CITY OF CHILLIWACK

2024 Annual Water Quality Report




Executive Summary

The City of Chilliwack has a population of approximately 107,800 and provides water to nearly 92,750 of these residents. Residents not serviced by the City's water utility access their water from private wells or other water providers. The City of Chilliwack's water is sourced from 10 groundwater wells, 8 of those wells draw water from the Sardis-Vedder Aquifer and 2 wells draw from the Marble Hill Aquifer. The Sardis-Vedder Aquifer provides 99.92% of the water supplied to Chilliwack residents, with the Marble Hill Aquifer providing the remaining 0.08 %.

Under the *Drinking Water Protection Act*, the City of Chilliwack is required to continually monitor water quality and make a report available to the public summarizing the results of the monitoring program. This report summarizes the 2024 water quality testing and monitoring results for the City of Chilliwack.

In 2024, source water quality met the requirements of *British Columbia Drinking Water Protection Regulations* (BC DWPR) and the Guidelines for Drinking Water Quality (GCDWQ) for microbial parameters.

The City follows sampling guidelines as outlined in Schedule B of the BC DWPR and meets the requirements for total coliforms and e. coli with very high-quality water.

The City staff continue to seek improvement to the water supply and distribution systems. The City will continue to work closely with Fraser Health and the public to continue providing high quality water to our residents.

This report is available in hard copy at the City of Chilliwack's City Hall, 8550 Young Road, Chilliwack BC or in PDF on chilliwack.com/waterquality.

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1.0 Acronyms

AO: Aesthetic Objective

BC DWPR: British Columbia Drinking Water Protection Regulation

E. coli: Escherichia coli

EOCP: Environmental Operators Certification Program

GCDWQ: Guidelines for Canadian Drinking Water

MAC: Maximum Acceptable Concentration

Mg/L: Milligrams per liter

NTU: Nephelometric Turbidity Units

PPB: Parts Per Billion

PPM: Parts Per Million

PRV: Pressure Regulating Valve

SCADA: Supervisory Control and Data Acquisition

2.0 Introduction

The City of Chilliwack currently has a population of 107,800 residents, and supplies drinking water to approximately 92,750 of these residents. Residents not serviced by the City's water utility access their water from private wells or other water providers. The City of Chilliwack's water is sourced from 10 groundwater wells, with 8 wells drawing water from the Sardis-Vedder Aquifer and 2 wells drawing water from the Marble Hill Aquifer. The Sardis-Vedder Aquifer provides 99.92% of the water supplied to Chilliwack residents, with the Marble Hill Aquifer providing the remaining 0.08 %.

This report is available in hard copy at the City of Chilliwack's City Hall, 8550 Young Road, Chilliwack BC or in PDF on Chilliwack.com/water quality. All water suppliers are required to produce and publish an annual water quality report under the *BC Drinking Water Protection Regulations* (DWPR). This report provides a summary of the City's drinking water system and water quality results from the comprehensive sampling program conducted annually.

3.0 System Description

The City of Chilliwack encompasses a 261 km^2 area bounded by the Fraser River on the north, Boundary Road and the Vedder Canal on the west, FVRD Area D and E to the north east and Cultus Lake Park Board and FVRD Area H to the south. The City of Chilliwack also borders with Skwahla 2, Schelowat 1, Grass 15, Skowkale 10, Yakweakwioose 12, Tzeachten 13 Soowahlie Skowkale 11, Skwali 3, Skwah 4, Shxwhá:y 5, Squiaala 8, Lackaway 2, Aitcheltich 9, Squiaala 7 and Kwaw-kwaw-a-pilt First Nations. The City provides water to many of these communities through servicing agreements. The City of Chilliwack does not provide water to the Yarrow Community, as Yarrow Waterworks provides water services to the community of Yarrow.

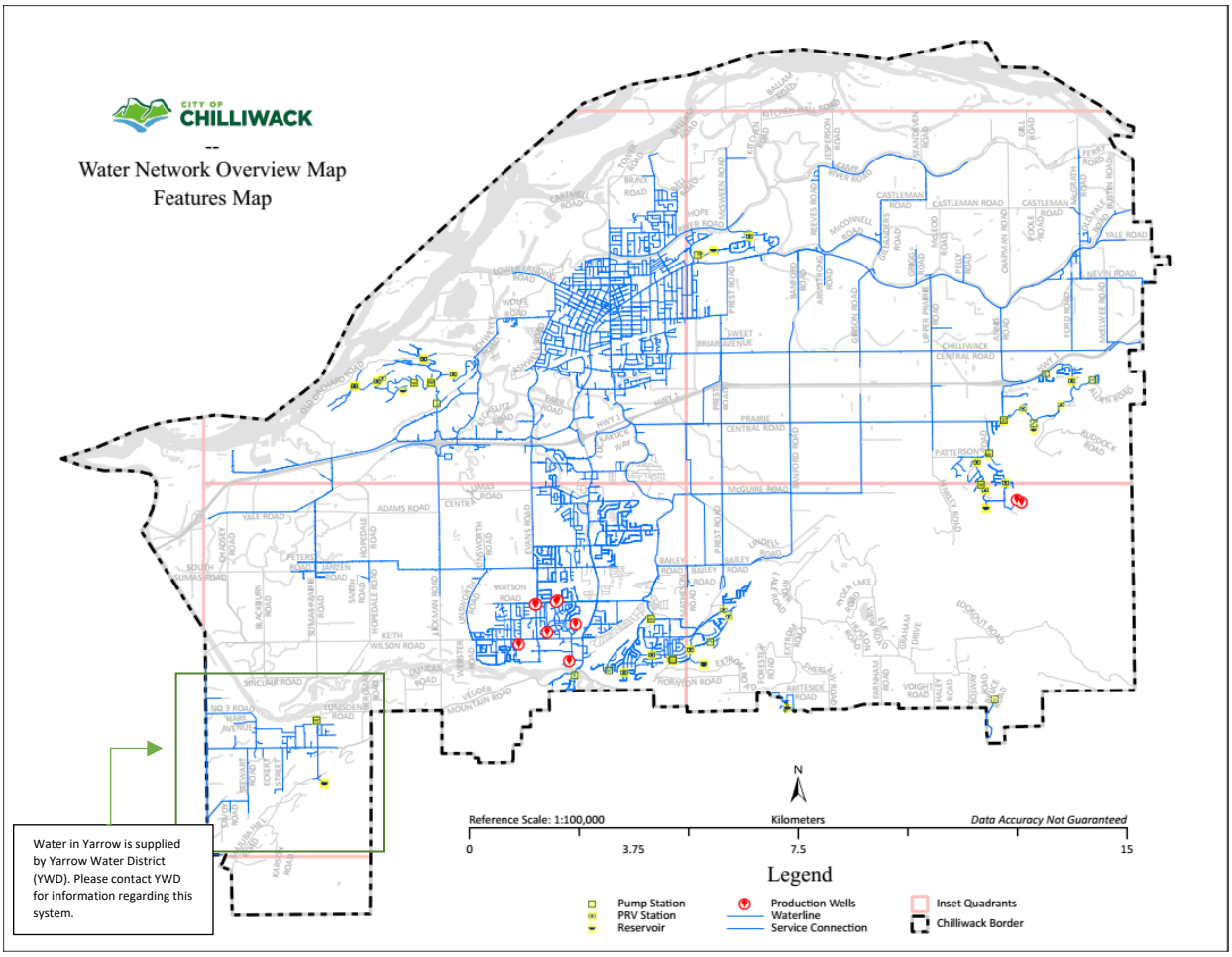

Figure 1: Map of Chilliwack's Drinking Water System

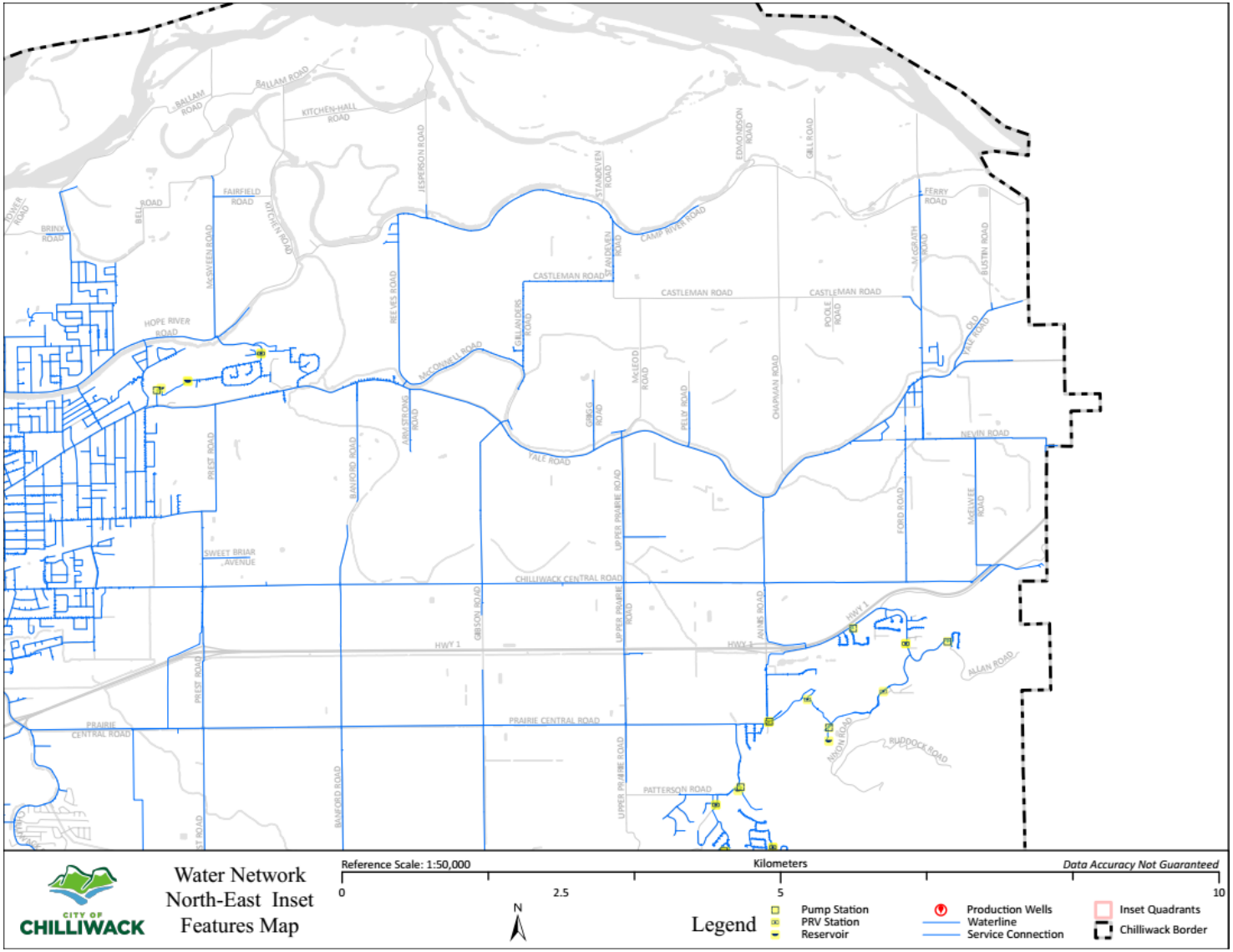

Figure 2: City of Chilliwack Water System (North East)

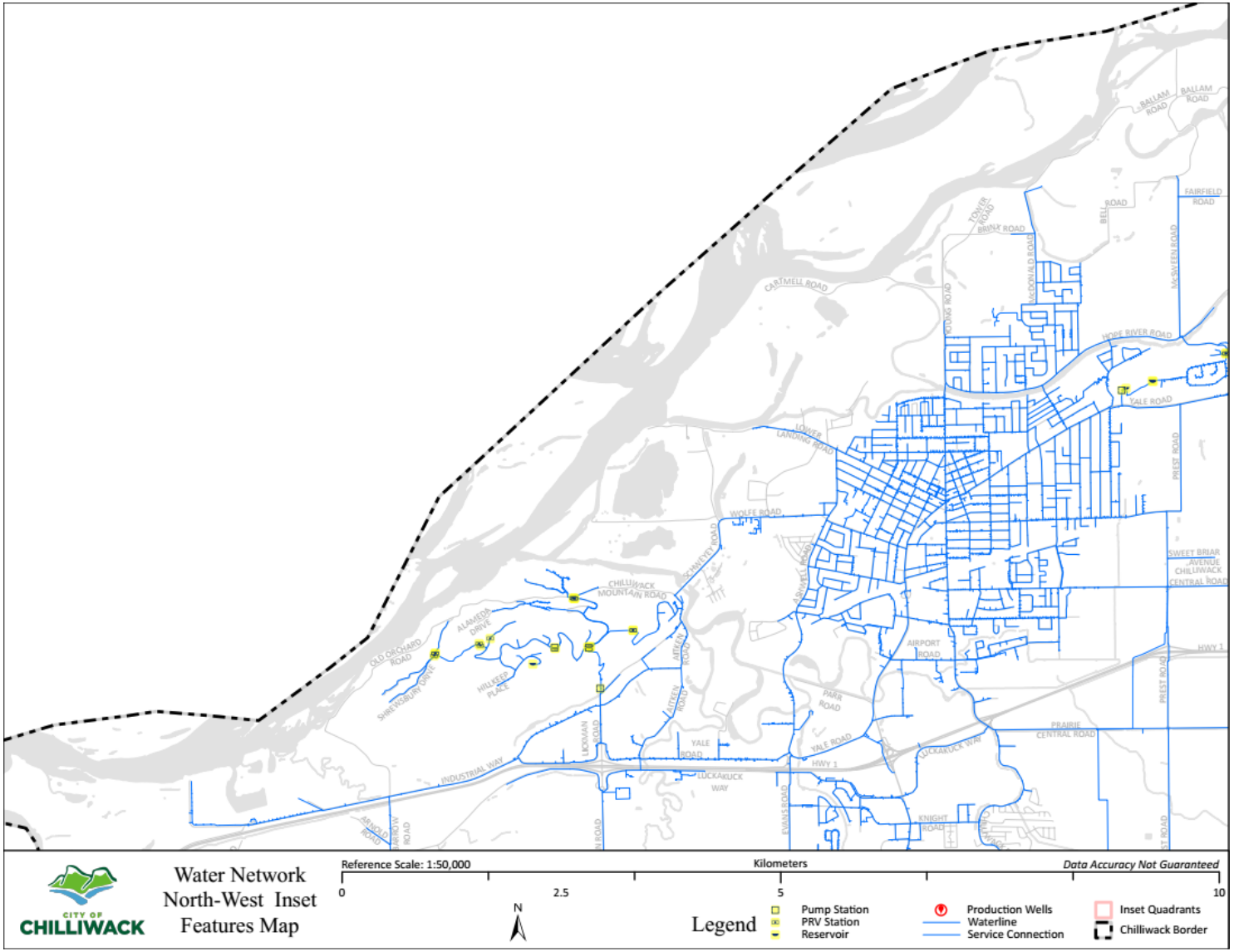

Figure 3: City of Chilliwack Drinking Water System (North West)

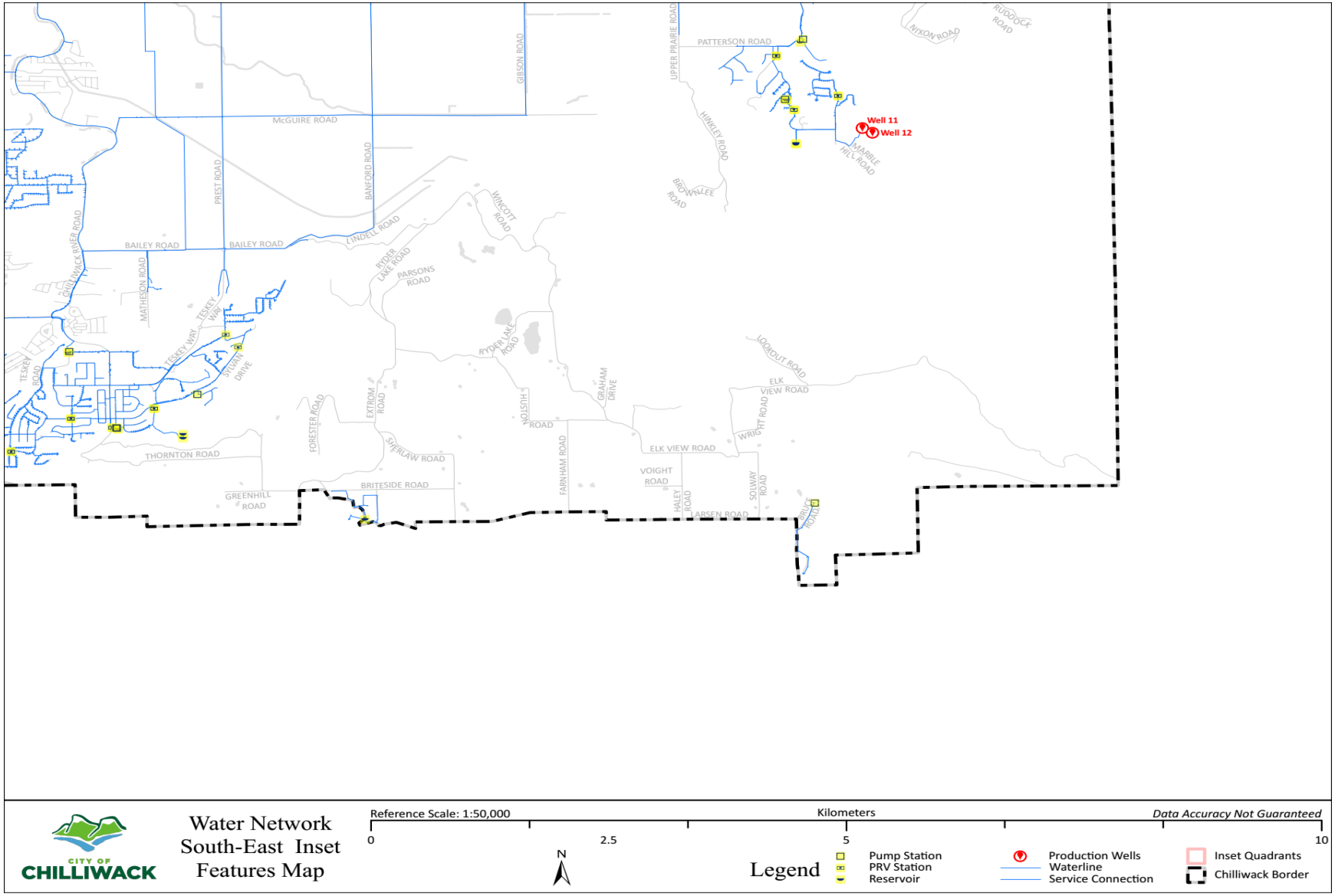

Figure 4: City of Chilliwack Drinking Water System (South East)

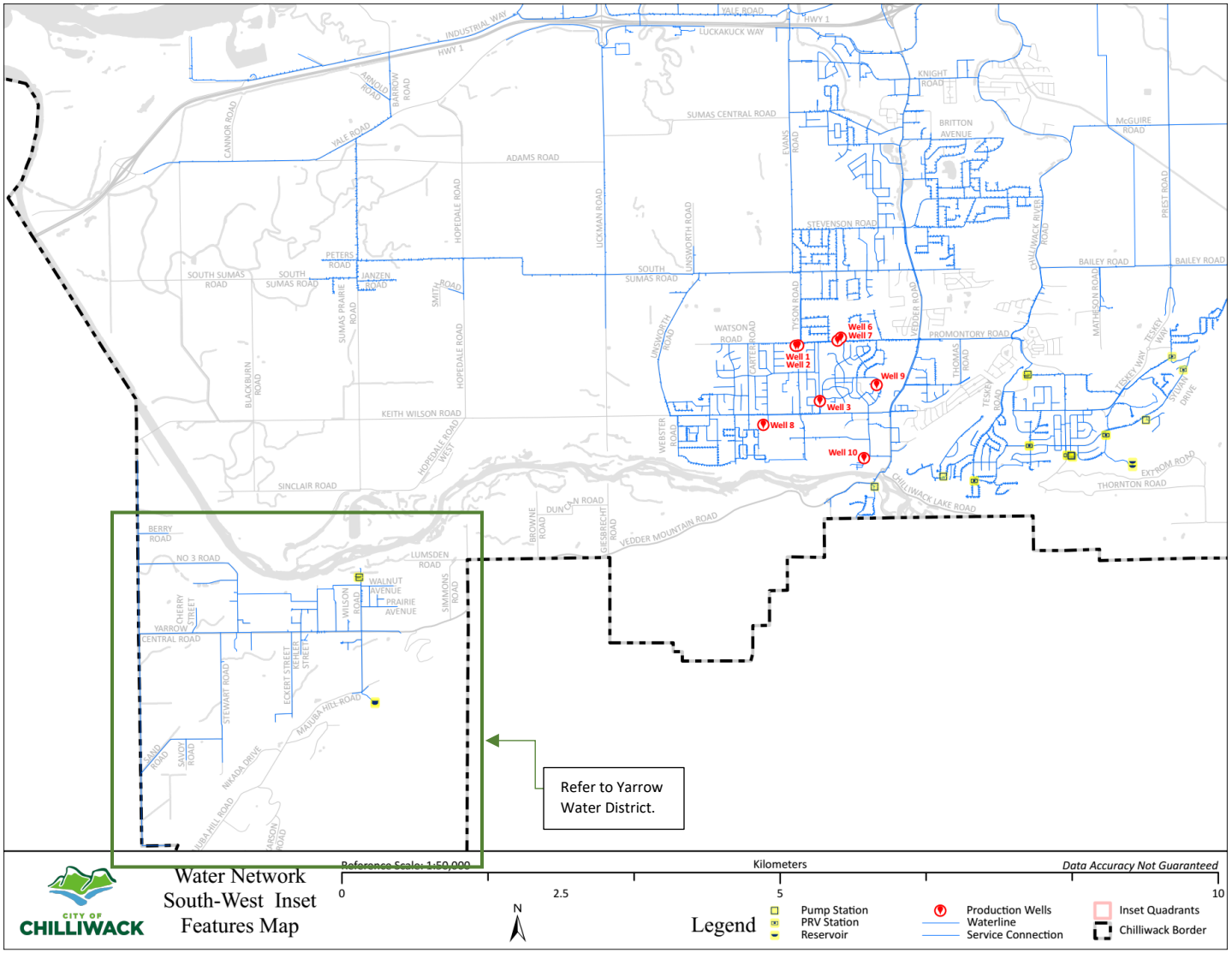

Figure 5: City of Chilliwack Drinking Water System (South West)

3.1 Source Water

The City of Chilliwack's drinking water is obtained from the Sardis-Vedder Aquifer and the Marble Hill Aquifer. In 2024, 99.92% of source water came from the Sardis-Vedder Aquifer, and 0.08% of source water came from the Marble Hill Aquifer.

The City monitors the quality of the untreated water from these sources through an extensive water sampling and monitoring program. Details and results of the source water monitoring program are provided in Section 6. Raw water quality meets the guidelines and is protected by the City's Groundwater Protection Plan which is enforced through the City's *Zoning Bylaw 2020, No. 5000*. Within the Groundwater Protection Area shown in Figure 6 activities which pose a risk of groundwater contamination are restricted and development is required to take specified measures to protect the aquifer. The groundwater protection zone is based on the 60-day capture zone of the production wells. Figure 6 outlines the extent of the Sardis-Vedder Aquifer, which is approximately 57.7 km^2 in area. Figure 7 outlines the extent of the Marble Hill Aquifer, which is approximately 0.7 km^2 in area. Both aquifers are defined as unconfined sand and gravel aquifers.

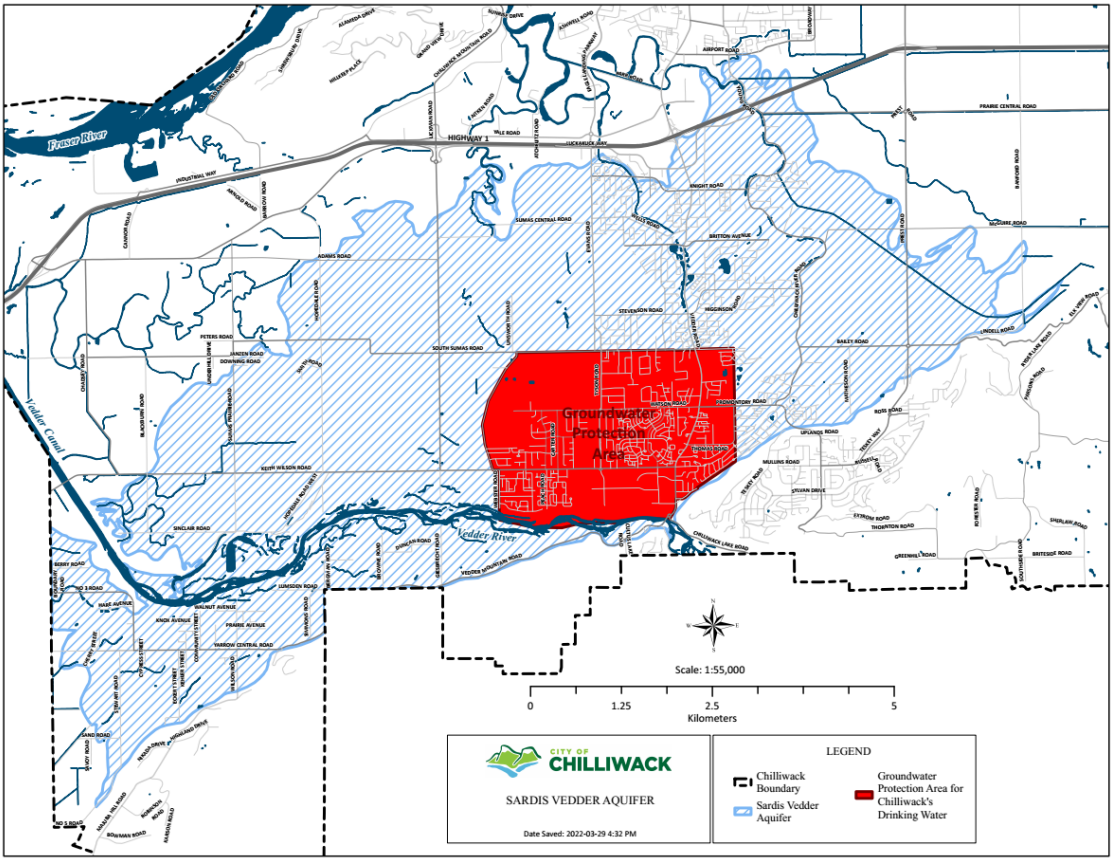

Figure 6: Map of Sardis-Vedder Aquifer

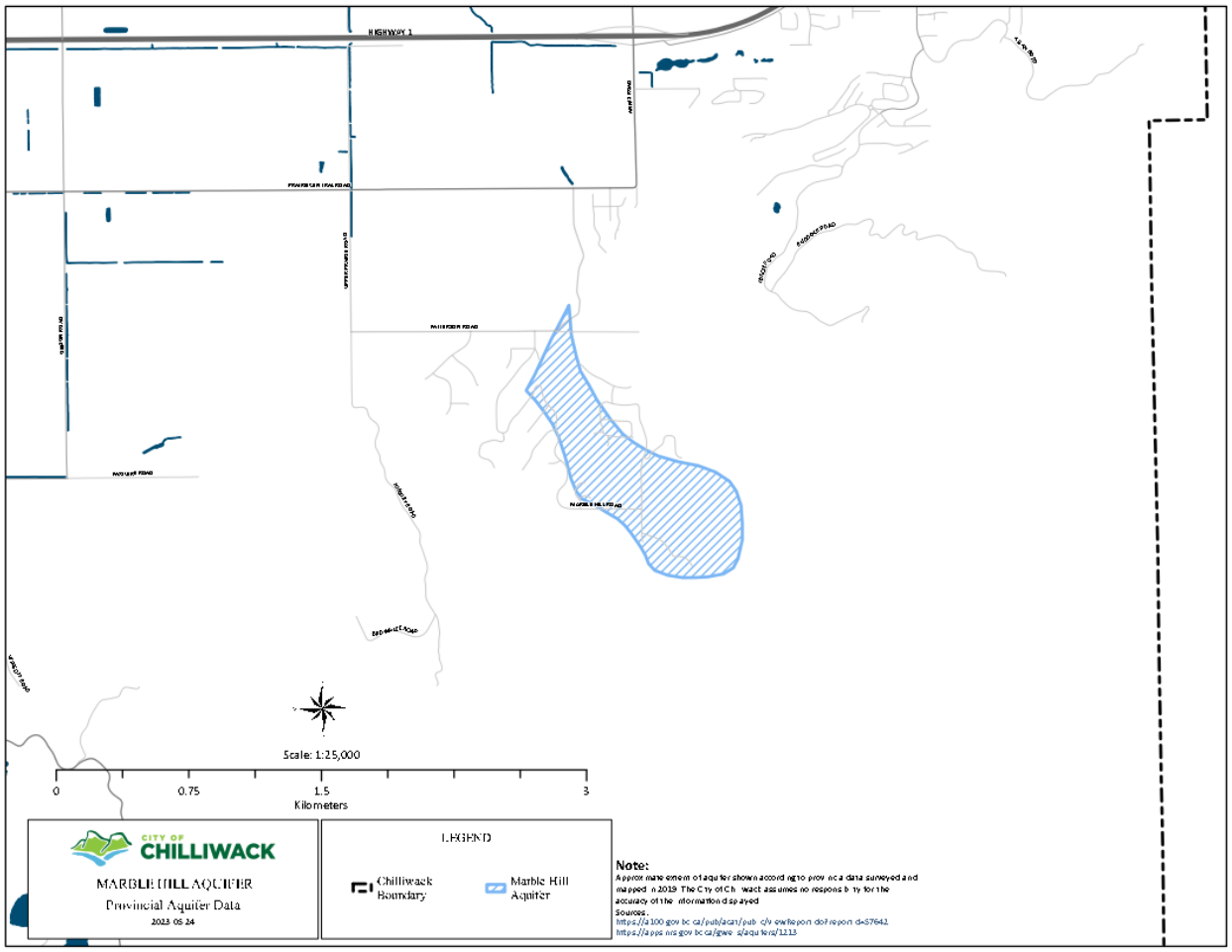

Figure 7: Map of Marble Hill Aquifer

3.2 Treatment System

The source water monitoring results show that the City's source water does not require treatment to make it safe to drink. Sodium hypochlorite is added to the water at the production wells to protect the drinking water from microbial contamination as it travels through the distribution system. Since protective chlorine levels in the water drop the further the water travels, the residual chlorine is monitored at 17 sampling locations. Continuous chlorine residual monitoring is tracked through SCADA software. City staff can log in remotely at any time to monitor residual chlorine levels.

3.3 Distribution System

The City of Chilliwack's water distribution system consists of 10 production wells, 15 booster pump stations, 12 reservoirs, over 482.7 km of water mains, 19 pressure reducing stations and over 5000 valves. The City obtained 47.8% of its drinking water from Wells #1, 2, 6 and 7 in 2024.

Table 1: City Well Data

Well Number	Well Identification #	Year Drilled	Rated Capacity (L/s)	Depth (m)	Aquifers
Well #1	17295	1973	45	30.5	Sardis-Vedder
Well #2	17293	1977	190	29.87	Sardis-Vedder
Well #3	17292	1964	250	34.2	Sardis-Vedder
Well #6	17297	2006	100	57.9	Sardis-Vedder
Well #7	17298	2006	125	52.5	Sardis-Vedder
Well #8	17299	2006	75	59.5	Sardis-Vedder
Well #9	35054	2007	250	65.2	Sardis-Vedder
Well #10	17294	1975	60	45.1	Sardis-Vedder
Well #11	41520	2015	30	78.5	Marble Hill
Well #12	41548	2015	35	53.3	Marble Hill

The City of Chilliwack has 12 reservoirs in six different pressure zones. The holding capacity varies from 260 m^3 to 19,000 m^3. The total holding capacity of all the reservoirs combined is 39,480 m^3.

Table 2: Reservoirs

Reservoirs	Location	Number of Tanks	Total Capacity (m^3)
Zone 1 Promontory	Uplands Road	1	4300
Zone 2 Promontory	Promontory Road	2	3160
Zone 3/4 Promontory	Goldspring Place	2	5500
Zone 1 Mt Shannon	Quarry Road	1	19,000
Zone 2 Mt Shannon	Swallow Place	2	1000
Zone 2 Chilliwack Mountain	Grandview Drive	3	2000
Zone 3 Chilliwack Mountain	Grandview Drive	1	260
Zone 4 Chilliwack Mountain	Braken Drive	1	260
Zone 2 Marble Hill	Marble Hill Road	2	470
Zone 3 Marble Hill Reservoir	Marble Hill Road	2	930
Balancing Reservoir	Patterson Road	1	1000
Falls Zone 1	Nixon Road	1	1600
Total			**39,480**

Table 3: Pressure Reducing Stations

Station Name	Location
Sunrise	Chilliwack Mountain Sunrise Drive (Maple Hills Strata)
Shrewsbury	Chilliwack Mountain Shrewsbury Drive
Salmonberry	Chilliwack Mountain Salmonberry Drive
Honeysuckle	Chilliwack Mountain Honeysuckle Drive
Grandview Longthorn	Chilliwack Mountain Grandview Drive
Copper Ridge	Chilliwack Mountain Grandview Drive (Copper Ridge)
Promontory Rd	Promontory Hill Promontory Road – Zone 2 Reservoir
Promontory Rd	Promontory Hill Road – Zone 3
Bridlewood	Promontory Hill Teskey Road / Bridlewood Drive
Lutz	Promontory Hill Teskey Road / Lutz Road
Sylvan East/West	Promontory Hill Sylvan Drive
Skyline	Promontory Jinkerson Road and Skyline Drive
Chartwell	Mount Shannon Chartwell Drive
Marble Hill Rd	Marble Hill Road and Dickson Place
Marble Hill Zone 3B	Marble Hill Road Above Mount Archibald Place
Annis	Annis Road and Prairie Central
Bridlewood	Bridle Ridge Crescent
Nixon East/West	Nixon Road
Ramsay	Ramsay Place

Table 4: Booster Pump Stations

Station Name	Location
Allan Road	Allan Road
Annis Road	Annis Road
Chilliwack Mountain Zone 2 Booster Pump Station	Lickman Road, Grandview Drive
Chilliwack Mountain Zone 3 Booster Pump Station	Grand View Drive
Chilliwack Mountain Zone 4 Booster Pump Station	Grand View Drive
Fall court Booster Pump	Falls Boulevard
Hack Brown Booster Station	Unity Drive
Marble Hill Zone 2 Booster Pump Station	Patterson Road
Marble Hill Zone 3 Booster Pump Station	Marble Hill Road
Mount Shannon Zone 2 Booster Pump Station	Yale road
Promontory Zone 2 Booster Pump Station	Upland road
Promontory Zone 3 Booster Pump Station	Promontory road
Riverstone Booster Pump Station	Vedder Mountain Road
Sylvan Drive Booster Pump Station	Macfarlane Place
Weeden Drive Booster Pump Station	Weeden Drive

4.0 Water Quality Sampling Program & Results

4.1 Source Water Quality

The source water quality monitoring program helps ensure that drinking water provided by the City continues to meet all drinking water quality standards.

As outlined in sections 4.2 and 4.3, the City of Chilliwack's source water is sampled on a weekly basis for microbial parameters, three times a year for routine parameters, biannually for total sulfides, and annually for herbicides.

Health Canada publishes the Guidelines for Canadian Drinking Water Quality (GCDWQ). These guidelines are established in collaboration with the Federal-Provincial-Territorial Committee on Drinking Water (CDW) and other federal government departments.

Each guideline was established on current, published scientific research related to health effects, aesthetic effects, and operational considerations. Health-based guidelines are established on the basis of comprehensive review of the known health effects associated with each contaminant, exposure levels, and the availability of treatment and analytical technologies. These guidelines are systematically reviewed to assess the need to update them.

It should be noted that no samples collected during 2024 were outside of acceptable limits under the GCDWQG. The maximum acceptable concentration (MAC) represents health related guidelines. Operational guidance (OG) values are established based on operational considerations. Aesthetic objective (AO) applies to certain substances that may affect acceptance by consumers but are not a health concern. An example of parameters that have an AO are copper and manganese. As low as reasonably achievable (ALARA) is MAC within reason.

4.2 Microbial Testing

The City of Chilliwack follows a water sampling and testing plan as set out in the BC DWPR to ensure the drinking water remains safe and of a high quality. Weekly water samples are collected by EOCP certified Water Distribution Operators and are tested at Bureau Veritas which is a laboratory accredited by the Standards Council of Canada (SCC). These weekly samples are tested for microbiological parameters (Total Coliforms and E. coli).

Schedule B of the BC DWPR outlines the minimum number of water samples required based on the serviced population of 92,750. The City of Chilliwack is required to test the water supply for total coliform and E. Coli as set out in Schedule B (Table 5) as per the BC DWPR. The City of Chilliwack collected 1747 samples during 2024, with an average of 145 samples per month, which exceeds the required 91.

Table 4: Drinking Water Protection Regulations: Schedule A

Schedule A	
Parameter:	**Standard:**
Fecal coliform bacteria	No detectable fecal coliform bacteria per 100 ml
Escherichia coli (E. Coli)	No detectable E. Coli per 100 ml
Total coliform bacteria	
(a) 1 sample in a 30-day period	No detectable total coliform bacteria per 100 ml
(b) More than 1 sample in a 30-day period	At least 90% of the samples have no detectable total coliform bacteria per 100 ml and no sample has more than 10 total coliform bacteria per 100 ml

Table 5: Drinking Water Protection Regulations: Schedule B

Schedule B	
Frequency of Monitoring Samples for Prescribed Water Supply Systems	
Population Served by the Prescribed Water Supply System	Number of Samples Per Month:
Less than 5000	4
5,000 to 90,000	1 per 1,000 of population
More than 90,000	90 plus 1 per 10,000 of population in excess of 90,000

There is a total of 43 sample locations divided into the west side of the City and the east side of the City. The weekly sampling rotates between each water sampling region. The weekly samples are tested for the following parameters:

- Total Coliforms
- E. coli

During 2024, of the 1747 samples collected there were 5 samples that detected total coliforms which equates to 0.29% of the total samples collected.

Table 6: Summary of 2024 Microbial Results

Samples that contain total coliforms:	5	0.29% of total
Samples that contain e. coli:	0	0.00% of total
Samples that contain fecal coliform:	0	0.00% of total
Number of consecutive samples that contain total coliforms:	0	
Number of samples that contain total coliforms in last 30 days	0/57	
Total number of samples:	1747	

If / When E. coli or total coliforms are detected in a water sample, the following steps are taken:

- Immediately advise the following of the situation:
  - Utilities Superintendent Underground
  - Utilities Superintendent Electrical / Mechanical
- Immediately notify (by phone) the following of the existing situation, action being taken and potential impacts to health and environment
  - Drinking Water Officer (DWO)
  - Manager of Utilities - Engineering
  - Director of Utility Operations

- Immediately take two (2) sets of confirmatory samples at each of the following locations:
    - All locations with exceedances
    - Surrounding sections of the water distribution system based on discussions with the DWO
- Submit samples for detailed laboratory analysis to identify any:
    - Microbiological standard exceedances
    - Any other additional parameters as deemed appropriate (in consultation with the DWO)
- Inspect water for colour, odour and other visible contaminants

** All sampling and testing should be done in accordance with Standard Operating Procedures (SOP)*

When all test results confirm that E. coli and/or total coliforms counts are zero and any other parameter of concern is within acceptable standards, then notify:

- DWO
- Utilities Superintendent Underground
- Manager of Utilities - Engineering
- Director of Utility Operations

The full water distribution system contamination (bacteriological) plan (ERP-W03) can be found in the City of Chilliwack's emergency response plan.

4.3 Routine Parameter Testing

Routine parameter testing is done three times per year to ensure the source water quality remains high. Sampling is conducted at eight (8) locations, in January, June and September annually. These locations are included in Figure 7. In total, 22 samples are collected annually for the parameters outlined in Table 7.

Table 7: Water Sampling and Testing Schedule

Parameter	Frequency
Physical Tests	January, June, September
Anions and Nutrients	January, June, September
Total Sulfides	June, September
Non-Chlorinated Phenolics	January, June, September
Total Metals	January, June, September
Dissolved Metals	January, June, September
Volatile Organic Compounds / VOC -Dry-cleaning / VOC – Fuels / VOC – THMs	January, June, September
Hydrocarbons	January, June, September
Polycyclic Aromatic Hydrocarbons	January, June, September
Phenolics	January, June, September
Carbamate Pesticides	January, June, September
Herbicides	January, June, September

The City's source water potable water quality analysis can be found in Appendix A. Samples are below the Maximum Acceptable Concentration (MAC) guidelines for all parameters tested.

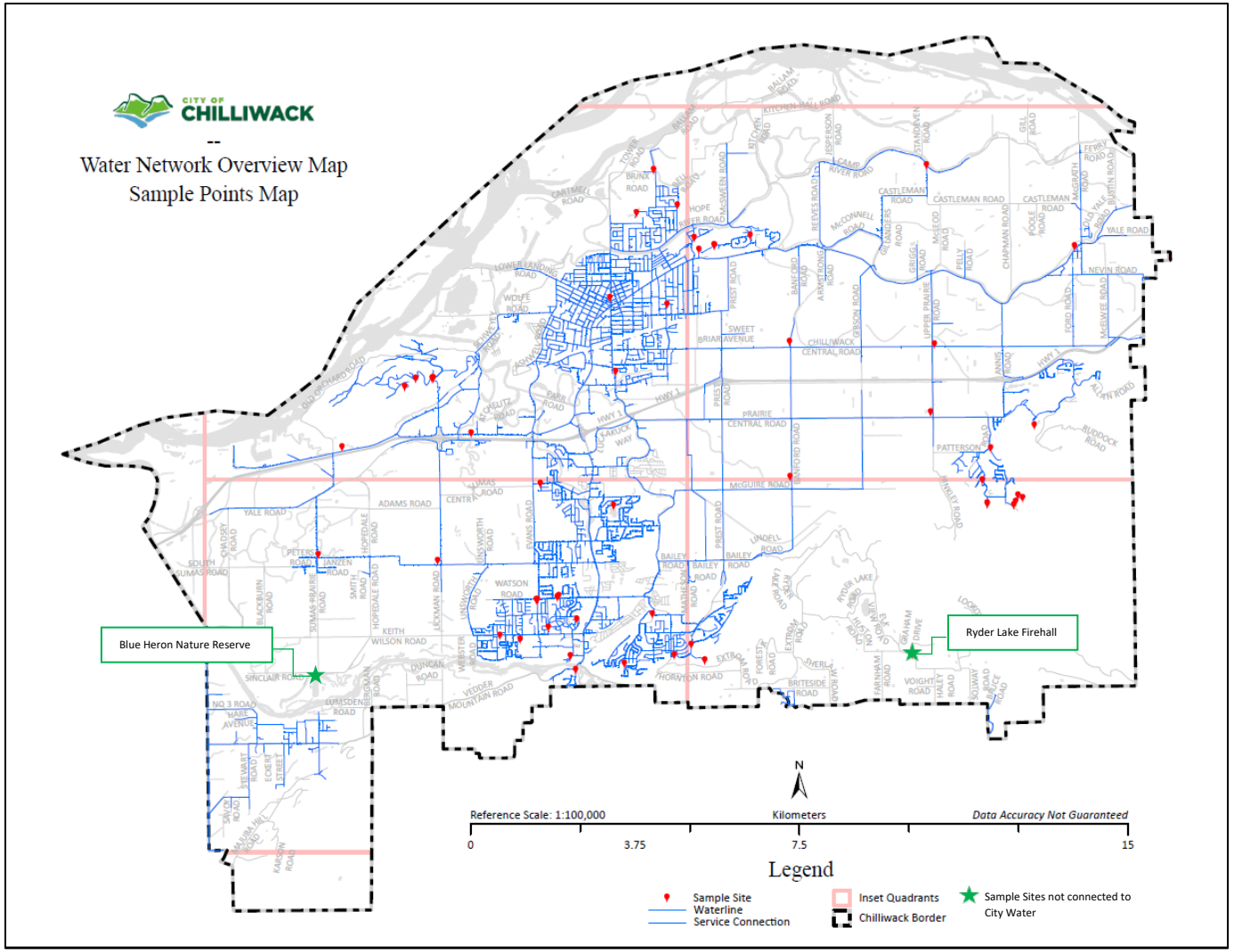

Figure 8: Map of Sampling Locations

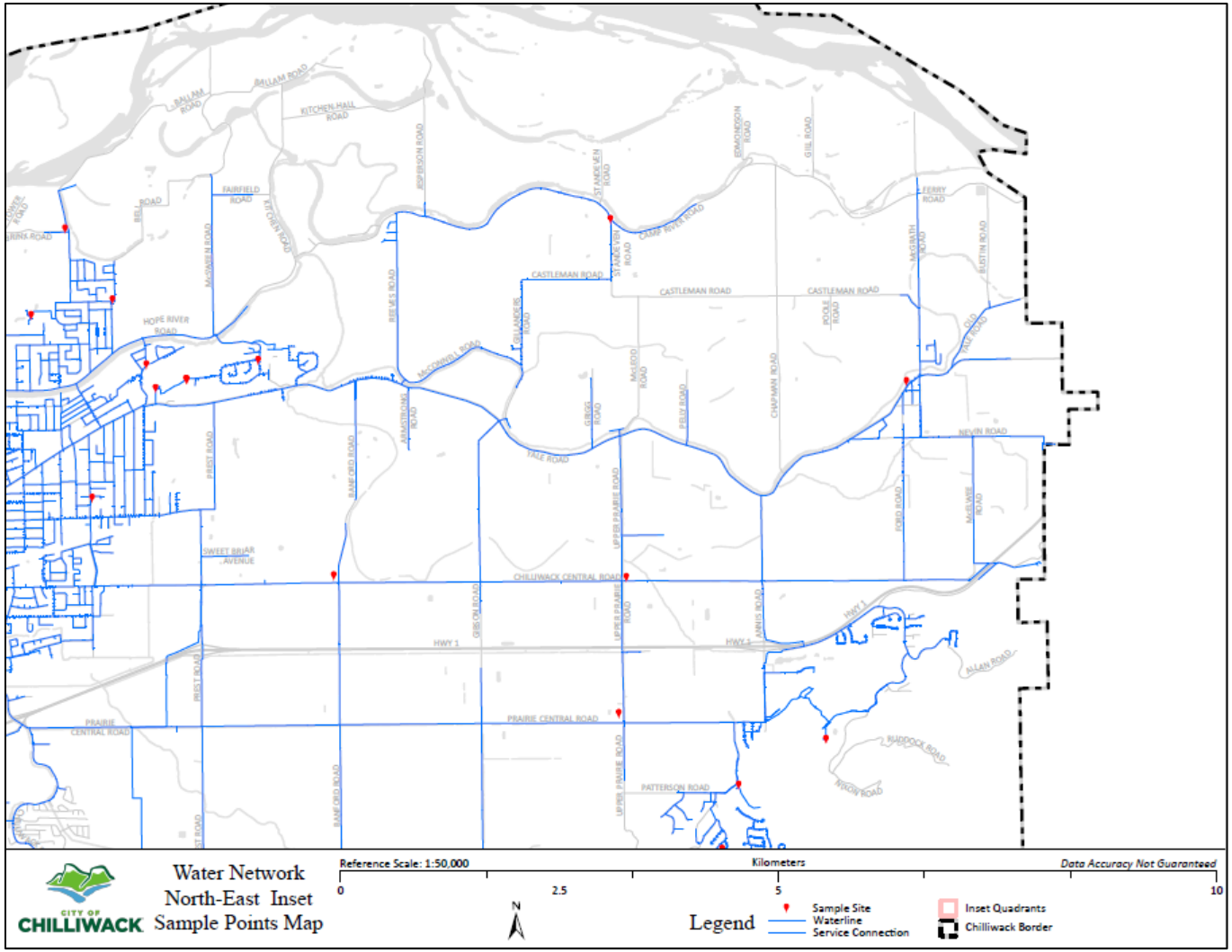

Figure 9: Map of Sampling Locations (North East)

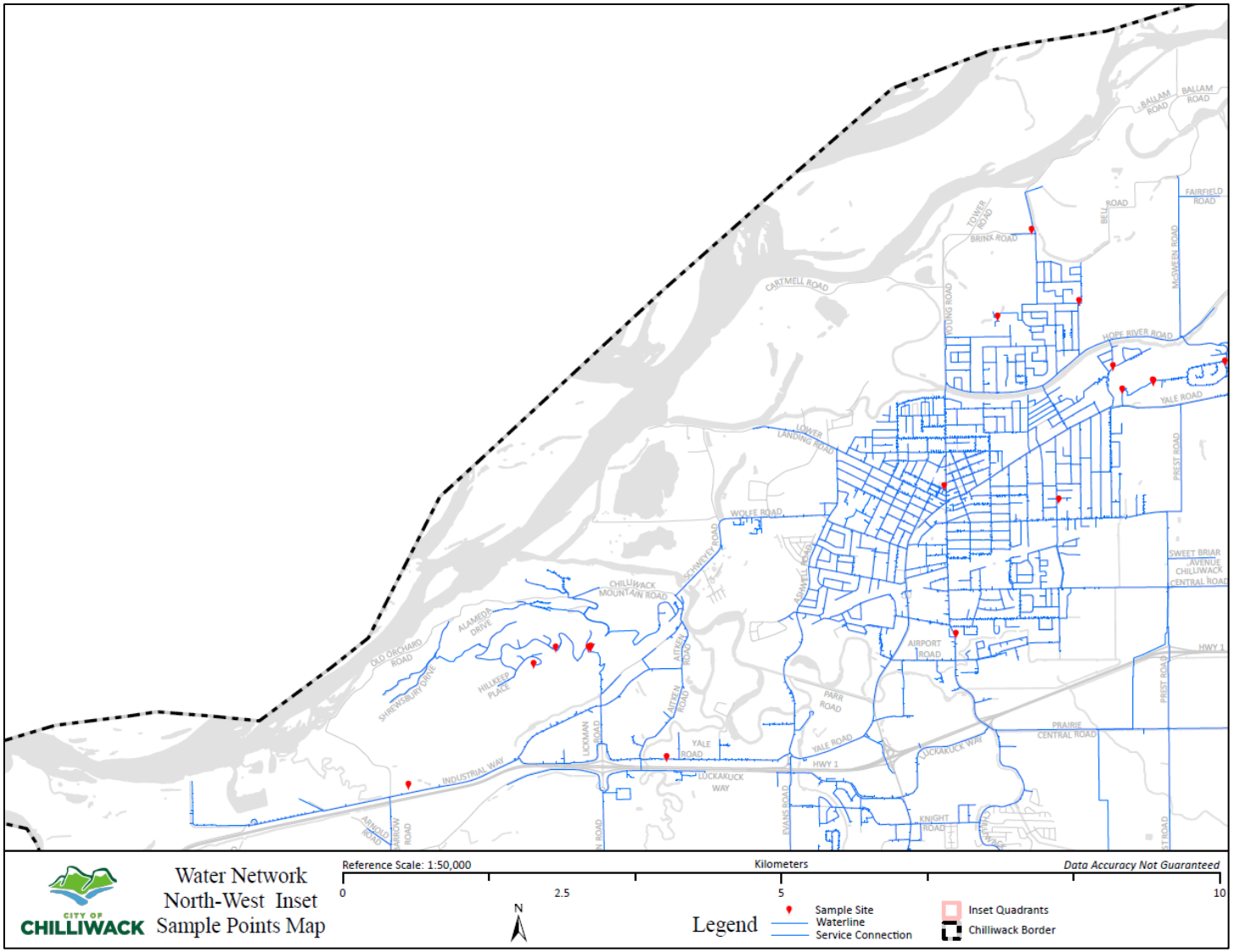

Figure 10: Map of Sampling Locations (North West)

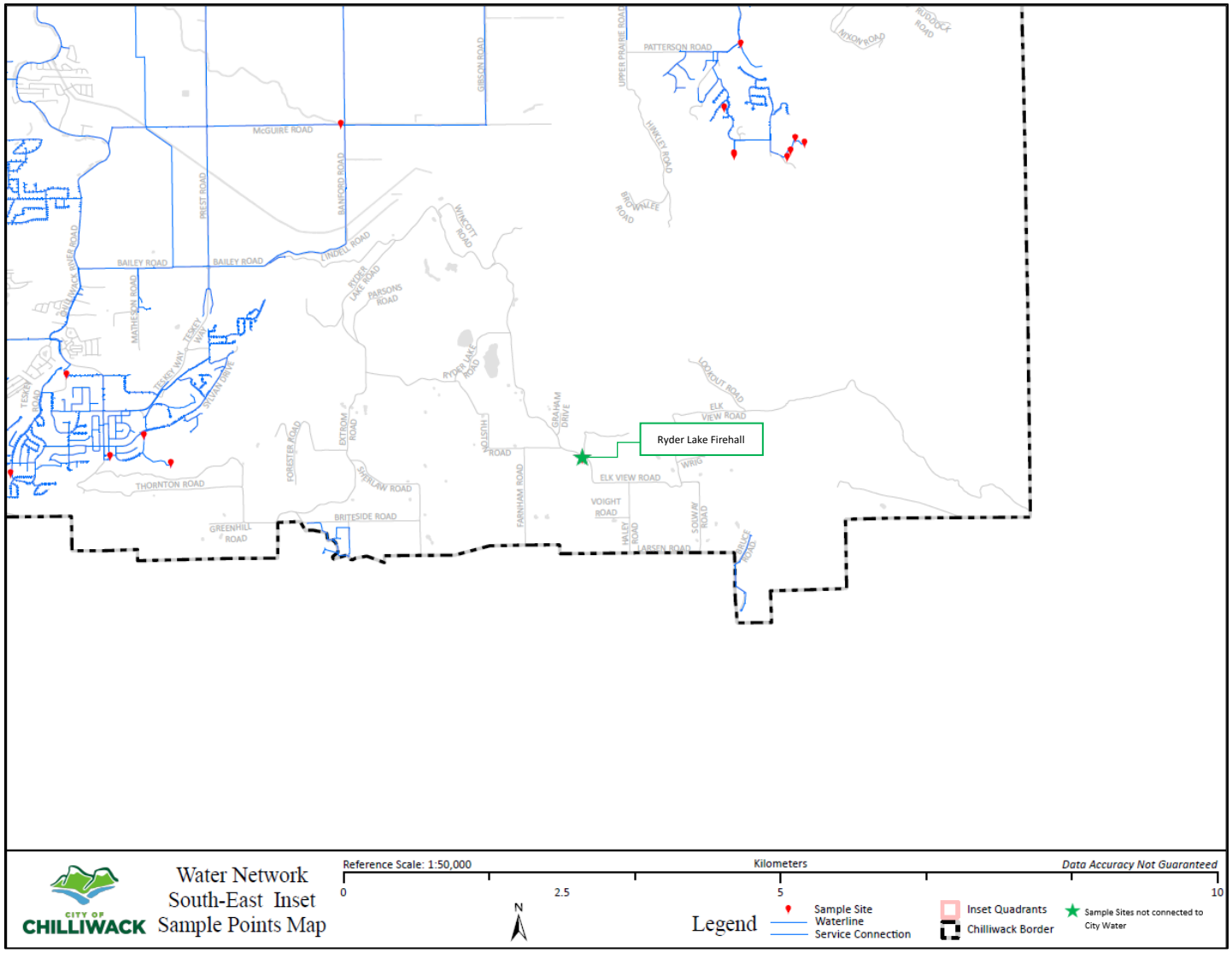

Figure 11: Map of Sampling Locations (South East)

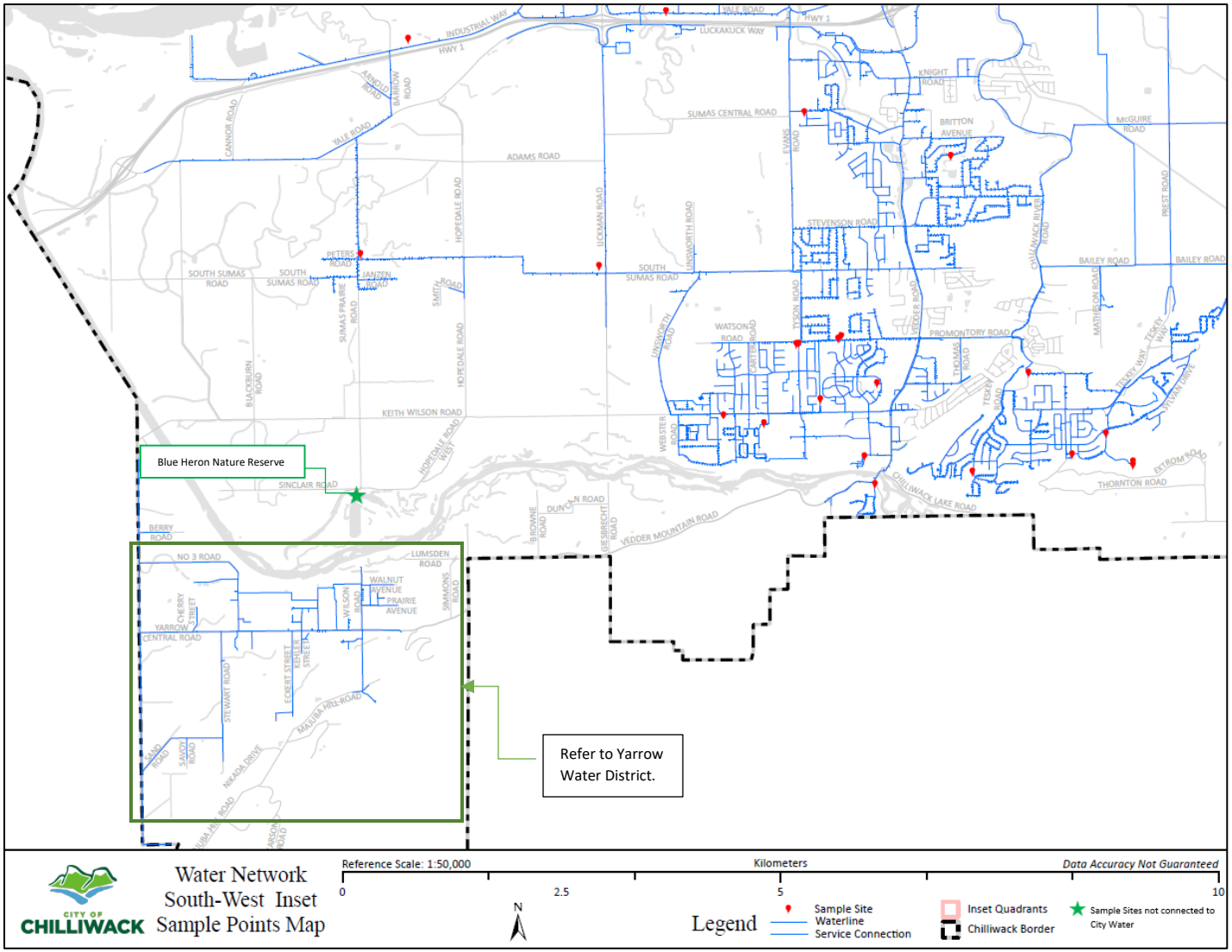

Figure 12: Map of Sampling Locations (South West)

5.0 Water Use, Water Production & Water Conservation

5.1 Water Use

The City of Chilliwack is approaching 20,000 water service connections. Of those, 1,748 are Industrial, Commercial and Institutional (IC&I) and 17,796 are residential. The services range from ¾“ to 12”, and 100% of the water services are metered. In 2024, there were 99 new water service connections between all residential, industrial, commercial and institutional properties.

The total water consumption in 2024 was 11,539,437.65 m^3. This includes all residential, industrial, commercial and institutional consumers. Residential consumption accounted for 7,965,439.55 m^3, while commercial and institutional consumption accounted for 1,686,760.8 m^3 and industrial consumption accounted for 1,887,237.3 m^3.

5.2 Water Production

The City of Chilliwack extracts and treats water from the Sardis-Vedder aquifer and Marble-Hill aquifer for residential, industrial, commercial, and institutional use. Water production for the City of Chilliwack is higher than water consumption as water lost through leaks, or used for waterline flushing and routine infrastructure maintenance are not considered water consumption. The Annual Water Audit breaks down water usage and loss for 2024 and can be found in Appendix D.

The average daily water production in 2024 was 33,892 m^3 with a maximum daily production of 56,864 m^3 on July 20, 2024. There are seasonal variations of water production across the City, as water demand increases in the warmer months. The month with the lowest average daily production was March 2024 at 29,814 m^3 and the month with the highest average daily production was July 2024 with an average of 45,958 m^3.

Table 8 highlights the average daily production, maximum daily production and total volume of water produced broken down by month.

Table 8: 2024 Water Production Table (Average, Maximum and Total)

Month	Average Daily Production (m^3)	Maximum Daily Production (m^3)	Sum of Total Volume (m^3)
January	31,115	35,477	964,577
February	30,112	32,837	873,254
March	29,837	33,058	924,934
April	31,693	34,675	950,794
May	33,939	38,767	1,052,120
June	36,241	40,861	1,087,230
July	45,697	56,864	1,416,597
August	40,509	47,510	1,255,766
September	35,419	42,824	1,062,583
October	30,592	33,183	948,351
November	30,681	33,225	920,426
December	30,576	33,449	948,008
Year (Average, Max, Sum)	33,901	56,864	**12,404,640**

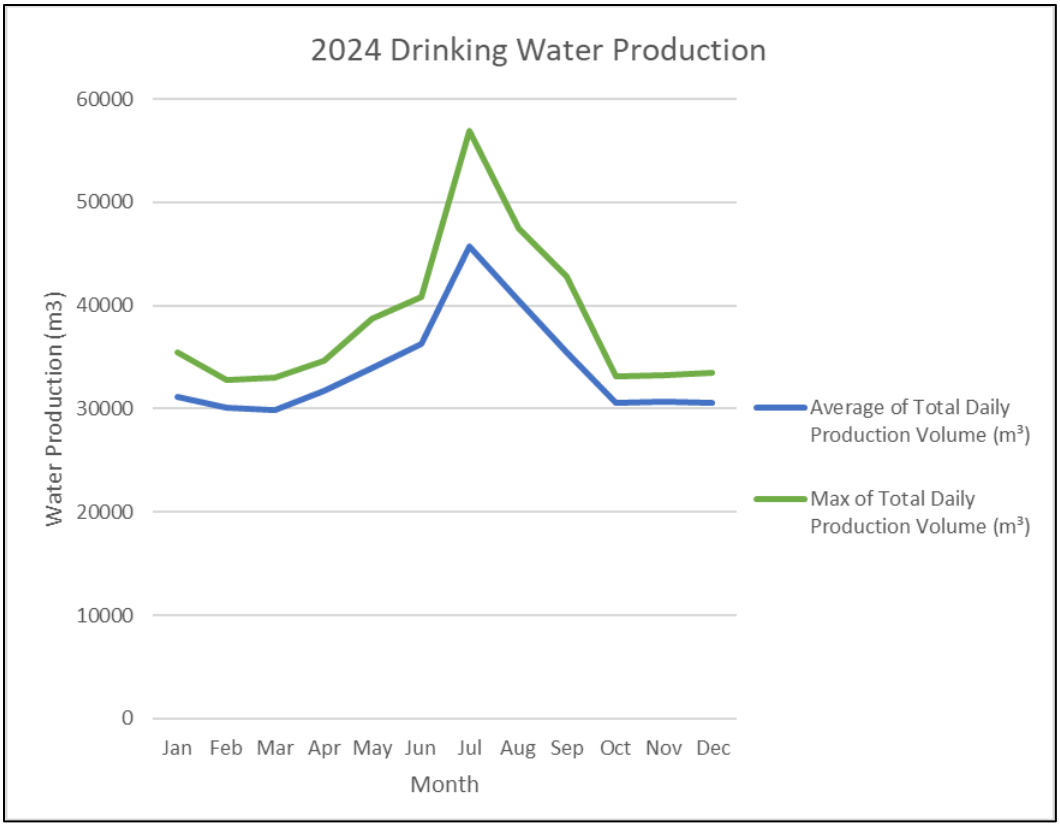

Figure 13: 2024 Drinking Water Production

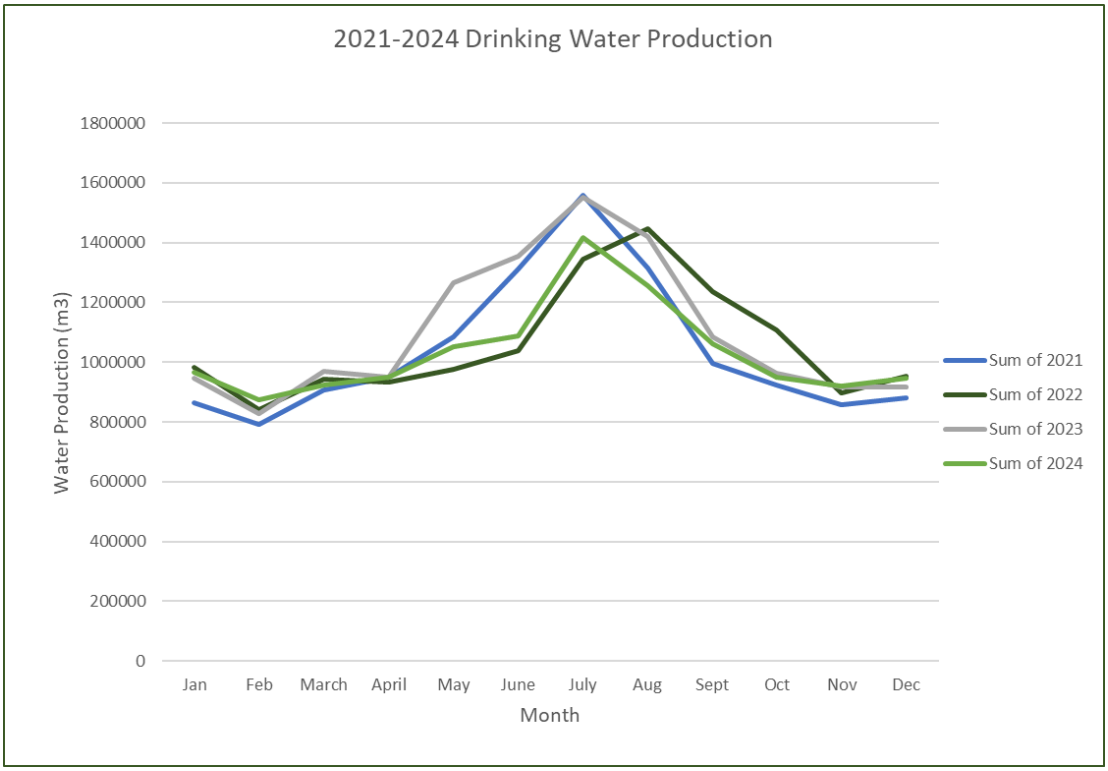

Figure 14: 2021 – 2024 Drinking Water Production Trend

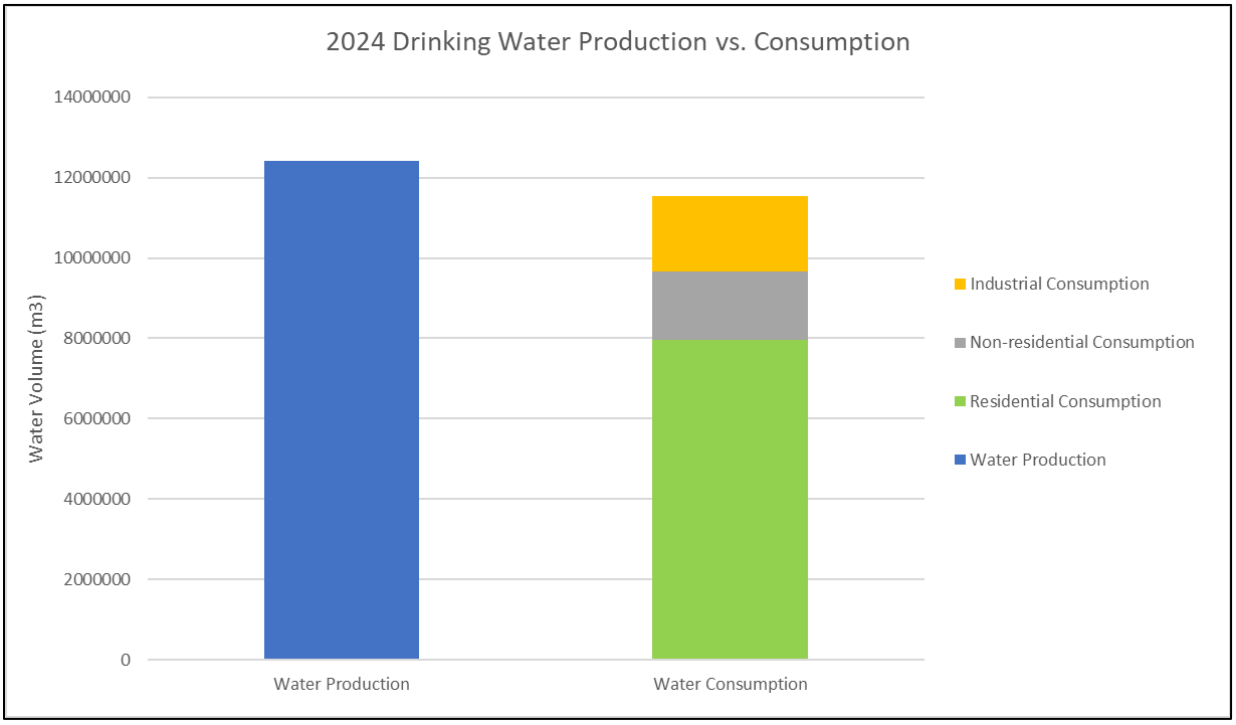

Figure 15: 2024 Drinking Water Production vs. Consumption

Note: Non-residential Consumption refers to commercial and institutional water consumption.

5.3 Water Conservation

Like all other municipalities in the Lower Mainland and most municipalities in BC, Chilliwack continues to enhance water efficiency during the summer months by implementing water restrictions.

Every year, the City of Chilliwack implements water restrictions to promote water conservation. All properties connected to the City's drinking water system are metered and sewer discharges are assessed based on 90% of metered water consumption. The following conservation measures and initiatives continue to be implemented:

- The City updated its Water Conservation Plan, which was approved by Council on March 19, 2024. The 2023 watering restrictions overview was provided, and amendments were proposed to start the restrictions on May 1 instead of June 1, and to revise the restriction Stages to a four-stage system. It was recommended that the seasonal water restriction period be revised to May 1 to October 15, the watering restriction Stages be revised to a

four-stage system, and the updated restriction triggers graph be adopted. The higher Stages of restrictions are implemented at the discretion of the Director of Engineering. The full list of restrictions included in the Water Conservation Plan can be found in Appendix B.

- The City currently uses treated drinking water from their water distribution system to irrigate Fairfield Park. The plan is to reduce the volume of treated water by supplementing it with a dedicated irrigation well for irrigation at the Park.
- Public education programs through radio, advertisement, and press releases. The City issued 26 educational and three warning letters during the stage 1 water conservation period.
- The City sent “Updates to Chilliwack's Water Conservation Plan" letters to the School District #33, and to the following First Nations: Kwaw-Kwaw-Apilt First Nation, Shxwhay Village, Squiala First Nations, Tzeachten First Nations, Skwah First Nations, Tzeachten First Nations, and Sq’ewqeyl First Nations.
- Summer sprinkler water restriction program. The City provided a water conservation brochure with utility e-bills sent out in May.
- The City provides a rebate (up to $80) for half the cost of a new rain barrel to residents with proof of purchase and installation of a new rain barrel. 37 of the rain barrel rebates were provided in 2024.
- The City provides a $50 low-flow toilet rebate to encourage residents to install highly efficient 6 L per flush (or less) toilets. 30 low flow rebates were provided in 2024.
- Subsidized water conservation kits can also be purchased from the City. The outdoor water conservation kit includes the following: garden spray nozzle, hose timer and a moisture meter. 21 water conservation kits were sold in 2024.
- In 2023, the city launched the “Ugliest Lawn” contest, which was rebranded as “Good as Gold” in 2024. The aim was to encourage residents to let their lawn go dormant throughout the watering restrictions period. The City received thirteen submissions in 2024 and three winners were chosen.

The City of Chilliwack actively promotes water conservation through advertisements (City website, social media, billboards, transit bus, radio announcements, City facility display boards and canvassing).

Figure 16: Water Conservation Plan Advertisement

6.0 Source Water Protection

The City of Chilliwack has a Groundwater Protection Plan that was developed in 1997. This plan includes a list of recommendations that the City of Chilliwack has implemented to help provide source water protection. The City protects the aquifer through the *Zoning Bylaw 2020, No. 5000*, the RS-CWA (community water supply area) zone provides specific regulations which requires approval by the City Engineering department for residential use or for an accessory dwelling unit to be constructed. In addition to the zoning bylaw, the Groundwater Protection Zone is part of Development Permit Area No.1, the objective of this is to protect the City's sources of water supply from contamination, flow reduction and quality degradation. The Development Permit Area No. 1 outlines the requirements for developments occurring within the RS-CWA zone.

The City of Chilliwack actively follows the recommendations outlined in the groundwater protection plan. Public education is ongoing and delivered through multiple channels including but not limited to the City's website and through presentations to school groups. The City of Chilliwack has signage around the groundwater protection zone helping highlight to residents that it is important to protect the groundwater in this region. Household hazardous waste day is held annually in October, additionally many hazardous items can be returned to bottle depots under the Product Care program, therefore there are options for people to responsibly dispose of their hazardous waste. Additional recommendations outlined in the groundwater protection plan are addressed as requirements in the Development Permit Area No. 1.

6.1 Cross Connection Control (CCC) Program

The City of Chilliwack's Cross Connection Control Program is intended to eliminate actual and/or potential cross connections within the City's water distribution system to maintain water quality. The program aids in protecting the public water system by requiring the installation of approved backflow prevention devices on private and/or public properties.

Currently the City is in the process of assessing all water service connections to determine their backflow requirements as well as the property owner's installation obligations.

To aid in accomplishing the goals of the CCC Program, the City of Chilliwack has developed a unique strategy for existing facilities. The City will cost share the expense of retro-fitting plumbing in order to bring the facility into compliance with the City's *Waterworks Regulation Bylaw 2004, No. 2995*.

7.0 Emergency Response and Contingency Plan Summary

The key elements of the City of Chilliwack's Water System Emergency Response Plan are:

- A list of potential emergency situations and events that may result in a significant service disruption;
- Procedures for responding to and recovering from the emergency situations so that operation of the water system is back to normal;
- Roles and responsibilities of water system staff and external support personnel. This includes identifying the lead person (Water Incident Commander);
- References and links to established procedures (such as building fire evacuation procedures) as required and Chilliwack's corporate emergency response plan;
- Identification of clean lines of communication and notifications to the public;
- Identification of external resources (e.g. contractors) available to the water system staff;
- An up-to-date list of contacts with contact information;
- Staff training and orientation related to the Emergency Response Procedures;
- Testing of procedures to ensure that they are appropriate; and,
- A mechanism for updating the plan.

Emergency response procedures are for situations that require actions above and beyond standard operating procedures (SOPs) for normal operations. This plan outlines steps to take in events such as flooding and other major natural disasters.

8.0 Operations and Maintenance Program

Operation and maintenance are an important aspect of keeping the drinking water system operating efficiently. The City of Chilliwack performs systematic flushing of the water distribution system annually and flushes most dead-end water mains every 12 to 18 weeks. Flushing is the process of sending a rapid flow of water through the mains to clean them. This helps maintain water quality by removing sediment and stale water from the distribution system. The City also encourages water distribution mains to be looped to maintain water quality (reduce dead-ends). The *Land Development Bylaw 2014, No. 3055* Section 2.2.5 outlines Hydraulic Network Considerations.

The City of Chilliwack has 33 EOCP Certified Utilities Operators responsible for the operation and maintenance of the City's water transmission and distribution systems. Their EOCP certification levels are outlined in Table 9.

Table 9: EOCP Water Distribution – Certified Utility Operators

Certification Level	Number of Staff
Level 1	8
Level 2	14
Level 3	6
Level 4	5
Total Qualified Staff	**33**

Figure 17: Hydrant Flushing

9.0 2024 to 2034 Water System Capital Plan

Each year the City of Chilliwack prepares a 10-year Comprehensive Municipal Plan (CMP). The CMP identifies funds needed to: maintain and reinvest in the City's infrastructure; to maintain or enhance service levels; to respond to the needs of the growing community; and, to fund all capital priorities without debt. The operating and capital programs for the water system are funded through the dedicated Water Fund with revenues from water system user fees and development cost charges. Water system user fees are set through the *Waterworks Regulation Bylaw No. 2995* and the *Development Cost Charge Bylaw 2000, No. 2689* which are reviewed annually. The Water System Capital Program for 2024 to 2034 (see Appendix C) identifies the capital investments planned for the City's water supply, distribution, storage and, pressure management infrastructure as well as capital investments needed to support ongoing operations. In 2024, the City installed 2320.5m of watermain upgrades including at Reece Avenue, Nowell Street, Candow Lane, Candow Street, Henley Avenue, George Street, Andrew Avenue, Wells Road, Maitland Avenue, and Chilliwack Mountain Road. The City also started plan preparations and geo-investigations for Chilliwack Zone 1 and Marble Hill Zone 2 Reservoir and Sunset PRV Pre-Designs which will be completed in 2025.

10.0 Water Capital Project 2024

In 2024, the City of Chilliwack embarked on several capital projects aimed at enhancing essential infrastructure and services for its residents. These projects represented a significant investment in the community's future, addressing critical needs and supporting growth and development. Among the key initiatives undertaken were replacement and upgrades of water infrastructure across various zones within the city.

Table 10: List of Water Capital Projects in 2024

Number	Name of Project	Description of Work	Estimated completion
1.	Reece Avenue Water Main Upgrades	Design and installation of 477.8m of Ø200mm ductile iron water main along Reece Ave	Installed and completed in 2024
2	Nowell Street Water Main Upgrades	Design and installation of 184.7m of Ø200mm and 52.1m of Ø100mm ductile iron water main along Nowell Street	Installed and completed in 2024
3	Candow Lane, Candow Street, Henley Avenue & George Street Water Main Upgrades	Design and installation of 389.0m of Ø200mm ductile iron water main along Candow Lane, 36.2m of Ø200mm and 19.7m of Ø150mm ductile iron water main along Candow St, 109.0m of Ø200mm ductile iron water main along Henley Ave, and 120.0m of Ø200mm ductile iron water main along George St	Installed and completed in 2024
4	Andrew Avenue Water Main Upgrades	Design and installation of 174.8m of Ø200mm ductile iron watermain along Andrew Ave	Installed and completed in 2024
5	Wells Road and Maitland Avenue Water Main Upgrades	Design and installation of 523.6m of Ø200mm ductile iron watermain along Wells Rd, and 72.8m of Ø150mm ductile iron watermain along Maitland Ave	Installed and completed in 2024
6	Chilliwack Mountain Road Water Main Upgrade	Design and installation of 160.8m of Ø250mm ductile iron watermain along Chilliwack Mountain Road	Installed and completed in 2024

References

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Appendix A: 2024 Potable Water Quality Analysis

PARAMETER	Canadian Guideline Limit	Reason Guideline Established		PW77-2 Well 1/2			PW64-3 Well 3			PW99-6 Well 6/7			PW99-8 Well 8			PW07-9 Well 9			PW75-10 Well 10		
				Jan	May	Sept	Jan	May	Sept	Jan	May	Sept	Jan	May	Sept	Jan	May	Sept	Jan	May	Sept
pH	6.5-8.5	AO	Conventional Parameters in Water	6.97	6.7	6.96	7.07	6.79	7.09	7.63	7.48	7.58	7.52	7.48	7.46	7.67	7.60	7.69	7.60	7.27	7.62
Conductivity (uS/cm)	-			120	160	130	110	120	110	130	120	130	110	120	110	140	150	140	140	140	130
True Colour (Col. Unit)	15	AO		<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.2	<2.0	<2.0	7.20
Turbidity (NTU)	1.0	OG		<0.10	<0.10	<0.10	0.11	< 0.10	0.13	<0.10	<0.10	<0.10	<0.10	<0.10	0.17	<0.10	<0.10	0.18	<0.10	<0.10	<0.10
Hardness	-			47.6	47.1	45.6	47.9	44	39.7	58.3	46.1	53.3	43.2	43	46.6	60	55.3	59.6	57.9	51.6	56.4
Total Dissolved Solids	500	AO		66	76	76	66	60	74	70	70	88	66	58	72	80	84	82	72	78	80
Alkalinity as CaCO3	-		Dissolved Anions in Water	42	44	46	41	42	43	52	49	52	44	46	46	53	57	57	55	54	59
Chloride	250	AO		3.1	12	5.1	1.9	1.6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.1	<1.0	<1.0	7.1	<1.0
Sulphate	500	AO		7.6	7.3	8.1	7.3	7.3	7.8	9.5	8.5	9.3	7.3	7.3	7.7	8.9	9.4	9.6	7.5	7.3	7.8
Ammonia	-			<0.015	<0.015	<0.015	0.016	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
Nitrate	10	MAC		0.318	0.465	0.346	0.199	0.248	0.203	0.141	0.113	0.172	0.142	0.179	0.167	0.232	0.22	0.238	0.151	0.16	0.149
Nitrite	3	MAC		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Fluoride	1.5	MAC		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Aluminum	0.1	OG	Total Metals	<0.0030	0.0046	<0.0030	<0.0030	<0.0030	0.005	0.005	0.0051	0.0061	0.0075	0.0072	0.0086	0.0053	0.005	0.0073	0.0048	<0.0030	0.0039
Antimony	0.006	MAC		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Arsenic	0.01	MAC		0.00025	0.00034	0.00025	0.00019	0.00019	0.00021	0.00168	0.0019	0.00164	0.00065	0.00058	0.00065	0.00033	0.00032	0.00037	0.00018	0.00017	0.00019
Barium	2.0	MAC		0.0123	0.0135	0.0128	0.0107	0.0114	0.0109	0.0119	0.0106	0.0114	0.009	0.0089	0.0093	0.0108	0.0121	0.0115	0.0108	0.0094	0.0103
Boron	5.0	MAC		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Cadmium	0.007	MAC		<0.000010	0.000017	<0.000010	<0.000010	0.000011	<0.000010	<0.000010	0.000013	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Calcium	-			17.2	19.1	19.4	16.8	15.5	13.9	20.5	16.2	18.7	17.2	17.8	18.1	21.4	19.7	21.2	20.5	20.5	21.5
Chromium	0.05	MAC		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Copper	1.0	AO		0.00086	0.00129	0.00233	0.0019	0.00197	0.0031	0.00197	0.00075	<0.00050	0.0002	0.00059	0.00076	0.00057	0.0003	0.00059	0.00094	0.00052	0.00149
Iron	0.1	AO		<0.0050	0.0072	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Lead	0.005	MAC		<0.00020	0.0004	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00021	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Magnesium	-			1.64	1.75	1.81	1.49	1.42	1.52	1.79	1.58	1.83	1.4	1.41	1.45	1.69	1.75	1.8	1.82	1.78	1.96
Manganese	0.02	AO		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Mercury	0.001 mg/L	MAC		<0.000030	<0.0000019	<0.0000019	<0.000030	<0.0000019	<0.0000019	<0.000030	<0.0000019	<0.0000019	<0.000030	<0.0000019	<0.0000019	<0.000030	<0.0000019	<0.0000019	<0.000030	<0.0000019	<0.0000019
Nickel	-			<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Phosphorus	-			0.0046	0.0076	<0.0030	<0.0030	<0.0030	<0.0030	0.024	0.031	0.019	0.0055	0.0068	0.0051	0.0035	0.0039	<0.0030	0.0039	0.0045	0.0033
Potassium	-			0.78	0.89	0.806	0.66	0.692	0.671	0.862	0.729	0.761	0.6	0.62	0.667	0.714	0.736	0.725	0.726	0.651	0.679
Selenium	0.01	MAC		0.00027	0.00021	0.00024	0.00022	0.0003	0.00023	0.00043	0.00034	0.00041	0.00029	0.00024	0.00024	0.00037	0.00042	0.00038	0.00022	0.0002	0.0002
Silicon	-			4.14	3.81	4.06	3.47	3.46	3.58	4.35	3.53	3.74	3.26	3.28	3.45	3.79	3.8	3.83	3.98	3.34	3.65
Silver	-			<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Sodium	200	AO		3.19	4.78	3.35	1.9	1.84	1.84	1.67	1.56	1.59	1.34	1.36	1.44	1.62	1.67	1.66	2.14	2.16	2.17
Uranium	0.02	MAC		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00013	0.00011	0.00012	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Zinc	5.0	AO		0.015	0.0135	<0.0050	0.015	0.0054	0.0135	0.0101	<0.0050	<0.0050	0.016	<0.0050	<0.0050	0.013	<0.0050	<0.0050	0.021	<0.0050	<0.0050

NOTES:

Measurements are in mg/L unless otherwise indicated

Empty fields were not contained in analytical record.

MAC = Maximum Acceptable Concentration

AO = Aesthetic Objective

OG = Operational Guideline

GBHNR = Great Blue Heron Nature Reserve

Exceeds limits

Appendix B: Water Conservation Plan 2024

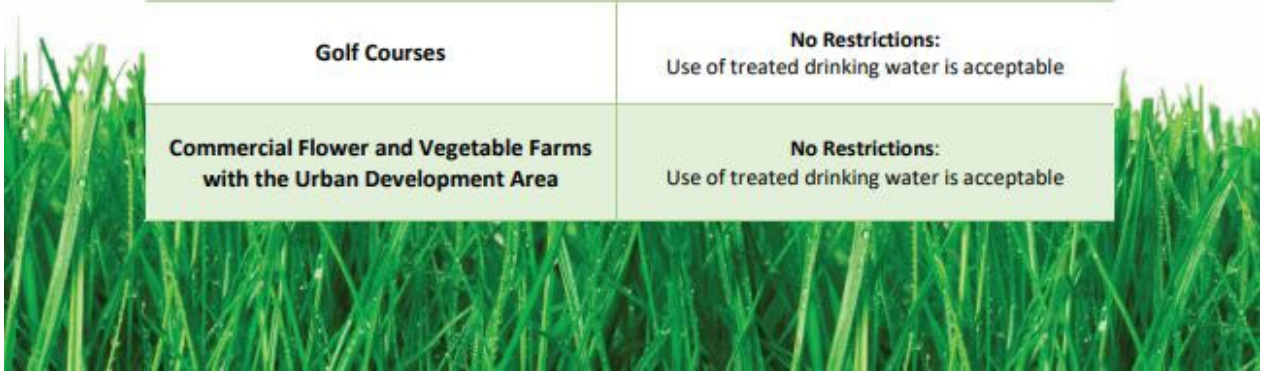
CITY OF CHILLIWACK

Stage 1 Water Conservation Plan

In effect: May 1st – October 15th

This stage can change at any time. Know what stage the City is in by visiting chilliwack.com/water or contacting the Engineering Department at 604.793.2907 or engineeringinfo@chilliwack.com.

Activity	Conservation Plan
Lawn Sprinkling	**Restricted:** Even addresses – Wednesday & Saturday Odd addresses – Thursday & Sunday 5 - 8am **or** 7 - 10pm
New Unestablished Lawns	**Restricted:** Three-week permit required for **daily** watering b/w 5 - 8am **or** 7 - 10pm
Gardens, Flowers, Shrubs and Trees	**Restricted:** Any time of day, watering using a hand-held container, hose with a spring-loaded shutoff nozzle, soaker hose or drip irrigation.
Pools, Spas, and Garden Ponds	**No Restrictions:** Use of treated drinking water is acceptable
Outdoor Impermeable Surface Washing (Sidewalks, Driveways, Buildings)	**Restricted:** Must use handheld container or a hose with a spring-loaded shutoff nozzle
Non-Recirculating and Recirculating Fountains and Water Features	**No Restrictions:** Use of treated drinking water is acceptable
Outdoor Vehicle and Boat Washing	**Restricted:** Must use handheld container or hose equipped with spring-loaded shutoff nozzle. Recommend washing vehicles and boats over grass or gravel.
Golf Courses	**No Restrictions:** Use of treated drinking water is acceptable
Commercial Flower and Vegetable Farms with the Urban Development Area	**No Restrictions:** Use of treated drinking water is acceptable



CITY OF CHILLIWACK

Stage 2 Water Conservation Plan

In effect if activated: at the discretion of the Director of Engineering

This stage can change at any time. Know what stage the City is in by visiting chilliwack.com/water or contacting the Engineering Department at 604.793.2907 or engineeringinfo@chilliwack.com.

Activity	Conservation Plan
Lawn Sprinkling	**Restricted:** Even addresses – Wednesday Odd addresses – Thursday 5 - 8am only
New Unestablished Lawns	**Restricted:** Two-week permit required for **daily** watering between 5 - 8am only
Gardens, Flowers, Shrubs & Trees	**Restricted:** Watering using a hand-held container, or hose with a shut off device or soaker hose.
Pools, Spas, and Garden Ponds	**No Restrictions:** Use of treated drinking water is acceptable
Outdoor Impermeable Surface Washing (Sidewalks, Driveways, Buildings)	**Restricted:** Washing for aesthetic purposes is prohibited, use of handheld container or hose with shutoff device can be used for painting, or health and safety.
Non-Recirculating and Recirculating Fountains and Water Features	**Prohibited:** All use of non-recirculating water features using treated drinking water is prohibited. Recirculating features can be used normally.
Outdoor Vehicle and Boat Washing	**Restricted:** Must use handheld container or hose equipped with spring-loaded shutoff device and should be washed over grass or gravel.
Golf Courses	**Restricted:** Water tee and green areas normally, fairway watering should be minimized to a maximum of **two** days per week.
Commercial Flower and Vegetable Farms with the Urban Development Area	**Restricted:** Limit use to minimum necessary levels.

CITY OF CHILLIWACK

Stage 3 Water Conservation Plan

In effect if activated: at the discretion of the Director of Engineering

This stage can change at any time. Know what stage the City is in by visiting chilliwack.com/water or contacting the Engineering Department at 604.793.2907 or engineeringinfo@chilliwack.com.

Activity	Conservation Plan
Lawn Sprinkling	**Prohibited**: All forms of lawn watering using treated drinking water are prohibited.
New Unestablished Lawns	**Prohibited:** No new permits issued or renewed. All forms of lawn watering using treated drinking water are prohibited.
Gardens, Flowers, Shrubs and Trees	**Restricted:** Watering using a hand-held container, or hose with a shut off device or soaker hose.
Pools, Spas, and Garden Ponds	**Prohibited:** All filling or topping up of pools, spas, or garden ponds using treated drinking water is prohibited.
Outdoor Impermeable Surface Washing (Sidewalks, Driveways, Buildings)	**Prohibited:** All forms of impermeable surface washing are prohibited unless required to comply with health regulations.
Non-Recirculating and Recirculating Fountains and Water Features	**Prohibited:** All use of fountains and water features using treated drinking water is prohibited.
Outdoor Vehicle and Boat Washing	**Prohibited:** All vehicle and boat washing using treated drinking water is prohibited. *exception for boat to prevent the spread of invasive species*
Golf Courses	**Restricted:** Use of treated drinking water at the discretion of the City.
Commercial Flower and Vegetable Farms with the Urban Development Area	**Restricted:** Use of treated drinking water at the discretion of the City

CITY OF CHILLIWACK

Stage 4 Water Conservation Plan

In effect if activated: at the discretion of the Director of Engineering

This stage can change at any time. Know what stage the City is in by visiting chilliwack.com/water or contacting the Engineering Department at 604.793.2907 or engineeringinfo@chilliwack.com

Activity	Conservation Plan
Lawn Sprinkling	**Prohibited**: All forms of lawn watering using treated drinking water are prohibited.
New Unestablished Lawns	**Prohibited:** No new permits issued or renewed. All forms of lawn watering using treated drinking water are prohibited.
Gardens, Flowers, Shrubs and Trees	**Prohibited:** At the discretion of the City.
Pools, Spas, and Garden Ponds	**Prohibited:** All filling or topping up of pools, spas, or garden ponds using treated drinking water is prohibited.
Outdoor Impermeable Surface Washing (Sidewalks, Driveways, Buildings)	**Prohibited:** Only for health and safety reasons, at the discretion of the City.
Non-Recirculating And Recirculating Fountains and Water Features	**Prohibited:** All use of fountains and water features using treated drinking water is prohibited.
Outdoor Personal Vehicle and Boat Washing	**Prohibited:** All vehicle and boat washing using treated drinking water is prohibited. *Exception of mirrors and license plates and for boats to prevent the spread of invasive species
Golf Courses	**Prohibited:** Use of treated drinking water at the discretion of the City.
Commercial flower and vegetable farms with the urban development area	**Prohibited:** Use of treated drinking water at the discretion of the City

Appendix C: 2024 to 2034 Water System Capital Plan

CITY OF CHILLIWACK

2024 Utilities CMP 10 Year Projections Section

Acct No	Function Title	Obj No	Object Title	CA_2024 EXP	CA_2025 EXP	CA_2026 EXP	CA_2027 EXP	CA_2028 EXP	CA_2029 EXP	CA_2030 EXP	CA_2031 EXP	CA_2032 EXP	CA_2033 EXP	CA_2034 EXP
24183	Water Supply	2000	Well #9 Noise Abatement	5,000										
24183	Water Supply	2000	Well #5						1,025,000	3,080,000				
24189	Water Supply	2000	Chlorination System	110,000								60,000		
24190	Water Supply	2000	UV System - Production Wells				2,000,000							
24192	Water Supply	2000	E.Hillside Ground Water Invest	358,000										
24193	Water Supply	2000	Sardis Vedd Aquifer Model Updt	15,000										
24195	Water Supply	2000	Nixon Rd Production Well 13	1,490,000										
24195	Water Supply	2000	Nixon Rd Production Well 14	650,000										
24196	Water Supply	2000	Fairfield Island Irig Well	250,000										
24196	Water Supply	2000	Vedder Mtn Production Well	2,050,000										
24196	Water Supply	2000	Petawawa Rd. Production Well											
24196	Water Supply	2000	Monitoring Wells	150,000										
24196	Water Supply	2000	Additional Water Supply	170,000										
	Water Supply Total			5,248,000			2,000,000		1,025,000	3,080,000		60,000		
241119	Transmission Mains	2000	ECTM-Ph 4, Chwk Cent-Mt.Shan											
241781	Transmission Mains	2000	Wiltshire Area Main Replacemen	1,750,000										
24182	Transmission Mains	2000	Hwy 1 - Hack Brown Watermain											
24182	Transmission Mains	2000	Greendale Watermain Ph2&3											
	Transmission Mains Total			1,750,000										
24103	Distribution Mains	2000	Distribution Main Upgrading	3,165,000	2,430,000	1,300,000	1,300,000	1,300,000	1,300,000	1,300,000	1,300,000	1,300,000	1,300,000	1,300,000
241120	Distribution Mains	2000	Firemain Upgrading	745,000		675,000		675,000			675,000			
241776	Distribution Mains	2000	Eastern Hillsides Trunk Waterm											
24197	Distribution Mains	2000	Meter Replacement	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000
241976	Distribution Mains	2000	Chwk Mtn Rd WM Looping	233,000										
24198	Distribution Mains	2000	Water Meters	475,000	475,000	475,000	475,000	475,000	475,000	475,000	475,000	475,000	475,000	475,000
241981	Distribution Mains	2000	Bulk Meter Upgrades	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000
241982	Distribution Mains	2000	Main St. Watermain Upgrade	865,000										
241984	Distribution Mains	2000	Air Valve Replacement	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000
241985	Distribution Mains	2000	Cheam Ave.		400,000									
	Distribution Mains Total			6,033,000	3,855,000	3,000,000	2,325,000	3,000,000	2,325,000	2,325,000	3,000,000	2,325,000	2,325,000	2,325,000
241778	Water-Developer Cont	2000	Developer Projects	1,200,000	1,200,000	1,200,000	1,200,000	1,200,000	1,200,000	1,200,000	1,200,000	1,200,000	1,200,000	1,200,000
	Water-Developer Cont Total			1,200,000	1,200,000	1,200,000	1,200,000	1,200,000	1,200,000	1,200,000	1,200,000	1,200,000	1,200,000	1,200,000
241536	Pump Stns, Storage, PRVs	2000	Prom Zone 3 & 4 BPS Relocation	78,000										
241538	Pump Stns, Storage, PRVs	2000	Chwk Mnt	10,000										
241552	Pump Stns, Storage, PRVs	2000	Hack Brown Booster PS Pump	120,000										
241555	Pump Stns, Storage, PRVs	2000	Marble Hill Zone 2 RDS	1,295,000										
241560	Pump Stns, Storage, PRVs	2000	Marble Hill Storage Reservoir											
241561	Pump Stns, Storage, PRVs	2000	Chwk Mtn Zone 3 Reservoir								1,150,000			
241561	Pump Stns, Storage, PRVs	2000	Chwk Mtn Zone 1 Reservoir	150,000	1,600,000	1,800,000								
241563	Pump Stns, Storage, PRVs	2000	Marble Hill Well Connection	1,450,000										
241564	Pump Stns, Storage, PRVs	2000	Promontory Zone 1 Chamber	4,500										
241569	Pump Stns, Storage, PRVs	2000	Shrewsbury Dr PRV	130,000										
241570	Pump Stns, Storage, PRVs	2000	Sunrise Dr PRV	210,000										
241572	Pump Stns, Storage, PRVs	2000	Honeysuckle PRV	2,500										
241573	Pump Stns, Storage, PRVs	2000	WDS 60 Genset	75,000										
241574	Pump Stns, Storage, PRVs	2000	PLC Upgrades	20,000	20,000	20,000	20,000							
	Pump Stns, Storage, PRVs Total			3,545,000	1,620,000	1,820,000	20,000				1,150,000			
24162	Operations	2000	PC Purchases	15,000	80,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000
24165	Operations	2000	Finance Systems (1/3)	400,000	145,000									
241661	Operations	2000	New Vehicles / Equipment	400,000	300,000	350,000	350,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000
241667	Operations	2000	Water Meter AMI Equipment	300,000	300,000	300,000								
241668	Operations	2000	South Side Storage Building	300,000					300,000					
241704	Operations	2000	OC Improvements	50,000										
241709	Operations	2000	Fibre Optic Ntwk Expan 1/3					400,000						
241712	Operations	2000	Bypass Meter Upgrades	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000
241713	Operations	2000	Meters - Interior to Exterior	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000
241715	Operations	2000	Brine System Upgrade		100,000									
	Operations Total			1,615,000	1,075,000	815,000	515,000	765,000	665,000	365,000	365,000	365,000	365,000	365,000
Total				19,391,000	7,750,000	6,835,000	6,060,000	4,965,000	5,215,000	6,970,000	5,715,000	3,950,000	3,890,000	3,890,000

Appendix D: 2024 Annual Water Audit

Line	Item	Water Volume Total (m^3)
1	Uncorrected total water supply to distribution system	12,404,640
2	Adjustments to total water supply	-
2A	Source meter error (+ or -)	45,432
2B	Change in reservoir and tank storage (+ or -)	450
2C	Other contributions or losses (+ or -)	-
3	Sum of adjustments	45,881
4	**Adjusted total water supply to the distribution system**	**12,450,521**
5	Uncorrected total metered water use	11,536,836
6	Adjustments due to meter reading lag time	-
7	Metered deliveries	11,536,836
8	Total sales meter error and system-service meter errors (+ or -)	-
8A	Residential meter error	46,147
8B	Large meter error	-
8C	Total	46,147
9	Corrected total metered water deliveries	11,582,983
10	Corrected total unmetered water	867,538
11	**Authorized unmetered water uses**	
11A	Firefighting and firefighting training	47,364
11B	Firefighting - fire truck (engines only) - minor fires	1,564
11C	Firefighting - Structure fires	506
11D	Flushing - flush truck	1,540
11E	Flushing - automatic	-
11F	Flushing - general flushes	66,420
11G	Sewer cleaning	-
11H	Street cleaning	-
11I	Schools	-
11J	Landscaping	-
	Parks	-
	Golf courses	-
	Cemeteries	-
	Playgrounds	-
	Highway median strips	-
	Other landscaping	-
11K	Decorative water facilities	-
11L	Swimming pools	-
11M	Construction sites	97,020
11N	Water quality and other testing (pressure testing pipe, water quality, etc.)	115
11P	Reservoir draining and cleaning	735
11Q	Water filling stations	6,483

11R	Other water use	-
12	**Total authorized unmetered water**	**221,747**
13	**Total water losses**	**645,791**
14	Identified water losses	-
14A	Accounting procedure errors	-
14B	Illegal connections	-
14C	Malfunctioning distribution system controls	-
14D	Reservoir seepage and leakage	-
14E	Evaporation	8,021
14F	Reservoir overflow	-
14G	Discovered leaks	348
14H	Thefts	-
15	Total identified water losses	8,369
16	Potential water system leakage	637,422
17	Potential recoverable leakage (assume 75%)	478,066
18	**Maximum leak percentage**	**5.12%**

Appendix E: Metals in Drinking Water – “Flush” Message in Annual Reports

February 1, 2024

Water System Operators

Re: Metals in Drinking Water – "Flush" Message in Annual Reports

Fraser Health has recently revised its metals at the tap "Flush" message and we are asking all water systems to please include the following health message with your next annual reports to your users.

Anytime the water in a particular faucet has not been used for six hours or longer, "flush" your cold-water pipes by running the water until you notice a change in temperature. (This could take as little as five to thirty seconds if there has been recent heavy water use such as showering or toilet flushing. Otherwise, it could take two minutes or longer.) The more time water has been sitting in your home's pipes, the more lead it may contain.

Use only water from the cold-tap for drinking, cooking, and especially making baby formula. Hot water is likely to contain higher levels of lead.

The two actions recommended above are very important to the health of your family. They will probably be effective in reducing lead levels because most of the lead in household water usually comes from the plumbing in your house, not from the local water supply.

Conserving water is still important. Rather than just running the water down the drain you could use the water for things such as watering your plants.

If you have any questions, please contact our Drinking Water Program at 604-870-7903.

Sincerely,

Drinking Water Program
Fraser Health Authority
HPLand@fraserhealth.ca

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Health Protection

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