

Cowichan Internet & Cellular Connectivity Strategy

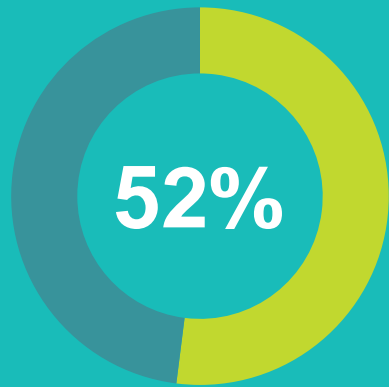
CVRD Committee of the Whole Meeting

March 22, 2023

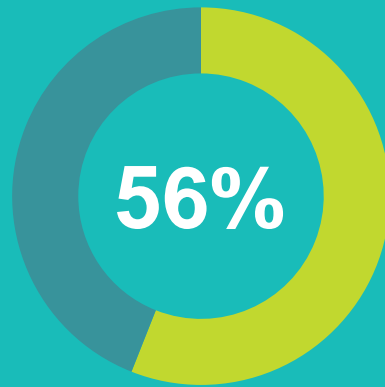
Project Overview – Stages & Timeline



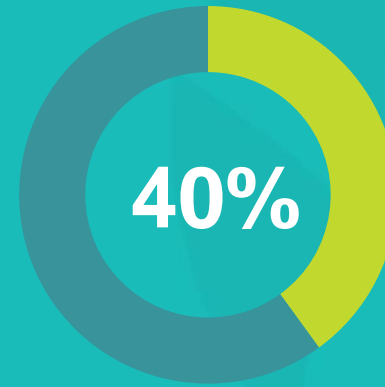
Regional Engagement Results – Service Satisfaction



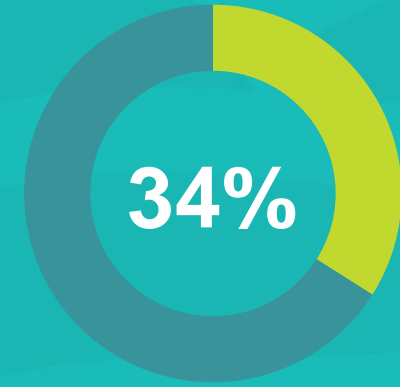
**Internet
Speed**



**Internet
Reliability**



**Customer
Service**



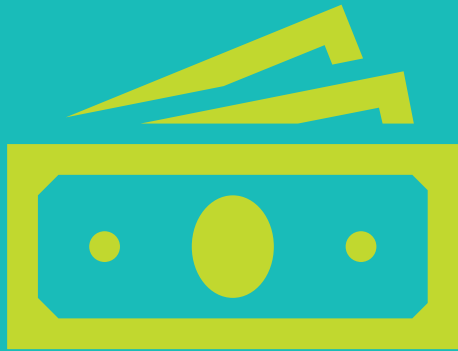
**Cellular
Coverage**

Regional Engagement Results – Cellular Connectivity

- 50% either have no cellular coverage, or frequently experience dropped calls
- 49% have a land line telephone



Regional Engagement Results - Affordability



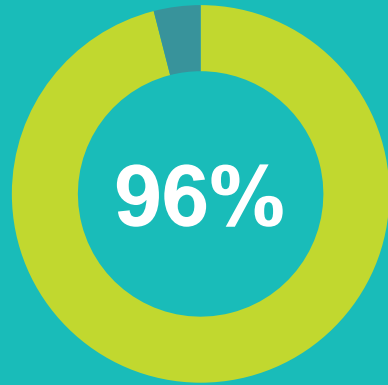
- 66% are paying over \$90 per month for internet services
- 14% are mostly or fully satisfied with the cost / value of services
- 44% feel that high usage costs contribute to the lack of appropriate internet
- 57% would not pay more to improve their services

Proposed Vision

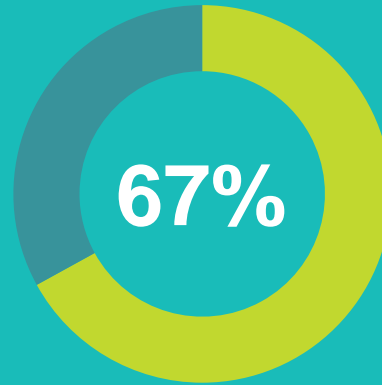


“The Cowichan Valley Regional District is a connected community, with an appropriate and efficient mix of technologies deployed throughout the region that provides affordable access to connectivity services for all homes and businesses. Connectivity enhances the livability of our communities by enabling business, employment, health care, education, security, and social and family connections for residents of all backgrounds and income levels.”

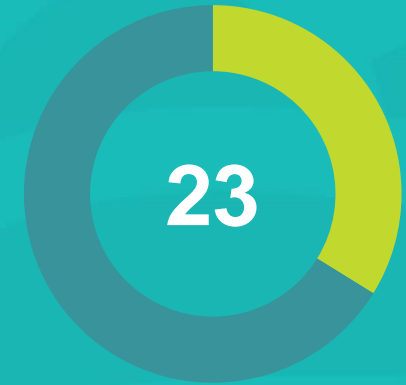
Current State of Connectivity



**Premises
Served**



**Road
Segments
Served**



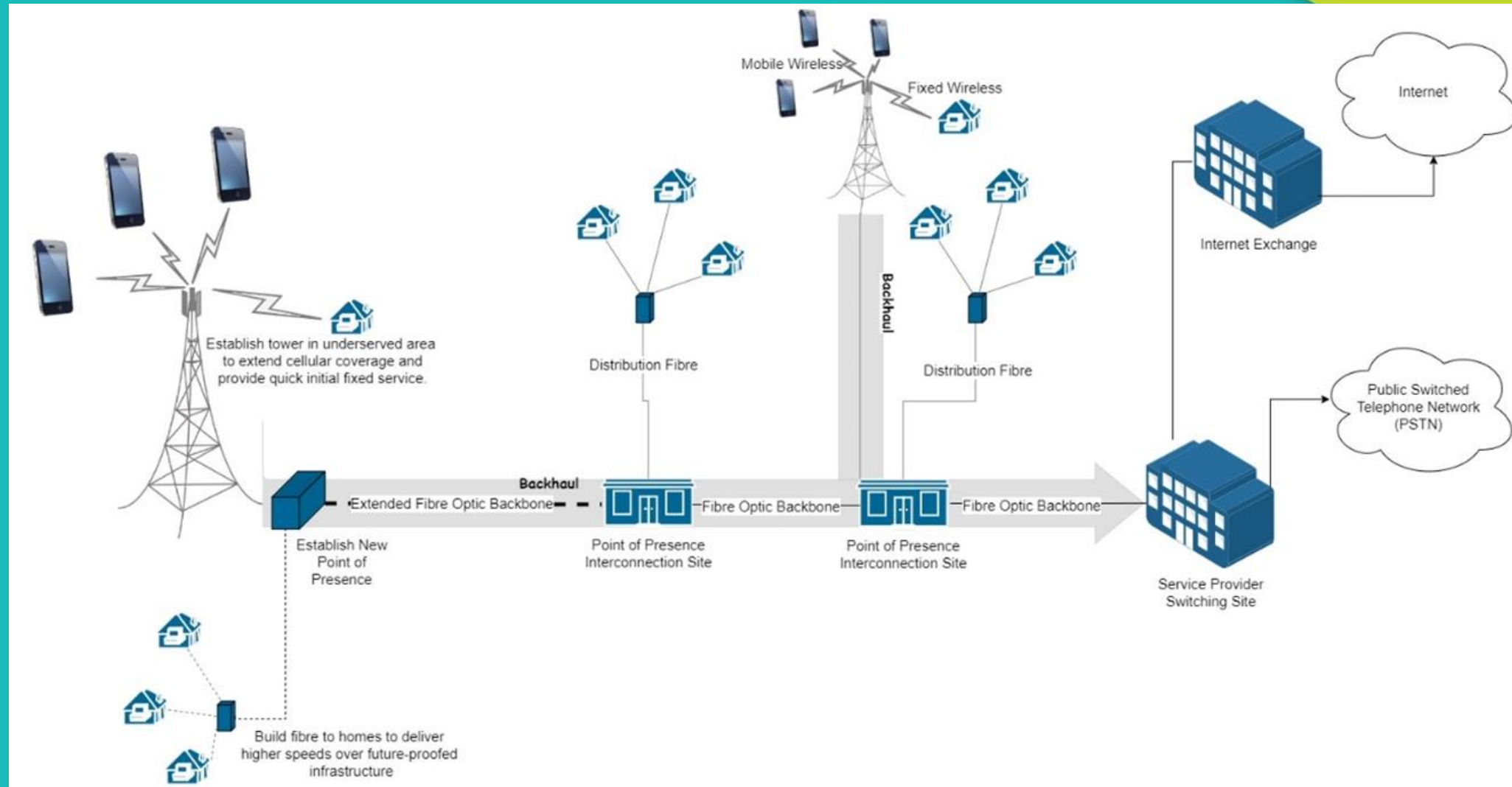
**Communities
where Speed
Tests Challenged
ISED Data**

Preferred Technology

Fibre to the Home

	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

Typical Network Topologies



CVRD Economic Development Division to Lead High-Priority Recommended Activities

High-Priority Recommendation	Category
1. Develop policy around requests for support letters	Advocate & Facilitate
2. Facilitate ongoing discussions and engagement with communities, service providers, funders, utilities, internal CVRD divisions, higher levels of government	Advocate & Facilitate
4. Consider forming a Connectivity Committee	Advocate & Facilitate
14. Establish relationships with cellular service providers, tower providers, fibre providers and fibre ISPs	Infrastructure
15. Support the first four prioritized communities in implementing of their respective Community Connectivity Plans (see Appendices B, C, D and E).	Infrastructure
24. Review, advocate for Provincial support and/or establish strong Dig-Once policies	Government Policy
25. Establish CVRD and advocate for Municipal Corporate dig-once policies, that look to expand the provision of fibre backbone connections to underserved communities when undertaking infrastructure projects	Government Policy
26. Review and align zoning and tower siting policies to reduce timelines and barriers to development	Government Policy
28. Develop a robust cellular connectivity strategy for the Cowichan Region	Cellular Coverage

Priority Underserved Communities

1. Thetis Island & Penelakut Island
2. Ditidaht First Nation
3. Cowichan Station
4. Cowichan Lake Area

Thetis Island & Penelakut Island



Why is Connectivity Important?

Thetis Island

- Strong sense of community and responsibility
- Aging, more affluent population
- Broadband to help:
 - Attract and retain younger, diverse population
 - Enable work from home
 - Reduce travelling off the island on ferries, contributing to lower carbon footprint

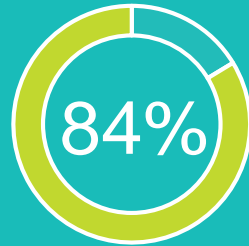
Penelakut Island

- First Nation residents with strong ancestral ties to the land
- Treasure having family, schools, health and daycare on the island
- Broadband to help:
 - Support e-health, and access to support services
 - Improved education, and employment opportunities
 - Better connect friends and families to the community

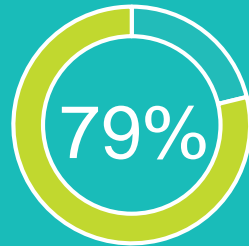
Current State and Challenges

Thetis Island

- At least 2 applications for grant funding to provide connectivity
- Key Challenges
 - Topology and vegetation impacting cellular coverage
 - Cellular service provider reporting



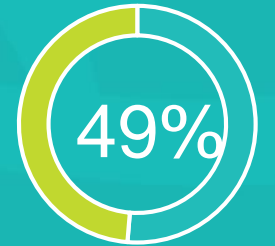
Roads
Underserved



Premises
Underserved

Penelakut Island

- Fibre to homes installed in 2019
- Planned Connected Coast Landing Site
- Key Challenges:
 - Topology and vegetation impacting cellular coverage
 - Cellular service provider reporting
 - Affordability of broadband services
 - Service level concerns



Roads
Underserved



Premises
Underserved

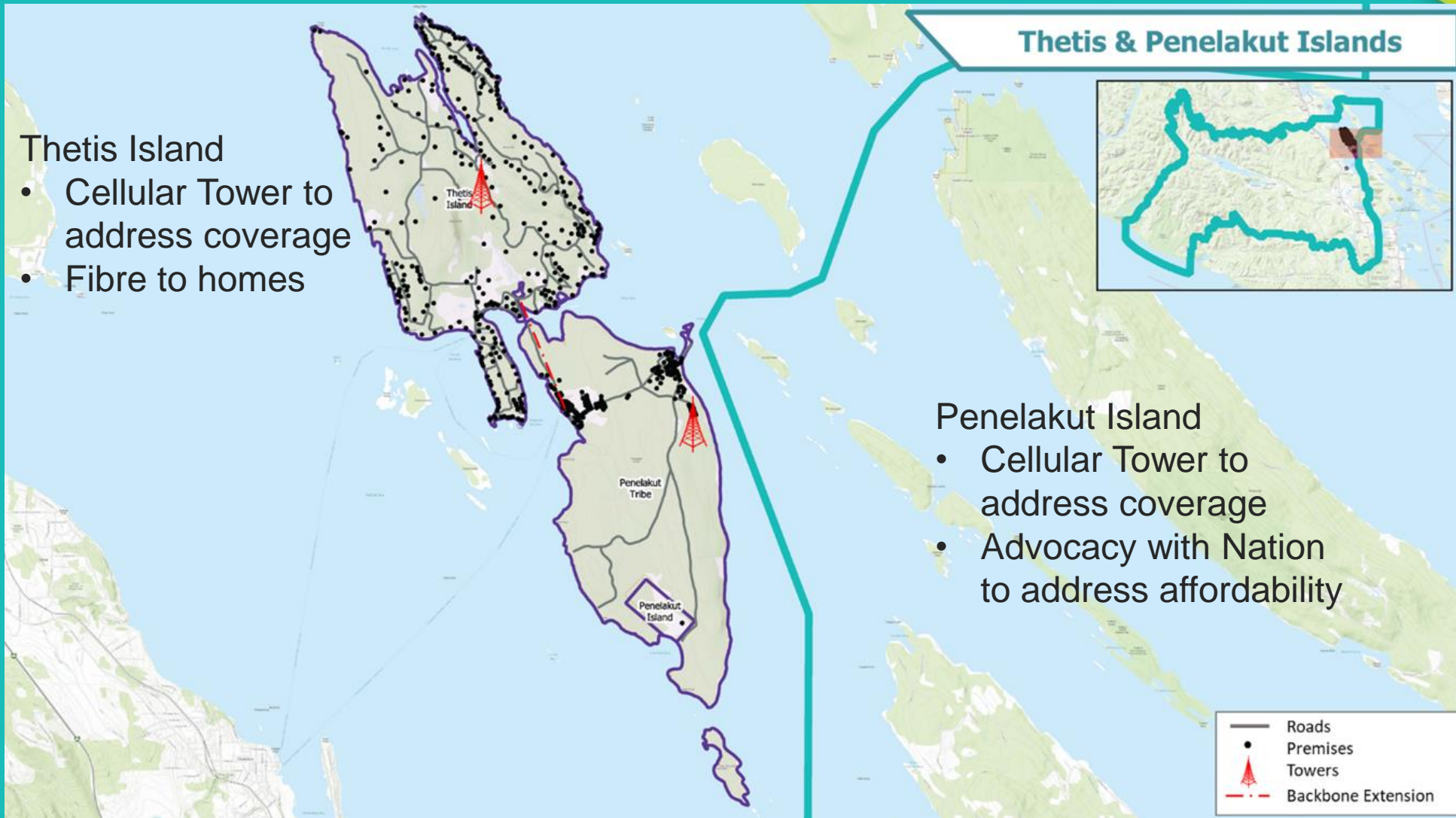
Strategic Options

Thetis Island

- Support federal UBF applications for funding to build broadband networks
- Document coverage gaps and hold cellular carriers to account for discrepancies in reporting
 - Support applications to build additional tower if required

Penelakut Island

- Engage with the Nation, Pathways to Technology, and Telus to address affordability issues
 - Argue for rate reductions based on provided funding
- Investigate options for Nation to provide Internet as a utility
 - Internet service at Nation-owned houses
 - Free WiFi at community sites
 - Distributed WiFi network with hotspots throughout the community
- Document coverage and performance gaps and hold carriers to account for discrepancies in reporting
 - Support applications to build additional tower if required
 - Possible 3rd party evaluation requirement



Ditidaht First Nation

Why is Connectivity Important?

- Residents are connected to their ancestral lands
- Isolation from society – social connection
- Public safety and security
- Connectivity to help:
 - Leverage full functionality of cash registers
 - Update fuel pumps
 - Weather and dock cameras
 - Work from home
 - Remote learning



Current State and Challenges

- Lack of Competition
 - High-capacity transport to/from the Community
 - Fibre distribution to premises
- Planned Connected Coast Landing Site
- Broadband Affordability
- Community Control of Internet Security
- Remote Location and Isolation



Roads
Underserved



Premises
Underserved

Strategic Options

Option 1: Engage CityWest for Open-Access FTTH from Proposed Connected Coast Landing Site

- Build 6km fibre to 75 premises
- Estimated Cost
 - \$60/m
 - \$1000/Premise
 - Estimated Cost \$435,000

Potential Funding

- | | |
|-----------------------------|-----------|
| • Grants (70% Construction) | \$304,500 |
| • ISP (\$1,740/Home) | \$130,500 |
| • Community Funding | \$ 0 |

Option 2: Resolve Telus Backhaul and Conuma Distribution

- Resolve Telus Backhaul Restrictions
 - A) Enhance microwave \$ 800,000
 - B) Build 60km new fibre \$3,600,000
- Resolve Conuma Cable Fibre Issues
 - Build 6km to 75 Premises \$ 435,000

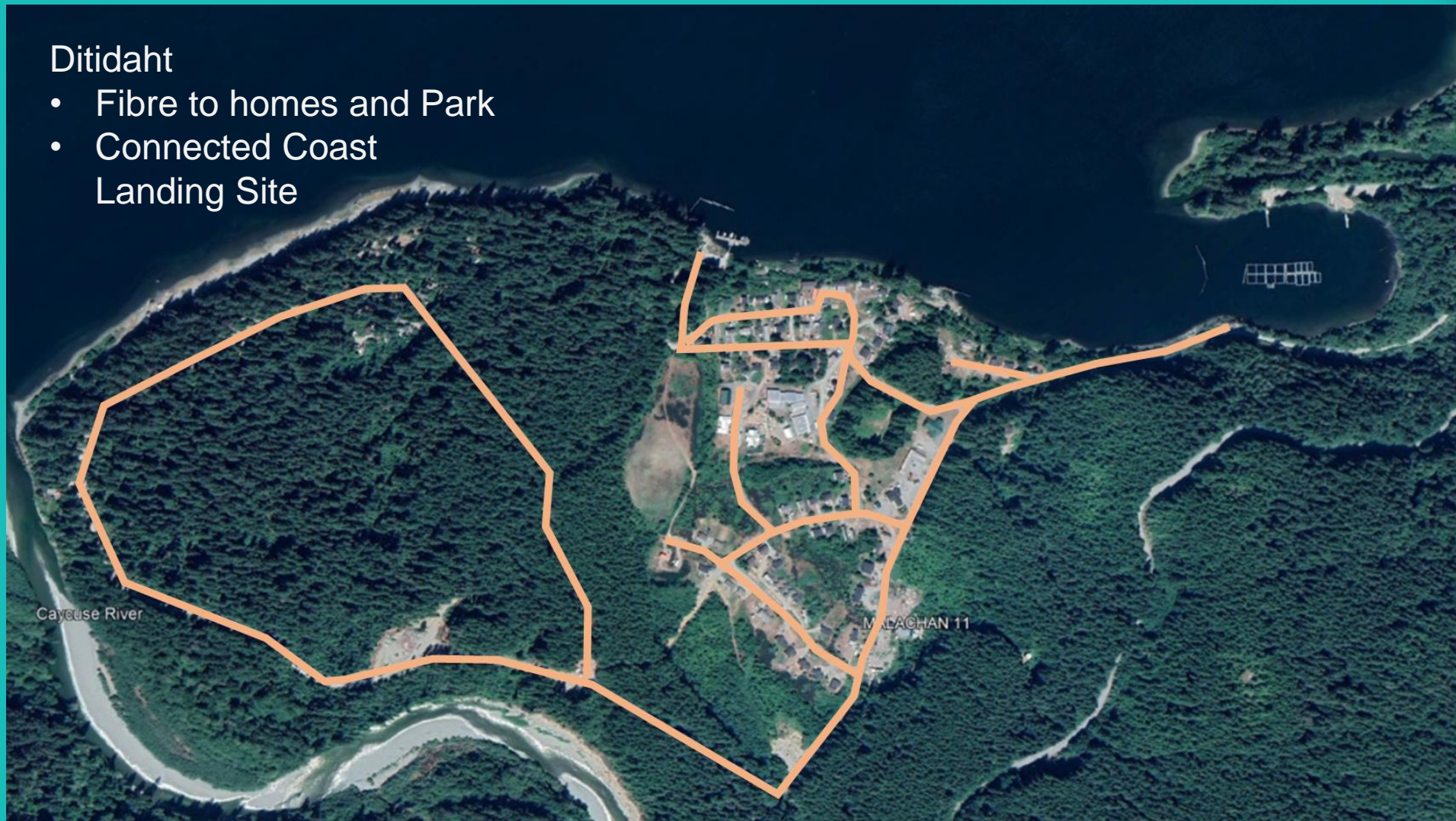
Potential Funding

- | | | |
|---------------------|----------------|--------------|
| • Grants (70%) | A) \$2,824,000 | B) \$864,000 |
| • ISP(\$2500/home) | \$ 187,500 | \$187,500 |
| • Community Funding | \$1,023,000 | \$183,000 |



Ditidaht

- Fibre to homes and Park
- Connected Coast Landing Site



Cowichan Station

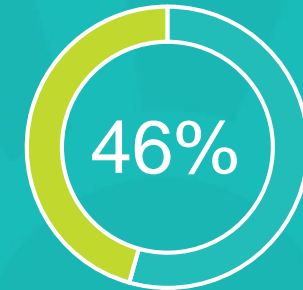
Why is Connectivity Important?

- Residents enjoy peaceful and private nature of the community
- Connectivity to help:
 - Better education opportunities
 - Better connect friends and families
 - Improve access to Telehealth services
 - Improve access to Community services registrations



Current State and Challenges

- Poor and Aging Infrastructure
- Lack of Competition
 - High-capacity transport to/from the Community
 - Fibre distribution to premises
- Topology and vegetation overgrowth impacting placement of aerial or buried fibre infrastructure
- No wireless coverage at Kinsol Trestle
- Public Resistance to Wireless Infrastructure



Roads
Underserved



Premises
Underserved

Strategic Options

Option 1: Build a new Community-Owned network to all community premises

- Community control of current and future technologies
- Enables service provider competition
- Build network to 635 premises along 73km of roads

- Expected Costs \$5,943,080

Potential Funding:

- Grants (70% to underserved) \$1,660,736
- P3 Partner (\$3,000/premise) \$1,905,000
- Community (\$3,744/premise) \$2,377,344

Option 2: Subsidize an existing ISP to expand to underserved premises

- Subsidize an existing ISP
- Limited control of technology
- Build to 184 homes on 33km of roads
 - Expected Costs \$ 2,188,480

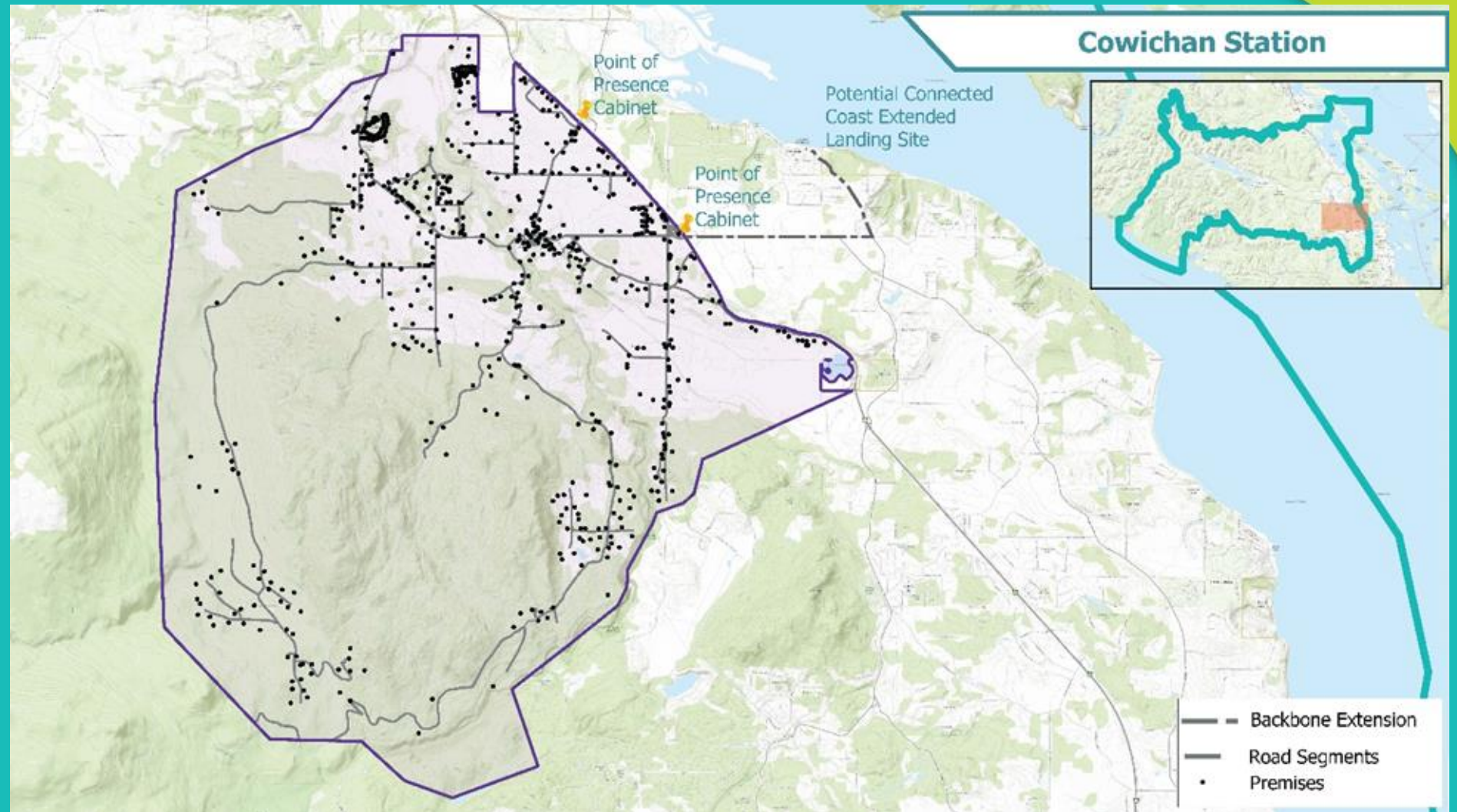
Potential Funding:

- Grants (70% Construction) \$ 1,531,936
- ISP (\$2,500/premise) \$ 472,544
- Community (\$1,000/premise) \$ 184,000

Community-Owned Fibre-to-Home Network

- Control of technology
- Connections to multiple service providers
- Extended connection to Connected Coast Infrastructure

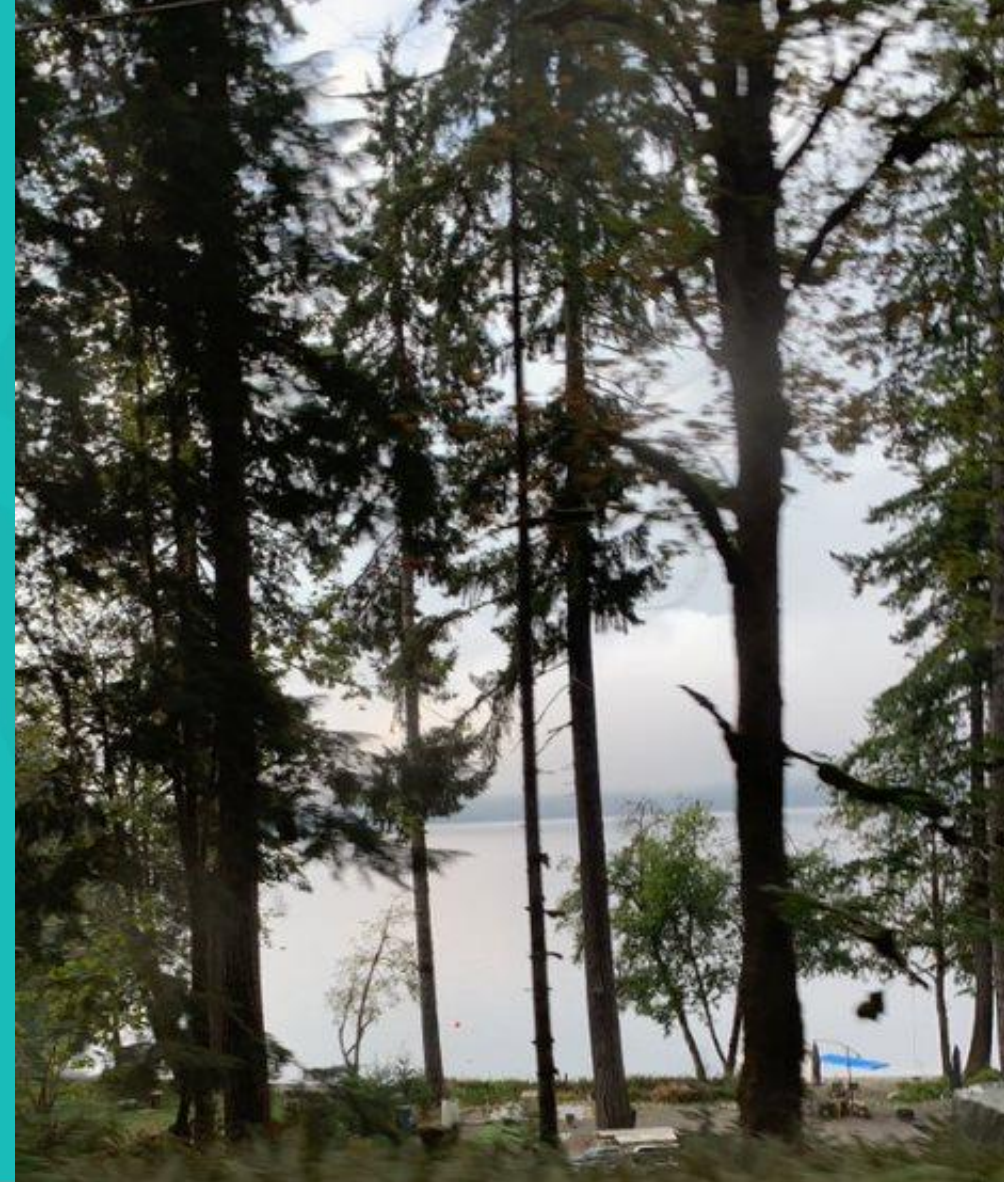
Advocacy with wireless carriers to improve cellular coverage at Kinsol Trestle to address public safety



Cowichan Lake Area

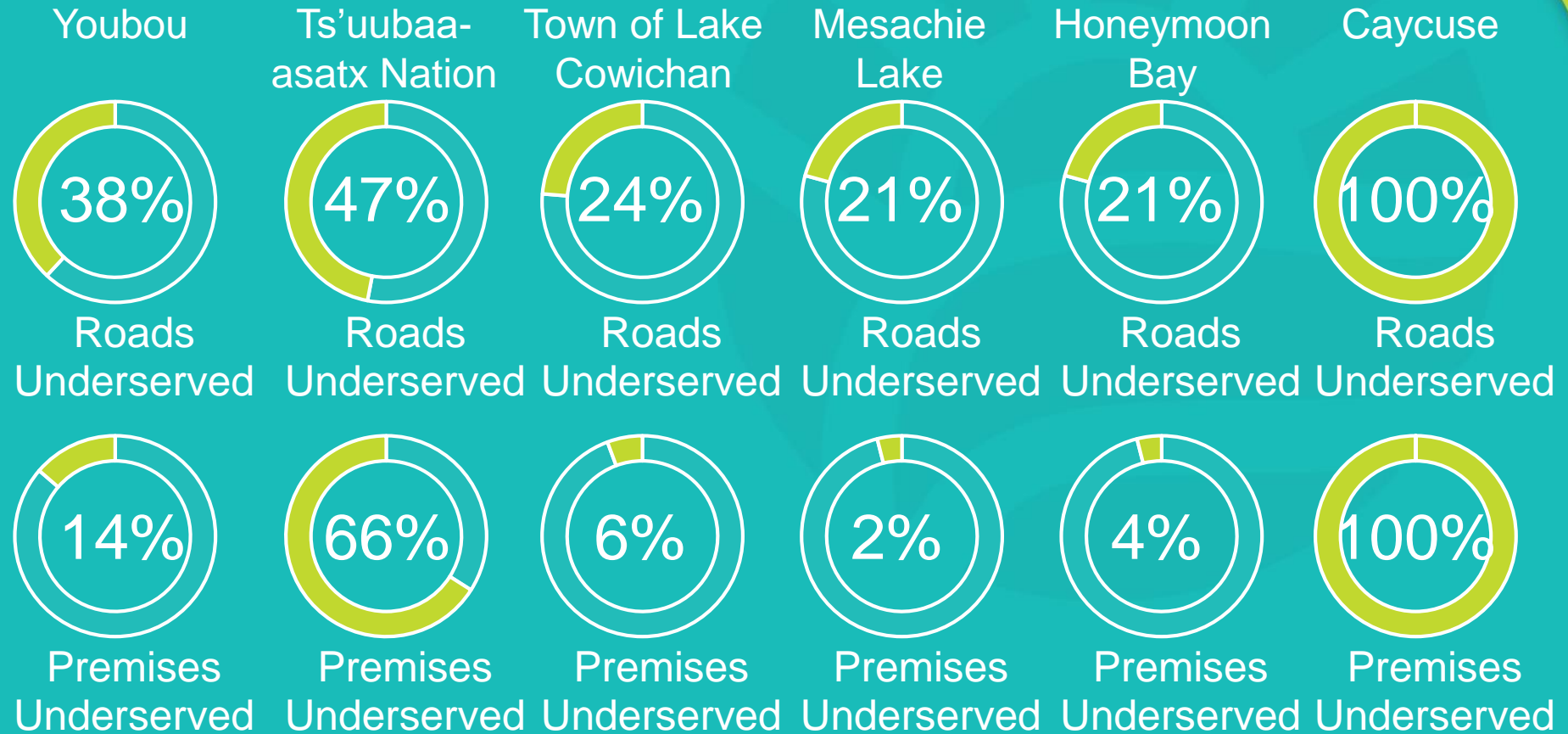
Why is Connectivity Important?

- Area includes Youbou, Ts'uubaa-asatx Nation, Town of Lake Cowichan, Mesachie Lake, Honeymoon Bay, Caycuse
- Connectivity to help:
 - Support more reliable emergency services
 - Improve safety along roadways and in parks
 - Better connect the community
 - Enable work from Home
 - Attract new residents to the area



Current State and Challenges

- Lack of Competition and Choice
 - High-capacity transport to/from the Community
 - Fibre distribution to premises
- Topology impacting cellular coverage
- Broadband availability in Youbou, Caycuse and portions of the Town of Lake Cowichan



Strategic Option 1

- Extend fibre to underserved homes (272 homes)
- Build three new cellular towers

Phase	Youbou	Ts'uubaa-asatx Nation	Lake Cowichan	Mesachie Lake	Honeymoon Bay	Total
1	Extend Fibre Backbone, Build Cellular Tower,	ISP to extend broadband to underserved premises	ISP to extend broadband to underserved premises	Extend Fibre Backbone, Build Cellular Tower,	Extend Fibre Backbone, Build Cellular Tower,	
2	Make excess fibres available to ISPs to influence business case for fibre to underserved premises			Make excess fibres available to ISPs to influence business case for fibre to underserved premises	Make excess fibres available to ISPs to influence business case for fibre to underserved premises	
Estimated Cost	\$1,924,000	\$74,920	\$944,000	\$412,980	\$736,000	\$4,057,460
Grants	\$1,171,800	\$28,336	\$660,800	\$114,086	\$340,200	\$2,315,222
Tower Provider	\$250,000	-	-	\$250,000	\$250,000	\$750,000
Network Owner	\$2,632,500	\$25,000	\$260,000	\$5,000	\$30,000	\$667,144
Community Funding	\$458,700	\$21,584	\$23,200	\$43,894	\$115,800	\$325,094
Community (\$/Home)	\$436	\$2,158	\$223	\$21,947	\$9,650	\$1,195

Notes: Adding Caycuse adds \$1,579,000 capital and raises community funding to \$2,452/home
Community funding amortized over underserved homes only

Strategic Option 2

- Build fibre to All homes (3,340 homes)
- Build three new cellular towers

Phase	Youbou	Ts'uubaa-asatx Nation	Lake Cowichan	Mesachie Lake	Honeymoon Bay	Total
1	Extend Fibre Backbone, Build Cellular Tower,	ISP to extend broadband to underserved premises	ISP to extend broadband to underserved premises	Extend Fibre Backbone, Build Cellular Tower,	Extend Fibre Backbone, Build Cellular Tower,	
2	Make excess fibres available to ISPs to influence business case for fibre to ALL premises			Make excess fibres available to ISPs to influence business case for fibre to ALL premises	Make excess fibres available to ISPs to influence business case for fibre to ALL premises	
Estimated Cost	\$4,513,000	\$79,920	\$5,391,000	\$1,086,980	\$1,689,220	\$12,760,120
Grants	\$1,171,800	\$28,336	\$660,800	\$114,086	\$340,200	\$2,315,222
Tower Provider	\$250,000	-	-	\$250,000	\$250,000	\$750,000
Network Owner	\$2,632,500	\$37,500	\$4,627,500	\$295,000	\$757,500	\$8,350,000
Community Funding	\$458,700	\$14,084	\$102,700	\$427,894	\$341,520	\$1,344,898
Community (\$/Home)	\$436	\$939	\$55	\$3,626	\$1,127	\$403

Notes: Adding Caycuse adds \$1,579,000 capital and raises community funding to \$522/home
Community funding amortized over ALL homes

- Multi-phase, Multi-technology approach
- Improves safety on highways and lake
 - Enables work from home
 - Improves connections to family and the community

