

TOWN OF GIBSONS ANNUAL DRINKING WATER REPORT 2024

Introduction

Located at the south end of the Sunshine Coast, just Northwest of Vancouver, the Town of Gibsons is perched on a hillside overlooking the harbour, nearby islands in Átl'ka7tsem/Howe Sound and the North Shore mountains. Gibsons has earned international recognition for its leadership role in Natural Asset Management Strategy that puts natural assets at the core of the municipal infrastructure system.

The Town of Gibsons is committed to providing clean, safe drinking water to our residents and visitors, which is 100% dependent on groundwater from the aquifer. The Town is dedicated to maintaining the best quality water supply and distribution system. The Town continues programs relating to water conservation, unidirectional flushing and cross connection control to reduce the demand on the water supply system and ensure the provision of clean and safe drinking water to the community.

Source Water

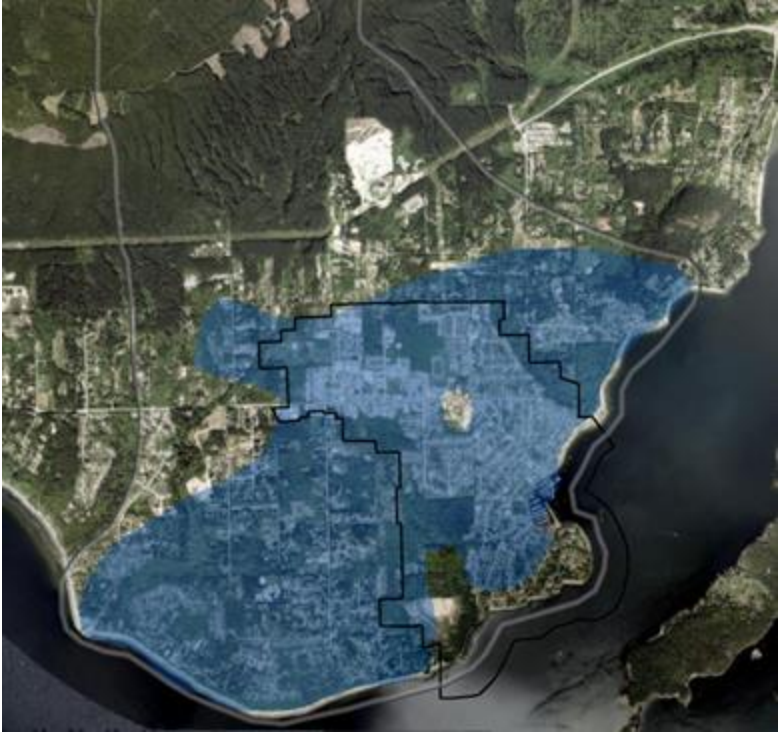
Aquifer 560 is a high-quality confined aquifer located below the Town and extending beyond the Town boundary into the Sunshine Coast Regional District (shown as blue in the map below). The aquifer acts as a natural underground reservoir that holds and provides groundwater for the community.

100% of the Town of Gibsons depends on groundwater from the aquifer, which is pumped from three wells located in Lower Gibsons and one well in Upper Gibsons.

The watersheds (the water sources that fill the aquifer) include Charman Creek, Chaster Creek, Gibson Creek and Soames Creek. The headwaters for all four watersheds originate along the south facing slope of Mount Elphinstone and drain into the Salish Sea.

The Town has extensive data to understand the movement and cycling of water in the Aquifer and can assess the long-term supply under various demand and climate conditions. The Town's annual monitoring program provides information on water level, water quality and recharging levels, tracking trends year to year.

The Town's water distribution system records the volume of water pumped from each well, and the sensors in the well provide staff with real-time data of the water level at each of the well locations, allowing staff to monitor the aquifer continually.



Water Distribution

The Town of Gibsons water system is currently configured into three pressure zones as illustrated in Figure 4.1. Zone 1 is located in the lowest part of the Town and is adjacent to the Ocean. Zone 2 is situated above Zone 1 and borders the Sunshine Coast Highway to the North. Zone 3 is located to the north of the Sunshine Coast Highway and extends to the northern border of the Town.

The Town supplies water to its customers in these three pressure zones from four active groundwater wells located within the Town. These wells have emergency chlorination provisions but normally do not provide disinfection except in emergency situations and when required for maintenance. The wells are located in Zone 1 and Zone 2 and water is conveyed to the upper zones through the School Road and Parkland Booster Stations.

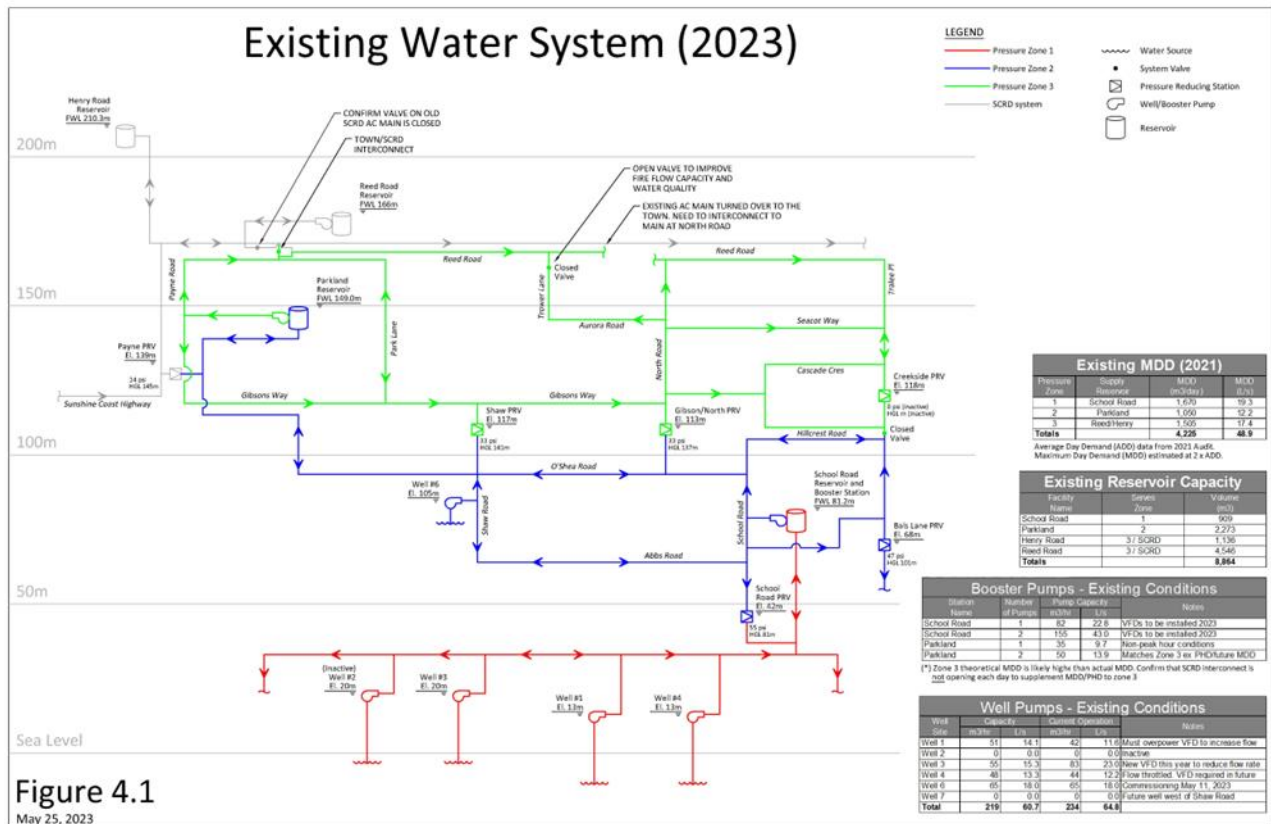


Figure 4.1
May 25, 2023

The SCRDI supplies water to supplement the Town sources from both a treated surface water source at Chapman Creek and multiple groundwater sources that have disinfection. The SCRDI has wells that draw from the same aquifer as the Town. Water is conveyed through two connections to the Town's distribution system if needed. The first connection is located on Reed Road and interconnects to Zone 3 via a check valve. The second location is on Payne Road and interconnects to Zone 2 with a pressure regulating valve. The pressure regulating valve is set to only activate if the Parkland Reservoir reaches a low level. The check

valve on Reed Road opens when the pressure in the Town system drops below the SCRD system pressure. At the present time the check valve activation only occurs during high flows when fire hydrants in Zone 3 are used or in the event of a water main break.

Disinfection is provided by the Town at the Parkland Booster Station so that a chlorine residual can be maintained when mixing occurs between the Town's groundwater with water from the SCRD in Zone 3.

The Town also has the ability to convey water to the Sunshine Coast Regional District via a metered check valve bypass line on Reed Road that can be manually opened when authorization is permitted by the Province.

The Town's water system includes two reservoirs to store water for meeting peak hour and fire flows: School Road and Parkland. School Road reservoir stores water that can be used to supply Zone 1 by gravity and Zone 2 by pumping through the School Road Booster Station. Parkland reservoir stores water that can be used to supply Zone 2 by gravity and Zone 3 by pumping through the Parkland Booster Station.

There are 5 pressure regulating valve stations that are located within the Town at connections between Zones 3, 2 and 1 to supplement the reservoir storage and provide required flow for fire protection.

Upgrades, System Maintenance and Repairs

The Water Operations team operates, maintains, inspects, manages and plans for water wells, pump stations, water reservoirs and pressure regulating stations.

Highlights in 2024 include:

- Began work on water reclamation system at the Wastewater Treatment Plant that will reduce their water use by up to 90%
- Purchased spare motor for School Rd booster pumps
- Installation of Variable Frequency Drives at School Rd booster station
- Air conditioning units installed at School Rd pump station to keep motors in operational temperature range during heat events.
- Performed the required annual maintenance for valves, hydrants and pressure regulating stations.
- Conducted Unidirectional water main flushing
- Completed a seismic assessment and feasibility study on School Rd reservoir
- Upgrade/replacement of water meters

Future improvements include:

- Assessing options for upgrades to Well 3, which may include the addition of a variable frequency drive, upgrade of pump, motor, power service and renew piping arrangement.
- Continue watermain replacements at Skyline, Allison, Avalon and Shoal.
- Continue water meter upgrades/replacements
- Commissioning of new Pressure Regulating Valve station at Winn Rd and Abbs Rd
- Updates to the hydraulic water model
- Design for upgrades to School Rd reservoir
- Water main tie in at North Rd and Reed Rd

Standards and Testing Results

Gibsons' water supply and distribution system is governed by the Province of British Columbia's Drinking Water Protection Act and Regulation (DWPA&R), Water Sustainability Act (WSA) and Ground Water Protection Regulation (GWPR), as well as a Permit to Operate, issued by Vancouver Coastal Health. In 2024, water samples were tested weekly for E. coli and total coliform bacteria to ensure water quality parameters met the applicable Guidelines for Canadian Drinking Water Quality set out by Health Canada and the potable water quality standards of the BC Drinking Water Protection Act. Our Permit to Operate was issued in March 2024.

Each sampling site is tested, at a minimum, monthly for total coliform and E. coli. In addition to monitoring water quality at the well sources, water quality must also be monitored in the distribution system to ensure contaminants are not entering the piping network. These tests are carried out on a weekly basis. In 2024, a total of 444 samples were collected. View the [wells and reservoir test results](#) for additional details of the test results for Gibsons wells and the School Road and Parkland reservoirs.

Chemical sampling was also completed, and all samples met the Guidelines for Canadian Drinking Water Quality.

Cross-Connection Control Program

The Town continues to manage its Cross Connection Control (CCC) Program to protect the safety of the drinking water system. Contamination of the potable water system can happen from backflow through cross connections with private plumbing systems. A cross connection is a physical connection between a potable water supply system and a source of contamination. A backflow or back-syphon event is the undesired reverse flow of water creating the potential for contaminants to be drawn back into the potable water supply system if a negative pressure event, such as a water main break, occurs in the system. The Town is working to ensure the proper installation of backflow prevention

assemblies are in place and tested annually to mitigate the possibility of cross connections.

Unidirectional Flushing Program

Every year, the Town of Gibsons conducts its Annual Watermain Flushing Program to:

- enhance the overall water quality within the water distribution system
- improve system operations by reducing turbidity, removing sediment, silt, and biofilms
- increase system hydraulic capacity, and lengthen the life of system components

Water Strategy

In accordance with Council's Strategic Plan, our water strategy for 2023-2027 includes:

Goal:

Ensure aquifer and watershed protection to continue to deliver safe and sustainable water supply to the community.

Objectives:

- Collaborate with the Squamish Nation on leading local water governance and watershed security.
- Investigate the upper reaches of the Chaster Creek and Gibson Creek watersheds to assess the recharge characteristics of Aquifer 560 and its component aquifer lobes.
- Install additional monitoring wells to further characterize the Capilano Aquifer and the confining unit of Aquifer 560.
- Continue with the monitoring program of Aquifer 560, precipitation in the watershed and creek flow.
- Develop a Watershed Management Area Plan to enhance the protection of Aquifer 560, including: Risk Management Policy; Water Sustainability Plan; Groundwater Sustainability Assessment; Wellhead Protection Plan; Emergency Response Plan.
- Implement the recommendations of the 2021 Aquifer Mapping Study Update

Goal:

Offer clear communications, community engagement and regional leadership regarding water supply.

Objectives:

- Take a regional leadership role in aligning our water supply assets at the ecological rather than the political boundaries, through responsible co-management with our regional partners
- Continually inform the public on water use and conservation measures and provide regular updates on the state of the Aquifer.
- Continue to advocate for water metering and volumetric billing at the Sunshine Coast Regional District.

Emergency Response and Contingency Plan (ERCP)

In accordance with the requirements set out in the Towns' Permit to Operate, the Town of Gibsons reviews and submits updates to the Water System – Emergency Response and Contingency Plan (ERCP) annually. This document provides guidelines for action that will be taken by Town staff in the event of an emergency.

The document outlines general actions that will be taken in the event there is a threat to the quality of drinking water, and requires that VCH's Drinking Water Officer (DWO) be kept well informed. During an emergency, the DWO and other health authority staff will provide advice about public notification and monitoring of water quality, however the Town of Gibsons' Communications Coordinator will take the lead role as spokesperson for media inquiries and releases.

Significant Events and/or Public Notifications

- January 2024- Leak in water main was located and repaired.
- April 2024- A broken 50mm water service was located on private property. The operators shutdown the service to prevent further loss and supplied a new 19mm water service for the building as the 50mm was no longer required.
- October 2024-Motor for one of the booster pumps at School Rd pump station failed. The motor was sent out to be re-furbished and re-installed. A spare motor was also purchased for these pumps.

Water Quality Complaints

Date	Issue	Action Taken
May 2024	High turbidity after flushing	Further flushing of water mains and internal plumbing of structure.
Jan 2024	Water quality concern-odor	Thorough flushing of internal plumbing in structure-resolved.

There were no drinking water advisories or boil water advisories issued in 2024.

Operator Qualifications

According to the Drinking Water Protection Regulation, under the Drinking Water Protection Act, staff working on the water system must have a minimum level of certification to match the facility classification and operators are certified by the Environmental Operators Certification Program (EOCP). This ensures that Town staff are adequately trained to operate, maintain, and repair the water supply and distribution system to protect the safety and quality of the drinking water that is delivered to the end user.

The Town of Gibsons' Water Distribution System is classified by the EOCP as a Class 3 facility (WD-III). The Town provides and encourages regular training opportunities to ensure staff maintain their certifications and supports further education and training in

their respective fields to provide the best service to its residents. Environmental Operators Certifications for Water Distribution held for the Town are summarized below:

Level of Certification	# of staff with Water Distribution
Operator in Training	4
Level 1	2
Level 2	2
Level 3	2
Total	10