



# Community Connectivity Plan: Cowichan Lake Area

## Contents

1. Situational Overview .....	2
2. Community Overview .....	2
3. Current State of Connectivity .....	3
4. What we Heard .....	7
5. Technologies .....	8
6. Key Challenges .....	10
7. Options.....	10
8. Recommendations .....	20

## 1. SITUATIONAL OVERVIEW

The Cowichan Valley Regional District (CVRD) has undertaken the development of a connectivity strategy, to address the objectives of extending at least 50 Mbps down/10 Mbps up broadband service to all underserved areas, and to extend cellular coverage along roadways and to premises within those underserved areas.

The strategy involves focusing on the extension of backbone fibre optic infrastructure, working with ISPs to improve their business cases to deliver last-mile infrastructure, interconnecting residential and business premises. To accomplish this, the CVRD will take on the role of connectivity advocate, engaging with service providers, utilities, communities, and senior governments to advocate for funding and encourage/assist with the prioritization of CVRD communities in comparison to others across the province for funding opportunities.

Within the context of the CVRD strategy, this community plan for Cowichan Lake Area provides specific tactics and information for the community, with the support of the CVRD, to advocate and in turn support ISPs with respect to the infrastructure that needs to be constructed under a focused plan to improve connectivity services to residents in the community.

## 2. COMMUNITY OVERVIEW

Cowichan Lake is a large freshwater lake approximately 30 minutes (31 kilometers) west of Duncan. The Cowichan Lake region includes the villages of Honeymoon Bay, Mesachie Lake, and Caycuse along the south shore, Youbou and Ts'uubaa-asatx First Nation along the north shore, and the Town of Lake Cowichan at the eastern end of the lake. The region comprises a portion of Cowichan Valley Electoral Areas F and I.

The Ts'uubaa-asatx People have made their primary home along the shores of Cowichan Lake since time immemorial. Today, approximately 18 of 30 members reside on the Nation's one reserve of 42.7 hectares.<sup>1</sup> Census data is generally not available for Ts'uubaa-asatx First Nation reserve residents due to the small sample size. Their economic development priorities centre around tourism and residential development along the waterfront, with plans for a marina, hotel and restaurant in addition to the existing Kaatza Adventures business.

The Town of Lake Cowichan serves as the main service hub for the Cowichan Lake region. Youbou is the next largest population centre, followed by Mesachie Lake and Honeymoon Bay. Caycuse is a small community about 20km west of Honeymoon Bay. According to the Cowichan Lake District Chamber of Commerce, 65 people reside in Caycuse, including 13 seasonal residents.<sup>2</sup> The total population of the Cowichan Lake region is approximately 5,279, with a higher median age than Cowichan overall (Lake Cowichan: 52; Youbou: 57.6; Mesachie Lake/Honeymoon Bay: 56; Cowichan: 50.8).<sup>3</sup>

---

<sup>1</sup> "First Nation Profiles: Ts'uubaa-asatx", Crown-Indigenous Relations and Northern Affairs Canada, October 2022, [https://fnppn.aadnc-aandc.gc.ca/fnp/Main/Search/FNMain.aspx?BAND\\_NUMBER=643&lang=eng](https://fnppn.aadnc-aandc.gc.ca/fnp/Main/Search/FNMain.aspx?BAND_NUMBER=643&lang=eng)

<sup>2</sup> "Caycuse", Cowichan Lake District Chamber of Commerce, <https://cowichanlake.ca/caycuse-camp-6%ef%bf%bc/>

<sup>3</sup> "Census Profile, 2021 Census of Population", Statistics Canada, October 26 2022, <https://www12.statcan.gc.ca/census-recensement/2021/dp-pd/prof/index.cfm?Lang=E>

The median household income of Cowichan Lake residents is lower than Cowichan overall (Lake Cowichan: \$68,000; Youbou: \$71,500; Mesachie Lake/Honeymoon Bay: \$69,500; Cowichan: \$79,500). A higher percentage of residents in Youbou work from home (18.3%) than other areas around Cowichan Lake, probably due to the distance from employment opportunities. The median value of dwellings in this area varies, with Lake Cowichan at \$472,000, Youbou at \$650,000, and Mesachie Lake/Honeymoon Bay at \$500,000, compared to \$624,000 for Cowichan overall.<sup>4</sup> Housing in the Cowichan Lake area has long been considered more affordable than in other parts of Cowichan, resulting in significant development activity in the region.

The Cowichan Lake region is a popular recreation destination, with ample camping, swimming, tubing and boating opportunities. It is also located on the popular Pacific Marine Circle Route and plays host to several large music festivals at Laketown Ranch every summer. While Census 2021 shows 2,991 private dwellings in the area, only 2,426 or 81% are permanently occupied, signalling a high proportion of vacation properties in the region.<sup>5</sup>

### 3. CURRENT STATE OF CONNECTIVITY

The Cowichan Lake Area includes a number of communities surrounding the lake. The key communities requiring support are Youbou, Caycuse, Honeymoon Bay, and Lake Cowichan.

Youbou has approximately 144 underserved premises and 17 km of road segments, primarily on the north shore of the lake, west of the formal Youbou community. Refer to Figure 1 for additional information.

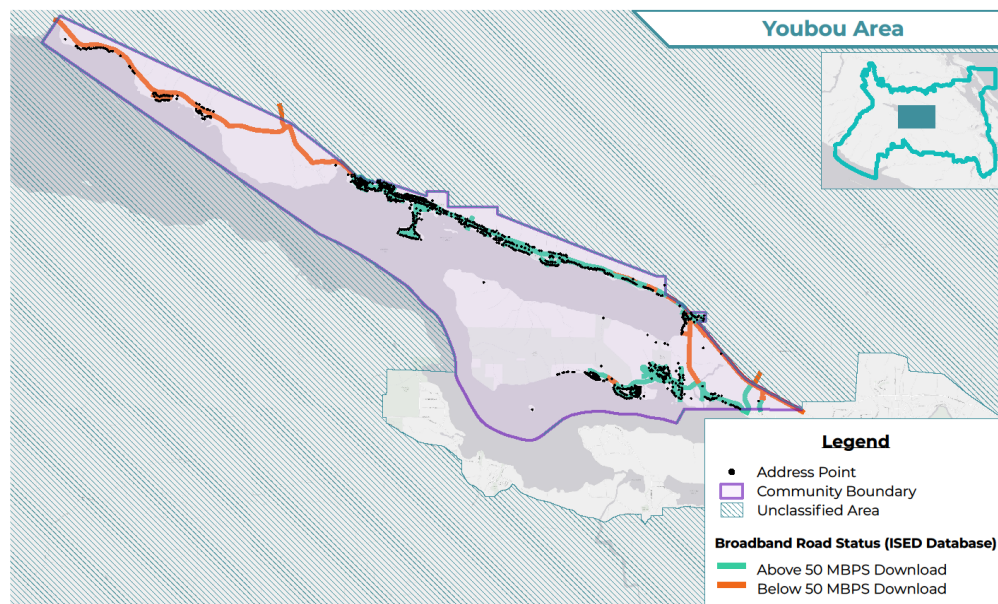


Figure 1: Youbou Current State Broadband Coverage

<sup>4</sup> "Census Profile, 2021 Census of Population", Statistics Canada, October 26 2022, <https://www12.statcan.gc.ca/census-recensement/2021/dp-pd/prof/index.cfm?Lang=E>

<sup>5</sup> "Census Profile, 2021 Census of Population", Statistics Canada, October 26 2022, <https://www12.statcan.gc.ca/census-recensement/2021/dp-pd/prof/index.cfm?Lang=E>

Federal data provided by Innovation, Science and Economic Development Canada (ISED) shows that Caycuse Area has 3 premises, and 6.9 km of roads, all of which are classified as underserved. The Cowichan Lake District Chamber of Commerce identifies that the population is 65, of which 13 are seasonal residents, calling the ISED data into question. While the data shows no physical broadband infrastructure, it is claimed to be served by mobile wireless services from the three incumbent providers, as well as by satellite services from Xplornet.

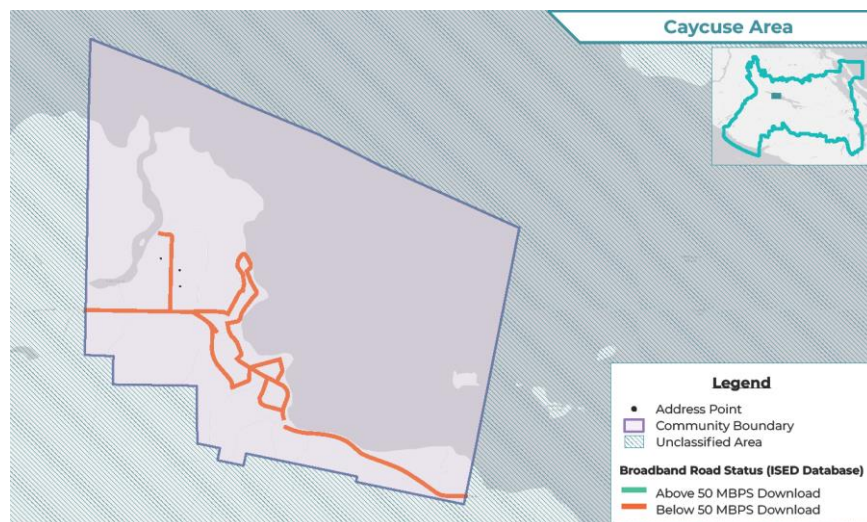


Figure 2: ISED Documentation of Broadband within Caycuse Area

The Town of Lake Cowichan and surrounding area has approximately 104 underserved premises and 14 km of underserved road segments as shown in Figure 3 below.

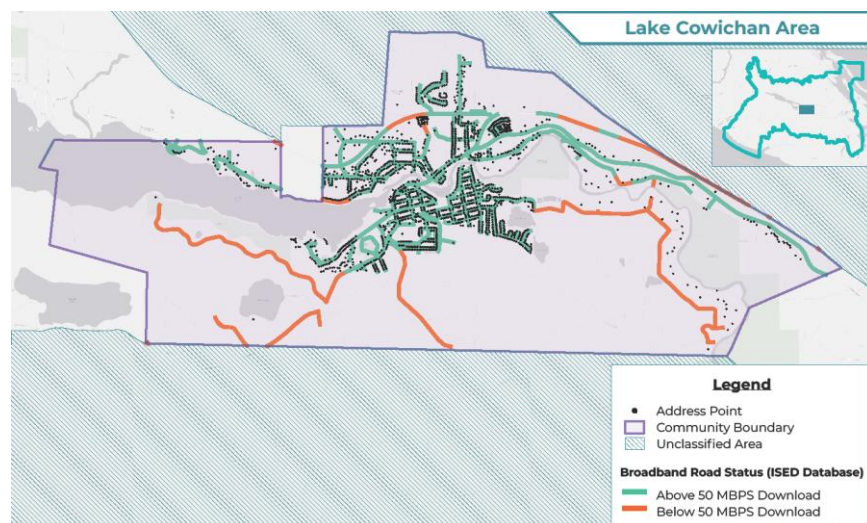


Figure 3: Lake Cowichan Area Current State Broadband Coverage

Ts'uubaa-asatx Nation data shows 100% of the 5 premises are served. Speed test data challenges that number, and an aerial view of the Nation shows at least 10 additional premises. For the purposes of this analysis, we will assume 5 served premises and 10 underserved, with an underserved road segment of 508 m.



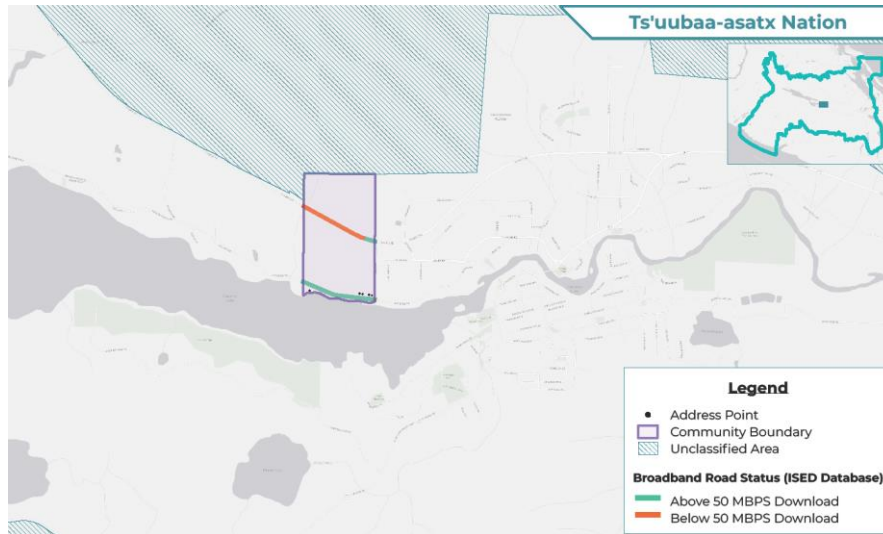


Figure 4: Ts,uubaa-asatx Nation Current State of Broadband Coverage

Mesachie Lake has approximately 2 underserved premises and 2.5 km of underserved road segments according to ISED data, and as shown in Figure 5 below.

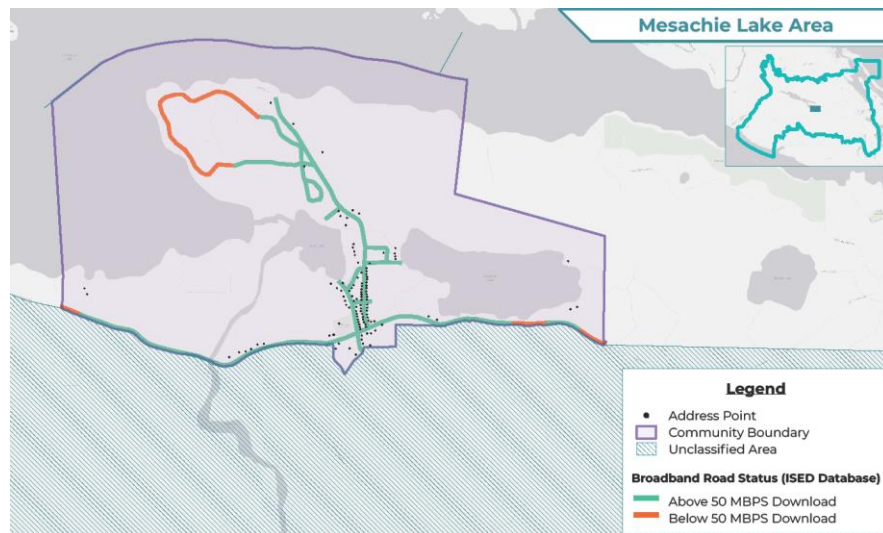


Figure 5: Mesachie Lake Current State of Broadband Coverage

Although data for Honeymoon Bay only showed 12 underserved premises and 2.9 km of underserved road segments (see Figure 6 & 7 below), the accuracy of the ISED data was questionable.

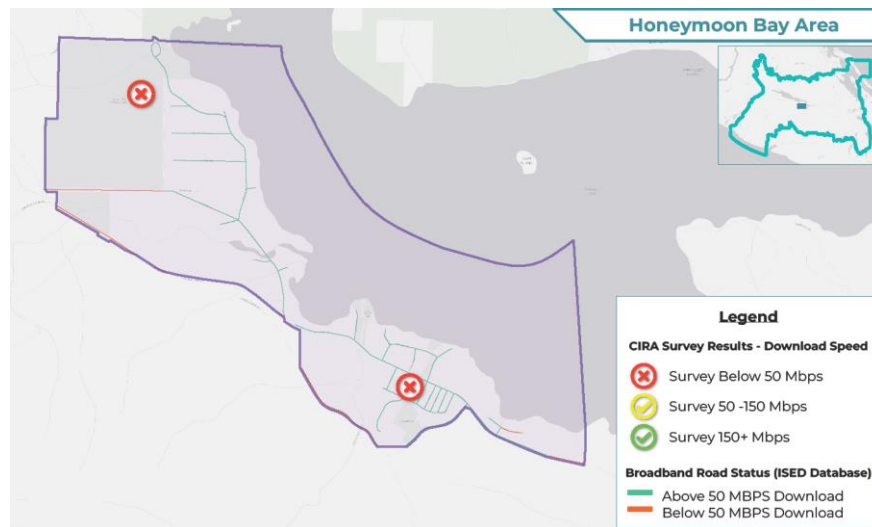


Figure 6: Honeymoon Bay Speed Test Results

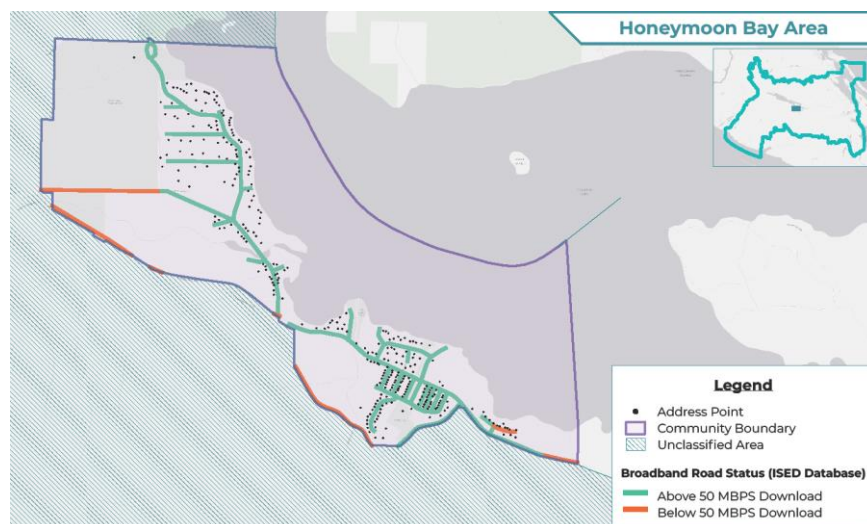


Figure 7: Honeymoon Bay Current State - ISED Data Challenged

Local community engagements indicate a requirement to focus on improving services. Both Youbou and Honeymoon Bay are challenged, not only from the perspective of readily available broadband services, but also from that of adequate cellular coverage. The Telus coverage map in Figure 8 currently show a mix of 5G, LTE Advanced and LTE coverage in Youbou and Honeymoon Bay areas, in conflict with community feedback. The community also indicated that cellular coverage in Mesachie Lake is poor.

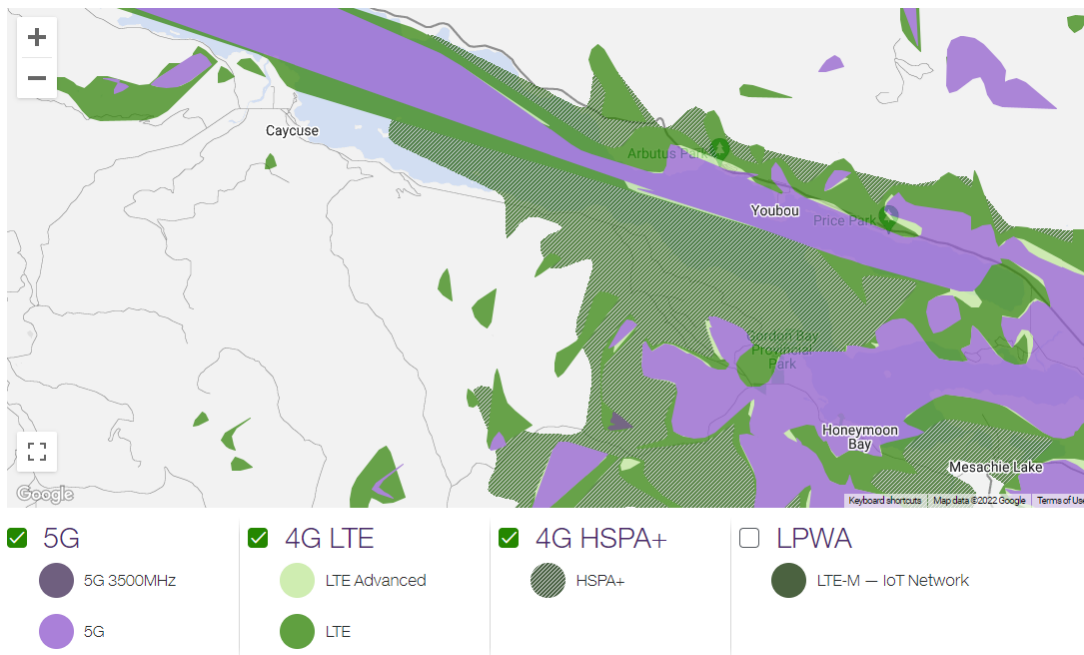


Figure 8: Telus Wireless Coverage Map

#### 4. WHAT WE HEARD

In September 2022, a community meeting was held to gather input from Cowichan Lake Area residents on their priorities and concerns. The meeting revealed that residents enjoy the lake and river environment, and embrace continued development, as long as the integrity of the environment is maintained. They view that improved broadband will help to:

- Connect the community, providing for messaging boards and community portals,
- Enable work from home and online businesses, and
- Attract new residents to the community.

In addition to improved broadband, a need for more towers and improved cellular coverage was expressed to:

- Support more reliable emergency service,
- Improve safety along roadways, especially along Highway 18 and the Pacific Marine Circle Route, and
- Improve the safety of visitors to the many surrounding trails and parks.

The expressed development priorities for the area included new housing, seniors' residences, a new town hall, a year-round hotel, and a seasonal water park, while the main concerns or barriers to connectivity included:

- Lack of ISP competition and choice,
- Mountains that impede coverage, and
- Winter weather.

## 5. TECHNOLOGIES

### Technology Options

	Digital Subscriber Loop (DSL)	Fibre to the Home (FTTH)	Cable (DOCSIS)	Fixed Wireless	Mobile Wireless (Cellular Data)	Satellite
Description	Digital data over telephone lines	Light transmission through glass fibres.  Very low maintenance.  Virtually unlimited future speeds	Electrical transmission over Cable TV system copper cables	2-way communication from fixed house antenna to tower	Internet delivered to a single mobile device	2-way communications from antenna to space and back
Challenges	Old technology  Speed is distance-dependent from Telco Office	Fast, reliable, future-friendly	Ongoing maintenance of distributed batteries and active components	Susceptible to interference  Line of sight to tower required	Prices moderate until data cap reached	Susceptible to interference  Line of sight to satellite required
Typical Download	5-35Mbps	50Mbps-5Gbps	1.2Gbps	25-50Mbps	25-100Mbps	25Mbps GEO 50-250Mbps LEO
Typical Upload	0.5-5Mbps	50Mbps-5Gbps	200Mbps	5-10Mbps	0.5-5Mbps	1Mbps GEO 10-20Mbps LEO



## Construction Methods

Construction Method	Advantages	Disadvantages
Aerial	<ul style="list-style-type: none"> <li>• Less expensive to install</li> <li>• Readily available infrastructure (BC Hydro, Telus)</li> </ul>	<ul style="list-style-type: none"> <li>• Susceptible to wind and storm and traffic damage</li> <li>• Ongoing pole rental fees</li> </ul>
Buried	<ul style="list-style-type: none"> <li>• Less susceptible to damage</li> <li>• Low visual impact on environment</li> </ul>	<ul style="list-style-type: none"> <li>• More expensive to install</li> <li>• Ongoing locate costs</li> <li>• Not appropriate for rocky terrains</li> </ul>
Submarine	<ul style="list-style-type: none"> <li>• Provides for connectivity across waterways</li> </ul>	<ul style="list-style-type: none"> <li>• Very expensive</li> </ul>
Wireless	<ul style="list-style-type: none"> <li>• Lowest cost to serve an area</li> <li>• Serve multiple premises from a single tower site</li> <li>• Fewer locations required</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of community support</li> <li>• High visual impact on environment</li> <li>• Limited capacity and bandwidth</li> <li>• Ongoing land lease costs</li> </ul>

## Operating Model Options

Model	Advantages	Disadvantages
Community-Subsidized/ ISP-Owned	<ul style="list-style-type: none"> <li>• Community influence on initial build technologies and configuration</li> <li>• No ongoing network operations or management required</li> </ul>	<ul style="list-style-type: none"> <li>• Limited services based on one ISP</li> <li>• ISP controls assets</li> </ul>
Community-Owned	<ul style="list-style-type: none"> <li>• Full control of initial and ongoing technologies and configurations</li> <li>• Open or closed network options</li> </ul>	<ul style="list-style-type: none"> <li>• Responsible for network operations and maintenance</li> </ul>
Open Network	<ul style="list-style-type: none"> <li>• All service providers can access all connected premises</li> <li>• Flexibility to attract new service providers for multiple service types (security, telehealth, education)</li> <li>• No high-cost infrastructure investments by service providers</li> </ul>	<ul style="list-style-type: none"> <li>• Resistance in service provider community to deliver services over others' networks</li> <li>• Potential for finger-pointing on trouble resolution</li> </ul>
Closed Network	<ul style="list-style-type: none"> <li>• Single point of contact responsible for overall quality</li> </ul>	<ul style="list-style-type: none"> <li>• Only one service provider has access to premises (service monopoly)</li> <li>• Potential for higher prices</li> <li>• Lower community input/involvement</li> </ul>

Model	Advantages	Disadvantages
Community-managed/Operated	<ul style="list-style-type: none"> <li>• Full control of network technologies, configuration, and content</li> <li>• Lower variable operating costs</li> </ul>	<ul style="list-style-type: none"> <li>• Must have available management skillsets and resources</li> <li>• Potential for higher cost of operations per home in smaller networks due to lower economies of scale</li> <li>• Potential for lower quality toolsets</li> <li>• Higher fixed operating costs</li> </ul>
Outsourced management/operation	<ul style="list-style-type: none"> <li>• Full control of network technologies, configuration, and content</li> <li>• Better economies of scale, due to operator's ability to leverage costs over multiple networks</li> <li>• Higher quality management toolsets</li> <li>• Lower operating capital</li> </ul>	<ul style="list-style-type: none"> <li>• Higher variable operating costs due to "pay-per-use."</li> </ul>

## 6. KEY CHALLENGES

Key challenges to extending connectivity in the Cowichan Lake Area include:

- The backdrop of mountainous terrain surrounding the lake, blocking wireless signals.
- Service provider and ISED reporting are challenged by local experience.
  - Failing speed tests in Honeymoon Bay and Caycuse, and
  - Reported limited cellular network coverage in Youbou and Honeymoon Bay areas.
- Broadband infrastructure availability in Youbou.
- Lack of competition in the following areas:
  - High-capacity transport to/from the areas, and
  - Fibre distribution networks.

## 7. OPTIONS

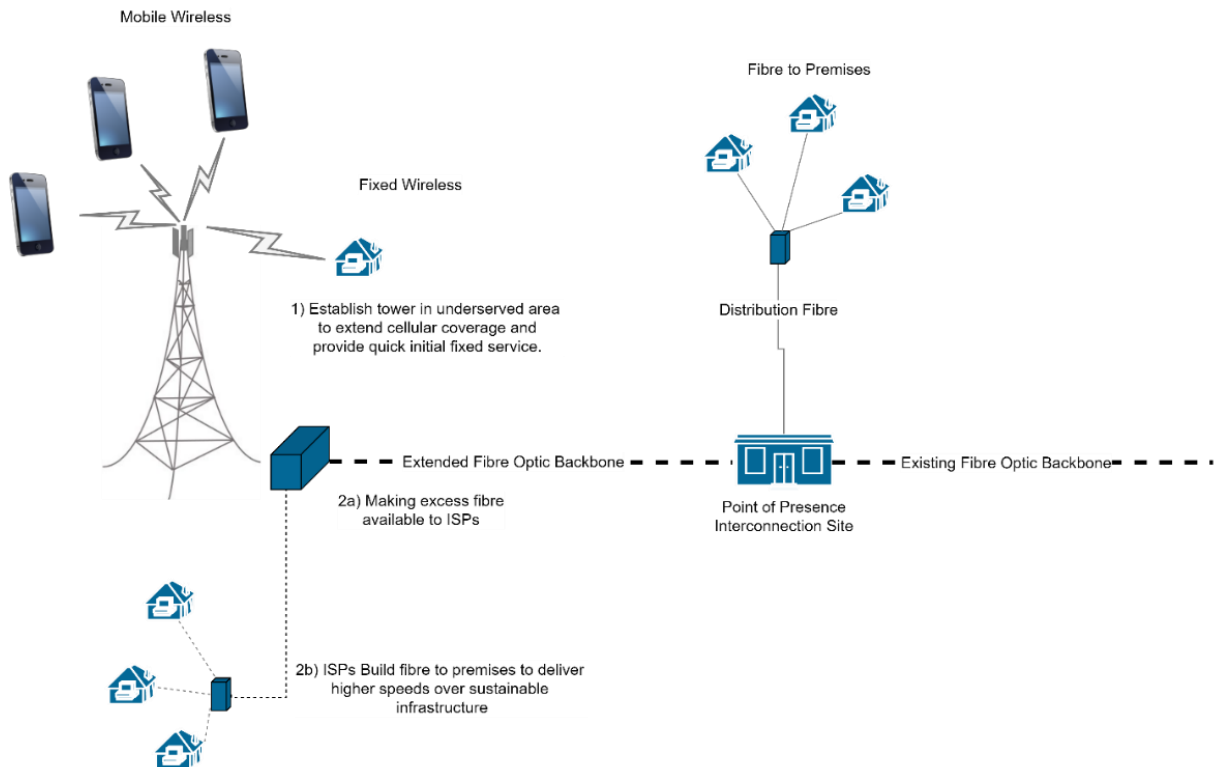
When considering the options available within the context of the community's

- desire for future growth and development,
- desire to enable work from home and online businesses, and
- expressed need for additional towers to improve cellular coverage,

there is a phased approach to wireless connectivity and two options to develop the local broadband network.

**Option 1: Extend Sustainable Broadband to Underserved Premises in all communities, and build cellular towers in Youbou, Honeymoon Bay and Mesachie Lake.**

A hybrid network may be the most appropriate way forward with a multi-phase, multi-technology approach resulting in improved cellular and fibre-based services, as outlined below.



*Figure 9: Multi-Phase, Multi-Technology Approach to Connectivity Deployment*

Phase Number	Description	Service Provider Benefits	Community Benefits
1	<ul style="list-style-type: none"> <li>- Select a building site for a tower near underserved areas,</li> <li>- Engage an independent wireless infrastructure company to construct a tower,</li> <li>- Extend fibre backbone to the tower</li> </ul>	<ul style="list-style-type: none"> <li>- Enables wireless service providers to cost-effectively locate cellular and fixed wireless antennas, delivering mobile and fixed wireless service to the area,</li> <li>- Provides early revenues while building out fibre-based connectivity to nearby premises.</li> </ul>	<ul style="list-style-type: none"> <li>- Improved cellular coverage,</li> <li>- Improved access to emergency services,</li> <li>- Improved Internet access through initial wireless technologies,</li> <li>- Independent wireless infrastructure company provides even playing field for all wireless service providers.</li> </ul>
2	<ul style="list-style-type: none"> <li>- Make excess fibres available to ISPs to be used to extend backbone/high-capacity transport</li> </ul>	<ul style="list-style-type: none"> <li>- Improved business cases to construct fibre to underserved premises.</li> </ul>	<ul style="list-style-type: none"> <li>- Improved opportunity to advance sustainable connectivity availability.</li> </ul>

*Table 1: Benefits of Multi-Phase, Multi-Technology Approach to Connectivity Deployment*

To improve the viability of this approach while limiting the number of towers, the CVRD may wish to amend its tower siting policy to reduce barriers to build the first tower, but more heavily restrict the construction of subsequent towers, making it more viable for service providers to co-locate with others on the first tower.

When implementing this strategy across the Cowichan Lake area, the specific tactics would be as follows:

### **Phase 1: Extend Backbone and Build Towers**

This phase would see the extension of backbone westward through Youbou along the north shore, and from Mesachie Lake to Honeymoon Bay on the south shore of the Lake, along with the construction of cellular/wireless towers in Youbou, Mesachie Lake and Honeymoon Bay, as shown in Figure 10.

Note: During detailed design, it may be found that the existing tower behind the Honeymoon Bay fire hall could be replaced with a higher tower structure that would be better suited to cellular antennas and radios which would provide more cellular coverage for the area.

Note: During detailed design, it may be found that a single tower could provide coverage to both Honeymoon Bay and Mesachie Lake.

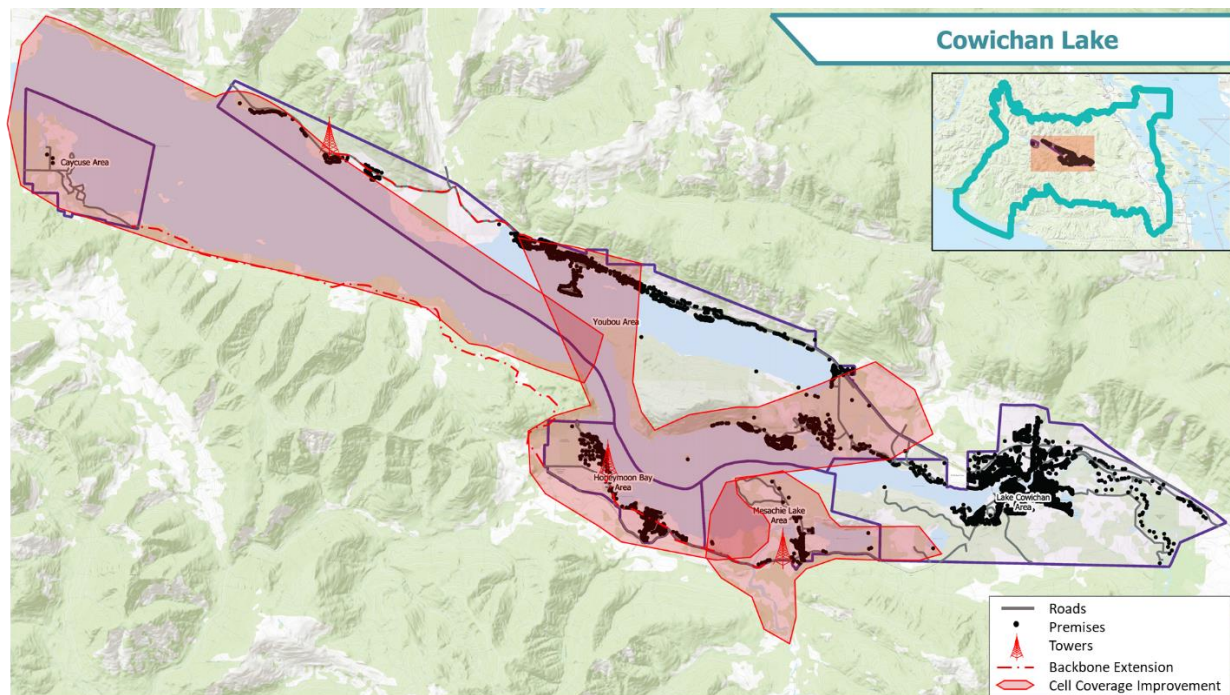


Figure 10: Backbone Extensions to New Towers and Expected Coverage Improvement

Towers could be built by an independent owner and operator of wireless communications infrastructure such as SBA Communications or others that are interested in extending their operations. They would need to identify the most appropriate specific sites from a construction and radio engineering basis, and then build and lease tower space to wireless cellular service providers, such as Shaw, Telus, Bell and/or Rogers. Space on the towers could also be leased to fixed wireless broadband providers. Backbone fibre optic cable from Shaw or others could be extended to the tower sites.

The benefits of such an approach are the extension of cellular and fixed wireless networks to Honeymoon Bay and along the north shore, which would also improve coverage along the south shore to and around Caycuse, from the new tower across the lake. Once the fibre backbone is in place, the business case for ISPs to build fibre to the home in the underserved areas greatly improves.

## Phase 2: Build Out Fibre to The Home

### Youbou and Honeymoon Bay

With backbone in place, advocacy with ISPs to revisit their business cases and construction prioritization based on the presence of backbone fibre to underserved area would initiate this phase. Phase 2 will see the construction of fibre to the home from the extended backbone at the newly constructed towers and from existing backbone, to the roughly 144 underserved premises in the Youbou area and 12 or more in the Honeymoon Bay area.



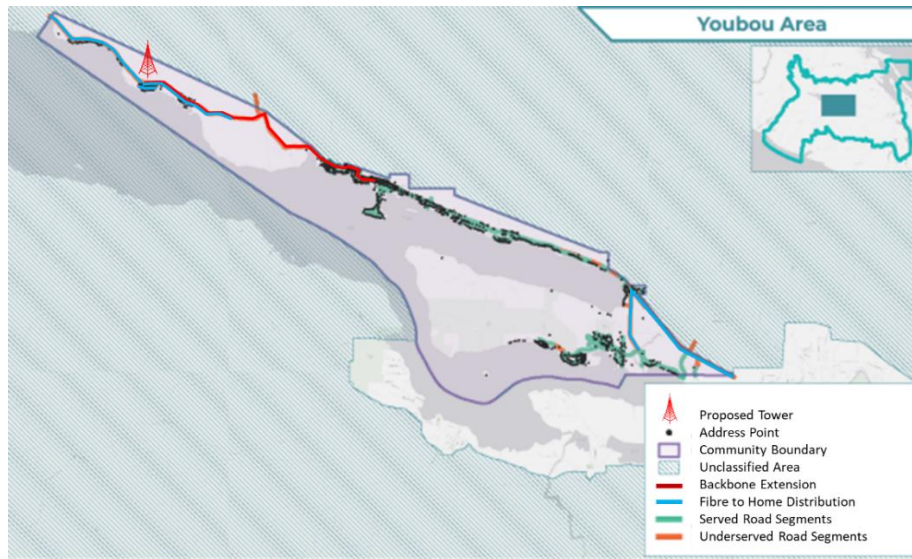


Figure 11: Extend Fibre to Underserved Roads and Premises - Youbou

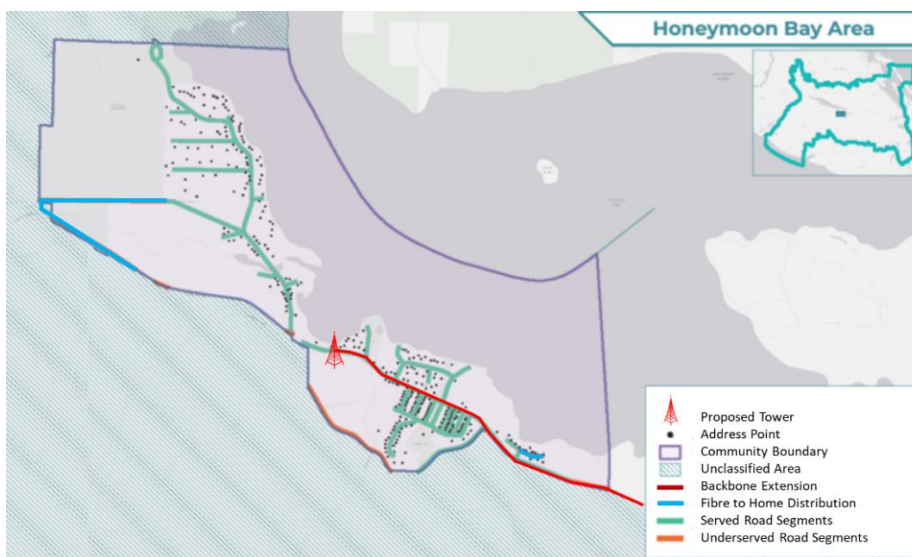


Figure 12: Extend Fibre to Underserved Roads and Premises - Honeymoon Bay

With cellular coverage issues addressed through the construction of the new towers and the associated extension of fibre to the Honeymoon Bay area, broadband connectivity to the Honeymoon Bay fire station and community centre can easily be added to the network. Due to the uncertainty in current data with respect to cellular mapping potential from either new or existing tower locations, which would provide this transport fibre infrastructure, further investigation of broadband availability to other premises in the community would be recommended prior to embarking on an overbuild of fibre to underserved premises within the community.

## Ts'uubaa-asatx Nation

Subsequent to the extension of fibre backbone to Youbou, would be the extension of fibre to the home broadband services to homes in the Ts'uubaa-asatx Nation reserve.

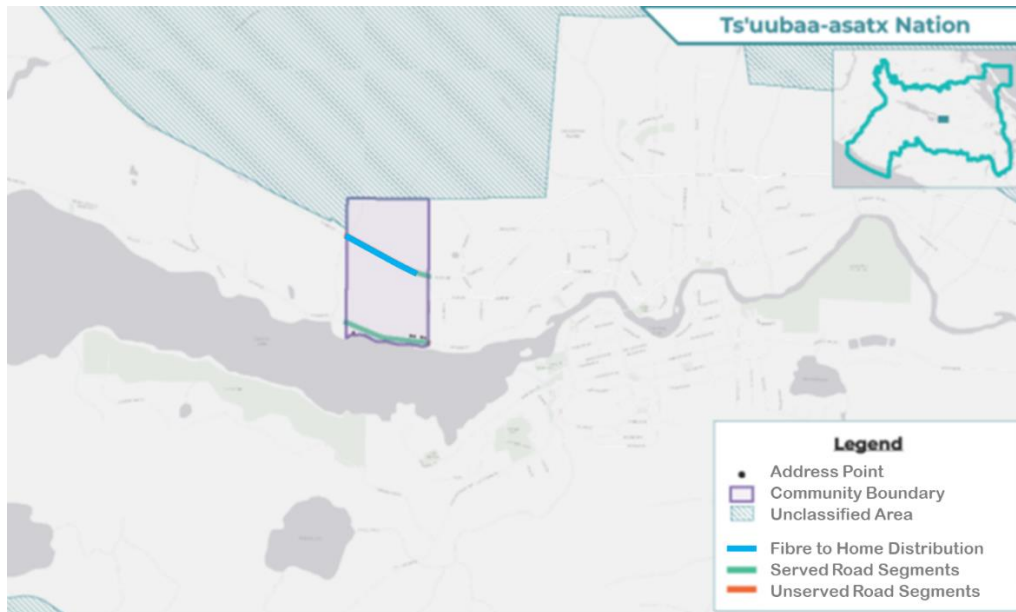


Figure 13: Extend Fibre to Underserved Roads and Premises - Ts'uubaa-asatx Nation

## Caycuse

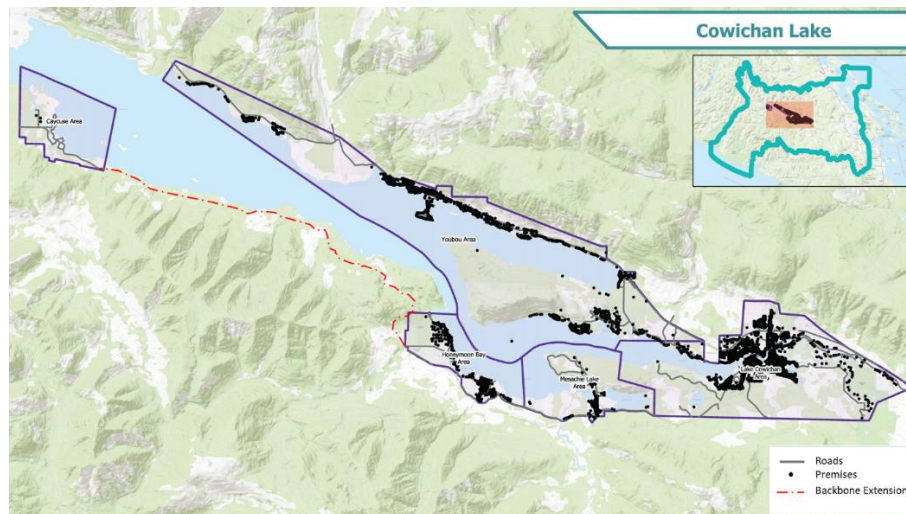


Figure 14: Backbone Extension to Caycuse

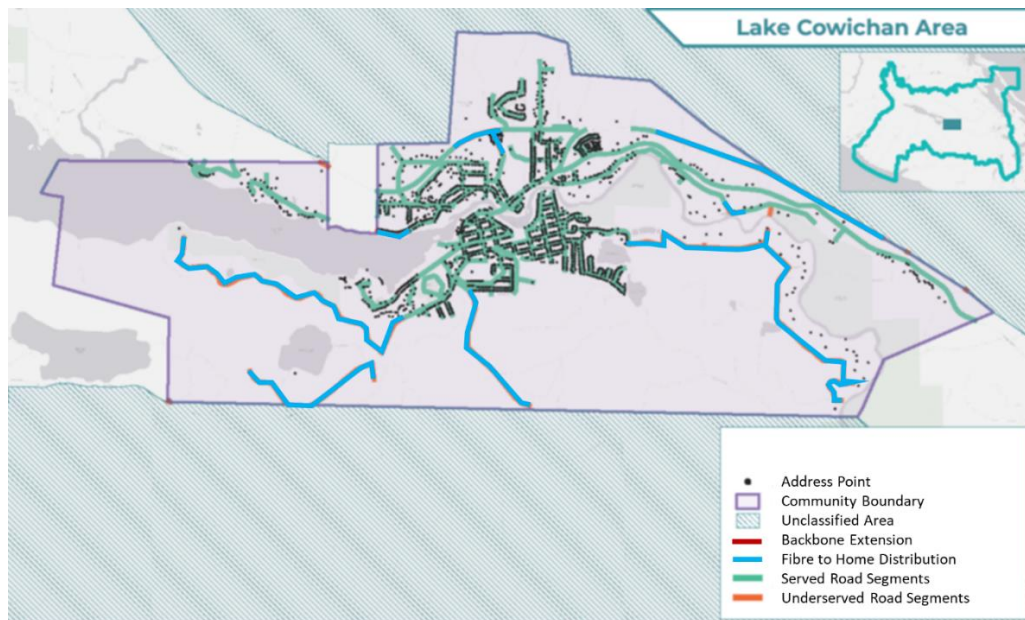
Subsequent to the extension of fibre backbone to Honeymoon Bay, would be the extension of fibre backbone and fibre to the home broadband services to homes, parks and campsites along the south shore to and including Caycuse. The extension of fibre to Caycuse enables CVRD to secure broadband connectivity to the Caycuse fire station. This may be best accomplished by working with Shaw, Telus or

other incumbent service providers. Given the distance involved and small number of potential customers in the Caycuse area, it would be very difficult to build a business case for the extension.

Other service improvement opportunities for the Caycuse area include improved cellular coverage from the proposed tower in the Youbou area, improving the viability of mobile and fixed wireless services, and the increasing availability of satellite services such as Xplornet, Starlink, or others.

### **Town of Lake Cowichan and Surrounding Area**

In parallel with any of the other phases or activities, the extension of sustainable broadband services in the Town of Lake Cowichan and surrounding area could be addressed through working with existing service providers to improve business cases and project prioritization for fibre to underserved premises.



*Figure 15: Extend Fibre to Underserved Roads and Premises - Lake Cowichan Area*

**Construction Cost Estimates – Option 1 (Fibre to underserved premises in all areas, 3 new cell towers):**

	Lake Cowichan Area	Honeymoon Bay	Youbou	Ts'uubaa-asatx Nation	Mesachie Lake	Total
Underserved Road Segments (m)	14,000	2,900	17,000	508	2,483	
Underserved Premises	104	12	144	10	2	
Served Road Segments (m)	45,000	11,037	28,000	574	9,300	
Served Premises	1,747	291	909	5	116	
Backbone Extension (m)		5,000	8,500		200	
New Towers		1	1		1	
Cost to Serve Underserved Road Segments	\$840,000	\$174,000	\$1,020,000	\$30,480	\$148,980	
Cost to Connect underserved premises	\$104,000	\$12,000	\$144,000	\$10,000	\$2,000	\$272,000
Cost to build fibre to Served Road Segments	\$0	\$0	\$0	\$34,440	\$0	
Cost to build fibre to Served premises	\$0	\$0	\$0	\$0	\$0	\$0
Cost of Backbone Extension		\$300,000	\$510,000	\$0	\$12,000	
Cost of Towers		\$250,000	\$250,000	\$0	\$250,000	
<b>Total Estimated Costs</b>	<b>\$944,000</b>	<b>\$736,000</b>	<b>\$1,924,000</b>	<b>\$74,920</b>	<b>\$412,980</b>	<b>\$4,091,900</b>
<b>Funding Opportunities</b>						
Provincial and Federal Grants (70% construction costs to underserved premises)	\$660,800	\$340,200	\$1,171,800	\$28,336	\$114,086	\$2,315,222
Tower Provider Funding		\$250,000	\$250,000		\$250,000	\$750,000
Unfunded Remainder	\$283,200	\$145,800	\$502,200	\$46,584	\$48,894	
Unfunded Remainder per Premise	\$2,723	\$12,150	\$3,488	\$4,658	\$24,447	
Network Owner Funding per premise passed	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	
Community Funding per premise passed	\$223	\$9,650	\$988	\$2,158	\$21,947	
Total Expected Network Owner Total Funding	\$260,000	\$30,000	\$360,000	\$25,000	\$5,000	\$680,000
Total Community Funding	\$23,200	\$115,800	\$142,200	\$21,584	\$43,894	\$346,678
<b>Total Funding</b>	<b>\$944,000</b>	<b>\$736,000</b>	<b>\$1,924,000</b>	<b>\$74,920</b>	<b>\$412,980</b>	<b>\$4,091,900</b>
Total Community Funding per premise passed						\$1,275

**Note:** Adding Caycuse to this option adds \$1,579,000 of total capital and raises expected community funding per premise passed by \$1,277, to \$2,552/premise passed.

## **Option 2: Build new fibre infrastructure to all premises in all communities, and add cellular towers in Youbou, Honeymoon Bay and Mesachie Lake**

Due to the lack of fibre-to-the-home infrastructure around the lake, and the desire of the community to invest in sustainable broadband that will enable it to achieve all its goals and maintain currency with future broadband applications that require increasing speeds, Option 2 consists of building new sustainable infrastructure to all premises (currently served or underserved) in all areas around the lake.

Work could be phased per Option 1, with extension of backbone followed by fibre distribution, but for consistency of fibre connectivity, it is suggested to sequence construction from east to west. This would entail starting with the fibre build in the Town of Lake Cowichan, building westward through Ts'uibaa-asatx Nation to Youbou, and in parallel, building along the south shore of the lake to Mesachie Lake and Honeymoon Bay.

Building new infrastructure to all premises has the impact of tripling the overall capital cost from approximately \$4 million to over \$12 million, but due to the much higher number of premises over which the costs will be amortized, the expected contribution or subsidy that the community would be expected to pay on a per-premise-passed basis would be reduced by about the same factor – reducing from \$1,275 to approximately \$400 per home passed.

Extending backbone and fibre distribution to Caycuse, would add an additional \$1.6 million to construction costs, and increase the expected community investment from approximately \$400 to \$522 per home passed.

From a network owner's perspective, overbuilding and competing with existing networks that are capable of delivering the current minimum acceptable speeds of 50 Mbps download/10 Mbps upload adds some risk in that adoption rates would be considerably lower than when moving into an underserved area. It would be expected that incumbent service providers would up their game, improving offers to their current customers in an effort to retain users and reduce losses. This prospect of lower adoption rates may add risk for some service providers. It should be noted that a reduction in adoption (take-rate) reduces the number of connections that must be made, therefore reducing the capital required somewhat, but reducing potential revenue more significantly, as fibre infrastructure has to be constructed past all premises.

It should also be noted that provincial and federal grant programs are aligned with covering a portion of construction costs to extend networks to underserved premises. The programs are not intended to cover the costs of extending networks to premises that are served with the minimum acceptable broadband service speeds.



**Construction Cost Estimates – Option 2 (Fibre to ALL premises in all areas, 3 new cell towers):**

	Lake Cowichan Area	Honeymoon Bay	Youbou	Ts'uubaa-asatx Nation	Mesachie Lake	Total
Underserved Road Segments (m)	14,000	2,900	17,000	508	2,483	
Underserved Premises	104	12	144	10	2	
Served Road Segments (m)	45,000	11,037	28,000	574	9,300	
Served Premises	1,747	291	909	5	116	
Backbone Extension (m)		5,000	8,500		200	
New Towers		1	1		1	
Cost to Serve Underserved Road Segments	\$840,000	\$174,000	\$1,020,000	\$30,480	\$148,980	
Cost to Connect underserved premises	\$104,000	\$12,000	\$144,000	\$10,000	\$2,000	\$272,000
Cost to build fibre to Served Road Segments	\$2,700,000	\$662,220	\$1,680,000	\$34,440	\$558,000	
Cost to build fibre to Served premises	\$1,747,000	\$291,000	\$909,000	\$5,000	\$116,000	\$3,068,000
Cost of Backbone Extension		\$300,000	\$510,000	\$0	\$12,000	
Cost of Towers		\$250,000	\$250,000	\$0	\$250,000	
<b>Total Estimated Costs</b>	<b>\$5,391,000</b>	<b>\$1,689,220</b>	<b>\$4,513,000</b>	<b>\$79,920</b>	<b>\$1,086,980</b>	<b>\$12,760,120</b>
<b>Funding Opportunities</b>						
Provincial and Federal Grants (70% construction costs to <u>underserved</u> premises)	\$660,800	\$340,200	\$1,171,800	\$28,336	\$114,086	\$2,315,222
Tower Provider Funding		\$250,000	\$250,000		\$250,000	\$750,000
Unfunded Remainder	\$4,730,200	\$1,099,020	\$3,091,200	\$51,584	\$722,894	
Unfunded Remainder per Premise	\$2,555	\$3,627	\$2,936	\$3,439	\$6,126	
Network Owner Funding per premise passed	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	
Community Funding per premise passed	\$55	\$1,127	\$436	\$939	\$3,626	
Total Expected Network Owner Total Funding	\$4,627,500	\$757,500	\$2,632,500	\$37,500	\$295,000	\$8,350,000
Total Community Funding	\$102,700	\$341,520	\$458,700	\$14,084	\$427,894	\$1,344,898
<b>Total Funding</b>	<b>\$5,391,000</b>	<b>\$1,689,220</b>	<b>\$4,513,000</b>	<b>\$79,920</b>	<b>\$1,086,980</b>	<b>\$12,760,120</b>
Total Community Funding per premise passed						<b>\$403</b>

**Note:** Adding Caycuse to this option adds \$1,579,000 of total capital but based on amortizing costs over a much higher number of homes, raises expected community funding per premise passed by \$119, to \$522/premise passed.

Regardless of the option chosen, service providers selected, or sequence of construction planned, potential support mechanisms for CVRD may include:

- Creation of local area service to help fund the extension or creation of a distribution network, backbone and connectivity to underserved premises and communities.
- Utilizing the CRTC Broadband Fund's third call for applications<sup>6</sup> may give the community options for transport grant funding assistance. Eligibility will have to be confirmed and applications must be submitted by May 16, 2023 and fall within the eligible area.

CVRD advocacy would also be required to:

- Confer with higher tier governments to fund construction of the project,
- Explore options for BC Ministry of Transportation and Infrastructure to permit shallow-buried infrastructure within road shoulders to reduce ongoing operational costs related to joint-use fees to pole owners and reduce design/construction time,
- Provide letters of support for all applicants that are following the CVRD plan requirements, if requested, for applications to grant funding from senior levels of government,
- Support all appropriate applications in public meetings or engagements, and
- Modification of existing tower siting policy, reducing barriers to build the first tower, but more heavily restrict the construction of subsequent towers, making it more viable for service providers to co-locate with others on the first tower.

## 8. RECOMMENDATIONS

To best meet the stated needs of the community to enable work from home, attract new residents and minimize the expected community investment on a per-premise basis, it is recommended to proceed with Option 2 and work with either an existing service provider or a P3 partners to extend fibre-to-the-home broadband service to all premises in all communities. Should overall capital be an issue, or a significant number of currently served residents object, it would be suggested to follow Option 1 and work with a service provider or P3 partner to extend networks to underserved premises. Under both options, the community should proceed to work with a tower provider to build three new towers in Youbou, Honeymoon Bay and Mesachie Lake to improve the safety of residents and visitors by improving cellular coverage.

It is recommended that the next steps include:

- Review with the community and seek agreement to proceed,
- Develop a detailed business plan that includes the detailed design and financial plan to negotiate with a service provider or potential P3 partner,
- Advocacy with tower service providers, and ISPs to assess interest, confirm funding requirements, and proceed to detailed design, and

---

<sup>6</sup> <https://crtc.gc.ca/eng/internet/apply-demande.htm>

For this call, we invite applications for the following types of projects:

- transport infrastructure projects: a project that introduces or upgrades transport network capacity to one or more points of presence in underserved communities.

- Advocacy with various grant programs and establish local area service or other community funding mechanism as required to assist with funding.
-