of 10 to 0, as follows:**

YES - Ward 2 Councillor Jason Farr  
 YES - Chair - Ward 3 Councillor Nrinder Nann  
 YES - Ward 4 Councillor Sam Merulla  
 YES - Vice Chair - Ward 5 Councillor Russ Powers  
 YES - Ward 6 Councillor Tom Jackson  
 YES - Ward 7 Councillor Esther Pauls  
 YES - Ward 8 Councillor John-Paul Danko  
 YES - Ward 10 Councillor Maria Pearson  
 YES - Ward 12 Councillor Lloyd Ferguson  
 YES - Ward 13 Councillor Arlene VanderBeek  
 NOT PRESENT - Ward 14 Councillor Terry Whitehead

**5. Investment in the Parkdale (Pat Quinn) Arena and Pool to Complete the Facility Improvements (Ward 4) (Added Item 11.3)**

**(Merulla/Farr)**

WHEREAS, the Energy, Fleet & Facilities Management Division is constructing a new pool and fieldhouse, as well as replacing the existing ice plant with a new mechanical room addition to house new equipment for the Arena;

WHEREAS, Project 7101558501 - Parkdale Outdoor Pool Redevelopment has expanded to include exterior façade improvements to the existing facility in addition to the scope of the capital project; and

WHEREAS, the exterior facility improvements will be undertaken through the Energy, Fleet & Facilities Management Division prior to the opening and operating of the pool for the 2022 season.

THEREFORE, BE IT RESOLVED:

- (a) That, in order to complete the facility improvements as part of the capital works of the new pool and fieldhouse at Parkdale (Pat Quinn) Arena and Pool, a contribution in the amount of up to \$74,000 to be funded from Ward 4 Area Rating Reserve Account #108054 to be transferred to Project 7101558501 – “Parkdale Outdoor Pool Redevelopment”, be approved; and
- (b) That the Mayor and City Clerk be authorized and directed to execute any required agreement(s) and ancillary documents, with such terms and conditions in a form satisfactory to the City Solicitor.

**Result: Motion CARRIED by a vote of 10 to 0, as follows:**

YES - Ward 2 Councillor Jason Farr  
 YES - Chair - Ward 3 Councillor Nrinder Nann  
 YES - Ward 4 Councillor Sam Merulla  
 YES - Vice Chair - Ward 5 Councillor Russ Powers  
 YES - Ward 6 Councillor Tom Jackson  
 YES - Ward 7 Councillor Esther Pauls  
 YES - Ward 8 Councillor John-Paul Danko  
 YES - Ward 10 Councillor Maria Pearson  
 YES - Ward 12 Councillor Lloyd Ferguson  
 YES - Ward 13 Councillor Arlene VanderBeek  
 NOT PRESENT - Ward 14 Councillor Terry Whitehead

**6. Corktown Park Improvements, 175 Ferguson Avenue South, Hamilton (Ward 2) (Added Item 11.4)**

**(Farr/Merulla)**

WHEREAS, the school children at Queen Victoria School have a very limited footprint to play outdoors and on Queen Victoria School grounds

WHEREAS, Corktown Park at 175 Ferguson Avenue South in Ward 2, is adjacent to Queen Victoria School,

WHEREAS, for more than a year, the ward Councillor has been in discussions with both the Hamilton Wentworth District School Board Chair and Trustee and Queen Victoria School parents to identify options for more outdoor play and learning,

WHEREAS, in some parts of the City of Hamilton including Queen Victoria School, the HWDSB has a policy to have staff inspect areas where school children may be playing or learning as part of school curriculum,

WHEREAS, Corktown Park is too large for school staff to be able to complete the inspection in a timely manner, and defining an area for school use would enable the use of that space for outdoor active play and learning,

WHEREAS, the field in Corktown Park closest to Ferguson Avenue South is under utilized during school hours,

WHEREAS, a four-foot galvanized fence surrounding the perimeter of the soccer field on the west side of Corktown Park would provide an opportunity for children from Queen Victoria School to have more opportunities for outdoor play; and

WHEREAS, fencing the field would benefit other programmed users of the park to avoid children running after balls onto the road.

THEREFORE, BE IT RESOLVED:

- (a) That the fencing enhancements to Corktown Park, 175 Ferguson Avenue South, Hamilton for the children from Queen Victoria School be funded from the Ward 2 Special Capital Re-Investment Reserve Fund (#108032) at an upset limit, not to exceed \$30,000; and
- (b) That the Mayor and City Clerk be authorized and directed to approve and execute all required agreements and ancillary documents, with such terms and conditions in a form satisfactory to the City Solicitor.

**Result: Motion CARRIED by a vote of 10 to 0, as follows:**

YES - Ward 2 Councillor Jason Farr  
YES - Chair - Ward 3 Councillor Nrinder Nann  
YES - Ward 4 Councillor Sam Merulla  
YES - Vice Chair - Ward 5 Councillor Russ Powers  
YES - Ward 6 Councillor Tom Jackson  
YES - Ward 7 Councillor Esther Pauls  
YES - Ward 8 Councillor John-Paul Danko  
YES - Ward 10 Councillor Maria Pearson  
YES - Ward 12 Councillor Lloyd Ferguson  
YES - Ward 13 Councillor Arlene VanderBeek  
NOT PRESENT - Ward 14 Councillor Terry Whitehead

**7. Woodlands Park Improvements, 501 Barton Street East, Hamilton (Ward 3)  
(Added Item 11.5)**

**(Nann/Farr)**

WHEREAS, the multi-use court located at Woodlands Park, 501 Barton Street East, Hamilton, was originally installed in 2018;

WHEREAS, this multi-use court within Ward 3 has an asphalt surface that is in good condition and well suited to receive the acrylic surface enhancements; and

WHEREAS, the proposed enhancements will provide a destination-level sport court within the City's north end.

THEREFORE, BE IT RESOLVED:

- (a) That the enhancements to the multi-use court located at Woodlands Park, 501 Barton Street East, Hamilton be funded from the Ward 3 Special Capital Re-Investment Reserve Fund (#108053) at an upset limit, including contingency, not to exceed \$80,000;
- (b) That any future fundraising efforts in support of this project will be used to offset the Ward 3 Special Capital Re-Investment Reserve Funding allotment and returned to the Ward 3 Reserve Fund (#108037); and
- (c) That the Mayor and City Clerk be authorized and directed to approve and execute all required agreements and ancillary documents, with such terms and conditions in a form satisfactory to the City Solicitor.

**Result: Motion CARRIED by a vote of 10 to 0, as follows:**

YES - Ward 2 Councillor Jason Farr  
 YES - Chair - Ward 3 Councillor Nrinder Nann  
 YES - Ward 4 Councillor Sam Merulla  
 YES - Vice Chair - Ward 5 Councillor Russ Powers  
 YES - Ward 6 Councillor Tom Jackson  
 YES - Ward 7 Councillor Esther Pauls  
 YES - Ward 8 Councillor John-Paul Danko  
 YES - Ward 10 Councillor Maria Pearson  
 YES - Ward 12 Councillor Lloyd Ferguson  
 YES - Ward 13 Councillor Arlene VanderBeek  
 NOT PRESENT - Ward 14 Councillor Terry Whitehead

**8. Arbitration Between the City of Hamilton and Waste Connections of Canada Inc. (PW22009) (City Wide) (Item 14.1)**

**(Pearson/VanderBeek)**

That Report PW22009, respecting Arbitration Between the City of Hamilton and Waste Connections of Canada Inc., be received and remain confidential.

**Result: Motion CARRIED by a vote of 10 to 0, as follows:**

YES - Ward 2 Councillor Jason Farr  
 YES - Chair - Ward 3 Councillor Nrinder Nann  
 YES - Ward 4 Councillor Sam Merulla  
 YES - Vice Chair - Ward 5 Councillor Russ Powers  
 YES - Ward 6 Councillor Tom Jackson  
 YES - Ward 7 Councillor Esther Pauls  
 YES - Ward 8 Councillor John-Paul Danko  
 YES - Ward 10 Councillor Maria Pearson  
 YES - Ward 12 Councillor Lloyd Ferguson  
 YES - Ward 13 Councillor Arlene VanderBeek  
 NOT PRESENT - Ward 14 Councillor Terry Whitehead

**FOR INFORMATION:**

**(a) CHANGES TO THE AGENDA (Item 2)**

The Committee Clerk advised of the following changes to the agenda:

The removal of the following item:

**6. DELEGATION REQUESTS**

- 6.1 Susan Creer, Accessible Hamilton, respecting Porch Patios / Outdoor Dining (for a future meeting) – the delegation request was added in error and will be considered at Planning Committee.

The addition of the following items:

**12. NOTICES OF MOTION**

- 12.1 Investment in the Parkdale (Pat Quinn) Arena and Pool to Complete the Facility Improvements (Ward 4)
- 12.2 Corktown Park Improvements, 175 Ferguson Avenue South, Hamilton (Ward 2)

12.3 Woodlands Park Improvements, 501 Barton Street East, Hamilton (Ward 3)

12.4 Father Sean O'Sullivan Memorial Park Improvements, 1139 Greenhill Avenue, Hamilton (Ward 5)

**(Pearson/Powers)**

That the agenda for the February 14, 2022 Public Works Committee meeting be approved, as amended.

**Result: Motion CARRIED by a vote of 8 to 0, as follows:**

YES - Ward 2 Councillor Jason Farr  
 YES - Chair - Ward 3 Councillor Nrinder Nann  
 YES - Ward 4 Councillor Sam Merulla  
 YES - Vice Chair - Ward 5 Councillor Russ Powers  
 YES - Ward 6 Councillor Tom Jackson  
 YES - Ward 7 Councillor Esther Pauls  
 YES - Ward 8 Councillor John-Paul Danko  
 YES - Ward 10 Councillor Maria Pearson  
 NOT PRESENT - Ward 12 Councillor Lloyd Ferguson  
 NOT PRESENT - Ward 13 Councillor Arlene VanderBeek  
 NOT PRESENT - Ward 14 Councillor Terry Whitehead

**(b) DECLARATIONS OF INTEREST (Item 3)**

Councillor Danko declared a non-disqualifying interest to Item 11.4 respecting Corktown Park Improvements, 175 Ferguson Avenue South, Hamilton (Ward 2), as his wife is Chair of the Hamilton-Wentworth District School Board.

**(c) APPROVAL OF MINUTES OF PREVIOUS MEETING (Item 4)**

**(i) January 31, 2022 (Item 4.1)**

**(Pauls/Powers)**

That the Minutes of the January 31, 2022 meeting of the Public Works Committee be approved, as presented.

**Result: Motion CARRIED by a vote of 8 to 0, as follows:**

YES - Ward 2 Councillor Jason Farr  
 YES - Chair - Ward 3 Councillor Nrinder Nann  
 YES - Ward 4 Councillor Sam Merulla  
 YES - Vice Chair - Ward 5 Councillor Russ Powers  
 YES - Ward 6 Councillor Tom Jackson  
 YES - Ward 7 Councillor Esther Pauls

YES - Ward 8 Councillor John-Paul Danko  
 YES - Ward 10 Councillor Maria Pearson  
 NOT PRESENT - Ward 12 Councillor Lloyd Ferguson  
 NOT PRESENT - Ward 13 Councillor Arlene VanderBeek  
 NOT PRESENT - Ward 14 Councillor Terry Whitehead

**(d) NOTICES OF MOTIONS (Item 12)****(i) Investment in the Parkdale (Pat Quinn) Arena and Pool to Complete the Facility Improvements (Ward 4) (Item 12.1)****(Merulla/Farr)**

That the Rules of Order be waived to allow for the introduction of a Motion respecting Investment in the Parkdale (Pat Quinn) Arena and Pool to Complete the Facility Improvements (Ward 4).

**Result: Motion CARRIED by a vote of 10 to 0, as follows:**

YES - Ward 2 Councillor Jason Farr  
 YES - Chair - Ward 3 Councillor Nrinder Nann  
 YES - Ward 4 Councillor Sam Merulla  
 YES - Vice Chair - Ward 5 Councillor Russ Powers  
 YES - Ward 6 Councillor Tom Jackson  
 YES - Ward 7 Councillor Esther Pauls  
 YES - Ward 8 Councillor John-Paul Danko  
 YES - Ward 10 Councillor Maria Pearson  
 YES - Ward 12 Councillor Lloyd Ferguson  
 YES - Ward 13 Councillor Arlene VanderBeek  
 NOT PRESENT - Ward 14 Councillor Terry Whitehead

For further disposition of this matter, refer to Item 5.

**(ii) Corktown Park Improvements, 175 Ferguson Avenue South, Hamilton (Ward 2) (Item 12.2)****(Farr/Merulla)**

That the Rules of Order be waived to allow for the introduction of a Motion respecting Corktown Park Improvements, 175 Ferguson Avenue South, Hamilton (Ward 2).

**Result: Motion CARRIED by a vote of 10 to 0, as follows:**

YES - Ward 2 Councillor Jason Farr  
 YES - Chair - Ward 3 Councillor Nrinder Nann  
 YES - Ward 4 Councillor Sam Merulla  
 YES - Vice Chair - Ward 5 Councillor Russ Powers  
 YES - Ward 6 Councillor Tom Jackson



YES - Ward 7 Councillor Esther Pauls  
 YES - Ward 8 Councillor John-Paul Danko  
 YES - Ward 10 Councillor Maria Pearson  
 YES - Ward 12 Councillor Lloyd Ferguson  
 YES - Ward 13 Councillor Arlene VanderBeek  
 NOT PRESENT - Ward 14 Councillor Terry Whitehead

For further disposition of this matter, refer to Item 6.

**(iii) Woodlands Park Improvements, 501 Barton Street East, Hamilton  
(Ward 3) (Item 12.3)**

Councillor Nann relinquished the Chair to Councillor Powers.

**(Nann/Farr)**

That the Rules of Order be waived to allow for the introduction of a Motion respecting Woodlands Park Improvements, 501 Barton Street East, Hamilton (Ward 3).

**Result: Motion CARRIED by a vote of 10 to 0, as follows:**

YES - Ward 2 Councillor Jason Farr  
 YES - Chair - Ward 3 Councillor Ninder Nann  
 YES - Ward 4 Councillor Sam Merulla  
 YES - Vice Chair - Ward 5 Councillor Russ Powers  
 YES - Ward 6 Councillor Tom Jackson  
 YES - Ward 7 Councillor Esther Pauls  
 YES - Ward 8 Councillor John-Paul Danko  
 YES - Ward 10 Councillor Maria Pearson  
 YES - Ward 12 Councillor Lloyd Ferguson  
 YES - Ward 13 Councillor Arlene VanderBeek  
 NOT PRESENT - Ward 14 Councillor Terry Whitehead

For further disposition of this matter, refer to Item 7.

Councillor Nann assumed the Chair.

Councillor Powers introduced the following Notice of Motion:

**(iv) Father Sean O'Sullivan Memorial Park Improvements, 1139 Greenhill Avenue, Hamilton (Ward 5) (Item 12.4)**

WHEREAS, the play structure located at Father Sean O'Sullivan Memorial Park, 1139 Greenhill Avenue, Hamilton was originally installed in the early 1990s;

WHEREAS, the play structure has surpassed its useful life span and needs to be replaced;

WHEREAS, in February 2021 Council approved \$120,000 funded from the Ward 5 – Capital Infrastructure Reserve #108055 for the new play structure and safety surfacing;

WHEREAS, an enhanced design that offers additional play features and increased play value, which will allow community members more choices for play components, can be installed; and,

WHEREAS, an increased budget is required for the enhanced design.

THEREFORE, BE IT RESOLVED:

- (a) That additional funds for the play structure replacement at Father Sean O’Sullivan Memorial Park, 1139 Greenhill Avenue, Hamilton be funded from the Ward 5 Special Capital Re-Investment Reserve Fund (#108055) at an upset limit, including contingency, not to exceed \$55,000 and added to Project ID #4242109503 Father Sean O’Sullivan Park; and
- (b) That the Mayor and City Clerk be authorized and directed to approve and execute all required agreements and ancillary documents, with such terms and conditions in a form satisfactory to the City Solicitor.

**(e) GENERAL INFORMATION / OTHER BUSINESS (Item 13)**

**(i) Amendments to the Outstanding Business List (Item 13.1)**

**(Pearson/Danko)**

That the following amendments to the Public Works Committee’s Outstanding Business List, be approved.

- (a) Items Considered Complete and Needing to be Removed:
  - (i) COVID-19 Recovery Phase Mobility Plan  
Addressed as Item 1, GIC (Capital Budget) Report 21-026 (PED21219/PW21068)  
Item on OBL: ABE
  - (ii) Automated Speed Enforcement Addressed as Item 5, PW Report 21-013 (PW20018(a))  
Item on OBL: AAT

- (iii) Correspondence from Jim MacLeod, Vice President, Ancaster Village Heritage Community requesting the creation of a Community Safety Zone (CSZ)  
Addressed as Item 1, PW Report 21-017 (PW21065)  
Item on OBL: ABH
- (b) Items Requiring a New Due Date:
  - (i) Complete Liveable Better Streets Design Manual  
Item on OBL: ABO  
Current Due Date: October 4, 2021  
Proposed New Due Date: April 22, 2022
  - (ii) Free-Floating Carshare Pilot Program  
Item on OBL: ABW  
Current Due Date: TBD  
Proposed New Due Date: Q2 2023
  - (iii) Stormwater Gap Evaluation  
Item on OBL: ABM  
Current Due Date: December 6, 2021  
Proposed New Due Date: June 13, 2022
  - (iv) Feasibility of Implementation of a Digital Automated Information System on the Lincoln Alexander Parkway and Red Hill Valley Parkway  
Item on OBL: AAU  
Current Due Date: June 13, 2022  
Proposed New Due Date: Q2 2023

**Result: Motion CARRIED by a vote of 10 to 0, as follows:**

YES - Ward 2 Councillor Jason Farr  
 YES - Chair - Ward 3 Councillor Nrinder Nann  
 YES - Ward 4 Councillor Sam Merulla  
 YES - Vice Chair - Ward 5 Councillor Russ Powers  
 YES - Ward 6 Councillor Tom Jackson  
 YES - Ward 7 Councillor Esther Pauls  
 YES - Ward 8 Councillor John-Paul Danko  
 YES - Ward 10 Councillor Maria Pearson  
 YES - Ward 12 Councillor Lloyd Ferguson  
 YES - Ward 13 Councillor Arlene VanderBeek  
 NOT PRESENT - Ward 14 Councillor Terry Whitehead

**(f) PRIVATE AND CONFIDENTIAL (Item 14)****(Ferguson/Jackson)**

Pursuant to Section 9.1, Sub-sections (e), (f), (j) and (k) of the City's Procedural By-law 21-021, and Section 239(2), Sub-sections (e), (f), (j) and (k) of the *Municipal Act, 2001*, as amended, as the subject matter pertains to litigation or potential litigation, including matters before administrative tribunals, affecting the City or a local board; advice that is subject to solicitor-client privilege, including communications necessary for that purpose; a trade secret or scientific, technical, commercial or financial information that belongs to the City or a local board and has monetary value or potential monetary value and a position, plan, procedure, criteria or instruction to be applied to any negotiations carried on or to be carried on by or on behalf of the City or a local board.

**Result: Motion CARRIED by a vote of 10 to 0, as follows:**

YES - Ward 2 Councillor Jason Farr  
 YES - Chair - Ward 3 Councillor Nrinder Nann  
 YES - Ward 4 Councillor Sam Merulla  
 YES - Vice Chair - Ward 5 Councillor Russ Powers  
 YES - Ward 6 Councillor Tom Jackson  
 YES - Ward 7 Councillor Esther Pauls  
 YES - Ward 8 Councillor John-Paul Danko  
 YES - Ward 10 Councillor Maria Pearson  
 YES - Ward 12 Councillor Lloyd Ferguson  
 YES - Ward 13 Councillor Arlene VanderBeek  
 NOT PRESENT - Ward 14 Councillor Terry Whitehead

**(i) Arbitration Between the City of Hamilton and Waste Connections of Canada Inc. (PW22009) (City Wide) (Item 14.1)**

For disposition of this matter, refer to Item 8.

**(g) ADJOURNMENT (Item 15)****(Powers/Pearson)**

That there being no further business, the meeting adjourned at 2:34 p.m.

**Result: Motion CARRIED by a vote of 10 to 0, as follows:**

YES - Ward 2 Councillor Jason Farr  
 YES - Chair - Ward 3 Councillor Nrinder Nann  
 YES - Ward 4 Councillor Sam Merulla  
 YES - Vice Chair - Ward 5 Councillor Russ Powers  
 YES - Ward 6 Councillor Tom Jackson  
 YES - Ward 7 Councillor Esther Pauls

**Public Works Committee  
Minutes 22-003**

**February 14, 2022  
Page 16 of 16**

YES - Ward 8 Councillor John-Paul Danko  
YES - Ward 10 Councillor Maria Pearson  
YES - Ward 12 Councillor Lloyd Ferguson  
YES - Ward 13 Councillor Arlene VanderBeek  
NOT PRESENT - Ward 14 Councillor Terry Whitehead

Respectfully submitted,

Councillor N. Nann, Chair,  
Public Works Committee

Carrie McIntosh  
Legislative Coordinator  
Office of the City Clerk

**6.1****Request to Speak to Committee of Council**

Sunday, February 20, 2022 - 12:16 p.m.

==Committee Requested==

**Committee:** Public Works Committee**Will you be delegating via a pre-recorded video?** No

==Requestor Information==

**Name of Individual:** Richard Brunet**Name of Organization:****Contact Number:** [REDACTED]**Email Address:** [REDACTED]**Mailing Address:**  
[REDACTED]

**Reason(s) for delegation request:** I would like to discuss if a decision has been made to let the paved streets in Waterdown return to their historic glory of dirt roads? Luckily I drive a cord F-150 as I am certain a compact car would be forever lost in the multitude of craters on Barton street and Dundas. These holes are Literally car damaging. I have lived in Burlington where taxes are much less and the roads are much nicer. I have lived in North ska drive in Waterdown for 7 years and the roads were ok. I just moved it not this condo and the roads are the worst I have ever seen anywhere I have travelled on this planet!

**Will you be requesting funds from the City?** No**Will you be submitting a formal presentation?** No

**6.1(a)**

**6.2****Request to Speak to Committee of Council**

Wednesday, March 9, 2022 - 1:10 p.m.

==Committee Requested==

**Committee:** Public Works Committee**Will you be delegating via a pre-recorded video?** Yes

==Requestor Information==

**Name of Individual:** Antonio Gallo**Name of Organization:** Gallo Ice Cream Retail**Contact Number:** [REDACTED]**Email Address:** [REDACTED]**Mailing Address:**  
[REDACTED]

**Reason(s) for delegation request:** I am an ice cream bicycle vendor that operates at Confederation park in the city and I am writing in regarding the below concerns. In short, I require additional operational greenspace at the park to make my operation viable. For context, there is only 1 small, tucked away area that ice cream vendors can operate out of, even though there are numerous sections of greenspace spread throughout the park. Having some of this space opened for me to make quick sales “pitstops” will allow me to proceed with my venture for this year. This seems like an extremely fair and common sense request, but the park management team are not willing to work with or compromise with me to help make my operation viable.



## 6.2

I spoke with the owner of Berangas (Alesia) and she supports my business and even said that I could operate in front of her restaurant if I wanted to. Since Berangas is welcoming of my business, there is enough space (upwards of 1 km) in between the two brick and mortar ice cream vendors that I could operate in. Additionally, the owner of Hutches advised that he was okay with my business as long as I remained a certain distance away from him (I forget if he said 50 or a 100 metres on each side). The other ice cream space is leased out on a year-by-year basis, and is located on the far side of the park, so I can easily maintain a good distance from it and not interfere with their business.

I did some research and Confederation park is owned by the city of Hamilton and managed by the conservation authority. As such, the city should be able to override the conservation authority in this matter. As such, I would like to bring forth a delegation to a city committee that can help me with my concerns.

All I need is a few extra patches of greenspace where I can sell my product at the park.

**Will you be requesting funds from the City? No**

**Will you be submitting a formal presentation? Yes**

**6.3**

**Request to Speak to Committee of Council**

Thursday, March 10, 2022, 11:30 a.m.

**==Committee Requested==**

**Committee:** Public Works Committee

**Will you be delegating via a pre-recorded video?** No

**==Requestor Information==**

**Name of Individual:** David Jones

**Name of Organization:** Turn On Powerline

**Contact Number:** [REDACTED]

**Email Address:** [REDACTED]

**Mailing Address:**  
[REDACTED]


**Reason(s) for delegation request:** Provide information with regards to the construction of a roundabout at the corner of Hwy 52 & Powerline Rd in Ancaster.

**Will you be requesting funds from the City?** Yes

**Will you be submitting a formal presentation?** Yes



# INFORMATION REPORT

<b>TO:</b>	Chair and Members Public Works Committee
<b>COMMITTEE DATE:</b>	March 21, 2022
<b>SUBJECT/REPORT NO:</b>	2021 Annual Drinking Water Report (PW22011) (City Wide)
<b>WARD(S) AFFECTED:</b>	City Wide
<b>PREPARED BY:</b>	Susan Girt (905) 546-2424 Ext. 2671
<b>SUBMITTED BY:</b>	Nick Winters Acting Director, Hamilton Water Public Works Department
<b>SIGNATURE:</b>	

## COUNCIL DIRECTION

Not Applicable

## INFORMATION

Under the Safe Drinking Water Act, there are several annual reporting requirements related to the operation and management of the City of Hamilton's (City) five (5) Drinking Water Systems (DWS) (as identified below).

Drinking Water System
Hamilton DWS (Woodward and Fifty Road Subsystems)
Freelton DWS
Greenville DWS
Carlisle DWS
Lynden DWS

OUR Vision: To be the best place to raise a child and age successfully.

OUR Mission: To provide high quality cost conscious public services that contribute to a healthy, safe and prosperous community, in a sustainable manner.

OUR Culture: Collective Ownership, Steadfast Integrity, Courageous Change, Sensational Service, Engaged Empowered Employees.

**SUBJECT: 2021 Annual Drinking Water Report  
(PW22011) (City Wide) - Page 2 of 6**

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This Information Report provides a summary of annual reporting requirements and highlights key information for the:

- *Safe Drinking Water Act, Ontario Regulation 170/03, Section 11, Drinking Water Reports,*
- *Safe Drinking Water Act, Ontario Regulation 170/03, Schedule 22, Summary Report for Municipalities, and*
- *Drinking Water Quality Management System (DWQMS) - Summary Report.*

More detailed information is provided in Appendices “A” and “B” to Report PW22011.

2021 Annual Drinking Water Quality Reports attached as Appendix “A” to Report PW22011:

As per the *Safe Drinking Water Act, Ontario Regulation, 170/03, Section 11*, the Owner of a DWS shall ensure that an annual report is prepared and made available to the public no later than February 28<sup>th</sup> of each year. The 2021 reports have been prepared in accordance with the requirements as defined in Section 11, for each of the City’s DWSs and form part of Appendix “A” attached to Report PW22011. The reports are available on the City’s website and upon request, free of charge.

2021 Annual Summary Report for Municipalities attached as Appendix “A” to Report PW22011:

As per the *Safe Drinking Water Act, Ontario Regulation, 170/03, Schedule 22*, Council must receive an annual drinking water summary report by March 31<sup>st</sup> of each year. This 2021 summary report has been prepared in accordance with the requirements as defined in Schedule 22, for each of the City’s five DWSs.

Highlights:

- There were no Provincial Officer’s Orders issued in relation to any of the City’s DWSs.
- All Adverse Test Results and Reportable Incidents were reported to the Ontario Ministry of Environment, Conservation and Parks (MECP) Spills Action Centre (SAC) and Public Health Services (PHS) and are summarized in Appendix “A” to Report PW22011.
- All water taking quantities and flow rates were within approved rated capacities and provincial water taking limits.
- Data related to the water quantities, flow rates and monthly average and maximum daily flows (in comparison to approved flow rates) for the five (5) DWSs is also provided in the attached Appendix “A” to Report PW22011.

**SUBJECT: 2021 Annual Drinking Water Report  
(PW22011) (City Wide) - Page 3 of 6**

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The MECP Inspection Cycle spans two (2) (calendar) years from April 1 to March 31. Ratings are given upon completion of the Inspection and the issuance of the Inspection Report. Ratings for the two (2) Inspection Cycles that occurred in 2021 are as follows.

**2020 - 2021 Inspection Cycle Ratings (Status as of December 31, 2021)**

Drinking Water System	Inspection Status	Report Status	Inspection Rating (2020 - 2021)
Hamilton DWS - Woodward	Complete	Complete	100%
Hamilton DWS - Fifty Road	Complete	Complete	93.60%
Freelton	Complete	Complete	100%
Greenville	Complete	Complete	100%
Carlisle	Complete	Complete	100%
Lynden	Complete	Complete	100%

**2021 - 2022 Inspection Cycle Ratings (Status as of December 31, 2021)**

Drinking Water System	Inspection Status	Report Status	Inspection Rating (2021 - 2022)
Hamilton DWS - Woodward	Commenced	Pending	Pending
Hamilton DWS - Fifty Road	Complete	Complete	Pending
Freelton	Commenced	Pending	Pending
Greenville	Pending	Pending	Pending
Carlisle	Commenced	Pending	Pending
Lynden	Pending	Pending	Pending

2021 Drinking Water Quality Management System (DWQMS) Summary Report attached as Appendix "B" to Report PW22011:

The submission of the DWQMS Summary Report satisfies the requirements of the Provincial DWQMS Standard V2.0.

**SUBJECT: 2021 Annual Drinking Water Report  
(PW22011) (City Wide) - Page 4 of 6**

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The purpose of the DWQMS Summary Report is to inform the Owner (Mayor and Council) of the performance and major milestones achieved in the City's DWQMS. Specifically, the Operating Authority (Hamilton Water Division) is required to inform Top Management (General Manager of Public Works and Director of Hamilton Water Division) and the Owner of the outcomes of the DWQMS audits, infrastructure and management reviews. The DWQMS Summary Report exceeds these requirements and includes additional information relating to other milestones of the DWQMS.

**Risk Assessment and Review and Provision of Infrastructure:**

On an annual basis, Hamilton Water (HW) undertakes formal risk assessment and infrastructure review processes. While these processes satisfy the requirements of the DWQMS Standard, more importantly they ensure that any potential hazards are identified, required control measures are in place and that risks to our drinking water system are considered as part of an overall determination of infrastructure adequacy.

The 2021 Risk Assessment and Review and Provision of Infrastructure processes concluded that although vertical and horizontal infrastructure is generally found to be adequate and available when needed, we are not keeping up with required renewals and replacements of our aging infrastructure. This results in an increased demand on maintenance staff and resources as assets remain in operation beyond their intended life cycle.

**DWQMS Audits:**

The DWQMS accreditation process requires both third Party (external) Accreditation Audits and annual internal audits by the Operating Authority. The cycle of external audits includes an on-site verification audit every three (3) years and an off-site documentation review annually. In 2021, QMI-SAI Global conducted an off-site documentation review followed by an on-site (virtual) verification audit. There were no non-conformances and one (1) opportunity for improvement (implemented). In May 2021, QMI-SAI provided re-accreditation of the City's DWQMS.

The Operating Authority must conduct internal audits to evaluate the conformity of the DWQMS with the requirements of the DWQMS Standard and its procedures, at least annually. The results of the annual DWQMS Internal Audits conducted in 2021 demonstrated that the City's DWQMS is a mature system and that opportunities to improve the DWQMS continue to be identified to ensure that the system is relevant and appropriate for HW.

With the timely completion of the corrective actions issued as a result of this audit, the overall conformance to V2.0 of the DWQMS Standard and the City's DWQMS is

**SUBJECT: 2021 Annual Drinking Water Report  
(PW22011) (City Wide) - Page 5 of 6**

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suitable, the audit process is adequate, and the implementation and maintenance effective.

The Compliance Support Group of the Compliance and Regulations section is developing an Audit Plan for the 2022 DWQMS internal audits. The audit is to take place between March and July 2022. The plan will include a number of process and element audits. The Audit Plan will be reviewed by the Hamilton Water Senior Management Team and approved by the Systems Management Representative prior to implementation.

**Management Review:**

The DWQMS Standard requires that Top Management participate in a management review of the DWQMS at least once annually. The Management Review is a formal presentation of compliance, operational, water quality, communication and infrastructure data.

In 2021, the DWQMS Top Management Review (TMR) was held on December 17, 2021. Attendees included Top Management (Acting General Manager of Public Works and Acting Director of Hamilton Water), Directors, Section Managers, Overall Responsible Operators (OROs) for treatment and distribution, the Systems Management Representative and staff from the Compliance Support Group.

Overall, Top Management, Directors and Section Managers concluded that the DWQMS is suitable, adequate and effective.

**Standard of Care Training:**

Standard of Care requirements for Owners and Managers of municipal DWSs came into effect as of January 1, 2013. Standard of Care is a statutory due diligence requirement identified in Section 19 of the Safe Drinking Water Act. All Owners (Mayor and Council) have received Standard of Care training.

**Financial Plan:**

The need to prepare a Water Infrastructure Financial Plan is, in part, a regulatory compliance issue specific to the water licensing requirements defined within the DWQMS and more specifically detailed under Regulation 453/07 - Financial Plans made under the Safe Drinking Water Act, 2002. The required Financial Plan for water systems must address a minimum six (6)-year timeframe and be approved by council prior to submission to the Province of Ontario. The resulting plans must also be made freely available to the general public. Water Infrastructure Financial Plans for Hamilton

**SUBJECT: 2021 Annual Drinking Water Report  
(PW22011) (City Wide) - Page 6 of 6**

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have typically been developed to cover a 10-year period of time in order to reflect consistency with the current rate budget process.

The first Financial Plan was created in 2010 and revised in 2014. The latest revision was approved by Council on July 12, 2018. This most current plan was sent to the Ministry of Municipal Affairs and Housing on November 22, 2018. The next revision of the Financial Plan will be due in 2023.

**Update and Going Forward:**

The outcomes from the internal and external DWQMS audit and the Management Review concluded that the DWQMS is adequate, suitable and effective and conforms to the requirements of the DWQMS Standard. Corrective action plans from the audits and action items from the Management Review will be implemented to ensure continual improvement of the DWQMS.

**APPENDICES AND SCHEDULES ATTACHED**

Appendix "A" to Report PW22011 - 2021 City of Hamilton Drinking Water Systems  
Annual Water Quality and Summary Report

Appendix "B" to Report PW22011 - 2021 Drinking Water Quality Management System  
(DWQMS) - Summary Report



# 2021

## DRINKING WATER SYSTEMS ANNUAL WATER QUALITY AND SUMMARY REPORT

Ontario Regulation 170/03  
Section 11 & Schedule 22



Hamilton



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# INTRODUCTION

A key priority of the City of Hamilton is to ensure the safe, high quality, consistent supply of drinking water to our residents. This report for municipalities has been prepared in accordance with the Safe Drinking Water Act, Ontario Regulation, 170/03, Section 11 and Schedule 22 for the 2021 reporting period. The City of Hamilton is the Owner of the following five Drinking Water Systems (DWS):

DRINKING WATER SYSTEM	DRINKING WATER SYSTEM NUMBER	MUNICIPAL DRINKING WATER LICENCE NUMBER	DRINKING WATER WORKS PERMIT NUMBER	PERMIT TO TAKE WATER NUMBER
Hamilton DWS Woodward Subsystem	220003118	005-101	005-201	2437-BCLNEJ
Hamilton DWS Fifty Road Subsystem	260069173	005-101	005-201	N/A
Freelton DWS	220004117	005-102	005-202	4650-BB2HXG (FDF01 & FDF03)
Greensville DWS	220004126	005-103	005-203	2476-9F5KM6 (FDG01)
Carlisle DWS	220004108	005-104	005-204	2373-8F7MMJ 4347-BYPPG2 (FDC01 & FDC02)*
				8228-AJZK9H (FDC03R)
				4207-AJZJ4L (FDC05)
Lynden DWS	250001830	005-105	005-205	0634-ASERU8 (FDL01 & FDL03)

\*PTTW FDC01 & FDC02 was renewed March 1, 2021

There were no Provincial Officer’s Orders issued with regards to drinking water. All Adverse Water Quality Incidents (AWQI) were reported to the Ontario Ministry of Environment, Conservation and Parks (MECP) Spills Action Centre (SAC) and Public Health Services (PHS) and are provided in the report. All water taking quantities and flow rates were within approved rated capacities and provincial water taking limits.

The MECP Inspection Cycle spans two (calendar) years from April 1st to March 31st. Ratings are given upon completion of the Inspection and the issuance of the Inspection Report. Ratings for the two Inspection Cycles that occurred in 2021 are as follows.

**2020 - 2021 Inspection Cycle Ratings (Status as of December 31, 2021)**

DRINKING WATER SYSTEM	INSPECTION STATUS	REPORT STATUS	2020 - 2021 INSPECTION RATING
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Greenville	Complete	Complete	100%
Carlisle	Complete	Complete	100%
Lynden	Complete	Complete	100%

**2021 - 2022 Inspection Cycle Ratings (Status as of December 31, 2021)**

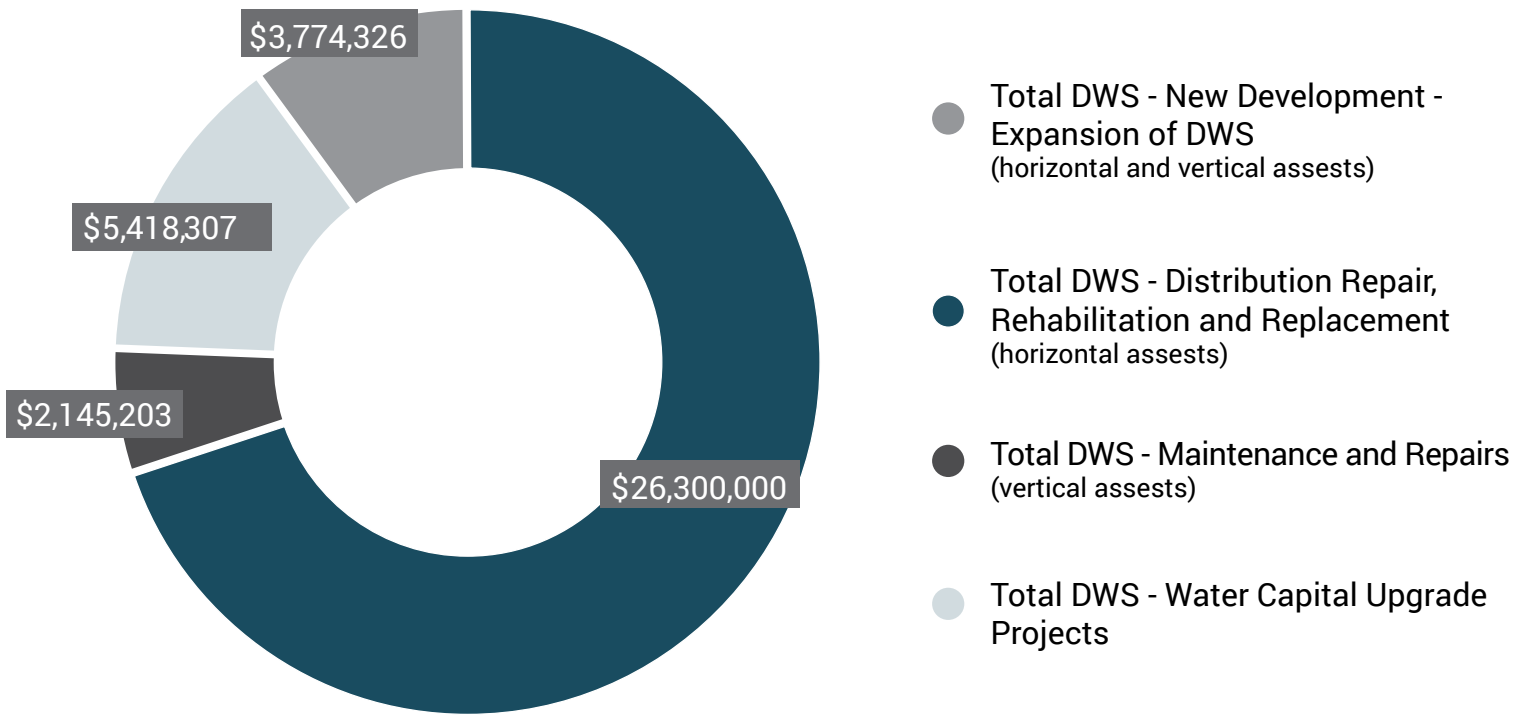
DRINKING WATER SYSTEM	INSPECTION STATUS	REPORT STATUS	2021 - 2022 INSPECTION RATING
Hamilton DWS - Woodward	Commenced	Pending	Pending
Hamilton DWS - Fifty Road	Complete	Complete	Pending
Freelton	Commenced	Pending	Pending
Greenville	Pending	Pending	Pending
Carlisle	Commenced	Pending	Pending
Lynden	Pending	Pending	Pending

**ANNUAL REPORTS**

The Drinking Water Annual Report required under Ontario Regulation 170/03 Section 11 and Schedule 22 is available to the public at no charge at [www.hamilton.ca/waterquality](http://www.hamilton.ca/waterquality). A copy of the report can also be requested by contacting (905) 546-2489 or [water@hamilton.ca](mailto:water@hamilton.ca).

## SUMMARY OF MONETARY EXPENSES INCURRED IN 2021

In 2021, significant expenses were incurred for installing, repairing and replacing required equipment. The following expenses were incurred to complete repairs, maintenance and upgrades to the Drinking Water Systems within the City of Hamilton.



# WOODWARD AVENUE DRINKING WATER SUBSYSTEM WATER QUALITY ANNUAL REPORT







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<b>Figure 1-1: Woodward Treatment Plant 2021 Monthly Production</b>	<b>22</b>
<b>Table 1-1: Woodward Treatment Plant 2021 Monthly Production</b>	<b>22</b>

## GENERAL INFORMATION

The Woodward Drinking Water Subsystem is a large municipal residential system that supplies a significant portion of Hamilton’s population with drinking water including Stoney Creek, Dundas, Ancaster, Waterdown, and Glanbrook. The population served is estimated at 536,917. In addition, the treatment system provides treated water to parts of Haldimand County (Caledonia, York, and Cayuga) and parts of Halton Region.

The Woodward Water Treatment Facility has three raw water intake pipes (1.22m, 1.52m and 2.44m diameter) of which two intake pipes (2.44m and 1.52m diameter) are currently in use. The raw water is drawn from Lake Ontario at distances of 640m, 915m and 945m to begin the treatment process.

## TREATMENT PROCESS:

- The raw water intakes have chlorine added for zebra mussel control.
- The low lift has 3 travelling screens where the screening takes place prior to the water being pumped to the water treatment plant.
- At the pre-treatment stage Polyaluminum chloride is added to the water to coagulate suspended solids. Additional chlorine is also added at this stage to ensure disinfection.
- Clarification of the water is completed by flocculation & sedimentation.
- The water is filtered using dual media filters of sand and granular activated carbon (GAC) which reduces the presence of taste/odour causing compounds.
- Chlorine, ammonia, fluoride and phosphoric acid are added before the treated water is sent to the distribution system. Ammonia is added to convert chlorine to mono-chloramine to help maintain stable chlorine residuals in the distribution system. Fluoride is added to the drinking water to promote dental health and phosphoric acid is added to help reduce lead corrosion.
- High lift pumps push the water from the Woodward Water Treatment Facility to the distribution system.

## DISTRIBUTION:

The Woodward Water Distribution System is comprised of 20 pumping stations, 11 reservoirs, 4 elevated storage tanks, 1 standpipe and over 2,000 kms of watermains.

## SAMPLING & ANALYSIS:

Continuous monitoring equipment such as chlorine analyzers, turbidity meters, fluoride and phosphate analyzers monitor the water 24/7 to ensure the maintenance of high-quality water. Raw water is sampled and analyzed weekly; treated water is sampled and analyzed 6 days per week; distribution water is sampled and analyzed 5 days per week. In addition, chlorine residual in the distribution system is analyzed daily.

## DEFINITIONS

AWQI: Adverse Water Quality Incident  
 CFU: Colony Forming Unit  
 CU: Colour Units  
 HPC: Heterotrophic Plate Count  
 MDWL: Municipal Drinking Water Licence  
 mg/L: milligrams per litre  
 mL: millilitre  
 ML: megalitre  
 ML/d: megalitres per day  
 MPN: Most Probable Number  
 N/A: Not Applicable  
 ng/L: nanograms per litre  
 NTU: Nephelometric Turbidity Units  
 P/A: Present/Absent  
 PTTW: Permit to Take Water  
 ug/L: micrograms per litre

## CORROSION CONTROL PROGRAM (CCP):

On November 8, 2018, the addition of orthophosphate commenced in the Hamilton DWS - Woodward Sub-System, including a regulatory post-implementation sampling and monitoring plan to monitor the progress and effectiveness of the program for lead control. A flushing program was also commenced to proactively manage secondary water quality impacts that may arise from the program. Since its implementation, the CCP has shown an improvement in observed lead levels with minimal secondary impacts.

Since implementation of the program, six rounds of the Legislated Community Lead Sampling Program required by Schedule 15.1 of Ontario Regulation, 170/03, have taken place in the Woodward Sub-System. The City of Hamilton (COH) received regulatory relief from sampling at residential taps for the last three rounds from Summer 2020 (June 15 - October 15, 2020), Winter 2020 (December 15, 2020 - April 15, 2021) and Summer 2021 (June 15 - October 15, 2021), as a result of the COVID-19 Pandemic. This relief was granted because the samples are collected at the tap inside residents' homes and it posed a health risk to both staff and homeowners. Additionally, COVID-19 regulatory relief for sampling was received for the Winter 2021 sampling round (December 15, 2021 – April 15, 2022). The results of the first three rounds (Winter 2018, Summer 2019 and Winter 2019) illustrated a reduction in the lead concentrations observed at the tap, as well as an overall decreasing trend in the percentage of samples observed to be above the Maximum Acceptable Concentration (MAC) of 10 ug/L.

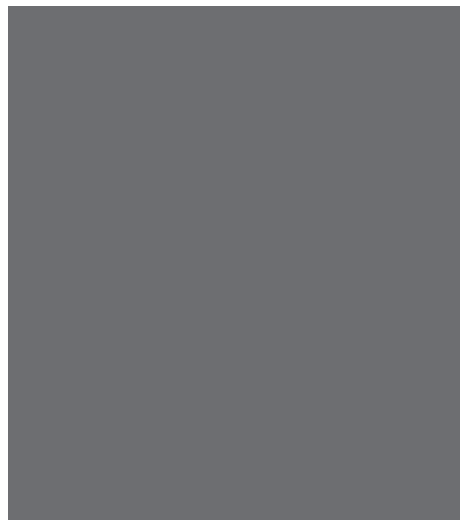
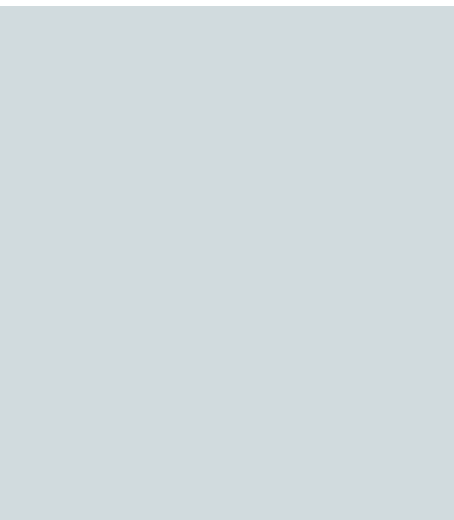
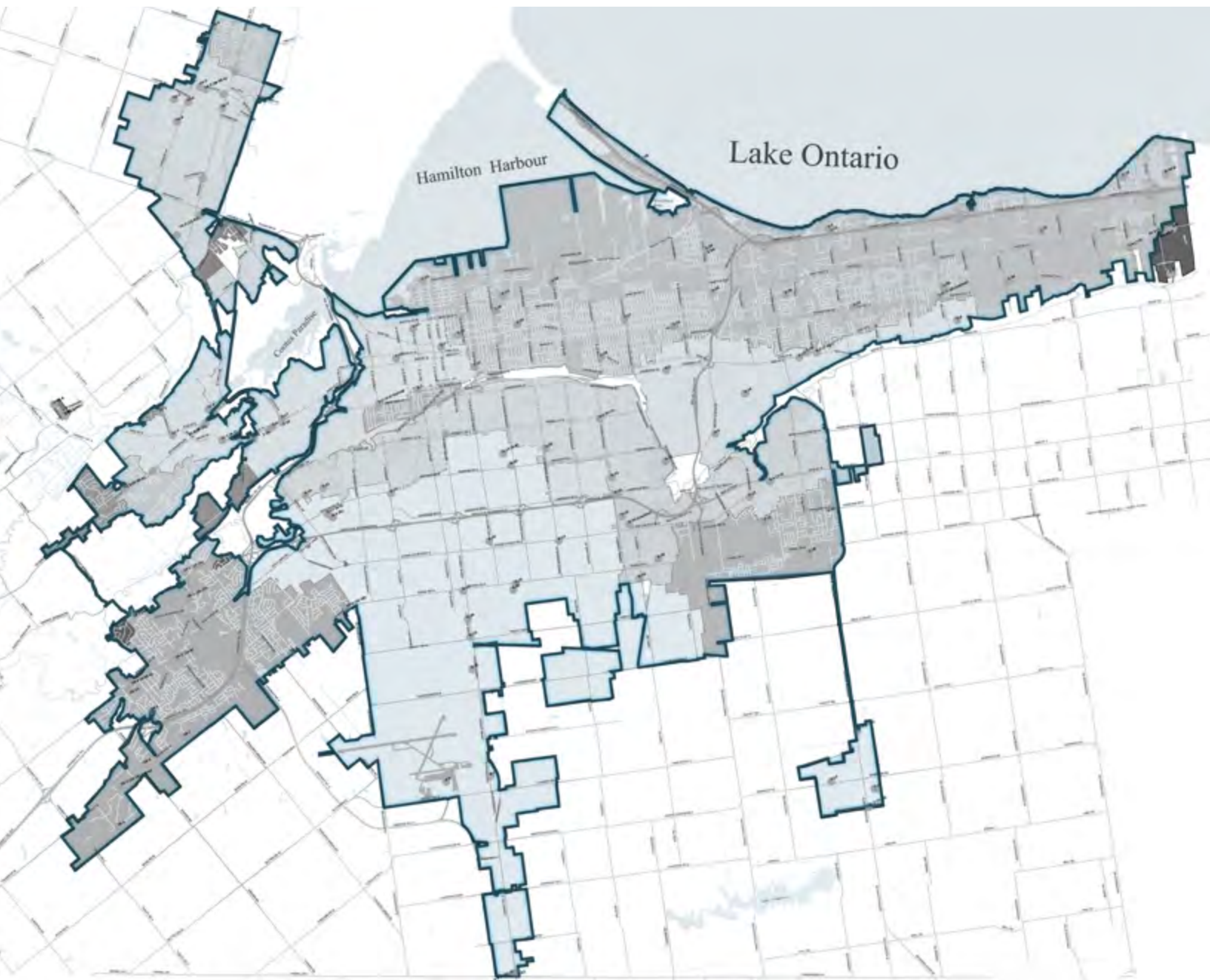
Despite the lack of additional data from these last three sampling rounds, the three Lead Pipe Loops installed in 2017 in the Woodward Sub-System remained an additional tool to monitor the effectiveness of the program. These three pipes containing lead material were installed at 293 Highland Road West, 460 Parkside Drive, Waterdown and 21 Queen Street, Dundas as controlled study sites to monitor the effect of the orthophosphate on the pipes. The sampling results from the Lead Pipe Loops continue to show a decreasing trend in lead levels.

The COH also monitors for secondary effects of the CCP through customer feedback and water quality complaints to ensure customer safety and satisfaction. There were two instances where the orthophosphate residuals measured in the distribution system went above the desired range of 1.8-3.0mg/L as orthophosphate. Repeat sampling in both cases showed normalized concentrations of orthophosphate. The cause of the increased residual was inconclusive and the COH implemented additional sampling to help better understand the behaviour of orthophosphate throughout the distribution system.

The COH also received customer feedback from two residents who observed high orthophosphate residuals at their businesses. Additional sampling at one of the locations illustrated normalized values. Follow-up sampling with the other resident was unsuccessful, however City staff discussed testing methods used in the laboratory against the reagent test kits used at the business and City staff continue to provide them with monthly reports showing the orthophosphate residual in the treated water leaving the Water Treatment Plant.

In March 2021, the MECP received the 2nd CCP Annual Report summarizing the overall effectiveness of the CCP. In 2021, consultant assignments assessing the maturity of the orthophosphate program, as well as a Plant Optimization Study on the phosphoric acid dosing system continued. Scale analysis conducted on Lead Service Lines harvested from the distribution system confirmed the formation of phosphate-based lead scale at the pipe surface which is anticipated to thicken and strengthen, further reducing the exposure to lead. The orthophosphate dosing performance continues into 2022.





DRINKING WATER SYSTEM NUMBER	DRINKING WATER SYSTEM NAME	DRINKING WATER SYSTEM OWNER	DRINKING WATER SYSTEM CATEGORY	PERIOD BEING REPORTED
220003118	Woodward Subsystem of Hamilton Drinking Water System	City of Hamilton	Large Municipal Residential	January 1, 2021 to December 31, 2021

### PROVISION OF DRINKING WATER TO OTHER MUNICIPALITIES

The following is a list of municipal drinking water systems which receive drinking water from the Woodward Drinking Water Subsystem:

DRINKING WATER SYSTEM NAME	DRINKING WATER SYSTEM NUMBER
Caledonia/Cayuga/York Water Distribution System	260004566
North Aldershot Water Distribution System	260086762
Snake Road Water Distribution System	260086775
Bridgeview Community Water Distribution System	260068419



A copy of this annual report is provided to all Drinking Water System owners that are connected to the system and to whom the City provides drinking water.



The City's customers are notified through the local newspaper that the annual report is available online free of charge at [www.hamilton.ca/waterquality](http://www.hamilton.ca/waterquality). A copy of the report can also be requested by contacting (905) 546-2489 or [water@hamilton.ca](mailto:water@hamilton.ca).

**WATER TREATMENT CHEMICALS USED DURING THIS REPORTING PERIOD**

- Polyaluminum Chloride
- Liquid Chlorine
- Aqueous Ammonia
- Hydrofluorosilicic Acid
- Phosphoric Acid

**BREAKDOWN OF SIGNIFICANT MONETARY EXPENSES**

THE FOLLOWING TABLE HIGHLIGHTS THE SIGNIFICANT EXPENSES THAT WERE INCURRED FOR INSTALLING, REPAIRING AND REPLACING REQUIRED EQUIPMENT IN 2021.
Stonechurch & Garth Reservoir (HDR05) Upgrades - \$2,268,753
Post Hydrant Installation - \$1,110,000
Backflow Prevention Devices installed at 15 locations - \$1,048,080
Kenilworth (HDR01) & Ben Nevis (HDR1C) Reservoir Upgrades - \$967,060
Woodward Water Treatment Plan - Process Upgrades - \$597,668
Waterdown South Water Tower (HDT24) - \$218,274
Ferguson Pumping Station (HD002) Upgrades - \$213,857
Woodward Water Treatment Plant Fluoride Building Upgrades - \$156,246
Leak Detection Technology - \$123,000
Woodward Water Treatment Plant High Lift Pumping Station Upgrades - \$107,268
Woodward Water Treatment Plant Chlorine Evaporator Replacements - \$68,080

## ADVERSE TEST RESULTS AND REPORTABLE INCIDENTS

The following table outlines the 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 the MECP Spills Action Centre.

NOTIFICATION DATE (Y-M-D)	LOCATION OF ADVERSE	ADVERSE WATER QUALITY INCIDENT	RESOLUTION
2021-02-27	Highlift East Header, Woodward Water Treatment Plant	On Feb 27th at 04:46, Supervisory Control and Data Acquisition (SCADA) chlorine analyzer readings for chlorine residuals at the East Header in the Highlift were: Total Chlorine = 3.10 mg/L Combined Chlorine = 3.05 mg/L Free Chlorine = 0.05 mg/L (Regulatory requirement is maximum Combined Chlorine of 3.0 mg/L)	On Feb 27th at 04:53, SCADA chlorine analyzer readings for chlorine residuals at the East Header in the Highlift were: Total Chlorine: 3.02 mg/L, Combined Chlorine: 2.98 mg/L, Free Chlorine: 0.04 mg/L.  An Operator was also dispatched to check chlorine residuals at the East Header in the Highlift using the handheld meter. The results were: Total chlorine: 2.92 mg/L, Combined Chlorine: 2.83 mg/L, Free Chlorine: 0.09 mg/L.
2021-05-19	Waterdown Sampling Station A, Main St N.	Total Coliforms = Present (Regulatory requirement is Not Detectable)	Resampled adverse location, one upstream and one downstream location. All results passed. The adverse was not confirmed.
2021-06-12	Waterdown Sampling Station A, Main St N.	Total Coliforms = Present (Regulatory requirement is Not Detectable)	Resampled adverse location, one upstream and one downstream location. All results passed. The adverse was not confirmed.
2021-07-08	Hamilton Sampling Station C, Rymal Rd E.	Total Coliforms = Present (Regulatory requirement is Not Detectable)	Resampled adverse location, one upstream and one downstream location. All results passed. The adverse was not confirmed.

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NOTIFICATION DATE (Y-M-D)	LOCATION OF ADVERSE	ADVERSE WATER QUALITY INCIDENT	RESOLUTION
2021-08-06	Stoney Creek Sampling Station D, Pottruff Rd S.	Total Coliforms = Present (Regulatory requirement is Not Detectable)	Resampled adverse location, one upstream and one downstream location. Result failed at the original adverse location which resulted in another AWQI on August 7th. The adverse was confirmed.
2021-08-07	Stoney Creek Sampling Station D, Pottruff Rd S.	Total Coliforms = 15 MPN/100mL (Regulatory requirement is Not Detectable)	Resampled adverse location, one upstream and one downstream location. Two consecutive sets of samples were taken 24 to 48 hours apart. All results passed.
2021-08-12	Hydrant DM11H034, Mayfair Court, Dundas	Total Chlorine = 0.17 mg/L Combined Chlorine = 0.17 mg/L Free Chlorine = 0.00 mg/L (Regulatory requirement is minimum Combined Chlorine of 0.25 mg/L or Free Chlorine of 0.05 mg/L)	Watermain was flushed to restore chlorine. On Aug 12th at 17:53, chlorine was restored as follows: Total Chlorine: 1.00 mg/L, Combined Chlorine: 1.00 mg/L, Free Chlorine: 0.00 mg/L
2021-08-20	Stoney Creek Sampling Station D, Pottruff Rd S.	Total Coliforms = Present E. coli = Present (Regulatory requirement is Not Detectable)	Isolated the area by closing valves in the water distribution system. The largest area possible was isolated without putting any properties out of water. Resampled adverse location, one upstream and three downstream locations. Two consecutive sets of samples were taken 24 to 48 hours apart. All results passed.
2021-09-02	Ancaster Sampling Station C, Lower Lions Club Rd	Total Coliforms = Present (Regulatory requirement is Not Detectable)	Resampled adverse location, one upstream and one downstream location. All results passed. The adverse was not confirmed.

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NOTIFICATION DATE (Y-M-D)	LOCATION OF ADVERSE	ADVERSE WATER QUALITY INCIDENT	RESOLUTION
2021-09-02	Ancaster Sampling Station D, 155 Falling Brook Dr	Total Coliforms = Present (Regulatory requirement is Not Detectable)	Resampled adverse location, one upstream and one downstream location. All results passed. The adverse was not confirmed.
2021-09-16	Ancaster Sampling Station D, 155 Falling Brook Dr	Total Coliforms = Present (Regulatory requirement is Not Detectable)	Resampled adverse location, one upstream and one downstream location. All results passed. The adverse was not confirmed.
2021-10-04	Post Hydrant HC39H022P, Westside Place, Hamilton	Total Chlorine = 0.18 mg/L Combined Chlorine = 0.17 mg/L Free Chlorine = 0.01 mg/L (Regulatory requirement is minimum Combined Chlorine of 0.25 mg/L or Free Chlorine of 0.05 mg/L)	Watermain was flushed to restore chlorine. On Oct 4th at 13:10, chlorine was restored as follows: Total Chlorine: 0.29 mg/L, Combined Chlorine: 0.26 mg/L, Free Chlorine: 0.03 mg/L.
2021-10-04	5-SS-A, Hamilton Sampling Station A, 4640 Hwy 6	Total Chlorine = 0.20 mg/L Combined Chlorine = 0.20 mg/L Free Chlorine = 0.00 mg/L (Regulatory requirement is minimum Combined Chlorine of 0.25 mg/L or Free Chlorine of 0.05 mg/L)	Watermain was flushed to restore chlorine. On Oct 4th at 22:19, chlorine was restored as follows: Total Chlorine: 0.36 mg/L, Combined Chlorine: 0.34 mg/L, Free Chlorine: 0.02 mg/L.
2021-10-06	Post Hydrant DN11H072P, 400 King St W., Dundas	Total Chlorine = 0.12 mg/L Combined Chlorine = 0.10 mg/L Free Chlorine = 0.02 mg/L (Regulatory requirement is minimum Combined Chlorine of 0.25 mg/L or Free Chlorine of 0.05 mg/L)	Watermain was flushed to restore chlorine. On Oct 6th at 22:40, chlorine was restored as follows: Total Chlorine: 1.41 mg/L, Combined Chlorine: 1.39 mg/L, Free Chlorine: 0.02 mg/L.

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NOTIFICATION DATE (Y-M-D)	LOCATION OF ADVERSE	ADVERSE WATER QUALITY INCIDENT	RESOLUTION
2021-10-07	Hydrant DN11H071 76 Newcombe Rd, Dundas	Total Chlorine = 0.23 mg/L Combined Chlorine = 0.21 mg/L Free Chlorine = 0.02 mg/L (Regulatory requirement is minimum Combined Chlorine of 0.25 mg/L or Free Chlorine of 0.05 mg/L)	Watermain was flushed to restore chlorine. On Oct 7th at 05:10, chlorine was restored as follows: Total Chlorine: 0.37 mg/L, Combined Chlorine: 0.37 mg/L, Free Chlorine: 0.00 mg/L.
2021-10-14	Post Hydrant DN11H072P, 400 King St. West, Dundas	Total Chlorine = 0.20 mg/L Combined Chlorine = 0.19 mg/L Free Chlorine = 0.01 mg/L (Regulatory requirement is minimum Combined Chlorine of 0.25 mg/L or Free Chlorine of 0.05 mg/L)	Watermain was flushed to restore chlorine. On Oct 14th at 09:38, chlorine was restored as follows: Total Chlorine: 0.81 mg/L, Combined Chlorine: 0.77 mg/L, Free Chlorine: 0.04 mg/L.
2021-10-18	Hydrant HA42H031, near 128 Parkview Dr, Hamilton	Total Chlorine = 0.22 mg/L Combined Chlorine = 0.18 mg/L Free Chlorine = 0.04 mg/L (Regulatory requirement is minimum Combined Chlorine of 0.25 mg/L or Free Chlorine of 0.05 mg/L)	Watermain was flushed to restore chlorine. On Oct 18th at 15:45, chlorine was restored as follows: Total Chlorine: 0.46 mg/L, Combined Chlorine: 0.42 mg/L, Free Chlorine: 0.04 mg/L.
2021-11-02	Ancaster Sampling Station A, 345 Jerseyville Rd W.	Total Chlorine = 0.21 mg/L Combined Chlorine = 0.19 mg/L Free Chlorine = 0.02 mg/L (Regulatory requirement is minimum Combined Chlorine of 0.25 mg/L or Free Chlorine of 0.05 mg/L)	Watermain was flushed to restore chlorine. On Nov 2nd at 12:07, chlorine was restored as follows: Total Chlorine: 0.95 mg/L, Combined Chlorine: 0.94 mg/L, Free Chlorine: 0.01 mg/L.
2021-12-15	Stoney Creek Sampling Station D, Pottruff Rd S.	Total Coliforms = Present (Regulatory requirement is Not Detectable)	Resampled adverse location, one upstream and one downstream location. All results passed. The adverse was not confirmed.

## MECP HAMILTON DRINKING WATER SYSTEM, WOODWARD SUBSYSTEM INSPECTION FINDINGS AND SELF-DECLARED NON-COMPLIANCES

The following table is a Summary of Findings from the MECP Inspections and self-declared non-compliances found during the 2021 calendar year.

### MECP INSPECTION REPORT. MARCH 30, 2021

#	FINDING TYPE	FINDING	STATUS
1	Recommendation	Develop a single Harmful Algal Bloom Plan. Plan is in place.	No further action required
2	Recommendation	Review Clear Well vents to ensure screens are securely fastened to prevent mice and insects from entering the treated water. Regular reviews are conducted.	Actions in process
3	Recommendation	Conduct a Condition Assessment of the Low Lift discharge headers and interconnect pipe.	Action in process
4	Recommendation	Update the Drinking Water Works Permit to reflect that the Kelly Street Pump Station and Reservoir are offline.	Actions in process
5	Recommendation	That Form 2's be signed by the Overall Responsible Operator or approved alternate. Ensure that records demonstrate Condition 5.7, Schedule B of the Permit. Signature included in process.	Action complete
6	Recommendation	Modify work order templates used for recording the disinfection of equipment as per the Drinking Water Works Permit, Schedule B, Condition 2.3 and 2.3.1.	Action complete
7&8	Recommendation	Implement a sampling plan / program to conduct routine checks for chlorine residuals at the extremities and "dead ends" of the distribution system.	Action complete
9(a)	Recommendation	Conduct daily visits to the facility's structures to check system integrity and security. There is a program of regular site inspections and continuous remote monitoring.	No further action required
9(b)	Recommendation	Review cyber security provisions related to operation of the drinking water system.	Actions in process

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#	FINDING TYPE	FINDING	STATUS
10	Recommendation	When providing written notices that: background information be provided leading up to the event; a summary of the action taken; and the results achieved, be provided by the Overall Responsible Operator or designate. This is also recommended for notifications of non-compliance and upon completion of root cause analyses.	Action complete
11	Recommendation	Complete a full calibration of analyzers prior to putting them back into service. Full calibration of analyzers is complete prior to being placed back into service.	Actions in process
12	Recommendation	Ensure that there are notifications if calibration is required for turbidimeters. Ensure that completed work is recorded. Notifications are provided and calibration records are recorded.	No further action required
13	Self-declared Non-compliance	Contractor operated a chlorine evaporator without approval from certified operator.	Actions in process
14	Self-declared Non-compliance	Contractor operated a watermain valve without approval from certified operator	Actions in process
15	Self-declared Non-compliance	Municipal Drinking Water Licence not provided to a developer.	Actions in process
16	Self-declared Non-compliance	Contractor operated a fire hydrant without approval from certified operator.	Actions in process
17	Self-declared Non-compliance	Contractor performed a watermain wet tap without approval from certified operator.	Actions in process
18	Self-declared Non-compliance	Records to confirm the (completed) review of sampling and test results for a 72-hour were not captured.	Actions in process

## WATER PRODUCTION REPORTS - SUMMARY

The following provides a summary of daily flow rates and instantaneous peak flow rates in comparison to the capacity of the water works as identified in the Permit to Take Water. This information is tabulated in the accompanying tables.

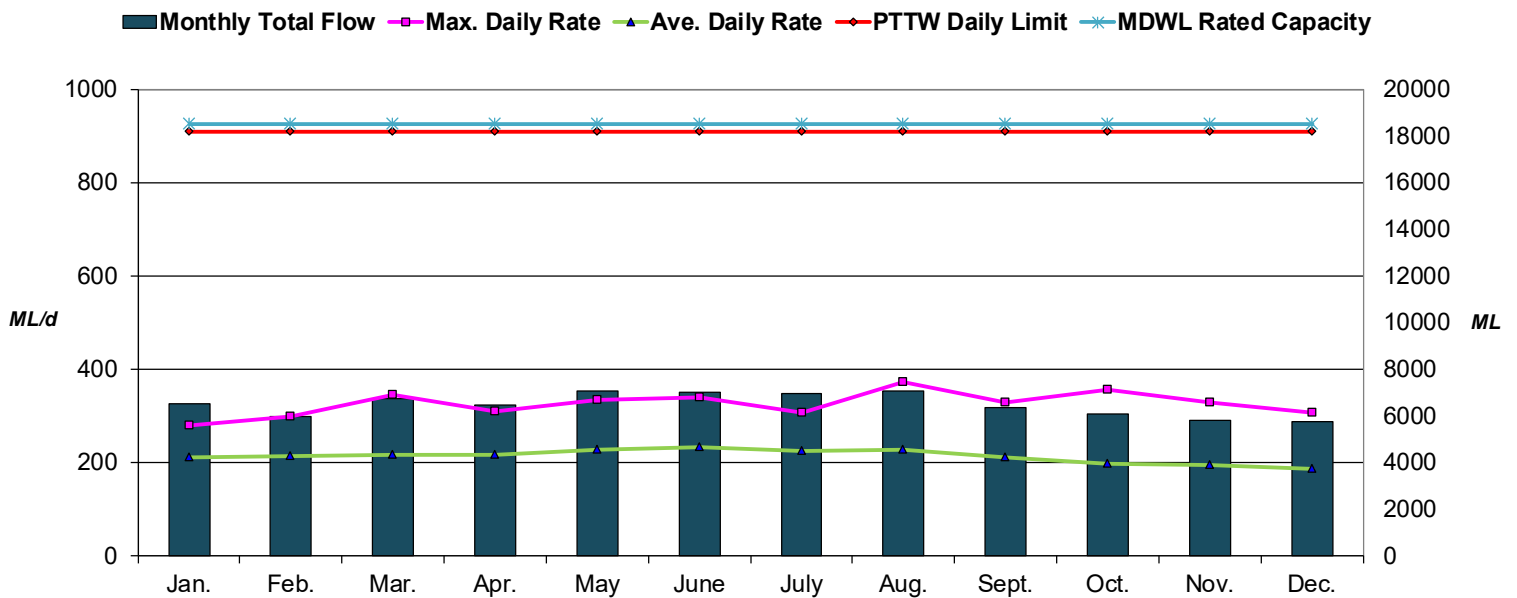
**TABLE 1-1: WOODWARD TREATMENT PLANT - 2021 MONTHLY PRODUCTION (SUMMARY)**

WOODWARD	UNITS	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
Monthly Total Flow	ML	6,552	5,993	6,730	6,473	7,058	7,037	6,958	7,093	6,353	6,107	5,822	5,767
Average Daily Rate	ML/d	211	214	217	216	228	235	224	229	212	197	194	186
Maximum Daily Rate	ML/d	281	300	344	309	335	339	308	372	329	357	329	307
PTTW Daily Taking Limit	ML/d	909	909	909	909	909	909	909	909	909	909	909	909
MDWL Daily Rated Capacity	ML/d	926	926	926	926	926	926	926	926	926	926	926	926



## MAINTAINED COMPLIANCE

**FIGURE 1-1: WOODWARD TREATMENT PLANT - 2021 MONTHLY PRODUCTION (SUMMARY)**



## WATER QUALITY DATA

### SUMMARY OF LEAD TESTING UNDER SCHEDULE 15.1 OF REGULATION 170/03 DURING THIS REPORTING PERIOD.

LOCATION TYPE	POINTS SAMPLED	LEAD SAMPLES TAKEN	pH & ALKALINITY SAMPLES TAKEN	pH RESULTS pH UNITS	ALKALINITY RESULTS mg/L	LEAD RESULTS mg/L	LEAD AWQIs	LEAD EXCEEDANCES
PLUMBING-NR	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PLUMBING-R	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
DISTRIBUTION	20	20	20	7.23 to 7.60	83 to 88	<0.0001 to 0.0018	0	N/A

NR - Non Residential R- Residential

COVID regulatory relief for Schedule 15.1 lead testing was granted for all plumbing samples (residential & non-residential).

### MICROBIOLOGICAL TESTING DONE UNDER SCHEDULE 10, 11, 12 AND 17, 18 OF REGULATION 170/03, DURING THIS REPORTING PERIOD.

PARAMETER	SAMPLE DATE	NUMBER OF SAMPLES	RESULT VALUE RANGE	UNIT OF MEASURE
<b>RAW</b>				
E.COLI	2021-01-05 to 2021-12-28	52	0 to 54	MPN/100mL
TOTAL COLIFORM	2021-01-05 to 2021-12-28	52	0 to 1990	MPN/100mL
<b>TREATED</b>				
E.COLI	2021-01-01 to 2021-12-31	553	ALL ABSENT	P/A/100mL
HPC	2021-01-03 to 2021-12-29	321	0 to 14	CFU/1mL
TOTAL COLIFORM	2021-01-01 to 2021-12-31	553	ALL ABSENT	P/A/100mL
<b>DISTRIBUTION</b>				
E.COLI	2021-05-19 to 2021-12-15	40	0	MPN/100mL
E.COLI	2021-01-01 to 2021-12-31	1849	1 DETECTION	P/A/100mL
HPC	2021-01-04 to 2021-12-29	1153	0 to 1720	CFU/1mL
TOTAL COLIFORM	2021-05-19 to 2021-12-15	40	0 to 15	MPN/100mL
TOTAL COLIFORM	2021-01-01 to 2021-12-31	1849	9 DETECTIONS	P/A/100mL

**OPERATIONAL TESTING DONE UNDER SCHEDULE 7, 8 OR 9 OF REGULATION 170/03 DURING THE PERIOD COVERED BY THIS ANNUAL REPORT.**

NOTE: If results are obtained from continuous monitors, then 8760 is reported as the number of samples.

PARAMETER - SAMPLE TYPE	NUMBER OF SAMPLES	RESULT VALUE RANGE	UNIT OF MEASURE
TURBIDITY - TREATED – FILTER 1	8760	0.01 to 0.13	NTU
TURBIDITY - TREATED – FILTER 2	8760	0.02 to 0.12	NTU
TURBIDITY - TREATED – FILTER 3	8760	0.02 to 0.26	NTU
TURBIDITY - TREATED – FILTER 4	8760	0.02 to 0.22	NTU
TURBIDITY - TREATED – FILTER 5	8760	0.02 to 0.13	NTU
TURBIDITY - TREATED – FILTER 6	8760	0.02 to 0.14	NTU
TURBIDITY - TREATED – FILTER 7	8760	0.02 to 0.86	NTU
TURBIDITY - TREATED – FILTER 8	8760	0.01 to 0.59	NTU
TURBIDITY - TREATED – FILTER 9	8760	0.02 to 0.14	NTU
TURBIDITY - TREATED – FILTER 10	8760	0.01 to 0.12	NTU
TURBIDITY - TREATED – FILTER 11	8760	0.02 to 0.13	NTU
TURBIDITY - TREATED – FILTER 12	8760	0.02 to 0.14	NTU
TURBIDITY - TREATED – FILTER 13	8760	0.02 to 0.66	NTU
TURBIDITY - TREATED – FILTER 14	8760	0.01 to 0.14	NTU
TURBIDITY - TREATED – FILTER 15	8760	0.02 to 0.18	NTU
TURBIDITY - TREATED – FILTER 16	8760	0.02 to 0.18	NTU
TURBIDITY - TREATED – FILTER 17	8760	0.02 to 0.17	NTU
TURBIDITY - TREATED – FILTER 18	8760	0.01 to 0.14	NTU
TURBIDITY - TREATED – FILTER 19	8760	0.02 to 0.47	NTU
TURBIDITY - TREATED – FILTER 20	8760	0.02 to 0.13	NTU
TURBIDITY - TREATED – FILTER 21	8760	0.01 to 0.31	NTU
TURBIDITY - TREATED – FILTER 22	8760	0.02 to 0.15	NTU
TURBIDITY - TREATED – FILTER 23	8760	0.02 to 0.12	NTU
TURBIDITY - TREATED – FILTER 24	8760	0.02 to 0.13	NTU
COMBINED CHLORINE - TREATED	8760	1.39 to 2.88	mg/L
FREE CHLORINE - DISTRIBUTION	1994	<0.02 to 0.21	mg/L
COMBINED CHLORINE - DISTRIBUTION	1994	0.19 to 2.85	mg/L
FLUORIDE – TREATED	8760	0.40 to 0.89	mg/L



**SUMMARY OF ADDITIONAL TESTING AND SAMPLING CARRIED OUT IN ACCORDANCE WITH THE REQUIREMENT OF A LICENCE, APPROVAL, ORDER OR OTHER LEGAL INSTRUMENT.**

PARAMETER - SAMPLE TYPE	SAMPLE DATE	RESULT VALUE RANGE	UNIT OF MEASURE
MICROCYSTINS – RAW	2021-01-12 to 2021-12-14	<0.15	ug/L
ALKALINITY – TREATED	2021-04-28 to 2021-10-18	86	mg/L
CHLORIDE – TREATED	2021-01-12 to 2021-12-14	29.1 to 43.4	mg/L
COLOUR (APPARENT) – TREATED	2021-02-11 to 2021-10-12	<2 to 2	CU
COPPER – TREATED	2021-02-11 to 2021-10-12	0.0002 to 0.0008	mg/L
IRON – TREATED	2021-02-11 to 2021-10-12	<0.003	mg/L
LEAD – TREATED	2021-02-11 to 2021-10-12	<0.0001	mg/L
MICROCYSTINS – TREATED	2021-06-01 to 2021-10-26	<0.15	ug/L
SULPHATE – TREATED	2021-01-12 to 2021-12-14	22.6 to 25.7	mg/L
TOTAL DISSOLVED SOLIDS – TREATED	2021-02-11 to 2021-10-12	170 to 248	mg/L
COPPER – PLUMBING	N/A	N/A	N/A
IRON – DISTRIBUTION	2021-02-08 to 2021-10-13	<0.003 to 0.079	mg/L
O-PHOSPHATE AS PO4 – DISTRIBUTION	2021-01-04 to 2021-12-30	1.43 to 6.54	mg/L
FIELD TEMPERATURE – DISTRIBUTION	2021-01-04 to 2021-12-30	2.8 to 25.0	°C
FIELD TURBIDITY – DISTRIBUTION	2021-01-04 to 2021-12-30	<0.05 to 5.04	NTU

N/A: COVID regulatory relief for Corrosion Control Program testing was granted for all plumbing samples (residential & non-residential).

PARAMETER - SAMPLE TYPE	NUMBER OF SAMPLES	RESULT VALUE RANGE	UNIT OF MEASURE
TEMPERATURE – RAW	8760	-0.53 to 23.29	°C
pH – TREATED	8760	6.74 to 7.60	pH
ORTHOPHOSPHATE – TREATED	8760	0.96 to 5.33	mg/L
ORTHOPHOSPHATE – TREATED	365	1.20 to 2.89	mg/L



**SUMMARY OF INORGANIC PARAMETERS REQUIRED BY REGULATION 170/03 AND TESTED DURING THIS REPORTING PERIOD.**

PARAMETER	SAMPLE DATE	RESULT VALUE RANGE	UNIT OF MEASURE	NO. OF AWQIs
<b>TREATED</b>				
ANTIMONY	2021-04-28 to 2021-10-18	0.0001 to 0.0002	mg/L	0
ARSENIC	2021-04-28 to 2021-10-18	0.0006 to 0.0007	mg/L	0
BARIUM	2021-04-28 to 2021-10-18	0.0195 to 0.0221	mg/L	0
BORON	2021-04-28 to 2021-10-18	0.020 to 0.026	mg/L	0
CADMIUM	2021-04-28 to 2021-10-18	<0.0001	mg/L	0
CHROMIUM	2021-04-28 to 2021-10-18	<0.0001	mg/L	0
FLUORIDE	2021-04-28 to 2021-10-18	0.56 to 0.61	mg/L	0
MERCURY	2021-04-28 to 2021-10-18	<0.05	ug/L	0
NITRATE AS N	2021-02-01 to 2021-10-18	0.170 to 0.450	mg/L	0
NITRITE AS N	2021-02-01 to 2021-10-18	<0.010	mg/L	0
SELENIUM	2021-04-28 to 2021-10-18	0.0001 to 0.0002	mg/L	0
SODIUM	2021-04-28 to 2021-10-18	14.1 to 16.2	mg/L	0
URANIUM	2021-04-28 to 2021-10-18	0.203 to 0.235	ug/L	0



**SUMMARY OF ORGANIC PARAMETERS REQUIRED BY REGULATION 170/03 AND TESTED DURING THIS REPORTING PERIOD.**

PARAMETER	SAMPLE DATE	RESULT VALUE RANGE	UNIT OF MEASURE	NO. OF AWQIs
<b>TREATED</b>				
1,1-DICHLOROETHYLENE	2021-04-28 to 2021-10-18	<0.33	ug/L	0
1,2-DICHLOROBENZENE	2021-04-28 to 2021-10-18	<0.41	ug/L	0
1,2-DICHLOROETHANE	2021-04-28 to 2021-10-18	<0.35	ug/L	0
1,4-DICHLOROBENZENE	2021-04-28 to 2021-10-18	<0.36	ug/L	0
2,3,4,6-TETRACHLOROPHENOL	2021-04-28	<0.20	ug/L	0
2,4,6-TRICHLOROPHENOL	2021-04-28	<0.25	ug/L	0
2,4-DICHLOROPHENOXYACETIC ACID	2021-04-28	<0.19	ug/L	0
2,4-DICHLOROPHENOL	2021-04-28	<0.15	ug/L	0
ALACHLOR	2021-04-28	<0.02	ug/L	0
ATRAZINE + DESETHYL-ATRAZINE	2021-04-28	0.01	ug/L	0
AZINPHOS-METHYL	2021-04-28	<0.05	ug/L	0
BENZENE	2021-04-28 to 2021-10-18	<0.32	ug/L	0
BENZO[A]PYRENE	2021-04-28	<0.004	ug/L	0
BROMOXYNIL	2021-04-28	<0.33	ug/L	0
CARBARYL	2021-04-28	<0.05	ug/L	0
CARBOFURAN	2021-04-28	<0.01	ug/L	0
CARBON TETRACHLORIDE	2021-04-28 to 2021-10-18	<0.20	ug/L	0
CHLOROBENZENE	2021-04-28 to 2021-10-18	<0.3	ug/L	0
CHLORPYRIFOS (DURSBAN)	2021-04-28	<0.02	ug/L	0
DIAZINON	2021-04-28	<0.02	ug/L	0
DICAMBA	2021-04-28	<0.20	ug/L	0
DICHLOROMETHANE	2021-04-28 to 2021-10-18	<0.50	ug/L	0
DICLOFOP-METHYL	2021-04-28	<0.40	ug/L	0
DIMETHOATE	2021-04-28	<0.06	ug/L	0
DIQUAT	2021-04-28	<1	ug/L	0
DIURON	2021-04-28	<0.03	ug/L	0
ETHYLBENZENE	2021-04-28 to 2021-10-18	<0.33	ug/L	0
GLYPHOSATE	2021-04-28	<1	ug/L	0
MALATHION	2021-04-28	<0.02	ug/L	0

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**SUMMARY OF ORGANIC PARAMETERS REQUIRED BY REGULATION 170/03 AND TESTED DURING THIS REPORTING PERIOD.**

PARAMETER	SAMPLE DATE	RESULT VALUE RANGE	UNIT OF MEASURE	NO. OF AWQIs
<b>TREATED</b>				
MCPA (2-METHYL-4-CHLOROPHENOXYACETIC ACID)	2021-04-28	<0.00012	mg/L	0
METOLACHLOR	2021-04-28	<0.01	ug/L	0
METRIBUZIN (SENCOR)	2021-04-28	<0.02	ug/L	0
PARAQUAT	2021-04-28	<1	ug/L	0
PCBS TOTAL	2021-04-28	<0.04	ug/L	0
PENTACHLOROPHENOL	2021-04-28	<0.15	ug/L	0
PHORATE	2021-04-28	<0.01	ug/L	0
PICLORAM	2021-04-28	<1	ug/L	0
PROMETRYNE	2021-04-28	<0.03	ug/L	0
SIMAZINE	2021-04-28	<0.01	ug/L	0
TERBUFOS	2021-04-28	<0.01	ug/L	0
TETRACHLOROETHYLENE	2021-04-28 to 2021-10-18	<0.35	ug/L	0
TOLUENE	2021-04-28 to 2021-10-18	<0.36	ug/L	0
TRIALATE	2021-04-28	<0.01	ug/L	0
TRICHLOROETHYLENE	2021-04-28 to 2021-10-18	<0.44	ug/L	0
TRIFLURALIN	2021-04-28	<0.02	ug/L	0
VINYL CHLORIDE	2021-04-28 to 2021-10-18	<0.20	ug/L	0
XYLENE	2021-04-28 to 2021-10-18	<0.50	ug/L	0
<b>DISTRIBUTION</b>				
TOTAL TRIHALOMETHANES*	Running annual average for the last four quarters.	19.6	ug/L	0
HALOACETIC ACIDS*	Running annual average for the last four quarters.	<5.3	ug/L	0

\*The Maximum Acceptable Concentration for Trihalomethanes and Haloacetic Acids in the distribution is based on a running average of the results from all sampling events in the past four quarters. This running average can be found in the result value column.



**SUMMARY OF ADDITIONAL TESTING AND SAMPLING RELATED TO KENILWORTH RESERVOIR**

PARAMETER	SAMPLE DATE	RESULT VALUE RANGE	UNIT OF MEASURE	NO. OF AWQIs
<b>TREATED</b>				
1,1-DICHLOROETHYLENE	2021-01-04 to 2021-12-29	<0.33	ug/L	0
1,2-DICHLOROBENZENE	2021-01-04 to 2021-12-29	<0.41	ug/L	0
1,2-DICHLOROETHANE	2021-01-04 to 2021-12-29	<0.35	ug/L	0
1,3-DICHLOROBENZENE	2021-01-04 to 2021-12-29	<0.5	ug/L	0
1,4-DICHLOROBENZENE	2021-01-04 to 2021-12-29	<0.36	ug/L	0
BENZENE	2021-01-04 to 2021-12-29	<0.32	ug/L	0
CARBON TETRACHLORIDE	2021-01-04 to 2021-12-29	<0.20	ug/L	0
CHLOROBENZENE	2021-01-04 to 2021-12-29	<0.3	ug/L	0
DICHLOROMETHANE	2021-01-04 to 2021-12-29	<0.50	ug/L	0
TETRACHLOROETHYLENE	2021-01-04 to 2021-12-29	<0.35	ug/L	0
TRICHLOROETHYLENE	2021-01-04 to 2021-12-29	<0.44	ug/L	0
VINYL CHLORIDE	2021-01-04 to 2021-12-29	<0.20	ug/L	0
1,4-DIOXANE	2021-01-04 to 2021-12-29	<2	ug/L	0
1-CHLORONAPHTHALENE	2021-01-04 to 2021-12-29	<500	ng/L	0
1-METHYLNAPHTHALENE	2021-01-04 to 2021-12-29	<500	ng/L	0
2,3,4,6-TETRACHLOROPHENOL	2021-01-04 to 2021-12-29	<0.20	ug/L	0
2,3,5,6-TETRACHLOROPHENOL	2021-01-04 to 2021-12-29	<1	ug/L	0
2,4,5-TRICHLOROPHENOL	2021-01-04 to 2021-12-29	<0.2	ug/L	0
2,4,6-TRICHLOROPHENOL	2021-01-04 to 2021-12-29	<0.25	ug/L	0
2,4-DICHLOROPHENOXYACETIC ACID	2021-01-04 to 2021-12-29	<0.19	ug/L	0
2,4-DICHLOROPHENOL	2021-01-04 to 2021-12-29	<0.15	ug/L	0
2,4-DIMETHYLPHENOL	2021-01-04 to 2021-12-29	<5	ug/L	0
2,4-DINITROPHENOL	2021-01-04 to 2021-12-29	<10	ug/L	0
2,4-DINITROTOLUENE	2021-01-04 to 2021-12-29	<500	ng/L	0
2,6-DINITROTOLUENE	2021-01-04 to 2021-12-29	<500	ng/L	0
2-CHLORONAPHTHALENE	2021-01-04 to 2021-12-29	<500	ng/L	0
2-CHLOROPHENOL	2021-01-04 to 2021-12-29	<1	ug/L	0
2-METHYL-4,6-DINITROPHENOL	2021-01-04 to 2021-12-29	<10	ug/L	0
2-METHYLNAPHTHALENE	2021-01-04 to 2021-12-29	<500	ng/L	0
2-NITROANILINE	2021-01-04 to 2021-12-29	<1000	ng/L	0

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**SUMMARY OF ADDITIONAL TESTING AND SAMPLING RELATED TO KENILWORTH RESERVOIR**

PARAMETER	SAMPLE DATE	RESULT VALUE RANGE	UNIT OF MEASURE	NO. OF AWQIs
<b>TREATED</b>				
2-NITROPHENOL	2021-01-04 to 2021-12-29	<1	ug/L	0
3,3'-DICHLOOROBENZIDINE	2021-01-04 to 2021-12-29	<500	ng/L	0
3-NITROANILINE	2021-01-04 to 2021-12-29	<1000	ng/L	0
4-CHLORO-3-METHYLPHENOL	2021-01-04 to 2021-12-29	<1	ug/L	0
4-CHLOROANILINE	2021-01-04 to 2021-12-29	<1000	ng/L	0
4-CHLOROPHENYL PHENYL ETHER	2021-01-04 to 2021-12-29	<500	ng/L	0
4-NITROANILINE	2021-01-04 to 2021-12-29	<1000	ng/L	0
4-NITROPHENOL	2021-01-04 to 2021-12-29	<1	ug/L	0
5-NITROACENAPHTHENE	2021-01-04 to 2021-12-29	<500	ng/L	0
7H-DIBENZO(C,G)CARBAZOLE	2021-01-04 to 2021-12-29	<0.1	ug/L	0
ACENAPHTHENE	2021-01-04 to 2021-12-29	<100	ng/L	0
ACENAPHTHYLENE	2021-01-04 to 2021-12-29	<100	ng/L	0
ALACHLOR	2021-01-04 to 2021-12-29	<0.02	ug/L	0
ANILINE	2021-01-04 to 2021-12-29	<1000	ng/L	0
ANTHRACENE	2021-01-04 to 2021-12-29	<100	ng/L	0
ATRAZINE	2021-01-04 to 2021-12-29	<0.01 to 0.04	ug/L	0
ATRAZINE + DESETHYL-ATRAZINE	2021-01-04 to 2021-12-29	<0.01 to 0.05	ug/L	0
AZINPHOS-METHYL	2021-01-04 to 2021-12-29	<0.05	ug/L	0
AZOBENZENE	2021-01-04 to 2021-12-29	<500	ng/L	0
BENZIDINE	2021-01-04 to 2021-12-29	<1000	ng/L	0
BENZO[A]ANTHRACENE	2021-01-04 to 2021-12-29	<100	ng/L	0
BENZO[A]PYRENE	2021-01-04 to 2021-12-29	<0.004	ug/L	0
BENZO[B/J]FLUORANTHENE	2021-01-04 to 2021-12-29	<0.1	ug/L	0
BENZO[E]PYRENE	2021-01-04 to 2021-12-29	<100	ng/L	0

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**SUMMARY OF ADDITIONAL TESTING AND SAMPLING RELATED TO KENILWORTH RESERVOIR**

PARAMETER	SAMPLE DATE	RESULT VALUE RANGE	UNIT OF MEASURE	NO. OF AWQIs
<b>TREATED</b>				
BENZO[G,H,I]PERYLENE	2021-01-04 to 2021-12-29	<200	ng/L	0
BENZO[K]FLUORANTHENE	2021-01-04 to 2021-12-29	<100	ng/L	0
BENZYL ALCOHOL	2021-01-04 to 2021-12-29	<500 to 900	ng/L	0
BENZYL BUTYL PHTHALATE	2021-01-04 to 2021-12-29	<2000	ng/L	0
BIPHENYL	2021-01-04 to 2021-12-29	<500	ng/L	0
BIS(2-CHLOROETHOXY) METHANE	2021-01-04 to 2021-12-29	<500	ng/L	0
BIS(2-CHLOROETHYL)ETHER	2021-01-04 to 2021-12-29	<500	ng/L	0
BIS(2-CHLOROISOPROPYL) ETHER	2021-01-04 to 2021-12-29	<500	ng/L	0
BIS(2-ETHYLHEXYL) PHTHALATE	2021-01-04 to 2021-12-29	<2000	ng/L	0
BIS(2-ETHYLHEXYL)ADIPATE	2021-01-04 to 2021-12-29	<1	ug/L	0
BISPHENOL A	2021-01-04 to 2021-12-29	<1	ug/L	0
BROMOXYNIL	2021-01-04 to 2021-12-29	<0.33	ug/L	0
CAMPHENE	2021-01-04 to 2021-12-29	<1000	ng/L	0
CARBARYL	2021-01-04 to 2021-12-29	<0.05	ug/L	0
CARBAZOLE	2021-01-04 to 2021-12-29	<5000	ng/L	0
CARBOFURAN	2021-01-04 to 2021-12-29	<0.01	ug/L	0
CHLORPYRIFOS (DURSBAN)	2021-01-04 to 2021-12-29	<0.02	ug/L	0
CHRYSENE	2021-01-04 to 2021-12-29	<100	ng/L	0
DESETHYL-ATRAZINE	2021-01-04 to 2021-12-29	<0.01 to 0.01	ug/L	0
DIAZINON	2021-01-04 to 2021-12-29	<0.02	ug/L	0
DIBENZO(A,E)PYRENE	2021-01-04 to 2021-12-29	<0.1	ug/L	0
DIBENZO(A,H)ACRIDINE	2021-01-04 to 2021-12-29	<0.1	ug/L	0
DIBENZO(A,H)PYRENE	2021-01-04 to 2021-12-29	<0.1	ug/L	0
DIBENZO(A,I)PYRENE	2021-01-04 to 2021-12-29	<0.1	ug/L	0
DIBENZO(A,J)ACRIDINE	2021-01-04 to 2021-12-29	<0.1	ug/L	0
DIBENZO[A,H]ANTHRACENE	2021-01-04 to 2021-12-29	<200	ng/L	0
DIBENZOFURAN	2021-01-04 to 2021-12-29	<500000	pg/L	0
DICAMBA	2021-01-04 to 2021-12-29	<0.20	ug/L	0
DICLOFOP-METHYL	2021-01-04 to 2021-12-29	<0.40	ug/L	0

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**SUMMARY OF ADDITIONAL TESTING AND SAMPLING RELATED TO KENILWORTH RESERVOIR**

PARAMETER	SAMPLE DATE	RESULT VALUE RANGE	UNIT OF MEASURE	NO. OF AWQIs
<b>TREATED</b>				
DIETHYL PHTHALATE	2021-01-04 to 2021-12-29	<2000	ng/L	0
DIMETHOATE	2021-01-04 to 2021-12-29	<0.06	ug/L	0
DIMETHYL PHTHALATE	2021-01-04 to 2021-12-29	<2000	ng/L	0
DI-N-BUTYL PHTHALATE	2021-01-04 to 2021-12-29	<2000	ng/L	0
DI-N-OCTYL PHTHALATE	2021-01-04 to 2021-12-29	<2000	ng/L	0
DIPHENYL ETHER	2021-01-04 to 2021-12-29	<1000	ng/L	0
DIPHENYLAMINE/N-NITROSODIPHENYLAMINE	2021-01-04 to 2021-12-29	<2000	ng/L	0
DIQUAT	2021-01-04 to 2021-12-29	<1	ug/L	0
DIURON	2021-01-04 to 2021-12-29	<0.03	ug/L	0
F2 (C10-C16) PETROLEUM HYDROCARBONS	2021-07-13 to 2021-12-29	<100	ug/L	0
F3 (C16-C34) PETROLEUM HYDROCARBONS	2021-07-13 to 2021-12-29	<200	ug/L	0
FLUORANTHENE	2021-01-04 to 2021-12-29	<100	ng/L	0
FLUORENE	2021-01-04 to 2021-12-29	<100	ng/L	0
GLYPHOSATE	2021-01-04 to 2021-12-29	<1	ug/L	0
HEXACHLOROBENZENE	2021-01-04 to 2021-12-29	<0.01	ug/L	0
HEXACHLOROBUTADIENE	2021-01-04 to 2021-12-29	<10	ng/L	0
HEXACHLOROCYCLOPENTADIENE	2021-01-04 to 2021-12-29	<1	ug/L	0
HEXACHLOROETHANE	2021-01-04 to 2021-12-29	<10	ng/L	0
INDENO[1,2,3-CD]PYRENE	2021-01-04 to 2021-12-29	<200	ng/L	0
INDOLE	2021-01-04 to 2021-12-29	<1000	ng/L	0
ISOPHORONE	2021-01-04 to 2021-12-29	<500	ng/L	0
M+P-CRESOL (3+4-METHYLPHENOL)	2021-01-04 to 2021-12-29	<1000	ng/L	0
MALATHION	2021-01-04 to 2021-12-29	<0.02	ug/L	0
MCPA (2-METHYL-4-CHLORO-PHENOXYACETIC ACID)	2021-01-04 to 2021-12-29	<0.00012	mg/L	0
M-DINITROBENZENE	2021-01-04 to 2021-12-29	<5	ug/L	0
METOLACHLOR	2021-01-04 to 2021-12-29	<0.01	ug/L	0

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**SUMMARY OF ADDITIONAL TESTING AND SAMPLING RELATED TO KENILWORTH RESERVOIR**

PARAMETER	SAMPLE DATE	RESULT VALUE	UNIT OF MEASURE	NO. OF AWQIs
<b>TREATED</b>				
METRIBUZIN (SENCOR)	2021-01-04 to 2021-12-29	<0.02	ug/L	0
NAPHTHALENE	2021-01-04 to 2021-12-29	<0.5	ug/L	0
NDMA	2021-01-04 to 2021-12-29	<0.0008 to 0.0030	ug/L	0
NITROBENZENE	2021-01-04 to 2021-12-29	<1000	ng/L	0
N-NITROSODI-N-PROPYLAMINE	2021-01-04 to 2021-12-29	<500	ng/L	0
O-CRESOL (2-METHYLPHENOL)	2021-01-04 to 2021-12-29	<1000	ng/L	0
OCTACHLOROSTYRENE	2021-01-04 to 2021-12-29	<500	ng/L	0
O-DINITROBENZENE	2021-01-04 to 2021-12-29	<5	ug/L	0
PARAQUAT	2021-01-04 to 2021-12-29	<1	ug/L	0
PCBS TOTAL	2021-01-04 to 2021-12-29	<0.04	ug/L	0
P-DINITROBENZENE	2021-01-04 to 2021-12-29	<5	ug/L	0
PENTACHLOROPHENOL	2021-01-04 to 2021-12-29	<0.15	ug/L	0
PERYLENE	2021-01-04 to 2021-12-29	<500	ng/L	0
PHENANTHRENE	2021-01-04 to 2021-12-29	<100	ng/L	0
PHENOL	2021-01-04 to 2021-12-29	<1	ug/L	0
PHORATE	2021-01-04 to 2021-12-29	<0.01	ug/L	0
PICLORAM	2021-01-04 to 2021-12-29	<1	ug/L	0
PROMETRYNE	2021-01-04 to 2021-12-29	<0.03	ug/L	0
PYRENE	2021-01-04 to 2021-12-29	<100	ng/L	0
PYRIDINE	2021-01-04 to 2021-12-29	<2000	ng/L	0
SIMAZINE	2021-01-04 to 2021-12-29	<0.01	ug/L	0
TERBUFOS	2021-01-04 to 2021-12-29	<0.01	ug/L	0
TRIALATE	2021-01-04 to 2021-12-29	<0.01	ug/L	0
TRIFLURALIN	2021-01-04 to 2021-12-29	<0.02	ug/L	0
ALUMINUM	2021-07-13 to 2021-12-29	0.014 to 0.399	mg/L	0
ANTIMONY	2021-07-13 to 2021-12-29	<0.0001 to 0.0002	mg/L	0
ARSENIC	2021-07-13 to 2021-12-29	0.0005 to 0.0009	mg/L	0
BARIUM	2021-07-13 to 2021-12-29	0.0188 to 0.0247	mg/L	0
BERYLLIUM	2021-07-13 to 2021-12-29	<0.0001	mg/L	0

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**SUMMARY OF ADDITIONAL TESTING AND SAMPLING RELATED TO KENILWORTH RESERVOIR**

PARAMETER	SAMPLE DATE	RESULT VALUE	UNIT OF MEASURE	NO. OF AWQIs
<b>TREATED</b>				
BISMUTH	2021-07-13 to 2021-12-29	<0.0001	mg/L	0
BORON	2021-07-13 to 2021-12-29	0.018 to 0.033	mg/L	0
CADMIUM	2021-07-13 to 2021-12-29	<0.0001	mg/L	0
CALCIUM	2021-07-13 to 2021-12-29	31.4 to 36.3	mg/L	0
CHROMIUM	2021-07-13 to 2021-12-29	<0.0001 to 0.0002	mg/L	0
COBALT	2021-07-13 to 2021-12-29	<0.0001	mg/L	0
COPPER	2021-07-13 to 2021-12-29	0.0002 to 0.0004	mg/L	0
IRON	2021-07-13 to 2021-12-29	<0.003 to 0.007	mg/L	0
LEAD	2021-07-13 to 2021-12-29	<0.0001	mg/L	0
LITHIUM	2021-07-13 to 2021-12-29	0.0018 to 0.0022	mg/L	0
MAGNESIUM	2021-07-13 to 2021-12-29	8.69 to 9.60	mg/L	0
MANGANESE	2021-07-13 to 2021-12-29	<0.0001 to 0.0008	mg/L	0
MOLYBDENUM	2021-07-13 to 2021-12-29	0.0011 to 0.0030	mg/L	0
NICKEL	2021-07-13 to 2021-12-29	0.0004 to 0.0006	mg/L	0
PHOSPHORUS TOTAL	2021-07-13 to 2021-12-29	0.446 to 0.912	mg/L	0
POTASSIUM	2021-07-13 to 2021-12-29	1.41 to 1.81	mg/L	0
SELENIUM	2021-07-13 to 2021-12-29	<0.0001 to 0.0002	mg/L	0
SILICON	2021-07-13 to 2021-12-29	0.27 to 0.85	mg/L	0
SILVER	2021-07-13 to 2021-12-29	<0.0001	mg/L	0
SODIUM	2021-07-13 to 2021-12-29	13.4 to 16.9	mg/L	0
STRONTIUM	2021-07-13 to 2021-12-29	0.160 to 0.200	mg/L	0
THALLIUM	2021-07-13 to 2021-12-29	<0.0003	mg/L	0
TIN	2021-07-13 to 2021-12-29	<0.0001	mg/L	0
TITANIUM	2021-07-13 to 2021-12-29	0.0002 to 0.0007	mg/L	0
TUNGSTEN	2021-07-13 to 2021-12-29	<0.0001 to 0.0001	mg/L	0
URANIUM	2021-07-13 to 2021-12-29	0.110 to 0.251	ug/L	0
VANADIUM	2021-07-13 to 2021-12-29	<0.0001 to 0.0004	mg/L	0
ZINC	2021-07-13 to 2021-12-29	<0.001 to 0.002	mg/L	0
ZIRCONIUM	2021-07-13 to 2021-12-29	<0.0004	mg/L	0

**SUMMARY OF ADDITIONAL TESTING AND SAMPLING RELATED TO KENILWORTH RESERVOIR**

PARAMETER	SAMPLE DATE	RESULT VALUE RANGE	UNIT OF MEASURE	NO. OF AWQIs
<b>DISTRIBUTION</b>				
1,1-DICHLOROETHYLENE	2021-01-04 to 2021-12-29	<0.33	ug/L	0
1,2-DICHLOROBENZENE	2021-01-04 to 2021-12-29	<0.41	ug/L	0
1,2-DICHLOROETHANE	2021-01-04 to 2021-12-29	<0.35	ug/L	0
1,3-DICHLOROBENZENE	2021-01-04 to 2021-12-29	<0.5	ug/L	0
1,4-DICHLOROBENZENE	2021-01-04 to 2021-12-29	<0.36	ug/L	0
BENZENE	2021-01-04 to 2021-12-29	<0.32	ug/L	0
CARBON TETRACHLORIDE	2021-01-04 to 2021-12-29	<0.20	ug/L	0
CHLOROBENZENE	2021-01-04 to 2021-12-29	<0.3	ug/L	0
DICHLOROMETHANE	2021-01-04 to 2021-12-29	<0.50	ug/L	0
TETRACHLOROETHYLENE	2021-01-04 to 2021-12-29	<0.35	ug/L	0
TRICHLOROETHYLENE	2021-01-04 to 2021-12-29	<0.44	ug/L	0
VINYL CHLORIDE	2021-01-04 to 2021-12-29	<0.20	ug/L	0
1,4-DIOXANE	2021-01-04 to 2021-12-29	<2	ug/L	0
1-CHLORONAPHTHALENE	2021-01-04 to 2021-12-29	<500	ng/L	0
1-METHYLNAPHTHALENE	2021-01-04 to 2021-12-29	<500	ng/L	0
2,3,4,6-TETRACHLOROPHENOL	2021-01-04 to 2021-12-29	<0.20	ug/L	0
2,3,5,6-TETRACHLOROPHENOL	2021-01-04 to 2021-12-29	<1	ug/L	0
2,4,5-TRICHLOROPHENOL	2021-01-04 to 2021-12-29	<0.2	ug/L	0
2,4,6-TRICHLOROPHENOL	2021-01-04 to 2021-12-29	<0.25	ug/L	0
2,4-DICHLOROPHENOXYACETIC ACID	2021-01-04 to 2021-12-29	<0.19	ug/L	0
2,4-DICHLOROPHENOL	2021-01-04 to 2021-12-29	<0.15	ug/L	0
2,4-DIMETHYLPHENOL	2021-01-04 to 2021-12-29	<5	ug/L	0
2,4-DINITROPHENOL	2021-01-04 to 2021-12-29	<10	ug/L	0
2,4-DINITROTOLUENE	2021-01-04 to 2021-12-29	<500	ng/L	0
2,6-DINITROTOLUENE	2021-01-04 to 2021-12-29	<500	ng/L	0
2-CHLORONAPHTHALENE	2021-01-04 to 2021-12-29	<500	ng/L	0
2-CHLOROPHENOL	2021-01-04 to 2021-12-29	<1	ug/L	0

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**SUMMARY OF ADDITIONAL TESTING AND SAMPLING RELATED TO KENILWORTH RESERVOIR**

PARAMETER	SAMPLE DATE	RESULT VALUE RANGE	UNIT OF MEASURE	NO. OF AWQIs
<b>DISTRIBUTION</b>				
2-METHYL-4,6-DINITROPHENOL	2021-01-04 to 2021-12-29	<10	ug/L	0
2-METHYLNAPHTHALENE	2021-01-04 to 2021-12-29	<500	ng/L	0
2-NITROANILINE	2021-01-04 to 2021-12-29	<1000	ng/L	0
2-NITROPHENOL	2021-01-04 to 2021-12-29	<1	ug/L	0
3,3'-DICHLOROBENZIDINE	2021-01-04 to 2021-12-29	<500	ng/L	0
3-NITROANILINE	2021-01-04 to 2021-12-29	<1000	ng/L	0
4-CHLORO-3-METHYLPHENOL	2021-01-04 to 2021-12-29	<1	ug/L	0
4-CHLOROANILINE	2021-01-04 to 2021-12-29	<1000	ng/L	0
4-CHLOROPHENYL PHENYL ETHER	2021-01-04 to 2021-12-29	<500	ng/L	0
4-NITROANILINE	2021-01-04 to 2021-12-29	<1000	ng/L	0
4-NITROPHENOL	2021-01-04 to 2021-12-29	<1	ug/L	0
5-NITROACENAPHTHENE	2021-01-04 to 2021-12-29	<500	ng/L	0
7H-DIBENZO(C,G)CARBAZOLE	2021-01-04 to 2021-12-29	<0.1	ug/L	0
ACENAPHTHENE	2021-01-04 to 2021-12-29	<100	ng/L	0
ACENAPHTHYLENE	2021-01-04 to 2021-12-29	<100	ng/L	0
ALACHLOR	2021-01-04 to 2021-12-29	<0.02	ug/L	0
ANILINE	2021-01-04 to 2021-12-29	<1000	ng/L	0
ANTHRACENE	2021-01-04 to 2021-12-29	<100	ng/L	0
ATRAZINE	2021-01-04 to 2021-12-29	<0.01 to 0.03	ug/L	0
ATRAZINE + DESETHYL-ATRAZINE	2021-01-04 to 2021-12-29	<0.01 to 0.04	ug/L	0
AZINPHOS-METHYL	2021-01-04 to 2021-12-29	<0.05	ug/L	0
AZO BENZENE	2021-01-04 to 2021-12-29	<500	ng/L	0
BENZIDINE	2021-01-04 to 2021-12-29	<1000	ng/L	0
BENZO[A]ANTHRACENE	2021-01-04 to 2021-12-29	<100	ng/L	0
BENZO[A]PYRENE	2021-01-04 to 2021-12-29	<0.004	ug/L	0
BENZO[B/J]FLUORANTHENE	2021-01-04 to 2021-12-29	<0.1	ug/L	0
BENZO[E]PYRENE	2021-01-04 to 2021-12-29	<100	ng/L	0

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**SUMMARY OF ADDITIONAL TESTING AND SAMPLING RELATED TO KENILWORTH RESERVOIR**

PARAMETER	SAMPLE DATE	RESULT VALUE	UNIT OF MEASURE	NO. OF AWQIs
<b>DISTRIBUTION</b>				
BENZO[G,H,I]PERYLENE	2021-01-04 to 2021-12-29	<200	ng/L	0
BENZO[K]FLUORANTHENE	2021-01-04 to 2021-12-29	<100	ng/L	0
BENZYL ALCOHOL	2021-01-04 to 2021-12-29	<500 to 2400	ng/L	0
BENZYL BUTYL PHTHALATE	2021-01-04 to 2021-12-29	<2000	ng/L	0
BIPHENYL	2021-01-04 to 2021-12-29	<500	ng/L	0
BIS(2-CHLOROETHOXY) METHANE	2021-01-04 to 2021-12-29	<500	ng/L	0
BIS(2-CHLOROETHYL)ETHER	2021-01-04 to 2021-12-29	<500	ng/L	0
BIS(2-CHLOROISOPROPYL) ETHER	2021-01-04 to 2021-12-29	<500	ng/L	0
BIS(2-ETHYLHEXYL) PHTHALATE	2021-01-04 to 2021-12-29	<2000 to 8000*	ng/L	0
BIS(2-ETHYLHEXYL)ADIPATE	2021-01-04 to 2021-12-29	<1	ug/L	0
BISPHENOL A	2021-01-04 to 2021-12-29	<1	ug/L	0
BROMOXYNIL	2021-01-04 to 2021-12-29	<0.33	ug/L	0
CAMPHENE	2021-01-04 to 2021-12-29	<1000	ng/L	0
CARBARYL	2021-01-04 to 2021-12-29	<0.05	ug/L	0
CARBAZOLE	2021-01-04 to 2021-12-29	<5000	ng/L	0
CARBOFURAN	2021-01-04 to 2021-12-29	<0.01	ug/L	0
CHLORPYRIFOS (DURSBAN)	2021-01-04 to 2021-12-29	<0.02	ug/L	0
CHRYSENE	2021-01-04 to 2021-12-29	<100	ng/L	0
DESETHYL-ATRAZINE	2021-01-04 to 2021-12-29	<0.01 to 0.01	ug/L	0
DIAZINON	2021-01-04 to 2021-12-29	<0.02	ug/L	0
DIBENZO(A,E)PYRENE	2021-01-04 to 2021-12-29	<0.1	ug/L	0
DIBENZO(A,H)ACRIDINE	2021-01-04 to 2021-12-29	<0.1	ug/L	0
DIBENZO(A,H)PYRENE	2021-01-04 to 2021-12-29	<0.1	ug/L	0
DIBENZO(A,I)PYRENE	2021-01-04 to 2021-12-29	<0.1	ug/L	0
DIBENZO(A,J)ACRIDINE	2021-01-04 to 2021-12-29	<0.1	ug/L	0
DIBENZO[A,H]ANTHRACENE	2021-01-04 to 2021-12-29	<200	ng/L	0
DIBENZOFURAN	2021-01-04 to 2021-12-29	<500000	pg/L	0
DICAMBA	2021-01-04 to 2021-12-29	<0.20	ug/L	0
DICLOFOP-METHYL	2021-01-04 to 2021-12-29	<0.40	ug/L	0

\*Result may be lower due to quality control issue

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**SUMMARY OF ADDITIONAL TESTING AND SAMPLING RELATED TO KENILWORTH RESERVOIR**

PARAMETER	SAMPLE DATE	RESULT VALUE	UNIT OF MEASURE	NO. OF AWQIs
<b>DISTRIBUTION</b>				
DIETHYL PHTHALATE	2021-01-04 to 2021-12-29	<2000	ng/L	0
DIMETHOATE	2021-01-04 to 2021-12-29	<0.06	ug/L	0
DIMETHYL PHTHALATE	2021-01-04 to 2021-12-29	<2000	ng/L	0
DI-N-BUTYL PHTHALATE	2021-01-04 to 2021-12-29	<2000	ng/L	0
DI-N-OCTYL PHTHALATE	2021-01-04 to 2021-12-29	<2000	ng/L	0
DIPHENYL ETHER	2021-01-04 to 2021-12-29	<1000	ng/L	0
DIPHENYLAMINE/N-NITROSODIPHENYLAMINE	2021-01-04 to 2021-12-29	<2000	ng/L	0
DIQUAT	2021-01-04 to 2021-12-29	<1	ug/L	0
DIURON	2021-01-04 to 2021-12-29	<0.03	ug/L	0
F2 (C10-C16) PETROLEUM HYDROCARBONS	2021-07-13 to 2021-12-29	<100	ug/L	0
F3 (C16-C34) PETROLEUM HYDROCARBONS	2021-07-13 to 2021-12-29	<200 to 247	ug/L	0
FLUORANTHENE	2021-01-04 to 2021-12-29	<100	ng/L	0
FLUORENE	2021-01-04 to 2021-12-29	<100	ng/L	0
GLYPHOSATE	2021-01-04 to 2021-12-29	<1	ug/L	0
HEXACHLOROBENZENE	2021-01-04 to 2021-12-29	<0.01	ug/L	0
HEXACHLOROBUTADIENE	2021-01-04 to 2021-12-29	<10	ng/L	0
HEXACHLOROCYCLOPENTADIENE	2021-01-04 to 2021-12-29	<1	ug/L	0
HEXACHLOROETHANE	2021-01-04 to 2021-12-29	<10	ng/L	0
INDENO[1,2,3-CD]PYRENE	2021-01-04 to 2021-12-29	<200	ng/L	0
INDOLE	2021-01-04 to 2021-12-29	<1000	ng/L	0
ISOPHORONE	2021-01-04 to 2021-12-29	<500	ng/L	0
M+P-CRESOL (3+4-METHYLPHENOL)	2021-01-04 to 2021-12-29	<1000	ng/L	0
MALATHION	2021-01-04 to 2021-12-29	<0.02	ug/L	0
MCPA (2-METHYL-4-CHLORO-PHENOXYACETIC ACID)	2021-01-04 to 2021-12-29	<0.00012	mg/L	0
M-DINITROBENZENE	2021-01-04 to 2021-12-29	<5	ug/L	0
METOLACHLOR	2021-01-04 to 2021-12-29	<0.01	ug/L	0

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**SUMMARY OF ADDITIONAL TESTING AND SAMPLING RELATED TO KENILWORTH RESERVOIR**

PARAMETER	SAMPLE DATE	RESULT VALUE RANGE	UNIT OF MEASURE	NO. OF AWQIs
<b>DISTRIBUTION</b>				
METRIBUZIN (SENCOR)	2021-01-04 to 2021-12-29	<0.02	ug/L	0
NAPHTHALENE	2021-01-04 to 2021-12-29	<0.5	ug/L	0
NDMA	2021-01-04 to 2021-12-29	<0.0008 to 0.0049	ug/L	0
NITROBENZENE	2021-01-04 to 2021-12-29	<1000	ng/L	0
N-NITROSODI-N-PROPYLAMINE	2021-01-04 to 2021-12-29	<500	ng/L	0
O-CRESOL (2-METHYLPHENOL)	2021-01-04 to 2021-12-29	<1000	ng/L	0
OCTACHLOROSTYRENE	2021-01-04 to 2021-12-29	<500	ng/L	0
O-DINITROBENZENE	2021-01-04 to 2021-12-29	<5	ug/L	0
PARAQUAT	2021-01-04 to 2021-12-29	<1	ug/L	0
PCBS TOTAL	2021-01-04 to 2021-12-29	<0.04	ug/L	0
P-DINITROBENZENE	2021-01-04 to 2021-12-29	<5	ug/L	0
PENTACHLOROPHENOL	2021-01-04 to 2021-12-29	<0.15	ug/L	0
PERYLENE	2021-01-04 to 2021-12-29	<500	ng/L	0
PHENANTHRENE	2021-01-04 to 2021-12-29	<100	ng/L	0
PHENOL	2021-01-04 to 2021-12-29	<1	ug/L	0
PHORATE	2021-01-04 to 2021-12-29	<0.01	ug/L	0
PICLORAM	2021-01-04 to 2021-12-29	<1	ug/L	0
PROMETRYNE	2021-01-04 to 2021-12-29	<0.03	ug/L	0
PYRENE	2021-01-04 to 2021-12-29	<100	ng/L	0
PYRIDINE	2021-01-04 to 2021-12-29	<2000	ng/L	0
SIMAZINE	2021-01-04 to 2021-12-29	<0.01	ug/L	0
TERBUFOS	2021-01-04 to 2021-12-29	<0.01	ug/L	0
TRIALATE	2021-01-04 to 2021-12-29	<0.01	ug/L	0
TRIFLURALIN	2021-01-04 to 2021-12-29	<0.02	ug/L	0
ALUMINUM	2021-07-13 to 2021-12-29	0.016 to 1.610	mg/L	0
ANTIMONY	2021-07-13 to 2021-12-29	<0.0001 to 0.0002	mg/L	0
ARSENIC	2021-07-13 to 2021-12-29	0.0004 to 0.0009	mg/L	0
BARIUM	2021-07-13 to 2021-12-29	0.0192 to 0.0411	mg/L	0
BERYLLIUM	2021-07-13 to 2021-12-29	<0.0001	mg/L	0
BISMUTH	2021-07-13 to 2021-12-29	<0.0001 to 0.0009	mg/L	0

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**SUMMARY OF ADDITIONAL TESTING AND SAMPLING RELATED TO KENILWORTH RESERVOIR**

PARAMETER	SAMPLE DATE	RESULT VALUE	UNIT OF MEASURE	NO. OF AWQIs
<b>DISTRIBUTION</b>				
BORON	2021-07-13 to 2021-12-29	0.018 to 0.031	mg/L	0
CADMIUM	2021-07-13 to 2021-12-29	<0.0001	mg/L	0
CALCIUM	2021-07-13 to 2021-12-29	33.4 to 37.6	mg/L	0
CHROMIUM	2021-07-13 to 2021-12-29	<0.0001 to 0.0004	mg/L	0
COBALT	2021-07-13 to 2021-12-29	<0.0001	mg/L	0
COPPER	2021-07-13 to 2021-12-29	0.0035 to 0.0392	mg/L	0
IRON	2021-07-13 to 2021-12-29	0.009 to 1.650	mg/L	0
LEAD	2021-07-13 to 2021-12-29	<0.0001 to 0.0018	mg/L	0
LITHIUM	2021-07-13 to 2021-12-29	0.0018 to 0.0022	mg/L	0
MAGNESIUM	2021-07-13 to 2021-12-29	8.65 to 9.40	mg/L	0
MANGANESE	2021-07-13 to 2021-12-29	0.0003 to 0.0022	mg/L	0
MOLYBDENUM	2021-07-13 to 2021-12-29	0.0011 to 0.0014	mg/L	0
NICKEL	2021-07-13 to 2021-12-29	0.0004 to 0.0009	mg/L	0
PHOSPHORUS TOTAL	2021-07-13 to 2021-12-29	0.528 to 1.760	mg/L	0
POTASSIUM	2021-07-13 to 2021-12-29	1.51 to 1.82	mg/L	0
SELENIUM	2021-07-13 to 2021-12-29	0.0001 to 0.0002	mg/L	0
SILICON	2021-07-13 to 2021-12-29	0.34 to 0.74	mg/L	0
SILVER	2021-07-13 to 2021-12-29	<0.0001	mg/L	0
SODIUM	2021-07-13 to 2021-12-29	13.8 to 16.3	mg/L	0
STRONTIUM	2021-07-13 to 2021-12-29	0.160 to 0.191	mg/L	0
THALLIUM	2021-07-13 to 2021-12-29	<0.0003	mg/L	0
TIN	2021-07-13 to 2021-12-29	<0.0001 to 0.0002	mg/L	0
TITANIUM	2021-07-13 to 2021-12-29	0.0003 to 0.0015	mg/L	0
TUNGSTEN	2021-07-13 to 2021-12-29	<0.0001 to 0.0001	mg/L	0
URANIUM	2021-07-13 to 2021-12-29	0.116 to 0.387	ug/L	0
VANADIUM	2021-07-13 to 2021-12-29	0.0001 to 0.0003	mg/L	0
ZINC	2021-07-13 to 2021-12-29	<0.001 to 0.004	mg/L	0
ZIRCONIUM	2021-07-13 to 2021-12-29	<0.0004	mg/L	0

**Parameters Exceeding Prescribed Half-Standard**

There were no Inorganic or Organic parameter(s) that exceeded half the standard prescribed in Schedule 2 of Ontario Drinking Water Quality Standards (O.Reg. 169/03)

# FIFTY ROAD DRINKING WATER SUBSYSTEM WATER QUALITY ANNUAL REPORT





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## GENERAL INFORMATION

The treated water supply for this area comes from the Town of Grimsby Water Distribution System and serves a population of approximately 200 people. Water is provided from Grimsby west along Highway 8, then south on Fifty Road to Concession Road and to an underground, 1,100m<sup>3</sup> storage reservoir operated by the City of Hamilton. The reservoir supplies water to residences on Reservoir Park Road.

A pump, running continuously, maintains the distribution system water pressure. Water pumped in excess of water system demand is circulated back to the reservoir. Fluoridation is not carried out on the water supplied by the Town of Grimsby. The reservoir water chlorine residual is maintained by a rechlorination system at the reservoir. Distribution water is sampled and analyzed one day per week. Chlorine residual in the distribution system is analyzed twice per week.

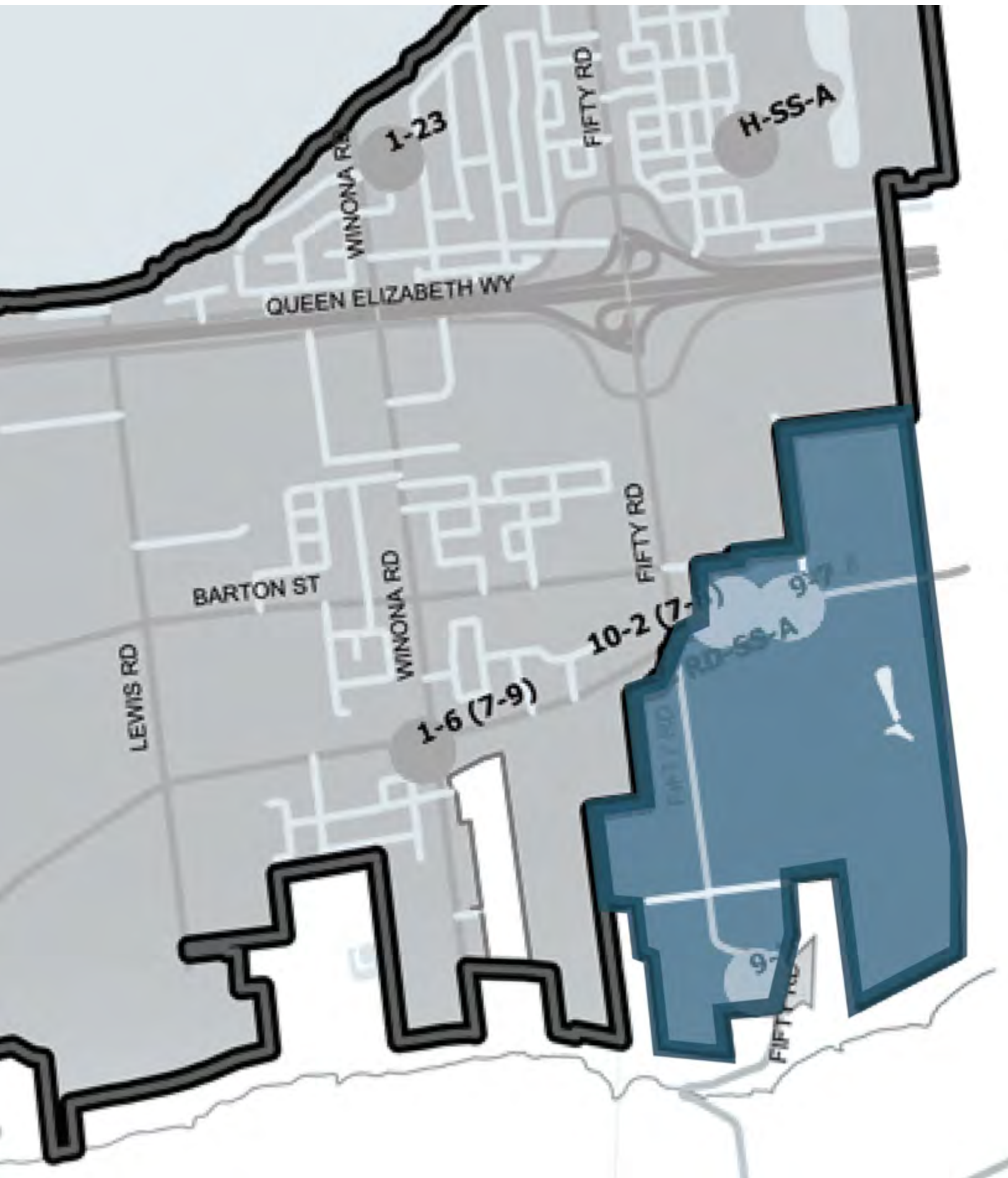
## DEFINITIONS

AWQI: Adverse Water Quality Incident  
 CFU: Colony Forming Unit  
 HPC: Heterotrophic Plate Count  
 MDWL: Municipal Drinking Water Licence  
 mg/L: milligrams per litre  
 mL: millilitre  
 MPN: Most Probable Number  
 N/A: Not Applicable  
 P/A: Present/Absent  
 PTTW: Permit to Take Water  
 ug/L: micrograms per litre

For more information on the Town of Grimsby's Quality Management System, DWQMS Policy, Licenses/Permits, Operational Plan and Annual Drinking Water Quality Reports, please visit:

[www.grimsby.ca](http://www.grimsby.ca)

DRINKING WATER SYSTEM NUMBER	DRINKING WATER SYSTEM NAME	DRINKING WATER SYSTEM OWNER	DRINKING WATER SYSTEM CATEGORY	PERIOD BEING REPORTED
260069173	Fifty Road Subsystem of Hamilton Drinking Water System	City of Hamilton	Small Municipal Residential	January 1, 2021 to December 31, 2021



## PROVISION OF DRINKING WATER TO OTHER MUNICIPALITIES

The following is a list of municipal drinking water systems which receive drinking water from the Fifty Road Drinking Water Subsystem:

DRINKING WATER SYSTEM NAME	DRINKING WATER SYSTEM NUMBER
None other than Fifty Road Subsystem	260069173



A copy of this annual report is provided to all Drinking Water System owners that are connected to the system and to whom the City provides drinking water.



The City's customers are notified through the local newspaper that the annual report is available online free of charge at [www.hamilton.ca/waterquality](http://www.hamilton.ca/waterquality). A copy of the report can also be requested by contacting (905) 546-2489 or [water@hamilton.ca](mailto:water@hamilton.ca).

## WATER TREATMENT CHEMICALS USED DURING THIS REPORTING PERIOD

- Sodium Hypochlorite (chlorine)

## BREAKDOWN OF SIGNIFICANT MONETARY EXPENSES

There were no significant expenses incurred for installing, repairing and replacing required equipment in 2021. There were no significant projects initiated or expenses to highlight for the Fifty Road Subsystem in 2021.

## ADVERSE TEST RESULTS AND REPORTABLE INCIDENTS

The following table outlines the 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 the MECP Spills Action Centre.

NOTIFICATION DATE (Y-M-D)	LOCATION OF ADVERSE	ADVERSE WATER QUALITY INCIDENT	RESOLUTION
We are pleased to announce that there were no Adverse Water Quality Incidents for the period of January 1, 2021 to December 31, 2021.			

## MECP HAMILTON DRINKING WATER SYSTEM, FIFTY ROAD SUBSYSTEM INSPECTION FINDINGS AND SELF-DECLARED NON-COMPLIANCES

The following tables are a Summary of Findings from the MECP Inspections and self-declared non-compliances found during the 2021 calendar year.

### MECP INSPECTION REPORT, JANUARY 25, 2021:

#	FINDING TYPE	FINDING	STATUS
1	Non-Compliance	Modify work order templates used for recording the disinfection of equipment as per the Drinking Water Works Permit, Schedule B, Condition 2.3 and 2.31.	Action complete
2	Recommendation	Consider using preprinted logbooks to ensure required content is recorded. Required information is recorded in logbooks.	No action required
3	Recommendation	Conduct daily visits to a facility's structures to check system integrity and security. There is a program of regular site inspections and continuous remote monitoring.	No action required

### MECP INSPECTION REPORT, NOVEMBER 15, 2021:

#	FINDING TYPE	FINDING	STATUS
1	Non-compliance	Select a new sample location representing Zone 9 and the homes located on Reservoir Park Road for chlorine, bacteria and disinfection by-products.	Actions in process
2	Recommendation	Implement a sampling plan / program to conduct checks for chlorine residuals at the extremities and "dead ends" of the distribution system. Plan is in place.	No action required
3	Recommendation	Based on the chlorine residual sampling plan, further develop and implement a strategy for a dead-end flushing program that includes: locations, frequencies, duration of flushing, and overall methodology and demonstrate with records. Plan is in place.	No action required

### WATER PRODUCTION REPORTS - SUMMARY

The Memorandum of Understanding between the Town of Grimsby and the City of Hamilton does not include a rated capacity. The City of Hamilton is working with the Town of Grimsby to negotiate a Water Supply Agreement.

**WATER QUALITY DATA**

**MICROBIOLOGICAL TESTING DONE UNDER SCHEDULE 10, 11, 12 AND 17, 18 OF REGULATION 170/03, DURING THIS REPORTING PERIOD.**

PARAMETER	SAMPLE DATE	NUMBER OF SAMPLES	RESULT VALUE RANGE	UNIT OF MEASURE
<b>DISTRIBUTION</b>				
E.COLI	2021-01-04 to 2021-12-27	104	ALL ABSENT	P/A/100mL
HPC	2021-01-04 to 2021-12-27	104	0 to 4	CFU/1mL
TOTAL COLIFORM	2021-01-04 to 2021-12-27	104	ALL ABSENT	P/A/100mL

**OPERATIONAL TESTING DONE UNDER SCHEDULE 7, 8 OR 9 OF REGULATION 170/03 DURING THE PERIOD COVERED BY THIS ANNUAL REPORT.**

NOTE: If results are obtained from continuous monitors, then 8760 is reported as the number of samples.

PARAMETER - SAMPLE TYPE	NUMBER OF SAMPLES	RESULT VALUE RANGE	UNIT OF MEASURE
FREE CHLORINE - DISTRIBUTION	156	0.58 to 2.90	mg/L

**SUMMARY OF ADDITIONAL TESTING AND SAMPLING CARRIED OUT IN ACCORDANCE WITH THE REQUIREMENT OF A LICENCE, APPROVAL, ORDER OR OTHER LEGAL INSTRUMENT.**

PARAMETER	SAMPLE DATE	RESULT VALUE RANGE	UNIT OF MEASURE
N/A	-	-	-

**SUMMARY OF INORGANIC PARAMETERS REQUIRED BY REGULATION 170/03 AND TESTED DURING THIS REPORTING PERIOD.**

PARAMETER	SAMPLE DATE	RESULT VALUE RANGE	UNIT OF MEASURE	NO. OF AWQIs
N/A	-	-	-	-



**SUMMARY OF LEAD TESTING UNDER SCHEDULE 15.1 OF REGULATION 170/03 DURING THIS REPORTING PERIOD.**

LOCATION TYPE	POINTS SAMPLED	LEAD SAMPLES TAKEN	pH & ALKALINITY SAMPLES TAKEN	pH RESULTS pH UNITS	ALKALINITY RESULTS mg/L	LEAD RESULTS mg/L	LEAD AWQIs	LEAD EXCEEDANCES
PLUMBING-NR	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PLUMBING-R	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
DISTRIBUTION	2	2	2	7.53 to 7.61	85 to 88	<0.0001	0	N/A

NR - Non Residential R - Residential

COVID regulatory relief for Schedule 15.1 lead testing was granted for all plumbing samples (residential & non-residential).

**SUMMARY OF ORGANIC PARAMETERS REQUIRED BY REGULATION 170/03 AND TESTED DURING THIS REPORTING PERIOD.**

PARAMETER	SAMPLE DATE	RESULT VALUE	UNIT OF MEASURE	NO. OF AWQIs
<b>DISTRIBUTION</b>				
TOTAL TRIHALOMETHANES*	Running annual average for the last four quarters.	27.9	ug/L	0
HALOACETIC ACIDS*	Running annual average for the last four quarters.	24.5	ug/L	0

\* The Maximum Acceptable Concentration for Trihalomethanes and Haloacetic acids in the distribution is based on a running average of the results from all sampling events in the past four quarters. This running average can be found in the result value column.

**PARAMETERS EXCEEDING PRESCRIBED HALF-STANDARD**

There were no Inorganic or Organic parameter(s) that exceeded half the standard prescribed in Schedule 2 of Ontario Drinking Water Quality Standards (O.Reg. 169/03)



# FREELTON DRINKING WATER SYSTEM WATER QUALITY ANNUAL REPORT



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## GENERAL INFORMATION

The Freelton water supply system consists of two wells, one elevated water storage tank, treatment, sampling and analysis which services a population of approximately 804 people. The water source for the community of Freelton is ground water.

### Water Wells:

- Freelton Well FDF01 is a 250mm diameter, approximately 21-metre-deep drilled ground water well.
- Freelton Well FDF03 is a 300mm diameter, approximately 50-metre-deep drilled ground water well.

### Treatment:

- Sodium hypochlorite (chlorine) is used for disinfection within a chlorine contact chamber to ensure disinfection of the water prior to entering the distribution system.
- Fluoridation is not carried out at any of the Freelton community wells.

### Water Storage:

An elevated water storage tank with an operating capacity of 2,840m<sup>3</sup> is available for peak hour water demand equalization as well as fire and emergency storage.

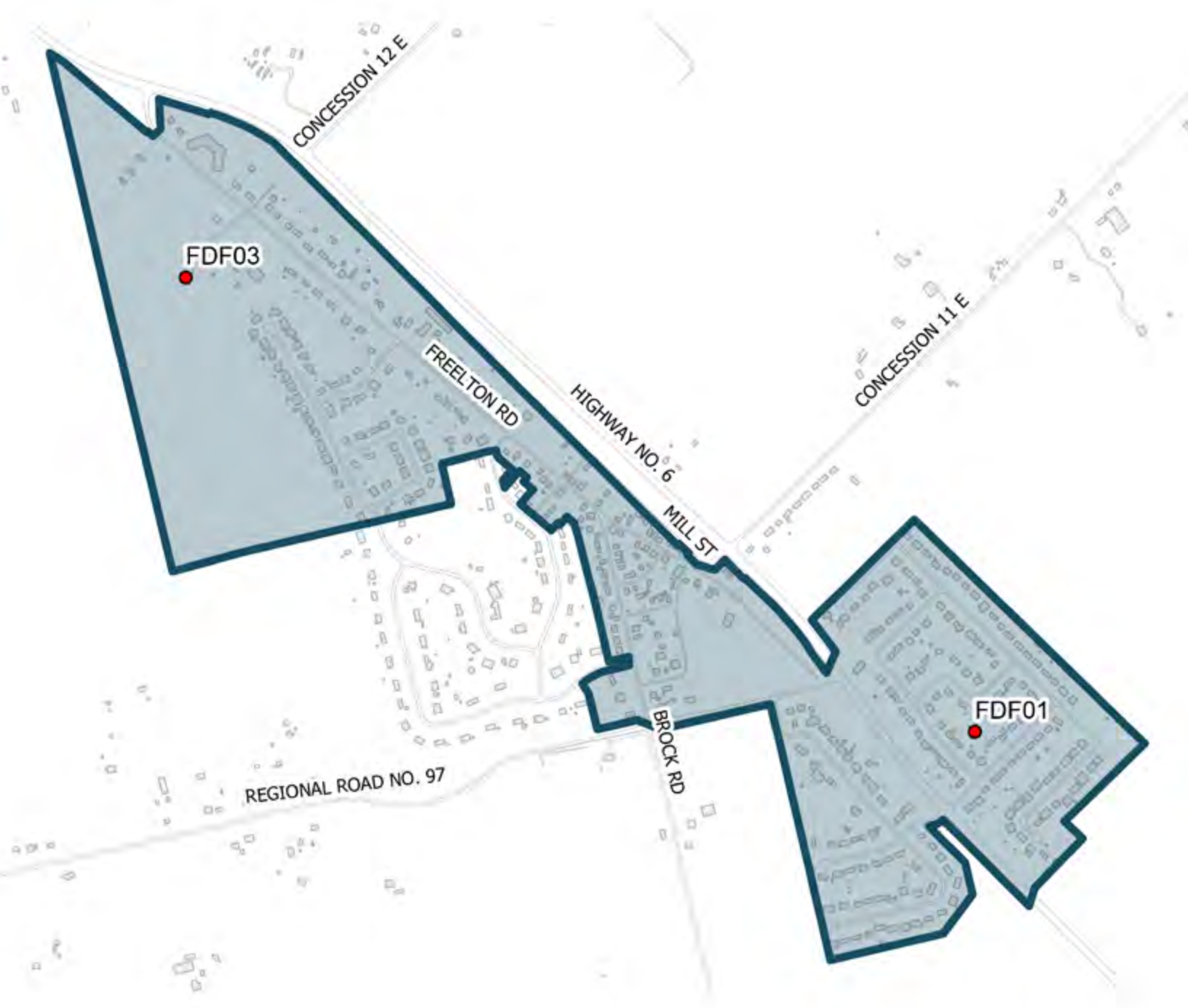
### Sampling & Analysis:

All wells are equipped with on-line chlorine residual analyzers and turbidity analyzers that continually monitor the treated water quality. Raw, treated and distribution water is sampled and analyzed weekly. In addition, chlorine residual in the distribution system is analyzed daily.

## DEFINITIONS

- AWQI: Adverse Water Quality Incident
- CFU: Colony Forming Unit
- HPC: Heterotrophic Plate Count
- MDWL: Municipal Drinking Water Licence
- mg/L: milligrams per litre
- mL: millilitre
- MPN: Most Probable Number
- m<sup>3</sup>: cubic metre
- m<sup>3</sup>/d: cubic metres per day
- N/A: Not Applicable
- NTU: Nephelometric Turbidity Units
- P/A: Present/Absent
- PTTW: Permit to Take Water
- ug/L: micrograms per litre

DRINKING WATER SYSTEM NUMBER	DRINKING WATER SYSTEM NAME	DRINKING WATER SYSTEM OWNER	DRINKING WATER SYSTEM CATEGORY	PERIOD BEING REPORTED
220004117	Freelton Drinking Water System FDF01, FDF03	City of Hamilton	Large Municipal Residential	January 1, 2021 to December 31, 2021



## PROVISION OF DRINKING WATER TO OTHER MUNICIPALITIES

The following is a list of municipal drinking water systems which receive drinking water from the Freelton System:

DRINKING WATER SYSTEM NAME	DRINKING WATER SYSTEM NUMBER
None other than Freelton System	220004117



A copy of this annual report is provided to all Drinking Water System owners that are connected to the system and to whom the City provides drinking water.



The City's customers are notified through the local newspaper that the annual report is available online free of charge at [www.hamilton.ca/waterquality](http://www.hamilton.ca/waterquality). A copy of the report can also be requested by contacting (905) 546-2489 or [water@hamilton.ca](mailto:water@hamilton.ca).

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## WATER TREATMENT CHEMICALS USED DURING THIS REPORTING PERIOD

- Sodium Hypochlorite (chlorine)

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## BREAKDOWN OF SIGNIFICANT MONETARY EXPENSES

**There were no significant expenses incurred for installing, repairing and replacing required equipment in 2021. There were no significant projects initiated or expenses to highlight for the Freelton Drinking Water System in 2021.**

## ADVERSE TEST RESULTS AND REPORTABLE INCIDENTS

The following table outlines the 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 the MECP Spills Action Centre.

NOTIFICATION DATE (Y-M-D)	LOCATION OF ADVERSE	ADVERSE WATER QUALITY INCIDENT	RESOLUTION
We are pleased to announce that there were no Adverse Water Quality Incidents for the period of January 1, 2021 to December 31, 2021			

## MECP FREELTON DRINKING WATER SYSTEM (DWS) INSPECTION FINDINGS AND SELF-DECLARED NON-COMPLIANCES

The following table is a Summary of Findings from the MECP Inspections and self-declared non-compliances found during the 2021 calendar year.

### MECP INSPECTION REPORT, MARCH 31, 2021

#	FINDING TYPE	FINDING	STATUS
1 & 2	Recommendation	Implement a sampling plan / program to conduct routine checks for chlorine residuals at the extremities and "dead ends" of the distribution system in addition to the current sampling stations.  Plan is in place.	No action required
3	Recommendation	Modify repair, maintenance or inspection work order templates used for recording the disinfection of equipment as per the Drinking Water Works Permit, Schedule B, Condition 2.3 and 2.3.1.	Action complete
4	Recommendation	Review cyber security provisions related to operation of the drinking water system.	Actions in process
5	Recommendation	When providing written notices that: background information be provided leading up to the event; a summary of the action taken; and the results achieved, be provided by the Overall Responsible Operator or designate. This is also recommended for notifications of non-compliance and upon completion of root cause analyses.	Action complete

## WATER PRODUCTION REPORTS - SUMMARY

The following provides a summary of daily flow rates and instantaneous peak flow rates in comparison to the capacity of the water works as identified in the Permit to Take Water. This information is tabulated in the accompanying tables.

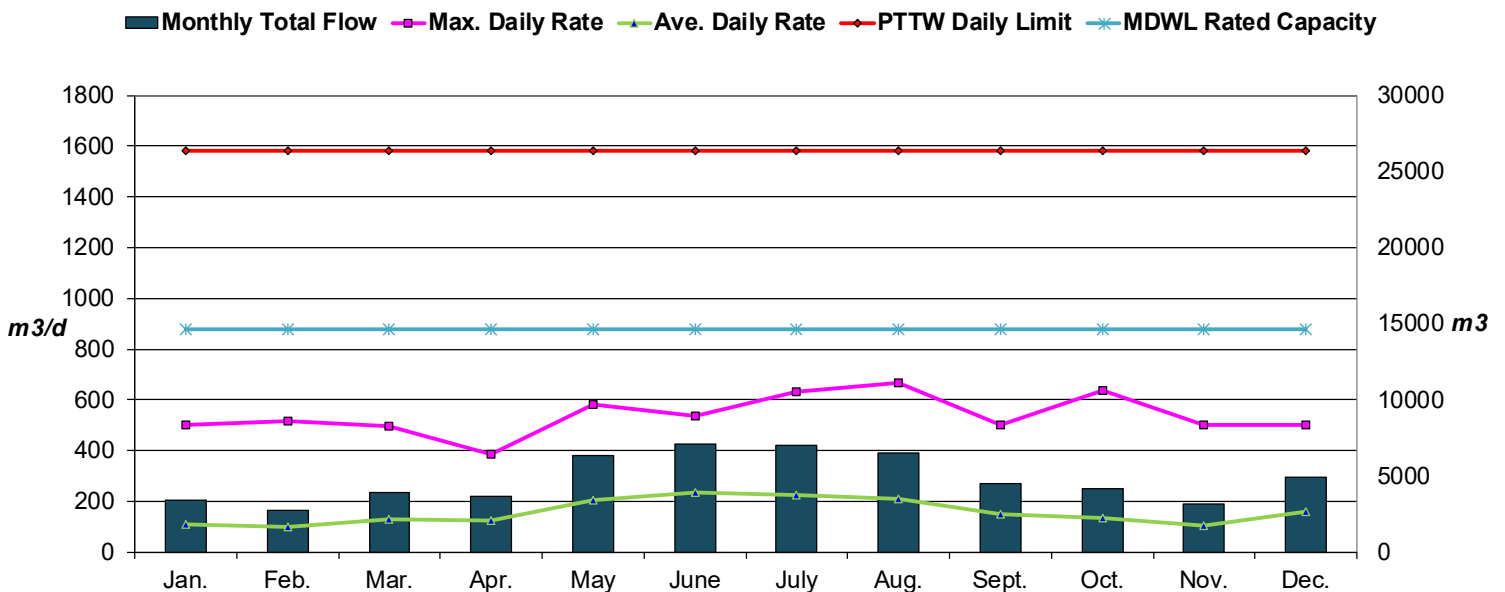
**TABLE 3-1: FREELTON WELL (FDF01) - 2021 MONTHLY PRODUCTION (SUMMARY)**

FDF01	UNITS	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
<b>Total Monthly Flow</b>	m <sup>3</sup>	3,401	2,775	3,942	3,706	6,315	7,086	6,994	6,546	4,493	4,146	3,198	4,912
<b>Average Daily Rate</b>	m <sup>3</sup> /d	110	99	127	124	204	236	226	211	150	134	107	158
<b>Maximum Daily Rate</b>	m <sup>3</sup> /d	501	514	496	387	582	536	630	667	501	636	501	502
<b>PTTW Daily Taking Limit</b>	m <sup>3</sup> /d	1,584	1,584	1,584	1,584	1,584	1,584	1,584	1,584	1,584	1,584	1,584	1,584
<b>MDWL Daily Rated Capacity</b>	m <sup>3</sup> /d	878	878	878	878	878	878	878	878	878	878	878	878



## MAINTAINED COMPLIANCE

**FIGURE 3-1: FREELTON WELL (FDF01) - 2021 MONTHLY PRODUCTION (SUMMARY)**





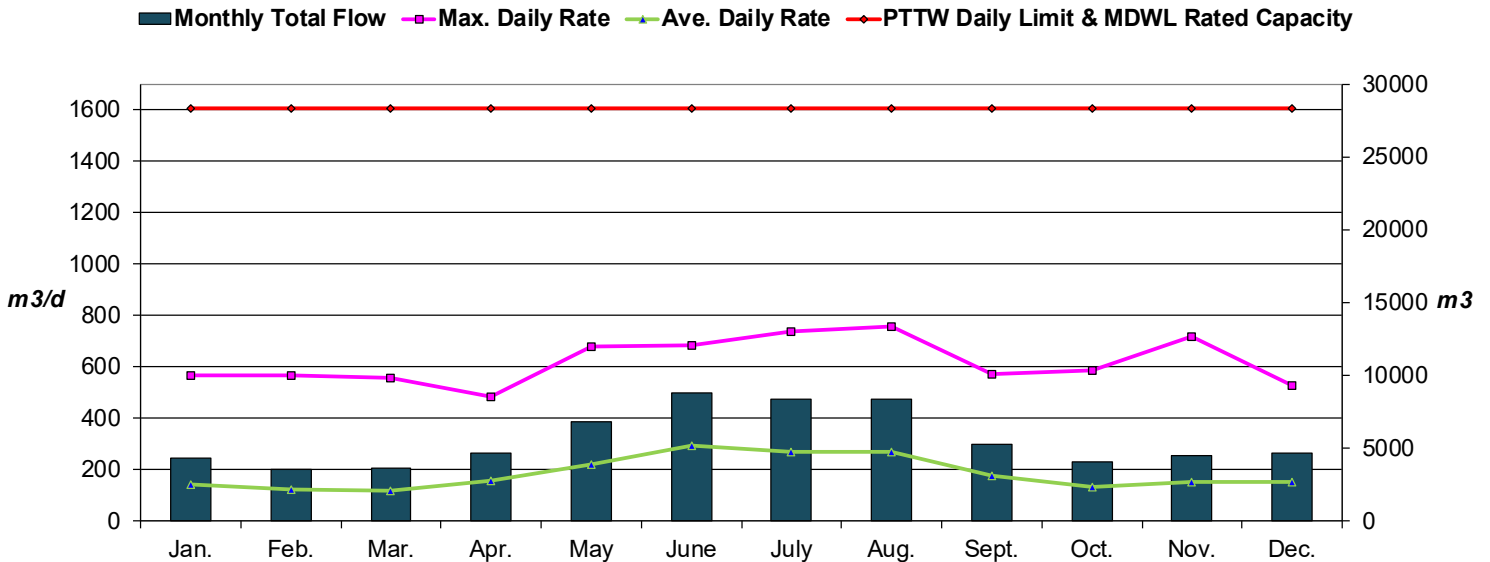
**TABLE 3-2: FREELTON WELL (FDF03) - 2021 MONTHLY PRODUCTION (SUMMARY)**

FDF03	UNITS	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
Total Monthly Flow	m <sup>3</sup>	4,353	3,511	3,678	4,662	6,797	8,772	8,404	8,391	5,247	4,060	4,531	4,687
Average Daily Rate	m <sup>3</sup> /d	140	125	119	155	219	292	271	271	175	131	151	151
Maximum Daily Rate	m <sup>3</sup> /d	569	566	559	483	678	685	736	757	570	585	719	530
PTTW & MDWL Daily Rated Capacity	m <sup>3</sup> /d	1,607	1,607	1,607	1,607	1,607	1,607	1,607	1,607	1,607	1,607	1,607	1,607



**MAINTAINED COMPLIANCE**

**FIGURE 3-2: FREELTON WELL (FDF03) - 2021 MONTHLY PRODUCTION (SUMMARY)**



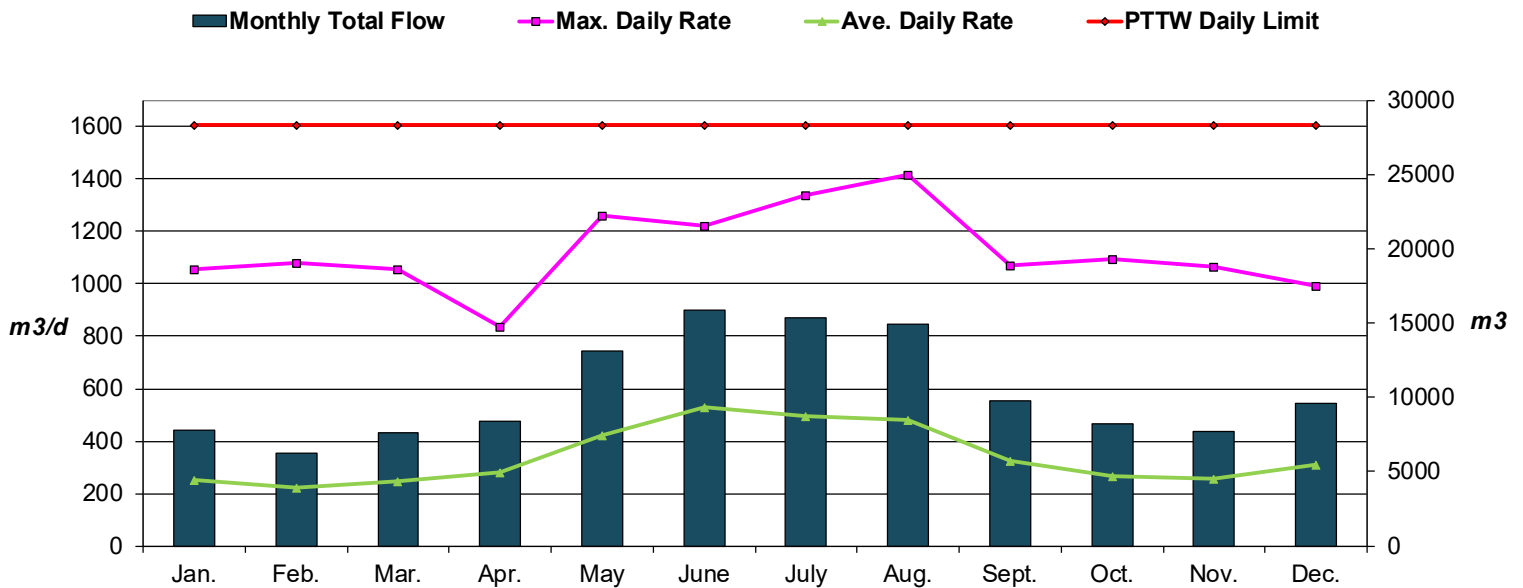
**TABLE 3-3: FREELTON WELL (FDF01 & FDF03) - 2021 MONTHLY PRODUCTION (SUMMARY)**

FDF01 & 03	UNITS	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
<b>Total Monthly Flow</b>	m <sup>3</sup>	7,754	6,286	7,620	8,368	13,113	15,858	15,398	14,937	9,740	8,206	7,729	9,598
<b>Average Daily Rate</b>	m <sup>3</sup> /d	250	224	246	279	423	529	497	482	325	265	258	310
<b>Maximum Daily Rate</b>	m <sup>3</sup> /d	1,058	1,080	1,055	836	1,260	1,222	1,337	1,417	1,072	1,097	1,064	992
<b>PTTW Daily Taking Limit</b>	m <sup>3</sup> /d	1,607	1,607	1,607	1,607	1,607	1,607	1,607	1,607	1,607	1,607	1,607	1,607



**MAINTAINED COMPLIANCE**

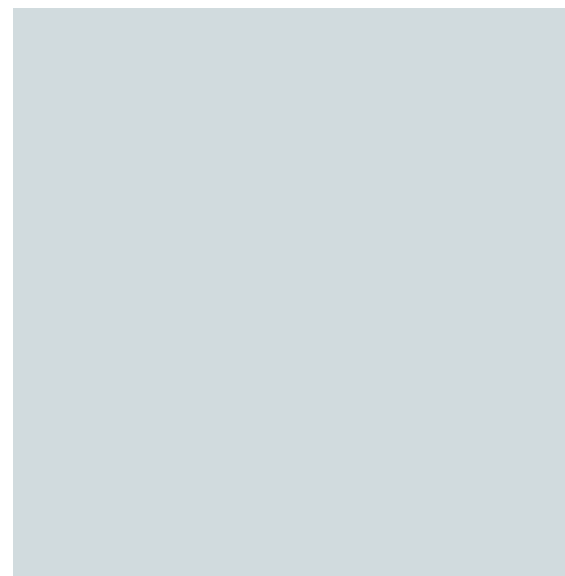
**FIGURE 3-3: FREELTON WELL (FDF01 & FDF03) - 2021 MONTHLY PRODUCTION (SUMMARY)**



## WATER QUALITY DATA

### MICROBIOLOGICAL TESTING DONE UNDER SCHEDULE 10, 11, 12 AND 17, 18 OF REGULATION 170/03, DURING THIS REPORTING PERIOD.

PARAMETER - SAMPLE TYPE	SAMPLE DATE	NUMBER OF SAMPLES	RESULT VALUE RANGE	UNIT OF MEASURE
<b>FREELTON WELL FDF01 - RAW</b>				
E.COLI	2021-01-04 to 2021-12-27	52	0	MPN/100mL
TOTAL COLIFORM	2021-01-04 to 2021-12-27	52	0	MPN/100mL
<b>FREELTON WELL FDF03 - RAW</b>				
E.COLI	2021-01-05 to 2021-12-28	52	0	MPN/100mL
TOTAL COLIFORM	2021-01-05 to 2021-12-28	52	0 to 2	MPN/100mL
<b>FREELTON WELL FDF01 - TREATED</b>				
E.COLI	2021-01-04 to 2021-12-27	52	ALL ABSENT	P/A/100mL
HPC	2021-01-04 to 2021-12-27	52	0 to 2	CFU/1mL
TOTAL COLIFORM	2021-01-04 to 2021-12-27	52	ALL ABSENT	P/A/100mL
<b>FREELTON WELL FDF03 - TREATED</b>				
E.COLI	2021-01-05 to 2021-12-28	52	ALL ABSENT	P/A/100mL
HPC	2021-01-05 to 2021-12-28	52	0 to 1	CFU/1mL
TOTAL COLIFORM	2021-01-05 to 2021-12-28	52	ALL ABSENT	P/A/100mL
<b>DISTRIBUTION</b>				
E.COLI	2021-01-04 to 2021-12-28	208	ALL ABSENT	P/A/100mL
HPC	2021-01-04 to 2021-12-28	208	0 to 5	CFU/1mL
TOTAL COLIFORM	2021-01-04 to 2021-12-28	208	ALL ABSENT	P/A/100mL



**OPERATIONAL TESTING DONE UNDER SCHEDULE 7, 8 OR 9 OF REGULATION 170/03 DURING THE PERIOD COVERED BY THIS ANNUAL REPORT.**

NOTE: If results are obtained from continuous monitors, then 8760 is reported as the number of samples.

PARAMETER - SAMPLE TYPE	NUMBER OF SAMPLES	RESULTS VALUE RANGE	UNIT OF MEASURE
TURBIDITY - RAW - FDF01	52	0.04 to 0.36	NTU
TURBIDITY - RAW - FDF03	52	0.06 to 0.40	NTU
FREE CHLORINE - TREATED - FDF01	8760	0.91 to 2.41	mg/L
FREE CHLORINE - TREATED - FDF03	8760	1.38 to 2.56	mg/L
FREE CHLORINE - DISTRIBUTION	365	1.23 to 2.13	mg/L

**SUMMARY OF ADDITIONAL TESTING AND SAMPLING CARRIED OUT IN ACCORDANCE WITH THE REQUIREMENT OF A LICENCE, APPROVAL, ORDER OR OTHER LEGAL INSTRUMENT.**

PARAMETER	SAMPLE DATE	RESULT VALUE RANGE	UNIT OF MEASURE
N/A	-	-	-

**SUMMARY OF INORGANIC PARAMETERS REQUIRED BY REGULATION 170/03 AND TESTED DURING THIS REPORTING PERIOD.**

PARAMETER	SAMPLE DATE	RESULT VALUE RANGE	UNIT OF MEASURE	NO. OF AWQIs
<b>FREELTON WELL FDF01 - TREATED</b>				
ANTIMONY	2021-04-27 to 2021-10-22	0.0001	mg/L	0
ARSENIC	2021-04-27 to 2021-10-22	0.0001	mg/L	0
BARIUM	2021-04-27 to 2021-10-22	0.0664 to 0.0685	mg/L	0
BORON	2021-04-27 to 2021-10-22	0.019 to 0.021	mg/L	0
CADMIUM	2021-04-27 to 2021-10-22	<0.0001	mg/L	0
CHROMIUM	2021-04-27 to 2021-10-22	<0.0001	mg/L	0
FLUORIDE	2021-04-27 to 2021-10-22	0.08 to 0.09	mg/L	0
MERCURY	2021-04-27 to 2021-10-22	<0.05	ug/L	0
NITRATE AS N	2021-02-03 to 2021-10-22	1.41 to 1.96	mg/L	0
NITRITE AS N	2021-02-03 to 2021-10-22	<0.010	mg/L	0
SELENIUM	2021-04-27 to 2021-10-22	0.0003	mg/L	0
SODIUM	2021-04-27 to 2021-10-22	51.9 to 55.5	mg/L	0
URANIUM	2021-04-27 to 2021-10-22	0.281 to 0.285	ug/L	0

**SUMMARY OF INORGANIC PARAMETERS REQUIRED BY REGULATION 170/03 AND TESTED DURING THIS REPORTING PERIOD.**

PARAMETER	SAMPLE DATE	RESULT VALUE RANGE	UNIT OF MEASURE	NO. OF AWQIs
<b>FREELTON WELL FDF03 - TREATED</b>				
ANTIMONY	2021-04-27 to 2021-10-22	0.0001	mg/L	0
ARSENIC	2021-04-27 to 2021-10-22	0.0003 to 0.0004	mg/L	0
BARIUM	2021-04-27 to 2021-10-22	0.0720 to 0.0736	mg/L	0
BORON	2021-04-27 to 2021-10-22	0.015 to 0.017	mg/L	0
CADMIUM	2021-04-27 to 2021-10-22	<0.0001	mg/L	0
CHROMIUM	2021-04-27 to 2021-10-22	<0.0001	mg/L	0
FLUORIDE	2021-04-27 to 2021-10-22	0.16	mg/L	0
MERCURY	2021-04-27 to 2021-10-22	<0.05	ug/L	0
NITRATE AS N	2021-02-03 to 2021-10-22	<0.02 to 0.041	mg/L	0
NITRITE AS N	2021-02-03 to 2021-10-22	<0.010	mg/L	0
SELENIUM	2021-04-27 to 2021-10-22	<0.0001	mg/L	0
SODIUM	2021-04-27 to 2021-10-22	43.9 to 53.2	mg/L	0
URANIUM	2021-04-27 to 2021-10-22	0.279 to 0.302	ug/L	0

**SUMMARY OF LEAD TESTING UNDER SCHEDULE 15.1 OF REGULATION 170/03 DURING THIS REPORTING PERIOD.**

LOCATION TYPE	POINTS SAMPLED	LEAD SAMPLES TAKEN	pH & ALKALINITY SAMPLES TAKEN	pH RESULTS pH UNITS	ALKALINITY RESULTS mg/L	LEAD RESULTS mg/L	LEAD AWQIs	LEAD EXCEEDANCES
PLUMBING-NR	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PLUMBING-R	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
DISTRIBUTION	4	4	4	7.28 to 7.51	305 to 309	0.0002 to 0.0008	0	N/A

NR - Non Residential R- Residential

COVID regulatory relief for Schedule 15.1 lead testing was granted for all plumbing samples (residential & non-residential).

**SUMMARY OF ORGANIC PARAMETERS REQUIRED BY REGULATION 170/03 AND TESTED DURING THIS REPORTING PERIOD.**

PARAMETER	SAMPLE DATE	RESULT VALUE RANGE	UNIT OF MEASURE	NO. OF AWQIs
<b>FREELTON WELL FDF01 - TREATED</b>				
1,1-DICHLOROETHYLENE	2021-04-27 to 2021-10-22	<0.33	ug/L	0
1,2-DICHLOROBENZENE	2021-04-27 to 2021-10-22	<0.41	ug/L	0
1,2-DICHLOROETHANE	2021-04-27 to 2021-10-22	<0.35	ug/L	0
1,4-DICHLOROBENZENE	2021-04-27 to 2021-10-22	<0.36	ug/L	0
2,3,4,6-TETRACHLOROPHENOL	2021-04-27	<0.20	ug/L	0
2,4,6-TRICHLOROPHENOL	2021-04-27	<0.25	ug/L	0
2,4-DICHLOROPHENOXYACETIC ACID	2021-04-27	<0.19	ug/L	0
2,4-DICHLOROPHENOL	2021-04-27	<0.15	ug/L	0
ALACHLOR	2021-04-27	<0.02	ug/L	0
ATRAZINE + DESETHYL-ATRAZINE	2021-04-27	<0.01	ug/L	0
AZINPHOS-METHYL	2021-04-27	<0.05	ug/L	0
BENZENE	2021-04-27 to 2021-10-22	<0.32	ug/L	0
BENZO[A]PYRENE	2021-04-27	<0.004	ug/L	0
BROMOXYNIL	2021-04-27	<0.33	ug/L	0
CARBARYL	2021-04-27	<0.05	ug/L	0
CARBOFURAN	2021-04-27	<0.01	ug/L	0
CARBON TETRACHLORIDE	2021-04-27 to 2021-10-22	<0.20	ug/L	0
CHLOROBENZENE	2021-04-27 to 2021-10-22	<0.3	ug/L	0
CHLORPYRIFOS (DURSBAN)	2021-04-27	<0.02	ug/L	0
DIAZINON	2021-04-27	<0.02	ug/L	0
DICAMBA	2021-04-27	<0.20	ug/L	0
DICHLOROMETHANE	2021-04-27 to 2021-10-22	<0.50	ug/L	0
DICLOFOP-METHYL	2021-04-27	<0.40	ug/L	0
DIMETHOATE	2021-04-27	<0.06	ug/L	0
DIQUAT	2021-04-27	<1	ug/L	0
DIURON	2021-04-27	<0.03	ug/L	0
ETHYLBENZENE	2021-04-27 to 2021-10-22	<0.33	ug/L	0
GLYPHOSATE	2021-04-27	<1	ug/L	0
MALATHION	2021-04-27	<0.02	ug/L	0

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**SUMMARY OF ORGANIC PARAMETERS REQUIRED BY REGULATION 170/03 AND TESTED DURING THIS REPORTING PERIOD.**

PARAMETER	SAMPLE DATE	RESULT VALUE RANGE	UNIT OF MEASURE	NO. OF AWQIs
<b>FREELTON WELL FDF01 - TREATED</b>				
MCPA (2-METHYL-4-CHLOROPHENOXYACETIC ACID)	2021-04-27	<0.00012	mg/L	0
METOLACHLOR	2021-04-27	<0.01	ug/L	0
METRIBUZIN (SENCOR)	2021-04-27	<0.02	ug/L	0
PARAQUAT	2021-04-27	<1	ug/L	0
PCBS TOTAL	2021-04-27	<0.04	ug/L	0
PENTACHLOROPHENOL	2021-04-27	<0.15	ug/L	0
PHORATE	2021-04-27	<0.01	ug/L	0
PICLORAM	2021-04-27	<1	ug/L	0
PROMETRYNE	2021-04-27	<0.03	ug/L	0
SIMAZINE	2021-04-27	<0.01	ug/L	0
TERBUFOS	2021-04-27	<0.01	ug/L	0
TETRACHLOROETHYLENE	2021-04-27 to 2021-10-22	<0.35	ug/L	0
TOLUENE	2021-04-27 to 2021-10-22	<0.36	ug/L	0
TRIALATE	2021-04-27	<0.01	ug/L	0
TRICHLOROETHYLENE	2021-04-27 to 2021-10-22	<0.44	ug/L	0
TRIFLURALIN	2021-04-27	<0.02	ug/L	0
VINYL CHLORIDE	2021-04-27 to 2021-10-22	<0.20	ug/L	0
XYLENE	2021-04-27 to 2021-10-22	<0.50	ug/L	0

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**SUMMARY OF ORGANIC PARAMETERS REQUIRED BY REGULATION 170/03 AND TESTED DURING THIS REPORTING PERIOD.**

PARAMETER	SAMPLE DATE	RESULT VALUE RANGE	UNIT OF MEASURE	NO. OF AWQIs
<b>FREELTON WELL FDF03 - TREATED</b>				
1,1-DICHLOROETHYLENE	2021-04-27 to 2021-10-22	<0.33	ug/L	0
1,2-DICHLOROBENZENE	2021-04-27 to 2021-10-22	<0.41	ug/L	0
1,2-DICHLOROETHANE	2021-04-27 to 2021-10-22	<0.35	ug/L	0
1,4-DICHLOROBENZENE	2021-04-27 to 2021-10-22	<0.36	ug/L	0
2,3,4,6-TETRACHLOROPHENOL	2021-04-27	<0.20	ug/L	0
2,4,6-TRICHLOROPHENOL	2021-04-27	<0.25	ug/L	0
2,4-DICHLOROPHENOXY-ACETIC ACID	2021-04-27	<0.19	ug/L	0
2,4-DICHLOROPHENOL	2021-04-27	<0.15	ug/L	0
ALACHLOR	2021-04-27	<0.02	ug/L	0
ATRAZINE + DESETHYL-ATRAZINE	2021-04-27	<0.01	ug/L	0
AZINPHOS-METHYL	2021-04-27	<0.05	ug/L	0
BENZENE	2021-04-27 to 2021-10-22	<0.32	ug/L	0
BENZO[A]PYRENE	2021-04-27	<0.004	ug/L	0
BROMOXYNIL	2021-04-27	<0.33	ug/L	0
CARBARYL	2021-04-27	<0.05	ug/L	0
CARBOFURAN	2021-04-27	<0.01	ug/L	0
CARBON TETRACHLORIDE	2021-04-27 to 2021-10-22	<0.20	ug/L	0
CHLOROBENZENE	2021-04-27 to 2021-10-22	<0.3	ug/L	0
CHLORPYRIFOS (DURSBAN)	2021-04-27	<0.02	ug/L	0
DIAZINON	2021-04-27	<0.02	ug/L	0
DICAMBA	2021-04-27	<0.20	ug/L	0
DICHLOROMETHANE	2021-04-27 to 2021-10-22	<0.50	ug/L	0
DICLOFOP-METHYL	2021-04-27	<0.40	ug/L	0
DIMETHOATE	2021-04-27	<0.06	ug/L	0
DIQUAT	2021-04-27	<1	ug/L	0
DIURON	2021-04-27	<0.03	ug/L	0
ETHYLBENZENE	2021-04-27 to 2021-10-22	<0.33	ug/L	0
GLYPHOSATE	2021-04-27	<1	ug/L	0
MALATHION	2021-04-27	<0.02	ug/L	0

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**SUMMARY OF ORGANIC PARAMETERS REQUIRED BY REGULATION 170/03 AND TESTED DURING THIS REPORTING PERIOD.**

PARAMETER	SAMPLE DATE	RESULT VALUE RANGE	UNIT OF MEASURE	NO. OF AWQIs
<b>FREELTON WELL FDF03 - TREATED</b>				
MCPA (2-METHYL-4-CHLOROPHENOXYACETIC ACID)	2021-04-27	<0.00012	mg/L	0
METOLACHLOR	2021-04-27	<0.01	ug/L	0
METRIBUZIN (SENCOR)	2021-04-27	<0.02	ug/L	0
PARAQUAT	2021-04-27	<1	ug/L	0
PCBS TOTAL	2021-04-27	<0.04	ug/L	0
PENTACHLOROPHENOL	2021-04-27	<0.15	ug/L	0
PHORATE	2021-04-27	<0.01	ug/L	0
PICLORAM	2021-04-27	<1	ug/L	0
PROMETRYNE	2021-04-27	<0.03	ug/L	0
SIMAZINE	2021-04-27	<0.01	ug/L	0
TERBUFOS	2021-04-27	<0.01	ug/L	0
TETRACHLOROETHYLENE	2021-04-27 to 2021-10-22	<0.35	ug/L	0
TOLUENE	2021-04-27 to 2021-10-22	<0.36	ug/L	0
TRIALATE	2021-04-27	<0.01	ug/L	0
TRICHLOROETHYLENE	2021-04-27 to 2021-10-22	<0.44	ug/L	0
TRIFLURALIN	2021-04-27	<0.02	ug/L	0
VINYL CHLORIDE	2021-04-27 to 2021-10-22	<0.20	ug/L	0
XYLENE	2021-04-27 to 2021-10-22	<0.50	ug/L	0
<b>DISTRIBUTION</b>				
TOTAL TRIHALOMETHANES*	Running annual average for the last four quarters	12.3	ug/L	0
HALOACETIC ACIDS*	Running annual average for the last four quarters	5.3	ug/L	0

\* The Maximum Acceptable Concentration for Trihalomethanes and Haloacetic Acids in the distribution is based on a running average of the results from all sampling events in the past four quarters. This running average can be found in the result value column.

**PARAMETERS EXCEEDING PRESCRIBED HALF-STANDARD**

There were no Inorganic or Organic parameter(s) that exceeded half the standard prescribed in Schedule 2 of Ontario Drinking Water Quality Standards (O.Reg. 169/03)

# GREENSVILLE DRINKING WATER SYSTEM WATER QUALITY ANNUAL REPORT





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## GENERAL INFORMATION

The Greensville water supply system consists of one well, one well station, treatment, sampling and analysis which services a population of approximately 108 people.

### Water Well:

Greensville Well FDG01 is a 150mm diameter, approximately 12-metre-deep drilled ground water well under the influence of surface water (GUDI).

### Treatment:

Water passes through 2 stage cartridge filters, is disinfected using ultraviolet light and sodium hypochlorite (chlorine) prior to entering the distribution system. A chlorine contact chamber is used to ensure disinfection of the water. Fluoridation is not carried out at the Greensville community well.

### Well Station:

Within the Well Station, water treatment takes place, well water level, discharge pressure and flow are monitored. Hydropneumatic pressure tanks are used to control system pressures.

### Sampling & Analysis:

The well is equipped with on-line chlorine residual and turbidity analyzers that continually monitor the treated water quality at the well station. Raw, treated and distribution water is sampled and analyzed weekly. In addition, chlorine residual in the distribution system is analyzed daily.

## DEFINITIONS

AWQI: Adverse Water Quality Incident  
 CFU: Colony Forming Unit  
 HPC: Heterotrophic Plate Count  
 MDWL: Municipal Drinking Water Licence  
 mg/L: milligrams per litre  
 mL: millilitre  
 MPN: Most Probable Number  
 m<sup>3</sup>: cubic metre  
 m<sup>3</sup>/d: cubic metres per day  
 N/A: Not Applicable  
 NTU: Nephelometric Turbidity Units  
 P/A: Present/Absent  
 PTTW: Permit to Take Water  
 ug/L: micrograms per litre

DRINKING WATER SYSTEM NUMBER	DRINKING WATER SYSTEM NAME	DRINKING WATER SYSTEM OWNER	DRINKING WATER SYSTEM CATEGORY	PERIOD BEING REPORTED
220004126	Greensville Drinking Water System FDG01	City of Hamilton	Small Municipal Residential	January 1, 2021 to December 31, 2021



## PROVISION OF DRINKING WATER TO OTHER MUNICIPALITIES

The following is a list of municipal drinking water systems which receive drinking water from the Greenville System:

DRINKING WATER SYSTEM NAME	DRINKING WATER SYSTEM NUMBER
None other than Greenville System	220004126



A copy of this annual report is provided to all Drinking Water System owners that are connected to the system and to whom the City provides drinking water.



The City's customers are notified through the local newspaper that the annual report is available online free of charge at [www.hamilton.ca/waterquality](http://www.hamilton.ca/waterquality). A copy of the report can also be requested by contacting (905) 546-2489 or [water@hamilton.ca](mailto:water@hamilton.ca).

## WATER TREATMENT CHEMICALS USED DURING THIS REPORTING PERIOD

- Sodium Hypochlorite (chlorine)

## BREAKDOWN OF SIGNIFICANT MONETARY EXPENSES

THE FOLLOWING TABLE HIGHLIGHTS THE SIGNIFICANT EXPENSES THAT WERE INCURRED FOR REPLACING REQUIRED EQUIPMENT IN 2021

New Water Pumping Station Investigation - \$49,020

## ADVERSE TEST RESULTS AND REPORTABLE INCIDENTS

The following table outlines the 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 the MECP Spills Action Centre.

NOTIFICATION DATE (Y-M-D)	LOCATION OF ADVERSE	ADVERSE WATER QUALITY INCIDENT	RESOLUTION
2021-08-19	Greenville Sampling Station B, Forest Ave	Total Coliforms = Present (Regulatory requirement is Not Detectable)	Resampled adverse location, one upstream and one downstream location. All results passed. The adverse was not confirmed.

## MECP GREENSVILLE DRINKING WATER SYSTEM (DWS) INSPECTION FINDINGS AND SELF-DECLARED NON-COMPLIANCES

The following table is a Summary of Findings from the MECP Inspections and self-declared non-compliances found during the 2021 calendar year.

### MECP INSPECTION REPORT, MARCH 31, 2021

#	FINDING TYPE	FINDING	STATUS
1	Recommendation	Modify maintenance work order templates used for recording the disinfection of equipment as per the Drinking Water Works Permit, Schedule B, Condition 2.3 and 2.3.1.	Actions complete
2	Recommendation	Implement a sampling plan / program to conduct routine checks for chlorine residuals at the extremities and "dead ends" of the distribution system. Plan is in place.	No action required
3	Recommendation	Further develop and implement a strategy for a dead-end flushing program including locations, frequencies, duration of flushing, and overall methodology and demonstrate with records. Plan is in place.	No action required
4	Recommendation	When providing written notices that: background information be provided leading up to the event; a summary of the action taken; and the results achieved, be provided by the Overall Responsible Operator or designate, where applicable. This is also recommended for notifications of non-compliance and upon completion of root cause analyses.	Actions complete
5	Self-declared Non-compliance	<p>Minimum recording frequency requirements for chlorine residual monitoring as per O.Reg. 170/03, Schedule 6 were not met due to a communication loss that lasted more than five minutes.</p> <p>It was confirmed that all monitoring equipment was functioning properly and that all required monitoring data was collected during the communication outage.</p> <p>Upon further investigation it was found not to be a non-compliance issue as a result of the data being available.</p>	No action required

### WATER PRODUCTION REPORTS - SUMMARY

The following provides a summary of daily flow rates and instantaneous peak flow rates in comparison to the capacity of the water works as identified in the Permit to Take Water. This information is tabulated in the accompanying tables.

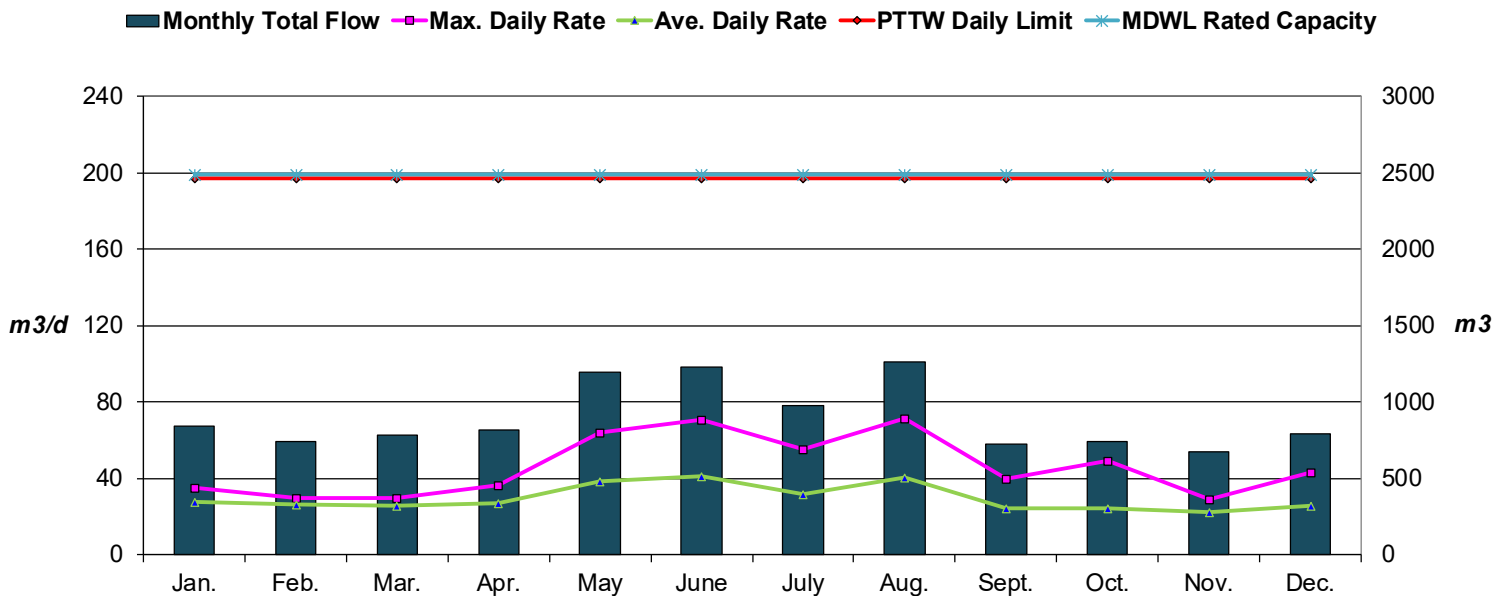
**TABLE 4-1: GREENSVILLE WELL (FDG01) - 2021 MONTHLY PRODUCTION (SUMMARY)**

FDG01	UNITS	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
Monthly Total Flow	m <sup>3</sup>	844	740	783	813	1,191	1,224	977	1,258	721	742	672	787
Average Daily Rate	m <sup>3</sup> /d	27	26	25	27	38	41	32	41	24	24	22	25
Maximum Daily Rate	m <sup>3</sup> /d	35	30	30	36	64	71	55	71	39	49	29	43
PTTW Daily Taking Limit	m <sup>3</sup> /d	197	197	197	197	197	197	197	197	197	197	197	197
MDWL Daily Rated Capacity	m <sup>3</sup> /d	199	199	199	199	199	199	199	199	199	199	199	199



**MAINTAINED COMPLIANCE**

**FIGURE 4-1: GREENSVILLE WELL (FDG01) - 2021 MONTHLY PRODUCTION (SUMMARY)**





**WATER QUALITY DATA**

**MICROBIOLOGICAL TESTING DONE UNDER SCHEDULE 10, 11, 12 AND 17, 18 OF REGULATION 170/03, DURING THIS REPORTING PERIOD.**

PARAMETER	SAMPLE DATE	NUMBER OF SAMPLES	RESULT VALUE RANGE	UNIT OF MEASURE
<b>GREENSVILLE WELL FDG01 - RAW</b>				
E.COLI	2021-01-06 to 2021-12-29	52	0	MPN/100mL
TOTAL COLIFORM	2021-01-06 to 2021-12-29	52	0 to 1	MPN/100mL
<b>GREENSVILLE WELL FDG01 - TREATED</b>				
E.COLI	2021-01-06 to 2021-12-29	52	ALL ABSENT	P/A/100mL
HPC	2021-01-06 to 2021-12-29	52	0 to 4	CFU/1mL
TOTAL COLIFORM	2021-01-06 to 2021-12-29	52	ALL ABSENT	P/A/100mL
<b>DISTRIBUTION</b>				
E.COLI	2021-08-19	3	0	MPN/100mL
E.COLI	2021-01-06 to 2021-12-29	96	ALL ABSENT	P/A/100mL
HPC	2021-01-06 to 2021-12-29	96	0 to 92	CFU/1mL
TOTAL COLIFORM	2021-08-19	3	0	MPN/100mL
TOTAL COLIFORM	2021-01-06 to 2021-12-29	96	1 DETECTION	P/A/100mL

**OPERATIONAL TESTING DONE UNDER SCHEDULE 7, 8 OR 9 OF REGULATION 170/03 DURING THE PERIOD COVERED BY THIS ANNUAL REPORT.**

NOTE: If results are obtained from continuous monitors, then 8760 is reported as the number of samples.

PARAMETER - SAMPLE TYPE	NUMBER OF SAMPLES	RESULT VALUE RANGE	UNIT OF MEASURE
TURBIDITY - TREATED - FDG01	8760	0.02 to 0.79	NTU
FREE CHLORINE - TREATED	8760	1.12 to 3.51	mg/L
FREE CHLORINE - DISTRIBUTION	365	0.78 to 2.58	mg/L

**SUMMARY OF ADDITIONAL TESTING AND SAMPLING CARRIED OUT IN ACCORDANCE WITH THE REQUIREMENT OF A LICENCE, APPROVAL, ORDER OR OTHER LEGAL INSTRUMENT.**

PARAMETER	SAMPLE DATE	RESULT VALUE RANGE	UNIT OF MEASURE
N/A	-	-	-

**SUMMARY OF INORGANIC PARAMETERS REQUIRED BY REGULATION 170/03 AND TESTED DURING THIS REPORTING PERIOD.**

PARAMETER	SAMPLE DATE	RESULT VALUE RANGE	UNIT OF MEASURE	NO. OF AWQIs
<b>GREENSVILLE WELL FDG01 - TREATED</b>				
ANTIMONY	2021-04-28 to 2021-10-20	<0.0001	mg/L	0
ARSENIC	2021-04-28 to 2021-10-20	0.0001	mg/L	0
BARIUM	2021-04-28 to 2021-10-20	0.147 to 0.170	mg/L	0
BORON	2021-04-28 to 2021-10-20	0.040 to 0.042	mg/L	0
CADMIUM	2021-04-28 to 2021-10-20	<0.0001	mg/L	0
CHROMIUM	2021-04-28 to 2021-10-20	0.0002	mg/L	0
FLUORIDE	2021-04-28 to 2021-10-20	0.10 to 0.11	mg/L	0
MERCURY	2021-04-28 to 2021-10-20	<0.05	ug/L	0
NITRATE AS N	2021-01-06 to 2021-12-08	5.75 to 6.55	mg/L	0
NITRITE AS N	2021-01-06 to 2021-12-08	<0.050	mg/L	0
SELENIUM	2021-04-28 to 2021-10-20	0.0003	mg/L	0
SODIUM	2021-04-28 to 2021-10-20	148 to 157	mg/L	0
URANIUM	2021-04-28 to 2021-10-20	0.629 to 0.649	ug/L	0

**SUMMARY OF LEAD TESTING UNDER SCHEDULE 15.1 OF REGULATION 170/03 DURING THIS REPORTING PERIOD.**

LOCATION TYPE	POINTS SAMPLED	LEAD SAMPLES TAKEN	pH & ALKALINITY SAMPLES TAKEN	pH RESULTS pH UNITS	ALKALINITY RESULTS mg/L	LEAD RESULTS mg/L	LEAD AWQIs	LEAD EXCEEDANCES
PLUMBING-NR	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PLUMBING-R	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
DISTRIBUTION	2	2	2	7.19 to 7.22	352 to 361	<0.0001	0	N/A

NR - Non Residential R - Residential

COVID regulatory relief for Schedule 15.1 lead testing was granted for all plumbing samples (residential & non-residential).

**SUMMARY OF ORGANIC PARAMETERS REQUIRED BY REGULATION 170/03 AND TESTED DURING THIS REPORTING PERIOD.**

PARAMETER	SAMPLE DATE	RESULT VALUE RANGE	UNIT OF MEASURE	NO. OF AWQIs
<b>GREENSVILLE WELL FDG01 - TREATED</b>				
1,1-DICHLOROETHYLENE	2021-04-28 to 2021-10-20	<0.33	ug/L	0
1,2-DICHLOROBENZENE	2021-04-28 to 2021-10-20	<0.41	ug/L	0
1,2-DICHLOROETHANE	2021-04-28 to 2021-10-20	<0.35	ug/L	0
1,4-DICHLOROBENZENE	2021-04-28 to 2021-10-20	<0.36	ug/L	0
2,3,4,6-TETRACHLOROPHENOL	2021-04-28	<0.20	ug/L	0
2,4,6-TRICHLOROPHENOL	2021-04-28	<0.25	ug/L	0
2,4-DICHLOROPHENOXYACETIC ACID	2021-04-28	<0.19	ug/L	0
2,4-DICHLOROPHENOL	2021-04-28	<0.15	ug/L	0
ALACHLOR	2021-04-28	<0.02	ug/L	0
ATRAZINE + DESETHYL-ATRAZINE	2021-04-28	<0.01	ug/L	0
AZINPHOS-METHYL	2021-04-28	<0.05	ug/L	0
BENZENE	2021-04-28 to 2021-10-20	<0.32	ug/L	0
BENZO[A]PYRENE	2021-04-28	<0.004	ug/L	0
BROMOXYNIL	2021-04-28	<0.33	ug/L	0
CARBARYL	2021-04-28	<0.05	ug/L	0
CARBOFURAN	2021-04-28	<0.01	ug/L	0
CARBON TETRACHLORIDE	2021-04-28 to 2021-10-20	<0.20	ug/L	0
CHLOROBENZENE	2021-04-28 to 2021-10-20	<0.3	ug/L	0
CHLORPYRIFOS (DURSBAN)	2021-04-28	<0.02	ug/L	0
DIAZINON	2021-04-28	<0.02	ug/L	0
DICAMBA	2021-04-28	<0.20	ug/L	0
DICHLOROMETHANE	2021-04-28 to 2021-10-20	<0.50	ug/L	0
DICLOFOP-METHYL	2021-04-28	<0.40	ug/L	0
DIMETHOATE	2021-04-28	<0.06	ug/L	0
DIQUAT	2021-04-28	<1	ug/L	0
DIURON	2021-04-28	<0.03	ug/L	0
ETHYLBENZENE	2021-04-28 to 2021-10-20	<0.33	ug/L	0
GLYPHOSATE	2021-04-28	<1	ug/L	0
MALATHION	2021-04-28	<0.02	ug/L	0

...continued on next page

**SUMMARY OF ORGANIC PARAMETERS REQUIRED BY REGULATION 170/03 AND TESTED DURING THIS REPORTING PERIOD.**

PARAMETER	SAMPLE DATE	RESULT VALUE	UNIT OF MEASURE	NO. OF AWQIs
<b>GREENSVILLE WELL FDG01 - TREATED</b>				
MCPA (2-METHYL-4-CHLOROPHENOXYACETIC ACID)	2021-04-28	<0.00012	mg/L	0
METOLACHLOR	2021-04-28	<0.01	ug/L	0
METRIBUZIN (SENCOR)	2021-04-28	<0.02	ug/L	0
PARAQUAT	2021-04-28	<1	ug/L	0
PCBS TOTAL	2021-04-28	<0.04	ug/L	0
PENTACHLOROPHENOL	2021-04-28	<0.15	ug/L	0
PHORATE	2021-04-28	<0.01	ug/L	0
PICLORAM	2021-04-28	<1	ug/L	0
PROMETRYNE	2021-04-28	<0.03	ug/L	0
SIMAZINE	2021-04-28	<0.01	ug/L	0
TERBUFOS	2021-04-28	<0.01	ug/L	0
TETRACHLOROETHYLENE	2021-04-28 to 2021-10-20	<0.35	ug/L	0
TOLUENE	2021-04-28 to 2021-10-20	<0.36	ug/L	0
TRIALATE	2021-04-28	<0.01	ug/L	0
TRICHLOROETHYLENE	2021-04-28 to 2021-10-20	<0.44	ug/L	0
TRIFLURALIN	2021-04-28	<0.02	ug/L	0
VINYL CHLORIDE	2021-04-28 to 2021-10-20	<0.20	ug/L	0
XYLENE	2021-04-28 to 2021-10-20	<0.50	ug/L	0
<b>DISTRIBUTION</b>				
TOTAL TRIHALOMETHANES*	Running annual average for the last four quarters.	18.4	ug/L	0
HALOACETIC ACIDS*	Running annual average for the last four quarters.	5.5	ug/L	0

\* The Maximum Acceptable Concentration for Trihalomethanes and Haloacetic Acids in the distribution is based on a running average of the results from all sampling events in the past four quarters. This running average can be found in the result value column.



### PARAMETERS EXCEEDING PRESCRIBED HALF-STANDARD

Summary of Inorganic or Organic parameter(s) that exceeded half the standard prescribed in Schedule 2 of Ontario Drinking Water Quality Standards (O.Reg. 169/03).

PARAMETER	SAMPLE DATE	RESULT VALUE	UNIT OF MEASURE
<b>GREENSVILLE WELL FDG01- TREATED</b>			
NITRATE	2021-01-06	6.29	mg/L
NITRATE	2021-02-02	6.20	mg/L
NITRATE	2021-02-03	6.17	mg/L
NITRATE	2021-03-03	6.04	mg/L
NITRATE	2021-04-07	6.45	mg/L
NITRATE	2021-04-28	6.21	mg/L
NITRATE	2021-05-05	6.33	mg/L
NITRATE	2021-06-09	5.99	mg/L
NITRATE	2021-07-07	6.24	mg/L
NITRATE	2021-07-28	6.20	mg/L
NITRATE	2021-08-04	6.11	mg/L
NITRATE	2021-09-01	5.83	mg/L
NITRATE	2021-10-06	6.55	mg/L
NITRATE	2021-10-20	6.03	mg/L
NITRATE	2021-11-03	6.16	mg/L
NITRATE	2021-12-08	5.75	mg/L

(Only if DWS category is large municipal residential, small municipal residential, large municipal non residential, non municipal year round residential, large non municipal non residential)

# CARLISLE DRINKING WATER SYSTEM WATER QUALITY ANNUAL REPORT



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<u>Table 5-1: Carlisle Well (FDC01 &amp; FDC02) 2021 Monthly Production</u>	<u>84</u>
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<u>Table 5-2: Carlisle Well (FDC03R) 2021 Monthly Production</u>	<u>85</u>
<u>Figure 5-3: Carlisle Well (FDC05) 2021 Monthly Production</u>	<u>86</u>
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<u>Table 5-4: Carlisle Well (FDC03R &amp; FDC05) 2021 Monthly Production</u>	<u>87</u>

## GENERAL INFORMATION

The Carlisle water supply system consists of four wells, one elevated water storage tank, treatment, sampling and analysis, which services a population of approximately 1,833 people. The water source for the community of Carlisle is ground water. PTTW FDC01 & FDC02 was renewed March 1, 2021.

### Water Wells:

- Carlisle Well FDC01 has a diameter of 157mm and a depth of approximately 42 metres.
- Carlisle Well FDC02 has a diameter of 300mm at a depth of 2.6 metres and a diameter of 250mm to a depth of 36 metres.
- Carlisle Well FDC03R has a diameter of 200mm and a depth of approximately 33.5 metres. It is a drilled ground water well under the influence of surface water (GUDI).
- Carlisle Well FDC05 has a diameter of 214mm and a depth of approximately 28 metres. It is a drilled ground water well under the influence of surface water (GUDI).

### Treatment:

- Within a treatment well house, both wells, FDC01 and FDC02 are joined to a common header for flow metering and disinfection. Sodium hypochlorite (chlorine) within a chlorine contact chamber is used to ensure disinfection of the water.
- Within the well house, both FDC03R and FDC05 discharges have separate flow metering, filtration and ultraviolet light disinfection streams. The flows are combined for treatment by sodium hypochlorite (chlorine) within a chlorine contact chamber to ensure disinfection of the water prior to entering the distribution system.
- Fluoridation is not carried out at any of the Carlisle community wells.

### Water Storage:

An elevated water storage tank is located at the same site as wells FDC01 and FDC02. The storage tank has an operating capacity of 1,400m<sup>3</sup>. It was designed for peak hour water demand equalization as well as fire and emergency storage.

### Sampling & Analysis:

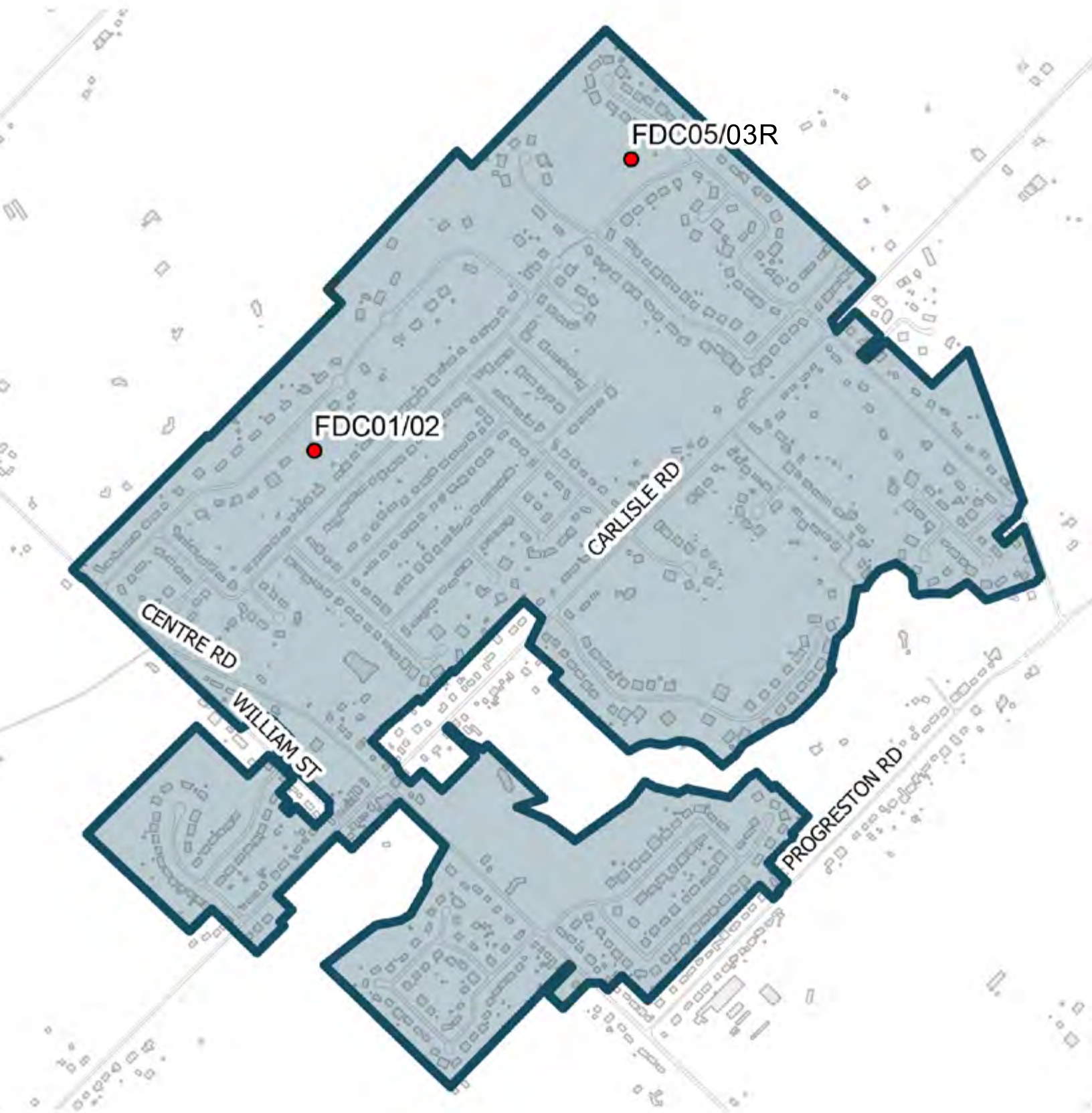
All wells are equipped with on-line chlorine residual and turbidity analyzers that continually monitor the treated water quality. Raw, treated and distribution water is sampled and analyzed weekly. In addition, chlorine residual in the distribution system is analyzed daily.

## DEFINITIONS

- AWQI: Adverse Water Quality Incident
- CFU: Colony Forming Unit
- HPC: Heterotrophic Plate Count
- MDWL: Municipal Drinking Water Licence
- mg/L: milligrams per litre
- mL: millilitre
- MPN: Most Probable Number
- m<sup>3</sup>: cubic metre
- m<sup>3</sup>/d: cubic metres per day
- N/A: Not Applicable
- NTU: Nephelometric Turbidity Units
- P/A: Present/Absent
- PTTW: Permit to Take Water
- ug/L: micrograms per litre

DRINKING WATER SYSTEM NUMBER	DRINKING WATER SYSTEM NAME	DRINKING WATER SYSTEM OWNER	DRINKING WATER SYSTEM CATEGORY	PERIOD BEING REPORTED
220004108	Carlisle Drinking Water System FDC01, FDC02, FDC03R, FDC05	City of Hamilton	Large Municipal Residential	January 1, 2021 to December 31, 2021





## PROVISION OF DRINKING WATER TO OTHER MUNICIPALITIES

The following is a list of municipal drinking water systems which receive drinking water from the Carlisle System:

DRINKING WATER SYSTEM NAME	DRINKING WATER SYSTEM NUMBER
None other than Carlisle System	220004108



A copy of this annual report is provided to all Drinking Water System owners that are connected to the system and to whom the City provides drinking water.



The City's customers are notified through the local newspaper that the annual report is available online free of charge at [www.hamilton.ca/waterquality](http://www.hamilton.ca/waterquality). A copy of the report can also be requested by contacting (905) 546-2489 or [water@hamilton.ca](mailto:water@hamilton.ca).

## WATER TREATMENT CHEMICALS USED DURING THIS REPORTING PERIOD

- Sodium Hypochlorite (chlorine)

## BREAKDOWN OF SIGNIFICANT MONETARY EXPENSES

There were no significant expenses incurred for installing, repairing and replacing required equipment in 2021. There were no significant projects initiated or expenses to highlight for the Carlisle Drinking Water System in 2021.

## ADVERSE TEST RESULTS AND REPORTABLE INCIDENTS

The following table outlines the 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 the MECP Spills Action Centre.

NOTIFICATION DATE (Y-M-D)	LOCATION OF ADVERSE	ADVERSE WATER QUALITY INCIDENT	RESOLUTION
We are pleased to announce that there were no Adverse Water Quality Incidents for the period of January 1, 2021 to December 31, 2021			

**MECP CARLISLE DRINKING WATER SYSTEM (DWS) INSPECTION FINDINGS AND SELF-DECLARED NON-COMPLIANCES**

The following table is a Summary of Findings from the MECP Inspections and self-declared non-compliances found during the 2021 calendar year.

**MECP INSPECTION REPORT, MARCH 8, 2021**

#	FINDING TYPE	FINDING	STATUS
1	Recommendation	Install a screen at the FDC02 "Lobster Pot" vent.	Action complete
2	Recommendation	Consider installing blanks at the primary disinfection bypass valves to ensure that no water bypasses the disinfection process if one of the bypass valves was to leak.	Action complete
3	Recommendation	Disconnect an old pilot system from the FDC03R/05 treatment building.	Action complete
4	Recommendation	Install a sign at the truck fill line at the FDC03R/05 treatment building to remind personnel to use backflow prevention devices when filling trucks.	Action complete
5	Recommendation	Consider installing Transportation of Dangerous Goods (TDG) signs at the fuel oil and sodium hypochlorite delivery points to prevent confusion during chemical/fuel oil deliveries and help firefighters if they were ever called on site.	Action complete
6	Recommendation	Install "No Trespassing" signs at FDC01, FDC02, FDC03R and at the FDC01/02 treatment building. Also consider installing "No Pesticide" signs at FDC03R and FDC05 as they are GUDI wells.	Action complete
7	Recommendation	Install a 4-mesh screen at the Carlisle Tower overflow pipe.	Action complete
8	Recommendation	Modify work order templates used for recording the disinfection of equipment as per the Drinking Water Works Permit, Schedule B, Condition 2.3 and 2.3.1.	Action complete

### WATER PRODUCTION REPORTS - SUMMARY

The following provides a summary of daily flow rates and instantaneous peak flow rates in comparison to the capacity of the water works as identified in the Permit to Take Water. This information is tabulated in the accompanying tables.

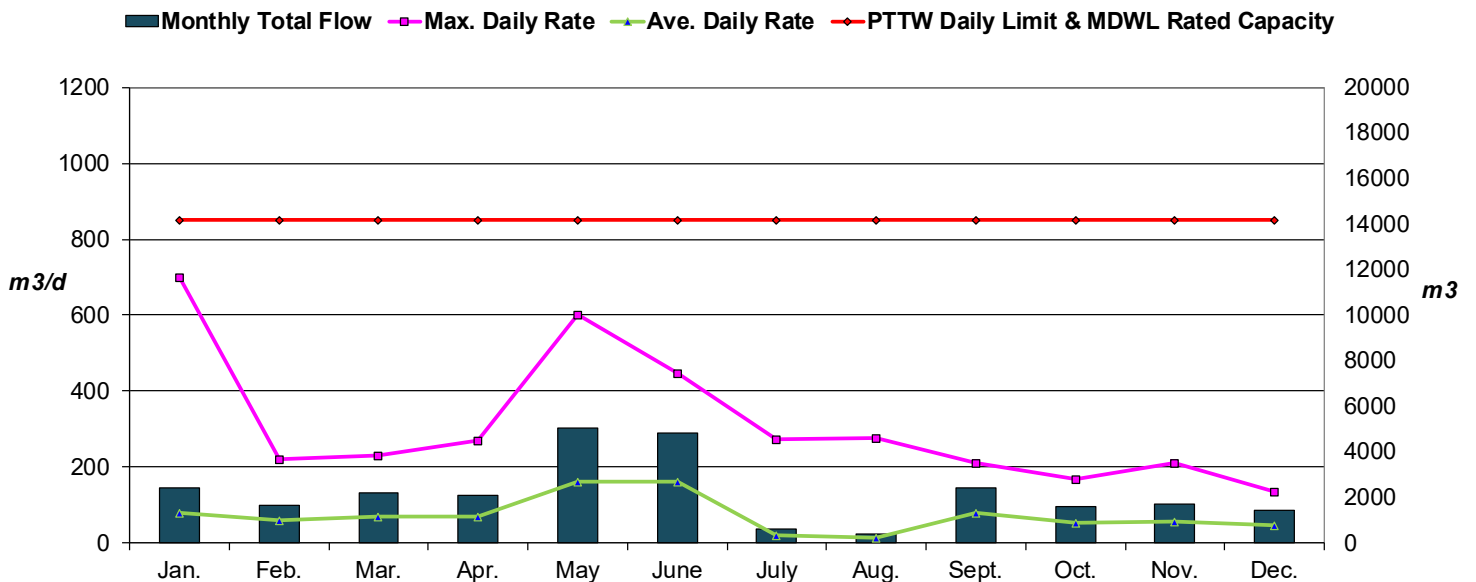
**TABLE 5-1: CARLISLE WELLS (FDC01 & FDC02) - 2021 MONTHLY PRODUCTION (SUMMARY)**

FDC01 & 02	UNITS	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
Monthly Total Flow	m <sup>3</sup>	2,438	1,679	2,181	2,114	5,039	4,833	637	382	2,428	1,603	1,733	1,450
Average Daily Rate	m <sup>3</sup> /d	79	60	70	70	163	161	21	12	81	52	58	47
Maximum Daily Rate	m <sup>3</sup> /d	699	220	229	268	602	448	274	276	210	168	210	134
PTTW & MDWL Daily Rated Capacity	m <sup>3</sup> /d	851	851	851	851	851	851	851	851	851	851	851	851



## MAINTAINED COMPLIANCE

**FIGURE 5-1: CARLISLE WELLS (FDC01 & FDC02) - 2021 MONTHLY PRODUCTION (SUMMARY)**



**TABLE 5-2: CARLISLE WELL (FDC03R) - 2021 MONTHLY PRODUCTION (SUMMARY)**

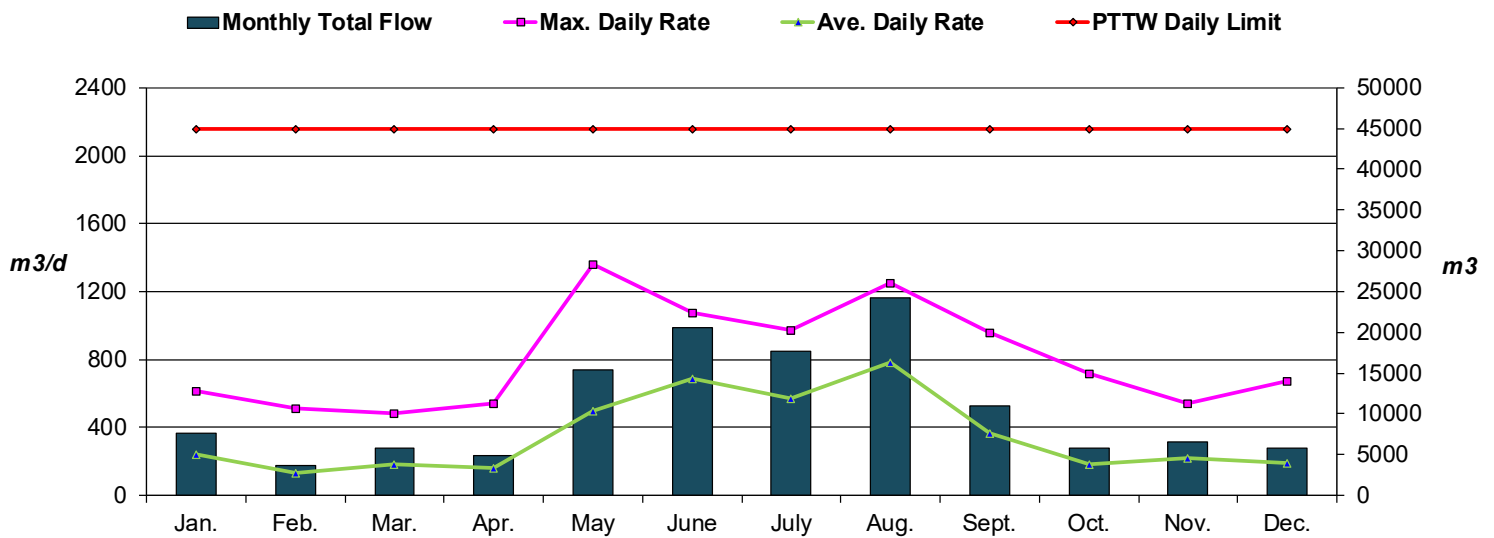
FDC03R	UNITS	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
<b>Monthly Total Flow</b>	m <sup>3</sup>	7,565	3,734	5,769	4,886	15,366	20,613	17,605	24,268	11,000	5,734	6,507	5,806
<b>Average Daily Rate</b>	m <sup>3</sup> /d	244	133	186	163	496	687	568	783	367	185	217	187
<b>Maximum Daily Rate</b>	m <sup>3</sup> /d	616	511	485	539	1,363	1,072	976	1,252	957	715	539	670
<b>PTTW Daily Taking Limit</b>	m <sup>3</sup> /d	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160

Note: Carlisle DWS FDC03R and FDC05 have a combined rated capacity of 3456m<sup>3</sup>/day



**MAINTAINED COMPLIANCE**

**FIGURE 5-2: CARLISLE WELL (FDC03R) - 2021 MONTHLY PRODUCTION (SUMMARY)**



**TABLE 5-3: CARLISLE WELL (FDC05) - 2021 MONTHLY PRODUCTION (SUMMARY)**

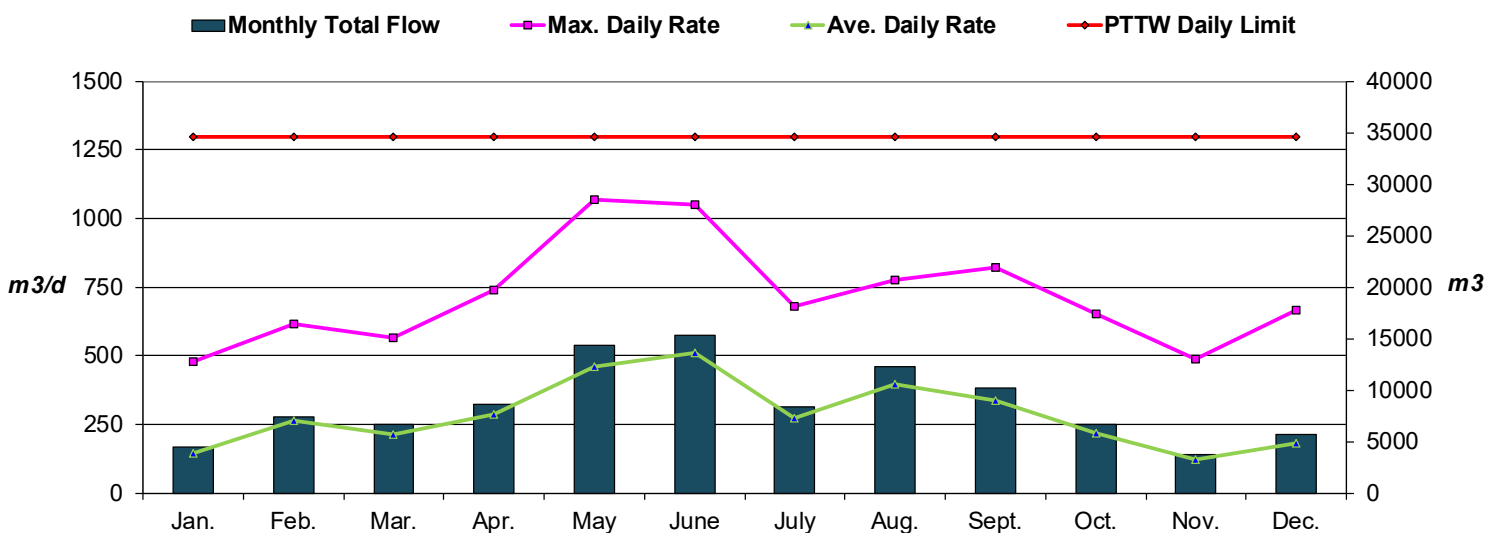
FDC05	UNITS	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
Monthly Total Flow	m <sup>3</sup>	4,451	7,413	6,668	8,621	14,334	15,364	8,421	12,227	10,171	6,705	3,697	5,645
Average Daily Rate	m <sup>3</sup> /d	144	265	215	287	462	512	272	394	339	216	123	182
Maximum Daily Rate	m <sup>3</sup> /d	478	617	566	739	1,069	1,049	682	776	824	651	490	665
PTTW Daily Taking Limit	m <sup>3</sup> /d	1,296	1,296	1,296	1,296	1,296	1,296	1,296	1,296	1,296	1,296	1,296	1,296

Note: Carlisle DWS FDC03R and FDC05 have a combined rated capacity of 3456m<sup>3</sup>/day



**MAINTAINED COMPLIANCE**

**FIGURE 5-3: CARLISLE WELL (FDC05) - 2021 MONTHLY PRODUCTION (SUMMARY)**



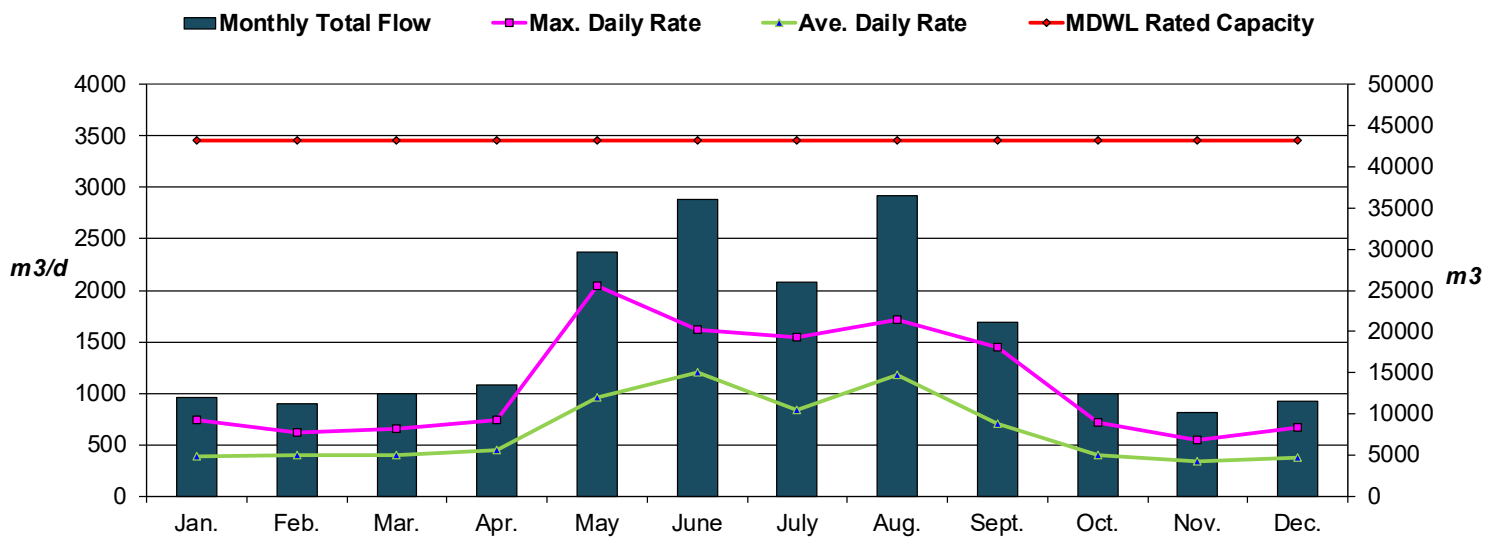
**TABLE 5-4: CARLISLE WELL (FDC03R & FDC05) - 2021 MONTHLY PRODUCTION (SUMMARY)**

FDC03R & FDC05	UNITS	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
Monthly Total Flow	m <sup>3</sup>	12,017	11,148	12,437	13,507	29,701	35,977	26,026	36,496	21,171	12,439	10,204	11,451
Average Daily Rate	m <sup>3</sup> /d	388	398	401	450	958	1,199	840	1,177	706	401	340	369
Maximum Daily Rate	m <sup>3</sup> /d	738	617	653	739	2,045	1,622	1,538	1,715	1,450	715	539	670
MDWL Daily Rated Capacity	m <sup>3</sup> /d	3,456	3,456	3,456	3,456	3,456	3,456	3,456	3,456	3,456	3,456	3,456	3,456



**MAINTAINED COMPLIANCE**

**FIGURE 5-4: CARLISLE WELL (FDC03R & FDC05) - 2021 MONTHLY PRODUCTION (SUMMARY)**



**WATER QUALITY DATA**

**MICROBIOLOGICAL TESTING DONE UNDER SCHEDULE 10, 11, 12 AND 17, 18 OF REGULATION 170/03, DURING THIS REPORTING PERIOD.**

PARAMETER	SAMPLE DATE	NUMBER OF SAMPLES	RESULT VALUE RANGE	UNIT OF MEASURE
<b>CARLISLE WELL FDC01 - RAW</b>				
E.COLI	2021-01-05 to 2021-12-28	49	0	MPN/100mL
TOTAL COLIFORM	2021-01-05 to 2021-12-28	49	0 to 3	MPN/100mL
<b>CARLISLE WELL FDC02 - RAW</b>				
E.COLI	2021-01-05 to 2021-12-28	48	0	MPN/100mL
TOTAL COLIFORM	2021-01-05 to 2021-12-28	48	0 to 3	MPN/100mL
<b>CARLISLE WELL FDC03R - RAW</b>				
E.COLI	2021-01-04 to 2021-12-27	52	0	MPN/100mL
TOTAL COLIFORM	2021-01-04 to 2021-12-27	52	0 to 1	MPN/100mL
<b>CARLISLE WELL FDC05 - RAW</b>				
E.COLI	2021-01-04 to 2021-12-27	52	0	MPN/100mL
TOTAL COLIFORM	2021-01-04 to 2021-12-27	52	0	MPN/100mL
<b>CARLISLE WELL FDC01 - TREATED</b>				
E.COLI	2021-01-05 to 2021-12-28	49	ALL ABSENT	P/A/100mL
HPC	2021-01-05 to 2021-12-28	49	0 to 2	CFU/1mL
TOTAL COLIFORM	2021-01-05 to 2021-12-28	49	ALL ABSENT	P/A/100mL
<b>CARLISLE WELL FDC02 - TREATED</b>				
E.COLI	2021-01-05 to 2021-12-28	48	ALL ABSENT	P/A/100mL
HPC	2021-01-05 to 2021-12-28	48	0	CFU/1mL
TOTAL COLIFORM	2021-01-05 to 2021-12-28	48	ALL ABSENT	P/A/100mL
<b>CARLISLE WELL FDC03R - TREATED</b>				
E.COLI	2021-01-04 to 2021-12-27	52	ALL ABSENT	P/A/100mL
HPC	2021-01-04 to 2021-12-27	52	0 to 1	CFU/1mL
TOTAL COLIFORM	2021-01-04 to 2021-12-27	52	ALL ABSENT	P/A/100mL
<b>CARLISLE WELL FDC05 - TREATED</b>				
E.COLI	2021-01-04 to 2021-12-27	52	ALL ABSENT	P/A/100mL
HPC	2021-01-04 to 2021-12-27	52	0 to 3	CFU/1mL
TOTAL COLIFORM	2021-01-04 to 2021-12-27	52	ALL ABSENT	P/A/100mL

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**MICROBIOLOGICAL TESTING DONE UNDER SCHEDULE 10, 11, 12 AND 17, 18 OF REGULATION 170/03, DURING THIS REPORTING PERIOD.**

PARAMETER	SAMPLE DATE	NUMBER OF SAMPLES	RESULT VALUE RANGE	UNIT OF MEASURE
<b>DISTRIBUTION</b>				
E.COLI	2021-01-04 to 2021-12-28	203	ALL ABSENT	P/A/100mL
HPC	2021-01-04 to 2021-12-28	203	0 to 15	CFU/1mL
TOTAL COLIFORM	2021-01-04 to 2021-12-28	203	ALL ABSENT	P/A/100mL

**OPERATIONAL TESTING DONE UNDER SCHEDULE 7, 8 OR 9 OF REGULATION 170/03 DURING THE PERIOD COVERED BY THIS ANNUAL REPORT.**

NOTE: If results are obtained from continuous monitors, then 8760 is reported as the number of samples.

PARAMETER - SAMPLE TYPE	NUMBER OF SAMPLES	RESULT VALUE RANGE	UNIT OF MEASURE
TURBIDITY - RAW - FDC01	49	0.06 to 4.76	NTU
TURBIDITY - RAW - FDC02	48	0.05 to 0.86	NTU
TURBIDITY - TREATED - FDC03R	8760	0.02 to 0.38	NTU
TURBIDITY - TREATED - FDC05	8760	0.04 to 0.31	NTU
FREE CHLORINE - TREATED - FDC01 AND FDC02	8760	0.98 to 2.79	mg/L
FREE CHLORINE - TREATED - FDC03R AND FDC05	8760	0.99 to 2.68	mg/L
FREE CHLORINE - DISTRIBUTION	365	1.22 to 2.10	mg/L

**SUMMARY OF ADDITIONAL TESTING AND SAMPLING CARRIED OUT IN ACCORDANCE WITH THE REQUIREMENT OF A LICENCE, APPROVAL, ORDER OR OTHER LEGAL INSTRUMENT.**

PARAMETER	SAMPLE DATE	RESULT VALUE RANGE	UNIT OF MEASURE
N/A	-	-	-

**SUMMARY OF INORGANIC PARAMETERS REQUIRED BY REGULATION 170/03 AND TESTED DURING THIS REPORTING PERIOD.**

PARAMETER	SAMPLE DATE	RESULT VALUE RANGE	UNIT OF MEASURE	NO. OF AWQIs
<b>CARLISLE WELL FDC01 - TREATED</b>				
ANTIMONY	2021-04-27 to 2021-10-22	<0.0001	mg/L	0
ARSENIC	2021-04-27 to 2021-10-22	0.0002	mg/L	0
BARIUM	2021-04-27 to 2021-10-22	0.0904 to 0.0941	mg/L	0
BORON	2021-04-27 to 2021-10-22	0.016 to 0.017	mg/L	0
CADMIUM	2021-04-27 to 2021-10-22	<0.0001	mg/L	0
CHROMIUM	2021-04-27 to 2021-10-22	<0.0001	mg/L	0
FLUORIDE	2021-04-27 to 2021-10-22	0.07	mg/L	0
MERCURY	2021-04-27 to 2021-10-22	<0.05	ug/L	0
NITRATE AS N	2021-02-03 to 2021-10-22	0.83 to 2.22	mg/L	0
NITRITE AS N	2021-02-03 to 2021-10-22	<0.010	mg/L	0
SELENIUM	2021-04-27 to 2021-10-22	0.0002	mg/L	0
SODIUM	2021-04-27 to 2021-10-22	16.7 to 18.0	mg/L	0
URANIUM	2021-04-27 to 2021-10-22	0.449 to 0.471	ug/L	0
<b>CARLISLE WELL FDC02 - TREATED</b>				
ANTIMONY	2021-04-27 to 2021-10-22	<0.0001	mg/L	0
ARSENIC	2021-04-27 to 2021-10-22	0.0002	mg/L	0
BARIUM	2021-04-27 to 2021-10-22	0.0909 to 0.0922	mg/L	0
BORON	2021-04-27 to 2021-10-22	0.014 to 0.019	mg/L	0
CADMIUM	2021-04-27 to 2021-10-22	<0.0001	mg/L	0
CHROMIUM	2021-04-27 to 2021-10-22	<0.0001	mg/L	0
FLUORIDE	2021-04-27 to 2021-10-22	0.07	mg/L	0
MERCURY	2021-04-27 to 2021-10-22	<0.05	ug/L	0
NITRATE AS N	2021-02-03 to 2021-10-27	1.94 to 2.94	mg/L	0
NITRITE AS N	2021-02-03 to 2021-10-27	<0.05	mg/L	0
SELENIUM	2021-04-27 to 2021-10-22	0.0002	mg/L	0
SODIUM	2021-04-27 to 2021-10-22	23.2 to 26.0	mg/L	0
URANIUM	2021-04-27 to 2021-10-22	0.448 to 0.469	ug/L	0

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**SUMMARY OF INORGANIC PARAMETERS REQUIRED BY REGULATION 170/03 AND TESTED DURING THIS REPORTING PERIOD.**

PARAMETER	SAMPLE DATE	RESULT VALUE RANGE	UNIT OF MEASURE	NO. OF AWQIs
<b>CARLISLE WELL FDC03R - TREATED</b>				
ANTIMONY	2021-04-27 to 2021-10-22	0.0001 to 0.0002	mg/L	0
ARSENIC	2021-04-27 to 2021-10-22	0.0004 to 0.0006	mg/L	0
BARIUM	2021-04-27 to 2021-10-22	0.0786 to 0.0795	mg/L	0
BORON	2021-04-27 to 2021-10-22	0.021 to 0.025	mg/L	0
CADMIUM	2021-04-27 to 2021-10-22	<0.0001	mg/L	0
CHROMIUM	2021-04-27 to 2021-10-22	<0.0001	mg/L	0
FLUORIDE	2021-04-27 to 2021-10-22	0.07	mg/L	0
MERCURY	2021-04-27 to 2021-10-22	<0.05	ug/L	0
NITRATE AS N	2021-02-03 to 2021-10-22	0.080 to 0.404	mg/L	0
NITRITE AS N	2021-02-03 to 2021-10-22	<0.010	mg/L	0
SELENIUM	2021-04-27 to 2021-10-22	<0.0001	mg/L	0
SODIUM	2021-04-27 to 2021-10-22	46.8 to 49.4	mg/L	0
URANIUM	2021-04-27 to 2021-10-22	0.583 to 0.642	ug/L	0
<b>CARLISLE WELL FDC05 - TREATED</b>				
ANTIMONY	2021-04-27 to 2021-10-22	<0.0001	mg/L	0
ARSENIC	2021-04-27 to 2021-10-22	0.0009	mg/L	0
BARIUM	2021-04-27 to 2021-10-22	0.0749 to 0.0779	mg/L	0
BORON	2021-04-27 to 2021-10-22	0.021 to 0.027	mg/L	0
CADMIUM	2021-04-27 to 2021-10-22	<0.0001	mg/L	0
CHROMIUM	2021-04-27 to 2021-10-22	<0.0001	mg/L	0
FLUORIDE	2021-04-27 to 2021-10-22	0.07	mg/L	0
MERCURY	2021-04-27 to 2021-10-22	<0.05	ug/L	0
NITRATE AS N	2021-02-03 to 2021-10-22	<0.02 to 0.070	mg/L	0
NITRITE AS N	2021-02-03 to 2021-10-22	<0.010	mg/L	0
SELENIUM	2021-04-27 to 2021-10-22	<0.0001	mg/L	0
SODIUM	2021-04-27 to 2021-10-22	51.2 to 53.7	mg/L	0
URANIUM	2021-04-27 to 2021-10-22	0.425 to 0.433	ug/L	0

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**SUMMARY OF LEAD TESTING UNDER SCHEDULE 15.1 OF REGULATION 170/03 DURING THIS REPORTING PERIOD.**

LOCATION TYPE	POINTS SAMPLED	LEAD SAMPLES TAKEN	pH & ALKALINITY SAMPLES TAKEN	pH RESULTS pH UNITS	ALKALINITY RESULTS mg/L	LEAD RESULTS mg/L	LEAD AWQIs	LEAD EXCEEDANCES
PLUMBING-NR	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PLUMBING-R	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
DISTRIBUTION	4	4	4	7.22 to 7.38	321 to 328	0.0002 to 0.0013	0	N/A

NR - Non Residential R- Residential

COVID regulatory relief for Schedule 15.1 lead testing was granted for all plumbing samples (residential & non-residential).



**SUMMARY OF ORGANIC PARAMETERS REQUIRED BY REGULATION 170/03 AND TESTED DURING THIS REPORTING PERIOD.**

PARAMETER	SAMPLE DATE	RESULT VALUE RANGE	UNIT OF MEASURE	NO. OF AWQIs
<b>CARLISLE WELL FDC01 - TREATED</b>				
1,1-DICHLOROETHYLENE	2021-04-27 to 2021-10-22	<0.33	ug/L	0
1,2-DICHLOROBENZENE	2021-04-27 to 2021-10-22	<0.41	ug/L	0
1,2-DICHLOROETHANE	2021-04-27 to 2021-10-22	<0.35	ug/L	0
1,4-DICHLOROBENZENE	2021-04-27 to 2021-10-22	<0.36	ug/L	0
2,3,4,6-TETRACHLOROPHENOL	2021-04-27	<0.20	ug/L	0
2,4,6-TRICHLOROPHENOL	2021-04-27	<0.25	ug/L	0
2,4-DICHLOROPHENOXYACETIC ACID	2021-04-27	<0.19	ug/L	0
2,4-DICHLOROPHENOL	2021-04-27	<0.15	ug/L	0
ALACHLOR	2021-04-27	<0.02	ug/L	0
ATRAZINE + DESETHYL-ATRAZINE	2021-04-27	<0.01	ug/L	0
AZINPHOS-METHYL	2021-04-27	<0.05	ug/L	0
BENZENE	2021-04-27 to 2021-10-22	<0.32	ug/L	0
BENZO[A]PYRENE	2021-04-27	<0.004	ug/L	0
BROMOXYNIL	2021-04-27	<0.33	ug/L	0
CARBARYL	2021-04-27	<0.05	ug/L	0
CARBOFURAN	2021-04-27	<0.01	ug/L	0
CARBON TETRACHLORIDE	2021-04-27 to 2021-10-22	<0.20	ug/L	0
CHLOROBENZENE	2021-04-27 to 2021-10-22	<0.3	ug/L	0
CHLORPYRIFOS (DURSBAN)	2021-04-27	<0.02	ug/L	0
DIAZINON	2021-04-27	<0.02	ug/L	0
DICAMBA	2021-04-27	<0.20	ug/L	0
DICHLOROMETHANE	2021-04-27 to 2021-10-22	<0.50	ug/L	0
DICLOFOP-METHYL	2021-04-27	<0.40	ug/L	0
DIMETHOATE	2021-04-27	<0.06	ug/L	0
DIQUAT	2021-04-27	<1	ug/L	0
DIURON	2021-04-27	<0.03	ug/L	0
ETHYLBENZENE	2021-04-27 to 2021-10-22	<0.33	ug/L	0
GLYPHOSATE	2021-04-27	<1	ug/L	0
MALATHION	2021-04-27	<0.02	ug/L	0
MCPA (2-METHYL-4-CHLOROPHENOXYACETIC ACID)	2021-04-27	<0.00012	mg/L	0

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**SUMMARY OF ORGANIC PARAMETERS REQUIRED BY REGULATION 170/03 AND TESTED DURING THIS REPORTING PERIOD.**

PARAMETER	SAMPLE DATE	RESULT VALUE RANGE	UNIT OF MEASURE	NO. OF AWQIs
<b>CARLISLE WELL FDC01 - TREATED</b>				
METOLACHLOR	2021-04-27	<0.01	ug/L	0
METRIBUZIN (SENCOR)	2021-04-27	<0.02	ug/L	0
PARAQUAT	2021-04-27	<1	ug/L	0
PCBS TOTAL	2021-04-27	<0.04	ug/L	0
PENTACHLOROPHENOL	2021-04-27	<0.15	ug/L	0
PHORATE	2021-04-27	<0.01	ug/L	0
PICLORAM	2021-04-27	<1	ug/L	0
PROMETRYNE	2021-04-27	<0.03	ug/L	0
SIMAZINE	2021-04-27	<0.01	ug/L	0
TERBUFOS	2021-04-27	<0.01	ug/L	0
TETRACHLOROETHYLENE	2021-04-27 to 2021-10-22	<0.35	ug/L	0
TOLUENE	2021-04-27 to 2021-10-22	<0.36	ug/L	0
TRIALATE	2021-04-27	<0.01	ug/L	0
TRICHLOROETHYLENE	2021-04-27 to 2021-10-22	<0.44	ug/L	0
TRIFLURALIN	2021-04-27	<0.02	ug/L	0
VINYL CHLORIDE	2021-04-27 to 2021-10-22	<0.20	ug/L	0
XYLENE	2021-04-27 to 2021-10-22	<0.50	ug/L	0
<b>CARLISLE WELL FDC02 - TREATED</b>				
1,1-DICHLOROETHYLENE	2021-04-27 to 2021-10-22	<0.33	ug/L	0
1,2-DICHLOROBENZENE	2021-04-27 to 2021-10-22	<0.41	ug/L	0
1,2-DICHLOROETHANE	2021-04-27 to 2021-10-22	<0.35	ug/L	0
1,4-DICHLOROBENZENE	2021-04-27 to 2021-10-22	<0.36	ug/L	0
2,3,4,6-TETRACHLOROPHENOL	2021-04-27	<0.20	ug/L	0
2,4,6-TRICHLOROPHENOL	2021-04-27	<0.25	ug/L	0
2,4-DICHLOROPHENOXYACETIC ACID	2021-04-27	<0.19	ug/L	0
2,4-DICHLOROPHENOL	2021-04-27	<0.15	ug/L	0
ALACHLOR	2021-04-27	<0.02	ug/L	0
ATRAZINE + DESETHYL-ATRAZINE	2021-04-27	<0.01	ug/L	0
AZINPHOS-METHYL	2021-04-27	<0.05	ug/L	0
BENZENE	2021-04-27 to 2021-10-22	<0.32	ug/L	0
BENZO[A]PYRENE	2021-04-27	<0.004	ug/L	0

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**SUMMARY OF ORGANIC PARAMETERS REQUIRED BY REGULATION 170/03 AND TESTED DURING THIS REPORTING PERIOD.**

PARAMETER	SAMPLE DATE	RESULT VALUE RANGE	UNIT OF MEASURE	NO. OF AWQIs
<b>CARLISLE WELL FDC02 - TREATED</b>				
BROMOXYNIL	2021-04-27	<0.33	ug/L	0
CARBARYL	2021-04-27	<0.05	ug/L	0
CARBOFURAN	2021-04-27	<0.01	ug/L	0
CARBON TETRACHLORIDE	2021-04-27 to 2021-10-22	<0.20	ug/L	0
CHLOROBENZENE	2021-04-27 to 2021-10-22	<0.3	ug/L	0
CHLORPYRIFOS (DURSBAN)	2021-04-27	<0.02	ug/L	0
DIAZINON	2021-04-27	<0.02	ug/L	0
DICAMBA	2021-04-27	<0.20	ug/L	0
DICHLOROMETHANE	2021-04-27 to 2021-10-22	<0.50	ug/L	0
DICLOFOP-METHYL	2021-04-27	<0.40	ug/L	0
DIMETHOATE	2021-04-27	<0.06	ug/L	0
DIQUAT	2021-04-27	<1	ug/L	0
DIURON	2021-04-27	<0.03	ug/L	0
ETHYLBENZENE	2021-04-27 to 2021-10-22	<0.33	ug/L	0
GLYPHOSATE	2021-04-27	<1	ug/L	0
MALATHION	2021-04-27	<0.02	ug/L	0
MCPA (2-METHYL-4-CHLORO-PHENOXYACETIC ACID)	2021-04-27	<0.00012	mg/L	0
METOLACHLOR	2021-04-27	<0.01	ug/L	0
METRIBUZIN (SENCOR)	2021-04-27	<0.02	ug/L	0
PARAQUAT	2021-04-27	<1	ug/L	0
PCBS TOTAL	2021-04-27	<0.04	ug/L	0
PENTACHLOROPHENOL	2021-04-27	<0.15	ug/L	0
PHORATE	2021-04-27	<0.01	ug/L	0
PICLORAM	2021-04-27	<1	ug/L	0
PROMETRYNE	2021-04-27	<0.03	ug/L	0
SIMAZINE	2021-04-27	<0.01	ug/L	0
TERBUFOS	2021-04-27	<0.01	ug/L	0
TETRACHLOROETHYLENE	2021-04-27 to 2021-10-22	<0.35	ug/L	0
TOLUENE	2021-04-27 to 2021-10-22	<0.36	ug/L	0
TRIALATE	2021-04-27	<0.01	ug/L	0

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**SUMMARY OF ORGANIC PARAMETERS REQUIRED BY REGULATION 170/03 AND TESTED DURING THIS REPORTING PERIOD.**

PARAMETER	SAMPLE DATE	RESULT VALUE RANGE	UNIT OF MEASURE	NO. OF AWQIs
<b>CARLISLE WELL FDC02 - TREATED</b>				
TRICHLOROETHYLENE	2021-04-27 to 2021-10-22	<0.44	ug/L	0
TRIFLURALIN	2021-04-27	<0.02	ug/L	0
VINYL CHLORIDE	2021-04-27 to 2021-10-22	<0.20	ug/L	0
XYLENE	2021-04-27 to 2021-10-22	<0.50	ug/L	0
<b>CARLISLE WELL FDC03R - TREATED</b>				
1,1-DICHLOROETHYLENE	2021-04-27 to 2021-10-22	<0.33	ug/L	0
1,2-DICHLOROBENZENE	2021-04-27 to 2021-10-22	<0.41	ug/L	0
1,2-DICHLOROETHANE	2021-04-27 to 2021-10-22	<0.35	ug/L	0
1,4-DICHLOROBENZENE	2021-04-27 to 2021-10-22	<0.36	ug/L	0
2,3,4,6-TETRACHLOROPHENOL	2021-04-27	<0.20	ug/L	0
2,4,6-TRICHLOROPHENOL	2021-04-27	<0.25	ug/L	0
2,4-DICHLOROPHENOXYACETIC ACID	2021-04-27	<0.19	ug/L	0
2,4-DICHLOROPHENOL	2021-04-27	<0.15	ug/L	0
ALACHLOR	2021-04-27	<0.02	ug/L	0
ATRAZINE + DESETHYL-ATRAZINE	2021-04-27	<0.01	ug/L	0
AZINPHOS-METHYL	2021-04-27	<0.05	ug/L	0
BENZENE	2021-04-27 to 2021-10-22	<0.32	ug/L	0
BENZO[A]PYRENE	2021-04-27	<0.004	ug/L	0
BROMOXYNIL	2021-04-27	<0.33	ug/L	0
CARBARYL	2021-04-27	<0.05	ug/L	0
CARBOFURAN	2021-04-27	<0.01	ug/L	0
CARBON TETRACHLORIDE	2021-04-27 to 2021-10-22	<0.20	ug/L	0
CHLOROBENZENE	2021-04-27 to 2021-10-22	<0.3	ug/L	0
CHLORPYRIFOS (DURSBAN)	2021-04-27	<0.02	ug/L	0
DIAZINON	2021-04-27	<0.02	ug/L	0
DICAMBA	2021-04-27	<0.20	ug/L	0
DICHLOROMETHANE	2021-04-27 to 2021-10-22	<0.50	ug/L	0
DICLOFOP-METHYL	2021-04-27	<0.40	ug/L	0
DIMETHOATE	2021-04-27	<0.06	ug/L	0
DIQUAT	2021-04-27	<1	ug/L	0

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**SUMMARY OF ORGANIC PARAMETERS REQUIRED BY REGULATION 170/03 AND TESTED DURING THIS REPORTING PERIOD.**

PARAMETER	SAMPLE DATE	RESULT VALUE RANGE	UNIT OF MEASURE	NO. OF AWQIs
<b>CARLISLE WELL FDC03R - TREATED</b>				
DIURON	2021-04-27	<0.03	ug/L	0
ETHYLBENZENE	2021-04-27 to 2021-10-22	<0.33	ug/L	0
GLYPHOSATE	2021-04-27	<1	ug/L	0
MALATHION	2021-04-27	<0.02	ug/L	0
MCPA (2-METHYL-4-CHLOROPHE-NOXYACETIC ACID)	2021-04-27	<0.00012	mg/L	0
METOLACHLOR	2021-04-27	<0.01	ug/L	0
METRIBUZIN (SENCOR)	2021-04-27	<0.02	ug/L	0
PARAQUAT	2021-04-27	<1	ug/L	0
PCBS TOTAL	2021-04-27	<0.04	ug/L	0
PENTACHLOROPHENOL	2021-04-27	<0.15	ug/L	0
PHORATE	2021-04-27	<0.01	ug/L	0
PICLORAM	2021-04-27	<1	ug/L	0
PROMETRYNE	2021-04-27	<0.03	ug/L	0
SIMAZINE	2021-04-27	<0.01	ug/L	0
TERBUFOS	2021-04-27	<0.01	ug/L	0
TETRACHLOROETHYLENE	2021-04-27 to 2021-10-22	<0.35	ug/L	0
TOLUENE	2021-04-27 to 2021-10-22	<0.36	ug/L	0
TRIALATE	2021-04-27	<0.01	ug/L	0
TRICHLOROETHYLENE	2021-04-27 to 2021-10-22	<0.44	ug/L	0
TRIFLURALIN	2021-04-27	<0.02	ug/L	0
VINYL CHLORIDE	2021-04-27 to 2021-10-22	<0.20	ug/L	0
XYLENE	2021-04-27 to 2021-10-22	<0.50	ug/L	0
<b>CARLISLE WELL FDC05 - TREATED</b>				
1,1-DICHLOROETHYLENE	2021-04-27 to 2021-10-22	<0.33	ug/L	0
1,2-DICHLOROBENZENE	2021-04-27 to 2021-10-22	<0.41	ug/L	0
1,2-DICHLOROETHANE	2021-04-27 to 2021-10-22	<0.35	ug/L	0
1,4-DICHLOROBENZENE	2021-04-27 to 2021-10-22	<0.36	ug/L	0
2,3,4,6-TETRACHLOROPHENOL	2021-04-27	<0.20	ug/L	0
2,4,6-TRICHLOROPHENOL	2021-04-27	<0.25	ug/L	0
2,4-DICHLOROPHENOXYACETIC ACID	2021-04-27	<0.19	ug/L	0

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**SUMMARY OF ORGANIC PARAMETERS REQUIRED BY REGULATION 170/03 AND TESTED DURING THIS REPORTING PERIOD.**

PARAMETER	SAMPLE DATE	RESULT VALUE RANGE	UNIT OF MEASURE	NO. OF AWQIs
<b>CARLISLE WELL FDC05 - TREATED</b>				
2,4-DICHLOROPHENOL	2021-04-27	<0.15	ug/L	0
ALACHLOR	2021-04-27	<0.02	ug/L	0
ATRAZINE + DESETHYL-ATRAZINE	2021-04-27	<0.01	ug/L	0
AZINPHOS-METHYL	2021-04-27	<0.05	ug/L	0
BENZENE	2021-04-27 to 2021-10-22	<0.32	ug/L	0
BENZO[A]PYRENE	2021-04-27	<0.004	ug/L	0
BROMOXYNIL	2021-04-27	<0.33	ug/L	0
CARBARYL	2021-04-27	<0.05	ug/L	0
CARBOFURAN	2021-04-27	<0.01	ug/L	0
CARBON TETRACHLORIDE	2021-04-27 to 2021-10-22	<0.20	ug/L	0
CHLOROBENZENE	2021-04-27 to 2021-10-22	<0.3	ug/L	0
CHLORPYRIFOS (DURSBAN)	2021-04-27	<0.02	ug/L	0
DIAZINON	2021-04-27	<0.02	ug/L	0
DICAMBA	2021-04-27	<0.20	ug/L	0
DICHLOROMETHANE	2021-04-27 to 2021-10-22	<0.50	ug/L	0
DICLOFOP-METHYL	2021-04-27	<0.40	ug/L	0
DIMETHOATE	2021-04-27	<0.06	ug/L	0
DIQUAT	2021-04-27	<1	ug/L	0
DIURON	2021-04-27	<0.03	ug/L	0
ETHYLBENZENE	2021-04-27 to 2021-10-22	<0.33	ug/L	0
GLYPHOSATE	2021-04-27	<1	ug/L	0
MALATHION	2021-04-27	<0.02	ug/L	0
MCPA (2-METHYL-4-CHLORO-PHENOXYACETIC ACID)	2021-04-27	<0.00012	mg/L	0
METOLACHLOR	2021-04-27	<0.01	ug/L	0
METRIBUZIN (SENCOR)	2021-04-27	<0.02	ug/L	0
PARAQUAT	2021-04-27	<1	ug/L	0
PCBS TOTAL	2021-04-27	<0.04	ug/L	0
PENTACHLOROPHENOL	2021-04-27	<0.15	ug/L	0
PHORATE	2021-04-27	<0.01	ug/L	0
PICLORAM	2021-04-27	<1	ug/L	0

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**SUMMARY OF ORGANIC PARAMETERS REQUIRED BY REGULATION 170/03 AND TESTED DURING THIS REPORTING PERIOD.**

PARAMETER	SAMPLE DATE	RESULT VALUE RANGE	UNIT OF MEASURE	NO. OF AWQIs
<b>CARLISLE WELL FDC05 - TREATED</b>				
PROMETRYNE	2021-04-27	<0.03	ug/L	0
SIMAZINE	2021-04-27	<0.01	ug/L	0
TERBUFOS	2021-04-27	<0.01	ug/L	0
TETRACHLOROETHYLENE	2021-04-27 to 2021-10-22	<0.35	ug/L	0
TOLUENE	2021-04-27 to 2021-10-22	<0.36	ug/L	0
TRIALATE	2021-04-27	<0.01	ug/L	0
TRICHLOROETHYLENE	2021-04-27 to 2021-10-22	<0.44	ug/L	0
TRIFLURALIN	2021-04-27	<0.02	ug/L	0
VINYL CHLORIDE	2021-04-27 to 2021-10-22	<0.20	ug/L	0
XYLENE	2021-04-27 to 2021-10-22	<0.50	ug/L	0
<b>DISTRIBUTION</b>				
TOTAL TRIHALOMETHANES*	Running annual average for the last four quarters.	15.0	ug/L	0
HALOACETIC ACIDS*	Running annual average for the last four quarters.	5.4	ug/L	0

\* The Maximum Acceptable Concentration for Trihalomethanes and Haloacetic Acids in the distribution system is based on a running average of the results from all sampling events in the past four quarters. This running average can be found in the result value column.

**PARAMETERS EXCEEDING PRESCRIBED HALF-STANDARD**

There were no Inorganic or Organic parameter(s) that exceeded half the standard prescribed in Schedule 2 of Ontario Drinking Water Quality Standards (O.Reg. 169/03)

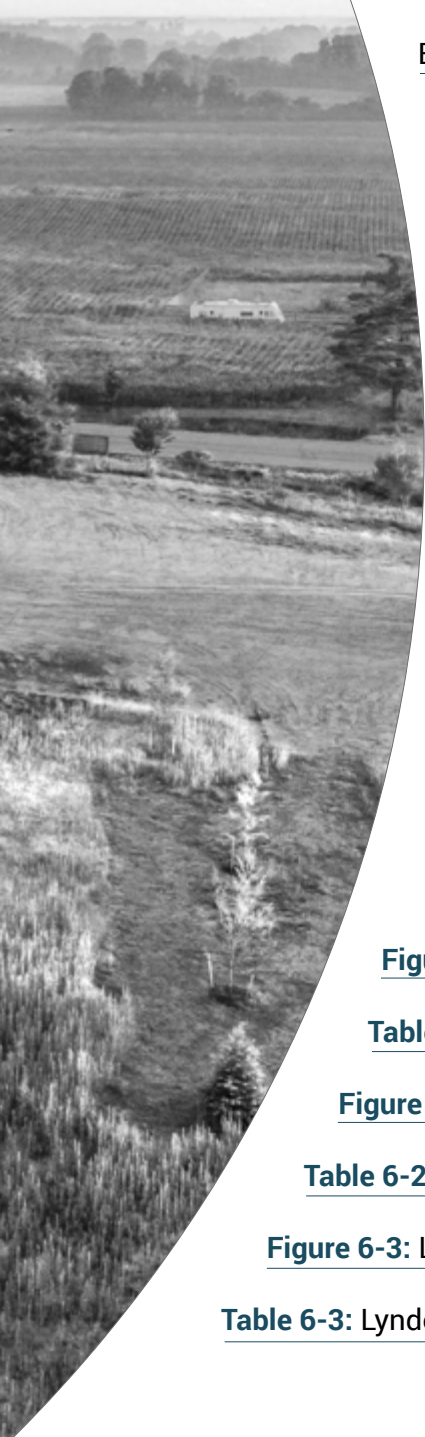


# LYNDEN DRINKING WATER SYSTEM WATER QUALITY ANNUAL REPORT



Photo: Chris Maillet, Bennett Mechanical Installations (2001) LTD

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<b>Figure 6-1: Lynden Well (FDL01) 2021 Monthly Production</b>	<b>106</b>
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## GENERAL INFORMATION

The Lynden water supply system consists of two wells, one reservoir, treatment, sampling and analysis, which services a population of approximately 393 people. The water source for the community of Lynden is ground water.

The construction of a new Lynden well (FDL03), water treatment plant and storage facility was complete and started providing water to the Lynden DWS on July 9, 2020. This project represents over a \$7 million investment and provides clean drinking water, redundancy of equipment and ensures security of supply for the Lynden community.

### Water Wells:

- Lynden Well FDL01 has a diameter of 200mm at a depth of approximately 54.6 metres.
- Lynden Well FDL03 has a diameter of 200mm at a depth of 52 metres.

### Treatment:

Within a treatment well house, both wells, FDL01 and FDL03 are joined to a common header for flow metering and disinfection. The treatment plant includes air stripper, transfer pumping, a cartridge filter, CO2 injection system followed by a static mixer for pH adjustment prior to the aeration tank. Sodium hypochlorite (chlorine) within the reservoir is used to ensure disinfection of the water. Fluoridation is not carried out at any of the Lynden community wells.

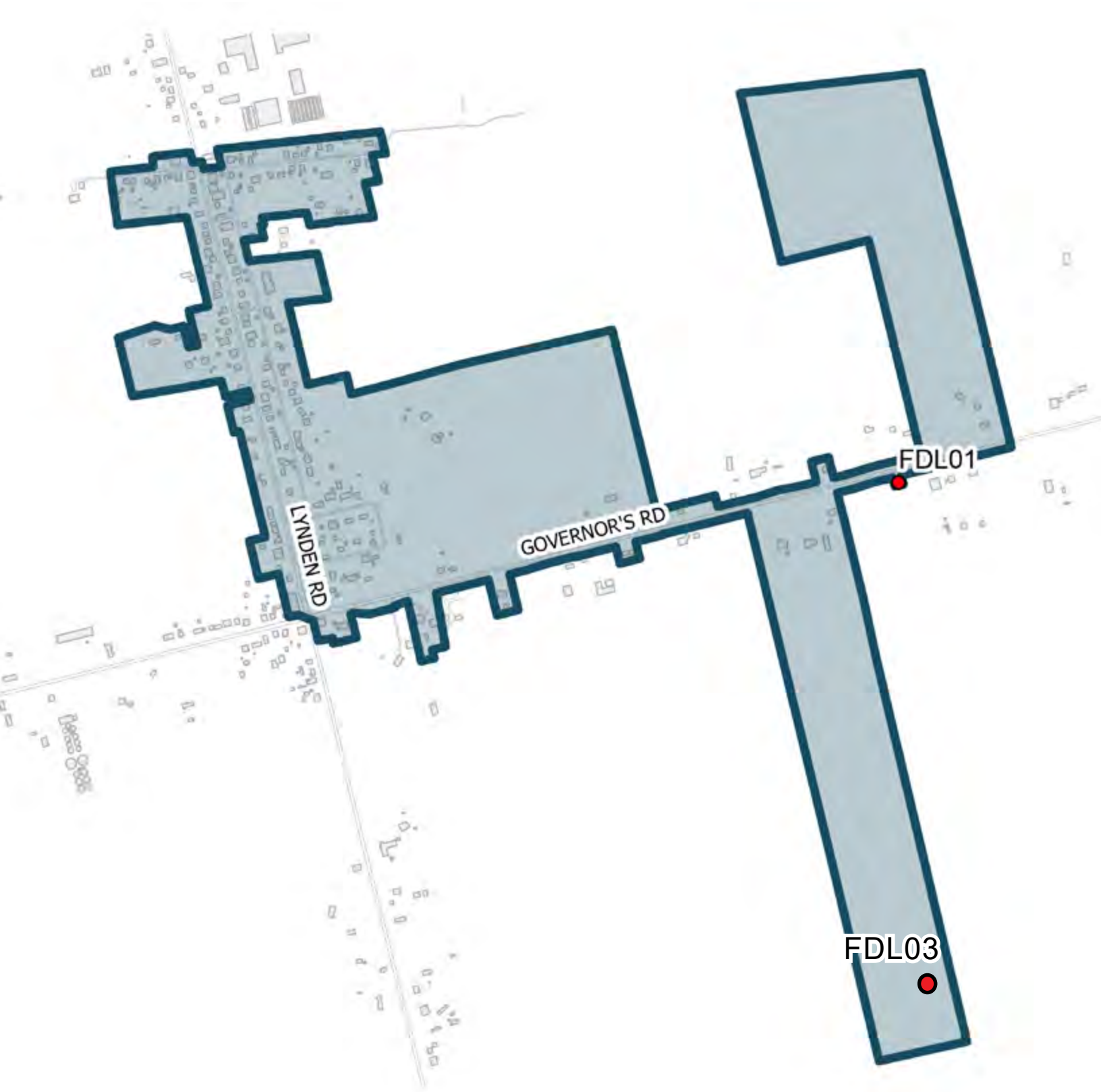
### Sampling & Analysis:

All wells are equipped with on-line chlorine residual and turbidity analyzers that continually monitor the treated water quality. Raw, treated and distribution water is sampled and analyzed weekly. In addition, chlorine residual in the distribution system is analyzed daily.

## DEFINITIONS

- AWQI: Adverse Water Quality Incident
- CFU: Colony Forming Unit
- HPC: Heterotrophic Plate Count
- MDWL: Municipal Drinking Water Licence
- mg/L: milligrams per litre
- mL: millilitre
- MPN: Most Probable Number
- m<sup>3</sup>: cubic metre
- m<sup>3</sup>/d: cubic metres per day
- N/A: Not Applicable
- NTU: Nephelometric Turbidity Units
- P/A: Present/Absent
- PTTW: Permit to Take Water
- ug/L: micrograms per litre

DRINKING WATER SYSTEM NUMBER	DRINKING WATER SYSTEM NAME	DRINKING WATER SYSTEM OWNER	DRINKING WATER SYSTEM CATEGORY	PERIOD BEING REPORTED
250001830	Lynden Drinking Water System FDL01	City of Hamilton	Large Municipal Residential	January 1, 2021 to December 31, 2021



## PROVISION OF DRINKING WATER TO OTHER MUNICIPALITIES

The following is a list of municipal drinking water systems which receive drinking water from the Lynden System:

DRINKING WATER SYSTEM NAME	DRINKING WATER SYSTEM NUMBER
None other than Lynden System	250001830



A copy of this annual report is provided to all Drinking Water System owners that are connected to the system and to whom the City provides drinking water.



The City's customers are notified through the local newspaper that the annual report is available online free of charge at [www.hamilton.ca/waterquality](http://www.hamilton.ca/waterquality). A copy of the report can also be requested by contacting (905) 546-2489 or [water@hamilton.ca](mailto:water@hamilton.ca).

## WATER TREATMENT CHEMICALS USED DURING THIS REPORTING PERIOD

- Sodium Hypochlorite (chlorine)

## BREAKDOWN OF SIGNIFICANT MONETARY EXPENSES

The following table highlights the significant expenses that were incurred for the installation of required equipment in 2021. There were no significant expenses related to the replacement or repair of equipment in 2021.

Lynden Municipal Well (FDL01) Drainage Mitigation - \$10,096



## ADVERSE TEST RESULTS AND REPORTABLE INCIDENTS

The following table outlines the 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 the MECP Spills Action Centre. In August 2021, the Drinking Water Advisory (DWA) for Lead was lifted by City of Hamilton Public Health Services. Corrective action was carried out and the safety of the drinking water supply was verified to the satisfaction of the Medical Officer of Health for the City of Hamilton.

NOTIFICATION DATE (Y-M-D)	LOCATION OF ADVERSE	ADVERSE WATER QUALITY INCIDENT	RESOLUTION
We are pleased to announce that there were no Adverse Water Quality Incidents for the period of January 1, 2021 to December 31, 2021			

## MECP LYNDEN DRINKING WATER SYSTEM (DWS) INSPECTION FINDINGS AND SELF-DECLARED NON-COMPLIANCES

The following table is a Summary of Findings from the MECP Inspections and self-declared non-compliances found during the 2021 calendar year.

### MECP INSPECTION REPORT, MARCH 19, 2021

#	Finding Type	Finding	Status
1 & 2	Recommendation	Implement a sampling plan / program to conduct routine checks for chlorine residuals at the extremities and "dead ends" of the distribution system. Plan is in place.	No action required
3	Recommendation	Confirm if all consumers are fully metered and conduct a water use and loss audit, comprised of an assessment of production volumes versus authorized consumption to determine the percentage of water loss in the distribution system including a summary of recommended actions to reduce the amount of water loss, if applicable.	Action complete
4	Recommendation	Modify work order templates used for recording the disinfection of equipment as per the Drinking Water Works Permit, Schedule B, Condition 2.3 and 2.3.1.	Action complete
5	Recommendation	Review operational procedures to reduce the potential for THM formation.	Action in progress

### WATER PRODUCTION REPORTS - SUMMARY

The following provides a summary of daily flow rates and instantaneous peak flow rates in comparison to the capacity of the water works as identified in the Permit to Take Water. This information is tabulated in the accompanying tables.

**TABLE 6-1: LYNDEN WELL (FDL01) - 2021 MONTHLY PRODUCTION (SUMMARY)**

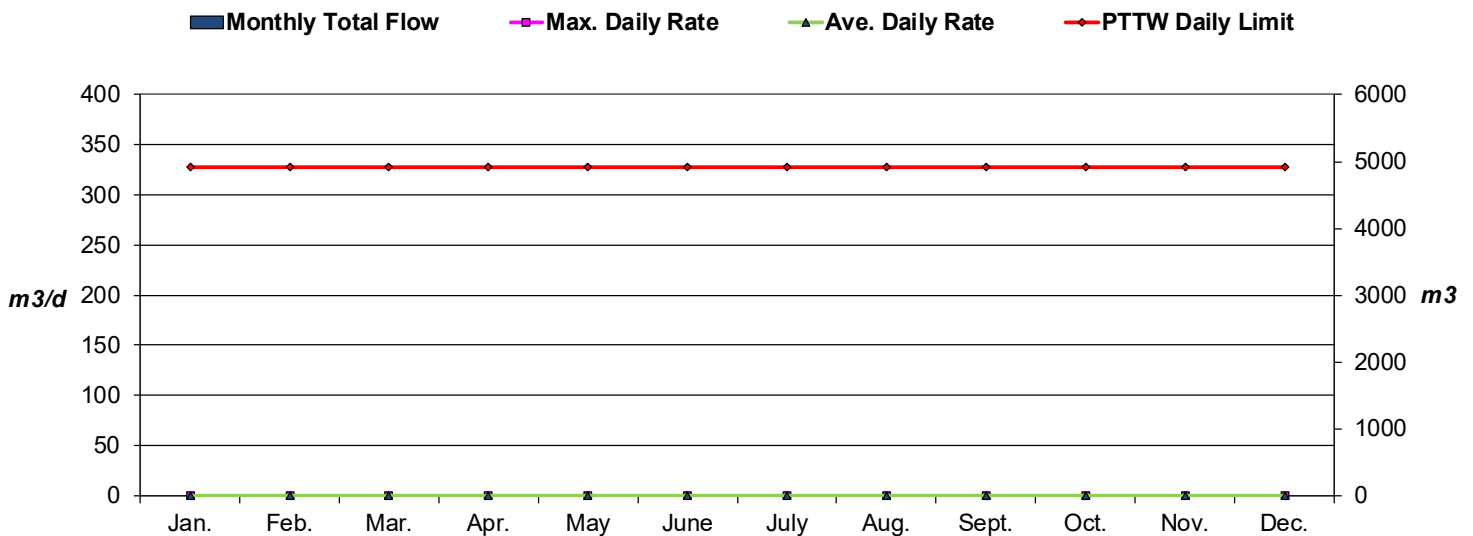
FDL01	UNITS	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
Monthly Total Flow	m <sup>3</sup>	0	0	0	0	0	0	0	0	0	0	0	0
Average Daily Rate	m <sup>3</sup> /d	0	0	0	0	0	0	0	0	0	0	0	0
Maximum Daily Rate	m <sup>3</sup> /d	0	0	0	0	0	0	0	0	0	0	0	0
PTTW Daily Taking Limit	m <sup>3</sup> /d	327	327	327	327	327	327	327	327	327	327	327	327

NOTE: Lynden Well FDL01 has not been used for production since July 2020.



**MAINTAINED COMPLIANCE**

**FIGURE 6-1: LYNDEN WELL (FDL01) - 2021 MONTHLY PRODUCTION (SUMMARY)**



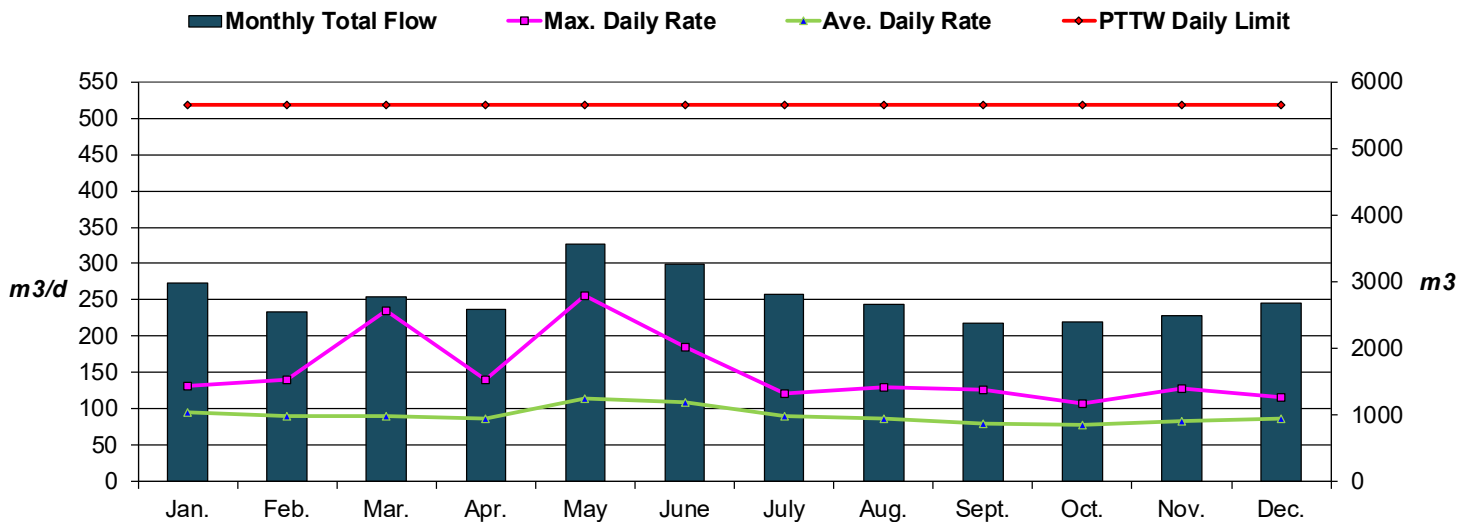
**TABLE 6-2: LYNDEN WELL (FDL03) - 2021 MONTHLY PRODUCTION (SUMMARY)**

FDL03	UNITS	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
Monthly Total Flow	m <sup>3</sup>	2,979	2,541	2,780	2,581	3,557	3,260	2,818	2,665	2,383	2,404	2,484	2,687
Average Daily Rate	m <sup>3</sup> /d	96	91	90	86	115	109	91	86	79	78	83	87
Maximum Daily Rate	m <sup>3</sup> /d	132	141	235	140	256	185	122	130	126	108	128	116
PTTW Daily Taking Limit	m <sup>3</sup> /d	518	518	518	518	518	518	518	518	518	518	518	518



**MAINTAINED COMPLIANCE**

**FIGURE 6-2: LYNDEN WELL (FDL03) - 2021 MONTHLY PRODUCTION (SUMMARY)**



**TABLE 6-3: LYNDEN WELL (FDL01 & FDL03) - 2021 MONTHLY PRODUCTION (SUMMARY)**

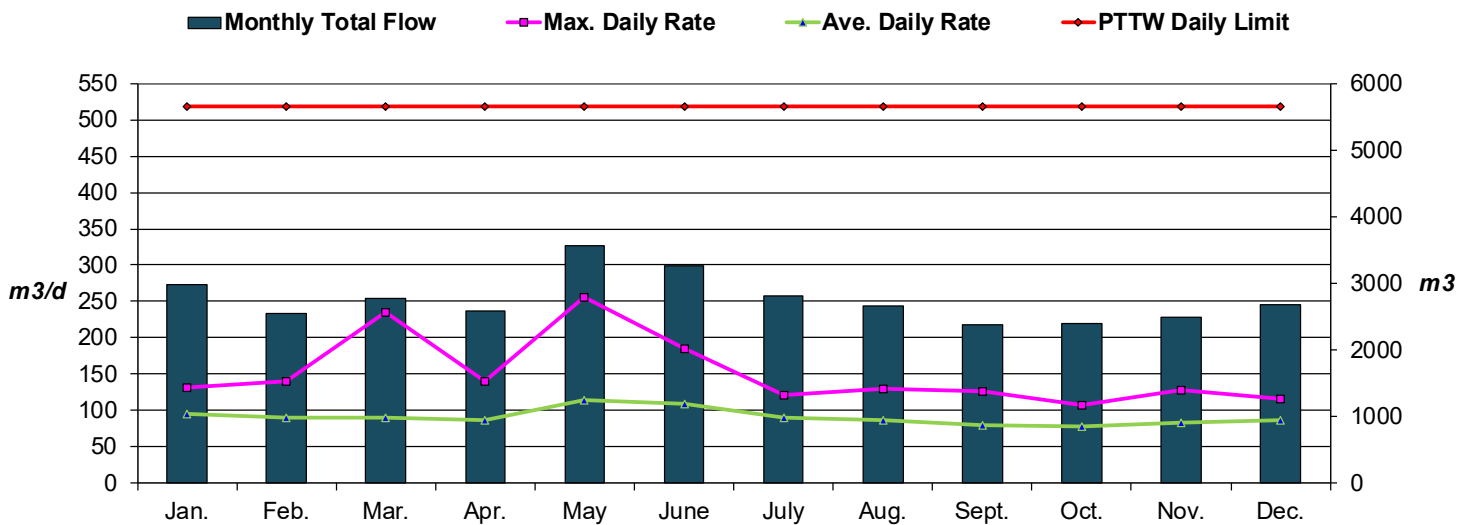
FDL01 & FDL03	UNITS	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
Monthly Total Flow	m <sup>3</sup>	2,979	2,541	2,780	2,581	3,557	3,260	2,818	2,665	2,383	2,404	2,484	2,687
Average Daily Rate	m <sup>3</sup> /d	96	91	90	86	115	109	91	86	79	78	83	87
Maximum Daily Rate	m <sup>3</sup> /d	132	141	235	140	256	185	122	130	126	108	128	116
PTTW Daily Taking Limit	m <sup>3</sup> /d	518	518	518	518	518	518	518	518	518	518	518	518
MDWL Daily Rated Capacity	m <sup>3</sup> /d	327	327	327	327	327	327	327	327	327	327	327	327

NOTE: Lynden Well FDL01 has not been used for production since July 2020.



**MAINTAINED COMPLIANCE**

**FIGURE 6-3: LYNDEN WELL (FDL01 & FDL03) - 2021 MONTHLY PRODUCTION (SUMMARY)**



**WATER QUALITY DATA**

**MICROBIOLOGICAL TESTING DONE UNDER SCHEDULE 10, 11, 12 AND 17, 18 OF REGULATION 170/03, DURING THIS REPORTING PERIOD.**

PARAMETER	SAMPLE DATE	NUMBER OF SAMPLES	RESULT VALUE RANGE	UNIT OF MEASURE
<b>LYNDEN WELL FDL03 - RAW</b>				
E.COLI	2021-01-06 to 2021-12-29	52	0	MPN/100mL
TOTAL COLIFORM	2021-01-06 to 2021-12-29	52	0 to 2	MPN/100mL
<b>LYNDEN WELL FDL03 - TREATED</b>				
E.COLI	2021-01-06 to 2021-12-29	52	ALL ABSENT	P/A/100mL
HPC	2021-01-06 to 2021-12-29	52	0 to 1	CFU/1mL
TOTAL COLIFORM	2021-01-06 to 2021-12-29	52	ALL ABSENT	P/A/100mL
<b>DISTRIBUTION</b>				
E.COLI	2021-01-06 to 2021-12-29	154	ALL ABSENT	P/A/100mL
HPC	2021-01-06 to 2021-12-29	154	0 to 23	CFU/1mL
TOTAL COLIFORM	2021-01-06 to 2021-12-29	154	ALL ABSENT	P/A/100mL

**OPERATIONAL TESTING DONE UNDER SCHEDULE 7, 8 OR 9 OF REGULATION 170/03 DURING THE PERIOD COVERED BY THIS ANNUAL REPORT.**

NOTE: If results are obtained from continuous monitors, then 8760 is reported as the number of samples.

PARAMETER - SAMPLE TYPE	NUMBER OF SAMPLES	RESULT VALUE RANGE	UNIT OF MEASURE
TURBIDITY - RAW - FDL03	53	0.13 to 0.82	NTU
FREE CHLORINE - TREATED - FDL03	8760	0.75 to 4.33	mg/L
FREE CHLORINE - DISTRIBUTION	365	0.41 to 3.64	mg/L

**SUMMARY OF ADDITIONAL TESTING AND SAMPLING CARRIED OUT IN ACCORDANCE WITH THE REQUIREMENT OF A LICENCE, APPROVAL, ORDER OR OTHER LEGAL INSTRUMENT.**

PARAMETER - SAMPLE TYPE	NUMBER OF SAMPLES	SAMPLE DATE	RESULT VALUE RANGE	UNIT OF MEASURE
LEAD - TREATED - FDL03	16	2021-01-06 to 2021-08-04	<0.0001	mg/L
LEAD - DISTRIBUTION	48	2021-01-06 to 2021-08-04	<0.0001 to 0.0002	mg/L

**SUMMARY OF INORGANIC PARAMETERS REQUIRED BY REGULATION 170/03 AND TESTED DURING THIS REPORTING PERIOD.**

PARAMETER	SAMPLE DATE	RESULT VALUE RANGE	UNIT OF MEASURE	NO. OF AWQIs
<b>LYNDEN WELL FDL03 - TREATED</b>				
ANTIMONY	2021-04-28 to 2021-10-20	<0.0001	mg/L	0
ARSENIC	2021-04-28 to 2021-10-20	0.0006	mg/L	0
BARIUM	2021-02-02 to 2021-10-20	0.183 to 0.250	mg/L	0
BORON	2021-04-28 to 2021-10-20	0.423 to 0.480	mg/L	0
CADMIUM	2021-04-28 to 2021-10-20	<0.0001	mg/L	0
CHROMIUM	2021-04-28 to 2021-10-20	<0.0001	mg/L	0
FLUORIDE	2021-04-28 to 2021-10-20	0.68	mg/L	0
MERCURY	2021-04-28 to 2021-10-20	<0.05	ug/L	0
NITRATE AS N	2021-02-02 to 2021-10-20	<0.02 to 0.014	mg/L	0
NITRITE AS N	2021-02-02 to 2021-10-20	<0.010	mg/L	0
SELENIUM	2021-04-28 to 2021-10-20	<0.0001	mg/L	0
SODIUM	2021-04-28 to 2021-10-20	52.8 to 53.3	mg/L	0
URANIUM	2021-04-28 to 2021-10-20	0.023 to 0.026	ug/L	0

**SUMMARY OF LEAD TESTING UNDER SCHEDULE 15.1 OF REGULATION 170/03 DURING THIS REPORTING PERIOD.**

LOCATION TYPE	POINTS SAMPLED	LEAD SAMPLES TAKEN	pH & ALKALINITY SAMPLES TAKEN	pH RESULTS pH UNITS	ALKALINITY RESULTS mg/L	LEAD RESULTS mg/L	LEAD AWQIs	LEAD EXCEEDANCES
PLUMBING-NR	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PLUMBING-R	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
DISTRIBUTION	2	2	2	8.66 to 8.80	107	0.0001 to 0.0002	0	N/A

NR - Non Residential R- Residential

COVID regulatory relief for Schedule 15.1 lead testing was granted for all plumbing samples (residential & non-residential).

**SUMMARY OF ORGANIC PARAMETERS REQUIRED BY REGULATION 170/03 AND TESTED DURING THIS REPORTING PERIOD.**

PARAMETER	SAMPLE DATE	RESULT VALUE RANGE	UNIT OF MEASURE	NO. OF AWQIs
<b>LYNDEN WELL FDL03 - TREATED</b>				
1,1-DICHLOROETHYLENE	2021-04-28 to 2021-10-20	<0.33	ug/L	0
1,2-DICHLOROBENZENE	2021-04-28 to 2021-10-20	<0.41	ug/L	0
1,2-DICHLOROETHANE	2021-04-28 to 2021-10-20	<0.35	ug/L	0
1,4-DICHLOROBENZENE	2021-04-28 to 2021-10-20	<0.36	ug/L	0
2,3,4,6-TETRACHLOROPHENOL	2021-04-28	<0.20	ug/L	0
2,4,6-TRICHLOROPHENOL	2021-04-28	<0.25	ug/L	0
2,4-DICHLOROPHENOXYACETIC ACID	2021-04-28	<0.19	ug/L	0
2,4-DICHLOROPHENOL	2021-04-28	<0.15	ug/L	0
ALACHLOR	2021-04-28	<0.02	ug/L	0
ATRAZINE + DESETHYL-ATRAZINE	2021-04-28	<0.01	ug/L	0
AZINPHOS-METHYL	2021-04-28	<0.05	ug/L	0
BENZENE	2021-04-28 to 2021-10-20	<0.32	ug/L	0
BENZO[A]PYRENE	2021-04-28	<0.004	ug/L	0
BROMOXYNIL	2021-04-28	<0.33	ug/L	0
CARBARYL	2021-04-28	<0.05	ug/L	0
CARBOFURAN	2021-04-28	<0.01	ug/L	0
CARBON TETRACHLORIDE	2021-04-28 to 2021-10-20	<0.20	ug/L	0
CHLOROBENZENE	2021-04-28 to 2021-10-20	<0.3	ug/L	0
CHLORPYRIFOS (DURSBAN)	2021-04-28	<0.02	ug/L	0
DIAZINON	2021-04-28	<0.02	ug/L	0
DICAMBA	2021-04-28	<0.20	ug/L	0
DICHLOROMETHANE	2021-04-28 to 2021-10-20	<0.50	ug/L	0
DICLOFOP-METHYL	2021-04-28	<0.40	ug/L	0
DIMETHOATE	2021-04-28	<0.06	ug/L	0
DIQUAT	2021-04-28	<1	ug/L	0
DIURON	2021-04-28	<0.03	ug/L	0
ETHYLBENZENE	2021-04-28 to 2021-10-20	<0.33	ug/L	0
GLYPHOSATE	2021-04-28	<1	ug/L	0
MALATHION	2021-04-28	<0.02	ug/L	0

...continued on next page

**SUMMARY OF ORGANIC PARAMETERS REQUIRED BY REGULATION 170/03 AND TESTED DURING THIS REPORTING PERIOD.**

PARAMETER	SAMPLE DATE	RESULT VALUE RANGE	UNIT OF MEASURE	NO. OF AWQIs
<b>LYNDEN WELL FDL03 - TREATED</b>				
MCPA (2-METHYL-4-CHLORO-PHENOXYACETIC ACID)	2021-04-28	<0.00012	mg/L	0
METOLACHLOR	2021-04-28	<0.01	ug/L	0
METRIBUZIN (SENCOR)	2021-04-28	<0.02	ug/L	0
PARAQUAT	2021-04-28	<1	ug/L	0
PCBS TOTAL	2021-04-28	<0.04	ug/L	0
PENTACHLOROPHENOL	2021-04-28	<0.15	ug/L	0
PHORATE	2021-04-28	<0.01	ug/L	0
PICLORAM	2021-04-28	<1	ug/L	0
PROMETRYNE	2021-04-28	<0.03	ug/L	0
SIMAZINE	2021-04-28	<0.01	ug/L	0
TERBUFOS	2021-04-28	<0.01	ug/L	0
TETRACHLOROETHYLENE	2021-04-28 to 2021-10-20	<0.35	ug/L	0
TOLUENE	2021-04-28 to 2021-10-20	<0.36	ug/L	0
TRIALATE	2021-04-28	<0.01	mg/L	0
TRICHLOROETHYLENE	2021-04-28 to 2021-10-20	<0.44	ug/L	0
TRIFLURALIN	2021-04-28	<0.02	ug/L	0
VINYL CHLORIDE	2021-04-28 to 2021-10-20	<0.20	ug/L	0
XYLENE	2021-04-28 to 2021-10-20	<0.50	ug/L	0
<b>DISTRIBUTION</b>				
TOTAL TRIHALOMETHANES*	Running annual average for the last four quarters.	54.3	ug/L	0
HALOACETIC ACIDS*	Running annual average for the last four quarters.	6.4	ug/L	0

\* The Maximum Acceptable Concentration for Trihalomethanes and Haloacetic Acids in the distribution is based on a running average of the results from all sampling events in the past four quarters. This running average can be found in the result value column.

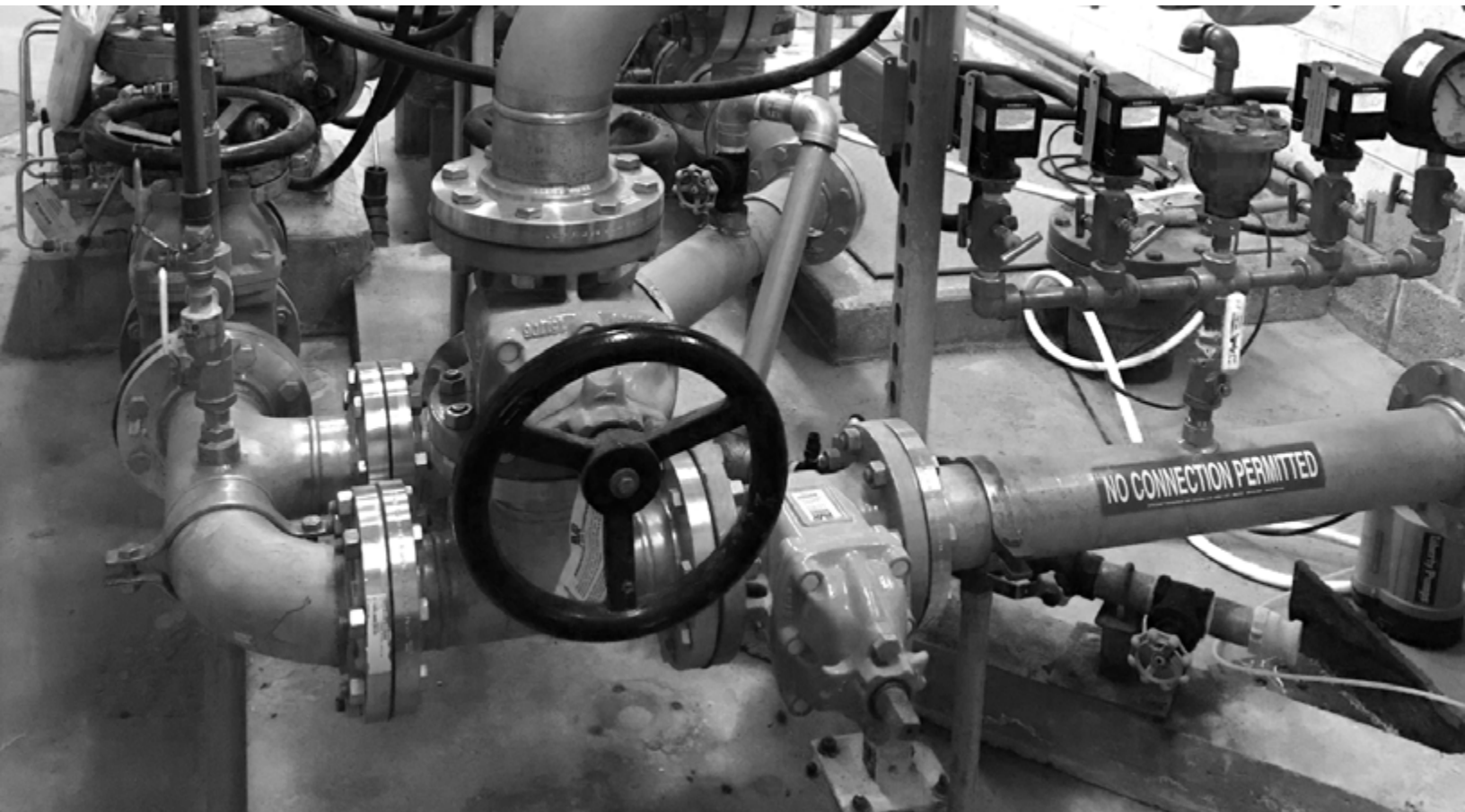


### PARAMETERS EXCEEDING PRESCRIBED HALF-STANDARD

Summary of Inorganic or Organic parameter(s) that exceeded half the standard prescribed in Schedule 2 of Ontario Drinking Water Quality Standards (O.Reg. 169/03).

PARAMETER	SAMPLE DATE	RESULT VALUE RANGE	UNIT OF MEASURE
<b>LYNDEN WELL FDL03 - DISTRIBUTION</b>			
TOTAL TRIHALOMETHANES	Running annual average for the last four quarters calculated in quarter one, 2021	50.2	ug/L
TOTAL TRIHALOMETHANES	Running annual average for the last four quarters calculated in quarter three, 2021	50.5	ug/L
TOTAL TRIHALOMETHANES	Running annual average for the last four quarters calculated in quarter four, 2021	54.3	ug/L

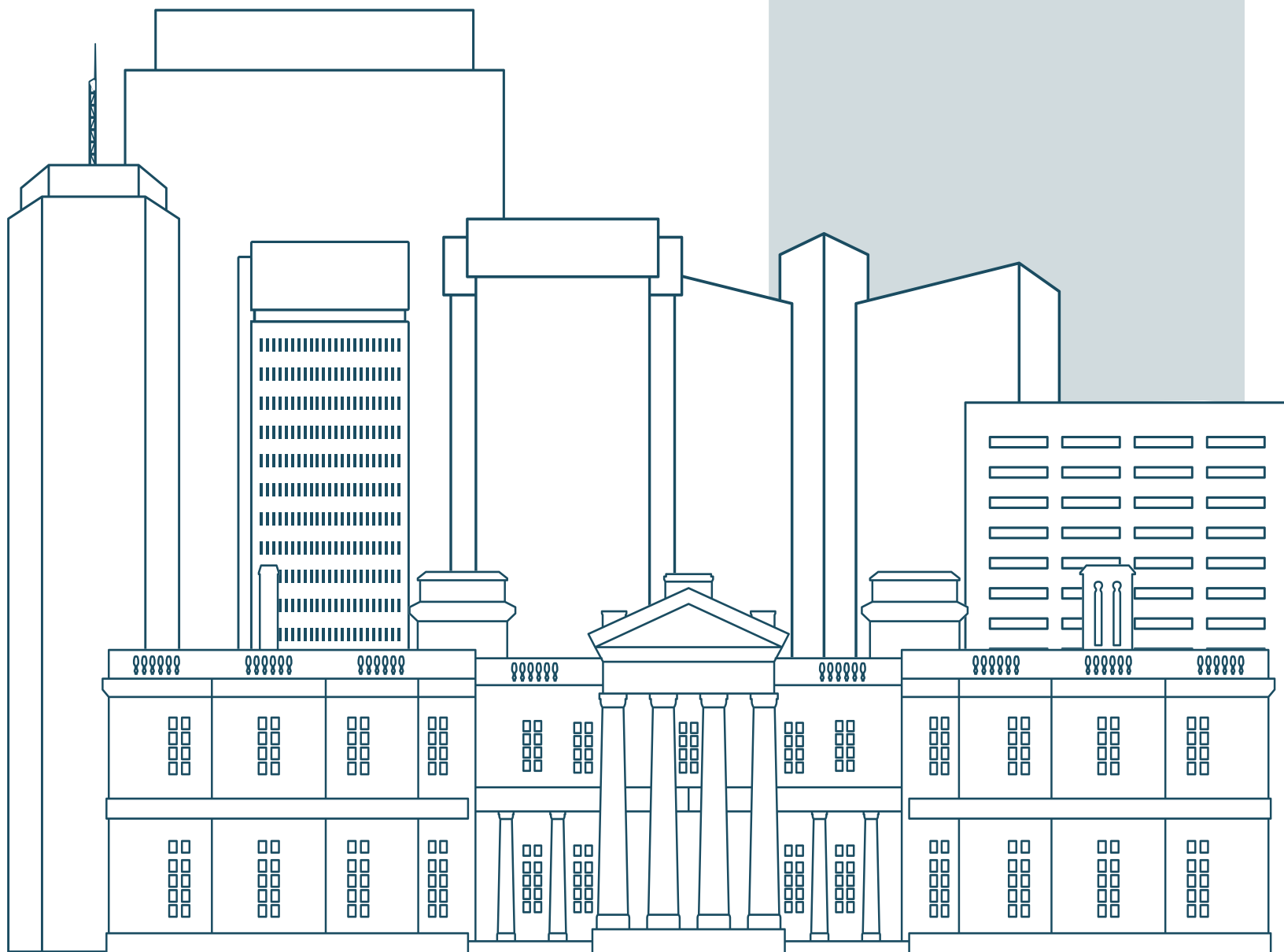
(Only if DWS category is large municipal residential, small municipal residential, large municipal non residential, non municipal year round residential, large non municipal non residential)



# CITY OF HAMILTON'S DRINKING WATER SYSTEMS DWQMS SUMMARY REPORT

Safe Drinking Water Act  
DWQMS v2.0

# 2021



Hamilton



# DRINKING WATER QUALITY MANAGEMENT SYSTEM POLICY



*The City of Hamilton owns, maintains and operates various drinking water systems. The City is committed to:*

**S**

*Safe, high quality, consistent supply of drinking water*

**A**

*Always improving the Drinking Water Quality Management System*

**F**

*Following and complying with applicable legislation*

**E**

*Effective and open communication with the community concerning matters of drinking water quality*



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# 1 INTRODUCTION

## 1.1 Purpose

This Drinking Water Quality Management System (DWQMS) Summary Report is being submitted to the Owner, (Mayor and Council) on behalf of Top Management (General Manager, Public Works and Director of Hamilton Water) of the City's five drinking water systems (DWS), as shown below.

Drinking Water System
Hamilton DWS (Woodward and Fifty Road Subsystems)
Freelton DWS
Greenville DWS
Carlisle DWS
Lynden DWS

The purpose of this DWQMS Summary Report is to keep the Owner of the City's DWSs informed about the ongoing performance of the DWQMS, including major milestones achieved in 2021. This report also assists the Owner in meeting their Standard of Care responsibilities under the Safe Drinking Water Act (SDWA).

This DWQMS Summary Report is a key communication tool from Top Management to the Owner as referenced in Element 12 Communications of the DWQMS Standard. This Report also meets the communication requirements of Element 14 Review and Provision of Infrastructure and Element 20 Management Review of the DWQMS Standard as identified in Sections 3 and 5 of this report, respectively.

## 1.2 Scope

The DWQMS Standard requires that the Operating Authority report on certain aspects of the DWQMS to the Owner, specifically the outcomes of Element 14 Review and Provision of Infrastructure and Element 20 Management Review. This report fulfills the communication requirements of these elements and exceeds the Standard's requirements by providing information on external and internal DWQMS Audits, Risk Assessment and other major milestones of the DWQMS for 2021.

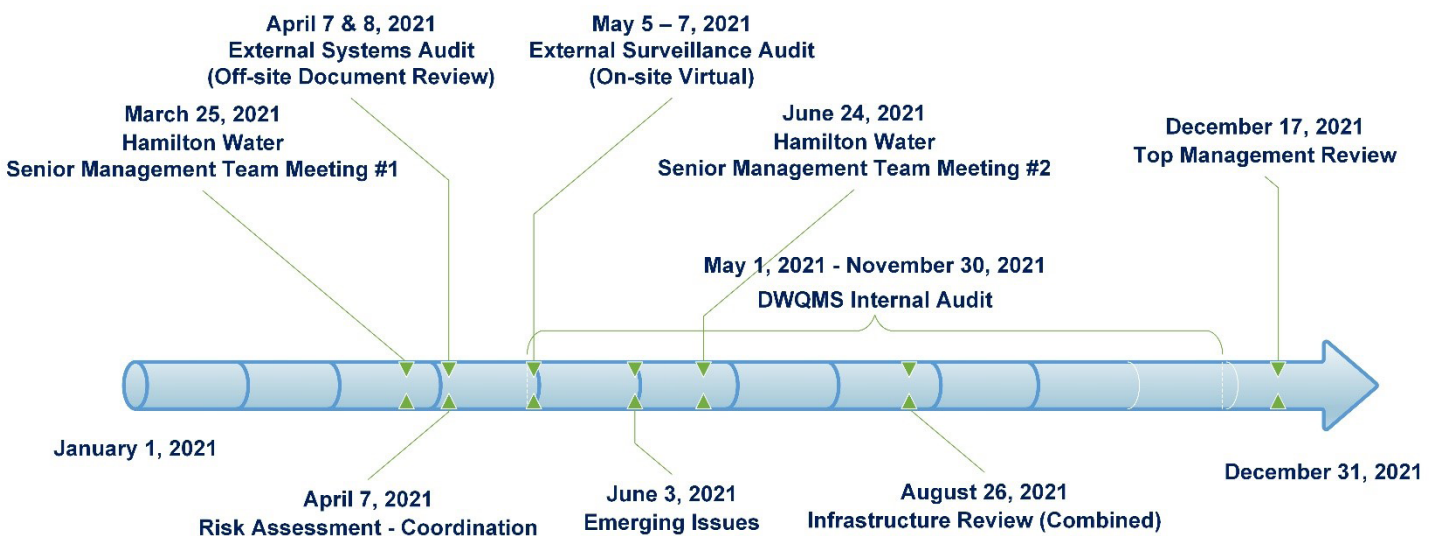


### 1.3 Overview of Key Milestones

DWQMS milestones related to the accreditation of Hamilton Water, the City's Operating Authority are:

- **November 2008** – DWQMS Operational Plan endorsed by Owners,
- **April 2009** – Operating Authority achieves Partial Scope; Entire DWQMS accreditation,
- **June 2009** – Operating Authority receives Municipal Drinking Water Licences and Drinking Water Works Permits for all five City DWSs,
- **February 2011** – On-site Verification Audit by Canadian General Standards Board (CGSB),
- **July 2011** – Operating Authority achieves Full Scope; Entire DWQMS accreditation,
- **2012** – Identified QMI - SAI Global as the new Accreditation Body,
- **2012** – Standard of Care Training for Mayor and Council,
- **May 2013** – External Systems Audit (off-site document review),
- **June 2013** – Operating Authority receives reaccreditation,
- **May 2014** – External Systems Audit (off-site document review),
- **June 2014** – Received renewed Municipal Drinking Water System Licences for each of the City's five DWSs,
- **First quarter 2015** – re-endorsement of the DWQMS Operational Plan by Owners,
- **March (off-site document review) and April (on-site audit) 2015** – re-accreditation of the DWQMS by external registrar, SAI-Global,
- **May 2016** – External Systems Audit (off-site document review),
- **May 2016** – Standard of Care Training for Acting General Manager and new Councillor,
- **May 2017** – External Systems Audit (off-site document review),
- **April (off-site document review) and May (on-site audit) 2018** – re-accreditation of the DWQMS by external registrar, SAI-Global,
- **February to April 2019** - Standard of Care Training for new Councillors and Legal Counsel,
- **May 2019** – Received renewed Municipal Drinking Water System Licences and Permits for each of the City's five DWSs,
- **May 2019** – re-endorsement of the DWQMS Operational Plan by Owners,
- **May 2019** – External Systems Audit (off-site document review).
- **April 2020** – External Systems Audit (off-site document review).
- **April 2021 (off-site document review) and May 2021 (on-site virtual)** – re-accreditation of the DWQMS by external registrar, SAI-Global.

**Figure 1:** Project Pipeline - 2021 (key DWQMS milestones which occurred in 2021)





### 1.4 DWQMS Operational Summary

Figure 2 illustrates the Plan, Do, Check and Act elements of the DWQMS Standard. In 2018, the Ministry of the Environment and Climate Change revised the Standard and issued V 2.0.

The following sections of this report include an overview of milestones related to the following elements of the DWQMS:

- Section 2 - Element 8 Risk Assessment Outcomes
- Section 3 - Element 14 Review and Provision of Infrastructure
- Section 4 - Element 19 Internal Audits
- Section 5 - Element 20 Management Review

### 1.5 DWS Licences & Permits Approvals

Due to COVID-19 and the requirement for physical distancing, the Municipal Drinking Water Licences (MDWL) for each of our Drinking Water Systems were amended to allow regulatory relief from lead sampling requirements as per O. Reg. 170/03, Schedule 15.1. Specifically, the City of Hamilton was granted relief from the requirement to collect Plumbing samples for the June 15, 2020 to October 15, 2020 sampling period. In 2021, relief was also granted for the June 15th to October 15th and December 15th to April 15th sampling periods. Relief was also sought and granted for the December 15th to April 15th, 2022 sampling period.

Within the Drinking Water Systems there were 17 approvals for extensions to the distribution system and 9 approvals for like for like infrastructure replacements.

**Figure 2: DWQMS Standard Elements**



# 2 RISK ASSESSMENT

## 2.1 Overview

The DWQMS Standard requires that a Risk Assessment be conducted in its entirety every three years and reviewed on an annual basis, to verify the currency and validity of the information. In 2021, there was an interim review of the Risk Assessment. There will be another interim review in 2022 followed by a full review in 2023 in accordance with the Standard.

Staff from across Hamilton Water collaborated on updating the existing information considering the following key questions:

- Are identified control measures still valid and if so, are they still in place?
- Have additional controls been implemented?
- How has equipment condition, raw water quality, operational controls etc. changed?
- Are any modified "Risk Factors" now considered to be Critical Control Risks?

Similar to previous years, there were no significant risks identified through the 2021 process, which were not already captured through an existing Hamilton Water initiative or project. Our Risk Assessment was updated to reflect risk levels associated with the on-going pandemic.

## 2.2 Key Updates

As part of the Risk Assessment, process changes, including capital upgrades in the DWSs, are considered and the associated risk scores (i.e. likelihood of occurrence) are updated as needed. The following includes a list of materials that were considered in the 2021 Risk Assessment:

- Capital Delivery - Water Projects Recently completed and upcoming
- 2020 DWQMS Infrastructure Review outcomes
- Outcomes updated from previous DWQMS Risk Assessment
- Review of Adverse Water Quality Incident Notifications
- BCOS Database Quality Non-conformance Module (audits and inspections)
- 2021 Emerging Issues Meeting outcomes
- Items from recent DWQMS Top Management Review Meeting

Hamilton Water staff continue to work to integrate the DWQMS Risk Assessment with the City's Asset Management risk assessment in accordance with Ontario Regulation 588/17: Asset Management Planning for Municipal Infrastructure that came into effect on January 1, 2018. The DWQMS Risk Assessment and Infrastructure Review will be updated to incorporate any new related processes or requirements.

# 3 REVIEW AND PROVISION OF INFRASTRUCTURE

## 3.1 Purpose

The Operating Authority must ensure and verify, on an annual basis, the adequacy of water infrastructure. In order to satisfy the requirements of the DWQMS Standard, the Operating Authority conducted a formal review of its vertical (water treatment, storage and pumping) and horizontal (watermains) infrastructure. The scope of the review also considered the operation, maintenance and replacement of existing infrastructure assets as well as new infrastructure planned for the immediate and long-term future. A Coordination Meeting was held with the Management Team of Hamilton Water to discuss the outcomes of both the horizontal and vertical infrastructure reviews. This DWQMS Summary Report (2021) includes a brief summary of the results of the DWQMS Infrastructure Review.

### 3.2 Process

Teams were assembled from across relevant sections of Hamilton Water, Engineering Services and Planning and Economic Development (P&ED) to conduct the review of water infrastructure. A Coordination Meeting was held on August 26, 2021 to discuss vertical and horizontal infrastructure.

The teams collected and examined input data related to various asset management, maintenance, capital programs and related risks. A summary of the type of “indicator” data examined is provided below:

### 3.3 Overview of Results

The outcomes and recommendations from the Infrastructure Review Meeting were documented in meeting minutes for the 2021 review. Attendees at the Infrastructure Review meeting utilized the outcomes from the meeting as input to capital planning and budget preparation. Hamilton Water discussed the 2021 Infrastructure Review at the Top Management Review meeting on December 17, 2021.

The 2021 Infrastructure Review process concluded that our vertical and horizontal infrastructure is generally found to be adequate and available when needed.

**Table 1:** Infrastructure Review Data

Infrastructure Type	Input Data
Horizontal Infrastructure – Maintenance	Watermain Repairs Hydrant and Valve Inspections Valve and Meter Replacement Substandard Service Replacement Preventative Maintenance Emergency Repairs Customer Complaints
Horizontal Infrastructure - Large Capital	Replaced, Rehabilitated and New Watermains Condition Assessments Capital Upgrades Master Plan Schedule Corrosion Control Program and Corrosion Control Building Asset Management – Critical Watermain Age Profiles and Inspections
Vertical Infrastructure – Maintenance	Preventative Maintenance Program Status Breakdowns and Emergency Repairs Capital Upgrades - Coordination and Scheduling Life Cycle Best Practices Critical Projects
Vertical Infrastructure – Large Capital	Condition Assessments Master Plan Update Source Water Protection Projects, Well Studies and Investigations Water Capital Projects Lists

### 3.3 Overview of Results (Cont'd)

It was also found, however, that we are not keeping up with required renewals and replacements of our aging infrastructure. This results in an increased demand on maintenance staff and resources as assets remain in operation beyond their intended life cycle.

## 4 DWQMS AUDITS

The DWQMS accreditation process requires both 3rd party accreditation audits and annual internal audits by the Operating Authority. The cycle of external audits includes an on-site verification audit every 3 years and an off-site documentation review annually.

### 4.1 External DWQMS Audits

Hamilton Water utilizes the services of QMI-SAI Global as the accreditation body for the DWQMS. In 2021, QMI-SAI Global conducted an off-site documentation review followed by on-site (virtual) verification audit. There were no non-conformances and one opportunity for improvement (implemented). In May 2021, QMI-SAI provided re-accreditation of the City's DWQMS.

### 4.2 Internal DWQMS Audits

The Operating Authority must conduct internal audits to evaluate the conformity of the DWQMS with the requirements of the DWQMS Standard and its procedures, at least annually.

The internal DWQMS audits conducted in 2021 focused on the following:

- Monitoring Well Processes – July 2021
- Watermain Construction Engineering Services – August 2021
- Response to Low Flow or No Water Complaints – September 2021
- Element 19 – Internal Audits – December 2021
- Element 20 – Management Review – December 2021

The results of the annual DWQMS Internal Audits conducted in 2021 demonstrated that the City of Hamilton's DWQMS is a mature system and that opportunities to improve the DWQMS continue to be identified to ensure that the system is relevant and appropriate for HW. The HW DWQMS contains the required procedures and records to illustrate the establishment and continual improvement of the management system.

The 2021 DWQMS audits took place during the COVID-19 pandemic and, as such, were completed virtually.

With the timely completion of the corrective actions issued as a result of this audit, the overall conformance to V2.0 of the DWQMS Standard and the City of Hamilton's DWQMS is suitable, the audit process is adequate, and the implementation and maintenance effective.

### 4.3 2022 DWQMS Audit Plan

The Compliance Support Group of the Compliance & Regulations Section is developing an Audit Plan for the 2022 DWQMS internal audits. The audit is to take place between March and July 2022. The plan will include a number of process and element audits. The Audit Plan will be reviewed by the Hamilton Water Senior Management Team and approved by the Systems Management Representative prior to implementation.



## 5 MANAGEMENT REVIEW

The "Plan" component of Element 20 Management Review of the DWQMS Standard requires a documented procedure to describe how the Operating Authority reviews the suitability, adequacy and effectiveness of the DWQMS. The "Check" component of the element requires that Top Management participate in a management review at least once per year to review the DWQMS and consider recommendations for continual improvement. Required outputs of the meeting are:

- Consideration of the results of the management review and identifying deficiencies and action items to address deficiencies,
- Provide a record of decisions and actions items including responsibilities and timelines,
- Report the results of the management review to the Owner.

In 2021, the DWQMS Top Management Review (TMR) was held on December 17, 2021. Required attendees or their delegates attended as follows: Top Management (Acting General Manager of Public Works and Acting Director of Hamilton Water), Directors, Section Managers, Overall Responsible Operators (OROs) for treatment and distribution, the System Management Representative and staff from the Compliance Support Group.

Overall, Top Management, Directors and Section Managers concluded that the DWQMS is suitable, adequate and effective.

Action items were assigned following the 2021 DWQMS Top Management Review that will result in operational improvements, improved communication and better coordination between Hamilton Water and other City departments.



### 5.1 Financial Plan

The need to prepare a Water Infrastructure Financial Plan is, in part, a regulatory compliance issue specific to the water licensing requirements defined within the DWQMS and more specifically detailed under Regulation 453/07 - Financial Plans made under the Safe Drinking Water Act, 2002. The required Financial Plan for water systems must address a minimum six-year time-frame and be approved by council prior to submission to the Province of Ontario. The resulting plans must also be made freely available to the general public. Water Infrastructure Financial Plans for Hamilton have typically been developed to cover a ten-year period of time in order to reflect consistency with the current rate budget process.

The first Financial Plan was created in 2010 and revised in 2014. The latest revision was approved by Council on July 12, 2018. This most current plan was sent to the Ministry of Municipal Affairs and Housing on November 22, 2018. The next revision of the Financial Plan will be due in 2023.

## 6 CONCLUSIONS

The outcomes from the internal DWQMS audit and the Management Review concluded that the DWQMS is adequate, suitable and effective and conforms to the requirements of the DWQMS Standard. Corrective action plans from the audit and action items from the Management Review will be implemented to ensure continual improvement of the DWQMS.

## 7 NEXT STEPS – TIMELINE


The management system requires ongoing commitment by staff and management. Maintenance and improvement of the system continues to be a high priority of the Operating Authority. Major next steps related to the maintenance of the DWQMS in 2021 are detailed in Table 2:

**Table 2:** Major Next Steps

Month of 2022	Scheduled DWQMS Milestones
January to July	Investigate and correct internal audit findings from the 2021 DWQMS Internal Audits
February/March	Annual O.Reg. 170 Schedule 22 Report and DWQMS Summary Report to Council
March to July	DWQMS Internal Audits
March	Hamilton Water - Senior Management Team Meeting #1
April	DWQMS Risk Assessment Meetings
May	Infrastructure Review Meetings
June	DWQMS 3rd Party Systems Verification Audit
June	Hamilton Water - Senior Management Team Meeting # 2
September	DWQMS Top Management Review
December	Hamilton Water - Senior Management Team Meeting # 3



## INFORMATION REPORT

<b>TO:</b>	Chair and Members Public Works Committee
<b>COMMITTEE DATE:</b>	March 21, 2022
<b>SUBJECT/REPORT NO:</b>	Public Works Response and Actions to Roads Value for Money Audit - Cracked Sealing Process (PW22012) (City Wide) <b>(Outstanding Business List Item)</b>
<b>WARD(S) AFFECTED:</b>	City Wide
<b>PREPARED BY:</b>	Navin Sharma (905) 546-2424 Ext. 5122 Stephen Gagne (905) 546-2424 Ext. 4296 Peter Sniulis (905) 546-2424 Ext. 7646
<b>SUBMITTED BY:</b>	Mike Field Acting Director, Transportation Operations & Maintenance Public Works Department
<b>SIGNATURE:</b>	

### COUNCIL DIRECTION

At the July 8, 2021 Audit Finance and Administration Committee meeting, the Roads Value for Money Audit Report (AUD21006) was presented. As part of the findings, Public Works staff were requested to investigate their Crack Sealing process and report back on the reasons the process was stopped, prioritization of the process going forward, and the funding required to perform the repairs.

An overall update on the Roads Value for Money Audit Report was provided through Report PW22007 at the General Issues Committee on February 17, 2022.

### INFORMATION

Crack sealing is a roadway maintenance preservation technique to slow down the rate of deterioration and effectively increase the useful life of pavement. The process is performed by sealing cracks in the pavement surface to prevent water or other substances from entering and further damaging the roadway surface. Crack sealing is most effective when performed immediately after cracks appear and is not effective in

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OUR Vision: To be the best place to raise a child and age successfully.

OUR Mission: To provide high quality cost conscious public services that contribute to a healthy, safe and prosperous community, in a sustainable manner.

OUR Culture: Collective Ownership, Steadfast Integrity, Courageous Change, Sensational Service, Engaged Empowered Employees.

**SUBJECT: Public Works Response and Actions to Roads Value for Money Audit  
- Cracked Sealing Process (PW22012) (City Wide) – Page 2 of 3**

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addressing structural condition issues that are beyond minor surface pavement cracking.

Alternative techniques, such as surface and bonded wearing course treatments (overlays) are also used to improve the quality and extend the life of pavement. These treatments are generally used only on rural roads and are to improve pavement conditions, such as increased skid resistance and to fill cracks to protect/preserve the underlying pavement and base.

The determination of the appropriate preservation treatment, crack sealing for example, is based on factors such as location (rural vs. urban), traffic volume, pavement condition, and pavement age. Crack sealing is most effective in pavements three to seven years old, and not effective if the pavement has base failures, severe rutting or fatigue cracking.

When a roadway is resurfaced or reconstructed as part of the capital rehabilitation or replacement program, crack sealing is sometimes conducted as part of the two-year post-construction contractor warrantee obligations which is generally overseen by Engineering Services.

The Transportation Operations & Maintenance Division is responsible for overseeing roadway maintenance and utilizes crack sealing as a preventative maintenance technique, however it has not been a designated stand-alone program but rather a method that is leveraged as part of the overall roadway maintenance strategy.

Previously, crack sealing was included as part of a Roadway Maintenance capital preventative pavement maintenance budget which also included other preservation techniques such as surface and bonded wearing course treatments. Historically, annual funding was prioritized to other pavement preservation techniques over crack sealing partially because a dedicated crack sealing program was not formally established.

In reviewing records, it was found that the crack sealing program was paused in 2014. At the time, there was no defined process to determine specific locations for crack sealing, rather, it was left to the discretion of the Roadway Maintenance Operations Districts. Locations were identified requiring preventative maintenance; however, they did not fit the criteria for crack sealing and crack sealing wasn't a programmed activity. Crack sealing was viewed as a more disruptive treatment due to the dust created but technology has since improved and creates far less dust.

Between 2017 and 2019, a trial of a mastic crack sealing technique was conducted to determine its effectiveness. This process involves spreading mastic sealing into existing cracks, without routing the existing crack. While this did provide a temporary repair, it was determined to lack longevity when reviewed in subsequent years. There was



**SUBJECT: Public Works Response and Actions to Roads Value for Money Audit  
- Cracked Sealing Process (PW22012) (City Wide) – Page 3 of 3**

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another pause in crack sealing by Transportation Operations & Maintenance in 2020 due to resourcing and to complete the review of the trial results.

In 2021, a crack sealing contract was tendered and awarded by Transportation, Operations & Maintenance which was used to undertake of 18,000 linear meters of cracks sealing at a cost of \$100,000. For 2022, the funding allocation was increased to \$150,000 and funded from a newly created annual capital account designated specifically for crack sealing with the intention of having a year over year increase of 5%.

As a result of the Roads Value for Money Audit (AUD21006) report, specifically Recommendation 6 which outlined strategies developed by Public Works “to deploy more proactive management of road assets with greater emphasis on preservation” Transportation Operations & Maintenance is actively collaborated with the Engineering Services Division to fulfil this through the development of a pavement preservation strategy that will form part of the Transportation Quality Management System (TQMS) Operational Plan. This strategy is intended to be comprehensive and include crack sealing as a type of preservation treatment along with many other treatment options. The TQMS is a framework that documents processes, procedures, and responsibilities to safely, effectively and efficiently design, construct, maintain and operate the City’s transportation system while meeting applicable legislative and regulatory requirements.

Through the new procedure, locations for crack sealing will be formally identified and actioned. Candidate locations selected to receive crack sealing will typically consist of roadways that are three to seven years old, in non-residential locations, and based on Overall Condition Index (OCI) which indicates the general condition of a pavement section. A detailed assessment of the selected locations will be undertaken by Transportation Operations & Maintenance in the spring, following the winter thaw period, and in coordination with Engineering Services, confirm the candidates for crack sealing. The repairs will then be scheduled and implemented during ideal conditions in late summer and/or autumn.

Overall, crack sealing is a cost-effective preventative maintenance technique when applied in the correct circumstances. Going forward, the Public Works preservation approach being developed which will consider crack sealing and other treatments to jointly work to extend the life of pavement in a more sustainable method than previously.

**APPENDICES AND SCHEDULES ATTACHED**

N/A



Hamilton

**INTERVIEW SUB-COMMITTEE TO THE PUBLIC WORKS COMMITTEE  
MINUTES 22-001**

**11:00 a.m.**

**Wednesday, March 2, 2022**

**Due to COVID-19 and the Closure of City Hall,  
this meeting was held virtually.**

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**Present:** Councillors N. Nann (Chair) and E. Pauls (Vice-Chair)

**Absent with  
Regrets:** Councillor S. Merulla – City Business

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**FOR INFORMATION:**

**(a) CHANGES TO THE AGENDA (Item 1)**

The Clerk advised that there were no changes to the agenda.

**(Pauls/Nann)**

That the agenda for the March 2, 2022 meeting of the Interview Sub-Committee to the Public Works Committee be approved, as presented.

**Result: Motion CARRIED by a vote of 2 to 0, as follows:**

YES - Chair - Ward 3 Councillor Ninder Nann  
NOT PRESENT - Ward 4 Councillor Sam Merulla  
YES - Vice Chair - Ward 7 Councillor Esther Pauls

**(b) DECLARATIONS OF INTEREST (Item 2)**

There were no declarations of interest.

**(c) APPROVAL OF MINUTES OF PREVIOUS MEETING (Item 3)**

**(i) February 19, 2021 (Item 3.1)**

**(Pauls/Nann)**

That the Minutes of the February 19, 2021 meeting of the Interview Sub-Committee to the Public Works Committee be approved, as presented.

**Result: Motion CARRIED by a vote of 2 to 0, as follows:**

YES - Chair - Ward 3 Councillor Nrinder Nann  
NOT PRESENT - Ward 4 Councillor Sam Merulla  
YES - Vice Chair - Ward 7 Councillor Esther Pauls

**(d) PRIVATE & CONFIDENTIAL (Item 4)**

The Committee deemed that a Closed Session discussion of Item 4.1 was not required, and approved the following in Open Session:

**(i) Closed Session Minutes – February 19, 2021 (Item 4.1)**

**(Pauls/Nann)**

That the Closed Session Minutes dated February 19, 2021 be approved, as presented, and remain confidential.

**Result: Motion CARRIED by a vote of 2 to 0, as follows:**

YES - Chair - Ward 3 Councillor Nrinder Nann  
NOT PRESENT - Ward 4 Councillor Sam Merulla  
YES - Vice Chair - Ward 7 Councillor Esther Pauls

**(Pauls/Nann)**

That the Interview Sub-Committee to the Public Works Committee move into Closed Session for Item 4.2 respecting Vacancies on the Hamilton Cycling Committee, pursuant to Section 9.1, Sub-section (b) of the City's Procedural By-law 18-270, as amended, and Section 239(2), Sub-section (b) of the *Ontario Municipal Act, 2001*, as amended, as the subject matter pertains to personal matters about an identifiable individual, including City employees.

**Result: Motion CARRIED by a vote of 2 to 0, as follows:**

YES - Chair - Ward 3 Councillor Nrinder Nann  
NOT PRESENT - Ward 4 Councillor Sam Merulla  
YES - Vice Chair - Ward 7 Councillor Esther Pauls

**(ii) Vacancies on the Hamilton Cycling Committee (Item 4.2)**

Staff were provided with direction in Closed Session.

**(e) ADJOURNMENT (Item 5)**

**(Pauls/Nann)**

That there being no further business, the Interview Sub-Committee to the Public Works Committee be adjourned at 11:34 p.m.

**Result: Motion CARRIED by a vote of 2 to 0, as follows:**

YES - Chair - Ward 3 Councillor Nrinder Nann  
NOT PRESENT - Ward 4 Councillor Sam Merulla  
YES - Vice Chair - Ward 7 Councillor Esther Pauls

Respectfully submitted,

Councillor N. Nann, Chair  
Interview Sub-Committee to the  
Public Works Committee

Carrie McIntosh  
Legislative Coordinator  
Office of the City Clerk



Hamilton

## MINUTES KEEP HAMILTON CLEAN AND GREEN COMMITTEE

**Meeting #:** 21-007  
**Date:** October 19, 2021  
**Time:** 5:00 p.m.  
**Location:** Due to the COVID-19 and the Closure of City Hall  
 Electronic meeting can be viewed at:  
 City's YouTube Channel:  
<https://www.youtube.com/user/InsideCityofHamilton>

Whitney Slattery, Clean and Green Coordinator (905) 546-2424 ext. 5089

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Present:	Chair:	Heather Donison
	Vice-Chair:	Paulina Szczepanski
	Members:	Brenda Duke
		Jen Baker
		Kerry Jarvi
		Councilor N. Nann
		Michelle Tom
		Lennox Topin

Absent:	Leisha Dawson
	Marisa Di Censo
	Felicia Van Dyk

Also present:	Raffaella Morello, Senior Project Manager, Waste Management
	Florence Pirrera Project Manager, Business Programs
	Whitney Slattery, Clean and Green Coordinator, Business Programs

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## MINUTES

Keep Hamilton Clean & Green Committee  
Tuesday October 19, 2021, 5:00 pm

### THE KEEP HAMILTON CLEAN & GREEN COMMITTEE PRESENTS THE OCTOBER 19, 2021 MINUTES AND RECOMMENDS THE FOLLOWING:

#### 1. CHANGES TO THE AGENDA

The Staff Liaison advised the Committee that there were no changes to the agenda.

**(Duke/Jarvi)**

That the agenda for the October 19, 2021 meeting of the Hamilton Clean & Green Advisory Committee be approved, as presented.

**CARRIED**

#### 2. APPROVAL OF MINUTES OF PREVIOUS MEETING

##### (i) June 1, 2021 (Item 3.1)

**(Duke/Tom)**

That the Minutes of the June 1, 2021 meeting of the Keep Hamilton Clean and Green Advisory Committee be approved, as presented.

**CARRIED**

##### (ii) September 21, 2021 (Item 3.2)

**(Jarvi/Meskauskas)**

That the Notes of the September, 2021 meeting of the Keep Hamilton Clean and Green Advisory Committee, be received, as presented.

**CARRIED**

#### 3. COMMUNICATIONS

##### (i) Internal Divisional Changes and Staffing Changes (Item 4.1)

Staff Liaison, Whitney Slattery, Clean and Green Coordinator, informed members that Whitney Slattery is the new Committee Staff Liaison and that Florence Pirrera is the new Project Manager for Business Programs, Environmental Services. Members also informed that Waste Management and Environmental Services were restructured into two separate divisions.



Hamilton

## MINUTES

Keep Hamilton Clean & Green Committee  
Tuesday October 19, 2021, 5:00 pm

**(Duke/Tom)**

That the information respecting Internal and Divisional Changes and Staffing Changes, be received.

**CARRIED**

**(ii) Committee Member Resignation (Item 4.2)**

**(Jarvi/Toppin)**

That the resignation of Sue Dunlop be received and referred to the Public Works Committee.

**CARRIED**

**4. STAFF PRESENTATIONS (Item 8)**

**(i) 2020 KHCG Neighbourhood Grant Finals Reports (Item 8)**

Staff Liaison, Whitney Slattery, Clean and Green Coordinator, provided an overview of the 2020 KHCG Grant Final Reports, with the aid of a PowerPoint presentation.

**(Baker/Tom)**

That the presentation respecting the 2020 Clean and Green Neighbourhood Grant Final Reports be received, as presented.

**CARRIED**

**5. DISCUSSION (Item 9)**

**(i) 2022 KHCG Committee Budget Review and Discussion (Item 9.1)**

Staff Liaison, Whitney Slattery, Clean and Green Coordinator provided an overview of the 2022 Budget Review. The 2022 Committee Budget will be presented at next meeting. Members inquired if the Committee had a reserve budget. Councilor N. Nann suggested language for a motion to allocate an unidentified amount of the remaining budget to create a reserve fund. Before a motion could be put forward, Staff Liaison, Whitney Slattery, was able to confirm that there was a reserve fund and advised Committee members that more information would be requested



Hamilton

## MINUTES

Keep Hamilton Clean & Green Committee  
Tuesday October 19, 2021, 5:00 pm

from Finance and presented at the next Committee meeting. As such, no motion was voted on. Members discussed adding funds for Bins as a separate budget line item for 2022, however Staff Liaison, Whitney Slattery, advised that the working group would need to propose a formal project to the Committee for Committee approval and Staff assessment of feasibility. Additionally, Committee Member, Kerry Jarvi, declared concerns regarding ensuring equity and accessibility to the entire community if a Bin Day program is established.

**(Jarvi/Meskauskas)**

That the information respecting the 2022 KHCG Committee Budget Review and Discussion, be received.

**CARRIED**

**(ii) Updates and discussion regarding the 2021 Cycle of the KHCG Neighbourhood Grant Program (Item 9.2)**

Staff Liaison, Whitney Slattery, Clean and Green Coordinator, advised the Committee that the deadline for the final reports for 2021 grant recipients is approaching, that most reports remain outstanding, and that Staff Liaison, Whitney Slattery will be contacting the recipients with outstanding final reports and that any extensions requested would be considered carefully by Staff.

**(Baker/Tom)**

That the information respecting the 2021 Cycle of the KHCG Grant Program, be received.

**CARRIED**

**(iii) Request for Consideration: Beautiful Alleys is requesting to have a waste bin rental fee for the July 17<sup>th</sup>, 2021 Birge and Emerald Streets cleanups be approved and covered by the Committee's budget (Item 9.3)**





Hamilton

## MINUTES

Keep Hamilton Clean & Green Committee  
Tuesday October 19, 2021, 5:00 pm

**(Duke/Toppin)**

That the Waste Bin Rental Fee for the July 17, 2021 Birge and Emerald Streets cleanup be approved.

**CARRIED**

- (iv) **Request for Consideration: Beautiful Alleys is requesting to have the cost of two waste bin rental fees for the September 18<sup>th</sup> Fall CN & CP Rail cleanup events be approved and covered by the Committee's budget (Item 9.4)**

**(Duke/Toppin)**

That the Waste Bin Rental Fee for the July 17, 2021 Birge and Emerald Streets cleanup be approved.

**CARRIED**

- (v) **Committee Membership and Whether a School Board Representative as a Voting Member is still appropriate (Item 9.5)**

The Committee discussed the Terms of Reference and agreed that the Committee no longer requires a representative from the School Boards in Hamilton. Motion to amend the Committee Terms of Reference to remove the School Board Representative requirement put forward.

**(Baker/Jarvi)**

That the Terms of Reference of the Keep Hamilton Clean & Green be amended by removing the School Board Representation requirement.

**CARRIED**



Hamilton

## MINUTES

Keep Hamilton Clean & Green Committee  
Tuesday October 19, 2021, 5:00 pm

**(vi) All Advisory Committees' Meeting Update (Item 9.6)**

The Committee discussed the All Advisory event held on September 27<sup>th</sup>, 2021.

**(Baker/Jarvi)**

That the information respecting All Advisory Committees' Meeting, be received.

**CARRIED**

**(vii) Working Group for the Keep Hamilton Clean & Green Committee (Added Item 9.7)**

The Committee discussed the formation of a 'Bin Day' working group. Brenda Duke suggested that a staff member be included in the working group.

**(Toppin/Duke)**

That a Working Group of Keep Hamilton Clean and Green Advisory Committee be created to discuss the feasibility of Bin Days as an ongoing program for Hamilton, with a report to a future meeting.

**CARRIED**

### 6. GENERAL INFORMATION / OTHER BUSINESS

**(i) Update of the Team Up to Clean Up (TUTCU) Program (Item 12.1)**

Staff Liaison, Whitney Slattery, Clean and Green Coordinator, advised the committee that staff are currently conducting inventory of program supplies.

**(Baker/Jarvi)**

That the information respecting the Team Up to Clean Up (TUTCU) Program, be received.



Hamilton

## **MINUTES**

Keep Hamilton Clean & Green Committee  
Tuesday October 19, 2021, 5:00 pm

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### **7. ADJOURNMENT (Item 14)**

**(Baker/Topin)**

That, there being no further business, the meeting be adjourned at 7:01 P.M.

**CARRIED**

Respectfully submitted,

Heather Donison  
Chair, Keep Hamilton Clean and Green  
Committee

Whitney Slattery  
Clean & Green Coordinator, Business Programs  
Environmental Services Division, Public Works Department



Hamilton

## KEEP HAMILTON CLEAN AND GREEN COMMITTEE

**Meeting #:** 21-008  
**Date:** November 16, 2021  
**Time:** 5:00 p.m.  
**Location:** Due to the COVID-19 and the Closure of City Hall  
 Electronic meeting can be viewed at:  
 City's YouTube Channel:  
<https://www.youtube.com/user/InsideCityofHamilton>

Whitney Slattery, Clean and Green Coordinator (905) 546-2424 ext. 5089

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Present:	Chair:	Heather Donison
	Vice-Chair:	Paulina Szczepanski
	Members:	Brenda Duke
		Jen Baker
		Felicia Van Dyk
		Michelle Tom
		Diana Meskaukas

Absent:	Leisha Dawson
	Marisa Di Censo
	Kerry Jarvi
	Councilor N. Nann

Also present:	Florence Pirrera, Project Manager, Business Programs
	Whitney Slattery, Clean and Green Coordinator, Business Programs
	Theresa Phair, Community Liaison, Business Programs



Hamilton

## MINUTES

Keep Hamilton Clean & Green Committee  
Tuesday November 16, 2021, 5:00 pm

### THE KEEP HAMILTON CLEAN & GREEN COMMITTEE PRESENTS THE NOVEMBER 16, 2021 MINUTES AND RECOMMENDS THE FOLLOWING:

#### 1. CHANGES TO THE AGENDA

The Staff Liaison advised the Committee that there were no changes to the agenda.

**(B. Duke/M. Tom)**

That the agenda for the November 16, 2021 meeting of the Hamilton Clean & Green Advisory Committee be approved, as presented.

**CARRIED**

#### 2. APPROVAL OF MINUTES OF PREVIOUS MEETING

**(i) October 19, 2021 (Item 3.1)**

**(J. Baker/H. Donison)**

That approval of the Minutes of the October 19, 2021 meeting of the Keep Hamilton Clean and Green Advisory Committee be deferred to the next meeting to allow for further amendments.

**CARRIED**

#### 3. CONSENT ITEMS (Item 6)

**(J. Baker/ P. Szczepanski)**

That the following items be received:

**(i) Grant Review Working Group Notes April 6, 2021 (Item 6.1)**

**(ii) For the Information of Committee: Grant Process Review (Added Item 6.2)**

**(iii) For the Information of Committee: Grant Process Review Presentation (Added Item 6.3)**



Hamilton

## MINUTES

Keep Hamilton Clean & Green Committee  
Tuesday November 16, 2021, 5:00 pm

The Committee discussed staffing implications and staff revisions being made to application, timelines for grants to be opened, adjudicated, closing dates, and issuance of funds.

The Committee suggested that the language around Grant amount be revised to read “up to \$1,000 per application”. The Committee suggested that a list of what is and is not covered, at the top of the application in bold.

**CARRIED**

#### 4. STAFF PRESENTATIONS (Item 8)

##### (i) **Keep Hamilton Clean and Green 2021/2022 Budget (Item 8)**

Staff Liaison, Whitney Slattery, Clean and Green Coordinator, provided an overview the 2021 Committee budget and the proposed 2022 Committee budget, with the aid of a PowerPoint presentation.

The Committees discussed the possibility of quarterly budget presentations by staff, to allow members to access reserve funding for pilot projects. Staff advised that the reserve fund is currently full, and that they will attempt to purchase leaf and yard waste bags with the remaining TUTCU supply budget.

##### **(J. Baker/ D. Meskaukas)**

- (a) That the presentation respecting the 2021 Committee budget be received; and
- (b) That the 2022 budget be approved, as presented.

**CARRIED**

#### 5. GENERAL INFORMATION / OTHER BUSINESS (Item 12)

##### (i) **Stop the Sprawl Hamilton (Added Item 12.1)**

The Committee discussed the resident-based volunteer organization called Stop the Sprawl Hamilton. The Committee supports the work of Stop the Sprawl Hamilton.



Hamilton

## MINUTES

Keep Hamilton Clean & Green Committee  
Tuesday November 16, 2021, 5:00 pm

**(J. Baker/ P. Szczepanski)**

That the information regarding Stop the Sprawl Hamilton, be received.

**CARRIED**

**(ii) Bin Days Program Update (Added Item 12.2)**

B. Duke suggested that Bin Days be considered a stand-alone program. Staff suggested that the Bin Days program should be added to the existing grant program for the Advisory Committee to ensure fair and equitable access to funds, and to maintain complete transparency regarding the use of City funds. Staff advised that when the Bin Days program was first piloted, it only provided access to funds for the Beautiful Alleys group and staff expressed concerns over the transparency of the Bin Days program. Brenda will be forming a working group and work collectively with City staff and to determine feasibility of the establishment of this as an on-going, stand-alone program.

**(J. Baker/ P. Szczepanski)**

That the information respecting the Bin Days pilot program, be received.

**CARRIED**

**6. ADJOURNMENT (Item 14)**

**(J. Baker/ P. Szczepanski)**

That, there being no further business, the meeting be adjourned at 7:01 P.M.

**CARRIED**


Respectfully submitted,

Heather Donison  
Chair, Keep Hamilton Clean and Green  
Committee

Whitney Slattery  
Clean & Green Coordinator, Business Programs  
Environmental Services Division, Public Works Department



**CITY OF HAMILTON**  
**PUBLIC WORKS DEPARTMENT**  
**Engineering Services Division**

<b>TO:</b>	Chair and Members Public Works Committee
<b>COMMITTEE DATE:</b>	March 21, 2022
<b>SUBJECT/REPORT NO:</b>	Streamlining the Process for Incorporating City Reserve Lands, City Widening, and Legacy Widening into Public Highway (PW22013) (City Wide)
<b>WARD(S) AFFECTED:</b>	City Wide
<b>PREPARED BY:</b>	David Lamont (905) 546-2424 Ext. 4413
<b>SUBMITTED BY:</b>	Edward Soldo, P.Eng. Chief Road Official Public Works Department
<b>SIGNATURE:</b>	

### RECOMMENDATION

- (a) That Item 7 of the Planning and Economic Development Committee Report 10-005 as approved by Council on March 10, 2010 be repealed in its entirety;
- (b) That the General Manager of Public Works, or their delegate, be authorized and directed to prepare by-laws under the provisions of Subsection 31(2) of the Municipal Act, as amended, and place before Council for enactment, to incorporate;
- (i) City Reserve Lands into public highway, provided:
- (1) The incorporating by-laws are in a standard form satisfactory to the City Solicitor;
  - (2) The General Manager of Planning and Economic Development has confirmed that all outstanding requirements with respect to the reserve lands have been completed to the satisfaction of the City;
- (ii) City Widening into public highway, provided:

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OUR Vision: To be the best place to raise a child and age successfully.

OUR Mission: To provide high quality cost conscious public services that contribute to a healthy, safe and prosperous community, in a sustainable manner.

OUR Culture: Collective Ownership, Steadfast Integrity, Courageous Change, Sensational Service, Engaged Empowered Employees.



**SUBJECT: Streamlining the Process for Incorporating City Reserve Lands, City Widening, and Legacy Widening into Public Highway (PW22013) (City Wide) - Page 2 of 7**

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- (1) The incorporating by-laws are in a standard form satisfactory to the City Solicitor;
- (2) The General Manager of Planning and Economic Development has confirmed that all outstanding requirements with respect to the Widening lands have been completed to the satisfaction of the City;
- (iii) Legacy Widening into public highway, provided;
  - (1) The incorporating by-laws are in a standard form satisfactory to the City Solicitor.
  - (2) The General Manager of Planning and Economic Development has confirmed that all outstanding requirements with respect to the Legacy Widening lands have been completed to the satisfaction of the City;

## **EXECUTIVE SUMMARY**

The need for Report PW22013 has arisen from a Ministry of Government Services bulletin issued in December 2009 in Report PED10051 to all land registry offices prohibiting the practice of Municipal Self to Self Transfers to incorporate City of Hamilton (City) reserve land into public highway. The City has been using this method as a solution to the very inefficient and time-consuming process of preparing staff reports to the City's standing committee for approval before adoption by Council for each City reserve that required preparation and registration of a by-law to incorporate the reserve land into public highway. Approximately 30 to 50 reserves are incorporated into public highways each year.

Since the enactment of the Municipal Act, 2001, Subsection 31(6) in 2003, land acquired by a municipality for the purpose of a road widening forms part of the highway. A by-law is not required. There are occasions where the City requires a widening over a portion of land already owned by the City. Since Subsection 31(6) does not apply, the only way to incorporate or transfer the City's land asset to a road asset (widening) as a public highway is through passage of a by-law.

Prior to January 1, 2003 land transferred to the municipality for the purpose of a road widening required a by-law to be incorporated into the public right-of-way. This is what we are referring to as legacy widenings within the context of this report. Any document prior to this date required a by-law to be passed whether it was the creation of a new road or of a widening.

**SUBJECT: Streamlining the Process for Incorporating City Reserve Lands, City Widening, and Legacy Widening into Public Highway (PW22013) (City Wide) - Page 3 of 7**

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In order to maintain an efficient level of service that the City has provided, staff is seeking delegated authority to prepare and submit incorporating by-laws directly to Council to incorporate reserves and widenings only, without the need to prepare a staff report to the City's standing committee for each by-law, to avoid the City's lengthy report cycle.

In virtually every case where a reserve or widening is to be incorporated into public highway it is done to allow development of land that has gone through the City's planning process under some form of development application that has received approval by the City. Therefore, incorporation of reserve or widening lands into the City's public highway is simply the final step in the planning approval process to allow development to proceed. No further review or approval by the City should be required at this late period in the development process other than adoption of the incorporating by-law.

The recommendations in the report are consistent with the City's Open for Business philosophy to provide higher level of service to help facilitate the needs of the development industry and general public.

**Alternatives for Consideration – See Page 6**

**FINANCIAL – STAFFING – LEGAL IMPLICATIONS**

Financial: N/A

Staffing: Preparation of the Incorporating By-Laws can be accommodated within the departmental workplans and no additional staff resources will be required.

Legal: N/A

**HISTORICAL BACKGROUND**

A reserve is a narrow strip of City land, usually 0.3 m wide, which is used to physically separate private land from the abutting public highway. Reserves are established by the City and generally used as a mechanism to control access to, and development of, the abutting private land. Without direct access to a public highway, the private lands that are encumbered by a reserve cannot meet the requirements of the City's zoning by-law, and therefore, development cannot proceed on the land. In almost all cases there is one or more requirements of the City which must be satisfied by the abutting private land owner before a reserve can be incorporated into the public highway (e.g. the owner may be required to pay for outstanding servicing costs).

**SUBJECT: Streamlining the Process for Incorporating City Reserve Lands, City Widenings, and Legacy Widenings into Public Highway (PW22013) (City Wide) - Page 4 of 7**

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The need to establish a reserve is usually identified by the City upon review of a developer's plan of subdivision. Reserves are usually established along one side, or at the dead-end, of a road allowance where a road abuts vacant, undeveloped land. When a subdivision plan with a reserve is registered, the reserve land is transferred to the City by the subdividing landowner by registration of a transfer deed.

Up until a few years ago the City incorporated reserves into the public highway by preparation and registration of an incorporating by-law, which required preparation of a staff report to the City's standing committee before the incorporating by-law could be approved by Council. Reserve lands were incorporated into public highway on a case by case basis and each incorporating by-law was subjected to the City's lengthy report cycle. This process was very inefficient because there was approximately a six-week delay between the time when a reserve could be incorporated into public highway and when Council ultimately approved the by-law for registration of the by-law. Landowners developing land encumbered by a reserve were often frustrated by the delays of this process.

To streamline the process the City began incorporating reserves into the abutting road allowance, using the provisions of subsection 31(6) of the Municipal Act, by registering a transfer deed at the Registry Office that conveys the land from the City to the City as a widening to the abutting public highway (Municipal Self to Self Transfers). Upon registration of the transfer deed the reserve land became part of the public highway. This process was extremely efficient because, once a landowner satisfied all requirements with respect of a reserve, City staff could incorporate the reserve into the public highway very quickly without any delay to the developing landowner. Unfortunately, in December 2009, the Ministry of Government Services for the province issued a Bulletin (No. 2009-08, entitled "Municipal Self to Self Transfers") to all land registry offices prohibiting this practice as outlined in Report PED10051.

Prior to the enactment of the Municipal Act, 2001 the only way to incorporate road widenings into the City road was by preparation and registration of a by-law. On a regular basis the City is approached by constituents with legacy widenings who have transferred lands to the City of Hamilton or, prior to amalgamation, the municipalities that made up the former Regional Municipality of Hamilton-Wentworth, for the purpose of a road widening and the widenings were never incorporated into public highway. As a result, these properties do not have frontage on a public road. In addition, since subsection 31(6) of the Municipal Act only applies to lands being acquired by the City it cannot be applied to widenings over City owned property.

In light of the foregoing, the City has no other means to incorporate reserve lands, legacy widenings or City widenings into public highway and must resort to the old report process of preparation and registration of incorporating by-laws. To maintain an efficient

**SUBJECT: Streamlining the Process for Incorporating City Reserve Lands, City Widenings, and Legacy Widenings into Public Highway (PW22013) (City Wide) - Page 5 of 7**

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level of service that the development industry has now become accustomed to, staff is seeking authority to streamline this process by submitting incorporating by-laws directly to Council, without the need to prepare a staff report to the City's standing committee for each by-law.

## **POLICY IMPLICATIONS AND LEGISLATED REQUIREMENTS**

There are no policy implications as a result of the recommendation in this report. The purpose of this report is to streamline the City's process to incorporate City reserve lands, City widenings, and legacy widenings into public highway.

## **RELEVANT CONSULTATION**

This report has been prepared on advice provided by the City Solicitor and in consultation with staff from the Growth Management Division of the Planning & Economic Development Department.

## **ANALYSIS AND RATIONALE FOR RECOMMENDATION**

Incorporation of City reserve and legacy widening lands into public highway almost always results from an application received by the City to develop or subdivide land. As a result, the land has been subjected to the City's planning review process and has satisfied all conditions of the City with respect to planning, engineering, and zoning requirements. Incorporation of City reserve and legacy widening lands into the City's public highway is the final step of that planning review and approval process.

It is the opinion of staff that subjecting a land owner or developer to additional time delays associated with preparation of a staff report that must pass through the City's internal report cycle for approval by the City's standing committee before adoption by Council is inappropriate at such a late stage in the development approval process for land that has already received approval by the City. Preparation of staff reports for each incorporating by-law would not be consistent with the City's "open for business" philosophy to provide higher level of service to help facilitate the needs of the development industry and general public.

The inclusion of subsection 31(6) of the Municipal Act 2001 supports the premise that lands transferred to the municipality for the purpose of a road widening should logically become incorporated into the public highway. Staff is of the opinion that subjecting legacy widenings and City widenings to the rigors of the report process puts an undue strain on City resources. Furthermore, Schedule C-2 of the City's Official Plan entitled, Future Right-of-Way Dedications specifies the future and ultimate road allowance widths of the City's collector and arterial road network. The City's Official Plan is a

**SUBJECT: Streamlining the Process for Incorporating City Reserve Lands, City Widening, and Legacy Widening into Public Highway (PW22013) (City Wide) - Page 6 of 7**

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Council approved policy document wherein the ultimate requirements and direction for acquisition of land for road allowance has been specified and approved by the City. Incorporation of these lands into public highway by by-law is in fulfillment with the direction under the City's Official Plan and for this reason it is the opinion of staff that further Council approval on a case by case basis is unnecessary.

### **ALTERNATIVES FOR CONSIDERATION**

There is one alternative staff considered in addressing the Ministry's bulletin prohibiting the process of municipal self to self-transfers to incorporate City reserve lands, legacy widening and City widening into public highway.

The alternative is to continue the City's previous process of only having authority as approved by Planning and Economic Development Committee Report 10-005 as approved by Council on March 10, 2010 for Reserve lands only and to continue to prepare reports to Council to incorporate legacy widening and City widening into public highway on a case by case basis. This alternative would create time delays as this is subject to standing committee and Council meeting schedules. This process was particularly cumbersome during the summer months, when Council meetings are less frequent and development activity is most active.

Financial: N/A

Staffing: Subjecting reserves, legacy widening and City widening to the rigors of the report process increases City staff work load.

Legal: N/A

### **ALIGNMENT TO THE 2016 – 2025 STRATEGIC PLAN**

#### **Community Engagement and Participation**

Hamilton has an open, transparent and accessible approach to City government that engages with and empowers all citizens to be involved in their community

#### **Economic Prosperity and Growth**

Hamilton has a prosperous and diverse local economy where people have opportunities to grow and develop.

#### **Healthy and Safe Communities**

Hamilton is a safe and supportive City where people are active, healthy, and have a high quality of life.

**SUBJECT: Streamlining the Process for Incorporating City Reserve Lands, City Widenings, and Legacy Widenings into Public Highway (PW22013) (City Wide) - Page 7 of 7**

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**Built Environment and Infrastructure**

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**Our People and Performance**


Hamiltonians have a high level of trust and confidence in their City government.

**APPENDICES AND SCHEDULES ATTACHED**

Not applicable



**CITY OF HAMILTON**  
**PUBLIC WORKS DEPARTMENT**  
**Engineering Services Division**

<b>TO:</b>	Chair and Members Public Works Committee
<b>COMMITTEE DATE:</b>	March 21, 2022
<b>SUBJECT/REPORT NO:</b>	Appropriation Transfer of Funds for Dewitt Road - Highway 8 to Barton Street (PW22014) (Ward 10)
<b>WARD(S) AFFECTED:</b>	Ward 10
<b>PREPARED BY:</b>	Erika Waite (905) 546-2424 Ext. 6397
<b>SUBMITTED BY:</b>	Susan Jacob Acting Director of Engineering Services Public Works Department
<b>SIGNATURE:</b>	

### RECOMMENDATION

- (a) That the General Manager of Public Works be authorized and directed to award Tender C15-76-21 (HS) Dewitt Road and Highway 8 - Sewer, Watermains, Roadway, Curb and Sidewalk Reconstruction to Coco Paving Inc. in the amount of \$4,173,238 (not including contingency and non-refundable HST) and that the General Manager of Public Works be authorized to execute, on behalf of the City of Hamilton, all agreements and other documents necessary to implement this award on confirmation that each such agreement be in a form satisfactory to the City Solicitor; and,
- (b) That the budget and financing plan for DeWitt Road Sanitary Sewer – Highway 8 to Barton Street project (# 5162171025), totaling \$3,261,000, be amended and approved from the following sources referenced in Appendix “A” to Report PW22014:
- (i) \$1,700,000 from rate revenues as approved in the 2021 and 2022 capital budgets;
  - (ii) An additional \$780,500 from the Linear Wastewater Development Charges Reserves (\$483,910 from Reserve #110340 and \$296,590 from Reserve #110341);

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OUR Vision: To be the best place to raise a child and age successfully.

OUR Mission: To provide high quality cost conscious public services that contribute to a healthy, safe and prosperous community, in a sustainable manner.

OUR Culture: Collective Ownership, Steadfast Integrity, Courageous Change, Sensational Service, Engaged Empowered Employees.

**SUBJECT: Appropriation Transfer of Funds for Dewitt Road - Hwy 8 to Barton Street (PW22014) (Ward 10) - Page 2 of 6**

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- (iii) A capital budget appropriation of previously approved Linear Wastewater Development Charges of \$200,000 from the 2017 Intensification Infrastructure Upgrades project (#5161796011);
- (iv) A capital budget appropriation of previously approved Linear Wastewater Development Charges of \$200,000 from the 2019 Intensification Infrastructure Upgrades project (#5161996011);
- (v) A capital budget appropriation of previously approved rate revenues of \$380,500 from the Dewitt Road Sanitary Sewer – Barton Street to South Service Road project (#5162280280).

**EXECUTIVE SUMMARY**

The scope of work for Dewitt Road from Highway 8 to Barton Street was expanded from road resurfacing in the 2019 budget to include sewer capacity upgrades as part of the 2022 construction. As programming and design progressed, it was determined that the sanitary sewer along this section of road required upgrading (increase in capacity) to support two active redevelopment projects along the route, in addition to supporting further intensification. In coordination with the Planning and Economic Development Department, the sewer upgrade was added to the resurfacing project as coordinating works in 2021 (see Appendix “B” to Report PW22014).

In addition to the sewer upgrade changes to the project scope, project costs have been impacted as a direct result of Ontario Regulation 406/19 – On Site and Excess Soil Management, which came into effect on January 1<sup>st</sup>, 2022.

The total estimated approved budget available for the Dewitt Road – Highway 8 to Barton tender is \$3,042,000. In January 2022, Request for Tenders C15-76-21 Dewitt Road and Highway 8 - Sewer, Watermains, Roadway, Curb and Sidewalk Reconstruction was issued, and the City received eight (8) bids of which, the lowest compliant bid received was from Coco Paving Inc. The tender bid including contingency and non-recoverable HST, is \$4,602,847. An increase of \$1,561,000 for the sanitary sewer component is required in order to award the tender.

The contract involves:

1. Road reconstruction:
  - Dewitt Road from south of Highway 8 to North of Juniper Drive,
  - Dewitt Road from South of Macintosh Drive/Cresthaven Drive to Dupont Street;



**SUBJECT: Appropriation Transfer of Funds for Dewitt Road - Hwy 8 to Barton Street (PW22014) (Ward 10) - Page 3 of 6**

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2. Road resurfacing:
  - Dewitt Road from North of Juniper Drive to South of Macintosh Drive/Cresthaven Drive,
  - Dewitt Road from Dupont street to Barton Street;
3. Sanitary sewer replacement:
  - Highway 8 from Dewitt Road to 100m Westerly,
  - Dewitt Road from Highway 8 to North of Juniper Drive,
  - Dewitt Road from South of Macintosh Drive/Cresthaven Drive to Dupont Street,
  - sewer lateral replacement,
  - road restoration (Highway 8 from Dewitt Road to 100m Westerly);
4. Curb, sidewalks and approaches reconstruction;
5. Traffic signal and street lighting works.

Budget adjustments through the transfer of funds for the wastewater section of the contract are required in order to award the Tender C15-76-21 (HS).

**Alternatives for Consideration – See Page 5**

**FINANCIAL – STAFFING – LEGAL IMPLICATIONS**

Financial: The total required funding increase to the Dewitt Road Sanitary Sewer – Highway 8 to Barton Street project is \$1,561,000. As per the 2019 Development Charges Background Study, 50% of the wastewater intensification costs benefit the existing infrastructure and 50% is attributable to development (62% Residential and 38% Non-Residential).

The total cost of upgrading the sanitary sewer on Dewitt Road from Highway 8 to Barton Street is \$3,261,000. The increased sewer cost attributed to development (\$1,561,000) is recommended to be funded by an additional transfer from the Linear Wastewater Development Charges Reserves (\$780,500), as well as capital budget appropriations from the 2017 Intensification Infrastructure Upgrades project (\$200,000), the 2019 Intensification Infrastructure Upgrades project (\$200,000) and the Dewitt Road Sanitary Sewer – Barton Street to South Service Road project (\$380,500).

Staffing: None

Legal: None

**SUBJECT: Appropriation Transfer of Funds for Dewitt Road - Hwy 8 to Barton Street (PW22014) (Ward 10) - Page 4 of 6**

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**HISTORICAL BACKGROUND**

The scope of work for Dewitt Road from Highway 8 to Barton Street was expanded from road resurfacing in the 2019 budget to include sewer capacity upgrades for the 2022 construction. In 2021, as programming and design progressed, it was determined that the sanitary sewer along this section of road required upgrading (increase in capacity) to support two active redevelopment projects along the route and support further intensification.

Increasing the sanitary sewer capacity requires full replacement of the existing sewer with a larger diameter sewer, including the full restoration of the road and surface infrastructure impacted by the upgrade.

Within the tender bids received for the project, the cost for the sanitary sewer works were higher than estimated. The variance in estimated costs require an appropriation through transfer of funds, attributed to the above-mentioned scope requirements to increase capacity and subsequent project limit extension, as well as unforeseen pressures realized after the original budgeting of the project; costs were impacted as a direct result of Ontario Regulation 406/19-Onsite and Excess Soil Management, and overall material and labour cost increases caused by the pandemic.

**POLICY IMPLICATIONS AND LEGISLATED REQUIREMENTS**

In accordance with the 2019 Development Charges Background Study, the sanitary sewer upgrade is eligible for 50% DC contribution as it will support two active redevelopment projects and further intensification in the corridor.

The award of the tender for C15-76-21 is in accordance with By-Law 21-215, Procurement Policy, Policy #2 Approval Authority which states:

- (3) The Client Department in conjunction with the Procurement Section shall submit a report to Council and the appropriate standing committee recommending award of an RFT or RFP if ANY of the following conditions apply:
  - (b) for capital projects, when the final competitively procured cost of the proposed procurement exceeds the amount provided in the Council approved capital budget for that project by \$250,000 or greater.

**RELEVANT CONSULTATION**

The project consultations include consultation with Planning and Economic Development Department and Corporate Services Department – Budgets

**SUBJECT: Appropriation Transfer of Funds for Dewitt Road - Hwy 8 to Barton Street (PW22014) (Ward 10) - Page 5 of 6**

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and Financial Policy.

**ANALYSIS AND RATIONALE FOR RECOMMENDATION**

The Departments of Public Works, Engineering Services Division and Planning and Economic Development, Infrastructure Planning Division, have provided funding source recommendations in order to allow for the award and completion of the Dewitt Road from Highway 8 to Barton Street project C15-76-21(HS).

**ALTERNATIVES FOR CONSIDERATION**

An alternative for consideration is to not award the tender and defer the project construction to 2023. In this case, existing funds will be maintained and earmarked to fund the 2023 construction, and the required additional funds would be requested for approval through the 2023 capital budget process. This may result in the need to alter the timing of other currently proposed projects in the short-term forecast.

Any such deferral will result in delay of site development intensification due to insufficient sewer capacity, declining service levels and increased risk and liability,

Financial: Inflationary increases in construction costs could be experienced and well as increased roadway maintenance costs due to the condition of the pavement.

Staffing: Additional staff time will be required to update tender documents and procure the project again.

Legal: None

**ALIGNMENT TO THE 2016 – 2025 STRATEGIC PLAN**

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**SUBJECT: Appropriation Transfer of Funds for Dewitt Road - Hwy 8 to Barton Street (PW22014) (Ward 10) - Page 6 of 6**

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**Built Environment and Infrastructure**

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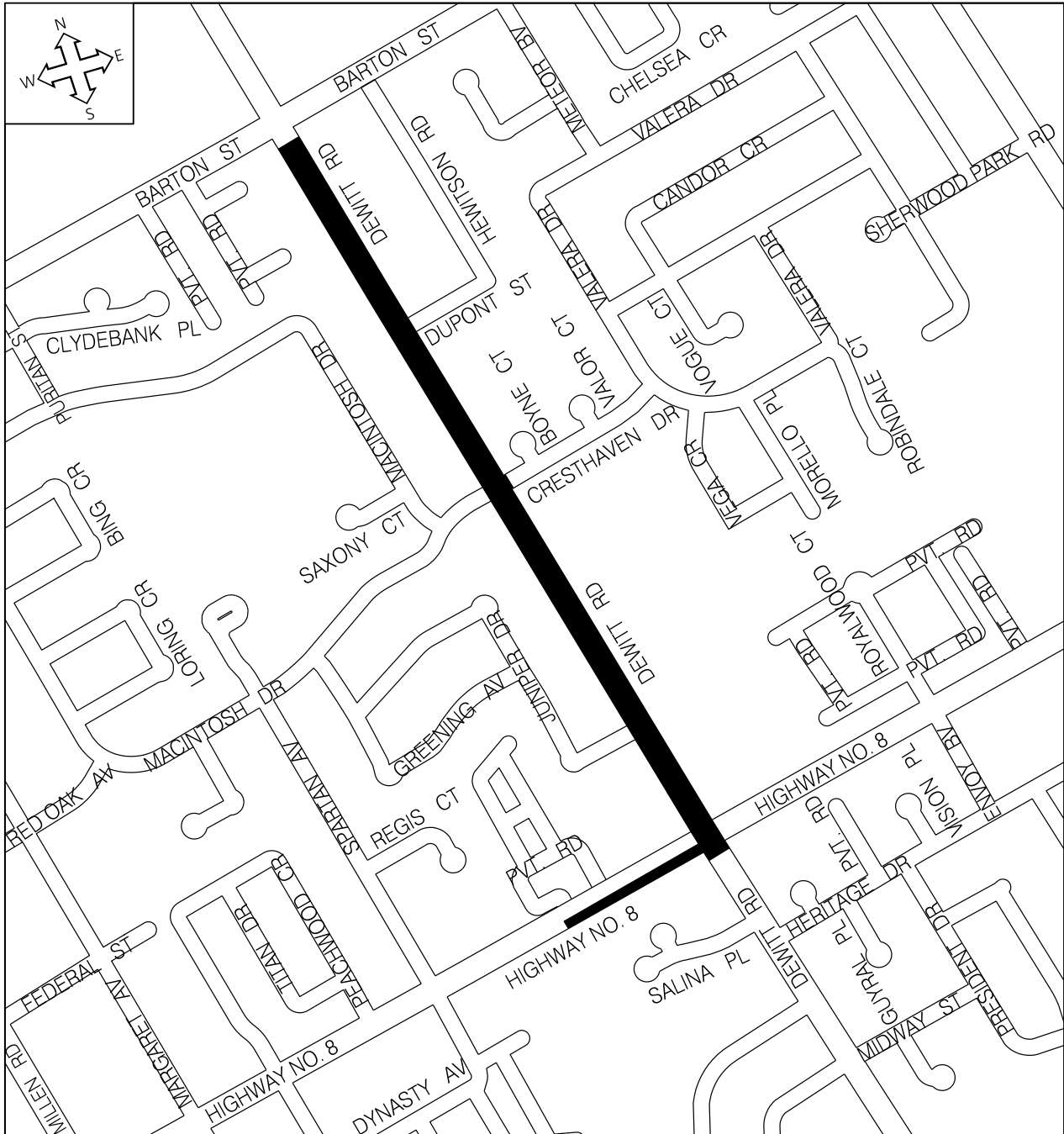
**APPENDICES AND SCHEDULES ATTACHED**


Appendix "A" to Report PW22014 - Schedule B – Appropriation Adjustment Schedule

Appendix "B" to Report PW22014 - Location Map – Dewitt Road

**APPROPRIATION ADJUSTMENT SCHEDULE - DEWITT ROAD - HIGHWAY 8 TO BARTON STREET**

Project Number	Project Description	GROSS COST			REVENUE			NET FINANCING REQUIRED			REASON FOR ADJUSTMENT
		Budget	Increase/ (Decrease)	Revised	Budget	Increase/ (Decrease)	Revised	Budget	Increase/ (Decrease)	Revised	
5162171025	Dewitt Road - Highway 8 to Barton Street	1,700,000	1,561,000	3,261,000	0 Res DC 0 Non Res DC	779,130 401,370		1,700,000	380,500	3,261,000	
			1,561,000			1,180,500			380,500		
5161796011	Intensification Infrastructure Upgrades	400,000	(251,000)	149,000	132,000 Res DC 68,000 Non Res DC	(132,000) (68,000)	0 0	200,000	0	149,000	
			(251,000)			(200,000)			0		
5161996011	Intensification Infrastructure Upgrades	400,000	(294,000)	106,000	132,000 Res DC 68,000 Non Res DC	(132,000) (68,000)	0 0	200,000	0	106,000	
			(294,000)			(200,000)			0		
5162280280	Dewitt Road - Barton to South Service Road	1,000,000	(235,500)	764,500	500,000 Developer	0	500,000	500,000	(380,500)	264,500	
			(235,500)			0			(380,500)		



 Proposed Works - Road and Sidewalk Reconstruction, Sanitary Sewer Upgrades, Road Resurfacing & Associated Works

City of Hamilton  
 Ward 10  
 Dewitt Road - Highway 8 to Barton Street  
 Highway 8 - Dewitt Road to 100m Westerly

**CITY OF HAMILTON**  
 Public Works Department  
 Acting General Manager, Craig Murdoch  
 DATE: February 2022      CONTRACT No. C15-76-21 (HS)

# CITY OF HAMILTON

## MOTION

Public Works Committee: March 21, 2022

**MOVED BY COUNCILLOR R. POWERS.....**

**SECONDED BY COUNCILLOR.....**

**Father Sean O’Sullivan Memorial Park Improvements, 1139 Greenhill Avenue, Hamilton (Ward 5)**

WHEREAS, the play structure located at Father Sean O’Sullivan Memorial Park, 1139 Greenhill Avenue, Hamilton was originally installed in the early 1990s;

WHEREAS, the play structure has surpassed its useful life span and needs to be replaced;

WHEREAS, in February 2021 Council approved \$120,000 funded from the Ward 5 – Capital Infrastructure Reserve #108055 for the new play structure and safety surfacing;

WHEREAS, an enhanced design that offers additional play features and increased play value, which will allow community members more choices for play components, can be installed; and,

WHEREAS, an increased budget is required for the enhanced design.

THEREFORE, BE IT RESOLVED:

- (a) That additional funds for the play structure replacement at Father Sean O’Sullivan Memorial Park, 1139 Greenhill Avenue, Hamilton be funded from the Ward 5 Special Capital Re-Investment Reserve Fund (#108055) at an upset limit, including contingency, not to exceed \$55,000 and added to Project ID #4242109503 Father Sean O’Sullivan Park; and

**Motion respecting Father Sean O'Sullivan Memorial Park Improvements,  
1139 Greenhill Avenue, Hamilton (Ward 5)**

**Page 2 of 2**

- (b) That the Mayor and City Clerk be authorized and directed to approve and execute all required agreements and ancillary documents, with such terms and conditions in a form satisfactory to the City Solicitor.



# CITY OF HAMILTON

## MOTION

Public Works Committee: March 21, 2022

**MOVED BY COUNCILLOR E. PAULS.....**

**SECONDED BY COUNCILLOR.....**

**Natural Burial Section at 260 Rymal Road East, Hamilton (Mount Hamilton Cemetery) (Ward 7)**

Whereas, the City of Hamilton operates 69 cemeteries under By-law 12-151, a By-law Respecting the City of Hamilton’s Cemeteries;

Whereas, in 2021, Council amended By-law 12-151 to add provisions relating to natural burials to regulate Natural Burial Sections within City of Hamilton cemeteries;

Whereas, a Natural Burial Section means a designated area within a cemetery which is specifically designed to permit human remains to be returned to the earth as naturally as possible, and;

Whereas, funding for the construction, planting and communal memorial of the Natural Burial Section at Mount Hamilton Cemetery is required.

THEREFORE, BE IT RESOLVED:

- (a) That the construction, planting and communal memorial for the Natural Burial Section at 260 Rymal Road East, Hamilton (Mount Hamilton Cemetery) be funded from the Ward 7 Special Capital Re-Investment Reserve Fund (#108057) to an upset limit of \$100,000, be approved;
- (b) That the annual operating impacts of \$55,000 to fund a 0.5 FTE be included in the 2022 Public Works Department base operating budget;
- (c) That the Mayor and City Clerk be authorized and directed to approve and execute all required agreements and ancillary documents, with such terms and conditions in a form satisfactory to the City Solicitor.

# CITY OF HAMILTON

## MOTION

**Public Works Committee: March 21, 2022**

**MOVED BY COUNCILLOR T. JACKSON.....**

**SECONDED BY COUNCILLOR.....**

**Eleanor Park Playground Replacement, 80 Presidio Drive, Hamilton (Ward 6)**

WHEREAS, Eleanor Park Playground is located at Eleanor Park, 80 Presidio Drive, Hamilton, Ward 6;

WHEREAS, the existing play structure is well used by the community and has reached its end of life and the community would benefit from the replacement and enhancement of the existing structure;

WHEREAS, to honour the late Jude Strickland, a young local resident who tragically lost his life in December 2020, the replacement structure be named the Jude Strickland Play Structure;

WHEREAS, the Strickland family is in support of commemorating Jude Strickland by naming the new play structure in his memory;

WHEREAS, the total project cost for supply and installation of an enhanced play structure with climbing feature, additional components and a commemorative plaque is estimated to be \$220,300;

WHEREAS, the City of Hamilton Parks Division of the Public Works Department has received Capital funding in the amount of \$100,000 to be contributed to this project; and,

WHEREAS, the project requires additional funding of \$120,300.

**THEREFORE, BE IT RESOLVED:**

- (a) That the new play structure at Eleanor Park, 80 Presidio Drive, Hamilton, be named the Jude Strickland Play Structure, in honour of the late Jude Strickland, a young local resident who tragically lost his life in December 2020 with the installation of a commemorative plaque;

**Eleanor Park Playground Replacement,  
80 Presidio Drive, Hamilton (Ward 6)  
Page 2 of 2**

- (b) That the balance of funding required for the supply and installation of a new play structure and a commemorative plaque to honour Jude Strickland at Eleanor Park, 80 Presidio Drive, Hamilton, be funded from the Ward 6 Special Capital Re-Investment Reserve Fund (#108056) with an upset limit, including contingency, not to exceed \$120,300, be approved and transferred to Project ID 4402152600 Playground Lifecycle Replacement Program; and
- (c) That the Mayor and City Clerk be authorized and directed to approve and execute required agreements and ancillary documents, with such terms and conditions in a form satisfactory to the City Solicitor.

# CITY OF HAMILTON

## MOTION

Public Works Committee: March 21, 2022

**MOVED BY COUNCILLOR J.P. DANKO.....**

**SECONDED BY COUNCILLOR.....**

**Improvements to Dr. William Bethune Park, 60 Diconzo Drive, Hamilton (Ward 8)**

WHEREAS, Dr. William Bethune Park is an existing neighbourhood park located at 60 Diconzo Drive, Hamilton, Ward 8;

WHEREAS, the existing backstops for the baseball diamonds require replacement, and;

WHEREAS, parking and driveway improvements are required to support vehicles onsite.

THEREFORE, BE IT RESOLVED:

- (a) That the replacement of the baseball diamond backstops to an upset limit of \$25,000 and parking and driveway improvements to an upset limit of \$8,000 at Dr. William Bethune Park, 60 Diconzo Drive, Hamilton, to be funded from the Ward 8 Special Capital Re-investment Reserve Fund (#108058), be approved;
- (b) That the annual operating impacts of \$1,000 for maintenance for the parking and driveway improvements be included in the 2022 Public Works Department base operating budget; and
- (c) That the Mayor and City Clerk be authorized and directed to approve and execute all required agreements and ancillary documents, with such terms and conditions in a form satisfactory to the City Solicitor.

# CITY OF HAMILTON

## MOTION

Public Works Committee: March 21, 2022

**MOVED BY COUNCILLOR J.P. DANKO.....**

**SECONDED BY COUNCILLOR.....**

**Installation of Wheelchair Accessible Swings at William Connell Park, 1086 West 5<sup>th</sup> Street, Hamilton, and Heritage Green Park, 355 First Road West, Hamilton (Wards 8 and 9)**

WHEREAS, there is a need for wheelchair accessible play opportunities in City of Hamilton Parks;

WHEREAS, Parks and Cemeteries staff have identified a ‘We-Go-Swing’, manufactured by Landscape Structures Inc., which is a fully inclusive swing (allowing a user to remain seated in a wheelchair while swinging) that can be added to an existing playground footprint and is suitable for a public setting as it does not require a secured fenced area;

WHEREAS, William Connell Park is an existing Community Park located at 1086 West 5<sup>th</sup> Street, Hamilton, Ward 8, that could support the addition of a fully inclusive swing;

WHEREAS, Heritage Green Park is an existing Community Park located at 355 First Road West, Hamilton, Ward 9, that could support the addition of a fully inclusive swing;

WHEREAS, at its March 31, 2021 meeting, Council authorized and directed City of Hamilton Staff to investigate and submit applications for Heritage Green Community Trust grants as an additional funding source to support the capital replacement and enhancement program in order to implement improvements at Heritage Green Park, 355 First Road West, Hamilton;

WHEREAS, the Parks and Cemeteries Section submitted an application to the Heritage Green Community Trust for funding to support the installation of a wheelchair accessible swing at Heritage Green Park; and

WHEREAS, funding for the installation of a wheelchair accessible swing at William Connell Park is required;

**Motion respecting the Installation of Wheelchair Accessible  
Swings at William Connell Park, 1086 West 5<sup>th</sup> Street,  
Hamilton, and Heritage Green Park, 355 First Road West,  
Hamilton (Wards 8 and 9)  
Page 2 of 2**

THEREFORE, BE IT RESOLVED:

- (a) That the purchase of two 'We-Go-Swing', manufactured by Landscape Structures Inc., through ABC Recreation Ltd. be approved as a single source purchase pursuant to Procurement Policy #11 – Non-competitive Procurements;
- (b) That the supply and installation of the wheelchair accessible swing at William Connell Park, 1086 West 5<sup>th</sup> Street, Hamilton, to be funded from the Ward 8 Special Capital Re-Investment Reserve Fund (#108058) to an upset limit of \$60,000, be approved;
- (c) That the supply and installation of the wheelchair accessible swing at Heritage Green Park, 355 First Road West, Hamilton, Ward 9, be approved contingent upon funding from the Heritage Green Community Trust grant;
- (d) That the annual operating impacts of \$3,000 (\$1,500 for each swing) to fund the required maintenance and repairs be included in the 2022 Public Works Department base operating budget; and
- (e) That the Mayor and City Clerk be authorized and directed to approve and execute all required agreements and ancillary documents, with such terms and conditions in a form satisfactory to the City Solicitor.

# CITY OF HAMILTON

## MOTION

Public Works Committee: March 21, 2022

**MOVED BY COUNCILLOR A. VANDERBEEK.....**

**SECONDED BY COUNCILLOR.....**

**Construction of a Park Walkway Loop within Centennial Heights Park, 12, 14 Karendale Crescent, Hamilton (Freelton) (Ward 13)**

WHEREAS, Centennial Heights Park is an existing neighbourhood park located at 12,14 Karendale Crescent, Hamilton (Freelton), Ward 13;

WHEREAS, the park does not currently have an existing walkway loop amenity to support walking and cycling; and

WHEREAS there are no sidewalks in this rural settlement neighbourhood for safe walking.

THEREFORE, BE IT RESOLVED:

- (a) That the construction of a park walkway loop within Centennial Heights Park, 12, 14 Karendale Crescent, Hamilton (Freelton), to be funded from the Council Priority-Ward 13 Minor Rehabilitation fund (#4031911613) to an upset limit of \$175,000, be approved;
- (b) That the annual operating impacts of \$4,000 for the required maintenance and repairs for the park walkway loop within Centennial Heights Park, 12, 14 Karendale Crescent, Hamilton (Freelton), be included in the 2023 Public Works Department base operating budget;
- (c) That the Mayor and City Clerk be authorized and directed to approve and execute all required agreements and ancillary documents, with such terms and conditions in a form satisfactory to the City Solicitor.

# CITY OF HAMILTON

## MOTION

Public Works Committee: March 21, 2022

**MOVED BY COUNCILLOR A. VANDERBEEK.....**

**SECONDED BY COUNCILLOR.....**

**Replacement of Asphalt Pathways at Beulah Park, 59 Beulah Avenue, Hamilton (Ward 1)**

WHEREAS, on August 13, 2021 Council approved the replacement of portions of asphalt pathways at Alexander Park, Churchill Park and Jackson Playground, Hamilton, at an approximate cost of \$90,000, to be funded from the Ward 1 Special Capital Re-Investment Reserve Fund (#108051);

WHEREAS, park pathways offer a valuable active transportation link to pedestrians and bike users in Ward 1 and beyond;

WHEREAS, the asphalt pathways at Beulah Park, 59 Beulah Avenue, Hamilton, require replacement; and

WHEREAS, there is a remaining balance within the approved funds for Ward 1 Park Pathway Improvements Project ID #4242109110.

THEREFORE, BE IT RESOLVED:

- (a) That replacement of asphalt pathways at Beulah Park, 59 Beulah Avenue, Hamilton, at an approximate cost of \$8,000, to be funded from the balance of the \$90,000 of the approved funds for Ward 1 Park Pathway Improvements Project ID #4242109110, be approved; and
- (b) That the Mayor and City Clerk be authorized and directed to approve and execute all required agreements and ancillary documents, with such terms and conditions in a form satisfactory to the City Solicitor.



# CITY OF HAMILTON

## MOTION

Public Works Committee: March 21, 2022

**MOVED BY COUNCILLOR L. FERGUSON.....**

**SECONDED BY COUNCILLOR.....**

**Pedestrian Enhancements on Sulphur Springs Road and Queen Street, Ancaster (Ward 12)**

WHEREAS, the City of Hamilton is committed to creating safe neighbourhoods and vibrant communities;

WHEREAS, ensuring the safety of vulnerable road users is a priority;

WHEREAS, the Ancaster Memorial Art Centre is scheduled to open in June of 2022;

WHEREAS, residents enjoying the Ancaster Memorial Art Centre will utilize the Ryerson United Church parking lot and access the Art Centre by crossing Sulphur Springs Road and walking on Queen Street;

WHEREAS, there are no pedestrian crossing amenities on Sulphur Springs Road or sidewalk on Queen Street;

WHEREAS, the Transportation Operations & Maintenance Division reviewed Sulphur Springs Road and determined that a pedestrian crossing (PXO) is warranted and is supportive of the installation of a sidewalk on Queen Street; and

WHEREAS, there are sufficient funds available in the Ward 12 Canada Community-Building Fund and they are suitable to support the installation of a PXO and sidewalk.

THEREFORE, BE IT RESOLVED:

- (a) That \$40,000 be allocated to the installation of a pedestrian crossing (PXO) on Sulphur Springs Road in close proximity to the intersection of Sulphur Springs Road and Queen Street in Ward 12, implemented by Transportation Operations & Maintenance in 2022, and funded by utilizing the Ward 12 – Minor Maintenance CCBF Account (#403211112);

**Motion respecting Pedestrian Enhancements on Sulphur Springs Road and  
Queen Street, Ancaster (Ward 12)  
Page 2 of 2**

- (b) That \$30,000 be allocated to the installation of a sidewalk on the west side of Queen Street between Sulphur Springs Road and the Ancaster Memorial Art Centre implemented by Transportation Operations & Maintenance in 2022, and funded by utilizing the Ward 12 – Minor Maintenance CCBF Account (#4032111112); and
- (c) That the Mayor and City Clerk be authorized and directed to execute any required agreements and ancillary documents, with such terms and conditions in a form satisfactory to the City Solicitor.

# CITY OF HAMILTON

## MOTION

Public Works Committee: March 21, 2022

**MOVED BY COUNCILLOR N. NANN.....**

**SECONDED BY COUNCILLOR.....**

### **Improvements to Powell Park, 53 Birch Avenue, Hamilton (Ward 3)**

WHEREAS, the basketball court in Powell Park at 53 Birch Avenue, Hamilton in Ward 3, is aging and would benefit from the installation of a new backboard and rim, relining of the court and repainting of the concrete wall supporting the basketball net;

WHEREAS, the concrete wall supporting the basketball net is an ideal location for a community art mural project; and

WHEREAS, the building adjacent to the basketball court is in need of being painted.

THEREFORE, BE IT RESOLVED:

- (a) That the installation of a new backboard including rim, relining of the court and painting of the concrete wall supporting the basketball net at Powell Park, 53 Birch Avenue, Hamilton, to be funded from the Ward 3 Special Capital Re-Investment Discretionary Fund (# 3302209300) with an upset limit, of \$6,000 be approved;
- (b) That the installation of art mural on a portion of the concrete wall of the basketball court at Powell Park, 53 Birch Avenue, Hamilton, to be funded from the Ward 3 Special Capital Re-Investment Discretionary Fund (# 3302209300) with an upset limit, of \$9,000 be approved;
- (c) That the painting of the building at Powell Park, 53 Birch Avenue, Hamilton, to be funded from the Ward 3 Special Capital Re-Investment Discretionary Fund (# 3302209300) with an upset limit, of \$8,000 be approved; and

**Motion respecting Improvements to Powell Park,  
53 Birch Avenue, Hamilton (Ward 3)**

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- (d) That the Mayor and City Clerk be authorized and directed to approve and execute required agreements and ancillary documents, with such terms and conditions in a form satisfactory to the City Solicitor.

# CITY OF HAMILTON

## NOTICE OF MOTION

Public Works Committee: March 21, 2022

**MOVED BY COUNCILLOR E. PAULS.....**

**Pathway and Lighting Improvements, Eastmount Park, 115 East 26th Street, Hamilton (Ward 7)**

WHEREAS, Eastmount Park is an existing neighbourhood park located at 115 East 26th Street, Hamilton, Ward 7;

WHEREAS, the existing park pathways are well used and the community would benefit from additional pathways running east to west at the south end of the park, connecting East 26th Street to Upper Sherman Avenue; and

WHEREAS, the park would benefit from additional lighting near the parking lot.

THEREFORE, BE IT RESOLVED:

- (a) That the construction of a new park pathway running east to west at the south end of the park at Eastmount Park, 115 East 26th Street, Hamilton, to be funded from the Ward 7 Special Capital Re-Investment Reserve Fund (#108057) to an upset limit of \$70,000, be approved;
- (b) That the installation of additional lighting near the parking lot at Eastmount Park, 115 East 26th Street, Hamilton, to be funded from the Ward 7 Special Capital Re-Investment Reserve Fund (#108057) to an upset limit of \$20,000, be approved;
- (c) That the annual operating impacts of \$1,500 for the required maintenance and repairs for the new pathway and \$500 for the new lighting be included in the 2022 Public Works Department base operating budget;
- (d) That the Mayor and City Clerk be authorized and directed to approve and execute all required agreements and ancillary documents, with such terms and conditions in a form satisfactory to the City Solicitor.