



2022 Annual Water Report

EXECUTIVE SUMMARY

The Town of Oliver (Town) operates an extensive Municipal and Rural water system that consists of seven ground water well sites, two surface water sources, and six reservoirs. The water system covers the Town itself and a substantial portion of area 'C' of the Regional District of Okanagan-Similkameen. The Town provides domestic water to approximately 2,393 residential and 174 commercial/ industrial connections, which all have water meters to record consumption. Irrigation water is also provided to 601 connections irrigating approximately 5,200 acres of farmland with 1,025 acres of that pumping their own water from the Town's irrigation canal, excluding 455 acres of non-farm land that is also irrigated from this system.

TABLE OF CONTENTS

EXECUTIVE SUMMARY 1

TABLE OF CONTENTS..... 2

1.0 INTRODUCTION..... 4

 1.1 HISTORY..... 4

2.0 WATER SYSTEM OVERVIEW..... 5

 2.1 DOMESTIC SYSTEM..... 7

 2.1.1 SYSTEM 1 DOMESTIC 7

 2.1.2 SYSTEM 2 & 2B DOMESTIC 7

 2.1.3 MUNICIPAL SYSTEM DOMESTIC 7

 2.1.4 SYSTEM 4 - 7 DOMESTIC 8

 2.2 IRRIGATION SYSTEM 8

 2.2.1 SYSTEM 1 IRRIGATION 9

 2.2.2 SYSTEM 2 & 2B IRRIGATION..... 9

 2.2.3 SYSTEM 4 - 7 IRRIGATION..... 10

3.0 WATER QUALITY, SAMPLING, AND MONITORING PROGRAM 11

 3.1 SAMPLING AND MONITORING..... 11

4.0 WATER CONSUMPTION 12

 4.1 TOTAL CONSUMPTION 12

 4.2 BREAKDOWN OF CONSUMPTION 13

 4.3 WATER CONSERVATION 21

5.0 STAFF 21

6.0 CAPITAL PROJECTS AND IMPROVEMENTS 21

 6.1 PROJECTS COMPLETED IN 2021 21

6.2 CONTINUING PROJECTS INTO 2022 22

6.3 LONG TERM IMPROVEMENT PLANS..... 22

7.0 EMERGENCY RESPONSE PLAN 23

8.0 CROSS CONNECTION CONTROL PROGRAM 24

9.0 CONCLUSION 24

APPENDIX A: THE TOWN OF OLIVER WATER SYSTEM MAP FOR SAMPLING SITES 26

APPENDIX B: 2021 FULL SPECTRUM 27

APPENDIX C: 2021 WEEKLY WATER SAMPLING..... 28

APPENDIX D: 2021 PUMPING DATA 29

APPENDIX E: 2021 GROUNDWATER AND SURFACE WATER CONSUMPTION DATA 30



1.0 INTRODUCTION

The *British Columbia Drinking Water Protection Act* requires that each municipal government that supplies or distributes domestic drinking water must provide a water quality report that is reviewed by the local Drinking Water Officer (Interior Health Authority) and published for public access. This report has been prepared for the community of the Town and in accordance with the requirement in the *Drinking Water Protection Act*.

1.1 HISTORY

In 1918, the Provincial Government, led by “Honest John Oliver”, the Premier at that time, purchased over 22,000 acres of land in the South Okanagan to develop an irrigation canal system to convert 8,000 acres of desert land on each side of the Okanagan River into viable agricultural land. This land would then be for sale, at a reasonable cost, designated to the soldiers returning from World War I. This land arrangement was known as the “The Soldiers’ Land Act.” This project then became SOLP (South Okanagan Lands Project)

Construction of the irrigation system, including the intake dam at the base of McIntyre Bluff, began in 1918. Over the next seven years, the canal, known as “The Ditch”, had an overall length of approximately 40 concrete-lined kilometres measuring 5.6m across the top, and 1.5m deep, delivering 6.5m³ of water per second. The SOLP designed the canal to transport irrigation water from one side of the Valley to the other. To accomplish this, a 2.1m diameter siphon made out of wood stave pipe had to be built underground, which ran approximately 590m long directly beneath the center of Oliver, connecting the north and south parts of the canal.

Over the next forty years, the canal was maintained and run by the provincial government employees (SOLP) until the spring of 1964, as the province decided it was removing itself from the irrigation business. Premier W.A.C. Bennet passed the canal to the Oliver and Osoyoos Fruit Growers’ Association, which volunteered itself to become the cornerstone of the South Okanagan Lands and Irrigation District (SOLID). The district operated and maintained the canal system until 1989 when it was divided into two municipal governments: the Town of Oliver and the Town of Osoyoos. The Town was given the responsibility to maintain and operate the canal, which is still a major contributor to the rest of the 100 billion liters of water that Town and Osoyoos delivers annually to the parched desert area of the valley.

Today, the Town provides domestic water to approximately 2,393 residential (including rural), and 174 commercial and industrial connections. Irrigation water is provided to 601

connections, irrigating approximately 5,200 acres of farmland with 1,025 acres of that pumping their own water from the Town's irrigation canal. 455 acres of non-farm land is also irrigated from this system. The change in the non-farm arable area from previous years is due to a change in the new Water Regulations Bylaw 1351 where customers previously received a half acre with the payment of their parcel tax.

2.0 WATER SYSTEM OVERVIEW

The Town's water system is broken down into seven individual systems, which over time have been inter-connected to provide a more sustainable water supply system as a whole. Each system is defined, or known by, the area and the wells that support it:

(Please See Appendix A: Town of Oliver Water System Map)

- System 1 – also referred to as Rural North – Buchanan Road Pumphouse
- System 2 & 2B – Black Sage Area – Black Sage and Miller Road Pumphouses
- Municipal System – also referred to as System 3 – Rockcliffe and Tucelnuit Pumphouses
- System 4 - 7 – also referred to as Rural South – Fairview and Miller Road 13 Pumphouses

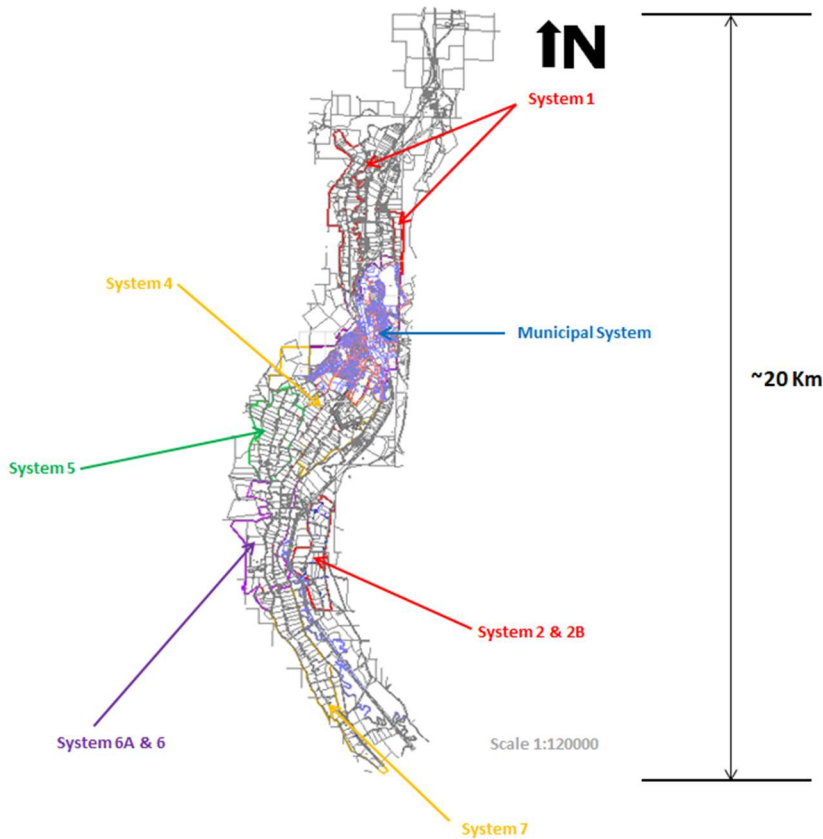


Figure 1: Town of Oliver's 7 Water System Overview

As of 2014, the Town uses groundwater for all of its domestic water connections. Therefore, the canal surface water system is providing irrigation only, with the addition of low-pressure users who pump out of the canal using their own private pump houses. Each system is twinned with the exception of System 2 (Black Sage). This system is groundwater only, and there are no current plans to complete the twinning of System 2.

As part of the water distribution system, the Town maintains approximately 143 kilometres of water main. The distribution system consists of Asbestos Concrete (AC), Polyvinyl Chloride (PVC), Cast Iron (CI), and High Density Polyethylene (HDPE) material, with pipe sizes ranging from 50mm to 600mm in diameter.

The age of the water mains ranges from new to approximately 50 years old. The age of the pipe does not necessarily reflect the need to replace it as the various material types and installation conditions make for different average life expectancies. Normal operating pressures range from 60psi to 120psi for standard pressurized services.

2.1 DOMESTIC SYSTEM

The domestic water system storage capacity is 1,025,000 US gallons (US GAL) (3880 cubic metres (m³)) between four reservoirs. Existing Municipal reservoirs consist of a 360,000 US GAL (1360m³) reservoir and a newer (constructed in 2010) 500,000 US GAL (2470m³) reservoir. The other two reservoirs still in use are located in System 6 & 6A; Road 13 reservoir at 150,000 US gallons (568m³) and Hester Creek reservoir at 15,000 US gallons (57m³).

2.1.1 SYSTEM 1 DOMESTIC

System 1, also known as “Rural North,” supplies domestic water to approximately 161 accounts. System 1 has an irrigation main, and a domestic main that runs approximately 4.5km from the edge of town N. to the end of Sportsman Bowl Road. Buchanan pump station, which is located adjacent to 1748 Buchanan Road and near the east side of the Okanagan River, supplies both irrigation surface water to System 1 and domestic ground water to System 1 and into Municipal System 3. Buchanan pump station has one domestic ground water pump with a total 125 horsepower (hp) that has a pumping capacity of 1,000 gallons per minute (gpm).

2.1.2 SYSTEM 2 & 2B DOMESTIC

System 2, also known as “Black Sage” area, supplies domestic and irrigation water to approximately 52 accounts. System 2 is unique having been separated into two areas, System 2, and 2B. System 2B, along with every other system, is twinned. Whereas System 2 is the only system that does not have separate water sources for both irrigation and domestic water. System 2 and 2B have two domestic pump stations within its boundary, Black Sage pump station, and Miller Well pump station. The Black Sage pump station is located approximately 154m W. from Ryegrass Road between Miller Road and Watters Road. The Black Sage well supplies groundwater to both domestic and irrigation services in System 2 and 2B utilizing three pumps with a total 235hp, and a pumping capacity of 2,600gpm. The Miller Well, located on the west end of Miller Road, approximately 67m E. of the Okanagan River, supplements up to 500gpm of domestic groundwater to System 2 and 2B during the peak demand season, along with Systems 4 thru 7, via Reservoir 13.

2.1.3 MUNICIPAL SYSTEM DOMESTIC

The Municipal System, also known as System 3, supplies domestic groundwater to approximately 2400 accounts. The Municipal System utilizes two pump stations, and one

booster station to supply its users within the Town boundary, Rockcliffe pump station, Tucelnuit pump station, and the Airport Booster station. Rockcliffe is located between the parcels of 781 and 715 Skagit Avenue. Rockcliffe has one pump at 150hp, and a pumping capacity of 1,500gpm. Tucelnuit pump station is located on the SE corner of Merlot Avenue, and Lakeside Drive, W of the Tucelnuit Elementary School. Tucelnuit utilizes two pumps having a total pumping capacity of 1,750gpm. The Airport Booster station is located on the NE corner of the intersection of Airport Street, and Road 1. The Airport Booster is typically set to supply water from within the Municipal boundaries to the rural area south, but can also be used to intake water from the rural area south, and supply the Municipal System depending on demands or if there was a maintenance malfunction of another pump.

2.1.4 SYSTEM 4 - 7 DOMESTIC

System 4 - 7, also known as "Rural South," supplies domestic ground water to approximately 483 accounts. The Systems utilizes the Miller Well pump station, 6A Domestic Booster station, and the Airport Booster station. Miller Well pump station also aids in a supplement supply of domestic groundwater to System 2 during peak demands, and the Road 13 Reservoir. The Miller Well pump has 125hp, and a pumping capacity of 1,000gpm. 6A Domestic Booster feeds Hester Creek Reservoir (6A), while the Airport Booster has the option to alternate between the Municipal System and Rural South to have a continuous loop in the system, and so that each pump is working in its most efficient phase.

2.2 IRRIGATION SYSTEM

Surface water, specifically the Okanagan River, is the primary source for the irrigation water system. The irrigation water also includes groundwater sources from Buchannan well, Fairview well and Black Sage oxbow. The surface water runs through a canal system from McIntyre Dam (where the diversion is complete with a fish screen to divert fish back to the Okanagan River) north of the Town to Road 18. From Road 18 the water is pumped south of the Town as a piped irrigation system and ends after Road 22. Black Sage oxbow supplies the irrigation system in System 2B, with the remainder of System 2 not twinned. The Town maintains multiple water licences to allow these surface water diversions. There are five additional irrigation pump stations along the canal: Mud Lake, Rockcliffe, Fairview, Hester Creek, and Mount Kobau.

In January 2016, a large rock fall event damaged the irrigation canal siphon located at Gallagher Lake. Following the rock fall, the Town engaged Golder Associates to conduct a geotechnical assessment of the area to determine the actions required to enable safe access

to the site for repair of the siphon; T&A Rockworks carried out rock scaling. A 1.2m (outer diameter) pipe was grouted into place to repair the damaged section of the canal. This allowed the siphon to operate during the irrigation season with a 32% reduction in supply capacity. While this flow has been sufficient for 2016, 2017, 2018, 2019, 2020, 2021 and 2022 so far, it may not be adequate during warmer, drier seasons in the future and hinders the Town from incorporating new customers.

The 2022 irrigation season started on April 11th and ended on October 26th. Crews began filling the canal and turning on spray fillers April 1st. The canal diversion was shut down on October 26th. Completion of winterizing the Town irrigation systems by the middle of November.

The Town has completed work on re-routing the portion of the canal (damaged siphon) with the help of provincial funding and borrowing. The re-routing project is fully complete as of December 2022, with a deficiency list. The Town incorporated in 2022, Gallagher Pump Station as an additional location of surface water diversion from the Okanagan River. Surface water added from the Gallagher Pump Station into the irrigation canal reinstates the full capacity of the irrigation system.

Heavier creek flows of creeks during the years of 2017 & 2018 on the west side of the Okanagan valley had staff continual monitoring of; Hester, Tinhorn, Reid & Park Rill Creeks as the heavier flow could affect the irrigation system, such as the 2017 debris run-off into the canal. During past years, staff spent extra time monitoring, periodically removing material from culvert inlets and outlets that could potentially damage the Town's irrigation infrastructure.

2.2.1 SYSTEM 1 IRRIGATION

System 1 utilizes two pump stations for its irrigation supply, Mud Lake and Buchanan. Mud Lake pump station intakes water from the canal utilizing two pump units at a combined 200hp, and having a pumping capacity of 5,000gpm. Mud Lake is located 90m W of Buchanan Drive. Buchanan is a ground water supplied irrigation station with a single 50hp pump, and has a capacity of 500gpm. System 1 covers 420 acres of agriculture that is pressure irrigated, excluding low-pressure users in the area.

2.2.2 SYSTEM 2&2B IRRIGATION

As mentioned earlier, System 2 is the only system that is not twinned, having pumps that supply groundwater for both domestic and irrigation uses with a combined 240hp, and

having a pumping capacity of 2,600gpm. However, System 2B has its own irrigation pump which is called Black Sage Irrigation pump that intakes from the Black Sage oxbow located 65m S of Road #9, and 100m E of the Okanagan River. This pump has 150hp with a capacity of 1,540gpm. System 2 and 2B provide pressurized irrigation water to approximately 405 acres of agriculture land.

2.2.3 SYSTEM 4-7 IRRIGATION

The second canal pump station is Rockcliffe Irrigation in System 4. This station utilizes three pumps having a combined 500hp, and a pump capacity of 9,100gpm. Rockcliffe supplies pressurized irrigation to approximately 916 acres of agriculture. This pump station is located between the properties of 824 and 760 of Road 2. System 4 also includes a 25,000 US GAL (94m³) irrigation water reservoir, called System 4 Irrigation Reservoir.

The third canal pump station along the system is Fairview Irrigation pump station, which is located in System 5 on the NE corner of Road 5 and the canal intersection. Fairview utilizes two pumping units with a combined horsepower of 300hp, and having a pumping capacity of 4,400gpm. Fairview Irrigation supplies pressurized irrigation to approximately 467 acres. Another Fairview Irrigation well in System 5, which used to be part of the domestic water system, was changed over to supply the irrigation system when the nitrate levels exceeded the Canadian Drinking Water Standards. Its primary use now is to supply water in the shoulder seasons or low demand portions in the irrigation year but it can also help supplement peak demands. System 5 includes a 50,000 US GAL (189m³) irrigation water reservoir, called Fairview Irrigation Reservoir.

Hester Creek Irrigation pump station is located in System 6 at the NE corner of the West end of Road 11 and the canal intersection. Hester Creek pump station utilizes two pumping units having a combined horsepower of 175hp, and a pumping capacity of 4,000gpm. Hester Creek Irrigation pump station delivers pressurized irrigation to approximately 426 acres of land. System 6 also contains a booster pump station that has two 15hp pumps, and is utilized during the peak season.

Mt Kobau Irrigation pump station is the most southern in the water system, in System 7, located at the west end of Road 18. Mt Kobau has two pumping units that have a combined total of 150hp, with a capacity of 4,000gpm. Mt Kobau provides pressurized irrigation to approximately 545 acres of land.

3.0 WATER QUALITY, SAMPLING, AND MONITORING PROGRAM

In the past the Town utilized two sources of water, surface water (Okanagan River) and groundwater (well water); the surface water is now restricted to irrigation water only. Groundwater is now the **only source** of water used for domestic purposes, and the only source that is **thoroughly monitored** and sampled for quality purposes.

3.1 SAMPLING AND MONITORING

The Town works closely with CARO Analytical Services out of Kelowna, BC to monitor drinking water quality in accordance with the *BC Drinking Water Protection Act*, and *Guidelines for Canadian Drinking Water Quality (GCDWQ)*. The Town's staff submits weekly samples from various sampling sites throughout the domestic system for bacteriological testing for Total Coliforms, and E-Coli Bacteria. In conjunction with these submittals, the Town also conducts their own in-house 'presence/absence' tests. The Town also monitors the Nitrate levels in the drinking water sampling six times a year in February, April, June, August, October, and December. Once a year, usually mid-summer, the Town will commence a full spectrum test on the domestic water system. The spectrum analyzes all physical parameters and characteristics of the Town's drinking water. The water results are then compared to the *GCDWQ* to ensure compliance.

- *(Please See Appendix A: The Town of Oliver Water System Map for Sampling Sites)*
- *(Please See Appendix B: 2021 Full Spectrum Results and GCDWQ)*
- *(Please See Appendix C: 2021 Weekly Water Sampling Result Table)*

There are seven test stations located in the Municipal boundaries. The Rural Area north of Town has one test station and there are six testing sites (excluding wells) south of Town. When any sample result shows the presence of Total Coliform or E-Coli, the Interior Health Environmental Health Officer is consulted and standard protocols are initiated with a flushing of the contaminated system and a resampling of water where contamination was located. Resampling occurs immediately for lab testing and in-house 'presence/absence' samples are also taken to identify coliforms.

In May, The Town had one sample come back positive for coliforms then the Town sampled and did in house testing following the positive result. The tests came back negative for coliforms.

4.0 WATER CONSUMPTION

4.1 TOTAL CONSUMPTION

The water works system is twinned in Oliver which means that the groundwater used for domestic purposes and surface water is used for irrigation purposes, each having their own piping system. System 2 is not twinned, as it uses groundwater for both irrigation and domestic purposes. The Town of Oliver consumed 2,661,302,812 US GAL of water in 2022. That is 10,074,122,277 liters (L) of water or 10,074,122 m³ of water.

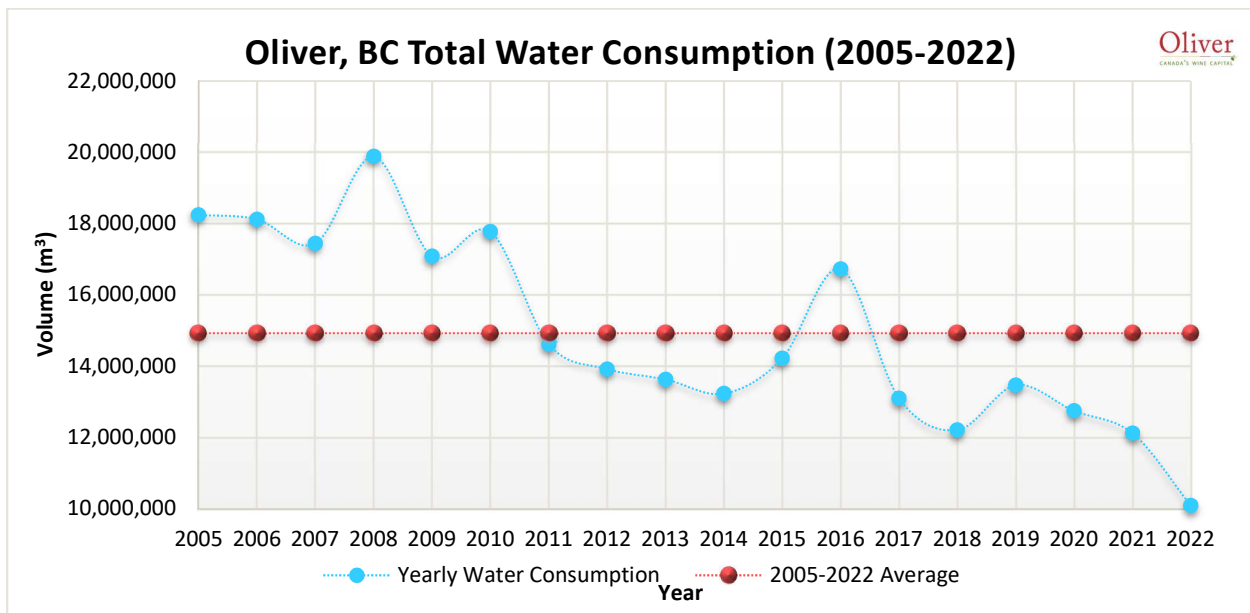


Figure 2: Total Water Consumption 17 Year Trend

As shown in *Figure 2*, the Town consumed 23.85% less water than the previous year (2021). The seventeen-year average is 3,812,099,942 US GAL. In 2021, the Town consumed 30.2% less than the seventeen-year average. Water demand is influenced by population and irrigation usage, population has been slightly increasing each year in the Town and surrounding area. The 2021 Census reported the Town's population as 5,094, however, the Town's water system extends beyond its borders making it difficult to define how many people it actually serves; it is estimated to be over 6,000 people.

Irrigation technology has seen improvements over the years for ground crops, orchards and vineyards; this has had a significant change on the water demand and peak demand decreases. Irrigation practices and water conservation through these practices have been the

major influence on the change in water demand; this includes the final twinning stages of the water system in 2014. The other major contributing factor for irrigating is weather and precipitation. In 2021, The South Okanagan reached drought level 4, by the government of BC. In 2015, The South Okanagan reached drought level 4, by the government of BC. In 2016, the South Okanagan did not reach a drought level 4, instead it had a normal snowpack season, and was considered a “dry” year, but did not see the same level of drought as 2015. In 2017, above normal snowpack and late winter/early spring precipitation caused unsuspected flooding throughout the region. In 2018, the Okanagan was in a valley wide emergency state due to flooding again. The snow back in March was 85% above normal, and then April rains came along with high temperatures. The melt increased and creeks that have been dry for years started flowing again. Agriculture development over the years had changed the lay of the land and the natural watercourses, causing the spring runoff to flow through vineyards and orchards damaging crops. The spring flooding caused the Town’s agriculture season to be a wet one, and the large amount of precipitation influenced the irrigation demand. The Town’s maximum residential domestic water demand was on July 30, 2022. *See Figure 3.* The Town had a maximum daily water demand peak at 12480.82m³, while minimum daily demand occurred on February 15, 2022 at 1848.00 m³.

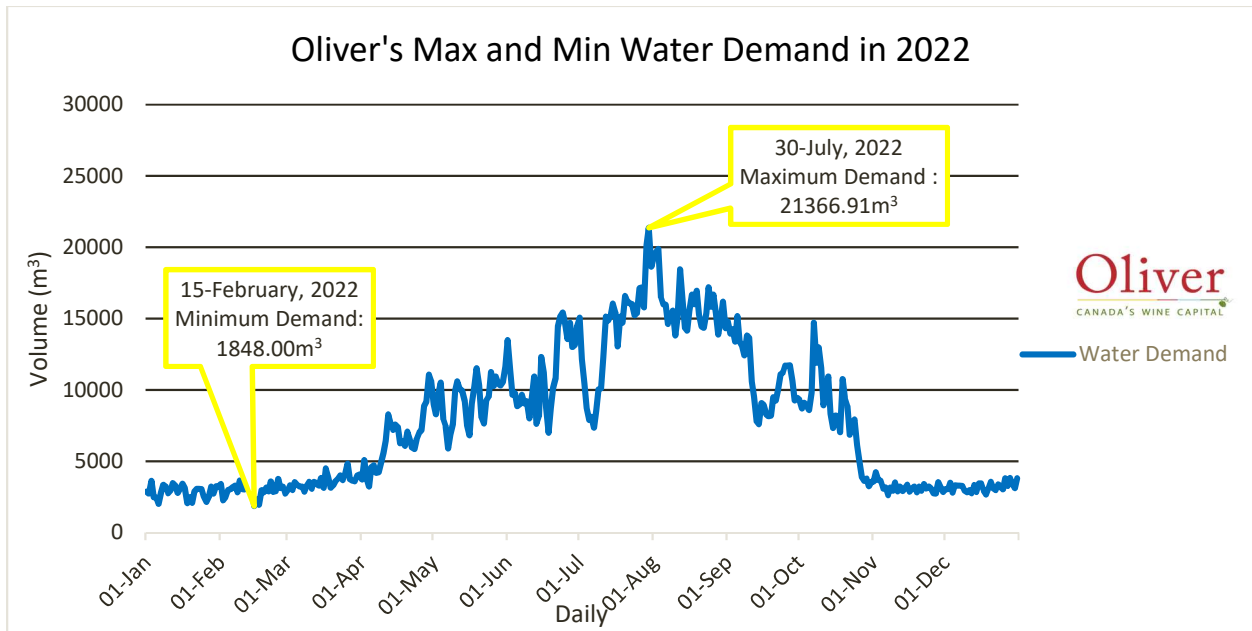


Figure 3: Oliver's 2022 Max and Min Domestic Water Demand

4.2 BREAKDOWN OF CONSUMPTION

2022 Annual Water Report

The Town consumed 741,286,947 US GAL (2,806,075m³, 2,806,075,020L) of groundwater in 2022. This amount is 27.85% of the total consumption. The remaining 72.15% is surface water, primarily used for irrigation, having a total consumption of 1,920,015,865 US GAL (7,268,051m³, 7,268,050,681L). See Table 1 below for the breakdown of percentages.

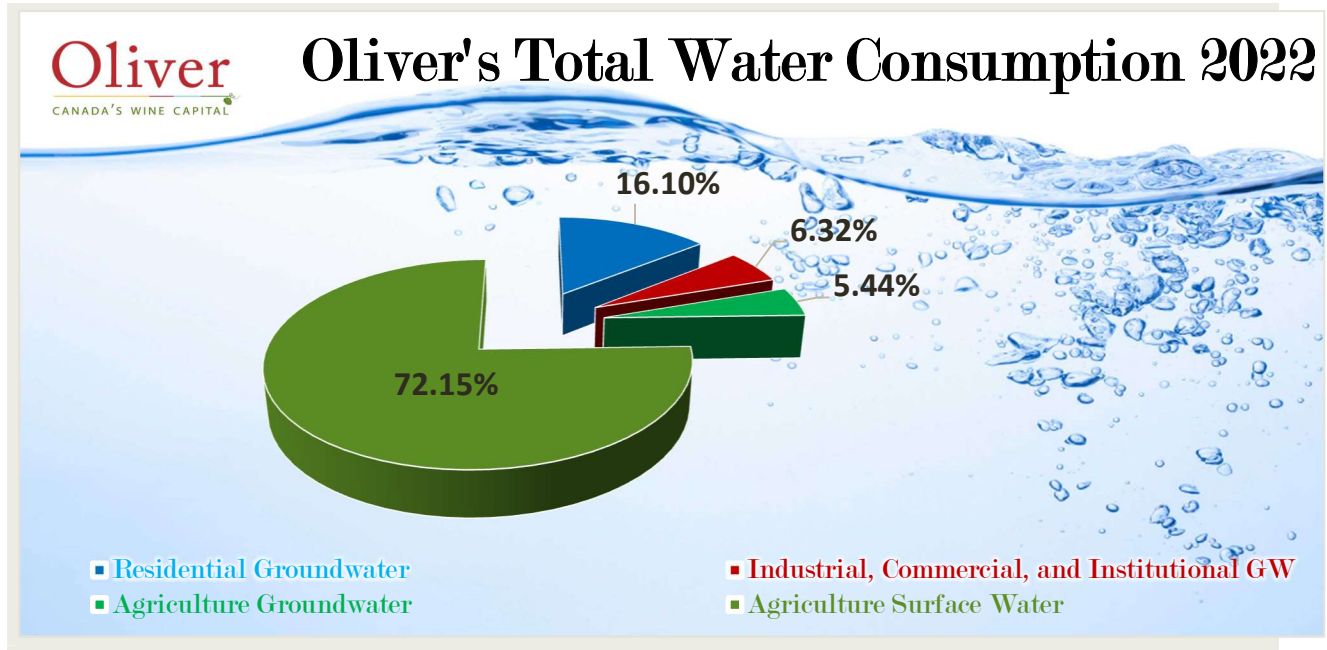


Figure 4: Oliver's Total Water Consumption 2022

WURC CALCULATIONS	US GAL	CUBIC METERS	PERCENTAGE
TOTAL GW USED	741286946.57	2806075.02	27.85%
TOTAL SW USED	1920015865.16	7268047.26	72.15%
TOTAL RES GW	428347622.02	1621471.37	16.10%
TOTAL RES SW	0.00	0.00	0.00%
TOTAL ICI GW	168245091.09	636876.65	6.32%
TOTAL ICI SW	0.00	0.00	0.00%
TOTAL AG GW	144721107.79	547828.73	5.44%
TOTAL AG SW	1920015865.16	7268047.26	72.15%
TOTAL WATER	2661302811.73	10074122.28	100.00%

Table 1: Oliver's Groundwater Breakdown: Groundwater (GW), Surface Water (SW), Residential (RES), Industrial, Commercial, Institutional (ICI), and Agriculture (AG).

According to the OBWB, an average person in the Okanagan uses 675L of water each day. That is twice more water than the Canadian average of 329L per day. On average, the Town

domestic system used approximately 1050L of water per person per day in 2022, which is 721L above the Canadian average. *See Figure 5.*

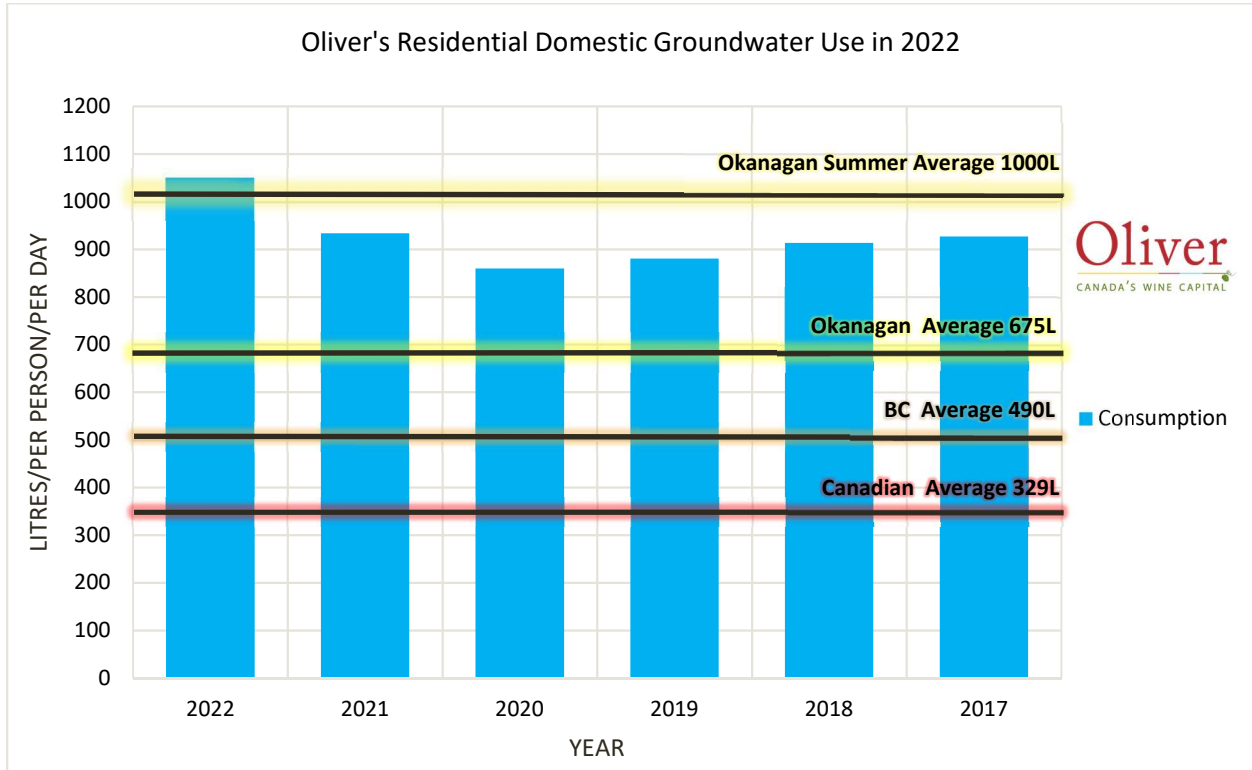


Figure 5: Oliver (2017-2022) vs OBWB Estimated Averages (1996-2006)

During the summer months the average consumption rate exceeds the Okanagan summer average of 1,000L (1m³) with the Town using 1521L per person per day while the pumps are in Summer Mode (April to October). However, when the pumps are in Winter Mode (November-March), the Town used 382L per person per day, which is below the Okanagan average of 675L. These numbers are approximate values and estimates, if a person would like to know their household usage from year to year - take the volume consumed on your monthly water bill, convert it to liters, and divide it by the number of people in the household and the number of days in the month, you will get your answer in liters per person per day. Once you have your results, you can compare your usage each year to your previous years along with the Canadian, BC, Okanagan, and Okanagan Summer Averages. *See Below and Figures 5-7.*

$$1. \text{ Total Volume of Water used from Water Bill (cubic meters)} = x(m^3)$$

2022 Annual Water Report

2. Convert $x(m^3)$ to (liters (l)) = $x(m^3) \times 1000 = x(l)$

3. Divide $x(l)$ by number of persons in household (pp) = $\frac{x(l)}{(\# \text{ of persons})}$

4. Then Divide that result $\left(\frac{x(l)}{pp}\right)$ by the number of days the water bill is accounting for (pd) = $\frac{(x(l)/pp)}{(\# \text{ of days})}$

5. This answer is your final result = $x(l)/pp/pd$

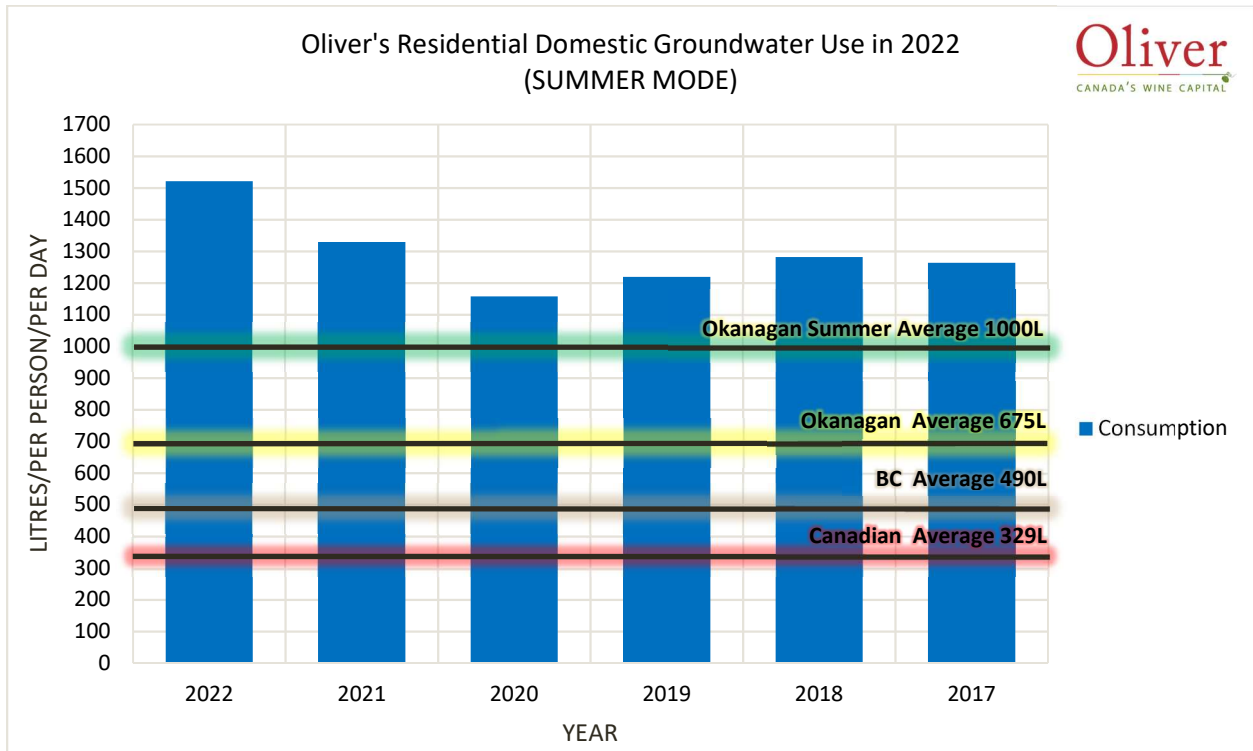


Figure 6: Oliver's (April-October 2017-2022) average vs OBWB Estimated Averages (1996-2006)

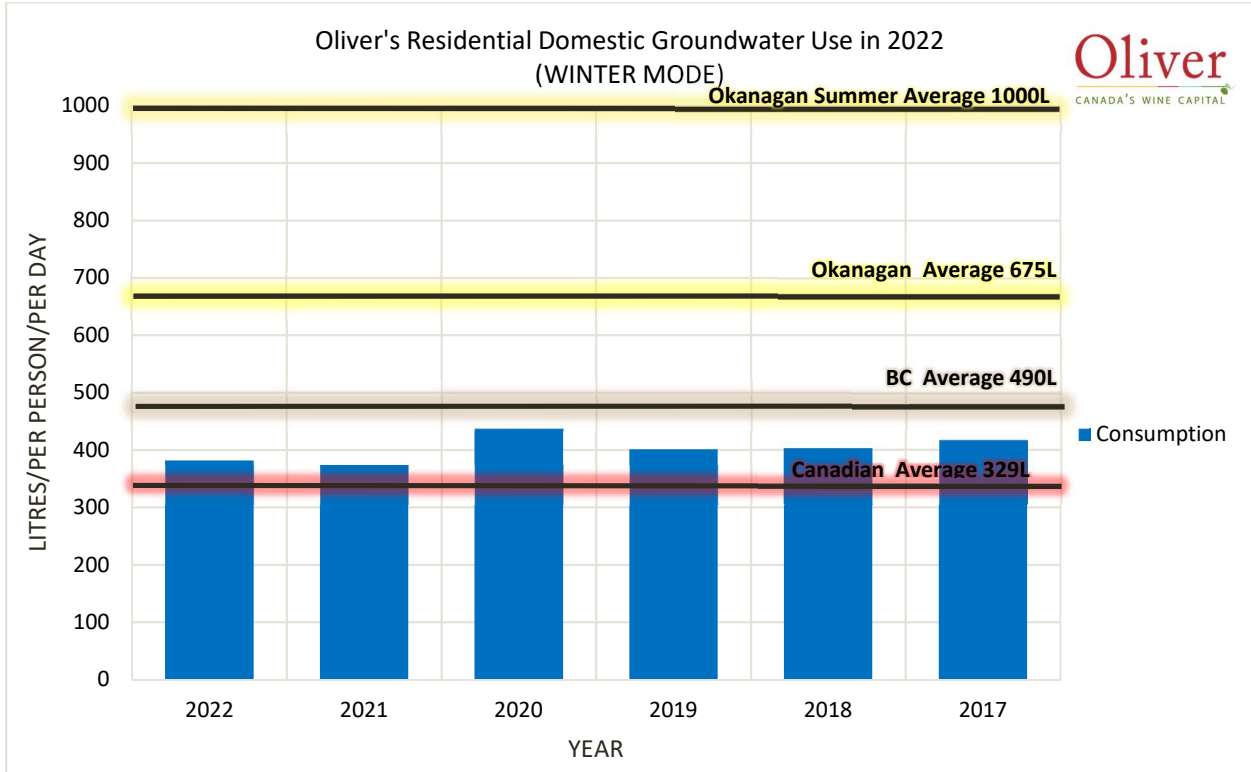


Figure 7: Oliver's (November - March 2017-2022) average vs OBWB Estimate Averages (1996-2006)

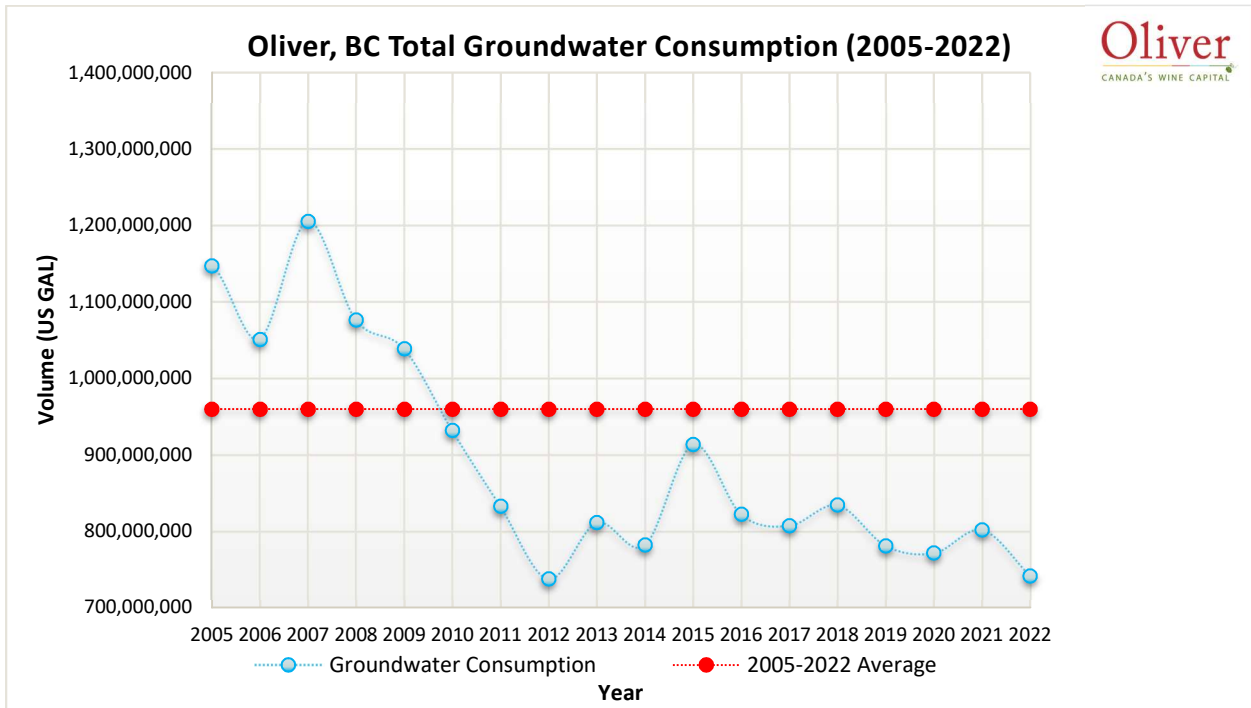


Figure 8: Oliver's Total Groundwater Consumption Trend (2005-2022)

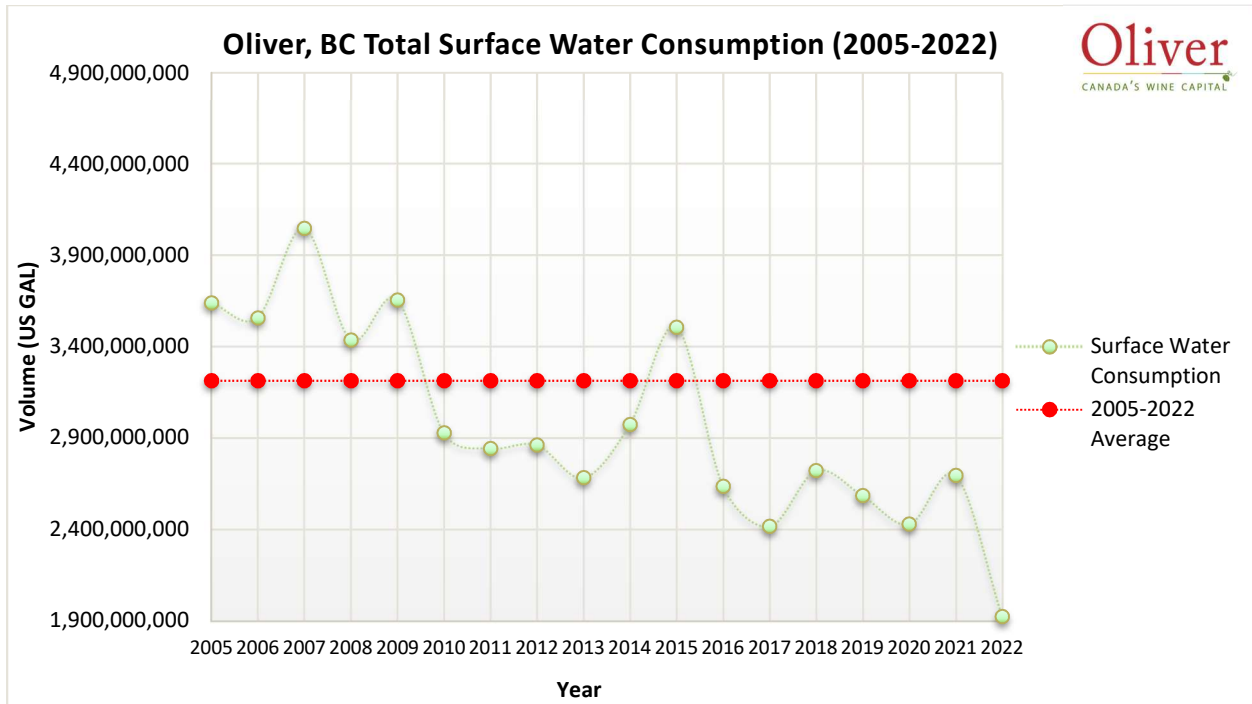


Figure 9: Oliver's Total Surface Water Consumption Trend (2005-2022)

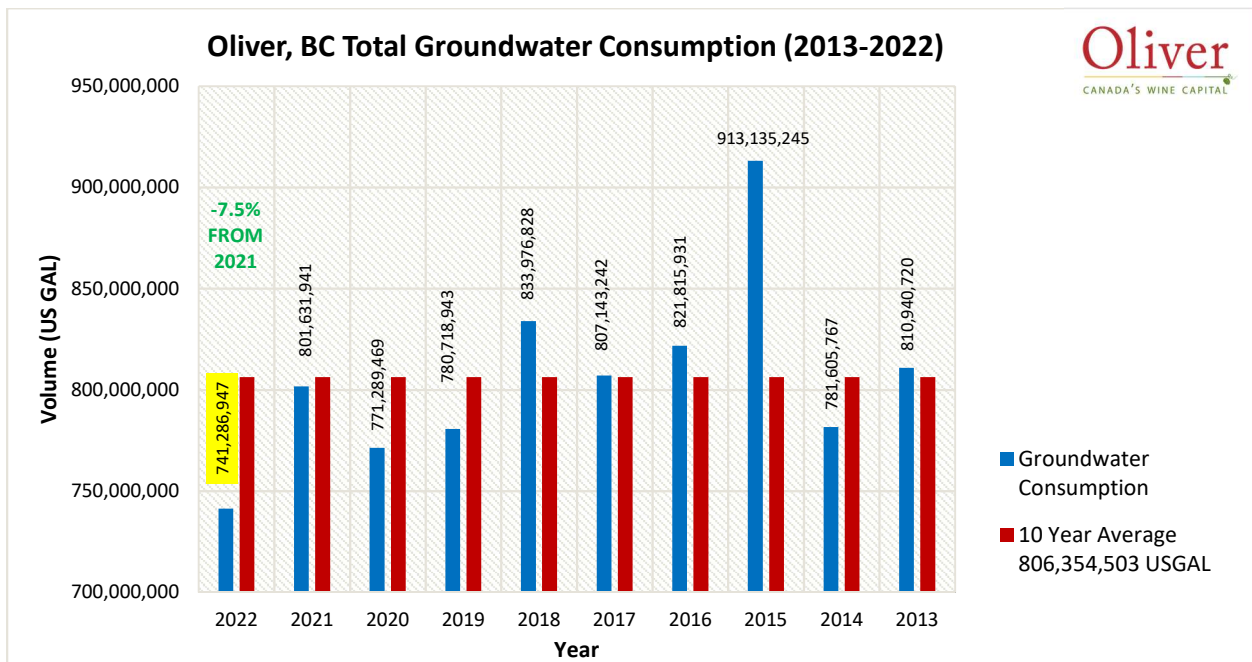


Figure 10: Oliver's Groundwater Consumption (2013-2022)

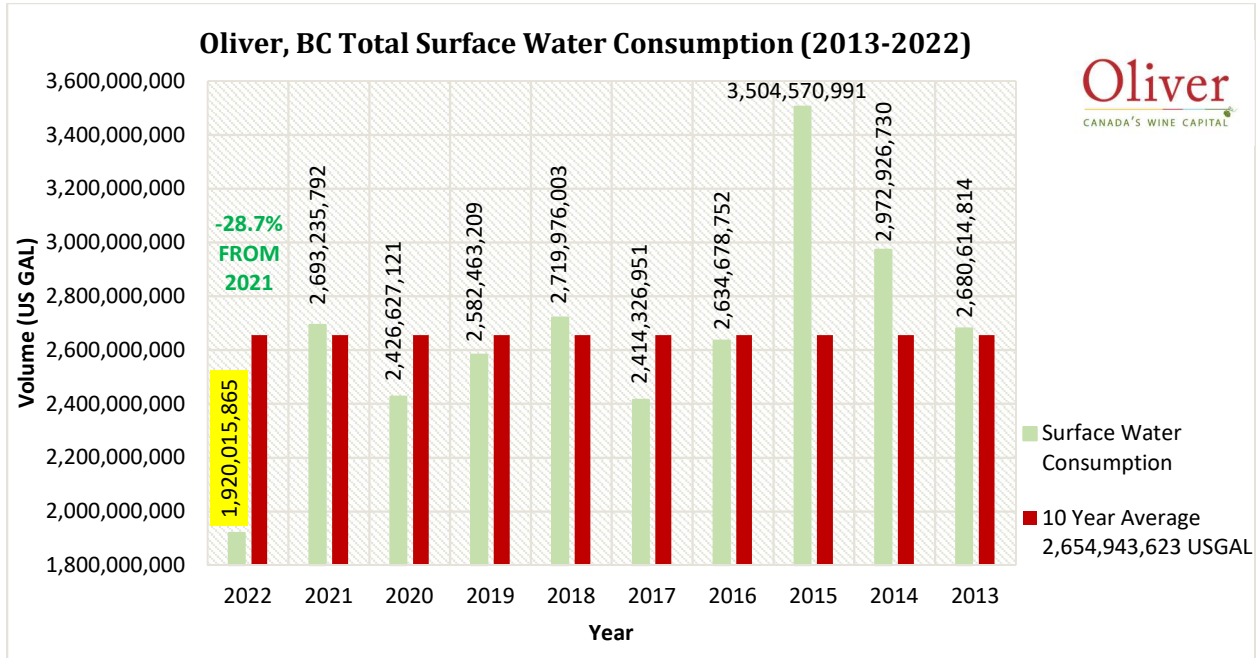


Figure 11: Oliver's Surface Water Consumption (2013-2022)

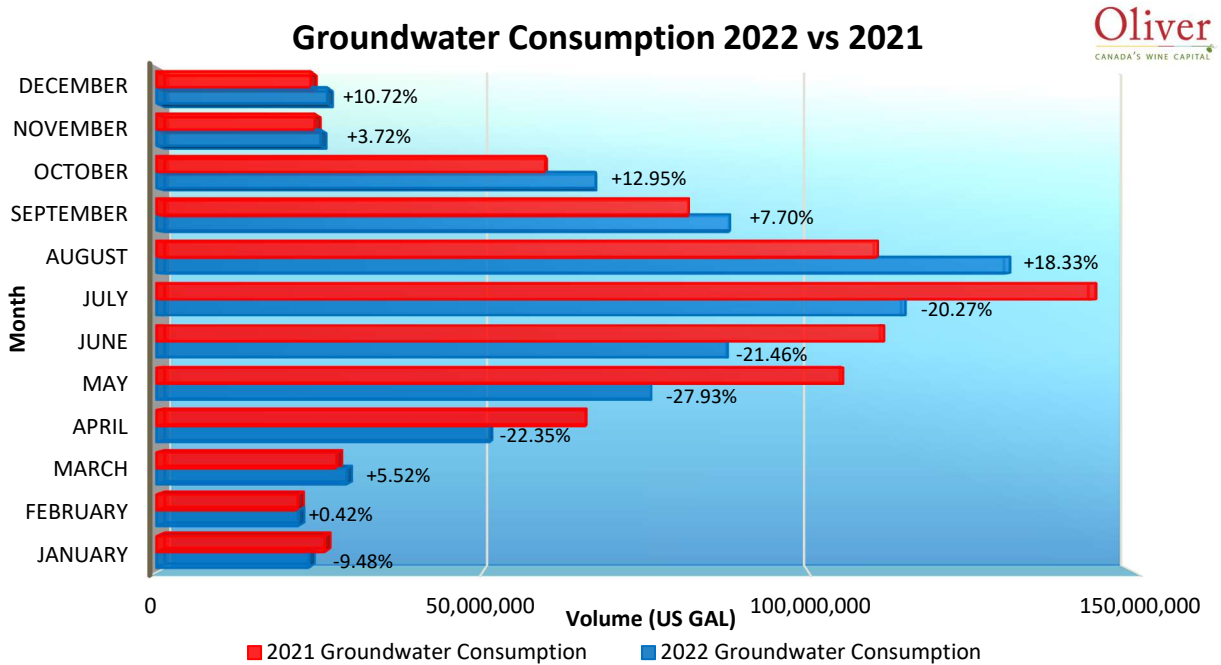


Figure 12: Groundwater Demand Percentages in 2022 Compared to the Previous Year 2021

2022 Annual Water Report

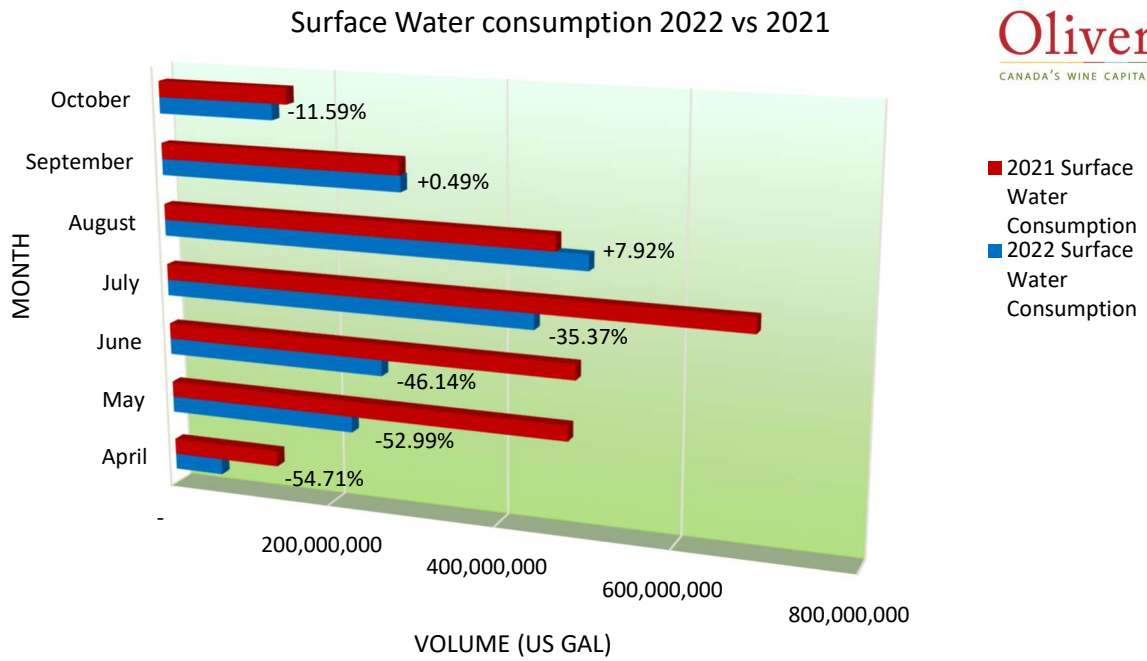


Figure 13: Surface Water Demand Percentages in 2022 Compared to the Previous Year 2021

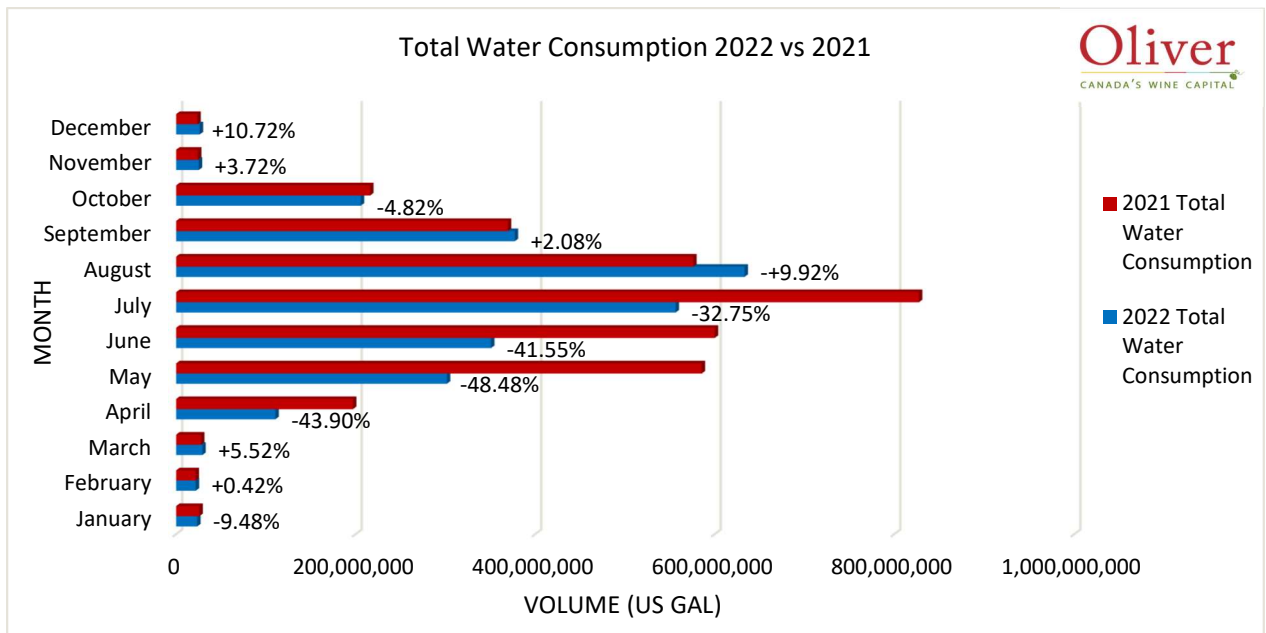


Figure 14: Total Water Demand Percentages in 2022 Compared to the Previous Year 2021

- (Please See Appendix D: 2021 Pumping Data Table)
- (Please See Appendix E: Groundwater and Surface Water Consumption Data Tables)

4.3 WATER CONSERVATION

The Town works closely with the OBWB and its *Okanagan Water Wise* program called “Make Water Work”, to spread a valley wide awareness on water conservation in the Okanagan. The program acts as a campaign where residents take water conservation survey pledges. OBWB will bring awareness in 2023 with more Radio Ads, Facebook Ads, Billboards, other social media support, yard signs, posters, and magnets linking the Make Water Work website www.makewaterwork.ca.

5.0 STAFF

According to EOCP (Environmental Operator Certification Program), the Town’s Water Distribution System is classified as Class III. In 2022 the Town’s operations has five certified Water Distribution Operators on staff; two Level I, two Level II, and one Level III.

The Town is also classified as a Level I Water Treatment facility (at multiple locations). We currently have three Operators with Level I and two working on receiving their Level I.

All Operators are required to keep up with their education and to maintain 2.4 certified education units (CEU’s) every two years, monitored by the EOCP. Various accredited courses were put on at the Town regarding safe work practices.

6.0 CAPITAL PROJECTS AND IMPROVEMENTS

6.1 PROJECTS COMPLETED IN 2022

The Town continues to make minor and major improvements to the Town’s water system every year and works with the Interior Health Authority (IHA) to prioritize some of these goals. Here are the main projects that were completed or started in 2022:

Canal Lining Rehabilitation Continued

- Town staff worked with contractors to overlay 340m section of existing irrigation canal floor and walls located next to the McIntyre Dam to Highway 97. The work was completed in time for the early April canal diversion fill.

Control Panel – Fairview Irrigation

- The Town updated the control panel including wiring to devices and instruments. This also included some programming and commissioning.

Gallagher Siphon Re-route

- This large scale project started in late 2020 with the hiring process for a contractor and is slated to finish in the spring of 2022. This project will consist of replacing a section of large diameter (siphon) pipe and open canal, to re-route away from rock fall areas that continually damage the canal system next to Gallagher Lake itself.

6.2 CONTINUING PROJECTS INTO 2023

Okanagan St. Rehabilitation (sewer & water)

- Designs started in 2021 but the town is replacing sewer pipe in the Okanagan Avenue area near Similkameen Avenue. This means a section of water mainline has to be replaced/upgraded in the construction process which the work is slated for 2022.

Canal Lining Rehabilitation Continued

- The Town is planning to rehabilitate another 250m of canal concrete wall and floor north of our Mud Lake Pumphouse.

Water Meter Replacements

- This project started in 2020 and scheduled for several years in order to complete some necessary change outs. The water meters are coming to the end of their useful life and our Finance Department is looking at upgrading to new replacement meters that have less moving parts, are less susceptible to any damages and have longer battery life.

Kootenay Street Service Upgrades

- Pre-designing future infrastructure upgrades and road improvements on Kootenay Street.

Explore PH Location & Testing

- The Town will research data and look at our current capacity of our domestic water system. If future capacity is required, the Town will start looking for new locations for a pumphouse and could undertake some drilling.

6.3 LONG TERM IMPROVEMENT PLANS

The Town has a 5 year budgeted capital plan for known upgrades and new infrastructure and/or projects. These projects include canal rehabilitation on an annual basis:

Projects for 2023

- Water Meter Replacements Continued
- Canal Lining Rehabilitation Continued
- Black Sage PH Site

2024

- Water Meter Replacements Continued
- Booster Station 6A
- Modify Turnouts on Canal System
- Okanagan Street & School Avenue Water Upgrades
- Canal Lining Rehabilitation Continued
- Sawmill Road Extension Water Upgrades
- W4: Tuc-el-nuit Back-up Power
- Upgrade Trash Racks on Canal
- Kootenay Street Rehabilitation – Water Upgrades
- Okanagan Street Rehabilitation – Water Upgrades
- School Avenue Rehabilitation – Water Upgrades

2025

- Water Meter Replacements Continued
- Canal Lining Rehabilitation Continued
- Pine and Spruce Ave. Upgrades

2026

- Canal Lining Rehabilitation Continued
- Sawmill Rd- Walnut to Oak Upgrades
- Canal Intakes Rockcliffe Irr. & Mud Lake

7.0 EMERGENCY RESPONSE PLAN

The Town has an *Emergency Response Plan* pertaining to any natural disaster, and the water system. The *Emergency Response Plan* identifies a number of potential emergencies that

could occur and provides a systematic approach on how the Town will respond to the emergency.

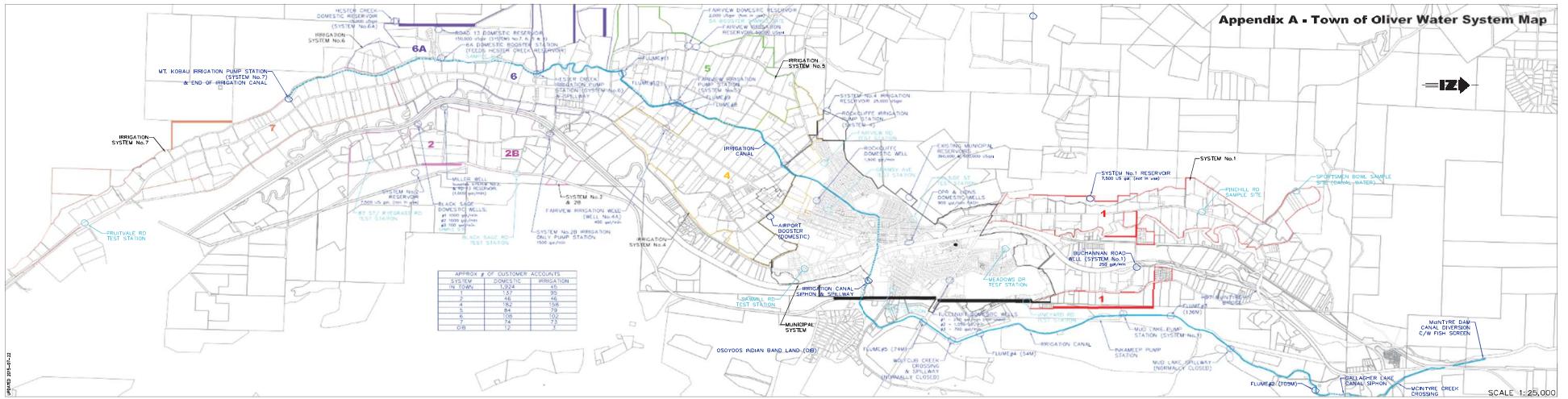
8.0 CROSS CONNECTION CONTROL PROGRAM

Cross connection is an actual or potential connection between a potable water supply and a non-potable source, where it is possible for a contaminant to enter the drinking water supply. The Town's Cross Connection Control Program continues to work towards addressing the potential for the water system to be compromised by service connections, which could introduce contaminated water into the domestic water system. The program is used to monitor Backflow devices and cross connections through the FAST Program (Facility Assessment & Survey Technology) by the Town staff, focusing on premise isolation for commercial and industrial customers. In 2022, there were 340 testable backflow assemblies in service (including agricultural devices) being tracked.

9.0 CONCLUSION

The Town works hard to maintain water quality and quantity for their residents as well as numerous customers in the Regional District of Okanagan Similkameen Area 'C'. Efforts are made to ensure appropriate water usage and to educate the public whenever possible. Without these ongoing efforts, the area would not be the robust agricultural community that it is today. If you have any comments regarding this report or other information that you would like to see included, please email works@oliver.ca or request a customer concern form at the Town Hall.

APPENDIX A: THE TOWN OF OLIVER WATER SYSTEM MAP FOR SAMPLING SITES



APPENDIX B: 2022 FULL SPECTRUM

No Spectrum Analysis completed in 2022.

APPENDIX C: 2022 WEEKLY WATER SAMPLING

2022 WEEKLY CHLORINE RESIDUAL & COLIFORMS SAMPLING
 (Target 0.2 to 1.50 - Chlorine Residual)

DATE	RURAL NORTH				BLACK SAGE				RURAL SOUTH													MUNICIPAL											
	System #1				System #2				System #4				System #5				System #6				System #7				Groundwater Source								
	Chlorine Residual	Sample Location	Coliform Total	Ecoli	Chlorine Residual	Sample Location	Coliform Total	Ecoli	Chlorine Residual	Sample Location	Coliform Total	Ecoli	Chlorine Residual	Sample Location	Coliform Total	Ecoli	Chlorine Residual	Sample Location	Coliform Total	Ecoli	Chlorine Residual	Sample Location	Coliform Total	Ecoli	Chlorine Residual	Sample Location	Coliform Total	Ecoli					
Jan-04	0.38	Mikes Auto	<1	<1									0.24	5A Booster	<1	<1											0.34	Sawmill	<1	<1			
Jan-10	0.20	Pinehill	<1	<1					0.51	Snowbrush	<1	<1															0.52	Granby	<1	<1			
Jan-17	0.31	McGowan	<1	<1																	0.11	Fruitvale	<1	<1			0.41	Fairview	<1	<1			
Jan-24	0.20	Mikes Auto	<1	<1													0.16	6A Booster	<1	<1							0.23	Hillside	<1	<1			
Jan-31	0.11	Pinehill	<1	<1									0.13	5A Booster	<1	<1											0.35	Meadows	<1	<1			
Feb-08	0.20	McGowan	<1	<1					0.08	Snowbrush	<1	<1															0.32	Vineyard	<1	<1			
Feb-14	0.39	Mikes Auto	<1	<1																	0.07	Fruitvale	<1	<1			0.34	Wolfcub	<1	<1			
Feb-22	0.19	Pinehill	<1	<1													0.11	6A Booster	<1	<1							0.28	Sawmill	<1	<1			
Feb-28	0.37	McGowan	<1	<1									0.16	5A Booster	<1	<1											0.30	Granby	<1	<1			
Mar-07	0.38	Mikes Auto	<1	<1					0.33	Snowbrush	<1	<1															0.40	Fairview	<1	<1			
Mar-14	0.18	Pinehill	<1	<1																	0.15	Fruitvale	<1	<1			0.26	Hillside	<1	<1			
Mar-21	0.43	McGowan	<1	<1													0.16	6A Booster	<1	<1							0.43	Meadows	<1	<1			
Mar-28	0.32	Mikes Auto	<1	<1									0.17	5A Booster	<1	<1											0.40	Vineyard	<1	<1			
Apr-04	0.43	Pinehill	<1	<1					0.33	Snowbrush	<1	<1															0.37	Wolfcub	<1	<1			
Apr-11	0.23	McGowan	<1	<1																	0.10	Fruitvale	<1	<1			0.43	Sawmill	<1	<1			
Apr-19	0.48	Mikes Auto	<1	<1	0.16	Black Sage	<1	<1									0.13	6A Booster	<1	<1							0.66	Granby	<1	<1			
Apr-25	0.32	Pinehill	<1	<1	0.10	Ryegrass	<1	<1					0.05	5A Booster	<1	<1											0.50	Fairview	<1	<1			
May-02	0.32	McGowan	<1	<1	0.45	Black Sage	<1	<1	0.42	Snowbrush	<1	<1															0.27	Hillside	<1	<1			
May-09	0.38	Mikes Auto	<1	<1	0.20	Ryegrass	<1	<1													0.10	Fruitvale	<1	<1			0.44	Meadows	<1	<1			
May-17	0.34	Pinehill	<1	<1	0.16	Black Sage	<1	<1									0.11	6A Booster	<1	<1							0.35	Vineyard	<1	<1			
May-24																																	
May-30	0.35	McGowan	<1	<1	0.19	Ryegrass	<1	<1					13.00	5A Booster	>1	>1	RETESTED										0.44	Sawmill	<1	<1			
Jun-06	0.46	Mikes Auto	<1	<1	0.12	Black Sage	<1	<1					0.10	5A Booster	<1	<1											0.53	Granby	<1	<1			
Jun-13	0.30	Pinehill	<1	<1	0.08	Ryegrass	<1	<1	0.10	Snowbrush	<1	<1	0.10	5A Booster	<1	<1										0.11	Fruitvale	<1	<1	0.49	Fairview	<1	<1
Jun-20	0.21	McGowan	<1	<1	0.14	Black Sage	<1	<1																			0.43	Hillside	<1	<1			
Jun-27	0.27	Mikes Auto	<1	<1	0.36	Ryegrass	<1	<1									0.17	6A Booster	<1	<1							0.25	Meadows	<1	<1			
Jul-06													0.08	5A Booster	<1	<1																	
Jul-04	0.33	Pinehill	<1	<1	0.18	Black Sage	<1	<1					0.13	5A Booster	<1	<1																	
Jul-11	0.23	McGowan	<1	<1	0.27	Ryegrass	<1	<1	0.19	Snowbrush	<1	<1															0.34	Wolfcub	<1	<1			
18-Jul	0.29	Mikes Auto	<1	<1	0.15	Black Sage	<1	<1													0.13	Fruitvale	<1	<1									
Jul-19																											0.16	Sawmill	<1	<1			
Jul-25	0.17	Pinehill	<1	<1	0.24	Ryegrass	<1	<1																			0.40	Granby	<1	<1			
Aug-02	0.05	McGowan	<1	<1	0.12	Ryegrass	<1	<1	0.04	Snowbrush																	0.18	Fairview	<1	<1			
Aug-08	0.33	Mikes Auto	<1	<1	0.12	Black Sage	<1	<1													0.20	Fruitvale	<1	<1			0.14	Hillside	<1	<1			
Aug-15	0.25	Pinehill	<1	<1	0.10	Ryegrass	<1	<1									0.08	6A Booster	<1	<1							0.39	Meadows	<1	<1			
Aug-22	0.23	McGowan	<1	<1	0.16	Black Sage	<1	<1					0.12	5A Booster	<1	<1											0.12	Vineyard	<1	<1			
Aug-29	0.21	Mikes Auto	<1	<1	0.05	Ryegrass	<1	<1	0.11	Snowbrush	<1	<1															0.25	Wolfcub	<1	<1			
Sep-06	0.22	Pinehill	<1	<1	0.21	Black Sage	<1	<1													0.18	Fruitvale	<1	<1			0.22	Sawmill	<1	<1			
Sep-12	0.16	McGowan	<1	<1	0.18	Ryegrass	<1	<1									0.17	6A Booster	<1	<1							0.39	Granby	<1	<1			
Sep-20		Mikes Auto	<1	<1	0.12	Black Sage	<1	<1																			0.34	Fairview	<1	<1			
Sep-26																																	
Oct-03	0.13	McGowan	<1	<1	0.29	Black Sage	<1	<1													0.16	Fruitvale	<1	<1			0.13	Hillside	<1	<1			
Oct-11		Mikes Auto	<1	<1	0.50	Ryegrass	<1	<1									0.10	6A Booster	<1	<1							0.15	Meadows	<1	<1			
Oct-17	0.20	Pinehill	<1	<1	0.16	Black Sage	<1	<1																			0.22	Vineyard	<1	<1			
Oct-24	0.14	McGowan	<1	<1	0.21	Ryegrass	<1	<1	0.15	Snowbrush	<1	<1															0.18	Wolfcub	<1	<1			
Oct-31	0.28	Mikes Auto	<1	<1																	0.12	Fruitvale	<1	<1			0.31	Sawmill	<1	<1			
Nov-08	0.16	Pinehill	<1	<1													0.12	6A Booster	<1	<1							0.35	Granby	<1	<1			
Nov-14	0.08	McGowan	<1	<1																							0.35	Fairview	<1	<1			
Nov-21	0.19	McGowan	<1	<1																							0.23	Hillside	<1	<1			
Nov-28	0.23	Mikes Auto	<1	<1													0.11	6A Booster	<1	<1						0.11	Fairview	<1	<1				
Dec-5	0.22	Pinehill	<1	<1					0.26	Snowbrush	<1	<1															0.25	Wolfcub	<1	<1			
Dec-12	0.12	McGowan	<1	<1																	0.10	Fruitvale	<1	<1			0.17	Sawmill	<1	<1			
Dec-19	0.21	Mikes Auto	<1	<1																							0.29	Granby	<1	<1			

APPENDIX D: 2022 PUMPING DATA

TOWN OF OLIVER - PUMPING STATIONS

2022 MONTHLY TOTALS

WATER CONSUMPTION DATA

US GALLONS																					
DAY	GROUNDWATER SOURCES (US GALLONS)													SURFACE WATER SOURCE (US GALLONS)						TOTAL SURFACE WATER USED	TOTAL WATER USED
	Scada	Scada	Scada	Scada	Scada	TOTAL GROUNDWATER USED FOR DOMESTIC	Scada	Scada	Scada	Scada	Scada	TOTAL GROUNDWATER USED FOR AGRICULTURE	TOTAL GROUNDWATER USED	Scada	Scada	Scada	Scada	Scada	Scada		
	ROCKCLIFFE DOMESTIC PS	TUCELNUT PS 2	TUCELNUT PS 3	BUCHANAN DOM WELL	MILLER RD RD 13		BLACK SAGE DOM/IRR PS	MILLER RD DOM/IRR PS	TOTAL GROUNDWATER USED FOR	FAIRVIEW IRR WELL	BUCHANAN ROAD PS *			MUD LAKE PS	ROCKCLIFFE IRR PS	FAIRVIEW IRR PS	HESTER CREEK PS	MT KOBANU PS	BLK SAGE IRR PS		
	Mun	Mun	Mun	Sys 1	4,5,6,7	Sys 2	Sys 2	used for	Sys 5A	Sys 1	Sys 1	Sys 4	Sys 5	Sys 6	Sys 7	Sys 2B					
used for DOMESTIC	used for DOMESTIC	used for DOMESTIC	used for DOMESTIC	used for DOMESTIC	used for BOTH	used for BOTH	used for BOTH	used for AGRICULTURE	used for AGRICULTURE	used for AGRICULTURE	used for AGRICULTURE	used for AGRICULTURE	used for AGRICULTURE	used for AGRICULTURE	used for AGRICULTURE						
January	12,590,809	3,929,977	4,223,965	8,832	2,635,900	23,389,484	0	3,159	3,159	0	0	0	23,392,643	0	0	0	0	0	0	0	23,392,643
Febuary	7,996,898	8,517,850	2,807,594	6,068	2,439,807	21,768,217	0	2,425	2,425	0	0	0	21,770,642	0	0	0	0	0	0	0	21,770,642
March	6,632,576	8,241,254	5,669,645	4,617,827	4,014,567	29,175,869	13	21,486	21,499	0	0	0	29,197,368	0	0	0	0	0	0	0	29,197,368
April	13,446,115	6,622,946	6,790,550	5,206,125	4,249,066	36,314,802	8,312,014	657,477	8,969,491	0	5,797,330	5,797,330	51,081,623	4,200,576	27,866,973	0	23,184,363	4,160,372	509	59,412,793	110,494,416
May	14,187,471	16,137,750	8,166,608	6,798,571	4,363,466	49,653,866	23,651,528	701,277	24,352,805	0	1,871,248	1,871,248	75,877,918	26,074,169	101,033,556	0	53,404,450	38,194,643	7,057,170	225,763,988	301,641,907
June	23,965,185	11,819,781	9,018,523	6,519,391	6,299,100	57,621,980	21,368,974	1,142,460	22,511,434	0	7,466,599	7,466,599	87,600,014	31,225,534	117,058,993	0	61,472,896	41,040,508	12,343,816	263,141,747	350,741,760
July	19,928,837	22,689,536	15,058,152	10,760,947	8,500,300	76,937,772	33,910,656	624,113	34,534,769	0	3,354,387	3,354,387	114,826,928	63,054,752	177,380,986	0	98,630,883	81,584,229	20,984,499	441,635,349	556,462,277
August	32,565,517	18,045,977	12,065,595	8,893,974	7,904,100	79,475,162	42,826,250	604,144	43,430,394	0	7,954,388	7,954,388	130,859,944	70,627,471	202,893,181	0	104,412,066	97,668,949	26,803,638	502,405,303	633,265,248
September	26,849,412	5,103,322	13,022,458	9,105,128	7,009,200	61,089,519	22,424,299	290,598	22,714,897	0	4,133,883	4,133,883	87,938,299	42,307,422	127,943,162	0	60,642,843	42,720,639	15,682,783	289,296,849	377,235,148
October	9,684,571	11,517,735	8,784,099	7,717,706	6,477,100	44,181,211	17,404,413	285,494	17,689,907	0	5,455,006	5,455,006	67,326,124	18,153,050	55,289,791	0	37,834,278	20,300,289	6,782,427	138,359,835	205,685,959
November	10,059,631	5,804,152	4,230,535	2,910,830	2,084,112	25,089,261	56	112,613	112,669	0	0	0	112,669	0	0	0	0	0	0	0	25,201,930
December	10,848,830	7,181,490	3,780,497	2,523,218	1,832,100	26,166,134	0	47,379	47,379	0	0	0	26,213,514	0	0	0	0	0	0	0	26,213,514
TOTALS	188,755,852	125,611,769	93,618,220	65,068,619	57,808,817	530,863,277	169,898,204	4,492,625	174,390,828	0	36,032,841	36,032,841	741,286,947	255,642,974	809,466,642	0	439,581,778	325,669,628	89,654,842	1,920,015,865	2,661,302,812
WHEN ACTIVE																					
YTD Max Flow	1,842,020	1,521,971	884,699	617,819	422,500	3,297,084	2,028,677	256,600	2,064,257	0	702,410	702,410	5,411,979	3,037,873	8,689,900	0	4,578,750	4,372,416	1,179,443	21,293,380	26,288,714
YTD Min Flow	0	0	0	0	0	488,191	0	0	0	0	0	0	488,191	0	0	0	0	0	0	0	488,191
Avg Year Flow	517,139	344,142	256,488	178,270	158,380	1,454,420	534,271	12,309	477,783	0	98,720	98,720	2,030,923	700,392	2,217,717	0	1,207,642	894,697	246,305	5,260,317	7,291,241

TOWN OF OLIVER - PUMPING STATIONS

2022 MONTHLY TOTALS

WATER CONSUMPTION DATA

CUBIC METERS																					
DAY	GROUNDWATER SOURCES													SURFACE WATER SOURCE						TOTAL SURFACE WATER USED	TOTAL WATER USED
	Scada	Scada	Scada	Scada	Scada	TOTAL GROUNDWATER USED FOR DOMESTIC	Scada	Scada	Scada	Scada	Scada	TOTAL GROUNDWATER USED FOR AGRICULTURE	TOTAL GROUNDWATER USED	Scada	Scada	Scada	Scada	Scada	Scada		
	ROCKCLIFFE DOMESTIC PS	TUCELNUT PS 2	TUCELNUT PS 3	BUCHANAN DOM WELL	MILLER RD RD 13		BLACK SAGE DOM/IRR PS	MILLER RD DOM/IRR PS	TOTAL GROUNDWATER USED FOR	FAIRVIEW IRR WELL	BUCHANAN ROAD PS *			MUD LAKE PS	ROCKCLIFFE IRR PS	FAIRVIEW IRR PS	HESTER CREEK PS	MT KOBANU PS	BLK SAGE IRR PS		
	Mun	Mun	Mun	Sys 1	4,5,6,7	Sys 2	Sys 2	used for	Sys 5A	Sys 1	Sys 1	Sys 4	Sys 5	Sys 6	Sys 7	Sys 2B					
used for DOMESTIC	used for DOMESTIC	used for DOMESTIC	used for DOMESTIC	used for DOMESTIC	used for BOTH	used for BOTH	used for BOTH	used for AGRICULTURE	used for AGRICULTURE	used for AGRICULTURE	used for AGRICULTURE	used for AGRICULTURE	used for AGRICULTURE	used for AGRICULTURE	used for AGRICULTURE						
January	47,661	14,877	15,989	33	9,978	88,539	0	12	12	0	0	0	88,551	0	0	0	0	0	0	0	88,551
Febuary	30,272	32,244	10,628	23	9,236	82,402	0	9	9	0	0	0	82,411	0	0	0	0	0	0	0	82,411
March	25,107	31,197	21,462	17,480	15,197	110,443	0	81	81	0	0	0	110,524	0	0	0	0	0	0	0	110,524
April	50,899	25,071	25,705	19,707	16,084	137,466	31,464	2,489	33,953	0	21,945	21,945	193,365	15,901	105,488	0	87,762	15,749	2	224,902	418,267
May	53,705	61,088	30,914	25,735	16,518	187,960	89,531	2,655	92,185	0	7,083	7,083	287,229	98,701	382,453	0	202,158	144,582	26,714	854,609	1,141,838
June	90,718	44,743	34,139	24,679	23,845	218,123	80,890	4,325	85,215	0	28,264	28,264	331,602	118,201	443,116	0	232,700	155,355	46,726	996,099	1,327,701
July	75,439	85,889	57,001	40,735	32,177	291,241	120,844	2,363	130,728	0	12,698	12,698	434,667	238,688	671,460	0	373,358	308,830	79,435	1,671,771	2,106,438
August	123,274	68,311	45,673	33,667	29,920	300,846	162,115	2,287	164,402	0	30,111	30,111	495,359	267,354	768,034	0	395,242	369,717	101,463	1,901,810	2,397,169
September	101,636	19,318	49,295	34,467	26,533	231,249	84,885	1,100	85,985	0	15,648	15,648	332,883	160,151	484,317	0	229,558	161,715	59,366	1,095,107	1,427,990
October	36,660	43,599	33,251	29,215	24,518	167,244	65,883	1,081	66,964	0	20,649	20,649	254,857	68,717	209,295	0	143,218	76,845	25,674	523,749	778,606
November	38,080	21,971	16,014	11,019	7,889	94,973	0	426	426	0	0	0	95,400	0	0	0	0	0	0	0	95,400
December	41,067	27,185	14,311	9,551	6,935	99,050	0	179	179	0	0	0	99,229	0	0	0	0	0	0	0	99,229
TOTALS	714,518	475,492	354,383	246,311	218,830	2,009,535	635,612	17,006	660,141	0	136,399	136,399	2,806,075	967,713	3,064,163	0	1,663,997	1,232,793	339,380	7,268,047	10,074,122
WHEN ACTIVE																					
YTD Max Flow	6,973	5,761	3,349	2,339	1,599	12,481	7,679	971	7,814	0	2,659	2,659	20,487	11,500	32,895	0	17,332	16,551	4,465	80,604	99,514
YTD Min Flow	0	0	0	0	0	1,848	0	0	0	0	0	0	1,848	0	0	0	0	0	0	0	1,848
Avg Year Flow	55,899	37,087	27,129	18,823	16,702	151,508	47,082	1,270	48,909	0	10,104	9,407	206,460	71,682	226,975	0	123,259	91,318	25,139	501,245	707,705

APPENDIX E: 2022 GROUNDWATER AND SURFACE WATER CONSUMPTION DATA

Town of Oliver

Groundwater Consumption Data

US GALLONS															
YEAR	January	February	March	April	May	June	July	August	September	October	November	December	YTD	10 YR Average	Average
2022	23,392,643	21,770,642	29,197,368	51,081,623	75,877,918	87,600,014	114,826,928	130,859,944	87,938,299	67,326,124	25,201,930	26,213,514	741,286,947	806,354,503	959,563,589
2021	25,841,686	21,679,210	27,670,223	65,785,664	105,278,837	111,539,990	144,023,757	110,585,662	81,648,387	59,604,827	24,297,510	23,676,188	801,631,941	806,354,503	959,563,589
2020	25,795,469	24,648,672	38,939,523	48,618,456	75,490,661	78,829,209	129,972,821	128,329,944	95,213,591	71,385,016	28,671,338	25,394,770	771,289,469	806,354,503	959,563,589
2019	23,543,266	28,561,243	28,581,167	50,920,567	109,979,293	132,432,802	119,129,918	119,860,386	69,368,736	46,730,582	27,035,693	24,575,289	780,718,943	806,354,503	959,563,589
2018	25,693,865	23,678,138	32,157,774	48,096,882	102,453,177	117,372,052	157,067,454	138,706,689	81,652,713	55,774,737	27,718,659	23,604,690	833,976,828	806,354,503	959,563,589
2017	27,531,385	26,935,811	32,381,863	33,127,917	69,692,881	105,839,743	156,311,916	147,447,499	92,667,928	64,715,211	25,437,142	25,053,945	807,143,242	806,354,503	959,563,589
2016	26,495,703	25,304,817	29,968,727	64,556,558	114,449,576	105,588,928	126,590,568	139,721,723	84,497,704	52,219,628	26,892,706	25,529,293	821,815,931	806,354,503	959,563,589
2015	24,995,670	22,331,907	28,348,130	69,828,360	107,509,652	134,080,260	163,478,571	140,709,274	101,276,667	68,802,269	26,439,576	25,334,906	913,135,245	806,354,503	959,563,589
2014	24,199,544	21,567,526	24,744,328	54,446,855	90,368,412	100,455,656	133,158,307	123,562,365	88,162,857	72,119,009	24,827,571	23,993,338	781,605,767	806,354,503	959,563,589
2013	26,822,480	25,225,568	32,194,465	46,945,213	99,359,703	105,530,172	153,640,351	131,088,478	71,923,869	70,689,721	23,627,363	23,893,335	810,940,720	806,354,503	959,563,589
2012	26,446,789	24,931,551	26,707,218	43,328,887	86,287,310	72,429,739	102,567,255	137,385,689	100,953,172	57,715,080	32,379,972	26,314,026	737,446,685	806,354,503	959,563,589
2011	28,652,294	26,727,332	40,517,297	43,749,730	68,352,373	106,500,319	132,281,037	160,235,971	113,873,155	56,602,653	27,875,517	27,175,323	832,543,001	806,354,503	959,563,589
10 Yr Average	25,431,171	24,170,354	30,418,357	53,340,810	95,046,011	107,926,883	139,820,059	131,087,197	85,435,075	62,936,712	26,014,949	24,726,927	806,354,503		
Average	30,119,197	28,421,860	34,452,924	63,569,817	107,969,201	126,496,346	170,049,063	161,139,259	106,291,959	71,338,291	31,154,727	28,560,945	959,563,589		
CUBIC METERS															
YEAR	January	February	March	April	May	June	July	August	September	October	November	December	YTD	10 YR Average	Average
2022	88,551	82,411	110,524	193,365	287,229	331,602	434,667	495,359	332,883	254,857	95,400	99,229	2,806,075	3,052,382	3,632,342
2021	97,821	82,065	104,743	249,026	398,524	422,225	545,189	418,612	309,073	225,629	91,976	89,624	3,034,506	3,052,382	3,632,342
2020	97,646	93,305	147,402	184,041	285,763	298,401	492,000	485,781	360,422	270,222	108,533	96,130	2,919,647	3,052,382	3,632,342
2019	89,121	108,116	108,191	192,755	416,317	501,312	450,956	453,721	262,589	176,894	102,341	93,028	2,955,341	3,052,382	3,632,342
2018	97,262	89,631	121,730	182,066	387,827	444,301	594,565	525,062	309,089	211,130	104,926	89,353	3,156,944	3,052,382	3,632,342
2017	104,218	101,963	122,579	125,403	263,816	400,647	591,705	558,149	350,786	244,974	96,290	94,839	3,055,368	3,052,382	3,632,342
2016	100,297	95,789	113,444	244,373	433,239	399,697	479,197	528,904	319,858	197,673	101,800	96,639	3,110,910	3,052,382	3,632,342
2015	94,619	84,535	107,309	264,329	406,968	507,549	618,833	532,642	383,374	260,445	100,085	95,903	3,456,591	3,052,382	3,632,342
2014	91,605	81,642	93,667	206,104	342,081	380,266	504,059	467,734	333,733	273,000	93,983	90,825	2,958,698	3,052,382	3,632,342
2013	101,534	95,489	121,869	177,707	376,117	399,475	581,592	496,224	272,261	267,590	89,439	90,446	3,069,743	3,052,382	3,632,342
2012	100,112	94,376	101,098	164,018	326,633	274,176	388,259	520,061	382,149	218,475	122,571	99,609	2,791,538	3,052,382	3,632,342
10 Yr Average	96,267	91,495	115,146	201,917	359,788	408,548	529,276	496,219	323,407	238,241	98,477	93,602	3,052,382		
Average	114,014	107,588	130,418	240,638	408,708	478,841	643,705	609,978	402,359	270,045	117,933	108,115	3,632,342		

Town of Oliver
Surface Water Consumption Data

US GALLONS															
YEAR	January	February	March	April	May	June	July	August	September	October	November	December	YTD	10 YR Average	Average
2022	4,361,530	0	2,688	59,412,793	225,763,988	263,141,747	441,635,349	502,405,303	289,296,849	138,359,835			1,924,380,083	2,655,380,044	3,212,678,954
2021	0	0	0	131,173,678	480,211,035	488,526,601	683,405,424	465,518,500	287,895,480	156,505,073	0	0	2,693,235,792	2,655,380,044	3,212,678,954
2020	0	0	0	107,305,198	280,525,580	304,925,510	614,021,375	629,381,619	379,719,000	110,748,840	0	0	2,426,627,121	2,655,380,044	3,212,678,954
2019	0	0	0	70424042.85	459652685.8	631412787.1	557726718	683650532.7	143240570.7	36355871.47	0	0	2,582,463,209	2,655,380,044	3,212,678,954
2018	0	0	0	28,796,595	449,315,489	472,710,593	680,783,618	632,482,659	363,156,943	92,730,107	0	0	2,719,976,003	2,655,380,044	3,212,678,954
2017	0	0	0	25,906,471	159,593,999	441,096,535	687,142,179	604,322,130	365,509,904	130,755,733	0	0	2,414,326,951	2,655,380,044	3,212,678,954
2016	0	0	0	195,820,565	424,420,450	369,144,236	517,489,259	674,696,799	320,877,783	132,229,659	0	0	2,634,678,752	2,655,380,044	3,212,678,954
2015	0	0	0	242,341,115	487,581,169	653,959,751	763,431,674	667,904,291	465,978,262	223,374,730	0	0	3,504,570,991	2,655,380,044	3,212,678,954
2014	0	0	0	9,259,933	450,829,671	532,264,210	770,607,532	655,345,192	415,486,514	139,133,678	0	0	2,972,926,730	2,655,380,044	3,212,678,954
2013	0	0	0	111,513,914	414,598,794	427,810,480	826,320,197	585,448,024	187,664,000	127,259,405	0	0	2,680,614,814	2,655,380,044	3,212,678,954
2012	0	0	0	54,565,999	435,058,354	329,074,308	498,062,630	778,108,564	562,112,733	203,189,639	0	0	2,860,172,226	2,655,380,044	3,212,678,954
2011	0	0	0	81,923,968	217,955,384	487,428,539	703,413,225	800,592,760	466,730,956	82,855,654	0	0	2,840,900,486	2,655,380,044	3,212,678,954
10 Yr Average	0	0	0	97,710,751	404,178,723	465,092,501	659,899,061	637,685,831	349,164,119	135,228,273	0	0	2,655,380,044		
Average	0	0	0	136,587,096	453,294,452	538,490,106	789,060,378	753,216,281	457,602,809	145,775,397	0	0	3,212,678,954		

CUBIC METERS															
YEAR	January	February	March	April	May	June	July	August	September	October	November	December	YTD	10 YR Average	Average
2022	16,510	0	10	224,902	854,609	996,099	1,671,771	1,901,810	1,095,107	523,749	0	0	7,284,568	10,405,938	12,393,533
2021	0	0	0	496,546	1,817,796	1,849,273	2,586,970	1,762,178	1,089,802	592,436	0	0	10,195,002	10,405,938	12,393,533
2020	0	0	0	406,194	1,061,904	1,154,268	2,324,323	2,382,467	1,437,392	419,230	0	0	9,185,779	10,405,938	12,393,533
2019	0	0	0	266,584	1,739,974	2,390,156	2,111,224	2,587,898	542,224	137,622	0	0	9,775,682	10,405,938	12,393,533
2018	0	0	0	109,007	1,700,843	1,789,403	2,577,045	2,394,206	1,374,698	351,021	0	0	10,296,224	10,405,938	12,393,533
2017	0	0	0	98,067	604,129	1,669,731	2,601,115	2,287,607	1,383,605	494,964	0	0	9,139,217	10,405,938	12,393,533
2016	0	0	0	741,261	1,606,605	1,397,362	1,958,909	2,554,004	1,214,654	500,543	0	0	9,973,339	10,405,938	12,393,533
2015	0	0	0	917,360	1,845,695	2,475,506	2,889,902	2,528,292	1,763,919	845,565	0	0	13,266,238	10,405,938	12,393,533
2014	0	0	0	35,053	1,706,575	2,014,838	2,917,065	2,480,750	1,572,787	526,678	0	0	11,253,747	10,405,938	12,393,533
2013	0	0	0	422,126	1,569,426	1,619,438	3,127,961	2,216,161	710,385	481,729	0	0	10,147,226	10,405,938	12,393,533
2012	0	0	0	206,555	1,646,874	1,245,681	1,885,371	2,945,460	2,127,827	769,156	0	0	10,826,925	10,405,938	12,393,533
2011	0	0	0	310,116	825,050	1,845,117	2,662,707	3,030,572	1,766,768	313,643	0	0	10,753,973	10,405,938	12,393,533
10 Yr Average	0	0	0	369,875	1,529,982	1,760,566	2,497,989	2,413,902	1,321,729	511,894	0	0	10,405,938		
Average	0	0	0	517,038	1,715,905	2,038,406	2,986,917	2,851,232	1,732,214	551,820	0	0	12,393,533		