



DISTRICT OF 100 MILE HOUSE
COMMITTEE OF THE WHOLE
TO BE HELD IN DISTRICT COUNCIL CHAMBERS
Tuesday November 26th, 2024, AT 3:00 PM

	<p><u>CALL TO ORDER</u></p> <p>Mayor to call the Committee of the Whole meeting to order.</p> <p>Mayor acknowledges that this meeting is being held on Tsqescencúlecw.</p>
A.	<p><u>APPROVAL OF AGENDA:</u></p>
	<p>A1</p> <p>BE IT RESOLVED THAT the November 26th, Committee of the Whole agenda <u>be approved</u>.</p>
B.	<p><u>INTRODUCTION OF LATE ITEMS</u></p>
C.	<p><u>DELEGATIONS:</u></p>
TRUE Consulting	<p>Dave Underwood from TRUE Consulting to discuss the drought study findings, water source and treatment options.</p>
D.	<p><u>UNFINISHED BUSINESS</u></p>
First St. & Birch Ave Intersection	<p>D1</p> <p style="text-align: center;"><i>“Continue discussion”</i></p>

<p>721 Cariboo Trail - Zoning Application</p>	<p>D2</p> <p style="text-align: center;"><i>“Continue discussion”</i></p>
<p>E.</p>	<p><u>CORRESPONDENCE / MINUTES</u></p>
<p>COW – Capital Budget Meeting– November 12th, 2024</p>	<p>E1</p> <p>BE IT RESOLVED THAT the minutes of the Committee of the Whole Capital Budget meeting of November 12th, 2024 <u>be adopted.</u></p>
<p>COW Meeting November 12th, 2024</p>	<p>E2</p> <p>BE IT RESOLVED THAT the minutes of the Committee of the Whole meeting of November 12th, 2024 <u>be adopted.</u></p>
<p>COW Operating Budget Meeting - November 20th, 2024</p>	<p>E3</p> <p>BE IT RESOLVED THAT the minutes of the Committee of the Whole Operating Budget meeting of November 20th, 2024 <u>be adopted.</u></p>
<p>F.</p>	<p><u>STAFF REPORTS:</u></p>
<p>G.</p>	<p><u>BYLAWS:</u></p>
<p>H.</p>	<p><u>OTHER BUSINESS:</u></p>
<p>I.</p>	<p><u>QUESTION PERIOD:</u></p>
<p>J.</p>	<p><u>ADJOURNMENT:</u></p>
	<p>BE IT RESOLVED THAT the Committee of the Whole meeting of November 26th, 2024, adjourn: PM:</p>

“Committee of the Whole” means a committee comprised of all Council Members of the District of 100 Mile House to consider and recommend on matters of the Districts’ business. The Committee sits in a deliberative rather than a legislative capacity, for informal debate and preliminary consideration of matters awaiting action.

Bridge Creek – Water Availability Assessment

District of 100 Mile House



Agenda

- Background
- Bridge Creek Water Availability (Drought Study)
 - Watershed
 - Historic Flows
 - Climate Change
 - Mitigation Measures
 - Watershed Storage
- Conclusions
- Recommendations
- Questions

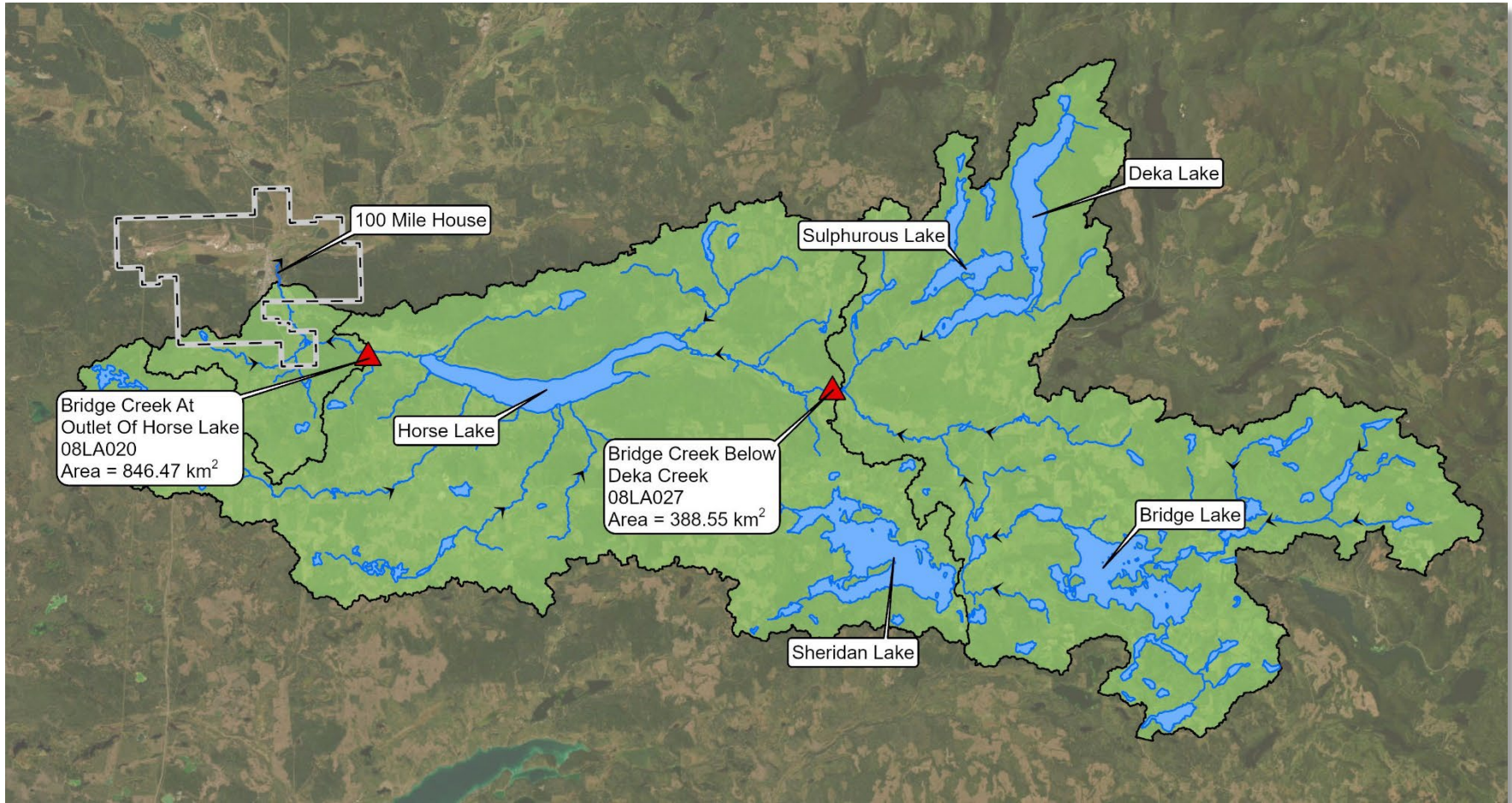


Background

- Memo - January 16, 2024 outlining recommendations re: water supply improvements
- Recommendation: move toward making Bridge Creek the primary water source and retain wells as a backup, redundant source.
 - Pilot testing of raw water to confirm use of membranes – **determined to be not required**
 - Detailed design of Water Treatment Plant - **underway**
 - Assess water availability in the Bridge Creek system – **topic of this presentation**

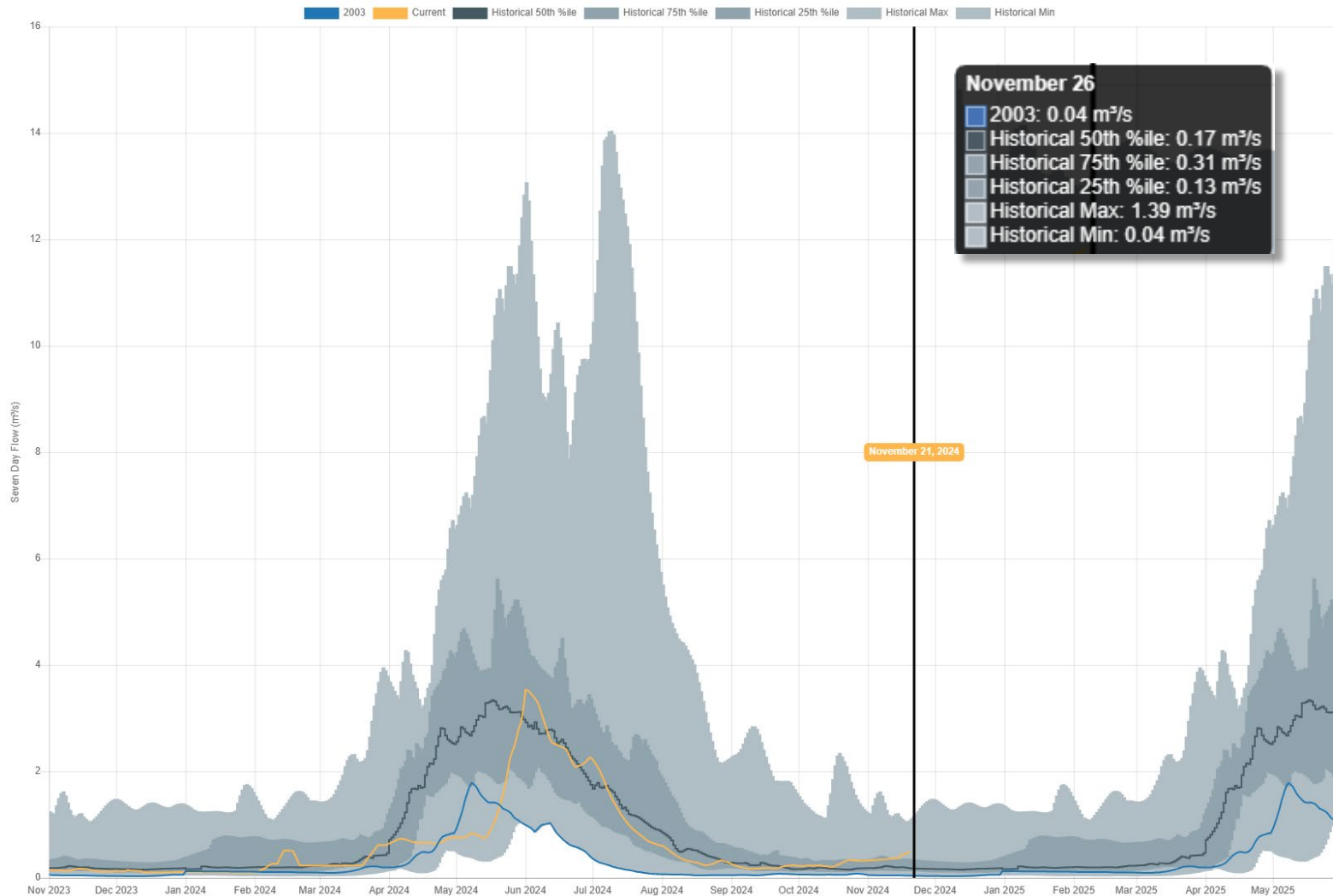


Watershed



Historic Flows

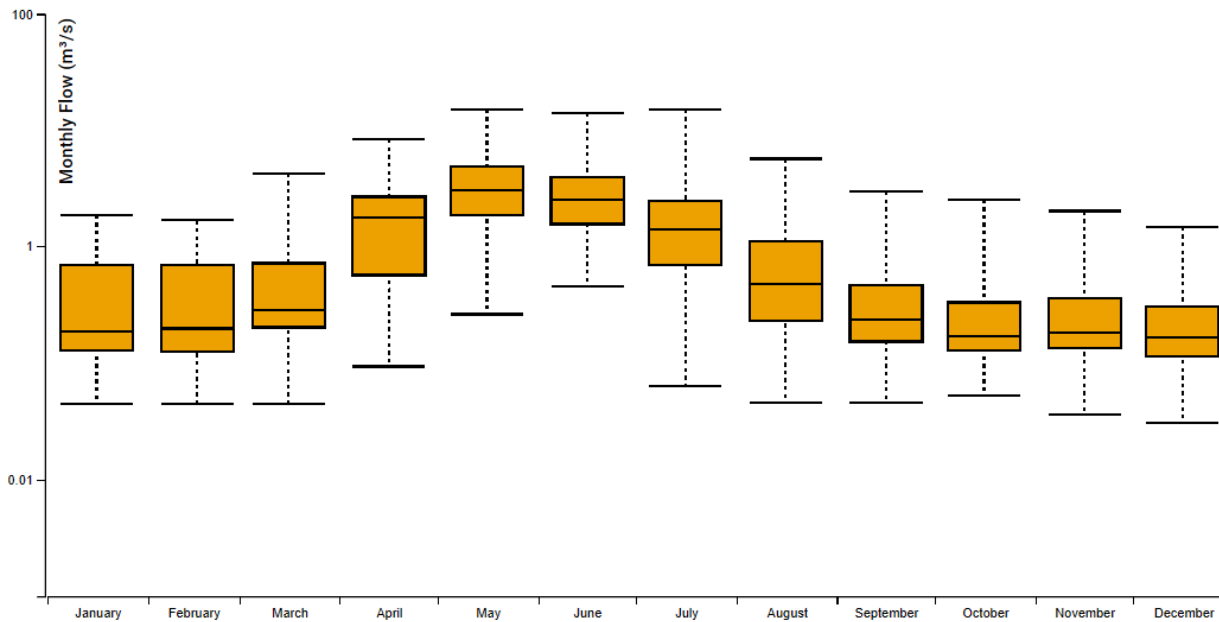
Bridge Creek below Deka Creek (08LA027)



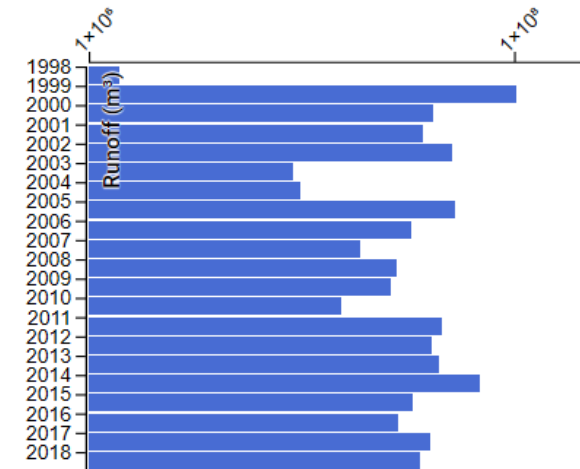
Historic Flows

Bridge Creek Below Deka Creek (08LA027)

Monthly Flow Statistics



Total Runoff



Low Flow Statistics

Bridge Creek at Horse Lake

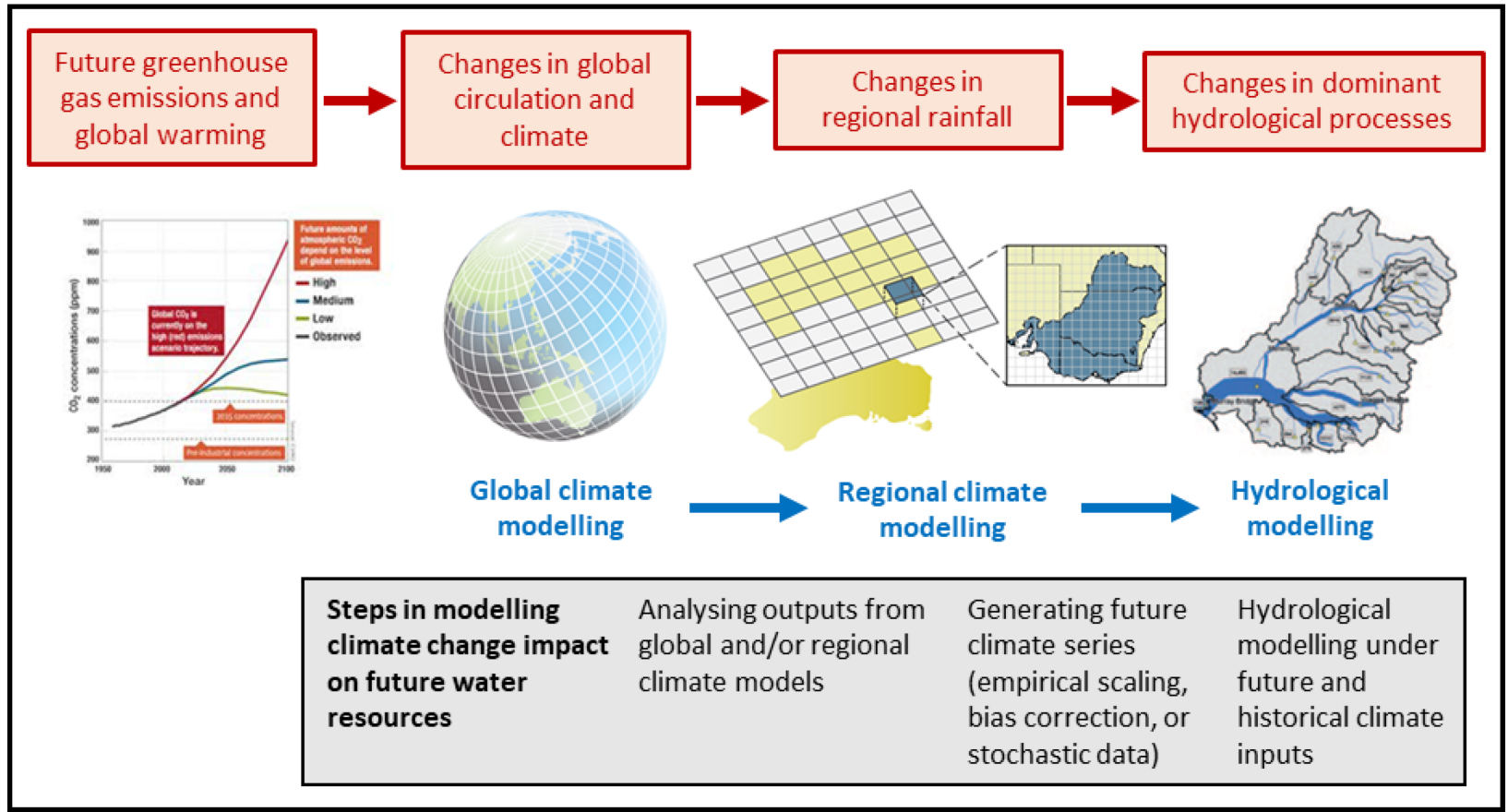
Return Period	Flow (l/s)							
	200yr	100yr	50yr	25yr	20yr	10yr	5yr	2yr
June-Sept 7 Day Low Flow (m ³ /s)	76	81	89	100	105	126	163	314
Annual 7 Day Low Flow (m ³ /s)	37	48	61	78	87	113	150	226

Design ADD = 20 l/s

Design MDD = 42 l/s



Climate Change

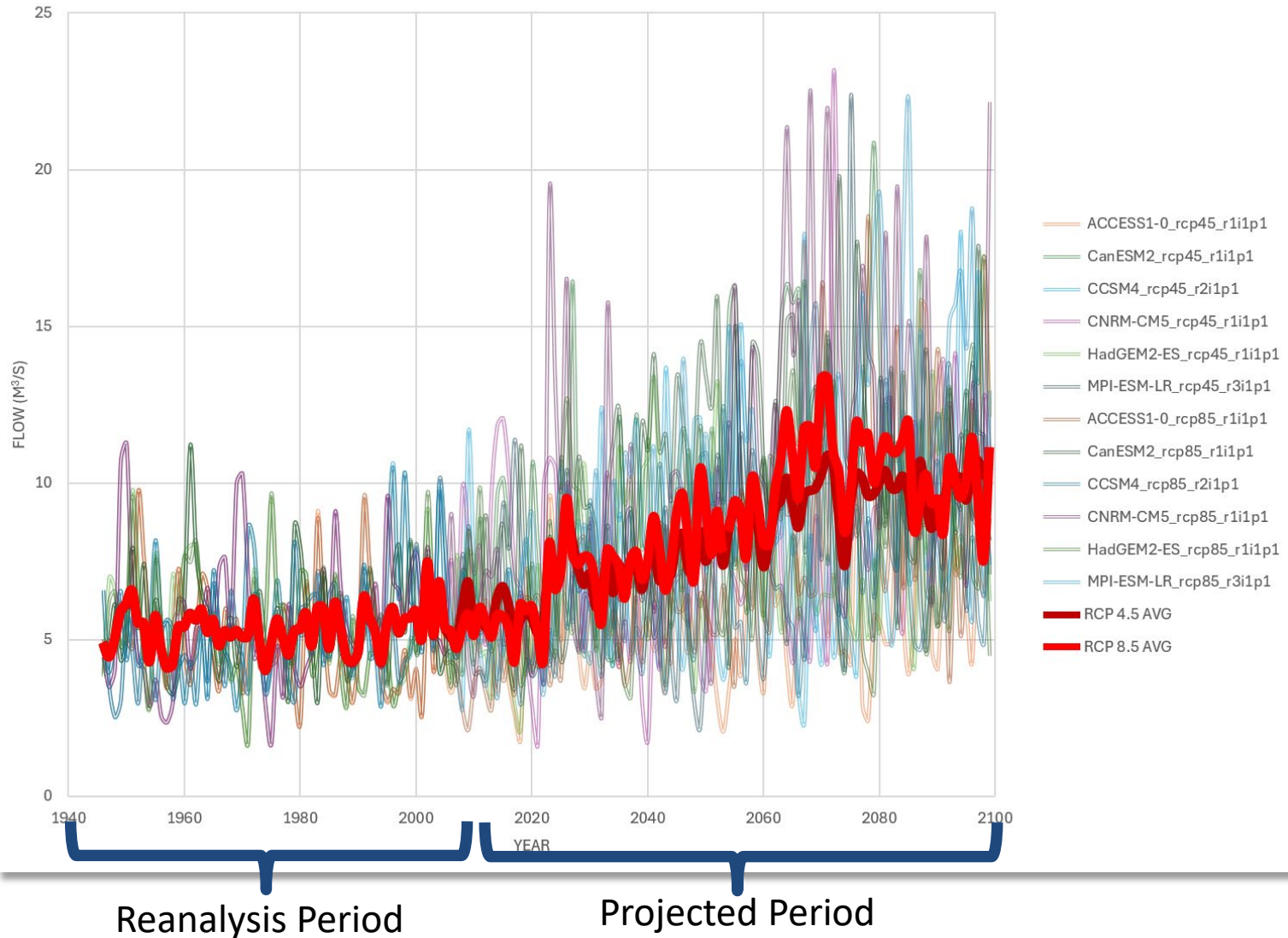


This is Big Data with Big Assumptions resulting in Large Uncertainty

Climate Change

Pacific Climate Impacts Consortium (PCIC) - VIC Model

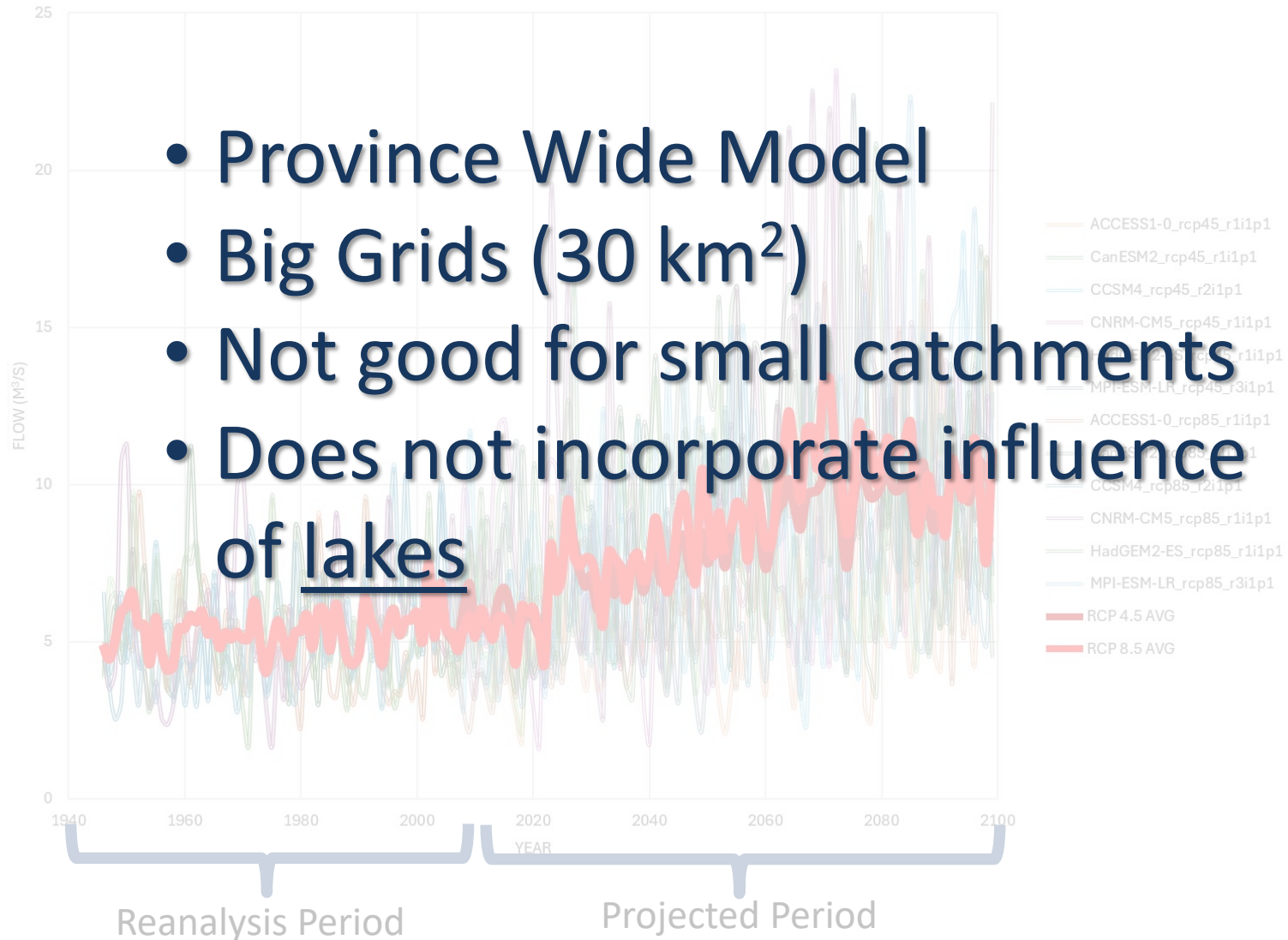
Mahood Lake 7-Day Low Flow



Climate Change

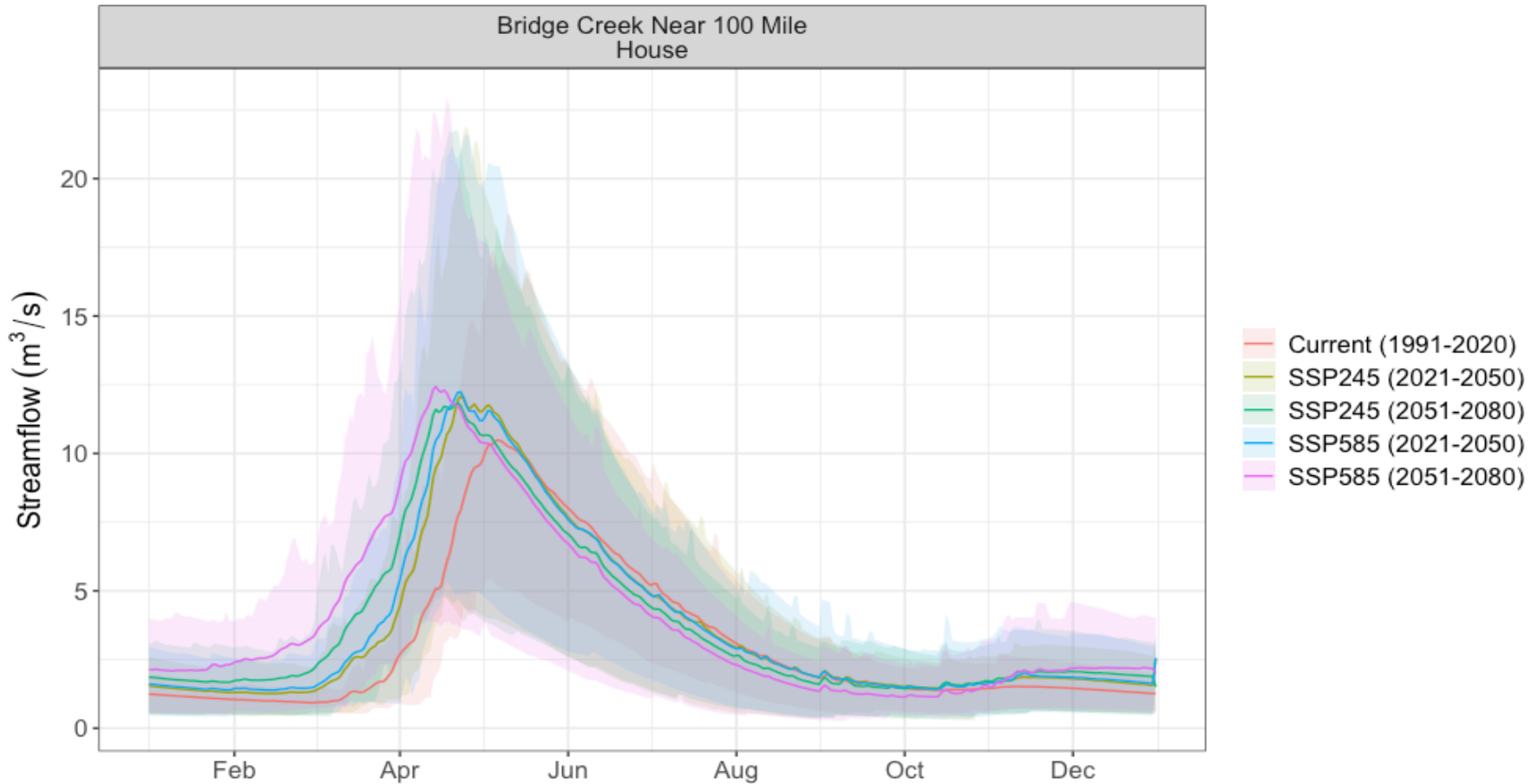
Pacific Climate Impacts Consortium (PCIC) - VIC Model

Mahood Lake 7-Day Low Flow



Climate Change

100 Mile Specific – RAVEN (MachHydro)





This is Fuzzy and we don't know the Answer

What do we Know?

- ↑ Temperature
- ↑ Precipitation (more rain)
- ↓ Snowpacks
- ↑ Variability (climate whiplash)

Climate Variable	Historical	2050	2080
	Ensemble Mean	Ensemble Mean	Ensemble Mean
Annual			
Temperature (°C)	1.8	+3.5 °C	+5.6 °C
Precipitation (%)	1,120	+7%	+12%
Snowfall (%)	620	-25%	-43%
Seasonal			
Winter Precipitation (%)	355	+8%	+16%
Summer Precipitation (%)	250	-5%	-13%



Bridge Creek is at Drought Risk & the timing of low flow will probably shift to late Summer

Mitigation Measures

Two Primary Options

Storage

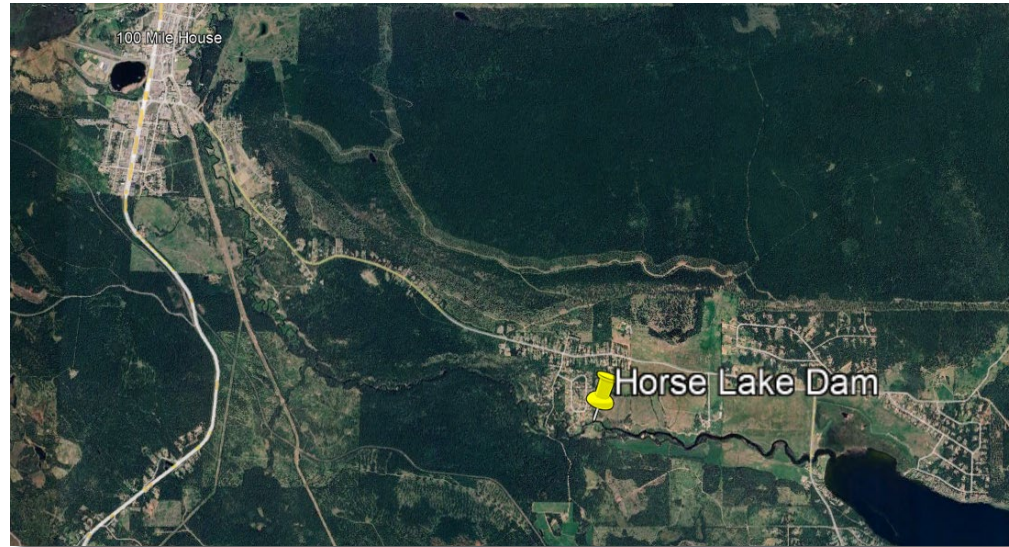


Redundancy



The District has both already

Watershed Storage



Watershed Storage

By The Numbers

- Water Works License = 9.1 ML/d (105 L/s)
- Storage License = 3,313 ML (2,700 acre-ft)
- At Current ADD = 2,300 days
- At Future ADD = 1,900 days
- Equivalent Lake Working Depth < 0.3 m

Ideal to have your storage as close to your intake as possible



Conclusions

- Bridge Creek is vulnerable to drought
- It is unknown if drought conditions will get worse over time due to climate change
 - PCIC Data indicates drought may ease
 - Watershed specific analysis indicates worsening conditions (to be confirmed)
 - Both models indicate worsening conditions in the summer
- Drought Risk can be Mitigated by:
 - Redundant Supply
 - Surface Water Storage
 - Both are already in place for the District



Recommendations

- The recommendations in January 16 memo are unchanged. The drought study conclusions do not change the recommended approach for water supply improvements.
- Advance water treatment plant design to the greatest extent possible
- Initiate a review of the Horse Lake Dam
 - Upgrades/Replacement is likely
- Install a Permanent Hydrometric Station for long term monitoring



Recommendations

- Initiate the approvals process – long lead items
 - IHA
 - Archaeology
- Prepare supporting documentation for prospective grant opportunities
 - Letters of Support
 - Water Conservation Plan
 - DCC Bylaw and Capital Plan Update
- Watch for funding opportunities
 - CHIF with CEPF top-up (top up to 100% funding)
 - SPF (up to 100% funding)



Questions





Memorandum

To: The District of 100 Mile House **From:** TRUE Consulting
Attn: Todd Conway, Paul Donnelly, Barry Todd
Date: October 21, 2024 **File No:** 364-2001

RE: Bridge Creek Water Treatment Plant Design Flow - Existing and 20-Year Water Demand Assessment

The District of 100 Mile House (The District) has engaged TRUE Consulting to complete a detailed design for a new membrane filtration water treatment plant. As a portion of this scope, it is necessary to review the existing water demands throughout the community and project these values for 20-years as a target design flow. The last time a water demand assessment was completed was in 2014 by TRUE Consulting (TRUE) as a portion of the “Plan for Efficient Use of Clean Water” report.

This memo has been prepared for the purpose of providing the District with a summary of the resulting current water demands and the 20-year projected water demands.

Existing System

The District currently provides water from the Exeter Water Treatment Plant (WTP). This WTP is a groundwater source biological filtration plant that has been in service since October of 2018. Groundwater feeds the Exeter WTP from the District’s existing wells; DW#4, DW#5, and DW#6. The design flow of the Exeter WTP is 42.8 L/s. Previous to the Exeter WTP being constructed, the District had two water sources; a surface water source slow sand filtration WTP (Bridge creek WTP) and groundwater well DW#4.

Per TRUE’s January 2024 Recommendations for Lead and Copper Control memo, options were discussed for water supply and treatment strategies for the District. This memo has been enclosed for reference. As indicated and subsequently agreed upon by the District, the intention is to move forward with Option 1A – Membrane Filtration – Bridge Creek Source.

The proposed membrane filtration water treatment plant is intended to replace the existing Bridge Creek slow sand filtration WTP. The water supply will be from a surface water source – Bridge Creek – for which the District has an existing water license up to 9.1 ML/Day per the TRUE 2014 Plan for Efficient Use of Clean Water Report.

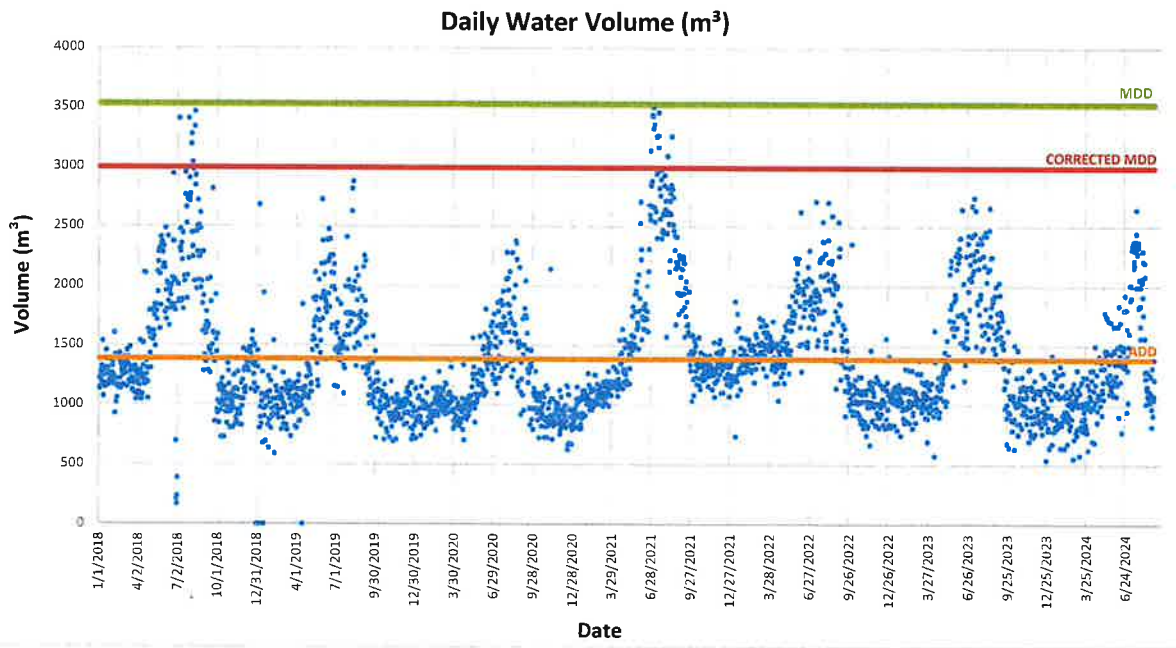
The proposed Bridge Creek membrane filtration WTP will operate congruently with the existing Exeter WTP. The Exeter WTP will supply water to the Exeter Pressure Zone, and the Bridge Creek WTP will supply water to the remainder of the community.

Historical Water Demands

SCADA data was provided by the District of 100 Mile House comprising of daily water volumes from January 2018 to August 2024. This data was used to calculate the Average Daily Demand (ADD) and Maximum Daily Demand (MDD) for each year. The results are summarized as follows.

YEAR	AVERAGE DAY (ADD)		MAXIMUM DAY (MDD)	
	M ³ /DAY	L/C/D	M ³ /DAY	L/C/D
2018	1560	840	3534	1902
2019	1299	693	2881	1536
2020	1157	611	2380	1256
2021	1603	832	3510	1821
2022	1481	760	2714	1394
2023	1349	686	2747	1397
2024	1274	641	2648	1333

The data indicates the existing ADD and MDD are 1,390 m³/day (700 L/c/d) and 3,535 m³/day (1,780 L/c/d) respectively. The historical water demands have been graphed and provided herein depicting the daily water demand from January 1, 2018 through August 31, 2024.



As indicated in the above chart, 2018 and 2021 had elevated water usage in comparison to other years. It is anticipated these elevated levels are due to THE 2018 wildfires and 2021 heat dome. Without these extreme climate events, the MDD representative of the community demand is closer to 2,900 m³/day. These climate events subsequently increased the MDD by approximately 20%. The MMCD Design Guidelines indicate that for an unmetered water system – like the District of 100 Mile – the ADD and MDD expected are 400 L/c/d and 900 L/c/d respectively. In TRUE’s

experience, the MMCD guidelines for these values tend to be on the conservative side for other communities. The District appears to have water usage approximately twice as high as the guideline suggests.

It is also worth noting that the addition of water meters throughout the District and application of restrictions when necessary can curb water demand by up to 30%.

Because it is unreasonable to size municipal infrastructure for extreme climate events, while the District is still capable of reducing water demand over the next 20-years by introducing metering, reasonable ADD and MDD values based on historical data are 700 L/c/d and 1,510 L/c/d respectively. The corrected MDD value is indicated in the chart above for reference.

Projected Water Demand

To provide a comparative analysis, three different population growth rates have been considered: 0.5%, 1%, and 1.5%. The following tables summarize the MDD and ADD results in 5-year increments.

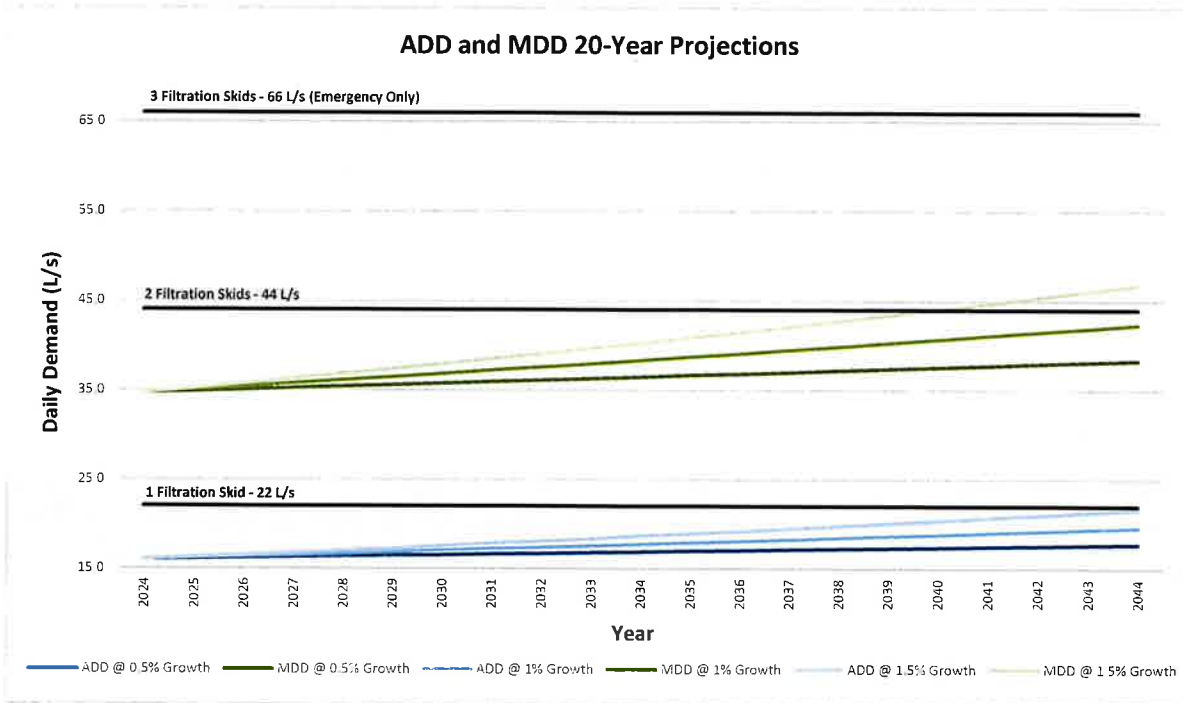
YEAR	POP. @ 0.5%	MDD @ 1,510 L/c/DAY		POP. @ 1%	MDD @ 1,510 L/c/DAY		POP. @ 1.5%	MDD @ 1,510 L/c/DAY	
		L/S	ML/DAY		L/S	ML/DAY		L/S	ML/DAY
2024	1,986	34.7	3.0	1,986	34.7	3.0	1,986	34.7	3.0
2029	2,037	35.6	3.1	2,029	36.5	3.2	2,140	37.4	3.2
2034	2,088	36.5	3.2	2,034	38.4	3.3	2,305	40.3	3.5
2039	2,141	37.4	3.2	2,039	40.3	3.5	2,483	43.4	3.8
2044	2,195	38.4	3.3	2,044	42.4	3.7	2,675	46.8	4.0

YEAR	POP. @ 0.5%	ADD @ 699 L/c/DAY		POP. @ 1%	ADD @ 699 L/c/DAY		POP. @ 1.5%	ADD @ 699 L/c/DAY	
		L/S	ML/DAY		L/S	ML/DAY		L/S	ML/DAY
2024	1,986	16.1	1.4	1,986	16.1	1.4	1,986	16.1	1.4
2029	2,037	16.5	1.4	2,029	16.9	1.5	2,140	17.3	1.5
2034	2,088	16.9	1.5	2,034	17.8	1.5	2,305	18.7	1.6
2039	2,141	17.3	1.5	2,039	18.7	1.6	2,483	20.1	1.7
2044	2,195	17.8	1.5	2,044	19.6	1.7	2,675	21.7	1.9

Per the District’s 2016 official community plan (OCP) the anticipated growth rate within the community is 1%. Using this growth rate, in 20 years (2044), the population is expected to be 2,424.

The chart provided on Page 4 provides a representation of the ADD and MDD projection over the next 20-years in comparison to the proposed membrane filtration skids for the Bridge Creek WTP. As shown, each skid has a rated water supply of 22 L/s per skid. Per IHA requirements, the WTP is proposed to have 2 operating skids with 1 skid for redundancy (2+1). This system therefore provides a design flow of 44 L/s.

The existing flow data provided from 2018 to date indicate the water demand within the community is 22 L/s or less 84% of the time. This indicates the capacity of one membrane filtration skid is sufficient much of the time.



Summary

Because the District OCP has specified a growth rate of 1%, this is the result discussed herein. The following provides an overall summary of the analysis completed for a 20-year projection.

ADD L/s	MDD L/s	EXETER PZ SUPPLY (L/s)	BRIDGE CREEK WTP REQUIRED SUPPLY (L/s)	PROPOSED BRIDGE CREEK WTP DESIGN FLOW (L/s)
19.6	42.4	10	33	44

This analysis was completed using the total water demand of the District with a resulting MDD of 42.4 L/s. The existing Exeter plant will remain in operation and feed the Exeter pressure zone (PZ) which has a required water supply of approximately 10 L/s per previous TRUE assessments. As indicated above, when in operation with the existing Exeter WTP, the Bridge Creek WTP only requires a design flow rate of 33 L/s; however, has the ability to supply water for the entire community should the Exeter WTP not be in operation with a proposed design flow of 44 L/s.

Over the next 20-years, if it appears the growth rate is higher than anticipated - it is recommended to consider implementing a water metering program throughout the District. This could reduce the MDD by up to 30% which would reduce this value to approximately 30 L/s.

This analysis indicates the proposed Bridge Creek WTP design flow rate of 44 L/s is more than adequate to provide the District with water supply for a 20-year projection – likely longer should a water metering program be implemented.

Per the enclosed January 2024 memo, upon approval of the proposed design flow rate, the next steps for this project scope include:

1. Review and provide comment on preliminary drawings as provided by TRUE.
2. Conduct pilot testing of proposed equipment and impact on corrosivity (including impact of different blends of source water).
3. Assess control structure at Horse Lake.
4. Assess water availability in Bridge Creek system.
5. Prepare detailed design of membrane filtration plant in preparation for grant funding application.

Should there be any questions or concerns, please contact Doug House, or the undersigned.

Regards,



Ariana Paulson, P.Eng.

MS/ap/er

Enclosures (1)



Memorandum

To: District of 100 Mile House **From:** Dave Underwood
Attn: **Todd Conway**
Date: January 16, 2024 **File No:** **364-971**

RE: *Recommendations for Lead and Copper Control*

Background

The District of 100 Mile House (the District) originally used a combination of surface water and groundwater to supply water to the community. The surface water source does not reliably achieve the necessary flows during the months when turbidity levels are elevated resulting in a blinding-off of the slow sand filters. A decision was made to supply water exclusively from groundwater in 2017. There are three wells operating (Well 4, Well 5 and Well 6). The water is treated to remove manganese and iron before chlorination and distribution.

The well water is characterized as very high in hardness and alkalinity. The water is prone to scaling, which is the deposition of calcium carbonate onto surfaces, particularly where temperature increases, such as on heating elements. The high alkalinity and the water pH indicates high concentrations of carbon dioxide in the raw water.

Raw water metals concentrations fall below the MAC specified by the Canadian Guidelines for drinking water quality except for manganese, which is removed by treatment. Raw water metals fall below aesthetic guideline values, except for manganese and iron, which are removed by treatment.

The District has become aware of elevated lead and copper levels in samples taken in the community. This was brought to the attention of Interior Health, who are looking to see measures taken to address the issue. Sampling has been initiated to obtain baseline data for the impact of water quality on lead and copper levels.

Sampling Program

Copper and lead corrosion chemistry is complex, and the impacts of a given water quality are challenging to predict. The District has taken samples from plumbing systems in the community to establish baseline data. The sample types are as follows:

1. Water entering and leaving the treatment plant.
2. Unsoftened water at a copper pipe system (disused Lodge building and District Public Works Yard)
3. Softened water in a copper pipe system (District Office and Carefree Manor)
4. Softened water from bathroom taps in a PEX pipe system (320A Blackstock)

Because there are limited locations and samples, conclusions are tentative. Key points from the sampling to date are:

- Flushing of the taps prior to sampling provides significant value in reducing lead and copper concentrations.
- The age and material of the plumbing systems appears to influence water quality. For example, regulations regarding low-lead fittings were not in place until 1989, which increases lead values from older plumbing.
- No conclusion can be made with respect to Type 1 pitting corrosion. This type of copper corrosion is specific to hard water and would only be expected in unsoftened plumbing systems.

Copper corrosion and lead corrosion in plumbing often occur together. Copper is present in brass fittings, hot water tanks and copper pipe. Lead is present as solder in older copper pipe, in older brass fittings and in newer brass fittings not intended for potable use (like bathroom taps). Modern kitchen taps sold in Canada are designated as lead free.

Treatment Options - Groundwater

In general terms, the options to minimize the solubility of copper and lead in water are:

1. Increase pH
2. Reduce alkalinity
3. Add a sequestering agent such as phosphate or silicates.

Option 1. Increase pH: The simplest, and possibly most effective, approach to minimizing corrosion is to raise the pH of the water. The process consists of dosing a base (alkali) to the water with an online pH analyzer used to control the dose rate. Unfortunately, increasing the pH also increases the tendency for scale deposition. Therefore, existing issues with scale, such as on hot water tank elements would worsen. As such, pH adjustment would trade one problem for another.

Option 2. Reduce Alkalinity: While alkalinity and hardness are different characteristics of water, they tend to be associated with each other due to the nature of the source of the water. Alkalinity

is the capacity of water to resist acidification. Hardness is a chemical parameter of water that represents the total concentration of calcium and magnesium ions. When a water system has particularly hard water, it may be softened at the water treatment plant. Any technique that will remove calcium and magnesium ions will reduce hardness. This includes ion exchange and lime softening.

Lime softening can be used to precipitate hardness (calcium and magnesium) and other metals at municipal scale. It also reduces total dissolved solids and alkalinity. Because of the impact on alkalinity, this would be the recommended method for softening the water.

Softening is a relatively expensive process to build and operate, and the benefits and costs would need to be carefully evaluated before this was recommended for construction.

Option 3. Add Sequestering Agent: Another alternative is the dosing of a sequestering agent to bind to the lead and copper, forming a stable structure that does not readily decompose. The standard choice for this would be an orthophosphate. The high alkalinity of the water will reduce the impact of the orthophosphate.

While orthophosphate dosing is relatively inexpensive and is worth trying, guidance documents indicate that reduction of the alkalinity that appears to contribute to the copper and lead corrosion could be a more effective approach, albeit at a high cost.

Orthophosphate Dosing Trial

As a next step, orthophosphate dosing has been recommended because it is relatively inexpensive. This makes it worth trying. The orthophosphate may have a more beneficial impact on lead and copper solubility downstream of household water softeners. It has been recommended to trial the dosing of orthophosphate to evaluate the impact on softened and unsoftened water at the community sampling sites. Approval to commence orthophosphate dosing has been granted by Interior Health.

The sequence of work for this project may be as follows:

1. Start monitoring the sampling sites to collect baseline data.
2. Configure control system so that the dosing system operates in proportion to flow.
3. Operate the system for a practical agreed duration. Run a sampling program to measure copper at locations selected to identify the factors affecting performance.
4. During this period any water quality complaints should be noted with day / time, address, and a description of the issue. If possible, the complainant's water quality should be measured.

Disadvantages associated with orthophosphate dosing include:

- Not correcting the underlying water chemistry that is leading to copper and lead corrosion.
- Protection will decay if dosing is stopped.

- Not effective in stagnant water so first flush water may still be high in copper and lead.
- Scale formation in hot water tanks will continue.
- May require several months of dosing before corrosion control benefits are fully observed.

Water Supply and Treatment Strategies

Based on the above, it is possible that orthophosphate dosing will provide short term benefit to the District of 100 Mile House. Nevertheless, a longer-term strategy to reduce alkalinity / improve water quality may be required. Strategies available to the District of 100 Mile House include:

1. Improve Bridge Creek surface water quality. Make this the primary water source.
2. Improve Bridge Creek surface water quality. Blend Bridge Creek water with existing groundwater.
3. Groundwater softening at a municipal level

Option 1A: Membrane Filtration – Bridge Creek Source

The 2017 Plan for Efficient Use of Clean Water recommended that the Bridge Creek Water Treatment Plant be mothballed rather than upgraded. This was because:

1. Bridge Creek cannot provide the quantity of water needed by the community without the wells due to seasonal elevated turbidity. Sufficient water is available for the immediate term needs of the community using the wells alone.
2. The Bridge Creek plant needs to be upgraded to remove organics, which are precursors to disinfection byproducts.
3. The two different water sources result in very different treated water quality which then mixes inconsistently in the distribution system. Addressing this would require the water quality to be made similar by treatment, or the treated water would need to be mixed, requiring a watermain across town.
4. Operation of the Bridge Creek plant slow sand filter is very labour intensive.
5. The slow sand filter technology is not practical to operate when Bridge Creek turbidity becomes elevated.

If Bridge Creek is to be reinstated as a water source, the Bridge Creek treatment system would need to be upgraded.

Slow sand filter plants can be upgraded with pre-treatment by roughing filters and ozone to address these issues. This upgrade would make the existing intensive operation requirements even more challenging. There is a slow sand filter system in Hazleton that had a high-rate clarifier installed upstream to address the same issues. This design failed to consider the impact of coagulant carry over on the slow sand filters and has made the plant operation more difficult.

It is proposed that the slow sand filter treatment system should be abandoned if this source is reactivated. It is recommended that treatment of the Bridge Creek source should be based on a membrane filtration design. This would consist of coagulation for organics followed by

ultrafiltration membranes. The treatment system would fit into the footprint of the existing slow sand filter system. The treated water would be free of disinfection byproducts. Because the District can supply potable water to the community during construction on the slow sand filter site, this strategy is logistically efficient. It also avoids a need for land acquisition.

Water supply strategy Option 2 would most likely result in the Bridge Creek source becoming the primary water source for the. The wells would be used as required to supplement the surface water source.

OPTION 1A SUMMARY: CONSTRUCTION OF MEMBRANE TREATMENT IN BRIDGE CREEK WTP TO PROVIDE ~75% OF SUMMER FLOW.

EXPECTED WATER QUALITY	Water quality should be acceptable in terms of hardness, alkalinity, total dissolved solids iron, manganese. Aesthetic quality and corrosivity would be greatly improved.
AVAILABLE WATER QUANTITY	Available water quantity would be increased by what is available from the source, or from installed treatment, less losses to backwash.
IMPACTS TO SANITARY SEWER SYSTEM	Water treatment residuals would go to the sewer. Residential water softeners would not be needed so this brine waste should be significantly reduced.
CAPITAL COST	~\$5.1M
O&M COSTS	~\$260,000 per annum including labour
EOCP CLASSIFICATION	Level III – to be confirmed based on final design

Option 1B: Membrane Filtration – Bridge Creek Source Plus Blending of Water Sources

Water supply strategy Option 1b is very similar to Option 1a, but the groundwater would be blended with the surface water source to provide more consistent water quality to residents. Under this option, the groundwater source would not be treated for hardness/ alkalinity.

Without blending, residents living in the northern half of the community will tend to receive treated groundwater while those residents in the southern half of the community will receive treated surface water. Although all residents of the community would be receiving treated, potable water, the characteristics of the water would change with the season and with location. In terms of perceived water quality, this is similar to the situation when the Bridge Creek WTP was in service. It will also mean that the corrosivity of the water will change. Clearly, lead and copper levels will vary, particularly in the northern part of the community.

Blending would also have the effect of reducing hardness and total dissolved solids relative to the deep well source. The water available during low summer flows is a key consideration for reliable supply of the full water demand so blends close to 50% have been considered.

The likely blend ratios would achieve the following water quality.

	EXETER WTP TREATED WATER (MAR 29, 2022)	BRIDGE CREEK RAW WATER (SEPT15, 2015)	40:60 BLENDED WATER	50:50 BLENDED WATER	60:40 BLENDED WATER
Alkalinity	651	150	350	401	451
Hardness	611	135	325	373	421
TDS	885	91	409	488	567

It can be seen that blends of this nature will only achieve a moderate improvement in water quality with respect to palatability. The effect on corrosivity cannot be estimated but is expected to be moderate. The Bridge Creek water source would need to be a large part of the total flow to have much impact on hardness or corrosion.

OPTION 1B SUMMARY: BLENDING OF GROUNDWATER AND BRIDGE CREEK SURFACE WATER SOURCES.

EXPECTED WATER QUALITY	Water quality would be moderately improved in terms of hardness, alkalinity, total dissolved solids iron, manganese. Aesthetic quality and corrosivity would also be improved.
AVAILABLE WATER QUANTITY	Available water quantity would be increased by what is available from the Bridge Creek source, or from installed treatment, less losses to backwash.
IMPACTS TO SANITARY SEWER SYSTEM	Most residuals would be from the Bridge Creek WTP backwash. These residuals would go to the sewer
CAPITAL COST	~\$5.1M (Option 1a) + ~\$4.0M (pipeline) = ~\$9.1M
O&M COSTS	~\$260,000 per annum including labour
EOCP CLASSIFICATION	Level III – to be confirmed based on final design

Option 2: Municipal Softening – Groundwater Source

The Health Canada guideline for hardness cites a survey of 525 municipalities throughout Canada, where only 17 cities had drinking water hardness levels above 500 mg/L. According to the guideline, the drinking water systems with such hard water appear to be located primarily in Ontario, Manitoba and Saskatchewan. As such, there is relatively little experience of this issue in BC.

There are three main municipal water softening options, cation softening, precipitation softening and membrane softening (e.g. reverse osmosis). Cation exchange water softening works by swapping out hard water ions like calcium, magnesium for sodium. Other cations such as manganese and iron are also removed. Precipitation softening of water involves mixing water with excess lime or another alkali until the calcium and magnesium crashes out of solution along with other components like alkalinity. Nanofiltration and reverse osmosis use a membrane to hold back larger ions while water passes through.

Cation exchange (softening) increases the total dissolved solids, which also contributes to the corrosivity of the water. This type of ion exchange also adds to the sodium concentration. Alkalinity

is not affected. Lead and copper levels, and general water quality, will be similar to the softened water samples previously taken in the network.

Precipitation softening has the advantage that total solids concentrations are not increased in the way that they are with ion exchange. Precipitation softening is recommended for the Exeter WTP as the final water quality would offer reduced alkalinity and the process is expected to be similar in cost to cation exchange at the scale being considered.

The most significant drawback of membrane softening is the large reject water flow. This makes this option impractical in the context of the limited source water at 100 Mile House. The treatment process is also complex once pretreatment processes are included. It has not been carried forward for consideration.

	ADVANTAGES	DISADVANTAGES
CATION EXCHANGE	May have lower capital and operational costs. Ease of operation Minimal staff requirements Safer materials handling	Brine from the exchange process can be difficult to properly dispose of. Ion exchange will only remove ions that create hard water. Water corrosivity may not improve.
LIME SOFTENING (PRECIPITATION)	Also removes suspended matter, alkalinity and silica. Operating costs can be lower at higher flows	Lime softening does not remove all hardness from water. Requires full-time, trained staff to run system Materials handling carries risk that must be managed with PPE, etc.

OPTION 2 SUMMARY : NEW CONVENTIONAL LIME SOFTENING WATER TREATMENT PLANT AT DEEP WELLS

EXPECTED WATER QUALITY	Water quality can be optimized in terms of hardness, alkalinity, iron, manganese. Total dissolved solids will be reduced. Aesthetic quality and corrosivity would be greatly improved. Actual quality should be confirmed by pilot trials.
AVAILABLE WATER QUANTITY	Available water quantity would be slightly reduced due to the loss to treatment residuals.
IMPACTS TO SANITARY SEWER SYSTEM	Water treatment residuals would not go to the sewer. A lime sludge drying lagoon is likely to be used, which may need to be at another site. Residential water softeners would not be needed, so this brine waste should be significantly reduced.
CAPITAL COST	\$5.5M - \$9M depending on number of trains, etc
O&M COSTS	~\$600,000 per annum (see note)
EOCP CLASSIFICATION	Level II to III – to be confirmed based on final design

NOTE: Half of the estimated operating cost is for sludge disposal. This cost is based on the following assumptions.

- Average water production of 1,500m³/d leads to 1,300kg/d dry solids.
- Solids can be dried to 50% water.
- Disposal cost to landfill of \$300/tonne.

Sludge disposal costs could be reduced or eliminated if the lime solids can be diverted to a beneficial use, or just used as inert landfill cover. It may also be useful to substitute for lime used at acid mine sites. Another use is land application of the sludge on farm fields where the soil pH needs to be raised.

Discussion of Water Supply and Treatment Strategies

Constructing new treatment at Bridge Creek (Option 1a) has a clear advantage as far as increasing the quantity of water available. Unfortunately, it does not fully address the issues of lead and copper corrosion while unsoftened groundwater is still being supplied to parts of the community. Interior Health seem likely to require that the water is blended to avoid periods of elevated lead and copper release from plumbing (Option 1b). Even the blended water would still be characterised as hard while it contains a significant proportion of groundwater.

Option 2 (lime softening) should consistently reduce lead and copper corrosion in domestic plumbing and will mean that household water softeners are no longer needed. Compared with Options 1a and 1b, softening of the groundwater does not increase the quantity of water available to the community.

If the groundwater is softened (Option 2) then the blending of the two sources would not be necessary (Option 1b).

To summarise, the District could construct any combination of options except Option 1a by itself (i.e. 1b, 1a+2 and 1b+2 are all feasible).

It should be noted that the corrosivity for copper and lead is not possible to predict reliably by calculation. The impact of the various options on corrosivity needs to be proven by pilot testing before committing to construction. This includes the Bridge Creek water.

Recommendations and Next Steps

It is recommended that the District of 100 Mile House consider proceeding with initiatives aimed at improving municipal water quality in a phased, strategic manner. Our recommendation for a phased approach is as follows:

Step 1: Orthophosphate dosing

As discussed in this memorandum, dosing orthophosphate is likely to have a beneficial impact on lead and copper solubility. The main benefit may be downstream of household water softeners. Approval to commence orthophosphate dosing has been received from Interior Health.

The sequence of work for this project may be as follows:

1. Start monitoring the sampling sites to collect baseline data.
2. Configure control system so that the dosing system operates in proportion to flow.
3. Operate the system for a practical agreed duration. Run a sampling program to measure copper and lead at locations chosen to identify the factors affecting performance.
4. During this period any water quality complaints should be noted with day / time, address and a description of the issue. If possible, the complainant's water quality should be measured.

It is recommended that the District proceed with Step 1 immediately.

Step 2: Construct New Water Treatment at Bridge Creek Source

We propose that the slow sand filter treatment system should be replaced with new technology to allow this source to be reactivated. It is recommended that treatment of the Bridge Creek source should be based on a membrane filtration design. This would consist of coagulation of organics followed by ultrafiltration membranes. The treatment system could be built inside the footprint of the slow sand filter system. The treated water would be free of disinfection byproducts.

The construction of a membrane filtration plant is expected to cost in the order of \$5.0M. It is expected that the District would seek grant funding assistance to support the construction of this facility. As a next step, it is recommended that the District proceed towards a Bridge Creek source.

An approximate schedule could be as follows:

- | | |
|--|-----------|
| 1. Prepare preliminary design associated with membrane filtration, including pilot testing of proposed equipment and the impact on corrosivity (including the impact of different blends of source water). | 2024 |
| 2. Assess water control structure at Horse Lake | 2024 |
| 3. Assess water availability in Bridge Creek system | 2024 |
| 4. Prepare detailed design of membrane filtration plant – establish a “shovel ready” project | 2024/25 |
| 5. Proceed with required documentation to support future grant application such as: updated water conservation plan, letters of support (IHA, Canim Lake Band, CRD, etc), IHA construction permits, update of DCC bylaw, update long term capital plan, update asset management plan, etc) | 2024/25 |
| 6. Grant application process via the next available program intake (no current intakes available) | 2025 |
| 7. Water Treatment Plant construction and commissioning | 2025/2026 |

It is expected that the construction of a water treatment plant at the Bridge Creek source will allow water of improved quality to be distributed to residents for the majority of the year. The groundwater system will be needed during any periods of extreme low flow in Bridge Creek. There may even be some periods in the year when no surface water is available, and the groundwater source will be used exclusively. Copper and lead levels will increase during this time.

Step 3: Construct Pipeline Between Exeter and Bridge Creek Sites

A pipeline would be constructed to allow blending of the water sources so that residents living in the northern half of the community would not receive treated groundwater while those residents in the southern half of the community receive treated surface water. Although all residents of the community would be receiving treated, potable water, a pipeline would allow for consistency in the quality of water provided to system users.

Pilot testing in step 2 will have estimated the impact on corrosivity of blending the source waters.

The timeline associated with the construction of a pipeline between Exeter and Bridge Creek sites will largely depend on the reliability of the Bridge Creek source during the summer months during low-flow conditions. If it is found that water supply reliability is a concern, the timeline for pipeline construction will be advanced. Whereas, if the Bridge Creek source reliably provides adequate flow through all months of the year, the pipeline investment can be delayed/eliminated.

The estimated cost associated with pipeline construction is in the order of \$4.0M.

Step 4: Construct Water Treatment Improvements at Groundwater Source

The Bridge Creek source may be limited in its ability to supply water to the community at all times of the year. As such, the District may wish to consider additional water treatment at the Exeter site. This would only be constructed once a new treatment system is in place at Bridge Creek. It may be constructed instead of the blending pipeline.

The costs associated with a conventional lime softening water treatment plant is in the range of \$5.5M - \$9M depending on number of trains, etc

The tasks are expected to include:

- | | |
|---|------------------------|
| 1. Prepare preliminary design associated with community-wide water softening plant, including pilot testing of proposed equipment and the impact of various levels of treatment on corrosivity. | 2025 |
| 2. Prepare detailed design of water treatment plant – establish a “shovel ready” project. | 2025/2026 |
| 3. Proceed with any required documentation to support future grant application. | 2025/2026 |
| 4. Grant application process. | 2026/2027
2027/2028 |
| 5. Water Treatment Plant construction and commissioning | |

Closing

Please do not hesitate to contact the undersigned for additional information, at your convenience. Further technical discussion giving background to this memorandum is available.

Regards,



Dave Underwood, P. Eng.

DU/rw/sr



DISTRICT OF 100 MILE HOUSE

MINUTES OF THE COMMITTEE OF THE WHOLE MEETING OF THE MUNICIPAL COUNCIL HELD IN DISTRICT COUNCIL CHAMBERS

Tuesday November 12th, 2024, AT 3:00 PM

PRESENT: Mayor Maureen Pinkney
Councillor Jenni Guimond
Councillor Dave Mingo
Councillor Donna Barnett
Councillor Marty Norgren

STAFF: CAO Tammy Boulanger
Dir. Of Com. Services Todd Conway
Dir. of Finance Sheena Elias

OTHERS: (0) MEDIA: (1)

	<p><u>CALL TO ORDER</u></p> <p>Mayor Pinkney called the Committee of the Whole Budget meeting to order at 3:00 PM</p> <p>Mayor Pinkney acknowledged that this meeting is being held on Tsqescencúlecw.</p>
A	<p><u>APPROVAL OF AGENDA</u></p>
	<p>A1</p> <p>Res: 18/24 Moved By: Councillor Mingo Seconded By: Councillor Barnett</p> <p>BE IT RESOLVED THAT the November 12th, 2024 Committee of the Whole Budget meeting agenda <u>be approved</u>.</p> <p style="text-align: center;">CARRIED.</p>

B	<u>INTRODUCTION OF LATE ITEMS</u>
C	<u>DELEGATIONS</u>
D	<u>UNFINISHED BUSINESS</u>
E	<u>CORRESPONDENCE</u>
F	<u>STAFF REPORTS</u>
2025 Draft Capital Plan / Budget	<p>Director of Finance S. Elias reviewed the 2024 Capital items, progress and completions to date and the proposed amendments that will be included in the upcoming financial plan amendment.</p> <p>2025 Capital Plan substantiation reports were Individually reviewed.</p> <p>G1 - B/F Project - Horse Lake Bridge Project will begin in spring of 2025 and should be completed before the funding due date of March 2026. Due to the time period associated with the archeology updated costing is currently being obtained and the tender for the construction should be ready for release by December 15th, 2024.</p> <p>G2 - Paving costs included in the original estimate will be clarified with TRUE as the District proposed 2025 paving plan is to complete the portion of roadway from new bridge to the District Boundary on Horse Lake Rd. The District is currently budgeting a \$50,000. annual allocation to roads.</p> <p>Councillor Barnett - Secondary roads that were inherited from the Province should be returned to the them, recommended writing a letter to the Province.</p> <p>Councillor Guimond - recommended working with other small municipalities and organizations such as the NCLGA to continue lobbying for additional funding and financial support for the increasing infrastructure gap.</p> <p>CS-01 - Bobcat Toolcats (2) - Council supported the replacement of the two units. Overall efficient tool for the District that performs many functions.</p> <p>C2-02 - Fire Department Washdown Pad - Council had general concerns of the costs, requested more accurate costing.</p>

FD-01 - Council supported the transition to the new PFAS-free Turn Out Gear.

FD-02 - Council supported the long-term replacement plan of the SCBA cylinders.

FD-03 - Council supported the proposed Live Fire Tower replacement, overall good value to continue providing "In-house" training for department personnel and provide a facility for regional departments. Chief Bissat noted more training is occurring at the ESTC and they will continue to improve the overall facility.

FD-04 - Council supported the battery-operated hydraulic rams. Councillor Mingo questioned if there are any known grant opportunities for this type of equipment upgrade. There are none that staff is aware of.

FD-05 - Council supported the repeater station equipment replacement.

FD-06 - Council supported the SPU equipment project (with approved grant funding).

MO-01 - Council supported the municipal officer server replacement.

SE-01 - Council supported the Sewer Lift Station. Project is progressing well with directional drilling under Cariboo Highway 97 complete.

SE-02 - B/F Project - Wastewater Treatment Facilities Upgrades - Project has encountered delays attributed to electrical components. Overall, project is over budget.

WA-01 - Council supports the water quality Improvement; however the receipt of the drought study will provide more clarity on the future water source and long-term capital plan for District drinking water.

WA-02 - Council supports the redevelopment of the Wells (4, 5 & 6) at this time. Council is hesitant to continue to invest in the periodic well redevelopment. Overall water quality needs to be addressed as part of the capital plan and receipt of the drought study is anticipated at the next meeting.

	<p>OT-01 - Council supports the Centennial Park Washroom design. The design should be accessible, basic, and composed of vandal resistant materials.</p> <p>OT-02 - Council supports the Community Hall Renovation Design (Grand Funded)</p> <p>OT-03 - Council supports the Martin Exeter Hall Lighting. (LGCAP Green Funding)</p> <p>OT-04 - Council supports the Lodge Floor Structural Improvements if funding approved. (Grant Funding)</p> <p>OT-05 - Council supports the Martin Exeter Hall heating/cooling system building Improvements if funding approved (Grant Funding)</p>
Water / Sewer Rates	Water and Sewer Utility Rates were considered. Council directed staff to prepare residential and commercial comparisons of what 5%, 8% and 10% increase In quarterly utility rates would amount to.
G	<u>BYLAWS</u>
H	<u>OTHER BUSINESS</u>
I	<u>QUESTION PERIOD</u>
J	<p><u>ADJOURNMENT</u></p> <p>Res: 19/24 Moved By: Councillor Norgren Seconded By: Councillor Mingo</p> <p>BE IT RESOLVED THAT this Committee of the Whole Budget meeting for November 12th, 2024 be adjourned at 4:15 PM.</p> <p style="text-align: right;">CARRIED.</p>
<p>I hereby certify these minutes to be correct.</p> <p>_____</p> <p>Mayor Corporate Officer</p>	



E2

DISTRICT OF 100 MILE HOUSE

MINUTES OF THE COMMITTEE OF THE WHOLE MEETING OF THE MUNICIPAL COUNCIL HELD IN DISTRICT COUNCIL CHAMBERS

Tuesday November 12th, 2024, AT 5:30 PM

PRESENT:	Mayor	Maureen Pinkney
	Councillor	Jenni Guimond
	Councillor	Dave Mingo
	Councillor	Donna Barnett
	Councillor	Marty Norgren

STAFF:	CAO	Tammy Boulanger
	Dir. Of Com. Services	Todd Conway
	Dir. of Finance	Sheena Elias
	Dir. of Ec. Dev. & Planning	Joanne Doddridge

OTHERS: (75) MEDIA: (1)

	<p><u>CALL TO ORDER</u></p> <p>Mayor Pinkney called the Committee of the Whole meeting to order at 5:30 PM</p> <p>Mayor Pinkney acknowledged that this meeting is being held on Tsqescencúlecw.</p>
A	<u>APPROVAL OF AGENDA</u>

	<p>A1</p> <p>Res: 20/24 Moved By: Councillor Barnett Seconded By: Councillor Mingo</p> <p>BE IT RESOLVED THAT the November 12th, 2024 Committee of the Whole agenda <u>be approved</u>.</p> <p style="text-align: center;">CARRIED.</p> <hr/> <p>Council approved the amendment to the order of the agenda. Moving F2 - 721 Cariboo Trail Zoning Application to the first item to be discussed.</p>
B	<u>INTRODUCTION OF LATE ITEMS</u>
C	<u>DELEGATIONS</u>
<p>Hot July Nights - July 18, 19 & 20 2025</p>	<p>Representatives from Hot July Nights Committee Marty Mahovlich and Mac Harris discussed the challenges of holding the annual event with limited support and volunteers. Show is seeing record numbers, but board is burnt out and needs more volunteers. Over 100 sponsors partake in supporting the event and help non-profit organizations that benefit with some of the weekend events. Event budget is approximately \$43,000. and some volunteers put in over 1,000 hours or more each.</p> <p>The committee requested written confirmation of the commitment and partnership with the District. Some of the items requested of the committee included:</p> <ul style="list-style-type: none"> ➤ Ensuring that the barricades are delivered <i>and set up</i> by a designated time the day of the events. ➤ Garbage is collected in a timely manner to prevent contamination of non-profit recycling bins ➤ No parking lot fees are associated with the use of the South Cariboo Recreation Centre parking lot ➤ South Cariboo Recreation Centre is open and available to host attendees and provide a cool/warm place to gather ➤ Ensure signage is posted as early as possible ➤ Photocopying is completed by District of 100 Mile House staff at no cost to the organization (10,000 +/- copies) ➤ Assist with the co-ordination of the private parking lots and food truck business owners to reduce risk and conflict

	<ul style="list-style-type: none"> ➤ Encourage District staff and residents to support/volunteer for the annual event
D	<u>UNFINISHED BUSINESS</u>
E	<u>CORRESPONDENCE</u>
F	<u>STAFF REPORTS</u>
First St. & Birch Avenue Intersection	<p>F1</p> <p>P. Truch, traffic engineer reviewed the proposed changes to the intersection at First St. and Birch Avenue and the rationale behind the proposed solution.</p> <p>Areas of concern included:</p> <ul style="list-style-type: none"> ➤ larger vehicles and downtown access ➤ business deliveries ➤ snow removal ➤ installation and maintenance costs ➤ best practices for pedestrian safety ➤ pedestrian & driver responsibility <hr/> <p>No direction/preference provided - B/F to next meeting</p>
721 Cariboo Trail - Zoning Application	<p>Zoning amendment application was received for comment on the preference of approach.</p> <p>Council engaged T. Judd (property owner) and S. Enns (Children Matter Community Services) to gain additional information about the services to be provided at the residential location.</p> <p>Questions relating, but not limited to, included:</p> <ul style="list-style-type: none"> ➤ Zoning interpretation ➤ Neighbourhood engagement ➤ Number of residents vs caregivers ➤ Employment / Staffing ➤ Age ranges, schooling, community involvement ➤ Areas of concerns and action plans / staff training <hr/> <p>No direction/preference provided - B/F to next meeting</p> <hr/> <p><i>Many attendees left the meeting after this item was discussed.</i></p>

G	<u>BYLAWS</u>
H	<u>OTHER BUSINESS</u>
I	<u>QUESTION PERIOD</u>
J	<p><u>ADJOURNMENT</u></p> <p>Res: 21/24 Moved By: Councillor Barnett Seconded By: Councillor Guimond</p> <p>BE IT RESOLVED THAT this Committee of the Whole meeting for November 12th, 2024 be adjourned at 7:25 PM.</p> <p style="text-align: right;">CARRIED.</p>
<p>I hereby certify these minutes to be correct.</p> <p>_____</p> <p>Mayor</p> <p style="text-align: right;">_____</p> <p style="text-align: right;">Corporate Officer</p>	



E3

DISTRICT OF 100 MILE HOUSE

MINUTES OF THE COMMITTEE OF THE WHOLE MEETING OF THE MUNICIPAL COUNCIL HELD IN DISTRICT COUNCIL CHAMBERS

Wednesday November 20th, 2024, AT 12:00 PM

PRESENT:	Mayor	Maureen Pinkney
	Councillor	Jenni Guimond
	Councillor	Dave Mingo
	Councillor	Donna Barnett
	Councillor	Marty Norgren

STAFF:	CAO	Tammy Boulanger
	Dir. Of Com. Services	Todd Conway
	Dir. of Finance	Sheena Elias
	Fire Chief	David Bissat
	Dir. of Ec.Dev. & Planning	Joanne Doddridge

OTHERS:	(0)	MEDIA:	(0)
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	<p><u>CALL TO ORDER</u></p> <p>Mayor Pinkney called the Committee of the Whole Budget meeting to order at 12:00 PM</p> <p>Mayor Pinkney acknowledged that this meeting is being held on Tsqescencúlecw.</p>
A	<p><u>APPROVAL OF AGENDA</u></p>

	<p>A1</p> <p>Res: 22/24 Moved By: Councillor Mingo Seconded By: Councillor Norgren</p> <p>BE IT RESOLVED THAT the November 20th, 2024 Committee of the Whole Budget meeting agenda <u>be approved</u>.</p> <p style="text-align: center;">CARRIED.</p>
B	<u>INTRODUCTION OF LATE ITEMS</u>
C	<u>DELEGATIONS</u>
D	<u>UNFINISHED BUSINESS</u>
E	<u>CORRESPONDENCE</u>
F	<u>STAFF REPORTS</u>
<p>Draft Fees & Charges Bylaw No. 1434, 2024</p>	<p>F1</p> <p>Res: 23/24 Moved By: Councillor Barnett Seconded By: Councillor Mingo</p> <p>BE IT RESOLVED THAT Council rise and report the Fees and Charges Bylaw no. 1434, 2024 <u>as amended</u> to the next regular council meeting for three readings.</p> <p style="text-align: center;">CARRIED</p> <hr/> <p>Council motioned to make the following amendments to Draft Fees & Charges Bylaw No. 1434, 2024.</p> <p><u>Schedule B – Administration</u> 13. Photocopies – Add a provision for registered non-profits ½ price.</p> <p><u>Schedule C – Building Permits</u> Re-Plan Checking Fee – Increase to \$500.</p>

	<p>Mobile Home Additions – Increase to the following Unfinished, unheated: \$150.00 per square foot Finished: \$200.00 per square foot</p> <p><u>Schedule K – Utilities</u> 3. Water Connection – Water on/off Fee amend to \$50.00</p> <p><u>Schedule L – Facility Rentals</u> Parade/Temporary Closure – Council requested the addition of not-for-profit group/society – no charge to be added</p> <p>Council requested staff gather information on Mobile Vendors/Food Trucks and alternatives to existing fee schedule in addition to overall business licence fees.</p> <p>Staff to monitor new EV Charger use, fee collection and maintenance expenses to report back to Council in spring 2025.</p> <p>Council requested staff gather information on standard practice of park facility rentals for public vs. private events.</p> <p>Council, in general wishes to see Fees & Charges relate to full cost recovery.</p>
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2025 Draft Capital Plan / Budget**F2**

Director of Finance S. Elias reviewed the proposed 2024 amendments and the 2025 Draft Operating Budget.

Res: 24/24

Moved By: Councillor Barnett
Seconded By: Councillor Mingo

BE IT RESOLVED THAT staff be directed to prepare a letter to UBCM addressing the disproportion disbursement of the Community Works Funds.

CARRIED

Council discussion included direction to the following:

- Staff to explore IT Provider services and alternatives.
- Complete a comparison of MIA to other insurance providers.
- Ensure \$5,000. is reserved in 2-2-123-73 Grants for Assistance for the District to sponsor community events in District managed facilities.
- Explore street lighting installation on Horse Lake Road from Blackstock Road to Forest Ridge Road
- Contribution to capital reserves to be discussed in further detail at future budget meeting.

<p>Water / Sewer Rates</p>	<p>F3</p> <p>Res: 25/24 Moved By: Councillor Barnett Seconded By: Councillor Guimond</p> <p>BE IT RESOLVED THAT the Council Report from Administration regarding Water & Sewer utility rates by received; and further</p> <p>BE IT RESOLVED THAT the Draft Fees & Charges Bylaw No. 1434, 2024 Schedule K – Water Rates, be amended to reflect a 10% increase for 2025</p> <p style="text-align: center;">CARRIED</p> <p>Res: 26/24 Moved By: Councillor Barnett Seconded By: Councillor Norgren</p> <p>BE IT RESOLVED THAT the bulk water rate be amended to \$0.02 cents a litre.</p> <p style="text-align: center;">CARRIED</p>
<p>G</p>	<p><u>BYLAWS</u></p>
<p>H</p>	<p><u>OTHER BUSINESS</u></p>
<p>I</p>	<p><u>QUESTION PERIOD</u></p>
<p>J</p>	<p><u>ADJOURNMENT</u></p> <p>Res: 27/24 Moved By: Councillor Norgren Seconded By: Councillor Mingo</p> <p>BE IT RESOLVED THAT this Committee of the Whole Budget meeting for November 20th, 2024 be adjourned at 2:15 PM.</p> <p style="text-align: center;">CARRIED.</p>
<p>I hereby certify these minutes to be correct.</p> <p>_____</p> <p>Mayor Corporate Officer</p>	