Cariboo Regional District Broadband Connectivity Strategy

FINAL REPORT PRESENTATION

APRIL 16, 2021

AGENDA

What is the Problem?

How Big is the Problem?

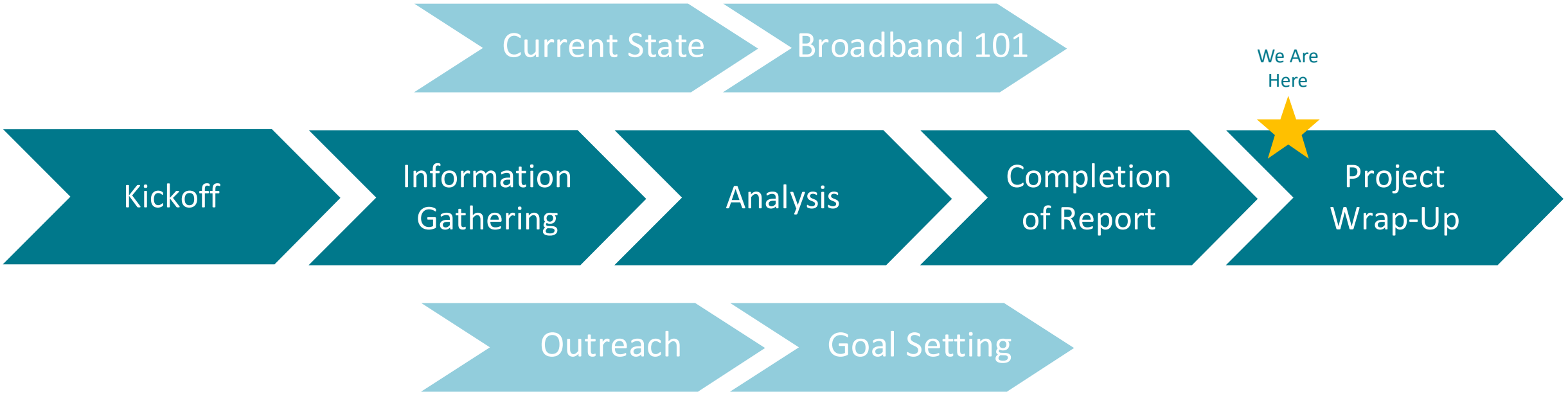
How Much is it Going to Cost?

How do I Solve It?

PROJECT SCOPE & GOALS

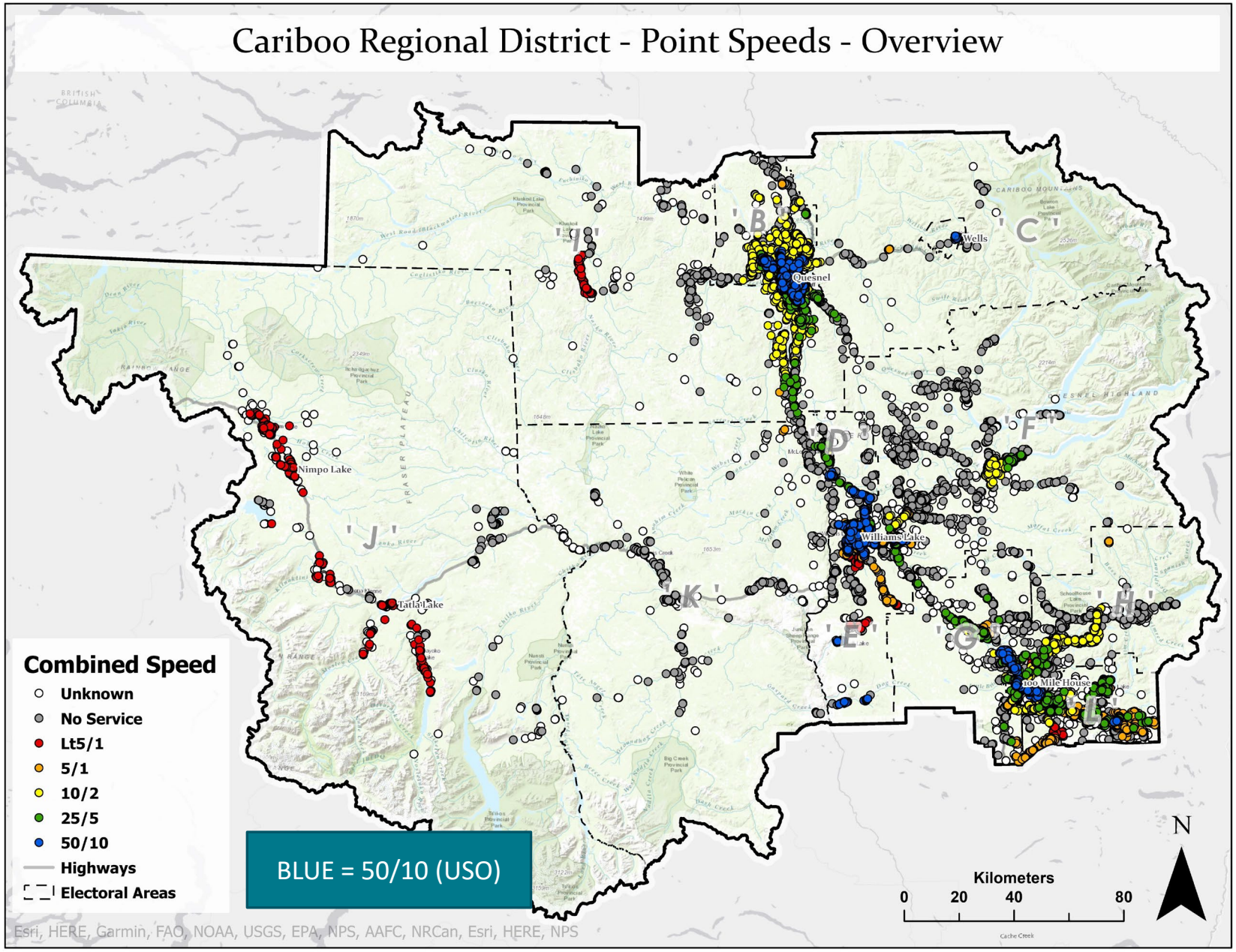
- Assess the Current State of Connectivity & Cellular
- Identify the Vision and Desired Future State
- Create a Strategy to Close the Gap
- Identify High Level Cost Estimates
- Provide Some Connectivity & Technology Education

PROJECT SUMMARY REVIEW

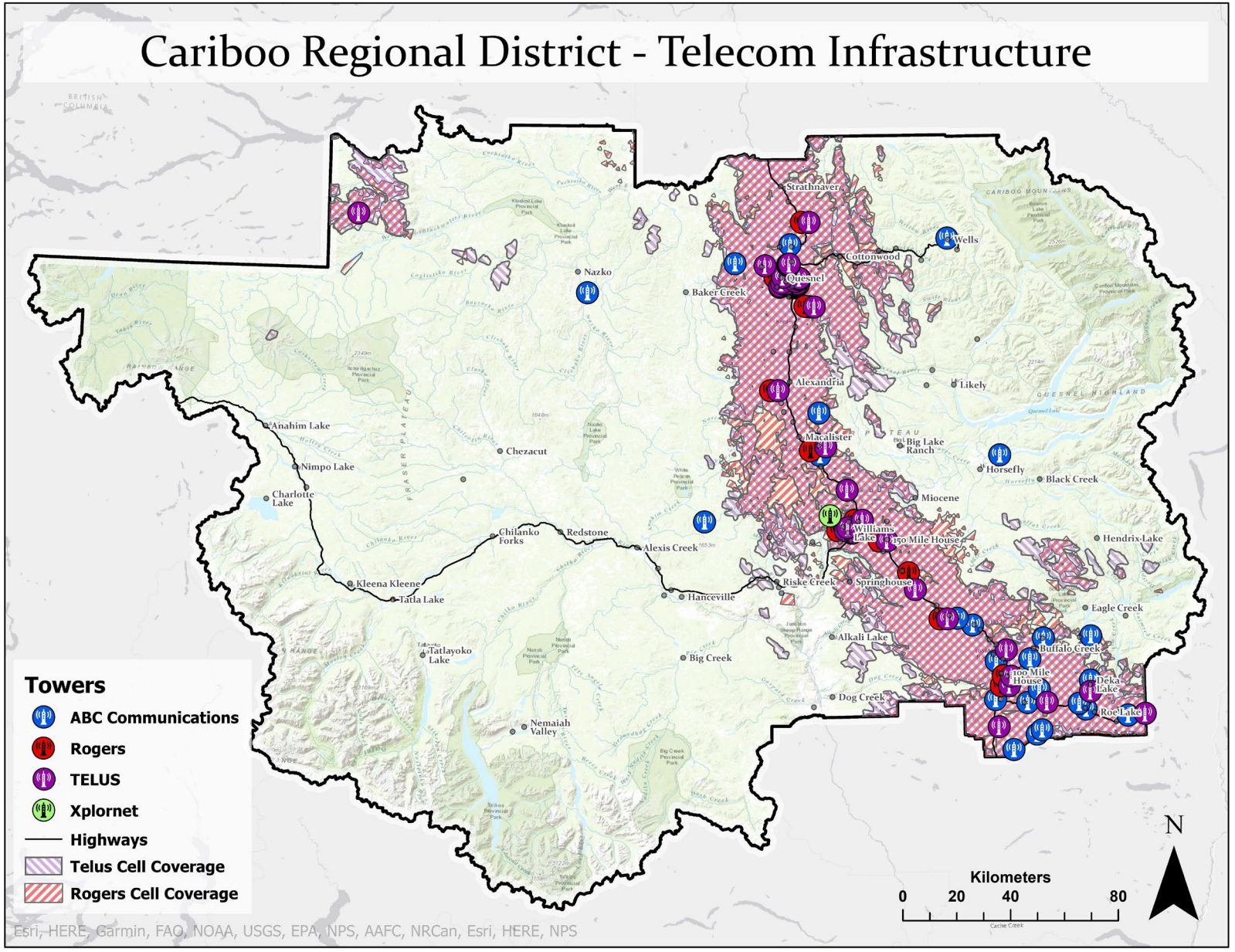


SOLVING the PROBLEM

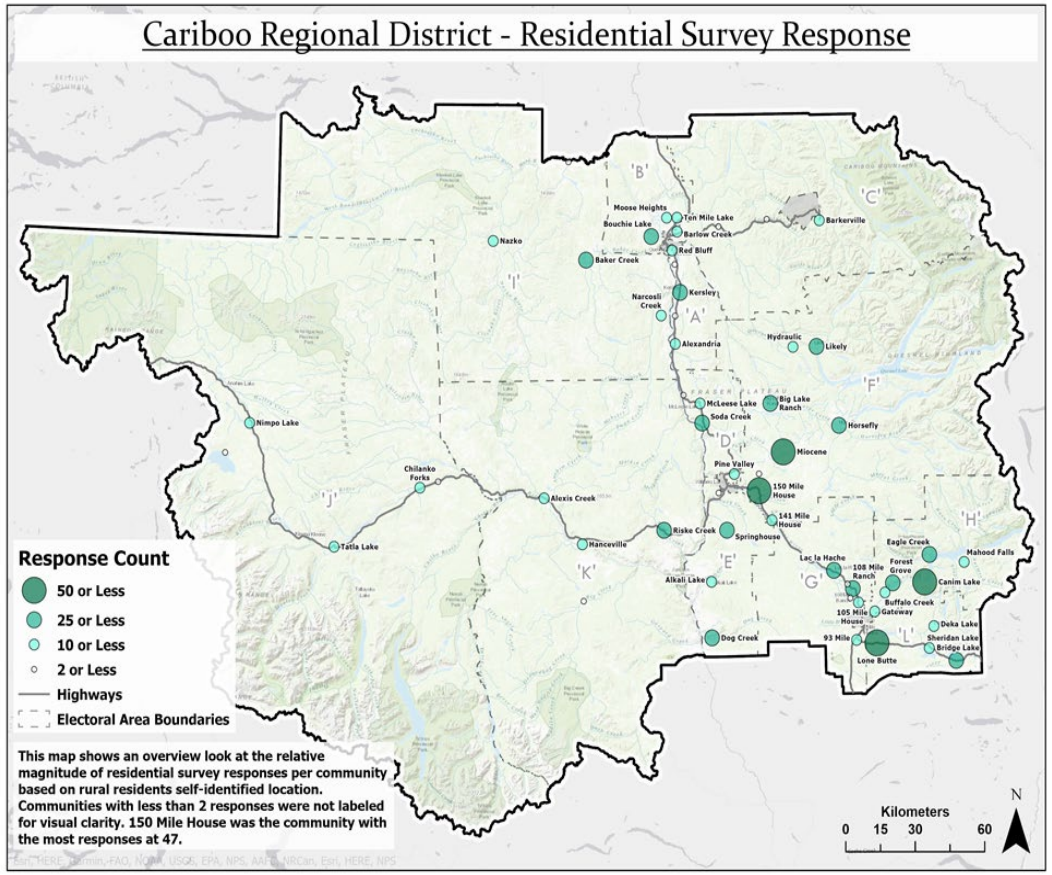
WHERE WE STARTED (Internet)



WHERE WE STARTED (Cellular)



SURVEY SUMMARY



Nearly 2,000 Responses
Several hundred comments with the general theme of connectivity concerns

With more people working from home, there is an ever increasing need for fast & reliable internet service. As a self-employed individual conducting business from my rural home, internet service is my biggest frustration. File sharing and remote connections are nearly impossible on the speeds that we are provided, making much of my work very inefficient.

1/12/2021 3:45 PM View respondent's answers Add tags

Let's get on with it. Good internet service is a fact of life these days.

1/4/2021 1:22 PM View respondent's answers Add tags

It's frustrating in the evening to use the internet because everyone else is using it too and speeds are slow. Also difficult to work from home if one needs a good download and upload speed. My daughter recently returned home to work remotely. She is an engineer and at one point she literally had to go to town and park in the library parking lot in order to work because the download and upload was way to slow for her to do her work efficiently. If we are to attract professionals and other remote workers, we need better internet in this area.

12/12/2020 8:50 AM View respondent's answers Add tags

Covid-19 has highlighted the need for internet services for all aspects of life. From health services, government agencies, financials institutions to communications with friends and family the internet has become a huge part of life. Currently it is some organization with only meet virtually. If rural areas do not have this they will fall further behind the cities in development.

12/6/2020 2:55 PM View respondent's answers Add tags

WHERE is the CRD CURRENTLY AT

- # — Current Levels – 23,000 Points Identified
- 50/10 — 32% of Total at 50/10Mbps
- 25/5 — 12% at 25/5Mbps
- 5/1 — 57% (~13,000) at 5/1Mbps or Less
-  — 68 Projects Areas

Project Area Summary

Mar 29, 2021

Major Project Name	Sub-Project Name	Area	Project Definition: BB	Project Definition: Local Access	Project Definition: Total Subs	Project Definition: % of Total	Project Definition: Primary Svc	Current Service Levels: 5/1	Current Service Levels: 10/2	Current Service Levels: 25/5	Current Service Levels: 50/10
Totals					23,086	100%		9,851	3,120	2,792	7,323
								43%	14%	12%	32%

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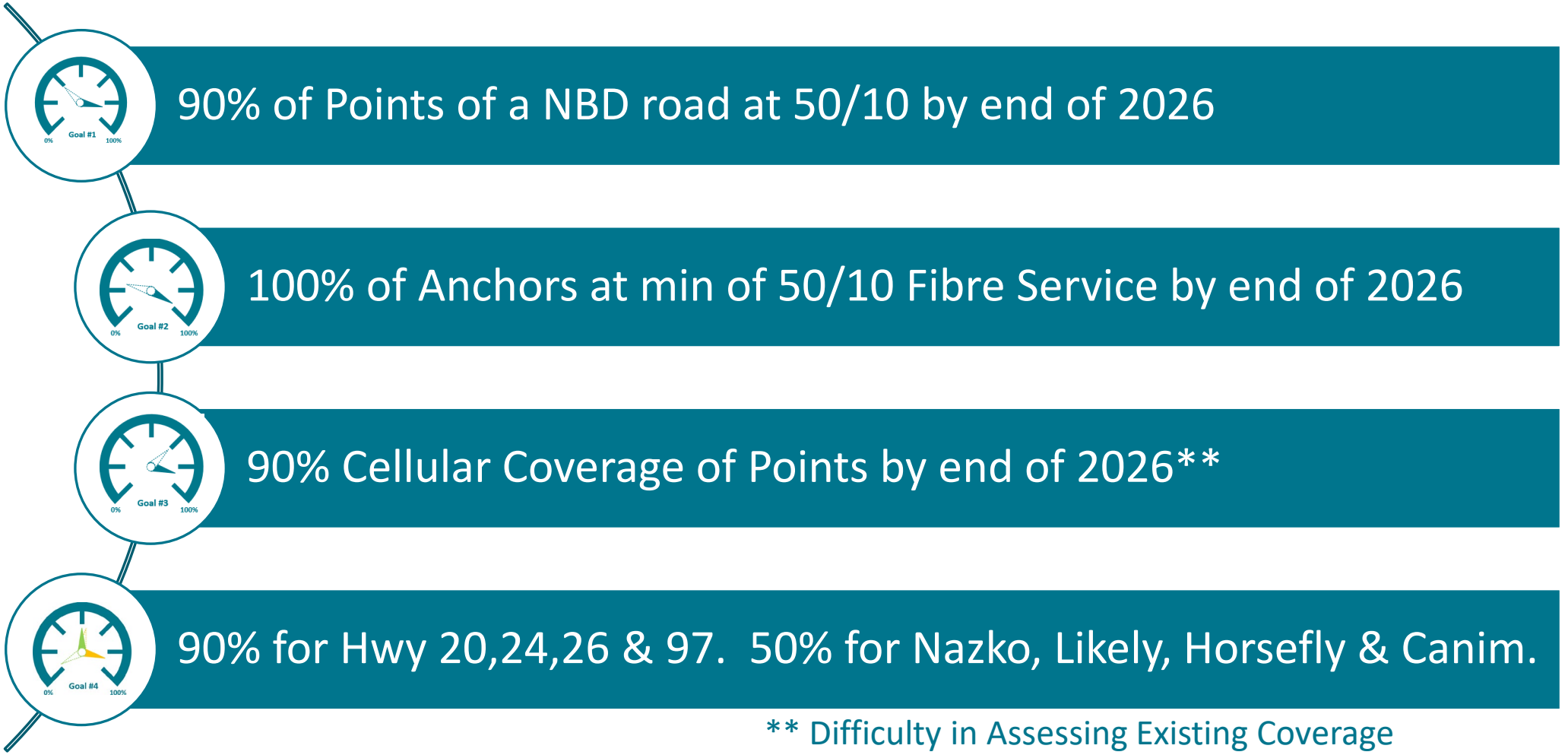
SOLVING the PROBLEM

CRD VISION

- Working session with TANEx and CRD board to formulate vision
- Developed connectivity goals & benefits

"The widespread high-speed connectivity network in the Cariboo Regional District is well developed and extends throughout the region. It generates opportunities for residents to access services and information, work remotely or have a home-based business, and for all businesses to access the global marketplace and conduct business at the speed of today."

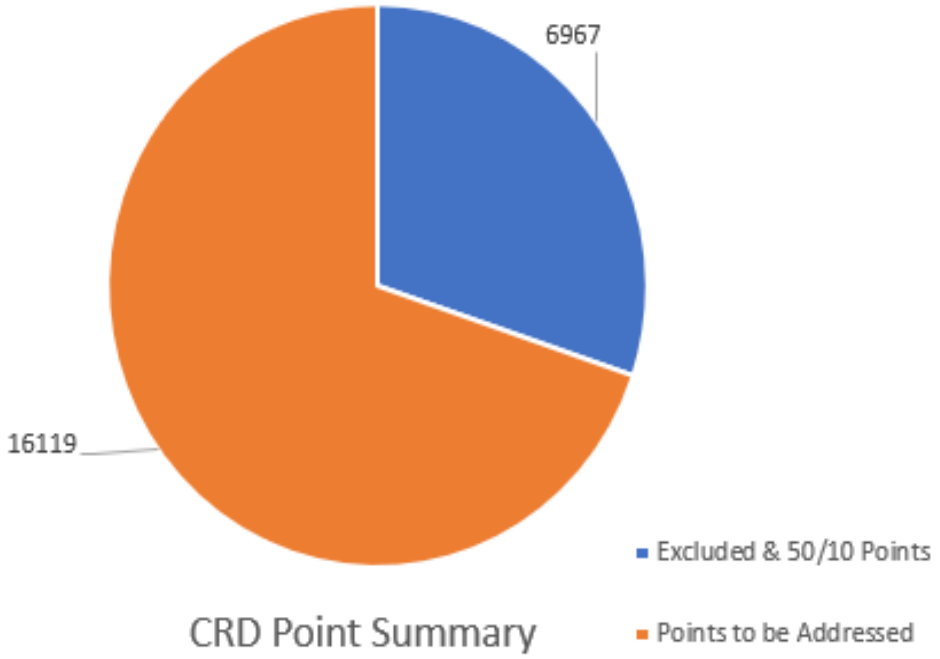
CRD CONNECTIVITY GOALS - **DRAFT**



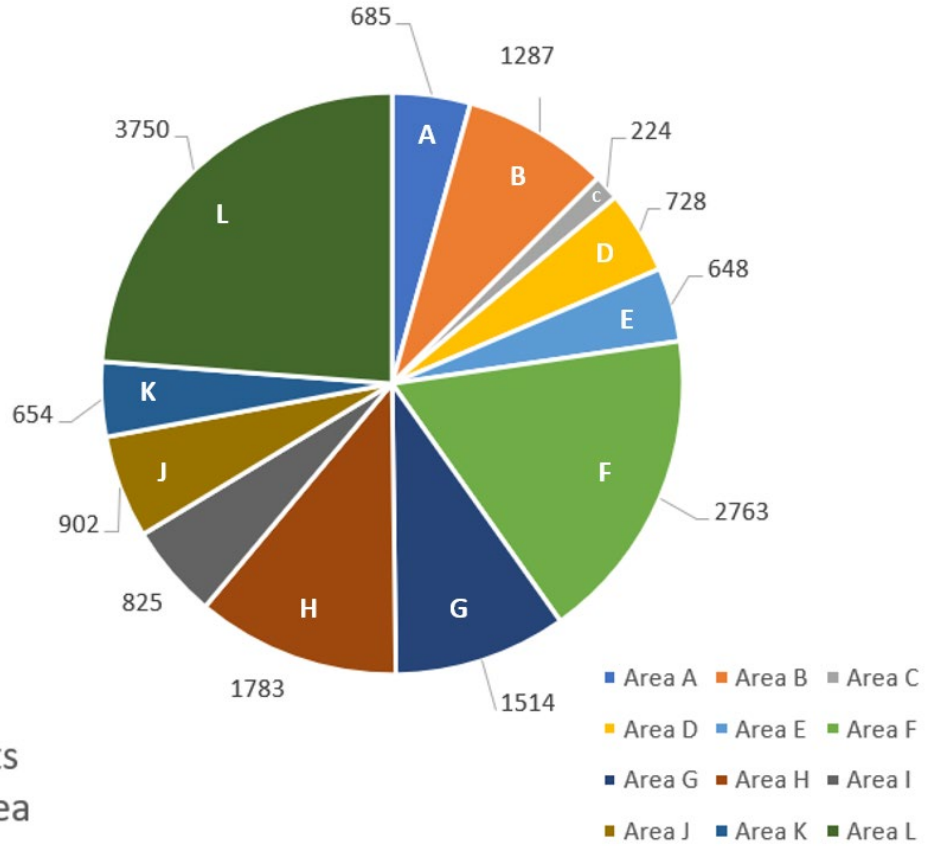
** Difficulty in Assessing Existing Coverage

SOLVING the PROBLEM

IDENTIFY the GAP

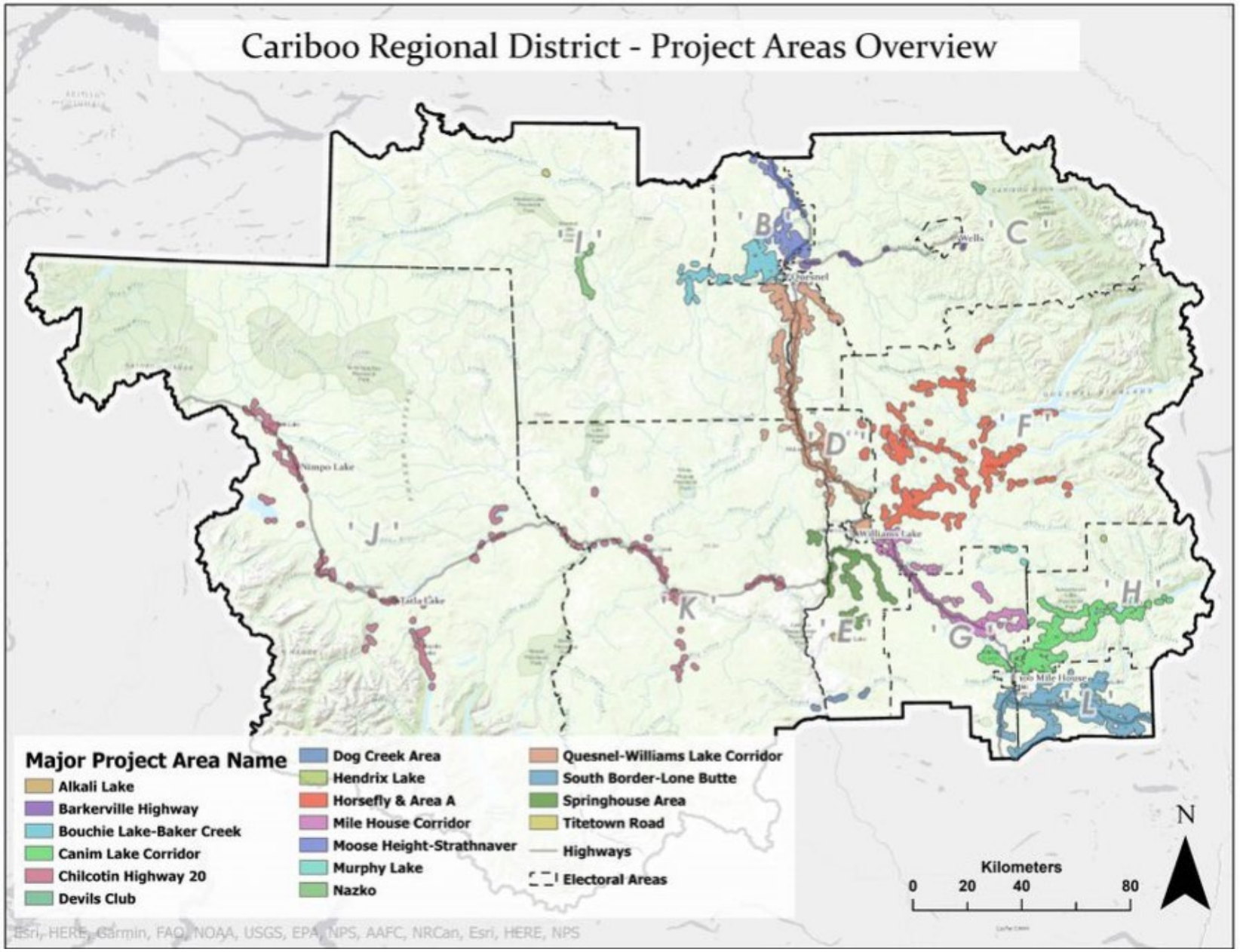


CRD Point Summary



Points by Area

Project Areas Identified



QUANTIFY the GAP

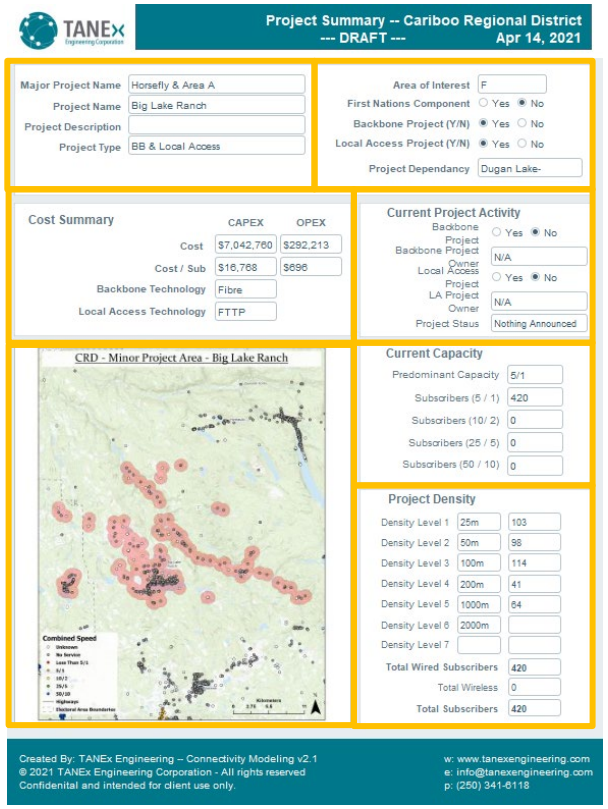
- Cost for remote areas are often $5,000 - $15,000+ per home
- Costs limit options for providers that are willing to invest.
- Government funding and intervention may be required.
- Cost estimates provided for defined project areas.

COST MODEL EXPLANATION

➢ Summary Explanation:

- Client Summary: Aggregates costs for region. Provides a size of the problem.
- Major Project Summary: Aggregates smaller projects into project areas for easy consumption.
- Minor Project Summary: Service area defining clusters of Points that form a logical boundary of service and specific details.
- Cost estimates are based on a fibre as a baseline.

MINOR PROJECT SUMMARY (eg. Big Lake)



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Project Summary -- Cariboo Regional District
--- DRAFT ---
Apr 14, 2021

Major Project Name	Horsefly & Area A	Area of Interest	F
Project Name	Big Lake Ranch	First Nations Component	No
Project Description		Backbone Project (Y/N)	Yes
Project Type	BB & Local Access	Local Access Project (Y/N)	Yes
		Project Dependancy	Dugan Lake-

Cost Summary

	CAPEX	OPEX
Cost	$7,042,760	$292,213
Cost / Sub	$16,768	$696
Backbone Technology	Fibre	
Local Access Technology	FTTP	

Current Project Activity

Backbone Project	No
Backbone Project Owner	N/A
Local Access Project	No
LA Project Owner	N/A
Project Staus	Nothing Announced

CRD - Minor Project Area - Big Lake Ranch

Current Capacity

Predominant Capacity	5/1
Subscribers (5 / 1)	420
Subscribers (10/ 2)	0
Subscribers (25 / 5)	0
Subscribers (50 / 10)	0

Project Density

Density Level 1	25m	103
Density Level 2	50m	98
Density Level 3	100m	114
Density Level 4	200m	41
Density Level 5	1000m	64
Density Level 6	2000m	
Density Level 7		
Total Wired Subscribers		420
Total Wireless		0
Total Subscribers		420

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Cost Summary

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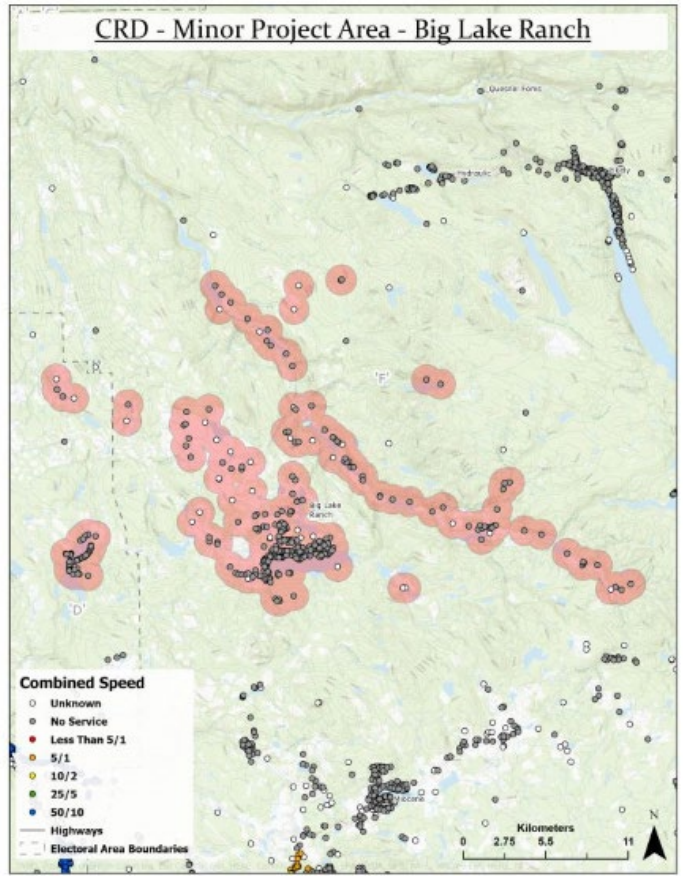

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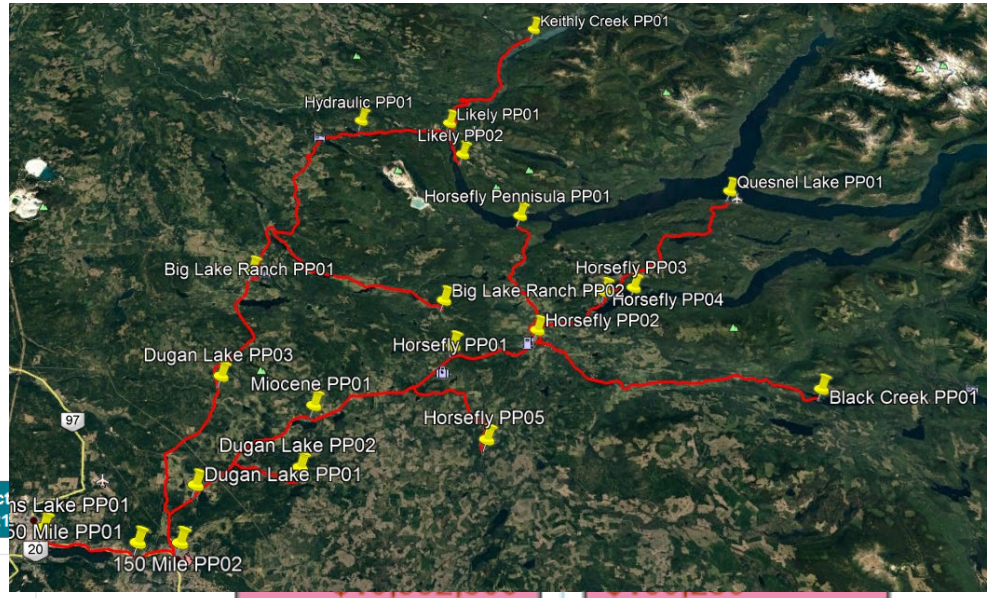
Major Project Summary

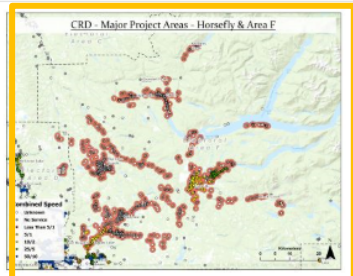
Horsefly & Area F



TANEx

Major Project Summary -- Cariboo Regional District
--- DRAFT --- **Apr 14, 2021**

Client: CRD
Major Project Name: Horsefly & Area A
Description:



Project Achievability
1 = Low, 3 = Neutral, 5 = High

	1	2	3	4	5
Committed Funding	•				
Est. Team		•			
Political			•		
Avail. Infrastructure			•		
Technically Feasible				•	
Demonstrated Need					•

Score: 3.0

Cost Estimate

All estimates are +/- 75% only and are not based on detailed design. No quotes have been obtained and estimates are only high level order of magnitude.

Total Subscribers: 2019
CAPEX / Subscriber: $17,474
Annual OPEX / Subscriber: $823
Total Backbone Length (m): 320,095

	CAPEX	Annual OPEX	Estimate Details
OSS/BSS	$0	$484,560	Estimate
Local Access Electronics	$1,466,400	$211,968	Estimate
Local Access Infrastructure	$10,932,500	$160,250	Estimate
BB Electronics & External Svcs	$1,825,000	$339,000	Estimate
Point of Presence	$1,850,000	$370,000	Estimate
Backbone Infrastructure	$19,205,700	$96,029	Estimate
Total	$35,279,600	$1,661,807	

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	$1,825,000	$339,000
	$1,850,000	$370,000
	$19,205,700	$96,029
Total	$35,279,600	$1,661,807

Backbone is over half the cost so this major investment needs to be leveraged as much as possible.

CRD Summary

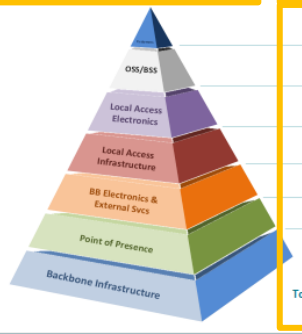
Major Project Name	Est. No. of Subs
Alkali Lake	123
Barkerville Highway	178
Bouchie Lake-Baker Creek	1234
Canim Lake Corridor	1803
Chilcotin Highway 20	1365
Devils Club	24
Dog Creek Area	87
Hendrix Lake	37
Horsefly & Area A	2019
Mile House Corridor	1779
Moose Height-Strathnaver	629
Murphy Lake	28
Nazko	124
Quesnel-Williams Lake Corridor	1988
South Border-Lone Butte	4060
Springhouse Area	631
Tiletown Road	30
Exclude (CRD)	6487
Remote (CRD)	500

Comments

Cost estimates assume FTTP for all identified projects and all subscribers get 50/10Mbps. It is understood that FTTP will not be feasible for some project areas. The local access technology will have to be determined as part of a detailed design phase. A budget allowance has been included for all layers of the SDP. Some project areas may not require some layers depending on what party completes the project and their existing infrastructure. In those cases, these costs will need to be adjusted accordingly.

***** This estimate provided is an order of magnitude only and is not based on detailed design or actual quotes.*****

Est. Potential Subscribers: 23086
CAPEX / Subscriber: $9,863
Annual OPEX / Subscriber: $520
Total Backbone Length (km): 1,966



	CAPEX	Annual OPEX
OSS/BSS	$0	$3,868,560
Local Access Electronics	$12,248,800	$1,636,716
Local Access Infrastructure	$77,061,500	$1,276,730
BB Electronics & External Svcs	$9,945,000	$2,538,000
Point of Presence	$10,450,000	$2,090,000
Backbone Infrastructure	$117,985,860	$589,929
Total	$227,691,160	$11,999,935

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CAPEX	Annual OPEX
$0	$3,868,560
$12,248,800	$1,636,716
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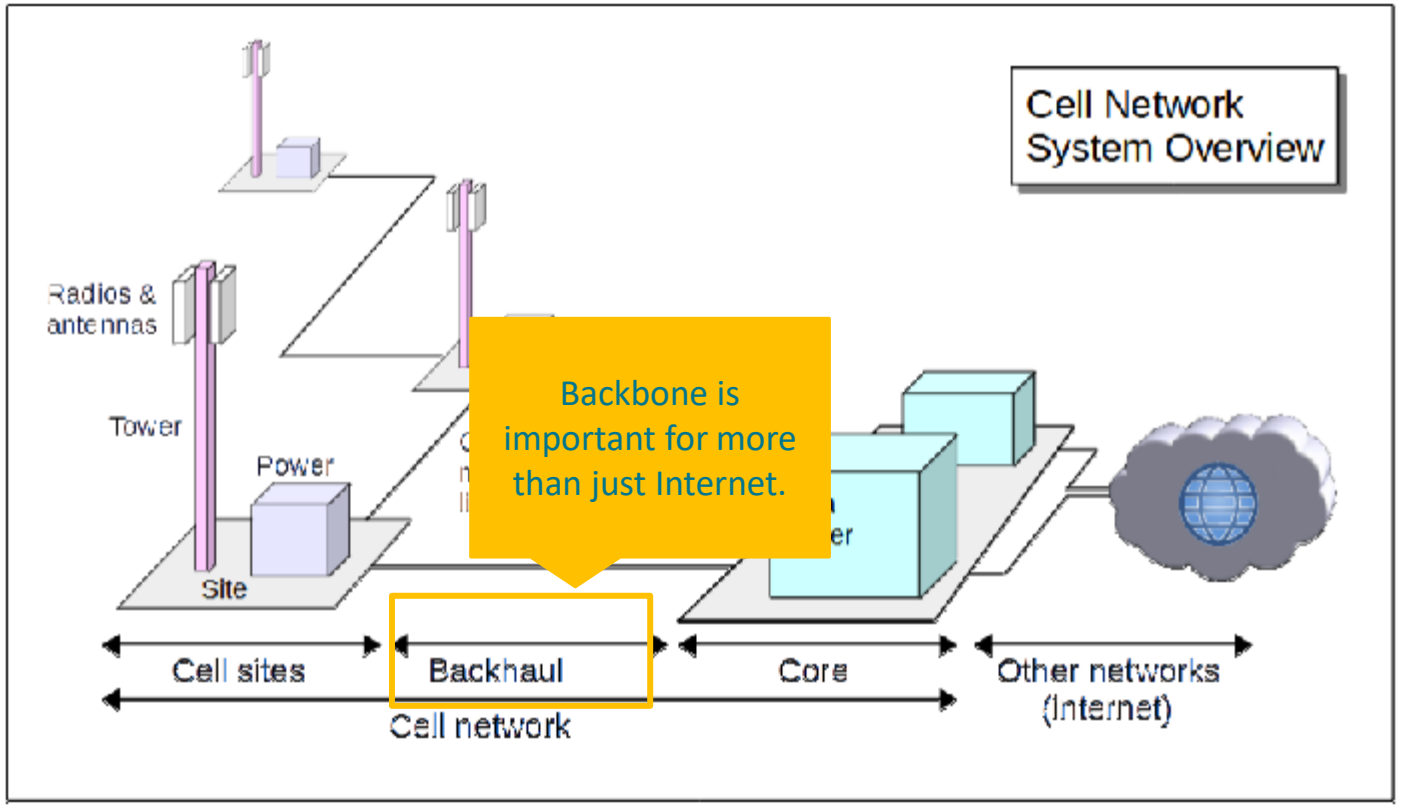
$117,985,860	$589,929
$227,691,160	$11,999,935

Backbone is over half the cost so this major investment needs to be leveraged as much as possible. Remove the BB and it's more like $5,000/Subscriber

SOME CONTEXT for the COST

- To put the cost in context:
- Average cost is about $10,000 / Subscriber over 23,000 Points representing a $230M capital cost.
- Fibre assets have a realistic lifetime of 20 – 30 years.
- Approximately $200M of the estimate is fibre infrastructure.
- Over a 25 year life:
  - The fibre infrastructure represents about $350 / year per Subscriber
  - or about $30/ month assuming 100% of the fibre needs to be constructed
- If 1/3rd of the fibre already exists -> $20 / month per Subscriber.

CRD Cellular



Cellular Estimate: $2 - $2.5M per tower.

Estimate for Highway 20, 26 , Nazko: $30M - $35M

Cellular will requires a major carrier (Rogers, Telus)

SOLVING the PROBLEM – TAKE ACTION

TAKING ACTION

- Determine the CRD Role
- Prioritize
- Communicate & Collaborate
- Establish Timelines
- Leverage Opportunities
- Participate
- Consider the Future

REGIONAL DISTRICT ROLES

HOPE!
- 3rd party provider
- Little control
- Not motivated to serve small communities
- Go where the business case makes sense

Advocacy → Support → Participate

DO IT YOURSELF!
- High control
- Serves gov't priorities
- High responsibility
- In the ISP business

Advocacy

Aggregate your problem to decision makers.

Communicate priorities.

Lobby for senior government planning.

Stay close to and look for efficiencies in projects.

Support

Letters of support.

Resource support for projects.

Sharing and access to information.

Participate

Leverage CRD assets.

Financial contributions.

Infrastructure Ownership.

Service operation.

Establish service areas.

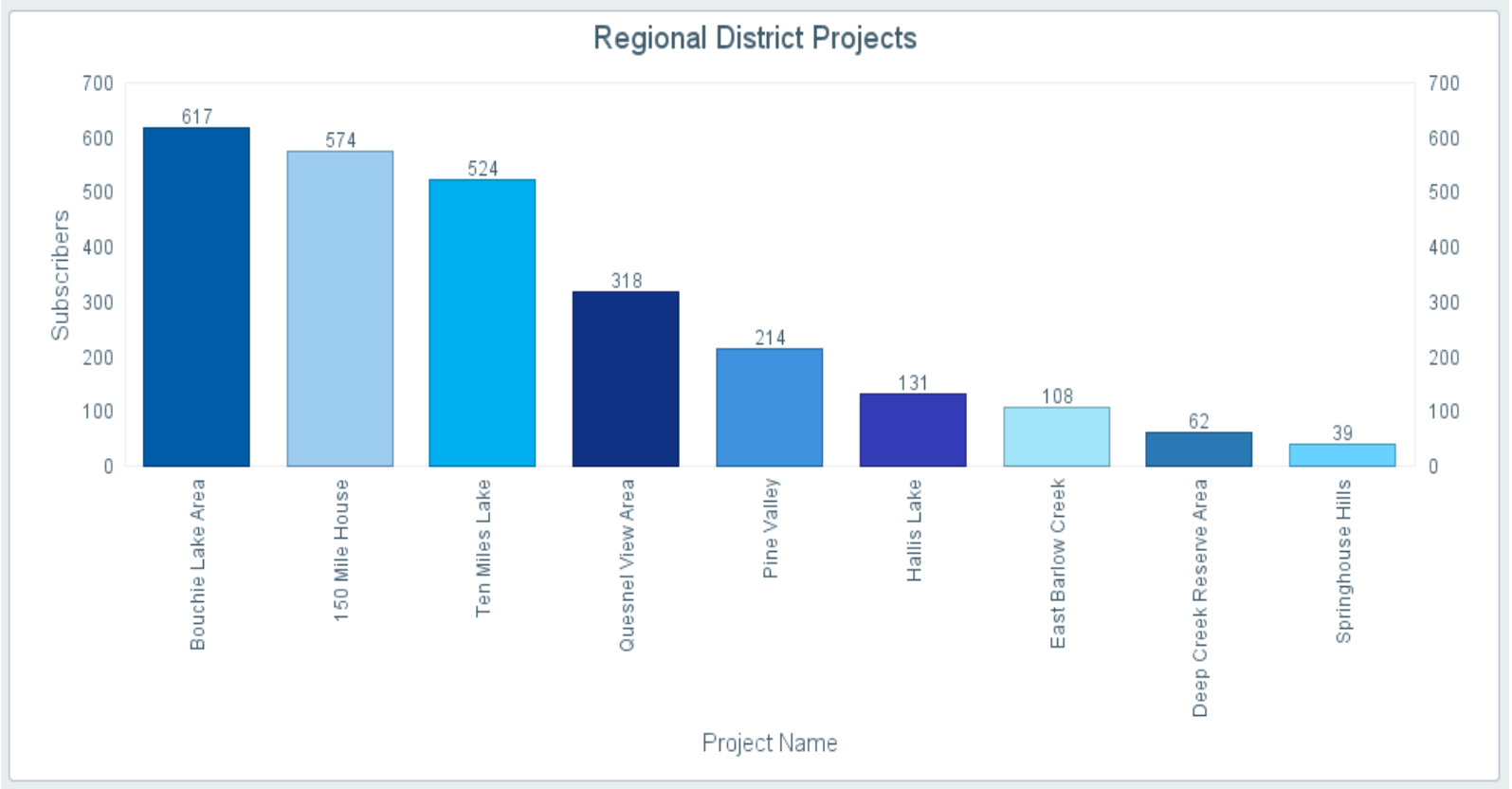
P3 Opportunities

PRIORITIZING – LOGICAL BUILD SEQUENCE

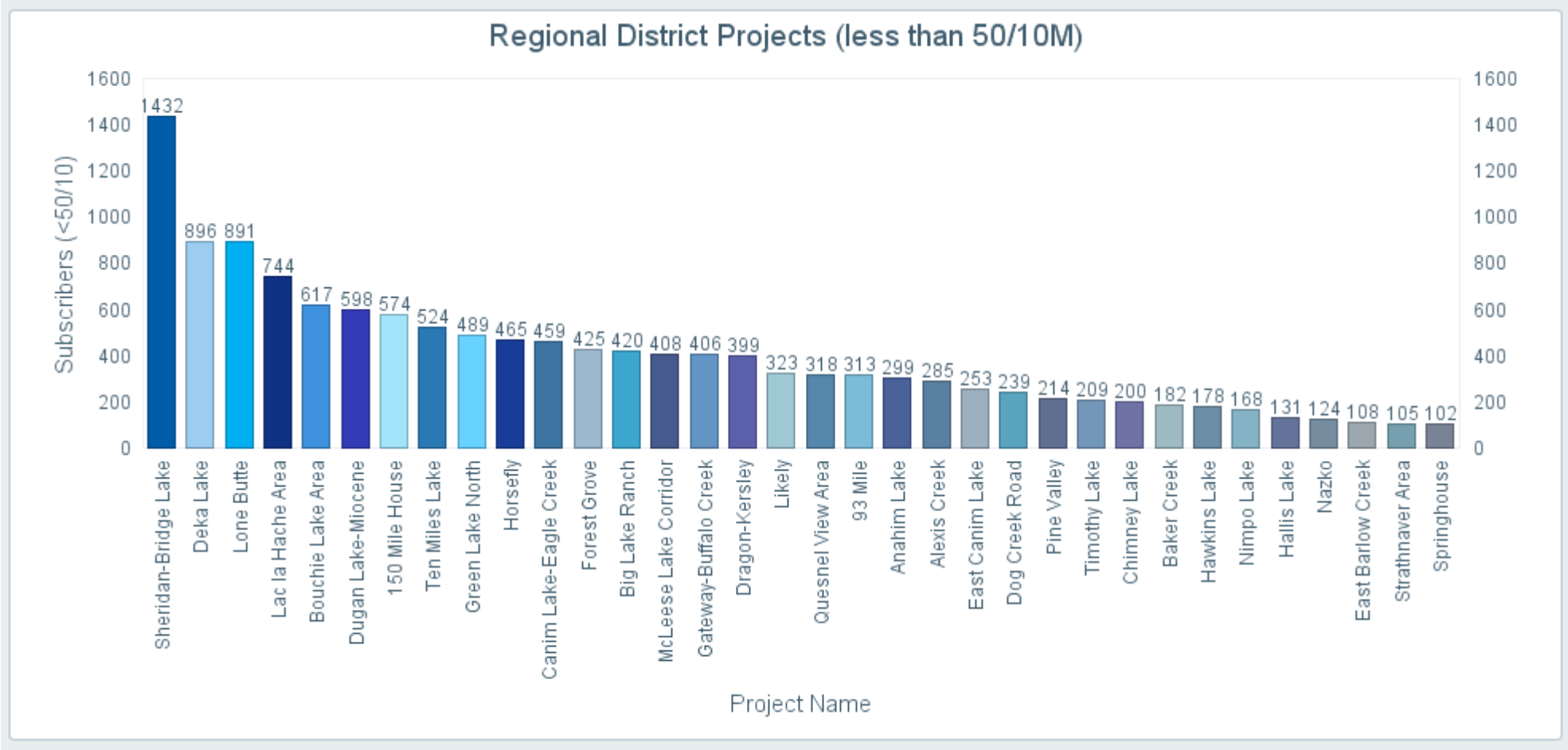
Project Areas can be Prioritized based on CRD Input:

- By logical build sequence
- By most number of Points
- By lowest currently available service
- By lowest cost / Point
- By highest achievability score
- …

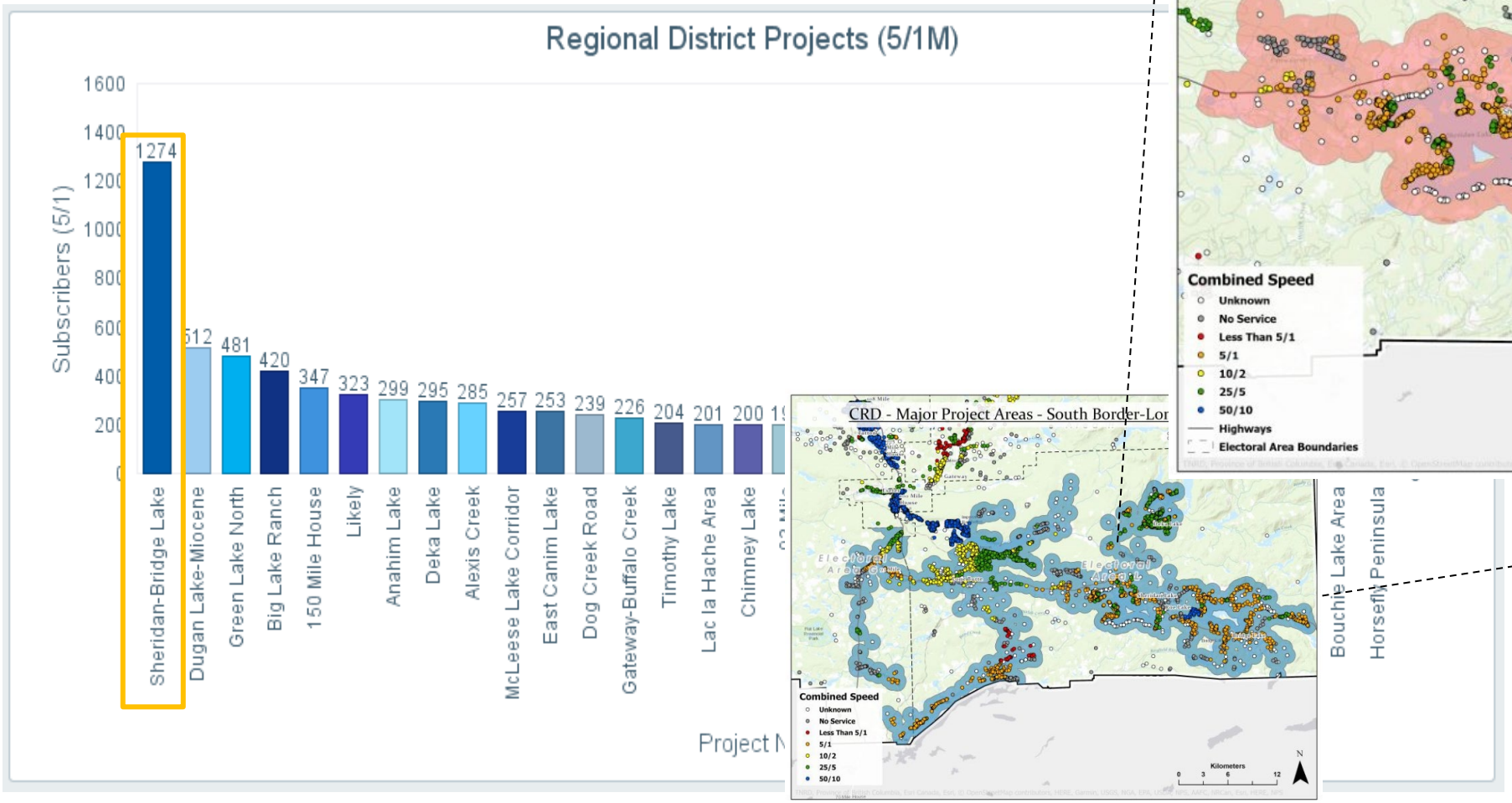
We need to establish some areas of focus.

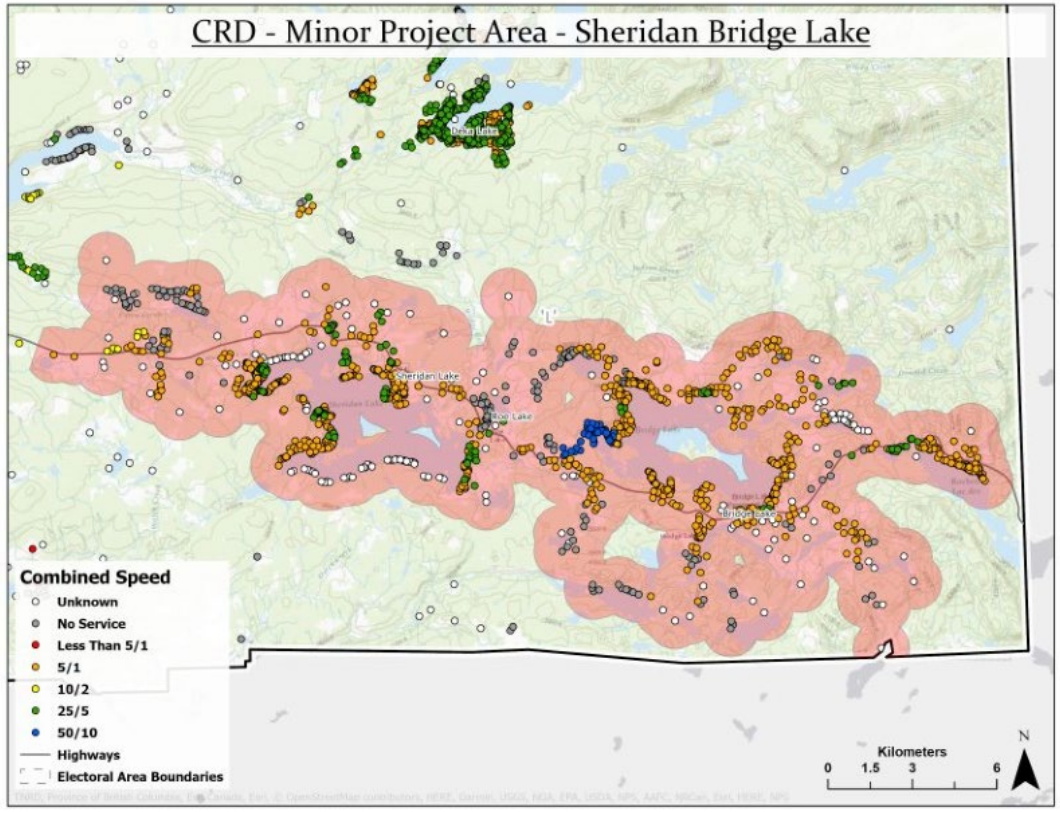


PRIORITIZING – by Subscriber Count



PRIORITIZING – Lowest (





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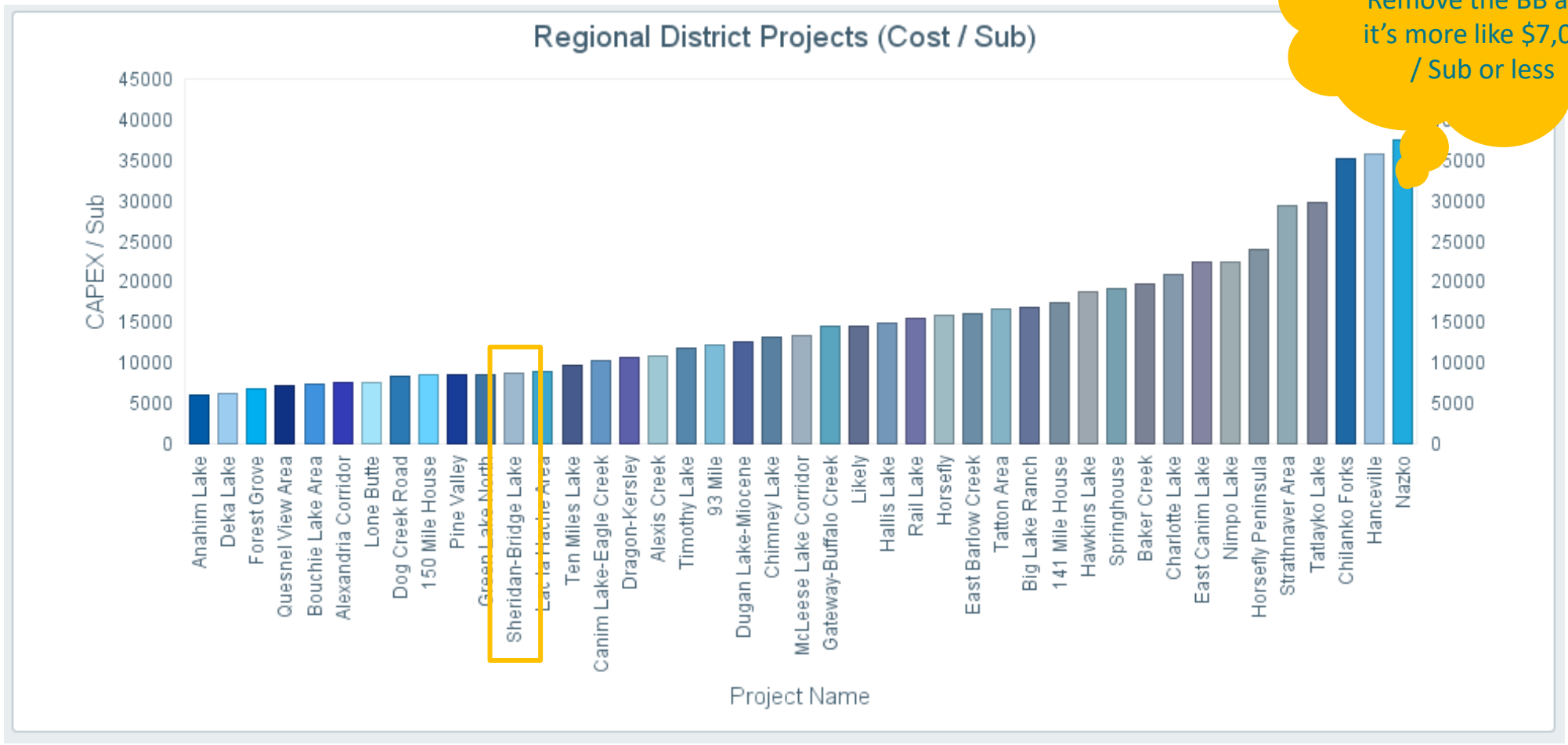
PRIORITIZING – Lowest Cost / Sub

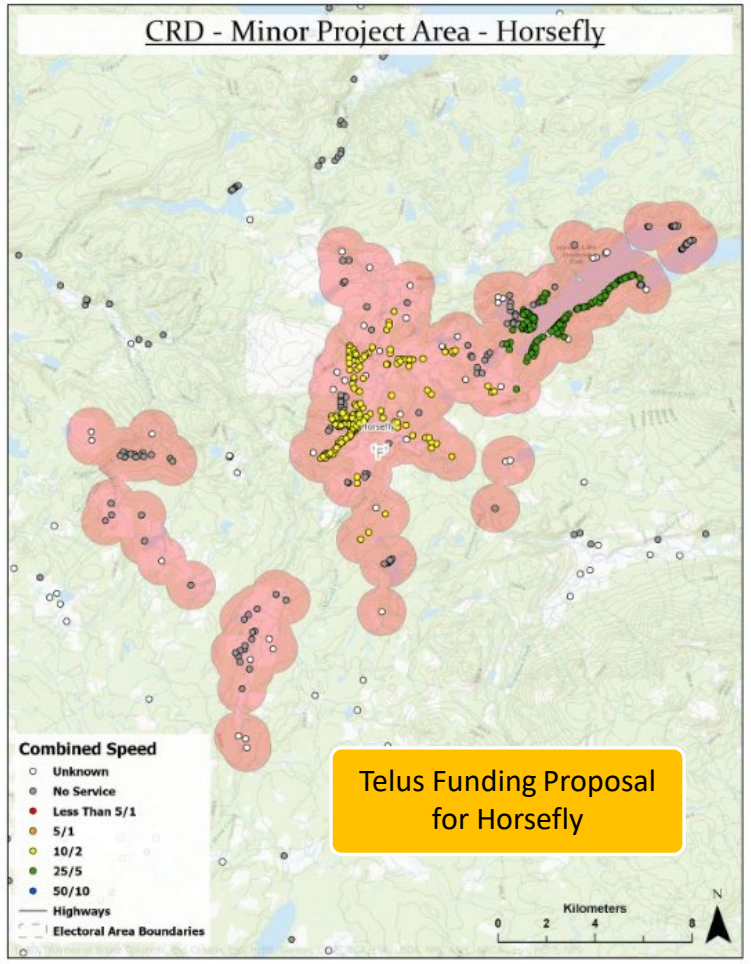
61km of backbone for 124 Subscribers. Remove the BB and it's more like $7,000 / Sub or less



COMMUNICATE – COLLABORATE - MILESTONES

- Existing providers need to understand the CRD priorities.
- Letters of support need to be specific.
  - Where, What, How, When …
- Publicly funded projects need to meet CRD priorities.
- Determine a reasonable timeframe & escalation path.
- Aggregate the problem:
  - with other local governments within CRD (municipal/First Nation)
  - with neighbouring Regional Districts outside of CRD.

AGGREGATE the PROBLEM – (e.g. Horsefly)



	Sub-Project No	Sub-Project ID	Sub-Project Name	Sub-Project Type	Subscribers
>>	249	SP249	Big Lake Ranch	BB & Local Access	420
>>	250	SP250	Black Creek	BB & Local Access	54
>>	251	SP251	Dugan Lake-Miocene	BB & Local Access	598
>>	252	SP252	Haggens Point	BB & Local Access	64
>>	253	SP253	Horsefly	BB & Local Access	465
>>	254	SP254	Horsefly Peninsula	BB & Local Access	76
>>	255	SP255	Keithley Creek	BB & Local Access	19
>>	256	SP256	Likely	BB & Local Access	323

Major Project Total Subscribers 2019

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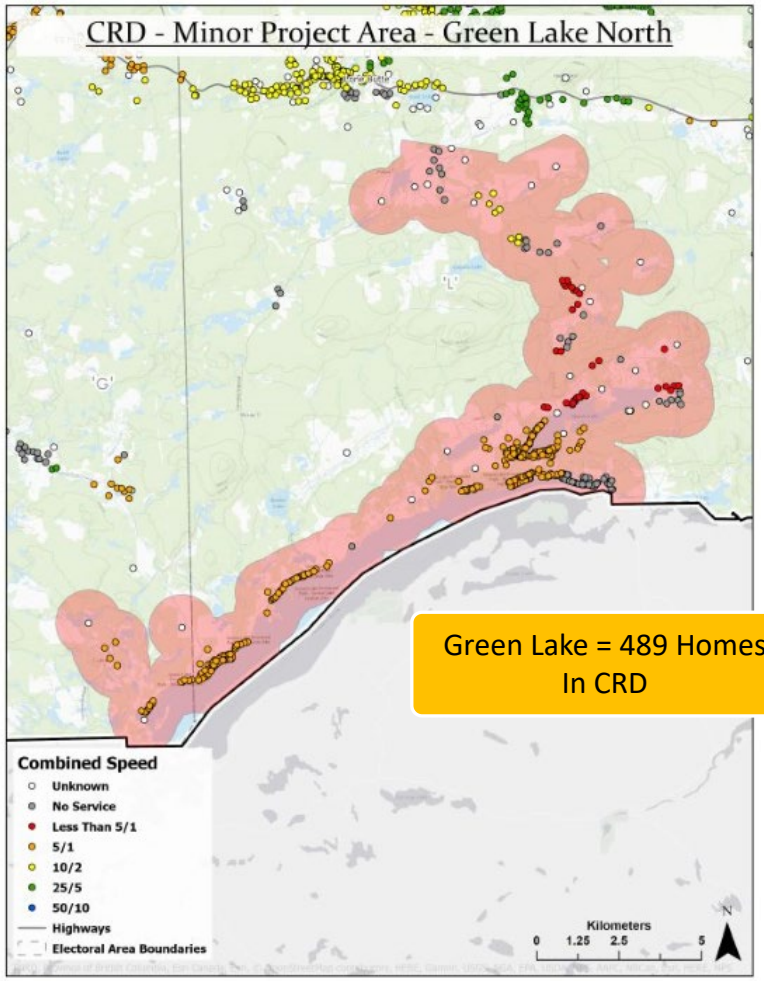
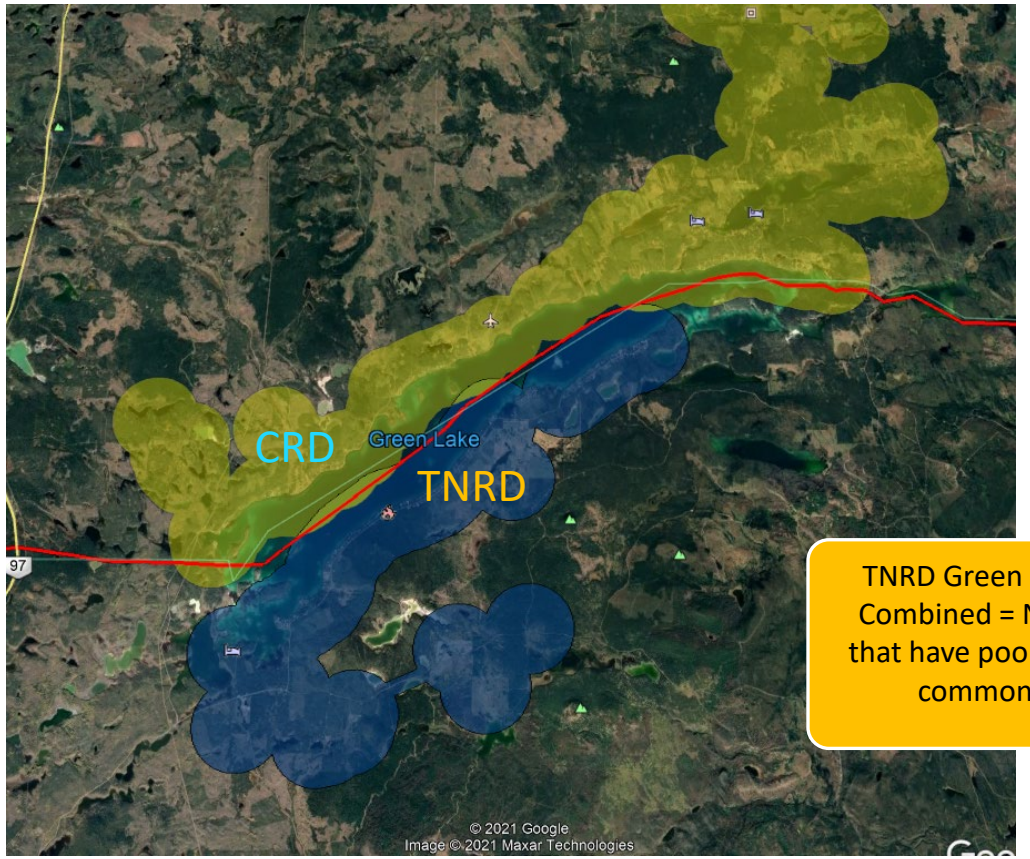
AGGREGATE the PROBLEM – (Eg. Green Lake)



Green Lake = 489 Homes In CRD



TNRD Green Lake = ~420 Homes
Combined = Nearly 1,000 Homes that have poor service and require common infrastructure.

PARTICIPATE

HOPE!
- 3rd party provider
- Little control
- Not motivated to serve small communities
- Go where the business case makes sense

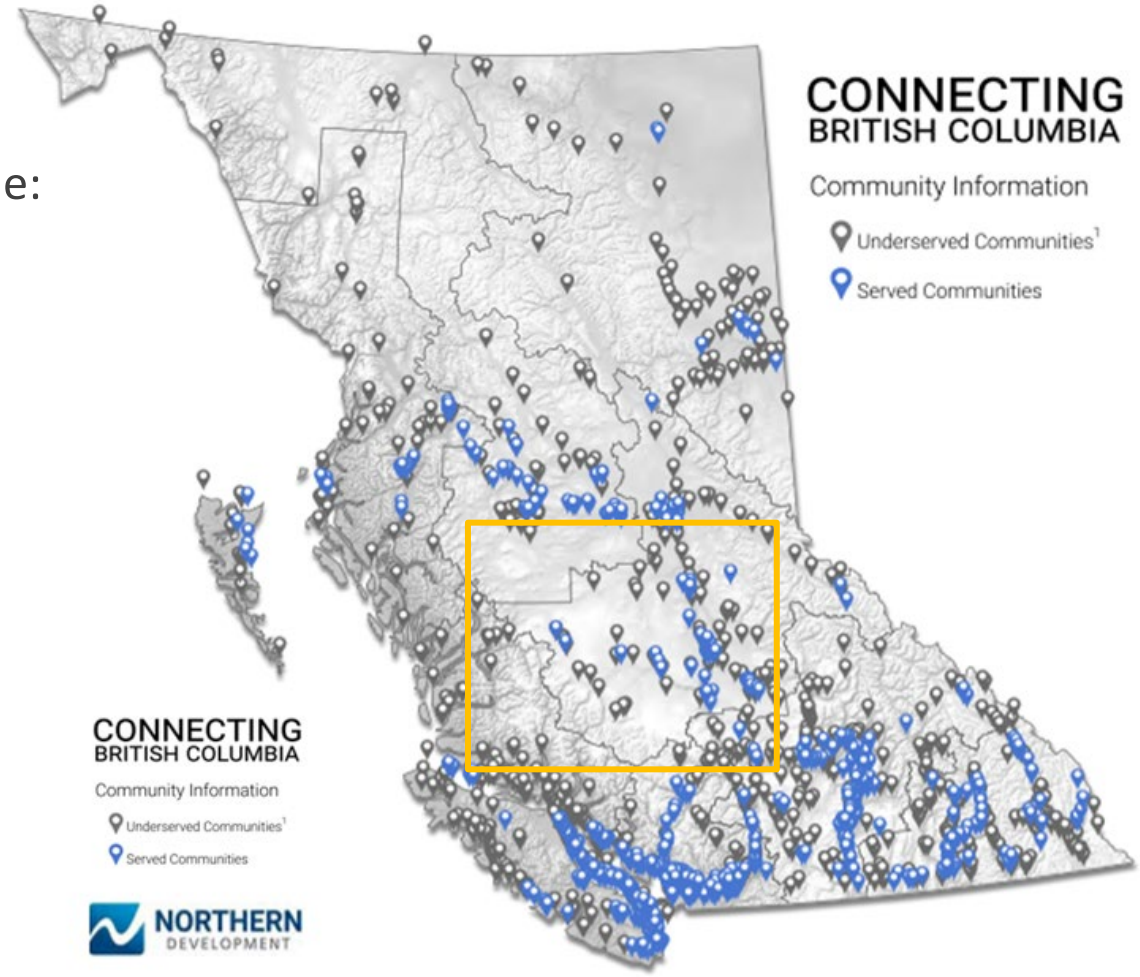
DO IT YOURSELF!
- High control
- Serves gov't priorities
- High responsibility
- In the ISP business

DECIDE WHAT CRD PARTICIPATION IS …
- What happens if milestones are not met?
- Establish the backup plan if things don't progress.
- What needs to happen so CRD can play a more active role?
- Get prepared!

FUNDING SUMMARY

- As an infrastructure owner, some programs may include:
  - UBF: $1.7B through ISED
  - Economic Recovery (Connecting BC): $90M
  - Connecting BC – applications thru successive intakes
  - Broadband Fund: $750M total over 5 years

- As a facilitator, some sources of funding may include:
  - Gas Tax
  - Public Private Partners (P3)
  - Service Area tax?
  - Support ISP application



FUNDING – Universal Broadband Fund

- Generally 75% dollars but up to 90% for very remote or Indigenous communities.
- Eligible applicant :
  - corporation, government entity, public sector body, First Nation or partnership and;
  - have built, owned and operated broadband infrastructure or contracts with an entity that has.
- Eligible activities:
  - cover areas not already shown as served at 50/10.
  - deliver 50/10 service and,
  - provide open access projects.
  - are mobile projects benefiting Indigenous people
- Eligibility map isn't always right and the process to correct it is horrendous.

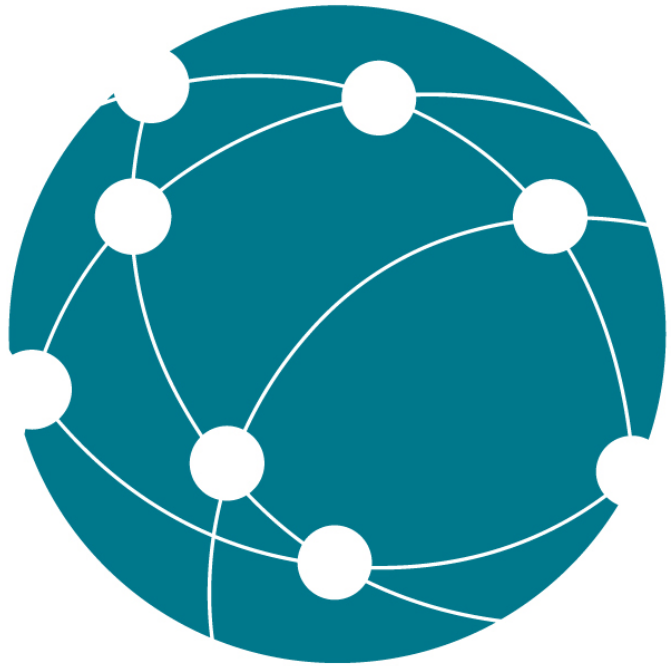
FUNDING – CONNECTING BC

- UBF Intake – Co-funds projects under federal UBF
- Economic Recovery Intake – 1X $90M fund - encourage rapid expansion of connectivity
- Phase 3 (last mile and transport infrastructure projects)
- Eligible applicant is:
  - local, regional or national ISP
  - local governments
  - First Nations
  - non-profits

  and who is:
  - Experienced in deploying and operating the proposed broadband infrastructure in Canada for at least 3 years or who partners with ISP who is

SUMMARY of NEXT STEPS

- Prioritize
- Confirm role of the Regional District.
- Consider a dedicated resource.
- Communicate priority areas to providers.
- Communicate desired service levels.
- Seek sources of funding to shore up the cost delta.
- Explore the possibility of P3 opportunities



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