



BridgeNet Onboarding



NEW WESTMINSTER

History and Background

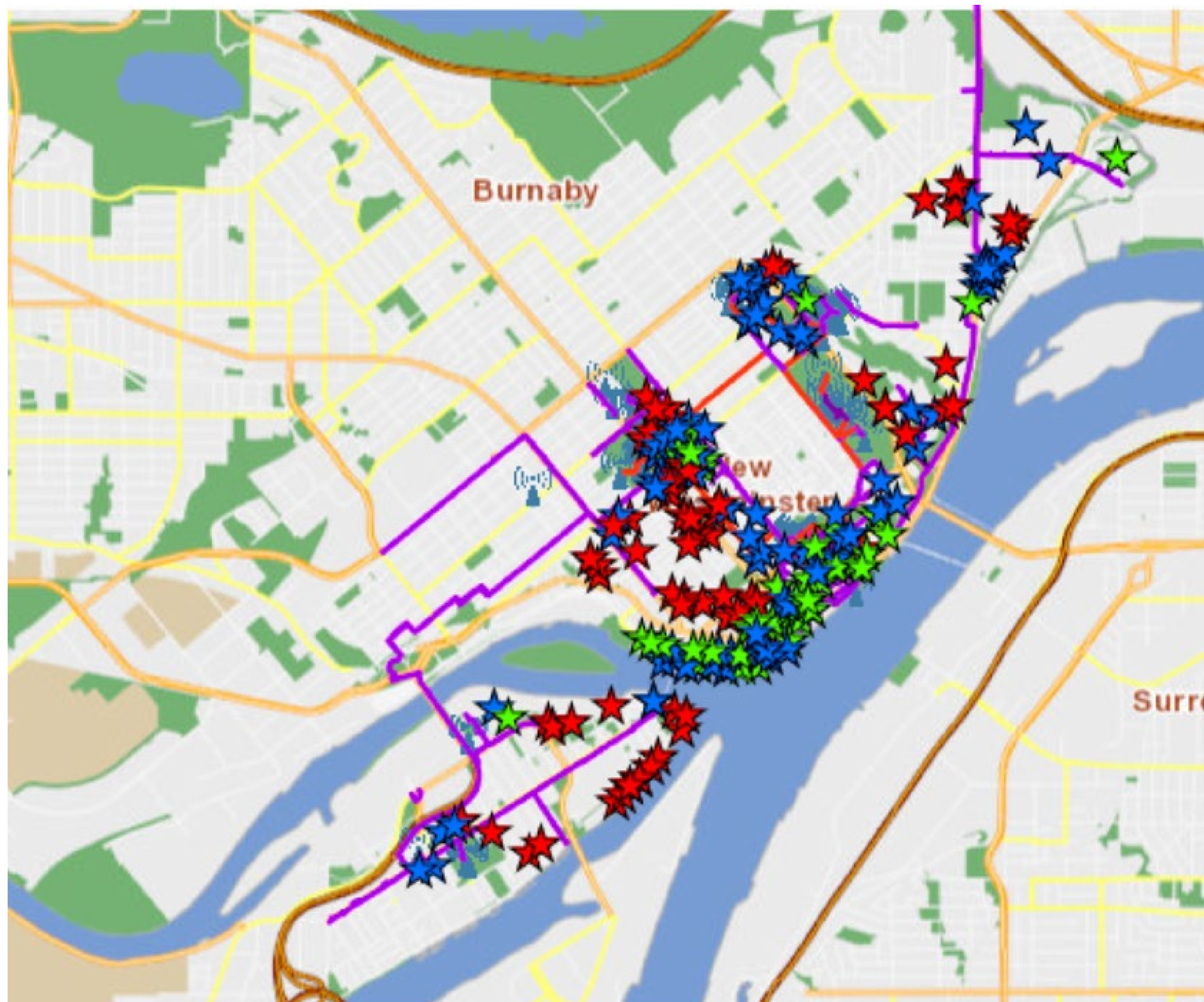
- In June 2012, Council approved the Intelligent City Task Force report which recommended pursuit of the Intelligent City vision for New Westminster, which stated:

 “By 2020, New Westminster will be the leading candidate for new, creativity centric companies in Greater Vancouver”
- In 2014 the Intelligent City Strategic Plan was developed and approved by Council founded on research indicating it would make the city more attractive to business opportunities and younger demographic residents.
- A foundational component of the plan was the implementation of an affordable fibre optic network that studies showed would **attract more business investment**
- BridgeNet was launched on June 21 2016 as part of the City’s Intelligent City initiative with the following goals:
 - ❑ to provide New Westminster residents and businesses greater access to reliable, affordable high-speed internet services
 - ❑ improve choice by enabling more Internet Service Providers who can offer digital services in the community

History and Background (Cont.)

- CNW received recognition by ICF as a global SMART 21 community in 2017.
- In 2018, CNW updated the Intelligent City Strategic Plan with the following Mission:
“To leverage BridgeNet city-owned fibre network and enable digital solutions that increase citizen engagement, improve service delivery and access, and expand the use of open data to solve challenges, growing New Westminster’s digital economy for the benefit of citizens and local business
- In 2019, CNW selected by the Intelligent Community Forum (ICF) as a top 30 global intelligent community, ranked by broadband
- We currently have 52.2 KM of constructed underground span, 659 Meters of overhead and 89 KM of fiber cables installed in the u/g and overhead (some of the underground spans have more than one fiber cable in them).

Coverage Map



Legend

Sites

- ★ PLANNED
- ★ NEAR-NET (90 days to connect)
- ★ ON-NET (Connected)
- ★ UNKNOWN

Overhead Span

- <all other values>
- Braided Steel Rope

Underground Span

- <all other values>
- <Null>
- Cut and Cover
- Cut and cover -subduct
- DUCT 100 mm
- DUCT 100 mm (diam)
- Directional drilling
- EMT
- Electrical Lighting Duct
- Gas main out of service
- Inlay 100mm deep
- Microtrench 300
- Microtrench 300 mm deep
- Microtrench 450 mm Deep
- Narrowtrench 450 mm deep
- Narrowtrench 600 mm deep
- Narrowtrench 600 mm deep
- Water main out of service

History and Background (Cont.)

- The city fiber network connects 19 city facilities and saves the city IT department approximately \$270,000 a year in 3rd party connectivity based on 1GE connections to each building at today's commercial rates
- BridgeNet provides New Westminster residents and businesses greater access to reliable, affordable high-speed internet services and improves choices by enabling more Internet Service Providers who can offer digital services in the community.
- We have 13 approved ISPs with 8 of them having active Service Orders on our network.
- We are using the BridgeNet approved small business service orders (125/mo) for the digital inclusion connections and for the economic development connections. We have 3 active and one new order to the daycare at the Portside Development. We also have numerous fiber connections to City Public Wifi locations. Parks, IT and BridgeNet continue to work with developers to design fiber enabled WIFI into public spaces like the BOSA development at Pier Park.

Financial Analysis: 2015

- Financials to support the network build were based on revenues from ISP's selling services over the dark fiber network to:
 - ❑ MDU residential buildings of 50+ units
 - ❑ Local businesses
 - ❑ Government agencies
 - ❑ Telco's to support wireless networks
 - ❑ The local school district and other educational institutions in New Westminster

Financial Analysis: 2015 (Cont.)

- **Capital Infrastructure:** cost estimate to build out the network was set at \$10.9M with an added contingency of \$2.2M.
- **Operating Cost Estimates:** ISP's were estimated at \$300.00 per month per building connected or via a revenue sharing formula (20% to 25% of building generated service revenue).

Financial Analysis: 2022

- **Capital Infrastructure:** spend to date to build out the network is \$9.4M; with \$7.9M from Debt Financing and the balance from Electrical Reserves.

PROJECT COST COMPONENT	Budget	Cost To Date
Consultation	\$506K	\$416K
Utility Setup Cost	\$154K	\$260K
Engineering	\$1.7M	\$1,3M
Materials + Construction	\$7.8M	\$6,9M
Contingency	\$2.2M (unused)	\$0M
Colocation Facility	\$777K	\$493K
Total Project Cost (excl unused Contingency)	\$10.9M	\$9.4M

Financial Analysis: 2022 (Cont.)

- The following is the 5-year 2023-2027 Capital Plan for BridgeNet.

Projects	2023 Forecast	2024 Forecast	2025 Forecast	2026 Forecast	2027 Forecast
BridgeNet Fibre Fund					
11041 BridgeNet Infrastructure	526,817	-	-	-	-
12343 Pattullo Bridge Fibre	150,000	-	-	-	-
12407 Aff Housing Fibre Infrastruc	30,000	30,000	30,000	30,000	-
A0343 BridgeNet Regional Fibre Hub 2.0	-	2,000,000	-	-	-
Total BridgeNet Infrastructure	706,817	2,030,000	30,000	30,000	0

Financial Analysis: 2022 (Cont.)

- To date we have connected 86 residential MDU's, 16 local business and 5 Educational Institution of which 17 residential MDU locations were added in 2022.
- To date from inception, total net estimated revenue received is \$0.85M.
- 2022 Operating Budget Service Enhancement: In 2022 the Utility Commission approved the investment of a Business Manager to accelerate the Revenue Growth as the infrastructure was being under-utilized; staff redirected efforts away from the infrastructure growth to focus on the revenue growth.

Progress in 2022 / 2023

- Total Buildings with SO's (non-city facilities) = 106
- Total new in 2022 = 17 (all residential MDUs)
- In Progress 2023 = 12
- New daycare connected at Portside development in Queensborough
- Colocation expansion is planned in 2023
- Working on updates to the BridgeNet website based on feedback and consultation with ISP's
- First 5 Gig business connection to local tech firm
- Completion of BridgeNet Construction Supplementary Guide (our version of an MMCD)

Risks

- Early construction, with a well-planned out micro-trenching scheme, did not have a solid quality control plan which has resulted in rework of existing infrastructure and a move from a single sourced (unit priced) contractor to a competitive job based tender process. This has added minor project delays and costs to the project.
- 2018 and 2019 civil construction costs skyrocketed due to the development construction boom in lower mainland – this put pressure on our timeline and construction costs
- Initial micro-trenching construction specifications were designed to a minimum 12" (100mm) depth conduit installation. However, we have moved to a minimum 18" (150mm) deep narrow trenching installation for a number of reasons:
 - Utility construction saw cutters are now using first pass 12" depth blades which can cut our cables before passing through our coloured warning grout.
 - Technical Safety BC is pushing for a minimum depth of any utility installation which will likely have an impact on future micro-trenching installations.
 - Higher Tier telecommunications providers, like Zayo or Bell, are hesitant to utilize shallow built 3rd party fiber networks and the extra depth will create better market confidence.
 - Construction costs for deeper trenches are approximately 15% higher, but the overall product is much better and easier to market to telecom industry.
- Revenue forecasts from wireless companies and the school district are non-generating factors at this point in our business cycle. The local School District has a long term agreement with Telus to provide its network data/communication needs and that will likely not change without political support.

OPPORTUNITIES

Wireless Providers

- Wireless providers in BC are TELUS, Rogers and Shaw who have plans to upgrade their fiber networks for wireless 5G deployment. These are all large providers with specific criteria to utilize other 3rd party last mile networks.
- TELUS is the incumbent carrier (ILEC) in BC and has advised us that they have no interest in using BridgeNet fiber assets, while Shaw and Rogers have both had discussions with BridgeNet for their future requirements.
- With pending upgrades to wireless networks (5G), Shaw and Rogers are good candidates to utilize our last mile fiber network. Bell Mobility has indicated they will keep their shared network partnership in place with TELUS Mobility for future wireless network deployments

Wireline Providers

- Tier 1 wireline providers (Bell/Rogers/Shaw) who deliver traditional fiber based business connections have certain quality and operational requirements – we should look at a different fee schedule than we have for smaller providers (capital cost recovery and non-revenue share model)
- To provide services to Tier 1 wireline providers we may need to negotiate upfront Access Agreements (BLA's) with building managers, developers and property managers. This will add up front and recurring costs and require outside firms to negotiate those agreements, but those firms are readily available.

OPPORTUNITIES (Cont.)

Support Structure Agreements (SSA's)

- Support Structure Agreements (SSA's) for pole attachments and spare capacity in underground fiber conduits and poles has good potential for future revenues.
- Third party communications access to the city's poles and underground would also bring more competition to the city's telecommunications wireless market and have a positive impact on the local economy.
- Typical SSA Pole and underground fee structures:
- Distribution Fiber Urban pole attachments of less than 10km:
- \$1.61 per pole attachment and \$0.43 per 30 meters per month of messenger strand
- Maximum outside diameter of cable is 30.5mm
- All engineering and make ready costs paid by applicant
- \$2.25 per 30 Meters per month for underground conduit (\$0.90/meter/year)
- Joint build and asset swap opportunities:
- Rogers and Shaw are looking to build out wireless network fiber backbones quickly and efficiently
- There will be opportunities to do joint builds in these situations which would save capital costs and upgrade the quality of the underground network we are building
- Swap and conduit/pole attachment criteria should be in place to take advantage of those opportunities
- These carriers will be looking for quick turnaround approval times to meet their planning and scheduling needs
- Governance on 'deals' should have weighting criteria in place for the Fiber and Electrical department to review and provide a streamlined approval process

BRIDGENET 2.0

- Our Chief Information Officer (CIO) prior to retiring promoted the BridgeNet 2.0 idea to have New Westminster be part of a lower mainland hub connecting surrounding cities and municipalities to the BridgeNet fiber network and connectivity to the Vancouver Internet Exchange (VANIX) at Harbour Centre.
- This is a good opportunity for surrounding city and municipal IT networks to create a meshed fiber based redundant network with peer to peer opportunities. This would result in better network performance and a more robust network to better withstand catastrophic events like earthquakes and flooding.
- It also opens up more revenue possibilities with connections between entities like Qnet in Coquitlam and BridgeNet in New Westminster. As well, there is wide spread support in the competitive fiber market to build relationships and goodwill with governmental organizations and city IT departments.
- This requires fiber connectivity to be built between adjacent cities and municipalities. We have just completed our first dark fiber connection to the Qnet and the City of Coquitlam. We are in close talks with the City of Burnaby IT department to create an interconnection point over the next 12 months.
- We have a conduit connection to the border of the City of Richmond, a possible connection to the Corporation of Delta via MOT ducts in Queensborough, and the Patullo Bridge will provide MOT conduit capacity between the City of Surrey and New Westminster. We have allocated funds to have a conduit connection installed between the Patullo conduit system and our BridgeNet infrastructure.

Questions?