



# Okanogan County **Broadband Action Team**

# Okanogan County Feasibility Studies

June, 2023

**PREPARED BY:** 







#### NARRATIVE AND EXECUTIVE SUMMARY

#### 1.0 Introduction and Scope

The following report provides an overview of two recent and independent broadband feasibility studies prepared numerous unserved and underserved areas of Okanogan County, Washington.

The two studies covered different areas within the county and were developed by two different consulting firms. One study was prepared by ACRS, LLC covering 18 different areas within the county and portions of the Colville Tribes tribal lands. The second study was developed by Tilson Technology Management and covered the described as the Methow Valley.

While each report was developed independently and by two different consulting firms, many common components existing within both studies with the ultimate goal of determining the broadband gaps and the costs, revenues and feasibility of deploying a state-of-the-art broadband network.

This report combines the two studies and provides the reader with an overview and summary of the findings.

#### 2.0 Proposed Service Areas

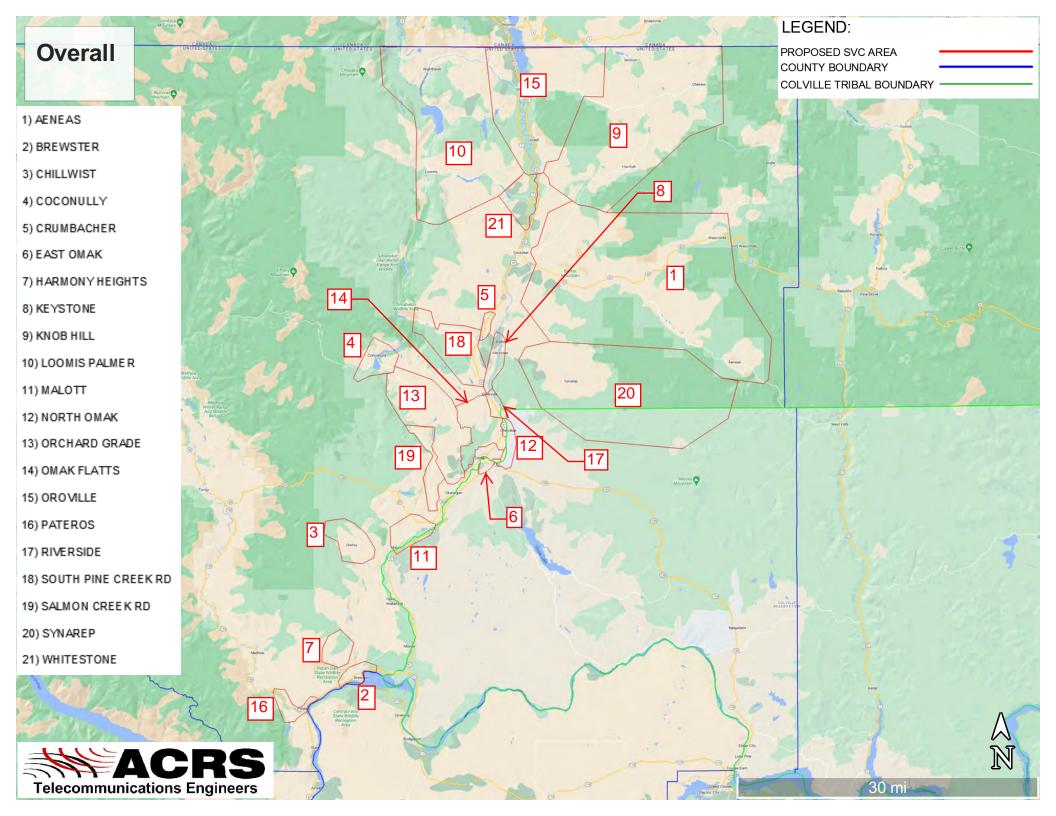
This ACRS study has identified 24 areas of primary interest for designing and deploying broadband. These Proposed Service Areas are:

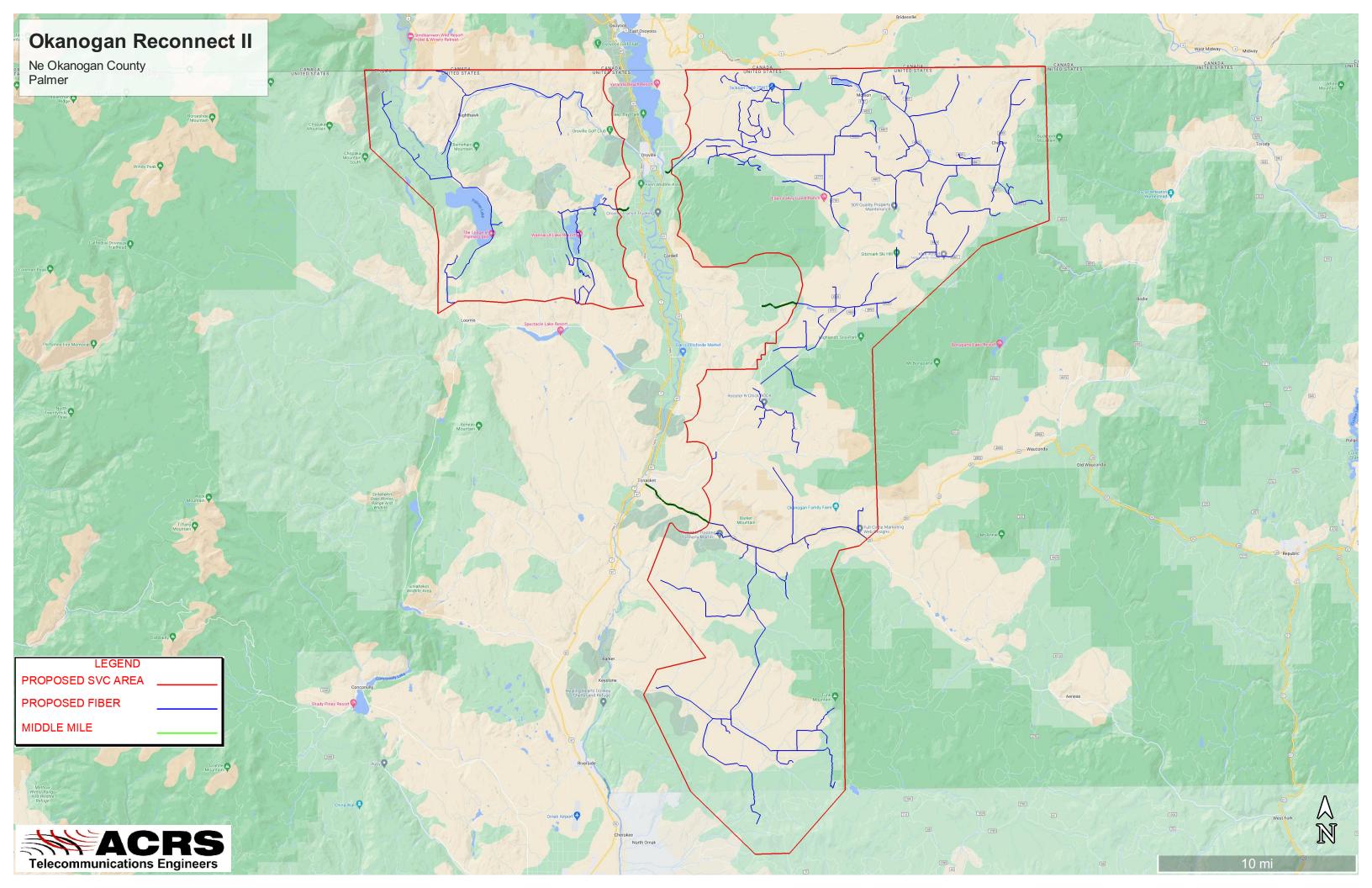
Aeneas	Brewster	Chillwist
Conconully	Crumbacher	East Omak
Harmony Heights	Keystone	Knob Hill
Loomis-Palmer	Malott	North Omak
Omak Flats	Orchard Grade	Oroville
Pateros	Riverside	S. Pine Creek Rd
Salmon Creek Rd	Synarep	Whitestone
North Okanogan County	Palmer	South Pine Creek NTIA





The following is an overview of the various service areas. You will note he following map depicts 18 unique areas while the study contains 24 cost estimates as there were additional cost estimates performed combining some of the 18 areas into hypothetical "regions".









As mentioned above, the Tilson study identified an area referred to as Methow Valley. The following is breakdown of the area and the different potential construction phases analyzed by the Tilson team.

### METHOW VALLEY BROADBAND MINIMUM REQUIREMENTS REPORT

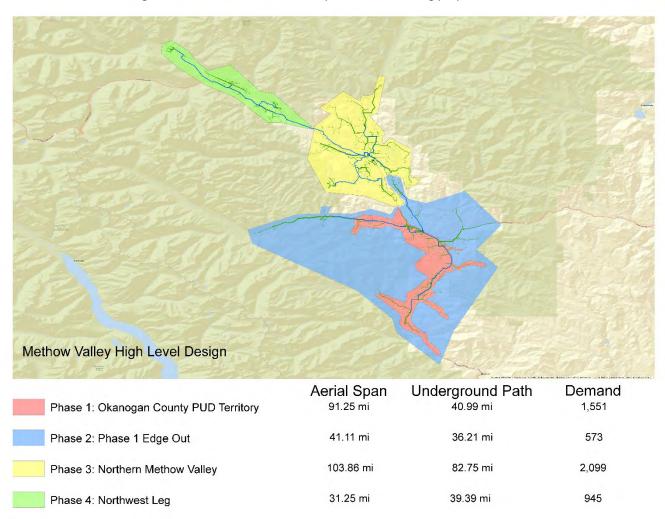


Figure #1: Theoretical construction phases for modeling purposes

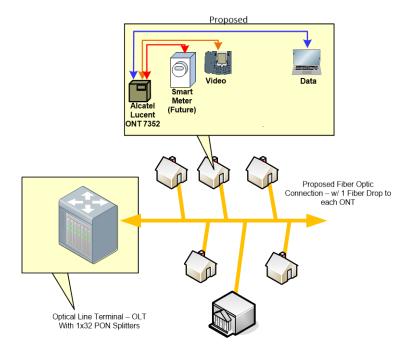




#### 3.0 Infrastructure Solutions

### 3.1 Fiber to the Home/Business (FTTx)

Both studies assumed and analyzed a 100% Fiber-to-the-Home or Fiber-to-the-Premise (FTTx) Gigabit Passive Optical Network also referred to as a GPON network. GPON is a point-to-point access mechanism utilizing passive optical splitters. The GPON network will utilize electronics capable of delivering a minimum of 2.488 Gbps downstream and 1.244 Gbps upstream with the newer XGS-PON standards capable of 10Gbps symmetrical services.



Typical GPON FTTH Network





#### **4.0 Cost Estimates**

Detailed cost estimates were developed for the fiber-to-the-home systems as described above. Below is a summary of the costs estimates from both studies with a detailed breakdown contained within the full studies combined and attached herein.

Under the ACRS study, three cost estimates were developed as part of this study, these include the 24 identified service areas, the NE Okanogan County and Palmer service areas, and a larger version of the S. Pine Creek service area. Each of these were used in the financial forecasts and in the Pro Forma section below.

24 Okanogan & Colville Tribes Service Areas	\$92.80M
NE Okanogan County & Palmer Service Areas	\$14.31M
S. Pine Creek (NTIA) Service Area	\$5.57M

For the Tilson report and the Methow Valley region, the project was divided onto four distinct phases as demonstrated in the map above. Below is a summary for the estimated construction cost of each phase.

Okanogan County PUD	\$13.32M
Phase I Edge Out	\$7.57M
Northern Methow Valley	\$18.69M
Northwest Leg	<u>\$7.19M</u>
Total	\$46,72M

#### 5.0 Pro Forma

Long term financial forecasts, or pro formas, were developed based on the cost estimates for the network, the subscriber forecast, revenues, expenses and general assumptions as we have discussed above.

Under the ACRS study, a pro forma was developed for comparing the returns of two different scenarios. As could be expected, each of these demonstrate a negative net





income but if successfully completed with grant dollars, they would begin to accumulate cash. Many of the service areas should qualify for various grants due to their rural unserved nature. The study therefore compares one scenario with 100% loan financing using a 3% cost of money and one with 100% grant financing.

The results of each study are summarized below.

### 100% Loan

\$5M negative net annual income in year 5
Begins to breakeven in terms of accumulated cash without depreciation expense
\$6M in year 5 expenses is a result of depreciation

#### **100% Grant**

\$2.38M negative net annual income in year 5 due to depreciation expense Accumulates significant cash in year 2 \$6M in year 5 expenses is a result of depreciation

A similar analysis was generate within the Tilson study with a snapshot of the results and cash flows demonstrated below.

### 10 Year Cash-Flow Analysis

Subsidy Level	Fiber Route Miles	Initial Capex	Revenue at Year-10	EBITDA at Year-10	10-Year Cumulative FCF
Total Project	462.0	\$46,718,239	\$2,102,024	\$953,761	(\$45,969,509)
Okanogan County	131.2	\$13,316,152	\$631,075	\$158,787	(\$13,619,149)
Phase 1 Edge Out	76.5	\$7,570,586	\$233,151	(\$66,246)	(\$8,899,636)
Northern Methow Valley	184.6	\$18,686,343	\$853,499	\$286,956	(\$18,503,610)
Northwest Leg	69.8	\$7,185,810	\$416,950	\$66,325	(\$7.678,616)
OC + Phase 1 Edge Out	207.6	\$20,886,738	\$864,225	\$266,053	(\$20,981,837)
Northern MV + Northern Leg	254.3	\$25,872,153	\$1,270,449	\$526,720	(\$24,645,507)
OC + Northern MV	315.7	\$32,002,496	\$1,484,574	\$619,081	(\$30,586,524)







### **6.0 Executive Summary**

In addition to the financial feasibility of the project, there are the numerous indirect but positive economic impacts of the proposed projects. In addition to the economic impacts of the projects, one must consider the other benefits to the community related to public safety, healthcare and education.

Typical of greenfield broadband networks, the pro formas predict negative net income in the initial years and without grant dollars to assist, it will be difficult to ever show a positive cash flow. Searching for ways however to cut operating costs and to pursue the additional revenue streams discussed above, the proposed projects can achieve and surpass a breakeven analysis.

Attached herein are complete copies of both broadband feasibility studies, each demonstrating not only the need for broadband within Okanogan County but providing evidence these networks will never be constructed and are simply not viable without significant grant funding.





# Okanogan County and Colville Confederated Tribes Broadband Action Team

### **Expansion of Broadband Internet**

### **Strategic Plan**

July, 2022

**PREPARED BY:** 



### Okanogan County/Colville Confederated Tribes Broadband Action Team

### Expansion of Broadband Internet

<u>Table of Contents</u> Page 1 of 1

### TABLE OF CONTENTS

**Narrative & Executive Summary** 

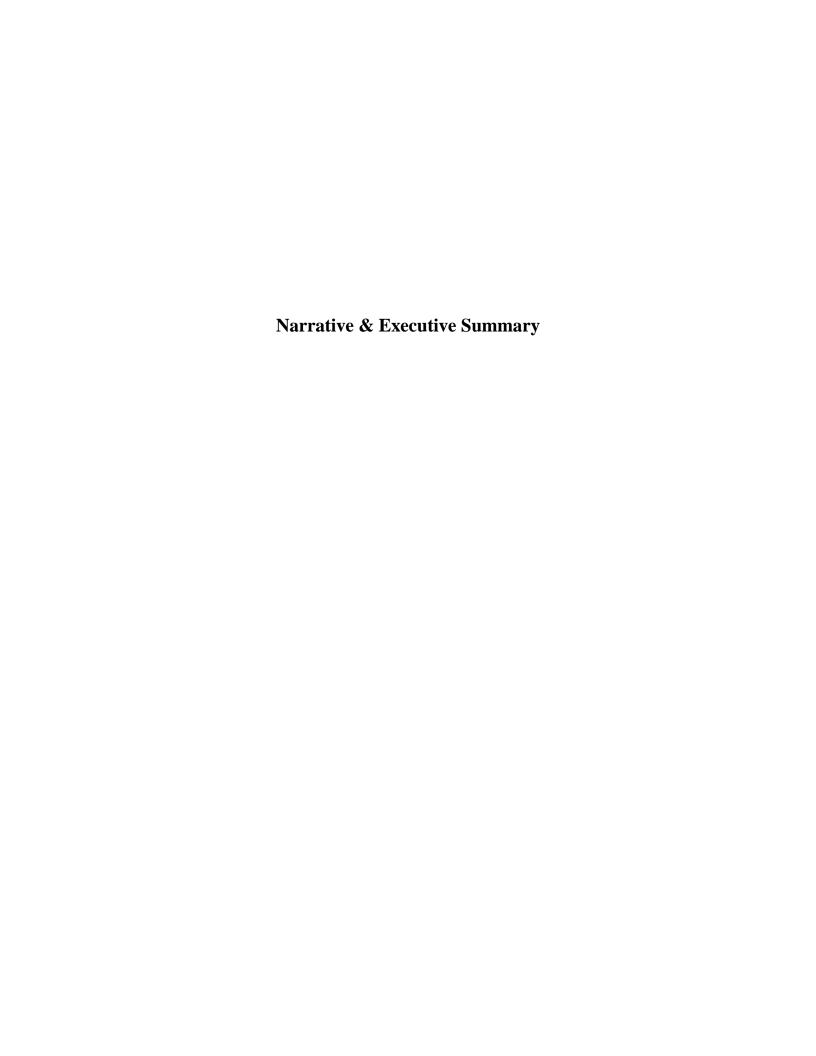
**Funding Opportunities** 

Tab 1

	Service Area Priorities Broadband Needs/Issues Identified
Tab 2	Conceptual Plan
Tab 3	Cost Estimates
Tab 4	Market Analysis & Subscriber Forecast PFSA New Subscriber Forecast Competitive Analysis USDA Rural Development Map Data
Tab 5	Financial Pro Forma
Tab 6	Assumptions
Tab 7	Timeline
Tab 8	Exhibits
	<ul> <li>A. U.S. Census Bureau Demographic Data</li> <li>B. FCC Fixed Broadband Deployment Maps</li> <li>C. NTCA 2016 Broadband/Internet Availability Survey Report</li> <li>D. Construction Quotes <ol> <li>Aerial &amp; Buried Cable Installation</li> <li>Aerial &amp; Buried Drop Installation</li> </ol> </li> <li>E. Cable Material Pricing <ol> <li>Buried &amp; ADSS Fiber Cable Material Quotes</li> <li>Aerial &amp; Buried Fiber Drop Cable Material Quotes</li> </ol> </li> </ul>

F. Electronics Pricing & Product Literature

1. GPON FTTH Electronics







#### NARRATIVE AND EXECUTIVE SUMMARY

### 1.0 Introduction and Scope

The following report provides a feasibility study and business plan for a proposed broadband network to serve selected communities in Okanogan County.

This report provides cost estimates for the required construction of multiple pure fiber-to-the-home (FTTH) broadband infrastructure networks, market analysis of existing providers, local demographics, a subscriber forecast, permitting requirements, a timeline for the construction of the network, a financial proforma forecast and funding options with multiple related exhibits.

### **Identify the Problems**

Under a prior but recent study, the first item was to gather input from stakeholders and the relevant communities about broadband needs of the area, then to identify the gaps in existing services. This included information gathering regarding existing infrastructures, and the design and distribution of a market assessment instrument or survey to determine the interest in expanded broadband service.

One of the most frequent problems is the expense of getting fiber to the home, even if there is fiber running close by. However, it is understood fiber-to-the-home is the preferred method for long-term broadband sustainability. Therefore, the purpose of this study, it to focus purely on FTTH networks, the cost, financing opportunities and the financial forecast of such an investment.

#### Identify existing providers, areas of weakness and assessment of local strengths

ACRS was able to create a comprehensive list of existing providers and broadband networks that provide broadband services from DSL, to wireless, to satellite services. This list and analysis are addressed in the Market Analysis and Subscriber Forecast section of this study.

One challenge with the incumbent service providers is the accuracy, or lack thereof, in the providers' reports to the FCC. Each provider is required to submit a detailed 477 report to the FCC every six months detailing the coverage area and available speeds as well as their existing customer base. Research has shown however the accuracy of these filings is lacking and many service providers tend to overstate their speeds and coverage areas. This presents another challenge to determining unserved areas and trying to prioritize a large-scale buildout as contemplated herein.





The reporting also tends to have a negative impact on available grant dollars or federal support dollars under the Connect America Fund and Rural Digital Opportunity Fund. Fortunately, some federal agencies such as the Rural Utilities Service are aware of this issue and when a grant application with RUS is being considered for funding, RUS will dispatch a field representative to verify any existing broadband.

The Okanogan PUD established a real-time speed test survey however where residents and businesses could log their specific location and register actual broadband speeds from said locations. The results of this survey were also used in the effort to identify the most underserved areas within the county. The results were used to identify multiple FTTH study areas within this report.

### 2.0 Proposed Service Areas

This study has identified 24 areas of primary interest for designing and deploying broadband. These Proposed Service Areas are:

Aeneas	Brewster	Chillwist
Conconully	Crumbacher	East Omak
Harmony Heights	Keystone	Knob Hill
Loomis-Palmer	Malott	North Omak
Omak Flats	Orchard Grade	Oroville
Pateros	Riverside	S. Pine Creek Rd
Salmon Creek Rd	Synarep	Whitestone
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Attached under Tab 2, Conceptual Plan, are maps of the 24 different service areas depicting the service area boundary and the estimated fiber cabling required for a full fiber-to-the-home deployment.

Tab 8A contains census data of each area used in the Market Analysis and Subscriber forecast. Each area has its own unique set of circumstances, from geography to the demographics that make up the population. The parameters used in the subscriber projections give us some picture of the population and its rural and economic struggles. Median age for the 24 areas ranges from 24.9 to 61.5, poverty level ranges from a low of 11.3% of families below the poverty level to 55.7% of all families. Commute time ranges from approximately 10 minutes to over a half hour.





### Geography

All 24 of the Proposed Service Areas lay on the eastern edge of the Cascades in Washington State and abuts the Canadian border in the north. Most of the populated areas are strung out like beads on the strands of the Methow, Okanogan and Columbia Rivers. Population ranges from 154 people in the Harmony Heights and Chilwist PSA to 5330 in the Oroville PSA.

The area can offer unique construction challenges and, as shown with the most recent wildfires, come with increased maintenance requirements. Each of these were factored into the initial construction costs and recurring maintenance expenses.

### 3.0 Permitting and Licenses

#### 3.1 Licenses

Providing broadband services is typically classified as deregulated services by state and federal authorities such as the Federal Communications Commission and most state corporation commissions. Voice services can be accomplished through a third-party provider or as an "over-the-top" VoIP service avoiding any required certifications should the Colville Confederated Tribes elect to pursue voice services in the future. At this time, the study herein is confined to broadband services only, allowing for a "broadband pipe" which can be used by its customers for VOIP phone service or "over-the-top" and streaming video services. The Okanogan PUD is prohibited from offering services directly to the residents of the county and is currently and projected to only offer wholesale rates to various ISPs in the area. To take advantage of future FCC support such as the current RDOF auction or the Lifeline and Link-up support from the FCC, an Eligible Telecommunications Carrier (ETC) certification will be required. This is typically applied for on a state level through the Public Utilities Service. Oftentimes, a Competitive Local Exchange Carrier (CLEC) certification is a prerequisite of obtaining ETC status. The process for obtaining CLEC and ETC designation typically takes up to six months. This is something however that could be pursued in the future.

#### 3.2 Permits

Typical permitting required for broadband networks as proposed herein consist of road permits, railroad crossings, environmental clearances and pole attachments permits.





Road permits are common applications with minimal to no permitting fees. Any crossing of or parallel facilities to state highways will require a standard Department of Transportation permit. These can typically be acquired within 30 days of applying for the permit. However, the majority of all proposed fiber facilities will be installed within the existing utility corridor, which is usually within 5 feet of the road right-of-way line.

Certain funding agencies and at times DOTs, will require proof of environmental clearances. Such clearances may be required from federal and state agencies such as the list below.

- US Fish & Wildlife Service
- State Fish & Game
- Bureau of Land Management
- Corps of Engineers
- State Historic Preservation Office
- Bureau of Indian Affairs

Section 106 requirements for SHPO will be closely adhered to, working with state, federal and tribal offices to ensure all historical buildings are identified well in advance of construction.

As described above, due to the nature of PUD owning the existing pole line and the opportunity to work with Nespelem Valley Electric Cooperative, pole attachment agreements are not applicable in the PUD service areas and may only be a simple formality in the Nespelem tribal areas.





#### 4.0 Infrastructure Solutions

### **4.1 Existing Network**

Both the Okanogan PUD and the Colville Confederated Tribes presently own and operate a limited amount of fiber facilities today. A large portion of the existing PUD network was funded and constructed under a recent ARRA BIP award. The existing PUD system utilizes its existing fiber facilities for offering FTTx services but the footprint is limited. The Colville Confederated Tribes have also made an effort over recent years to begin deployment of some fiber facilities along the main roads interconnecting some of the Colville Confederated Tribes communities. These existing facilities are proposed to be utilized where possible as middle mile backhaul points to the proposed FTTx electronics know as an Optical Line Terminal (OLT).

### 4.2 Fiber to the Home/Business (FTTx)

The Okanogan BAT and Colville Confederated Tribes propose to deploy a 100% Fiber-to-the-Home or Fiber-to-the-Premise (FTTx) Gigabit Passive Optical Network also referred to as a GPON network. GPON is a point-to-point access mechanism utilizing passive optical splitters. The GPON network will utilize electronics capable of delivering a minimum of 2.488 Gbps downstream and 1.244 Gbps upstream with XGS-PON capable of 10Gbps symmetrical services. The bandwidth is shared among subscribers with a typical optical splitter ratio of 1x32. Smaller or larger split ratios can be deployed in the field as bandwidth and subscriber demand.

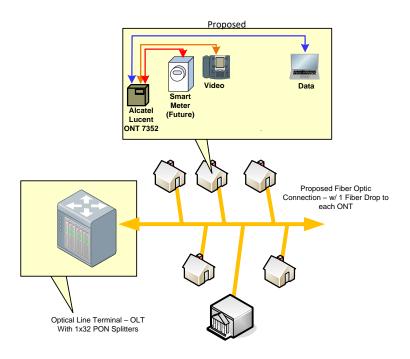
The GPON standard was developed in conjunction with two industry standards bodies, Full Service Access Network (FSAN) and International Telecommunications Union (ITU). Today the standard proposed herein is known as the ITU-T G.984 Gigabit capable Passive Optical Network standard.

Fiber to the x (FTTx) is a generic term for broadband network architecture using all fiber optical cable in place of the usual metal (Copper or Coax) cable used for telecommunications. While there are a great number of ways to deploy fiber into the network, fiber is often said to be "future proof" because the data rate of the connection is usually limited by the terminal equipment rather than the fiber, permitting broadband





speed improvements through upgrading the electronics without the need to replace the fiber itself.



Typical GPON FTTH Network

Utilizing the dynamic bandwidth allocation capabilities within the GPON electronics, or bypassing the splitters for point-to-point connections, GPON service providers are capable of offering 1 Gbps services to customer locations well above the FCC's 2015 Report adopting a new benchmark for broadband of 25 Mbps download and 3 Mbps upload as well as the State of Washington's 2028 mandate for 150 Mbps symmetrical services.

With the schools, hospitals, county and tribal facilities all proposing to utilize this fiber network, redundancy is a critical requirement. The post study engineering and design should be conducted in a manner as to incorporate additional, redundant bandwidth connections in case of an outage of the existing circuits in place today as part of the PUD solution. The proposed Colville Confederated Tribes and PUD expansions could also be developed in a ring configuration in which case if one circuit was cut to the outside world, all traffic would be rerouted. In this scenario, a customer could be utilizing the





broadband network and would be oblivious to the rerouting of their traffic with zero loss of service.

#### 5.0 Cost Estimates

Detailed cost estimates were developed for the fiber-to-the-home systems as described above. All design and cost estimates and financial forecasts assume a data only deployment. Future services of voice and/or video however could easily be overlaid and added as an additional service.

Three cost estimates were developed as part of this study, these include the 24 identified service areas, the NE Okanogan County and Palmer service areas, and a larger version of the S. Pine Creek service area. Each of these were used in the financial forecasts as described in the 9.0 Pro Forma section below.

The total cost estimates are listed below with a copy of the detailed Cost Estimates contained under Tab 3 of this report.

24 Okanogan & CCT Service Areas	\$92.80M
NE Okanogan County & Palmer Service Areas	\$14.31M
S. Pine Creek (NTIA) Service Area	\$5.57M

It should be noted that all costs were based on recent competitive bids from construction contractors for broadband deployments and recent quotes from multiple equipment suppliers. Adjustments were made to the outside plant construction costs to accommodate the local terrain in the BAT area. A copy of some of this pricing can be viewed within the enclosed exhibits. Additionally, the cost estimates above provide for fiber to the curb to 100% of the businesses and households passed.

### **6.0 Construction Timeline**

Subsequent to the allocation of the necessary funds, each project will commence with a more detailed engineering review of requirements on the central office and core fiber facilities. Construction of the outside plant facilities can occur parallel to the delivery and installation of the central office electronics. It is anticipated that a typical service area or group of service areas can be fully engineered and constructed within 15 months.

A sample timeline is contained under Tab 7 of this report.





### 7.0 Market Survey

From researching the FCC databases, the usual mobile wireless service providers in the area, including Verizon, AT&T, and US Cellular are claiming broadband speeds from around 1 Mbps to 10Mbps. However, the cellular coverage in a lot of the areas selected for broadband expansion is at times limited and the cost of the data plans with most wireless service providers makes using a cell phone for broadband in the home or at a business unrealistic for most.

From researching the FCC Broadband Deployment Map, a small portion of the service areas are served with broadband by CenturyLink. This is the regulated Local Exchange Carrier (LEC) offering limited DSL over aging twisted pair copper infrastructure. A search shows one other provider in the area, Frontier Communications, also offering limited DSL.

There is one cable service provider in the area, Charter Communications, which offers a higher speed broadband service of 120Mbps down and 10Mbps up. It should be noted however that there is a bottleneck in their data capabilities and during peak demand times like in the evenings when multiple subscribers are attempting to access the network, slower speeds are experienced by all.

In addition, there are several fixed wireless providers offering line-of-site broadband service. Most of these types of providers however are small locally owned service providers of which most use partially or wholly the existing PUD wireless infrastructure. The line-of-site requirement in the rugged terrain and heavy foliage is also problematic with these types of networks making it difficult to offer reliable service. As a result, the focus of this study is centered on a fiber-to-the-home solution.

As mentioned above, several areas have wireless and fiber services available from providers who are resellers for Public Utility District #1, and their prices and speeds vary from area to area.

Tab 4 contains a complete market analysis with the related narrative research of all existing service providers contained within the exhibits.

Below is a summary of the data service plans proposed by this broadband expansion and the recurring rates used within the financial pro forma. It should be noted however, the BAT management team may elect to reduce the number of service plans eliminating the 25/3 Mbps plan and offering the 100Mbps plan or the State's future





mandated 150/150Mbps service requirement at this same price. This will have little impact on the overall cost of the system yet may help increase the subscriber take rate.

<u>Residential</u>		
Bronze	25/3 Mbps	\$35.00
Silver	100/10 Mbps	\$59.95
Gold	250/25 Mbps	\$79.95
Platinum	1,000/100 Gbps	\$99.00
<u>Business</u>		
Bronze	25/3 Mbps	\$49.95
Silver	100/10 Mbps	\$69.95
Gold	250/25 Mbps	\$89.95
Platinum	1,000/100 Gbps	\$149.95

### 8.0 Marketing Plan

The price per Megabit offered under this broadband expansion will generally be lower than the competition in the underserved market and in line with national statistics. Customers are also eager to do business with a local provider giving the PUD ISPs and the Colville Confederated Tribes a leg up on the national LECs and cable providers.

#### **Advertisement and Promotions**

The new broadband services have the potential to offer a single consolidated invoice to its customers. Local technicians will be a part of the community for which he or she is responsible to handle service calls and installations and familiar faces to the local residents. The residents will know the technician by name. National surveys conducted by research groups like J.D. Power and others confirmed through market research that customers, whether in Metropolitan or Rural communities, prefer to deal with a local technician.





The promotion and marketing plan is based on local media and references. Some of these may not apply to the PUD offering wholesale services only but should be considered by the Colville Confederated Tribes.

- Referrals: Consider offering a discount for referrals as word of mouth coupled with a monetary reward is sometimes the most effective means of advertising.
- Local Bulletins and Flyers: Upon the acquisition of funds, post flyers and bulletins
  throughout the service area and issue flyers through the mail to its existing
  customer base to commence creating a buzz within the community and
  hopefully prevent some of the potential subscribers from executing a long-term
  contract with another service provider.
- Local Newspapers and Media Services: Consider advertising in local papers and media services. In addition, utilize many other publications that are local in nature, community papers or bulletins for the residents of the community, and other sources in which they will start announcing and advertising these services to the residents.
- Meetings with Local Offices: The local technicians should participate in town meetings and other community events. Existing relationships will be strengthened with local businesses, community centers, and local administrations.
- Website Marketing Tools: Upon receipt of financing, there should be plans to launch a state-of-the-art new website for the new services as well as advertising on other social media sites. The sites will enhance the broadband company's customer service and tech support offerings as well as feature several marketing-promotion tools to supplement the traditional sales and marketing efforts.

The cost for marketing and sales was included within the financial forecast and discussed in more detailed under the assumptions in Tab 6 of this report.

#### 9.0 Pro Forma

Five-year financial forecasts, or pro formas, were developed based on the cost estimates for the network, the subscriber forecast, revenues, expenses and general assumptions as we have discussed above.

A pro forma was developed for comparing the returns of two different scenarios. As could be expected, each of these demonstrate a negative net income but if successfully completed with grant dollars, they would begin to accumulate cash. Many of the service





areas should qualify for various grants due to their rural unserved nature. We therefore ran one scenario with 100% loan financing using a 3% cost of money and one with 100% grant financing.

One item not demonstrated in the proformas are cost savings which could be realized by the PUD and the Nespelem Co-Op under a partnership with the Colville Confederated Tribes. Such benefits would be seen through the connection of all substations, remote meter reading and disconnects and reconnects and reduced uncollectables.

The results of each study are summarized below.

### 100% Loan

\$5M negative net annual income in year 5
Begins to breakeven in terms of accumulated cash without depreciation expense
\$6M in year 5 expenses is a result of depreciation

#### **100% Grant**

\$2.38M negative net annual income in year 5 due to depreciation expense Accumulates significant cash in year 2 \$6M in year 5 expenses is a result of depreciation

A copy of each five-year pro forma is attached under Tab 5 and contains a summary of all projections, a summary of the subscriber forecasts and revenues, a list of all assumptions, depreciation and a summary of all capital expenditures.

Other revenue generating possibilities are also not considered in the forecast but elaborated on in the following section.

### **10.0 Additional Revenue Opportunities**

There are numerous other revenue opportunities that should be considered in the analysis of this feasibility study. To take a more conservative approach in the financial analysis, the majority of these additional revenue opportunities were not included as a guaranteed revenue stream but should be considered during the initial engineering and marketing phases of the project.





One such revenue stream that is sweeping across our nation and that was part of the forecasted revenue stream is the need for additional bandwidth at cellular towers sites. As more and more cellular users utilize their mobile phones for messaging and streaming video, this need will continue to increase. Cellular carriers are not only paying a premium for this additional bandwidth, but in many cases, they are paying aid to construction to extend the fiber facilities to the tower sites. A quick search of the FCC website however reveals several registered tower sites in the Proposed Service Areas. This additional revenue stream is the only additional revenue assumed in this study beyond the basic residential and business data subscribers.

Another service and opportunity to sell more broadband connections is the offering of femtocell technology. Femtocells are devices that can be placed inside of a residence that acts as a repeater of cellular phone services. The technology rather than operating wirelessly over the cellular towers extends the cell phone coverage over the proposed broadband pipe to the femtocell which then connects to the user's cellular phone. This again is something to market to the potential customers as a way to improve their cell phone coverage. This is particularly attractive if management elects to not promote a landline voice offering where femtocell service could be viewed as competition to the traditional landline voice service.

Other possible revenues may involve other local business like offering the monitoring of oil and gas sites. Monitoring of these sites and the accuracy and accountability of the wells with increasing environmental concerns is making constant monitoring the of wells common place. One requirement in monitoring wells is a broadband connection. This project could help fulfill this requirement and may be the only option for the oil companies.

Once the fiber network is complete with connections to the major carriers, middle mile opportunities are also possible over the fiber network with the option to lease either dark fibers or bandwidth. Such requests could come from state agencies, schools, hospitals, electric cooperatives, cable providers, CLECs or ILECs seeking additional bandwidth or alternate routes for redundancy. One such potential customer is FirstNet, the First Responder Network Authority. Signed into law on February 22, 2012, the Middle Class Tax Relief and Job Creation Act created FirstNet. The law gives FirstNet the mission to build, operate and maintain the first high-speed, nationwide wireless broadband network dedicated to public safety. FirstNet will provide a single interoperable platform for emergency and daily public safety communications. This broadband network will fulfill a fundamental need of the public safety community as well as the last remaining recommendation of the 9/11 Commission. FirstNet will bring 21st century tools to millions of organizations and individuals that respond to emergencies at the local, state, tribal and federal levels.





Other services may be considered by the Colville Confederated Tribes such as voice services to offer the triple play solution mentioned above. Two options are available as far as the technical solution to offer voice services. They can elect to purchase and deploy their own voice softswitch or utilize a third party for the switching services. Interconnects with the Public Switched Telephone Network (PSTN) will be required. This can be a time-consuming process and many service providers therefore elect to utilize a third-party switch provider on an interim basis until they can deploy their own switch and obtain the necessary PSTN interconnections. As mentioned above, regulated voice providers are also required to have ETC designations, offer Lifeline and Linkup to low income families, obtain their own 1,000 number blocks, offer local number portability (LNP) and coordinate with 911 PSAP centers. These are all factors to consider and why many providers elect to use a third party even long term for their voice switching solutions.

Another potential revenue stream is related to video services. As with voice services, there are a couple of options related to offering video services. The first two options are to either construct your own video headend which can easily cost \$1M or more or obtain the video content from another local provider. With providing your own headend additional negotiations are required with the content providers. The cost of a new digital headend is a substantial investment with small profit margins and the cost of the video content continues to rise. Many cannot justify the initial investment and are therefore eager to partner with another video provider.

Another video related service that is taking the country by storm is over the top video. Companies are now offering nationwide service with more of an a la carte channel selection and simply utilizing broadband pipes for the delivery mechanism. Dish Network is now offering a solution marketed as Sling TV starting at \$30 per month and includes major channels like ESPN. Again, these can be viewed by a subscriber on any broadband device including mobile phones. This is another reason why many broadband companies including the long time traditional rural telephone companies are having to shift their mindset to becoming more and more of a broadband pipe provider and allowing the end user to use this broadband pipe for video over the top or VoIP or Skype type communications. It may require additional negotiations with the content providers or other local video service providers but the Sling TV type video service should be explored as another service and revenue opportunity and could potentially expand the market from one rural community to a nationwide footprint.

Another growing service that is sweeping our nation is in the area of smart home and security technology. There are companies that specialize in these types of solutions and can assist with setting up the core system and offering ongoing support. Smart homes go well beyond security and power consumption. Today's smart home technology allows one to remotely monitor and control any and virtually all electrical appliances, thermostats, water,





lighting and much more. This is a growing industry and will someday be a given for all new home construction. Major telephone and broadband companies like AT&T are now pushing this industry through major marketing campaigns. Offering these types of services is not only an additional revenue stream but the opportunity to bundle these services with the proposed data plan should help in the subscriber take rate of the core data service offerings.

The management team may also want to consider offering computer networking and troubleshooting services with reseller opportunities for networking and computer equipment similar to the Geek Squad services. With nearly 2,500 additional subscribers projected over the next 3-5 years, beyond the existing PUD customers, this could be another company all to itself with a substantial revenue stream and additional job opportunities.

Last but not least we must consider the other job opportunities and trickle-down effect on the local economy. Bringing gigabit type broadband service to the region will have a significant impact on retaining existing businesses and attracting new businesses to the area. The growing trend today among many of the major corporations is allowing its employees to work from home. According to a 2012 report generated by the US Census Bureau, 9.5% of all workers worked at least one day per week from home while 6.6 % of all workers worked exclusively from home. Recent developments in the world have most likely changed this. With many more people working from home due to the Covid pandemic, the already taxed speeds and availability is made worse. It is imperative that fast, reliable broadband is available.

Among the fastest growing businesses in the country are those started by individuals out of their own homes. According to the same BLS report, of the 20.7 million who worked from home, nearly 23% were self-employed who had no other place of business. To make either of these employment options a legitimate possibility, broadband connections are a must.





### 11.0 Executive Summary

In addition to the financial feasibility of the project, there are the numerous indirect but positive economic impacts. However, in addition to the economic impacts of the proposed project, one must consider the other benefits to the community related to public safety, healthcare and education which is never more evident than in today's crisis with the COVID pandemic.

A broadband system as the one proposed herein, could also be used to provide internal communications among the public safety officials, medical responders and other city officials and departments.

Other advantages of high-speed broadband networks are for educational and medical reasons. The network could be used to connect with neighboring communities or metropolitan areas establishing a link between the local schools and libraries to major universities resulting in a distance learning network. This network would allow students and even adults to take college or vocational courses remotely without ever having to leave the area. Homeschooling continues to grow nationwide and is expected to grow exponentially after the COVID crisis is resolved. However, this again requires adequate broadband service.

Similar to the distance learning, the community could establish a more reliable and faster connection from the local medical clinics and hospitals to the major metropolitan hospitals providing a way to share medical records and for patients to be remotely examined by a specialist via telemedicine technology. More and more hospitals and doctors are now conducting virtual office visits where the patient uses their cell phone. With an adequate broadband connection in the patient's home and a home Wi-Fi network, the patient can use this for their virtual office visit. Through construction of the broadband network, this capability could also be expanded to mobile medical units and mobile nursing operations bringing state of the art medical facilities and examinations to the homes of all residents. As described further in this report, grant funding is also available for such telemedicine systems.

Typical of greenfield broadband networks, the pro forma predicts negative net income in the initial years and without grant dollars to assist, it will be difficult to ever show a positive cash flow. Searching for ways however to cut operating costs and to pursue the additional revenue streams discussed above, the proposed projects can achieve and surpass a breakeven analysis.





The PUD or Colville Confederated Tribes can utilize both the PUD and Nespelem Valley Co-Op experience and staffing to help reduce the operating costs and alleviate some of the difficulties with any new start-up.

The immediate and long-term employment and financial impact on the area cannot be overlooked with the ability to offer job opportunities to work for a major corporation from their home, or to establish a lucrative home-based business. Neither of these however are possible without broadband service.

As discussed in the attached, there are numerous low interest loan and grant opportunities for this proposed project. In most cases it is not simply a matter of obtaining a single grant to construct the entire network but it is a matter of prioritizing the service areas based on a cost benefit analysis and available funding and applying for multiple grants to construct the network over time. A detailed list of various funding opportunities is attached along with our best effort at a priority scoring system based on the factors above.



#### **FUNDING OPTIONS RESEARCH**

Multiple funding sources were investigated as part of this study including low interest loans, grants and other funding mechanisms. The funding sources are each unique in their applicant eligibility requirements, eligible purposes and terms. Below is a summary of the various funding agencies and programs available to the Okanogan County/Colville Confederated Tribes Broadband Action Team (BAT) for the deployment of the proposed broadband network.

Also attached is a ranking and recommendation of different funding opportunities for each of the 18 service areas. In some cases, more than one funding opportunity may apply or even be required to fulfill the complete buildout of an area.

A study was conducted utilizing the Rural Utilities Service Broadband Eligibility Map. With the exception of the BIP award to the Okanogan PUD, the only existing RUS borrower is Skyline Telecom Company, for a small area south of Oroville.

### **Funding Agency:**

Rural Utilities Service – United States Department of Agriculture (USDA)

### **Programs:**

Rural Broadband Loan Program

Telecommunications Infrastructure Loan Program

Community Connect Grant Program

ReConnect Loan & Grant Program

Distance Learning Telemedicine Grant Program

Electric Loan Program

### **Rural Broadband Access Loan Program**

- Low interest loan program
- This program is an annual program. Applications can be submitted at any time and will be evaluated and reviewed by RUS on a first come first serve basis. However, at this time, the program is on hold pending funding. Some of the requirements and eligibility bullet items below are therefore based on prior funding periods and certain program changes may be presented under the next round of funding.
- Single applications can range up to \$20,000,000 and cover multiple service areas.
- Amortization Period is based on the composite economic life of the facilities being financed plus 3 years. One year deferred principle payments.
- Interest rates are set on the treasury rate and referred to as "cost-of-money" loans and set at the time of each advance. Also available are direct 4% loans or a combination of the two.
- The applicant must also be able to demonstrate a 10% existing equity on their financials or additional cash support. The applicant must also show cash support for the sum of any years reflecting a negative cash balance over the five year forecast. For start-up companies or companies without two years of historical positive cash flow, only 50% of the revenues will be used to determine the additional cash support required.
- RUS also requires the first lien on all applicant assets and revenue. The first lien can be shared with other lenders.
- General eligibility requirements are as follows:
  - Applicant
    - For profit or non-profit organization and must be either an LLC, corporation, cooperative organization, federally recognized Indian tribe or tribal organization, or a state or local government or governmental agency
  - Service Areas
    - The proposed service areas must be rural by definition with a population of less than 20,000.
    - At least 15% of the households are "unserved" meaning they have no access to broadband service and no more than two service providers anywhere in the proposed service areas.

- Incumbent broadband providers are those offering service at a 25Mbps download and 3Mbps upload speeds.
- The service area must not overlap with an existing RUS borrower or grantee or pending applicant

### Eligible Purposes

- Facilities to provide broadband service at the lending speed of 25Mbps download and 3Mbps upload.
- Capital leases of up to three years for facilities to provide service at the broadband lending speed
- Pre-loan expenses of up to 5% of the total loan
- Acquisitions limited to 50% of the total loan amount

### o Ineligible Purposes

- Operating Expenses
- Any cost incurred prior to the application being deemed complete other than "pre-loan" expenses
- Acquisition of stock or facilities of an affiliate
- Vehicles not for construction
- Facilities leased under an operating lease
- In general, CPE equipment not owned by the applicant
- The Broadband Loan program is one option for funding the construction of a broadband network for the BAT. The program can fund 100% of the network, pre and post grant engineering efforts, customer premise equipment as well as construction vehicles and equipment and allow for a long term amortization period. The downside to this program is the difficulty for a start-up company and the additional cash support required depending on who is determined to be the actual applicant. The regulations above are also based on previous fiscal years and are subject to change. Future funding announcements are pending.

### **Telecommunications Infrastructure Loan Program**

- Low interest loan program
- This program is an annual program. Applications can be submitted at any time and will be evaluated and reviewed by RUS on a first come first serve basis.
- Minimum loan amount is \$50,000
- Amortization Period is typically based on the composite economic life of the facilities
  plus three years. Generally principle payments begin two years after the date of the
  note.
- Interest rates are set based on the time of loan and are all fixed rates
  - Cost of money loans based on the Current Cost of money to the Federal Government at the time of each draw and is based on the Federal Treasury Rate
  - Hardship loans are provided at a fixed rate of 5%.
  - Guaranteed Loans for applicants who request an RUS loan guarantee. The rate is agreed upon by the borrower and the lender.
- The applicant must demonstrate to RUS it has sufficient assets to support and secure the loan.
- RUS also requires the first lien on all applicant assets and revenue. The first lien can be shared with other lenders.
- General eligibility requirements are as follows:
  - Applicant
    - Entities providing, or who may hereafter provide, telephone service in rural areas;
    - Public bodies providing telephone service in rural areas as of October 28, 1949; and
    - Cooperative, nonprofit, limited dividend or mutual associations.
    - Must have sufficient authority to carry out the purposes of the RE Act; and
    - Must be incorporated or a limited liability company.

 The applicant if in a state that regulates telecommunications services, must obtain a certificate of convenience and necessity from the state (as part of RUS' non-duplication policy)

### Purposes

- Improvements
- Expansions
- Construction
- Acquisitions (in certain cases)
- Refinancing (in certain cases)
- Pre and post-loan engineering
- Ineligible purposes
  - Duplication of Telecommunications Services
  - Video equipment and services
  - Used or refurbished equipment
- SUTA provisions would apply with the opportunity to serve tribal lands.
- The Infrastructure loan program is the most common funding source for rural Incumbent Local Exchange Carriers. As with all RUS funding programs, this provides for a defense mechanism in that RUS will not loan to more than one borrower in a single service area. This program will fund 100% of the network and unlike the Broadband Loan program, no additional credit support would be required. However, the applicant is required to possess a Certificate of Convenience and Necessity from the State to serve the proposed funded service areas. It would be a difficult task for the Okanogan/Colville BAT to acquire the Incumbent Local Exchange Carrier (ILEC) status and become the regulated service provider but this may be an opportunity for the Colville Tribes territory. ACRS assisted more than one tribal nation with acquiring this status and takin over as the regulated ILEC telephone provider and acquiring and upgrading the existing facilities from the existing ILEC.

# **Community Connect Grant Program**

- Competitive grant program design for low income, low populated areas void of any
  existing broadband service. The Community Connect Grant program will fund a
  single Proposed Funding Service Area (PFSA) per application. The PFSA must be a
  contiguous area that may encompass several communities.
- This program is an annual program. Applications are only accepted once a year with a specific deadline typically 60 days after the Notice of Funds Availability. Fiscal year 2021 was just announced with applications due December 23, 2021.
- The annual fiscal year budget in most recent years has been around \$25 million with the average size application around \$750,000. Applications are limited to \$3,000,000 and one award per applicant per fiscal year.
- Matching requirements are a minimum of 15% of the total budget. The match must be in cash.
- Scoring is based on a total of 100 possible points. The scoring criteria are based on:
  - Challenges within a PFSA, including economic, educational, health and public safety issues, (50 points)
  - Local participation of the proposed service area residents and businesses,
     (40 points)
  - Management experience (10 points)
  - Other considerations in making a decision include, but are not limited to, persistent poverty, out-migration, rurality of the PFSA, speeds offered, and a high rate of disability among the residents.
- General eligibility requirements are as follows:
  - Applicant
    - Must be a legally organized incorporated organization, Indian Tribe or Tribal organization, state or local unit of the government, cooperative, private organization or a limited liability company.
    - The applicant must have the legal authority to own and operate a broadband system.
    - The applicant may NOT be an individual or partnership.
    - The applicant must operate a community center for residents' access to broadband for a period of 2 years.
  - Purposes

- The grant requires free broadband service to all "Critical Community Facilities" such as police, fire, schools, hospitals, etc. for at least two years.
- Existing broadband under this program is defined as 10Mbps down/1Mbps up with the minimum grant speed by the recipient being 25/3 Mbps. One change to this year's program is the exclusion of mobile/cellular service as existing service.
- Ineligible purposes
  - Duplication of existing broadband service
  - o Facilities to provide local exchange telecommunications services
  - Pre-grant and application preparation costs
- The Community Connect Grant Program is for a specific target area. The program will only fund one PFSA per application and to be successful, the application must show economic, educational, health and public safety needs. The other major hurdle is the absence of any type of existing broadband service. This is an excellent program but the challenge is locating eligible service areas.

# **Broadband ReConnect Program**

- The ReConnect program is a competitive loan and grant program that provides funds for the cost of construction, improvement, or acquisition of facilities and equipment to provide broadband service in eligible rural areas.
- Loan or grant, or a combination loan/grant application are accepted during the window of opportunity. The 2020 window has closed, and there is not yet an announcement for the next funding window.

# Funding Limits

#### 100 Percent Grant.

Up to \$200,000,000 is expected for grants. The maximum amount that can be requested in an application is \$25,000,000.

# 50 Percent Loan / 50 Percent Grant.

Up to \$200,000,000 is expected for loan/grant combinations. The maximum amount that can be requested in an application is \$25,000,000 for the loan and \$25,000,000 for the grant. Loan and grant amounts will always be equal.

# 100 Percent Loan.

Up to \$200,000,000 is expected for loans. The maximum amount that can be requested in an application is \$50,000,000.

# • General Eligibility Requirements:

- Cooperatives, non-profits, or mutual associations
- o For-profit corporations or limited liability companies
- States, local governments, or any agency, subdivision, instrumentality, or political subdivision thereof
- A territory or possession of the United States
- An Indian tribe (as defined in section 4 of the Indian Self-Determination and Education Assistance Act (25 U.S.C. § 450b)).

# • Eligible Funding Purposes:

- To fund the construction or improvement of buildings, land, and other facilities that are required to provide broadband service.
- o To fund reasonable pre-application expenses.

- To fund the acquisition and improvement of an existing system that is currently providing insufficient broadband service (100 percent loan request only)
- To fund terrestrial-based facilities that support the provision of satellite broadband service.

# **Distance Learning Telemedicine (DLT) Grant Program**

- Competitive grant program for the specific purpose of funding equipment for telemedicine and distance learning networks. Loan and combination loan/grants have also been available in previous years. However, the availability of grant vs. loan dollars has varied over the years. In recent years only the grant program is available.
- This grant program is an annual program. Applications are only accepted once a
  year with a specific deadline typically 60 days after the Notice of Funds Availability.
  Announcement of the program is typically sometime in the 1<sup>st</sup> or 2<sup>nd</sup> quarter but this
  also varies from year to year. The loan programs and combination loan/grants are
  accepted year round.
- The budget varies from year to year. Grant applications can range from \$50,000 to \$500,000.
- Matching requirements are a minimum of 15% of the total budget. Matching can be any eligible grant purpose and met through cash or in-kind support.
- With the DLT program, the higher the matching, the higher the score.
- General eligibility requirements are as follows:
  - Applicant
    - Must be a legally organized incorporated organization, Indian Tribe or Tribal organization, state or local unit of the government, cooperative, private organization or a limited liability company.
    - The applicant must have the legal authority to own and operate a broadband system.
    - The applicant may NOT be an individual or partnership.
  - Purposes
    - Purposes Eligible for 100% Grant
      - Acquisition of eligible capital assets:
        - o Interactive video equipment
        - Audio and video equipment
        - Terminal equipment
        - Data terminal equipment
        - Inside wiring
        - Computer hardware and software
        - o Computer network components
        - Other facilities that further DLT services

- Acquisition of instructional programming that is a capital asset
- Acquisition of technical assistance & instruction for using eligible equipment
- 10% of the grant amount may be used for the construction of the broadband infrastructure.

# Ineligible purposes

- Operating expenses for the grant program.
- The grant program will not fund the bandwidth or telecommunications services for the delivery of the distance learning and telemedicine content.
- o Pre-grant and application preparation costs
- The DLT program is ideal for funding equipment required for schools and hospitals or medical clinics. The program is limited on what it will fund but for established facilities in need of these types of services or equipment for these services, this program can be an excellent solution.

# Program:

# **Other USDA Programs**

# **SUTA – substantially Underserved Trust Areas**

- The SUTA program is not a standalone program but more of a proposed rule within the USDA Rural Development that could affect the qualification and scoring of the programs above and starting with the 2021 fiscal year, this includes the Community Connect program. The ruling is focused on applications proposing to serve Trust lands.
- Examples of some impacts on the existing programs are potentially waiving the nonduplication rule of the Rural Utilities Service and eliminating or reducing the matching and cash support requirements.
- Applications filed under SUTA guidelines will also be giving first priority over other applications during the review process.

# **Community Facilities Loan & Grant**

- This is another program under the USDA Rural Development for the funding of constructing anchor institutions.
- The program is for non-profit organizations, municipalities and tribal governments.
- The program will also pay for some of the broadband connections and some public safety related equipment.
- Scoring for grants are partially based on low income and rural communities.

# **Funding Agency:**

Department of the Interior - Bureau of Indian Affairs

# **Programs:**

#### **BIA Loan Guarantee Fund**

- Bureau of Indian Affairs (BIA) provides guaranteed/insured loans to Federally Recognized Indian Tribal Governments, Native American Organizations, and individual American Indians in obtaining financing from private sources to promote business development initiatives on or near Federally Recognized Indian Reservations.
- The financial assistance must be used on or near an Indian Reservation.
- This program has been used in the past in conjunction with obtaining a long term Infrastructure loan from the Rural Utilities Service.
- Economic enterprises must demonstrate a reasonable prospect for repayment, must be organized for profit, and be at least 51% Indian owned and actively managed.
- Project must provide economic development to a federally recognized Indian reservation.
- Maximum percentage of guaranty is 90% of unpaid principal and interest. Borrower must have 20% equity in business being financed. Loan guarantees are limited 30year terms.
- Range of Financial Assistance: For individuals and tribal enterprises, \$2,500 to \$500,000. For Federally Recognized Tribal Governments and Native American Organizations, \$10,000 to \$7 million.
- Applications for loan guarantees should be submitted by the lender at the local Bureau of Indian Affairs Agency or Tribal Loan Administration Office. Lenders should contact the local office for information on documentation needed to complete an application.
- Action approving or disapproving loans is taken at various levels pursuant to delegated authority. The Bureau of Indian Affairs Regional or Field Office or Tribal Loan Administration Office notifies applicants of action taken on applications within 15 to 30 days.

# **Miscellaneous BIA Grant Programs**

There are multiple BIA grant programs available to Tribes, many of which could potential be combined in an effort to fund portions of the proposed broadband network. Below is a brief summary of several of these programs which should be investigated further and pursued where possible upon implementation of the network.

Aid to Tribal Government (15.020) – This program is design to support general tribal government operations, maintain up to date tribal enrollment, tribal elections, etc.

Indian Law Enforcement (15.030) – This program provides funding opportunities to tribal governments to operate police department and detention facilities. The program covers the costs associated with salaries and related expenses of officers and dispatchers among other related positions.

# **Funding Agency:**

Federal Communications Commission (FCC)

#### **Programs:**

The Federal Communications Commission (FCC), as directed by Congress and with the help of the Universal Service Administrative Company (USAC), administers the federal Universal Service Fund (USF).

The federal USF pays for four programs. They are:

- Lifeline/Link-Up. This program provides discounts on monthly service and initial telephone installation or activation fees for primary residences to income-eligible consumers.
- High-Cost. This program ensures that consumers in all regions of the nation have access to telecommunications services at rates that are affordable and reasonably comparable to those in urban areas.
- Schools and Libraries. This program makes discounts available to eligible schools and libraries for eligible telecommunications services, Internet access and internal connections so that schools and libraries may have access to affordable telecommunications and information services.
- Rural Health Care. This program helps link health care providers located in rural areas
  to urban medical centers so that patients living in rural America will have access to the
  same advanced diagnostic and other medical services that are enjoyed in urban
  communities.

The FCC recently voted unanimously to reform the USF fund. The fund recently provided for the Connect America Fund (CAF Auction) which subsidized carriers for the deployment of broadband services rather than the traditional USF fund focusing on traditional telephone service

As part of the USF reform to the Connect America Fund, the FCC conducted Rural Broadband Experiments in 2015 and more recently completed the CAF II auction.

The program essentially offers support to rural broadband service providers in price cap carrier areas such as Windstream and AT&T where broadband is not available and where the price cap carriers have declined the support to upgrade their rural networks. The funds were available through a reverse auction type arrangement and are structured by census blocks from a map generated largely on FCC 477 reporting. The federal support is for 10 years to help subsidize serving rural areas and is not intended to be grant money to construct the entire network. The support can in some areas however come to \$50 per household per month in additional revenues.

One requirement from the 2015 experimental round was acquiring eligible telecommunications carrier status. Under the experimental round, the ETC designation could be obtained subsequent to being awarded the funding.

# **Rural Digital Opportunity Fund (RDOF)**

The Rural Digital Opportunity Fund is the FCC's next step in bridging the digital divide to efficiently fund the deployment of broadband networks in rural America and is essentially the next round of a revamped CAF auction. Through a two-phase reverse auction mechanism, the FCC will direct up to \$20.4 billion over ten years to finance up to gigabit speed broadband networks in unserved rural areas, connecting millions of American homes and businesses to digital opportunity.

The RDOF Phase I auction short forms application deadline has passed and the FCC, as of the time of this report, is currently working to approve all applicants for participation in the auction. The auction is scheduled to begin on October 29, 2020 and will target over six million homes and businesses in census blocks that are entirely unserved by voice and broadband with speeds of at least 25/3 Mbps. Phase II will cover locations in census blocks that are partially served, as well as locations not funded in Phase I.

#### 5G Fund for Rural America

The Federal Communications Commission has adopted rules creating the 5G Fund for Rural America, which will distribute up to \$9 billion over the next decade to bring 5G wireless broadband connectivity to rural America. 5G represents the latest advance in mobile wireless technology, promising increased speeds, reduced latency, and better security than 4G LTE networks. The 5G Fund will use multi-round reverse auctions in two phases to target support from the Commission's Universal Service Fund to eligible areas based upon the improved mobile broadband coverage data gathered in the Commission's Digital Opportunity Data Collection proceeding. Establishing the 5G Fund further secures United States leadership in 5G and will close the digital divide and bring economic opportunities to rural America.

Phase I of the 5G Fund will target up to \$8 billion of support nationwide to areas lacking unsubsidized 4G LTE or 5G mobile broadband, with \$680 million specifically set aside for bidders offering to serve Tribal lands. To determine eligible areas, the auction will use granular, precise mobile broadband coverage data developed in the Digital Opportunity Data Collection proceeding, allowing the Commission to more efficiently target funding to areas of the country where support is most needed, while ensuring support is spent as efficiently as possible. Phase II will provide at least an additional \$1 billion, along with any unawarded funds from Phase I, to specifically target the deployment of technologically innovative 5G networks that facilitate precision agriculture.

#### STATE FUNDING OPPORTUNITIES:

# **Washington State Dept. of Commerce**

#### **CERB Rural Broadband Program**

CERB provides low-interest loan/grant packages to local governments and federally-recognized Indian tribes, financing the cost to build infrastructure to provide high-speed, open-access broadband service, to rural underserved communities, for the purpose of community economic development. CERB offers loans at \$2 million maximum per project. Grants are available up to 50% of the total award, determined by the underwriting process and debt service coverage ratio (DSCR). Applicants must provide a cash match of 25% of the total project cost and demonstrate feasibility with a supporting study. Interest rates vary from 1 to 3%, and the term is up to 20 years.

#### Eligible Activities

Eligible projects are those that encourage, foster, develop, and improve broadband within the state in order to:

- Drive job creation, promote innovation, and expand markets for local businesses; or
- Serve the ongoing and growing needs of local education systems, health care systems, public safety systems, industries and businesses, governmental operations, and citizens; and
- Improve accessibility for underserved communities and populations.

#### Ineligible Activities

CERB may not finance projects which:

- Result in retail development
- Facilitate gambling
- Displace jobs from one part of the state to another
- Are outside the applicant's jurisdiction
- Are for equipment which would enable a public entity to provide retail telecommunications services or services that the entity is not authorized by statute to provide.
- Are for the deployment of publicly-owned telecommunication network infrastructure ("backbone") solely for the sake of creating competitive, publicly-owned telecommunication network infrastructure.

https://www.commerce.wa.gov/building-infrastructure/community-economic-revitalization-board/rural-broadband/

# **Washington State Public Works Board**

The Washington State Public Works Board has funds available for low-interest loans and grants to bring broadband to unserved Washington communities for broadband infrastructure construction projects.

Cities, towns, counties, public port districts, special purpose districts, quasi-municipal corporations, tribes, nonprofit organizations, cooperative associations, limited liability corporations organized for the purpose of expanding broadband access, and incorporated businesses or partnerships are eligible to apply.

State law (RCW 43.155.160 (5) (o)) requires applicants to contact local Internet service providers (ISPs) near the proposed project area at least six weeks prior to submitting an application for funding. Applicants must request the ISP's plan to upgrade broadband service in the project area to speeds that meet or exceed the state's definition of broadband service, within the time frame of the proposed project. Applicants must submit documentation of this interaction with their application.

https://www.commerce.wa.gov/building-infrastructure/pwb-broadband/

#### **OTHER FEDERAL OPPORTUNITIES:**

#### **Dept. of Homeland Security**

# Tribal Homeland Security Grant Program (THSGP)

THSGP provides funding directly to eligible tribes to strengthen their capacities to prevent, prepare for, protect against, and respond to potential terrorist attacks. There are three areas that are of the most concern: enhancing cybersecurity, enhancing the protection of soft targets/crowded places and addressing emerging threats such as transnational criminal organizations, weapons of mass destruction and unmanned aerial systems.

There are several enduring security needs that are part of a comprehensive approach to securing communities, and are labeled as priorities by this funding program:

- 1. Effective planning
- 2. Training and awareness campaigns
- 3. Equipment and capital projects
- 4. Exercises

Addressing any or all of these increases an applicant's chance of securing a grant under this funding program.

https://www.fema.gov/media-collection/tribal-homeland-security-grant

#### **EDA Public Works**

# **Economic Adjustment Assistance Programs including CARES Act Funding**

Under this NOFO, EDA solicits applications from applicants in order to provide investments that support construction, non-construction, planning, technical assistance, and revolving loan fund projects under EDA's Public Works program and EAA program (which includes Assistance to Coal Communities and Nuclear Closure Communities). Grants and cooperative agreements made under these programs are designed to leverage existing regional assets and support the implementation of economic development strategies that advance new ideas and creative approaches to advance economic prosperity in distressed communities, including those negatively impacted by changes to the coal economy and nuclear power plant closures.

There are no submission deadlines under this opportunity. Applications will be accepted on an ongoing basis until the publication of a new PWEAA NOFO.

# **Eligible Applicants**

County governments

Nonprofits that do not have a 501(c)(3) status with the IRS, other than institutions of higher education

Special district governments

Native American tribal governments (Federally recognized)

Public and State controlled institutions of higher education

Nonprofits having a 501(c)(3) status with the IRS, other than institutions of higher education

City or township governments

State governments

Private institutions of higher education

**Award Ceiling:** \$30,000,000

**Award Floor:** \$100,000

https://www.grants.gov/web/grants/view-opportunity.html?oppId=321695

# **Partnerships & Private Investors**

Another option is to partner with either private investors or with existing service providers. The advantage of partnering with an existing provider can be numerous as the overhead, expertise and many other challenges can be avoided while still benefiting from the branding of the product and sharing in the revenues and profits.

In this case, the Nespelem Valley Electric Cooperative serving the Colville tribes territories has already expressed an interest in being a partner in the deployment of broadband services. One option is, as an existing RUS Borrower under the Electric program, to be the primary borrower for a broadband loan. Other option is a joint venture where the electric cooperative offers free pole attachments in exchange for either dark fiber, broadband and/or a portion of the revenues.



# Okanogan-Colville Broadband Service Area Prioritization

		Prioritization Score			1
Service Area	Existing Service Providers	Funding Opportunities/ Lack of Service	Subscribers/ Benefits	Cost/Required Investment	Total Composite Score
Aeneas	1	2	8	1	11
Brewster	2	2	9	4	15
Chillwisp	1	5	1	8	14
Conconully	1	5	5	6	16
Crumbacher	1	5	4		
East Omak	3	1	8		
Harmony Heights	3	1	1		
Keystone	1	5	3		
Knob Hill	2	, 2			11
Loomis-Palmer		10			
Malott		2	8		
NE Okanogan County		5			
North Omak		5			
Omak Flats		5			
Orchard Grade		5			40
Oroville	3	1	10		
Palmer		10			
Pateros		2			
Riverside		5			
S. Pine Creek NTIA		5			
S. Pine Creek Rd.		5			
Salmon Creek Rd.	2	, 2			
Synarep	1	5		4	13
Whitestone		5			
	<u> </u>				17

NOTES:

Scoring System 1-10, 10 being highest priority



# OKANOGAN COUNTY BROADBAND ISSUES/PROBLEMS/SOLUTIONS

#### **Background on Existing Service**

The Okanogan County PUD currently offers broadband to the communities from the Canadian border to Pateros and from Pateros to the Methow and from the Methow back central county. They also have service into Pine Creek, Poor Man Creek, Palmer Lake, and Loomis, all school districts and hospitals. Every mile and half they have fiber access node appearances up Highway 97 and over to the Methow. The PUD desires to extend fiber to Chesaw and Omak Mountain.

Ron Gadeberg stated that the PUD currently has about 450 direct fiber connections and 2,500 wireless connections. Tim Andrist with NCIData stated that they have 80 towers and get a couple of inquires a week, but the cost is what currently prevents people from signing up.

#### **Needs Identified in BAT Meetings**

Below are a few highlights and comments from some of the BAT meetings.

David Grooms stated that fiber is critical to US Electro Dynamics. He also stated that they are not interested in 5G, but CBand and KA Band.

Scott Graham stated that the hospitals need more broadband to meet the needs of patients and also the requirement of the government. They are going to see more robotics and want to be able to access 5G.

Brett Reiley with Wenatchee Valley College stated that they need broadband for all students to access. Most students in Omak are highly grant dependent so most do not even have access to broadband at home.

How broadband might be used to improve emergency communication systems.

- Burn ban regulations
- Implantation through internet and social media
- Dependent on internet for government regulations, without it you are impaired

# Okanogan PUD needs:

- Last mile opportunity grants
- Connection to home/business
- Redundancy/Resiliency's and bolstering within county middle mile projects

#### **Local Business:**

- Educational Services/Libraries: Internal is good, 33-50% of kids do not have access to internet
- There is a lot more we can do if we/students had access-livability
- Apprenticeship opportunities, building skills, the tools are there we just have to be able to have the bandwidth to access
- Technology-educational opportunities that will need to happen if people have it
- K-12 career development and geography is a big issue virtual reality could be used. Interactive websites
- Infrastructure-lay fiber (synergy with county and construction projects)
- Medical Services: Fiber run from Tonasket to Omak and importance of redundancy. Telemedicine and recruiting new doctors.

#### Tribal needs:

- They currently have limited broadband and maps, they want to get off of casinos network and get the Government Center on its own network.
- Crossing bridges are a challenge
- Challenges with the soil and ground while using the micro trencher.
- There is a gap between Paschal Sherman Indian School and Nespelem that is a 20 mile stretch that is without fiber on Disautel Pass.

# City/County/Tribe:

- Public Safety-radio
- Data for GPS locations large incidents have GPS requirements
- Vehicles
- Video from 911 network, fire service

#### **Medical Services:**

- 3 Rivers-bandwidth and redundancy, expand and offer telehealth with end user access
- Most patients have issues with accessing their records due to lack of wireless and broadband access
- Telemedicine. Employees who live far out cannot connect due to their lack of Internet capacity

#### **Needs Identified in Service Provider Surveys**

As part of our outreach and research of the existing services and network capabilities vs. the needs of the area, individual interviews were conducted with several of the existing service providers who utilize the PUD network. Below is a summary of some their comments with many of these being a common theme. The items below should provide value to the PUD and Colville Tribes and offer insight as to a direction and priority for network upgrades and expansions and other ways to improve the existing service.

- Gaps in the service areas
- County regulations too strict on towers and even for shorter towers and tower colocations and even colocations on grain elevators
- No ability to expand on the tribal areas due to tribal regulation 4-22 and the tribal fees related to towers and tower colocations
- Employment requirements and lease land are obstacles
- Foliage is an issue with the wireless technology
- In the wireless areas: biggest problem is the congestion of the wireless spectrum
- PUD only goes up to around 20 Mbps due to congestion
- Other competitors with their own network offer higher speeds and therefore it is hard to compete
- Would like to see more fiber to the existing towers
- Very limited last mile FTTH facilities
- Would be great if PUD extended their FTTH network
- High cost of bandwidth and data usage and can only offer 100 Mbps
- Cost is too high to extend fiber to a house off of the exiting mainline fiber and for the customer install
- Very little profit after paying the PUD fees

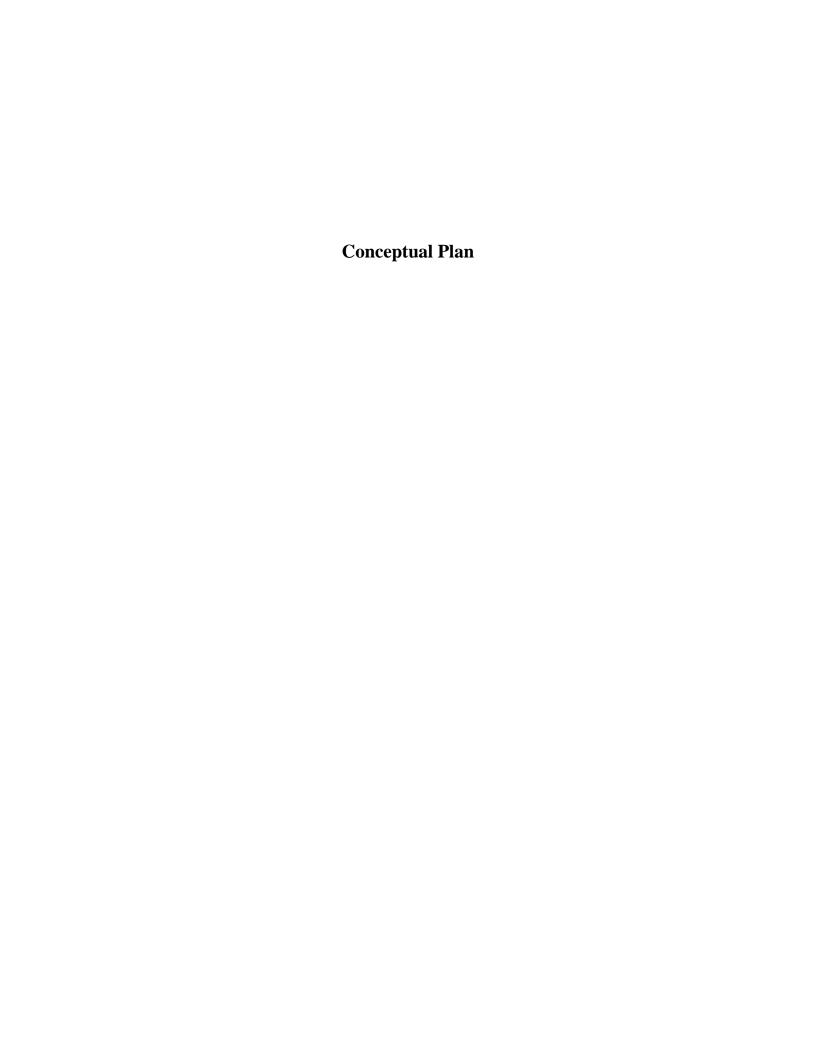
#### **Needs Identified in Customer Surveys**

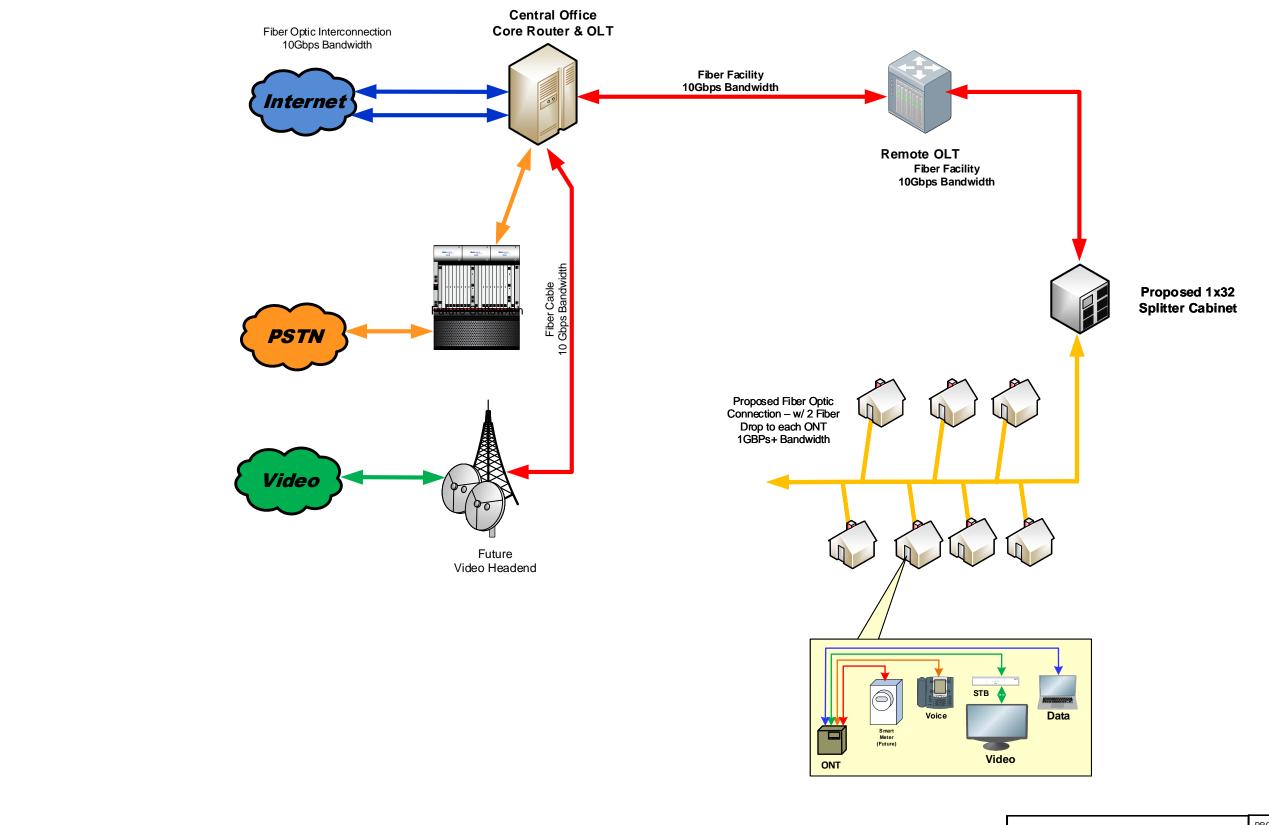
A survey conducted via Survey Monkey elicited a number of responses regarding the biggest problems, needs, issues with broadband in the area. Respondents came from all over the area, and represent many industries. Over 60% checked "other" service provider, indicating that over 60% of the area residents do not have access to local service providers. When asked is your data service reliable, 40.3% said yes, the remainder (59.7%) said either no (37.31%) or had a negative response to their service reliability.

Most respondents (48.48%) were happy with the quality of customer service, 21% were neutral, and 30.31% responded negatively about the quality of customer service.

The survey offered an opportunity for respondents to comment about their current services, to share any issues they have or gaps they see in the current system/services and to state their personal goals for the planning study.

The survey responses and a map showing where the respondents are from are attached to this section as an exhibit.







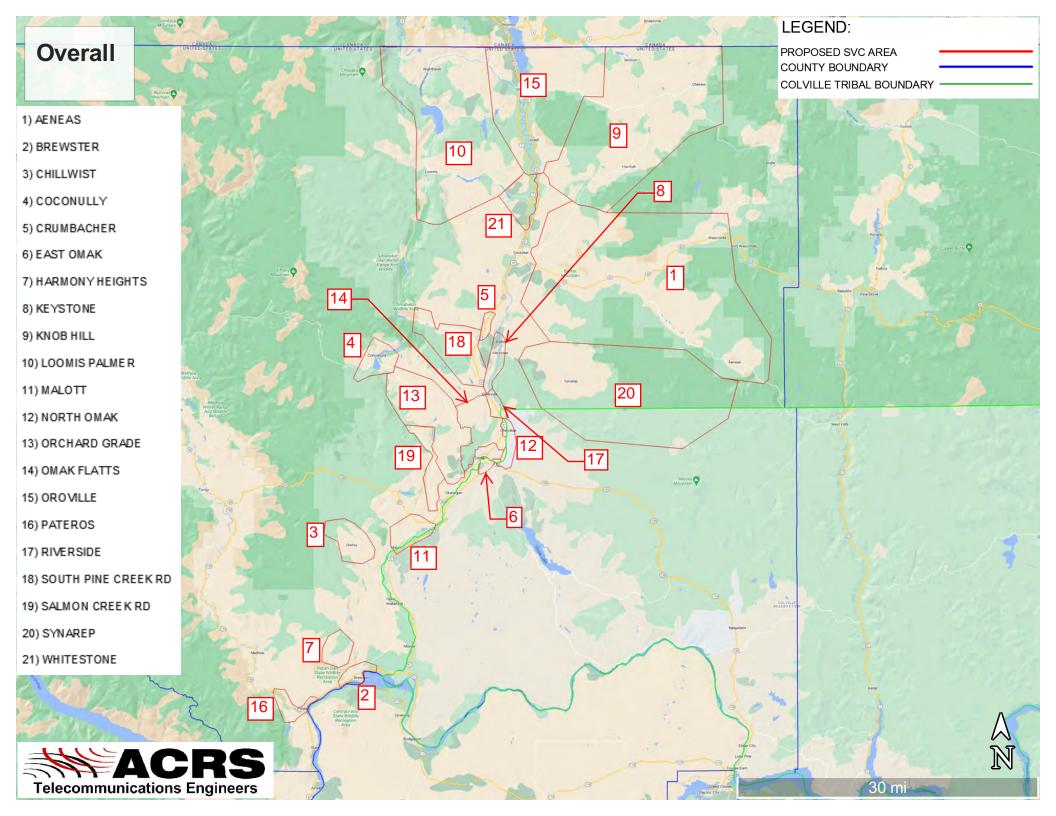
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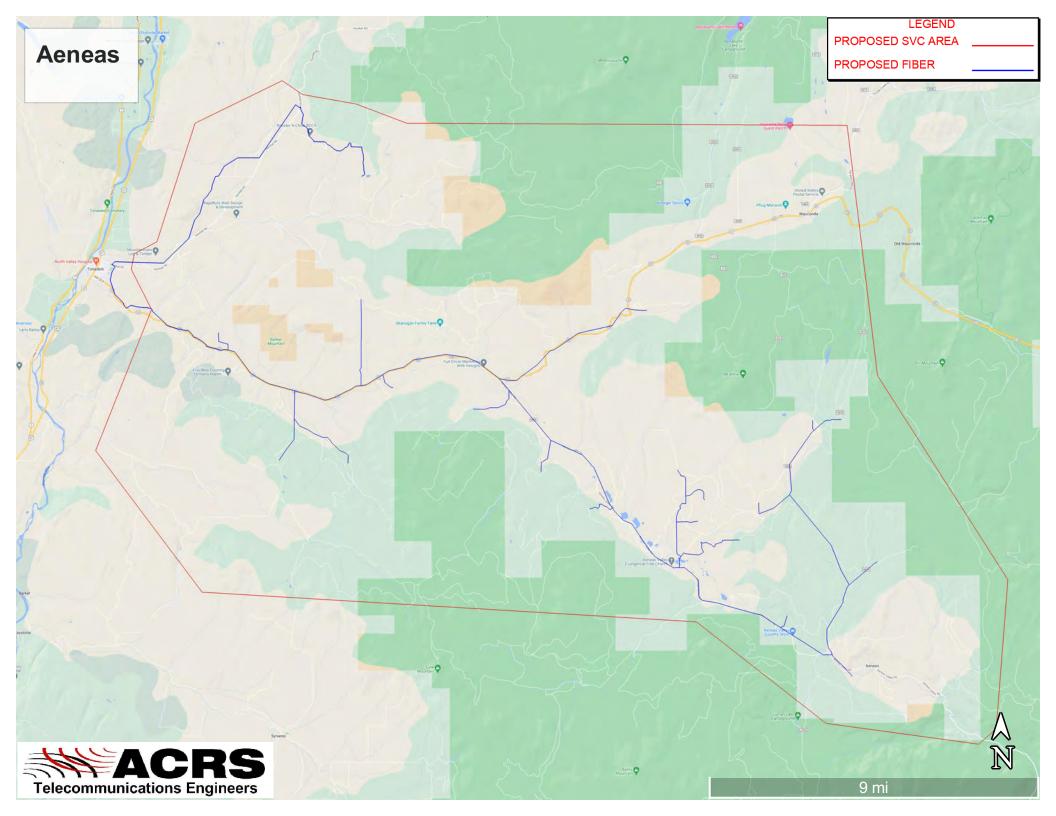
Typical FTTH Deployment

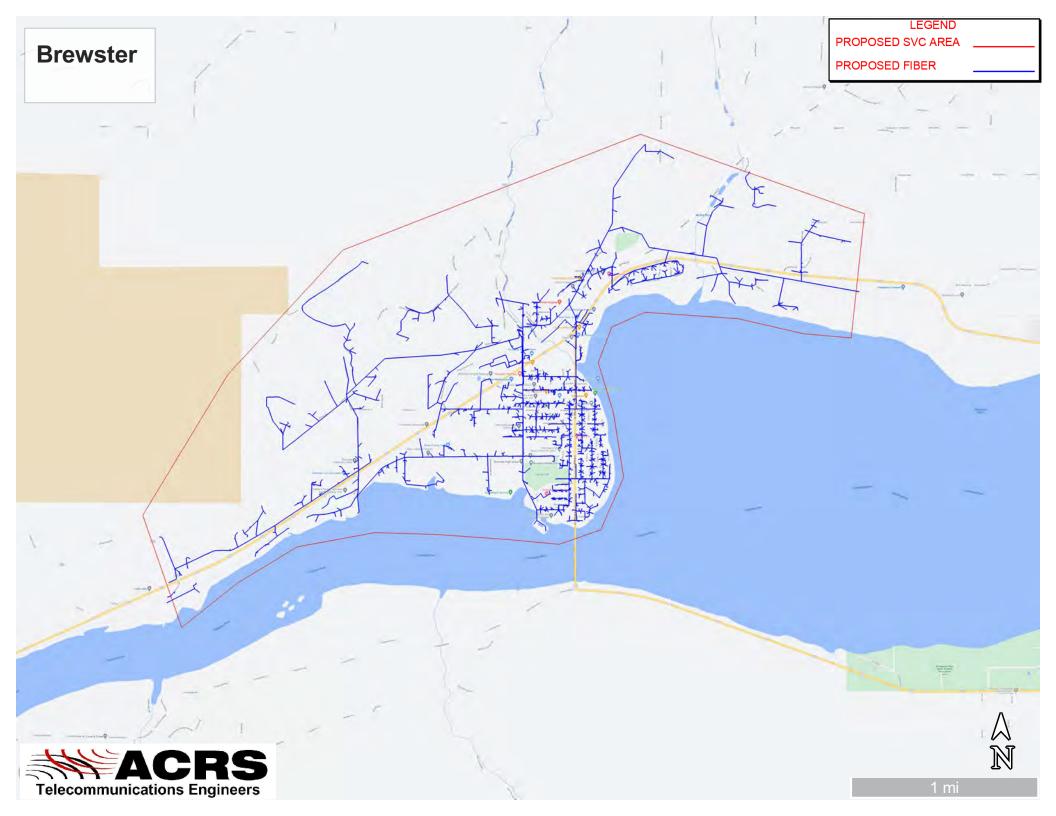
SHEET:

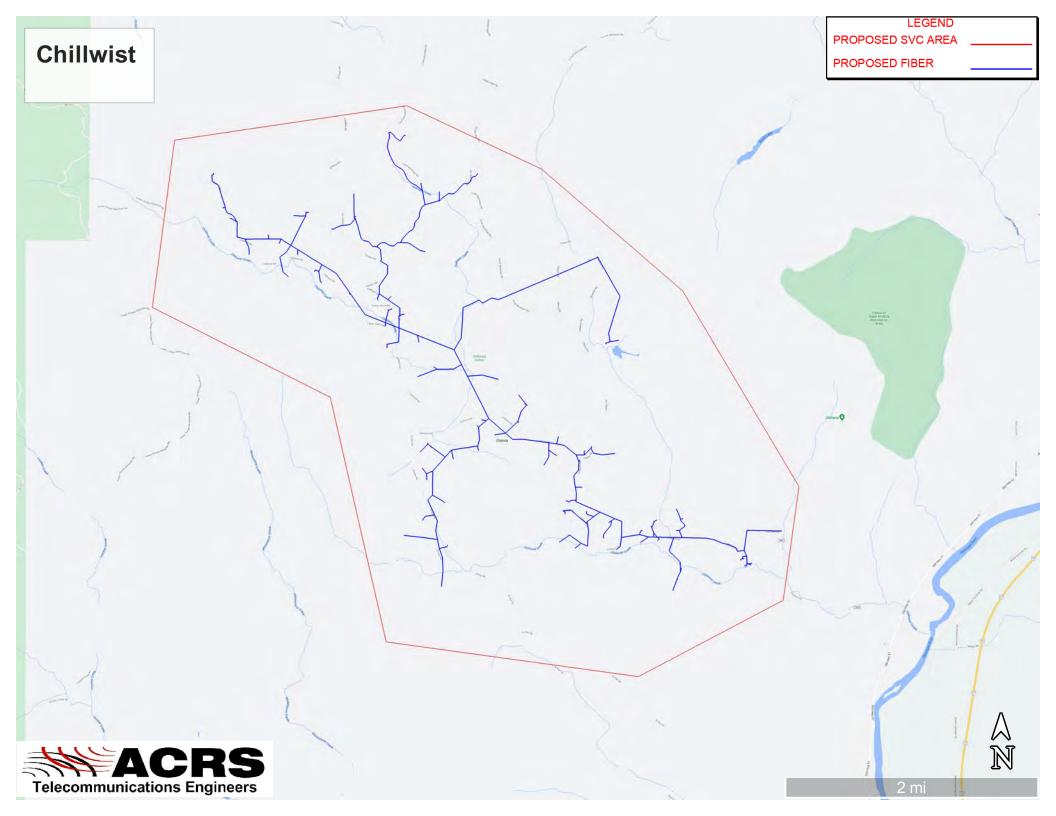
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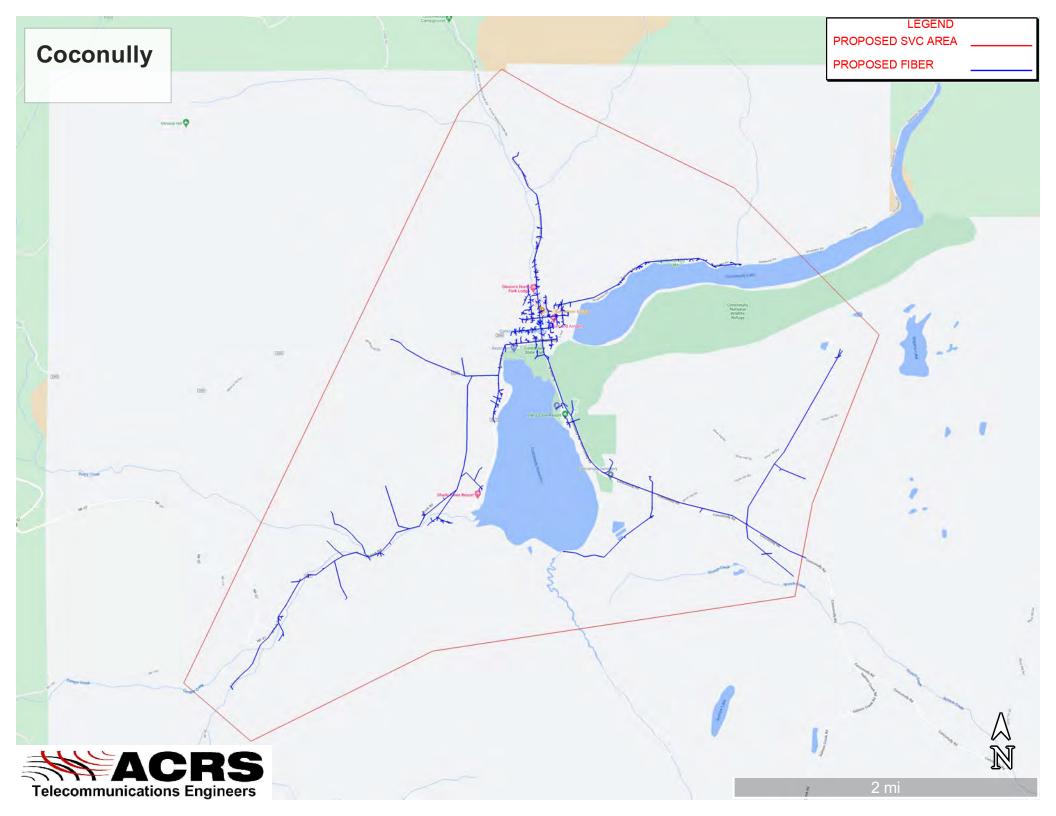
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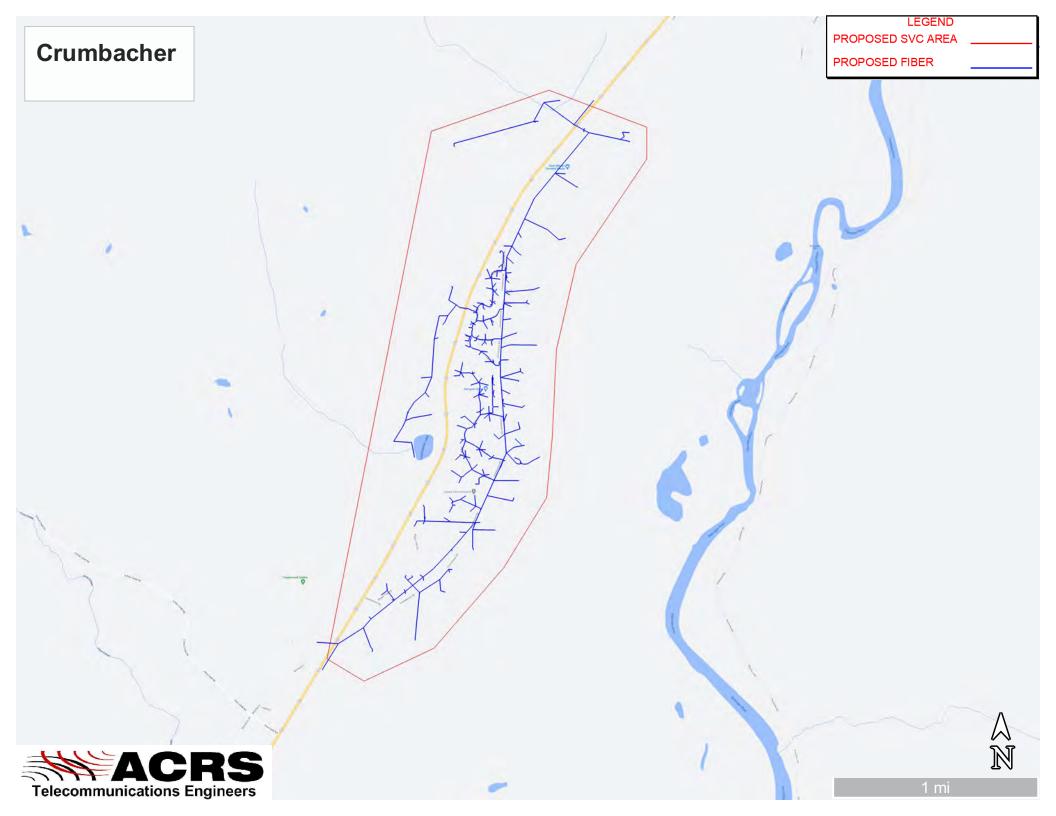


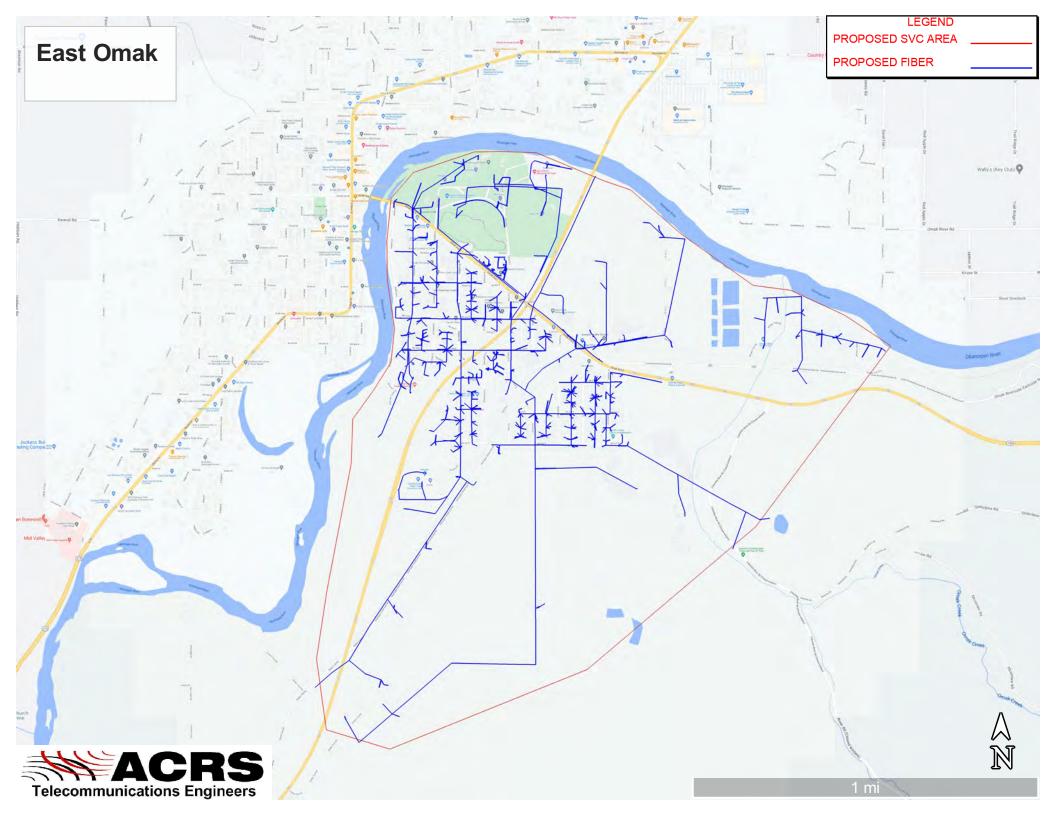


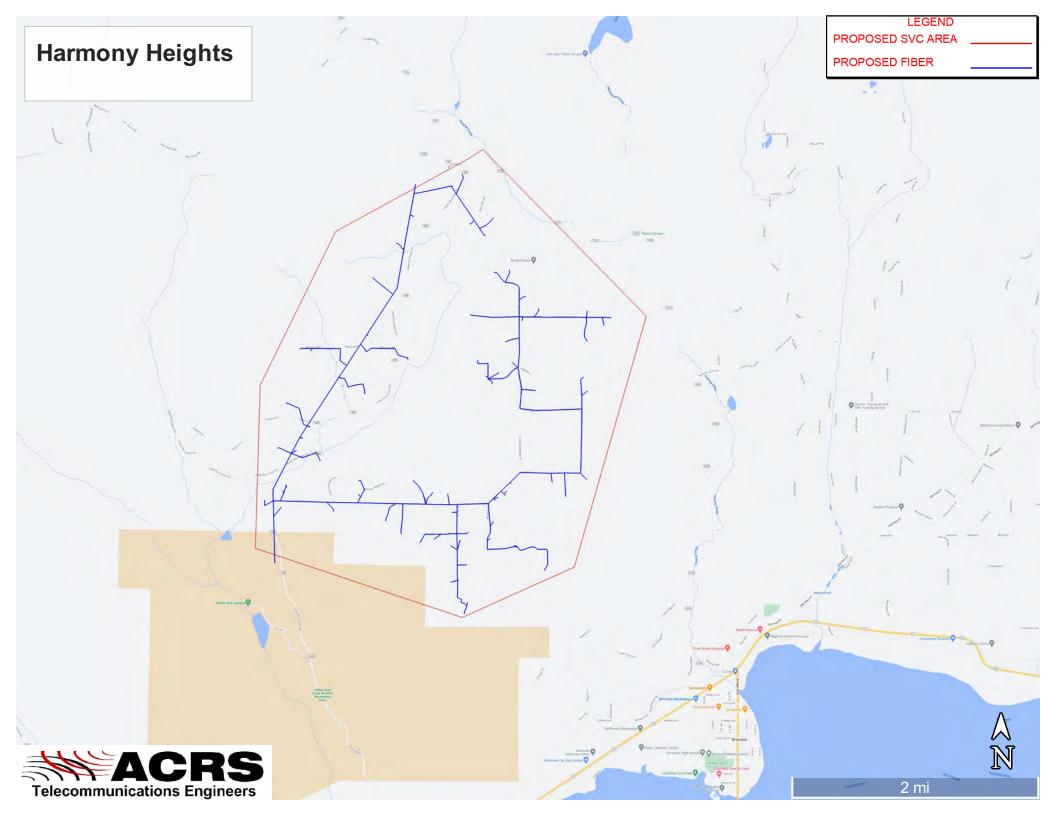


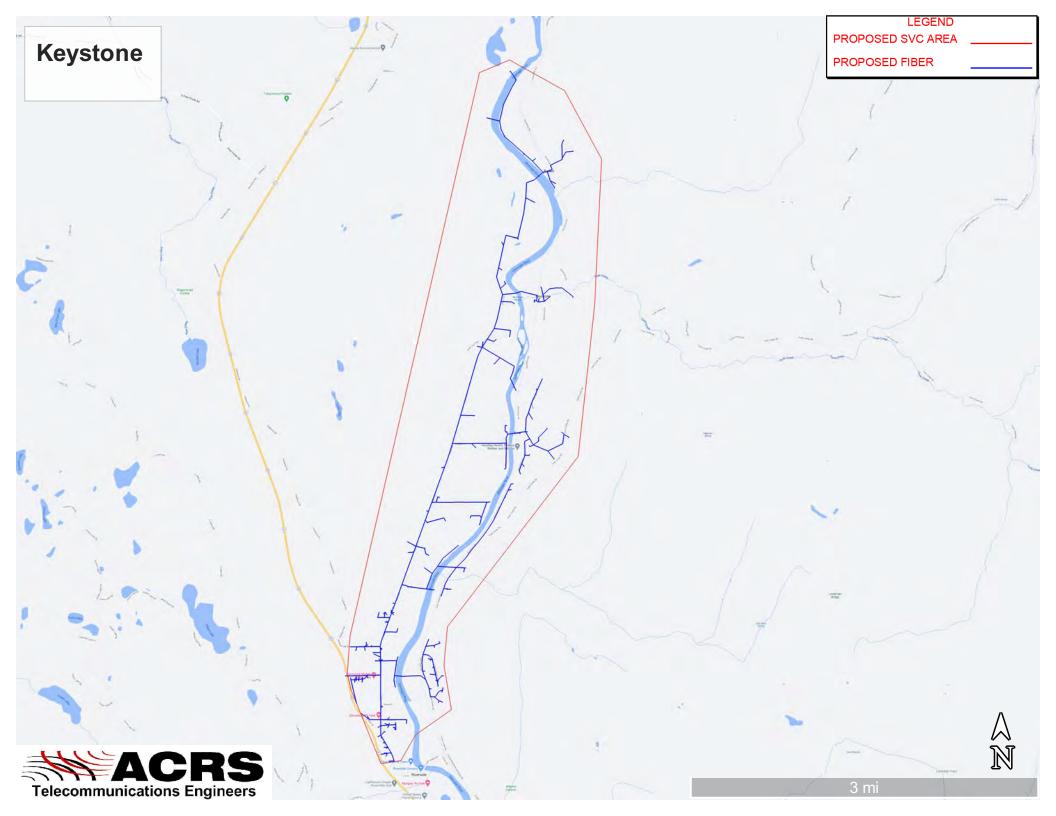


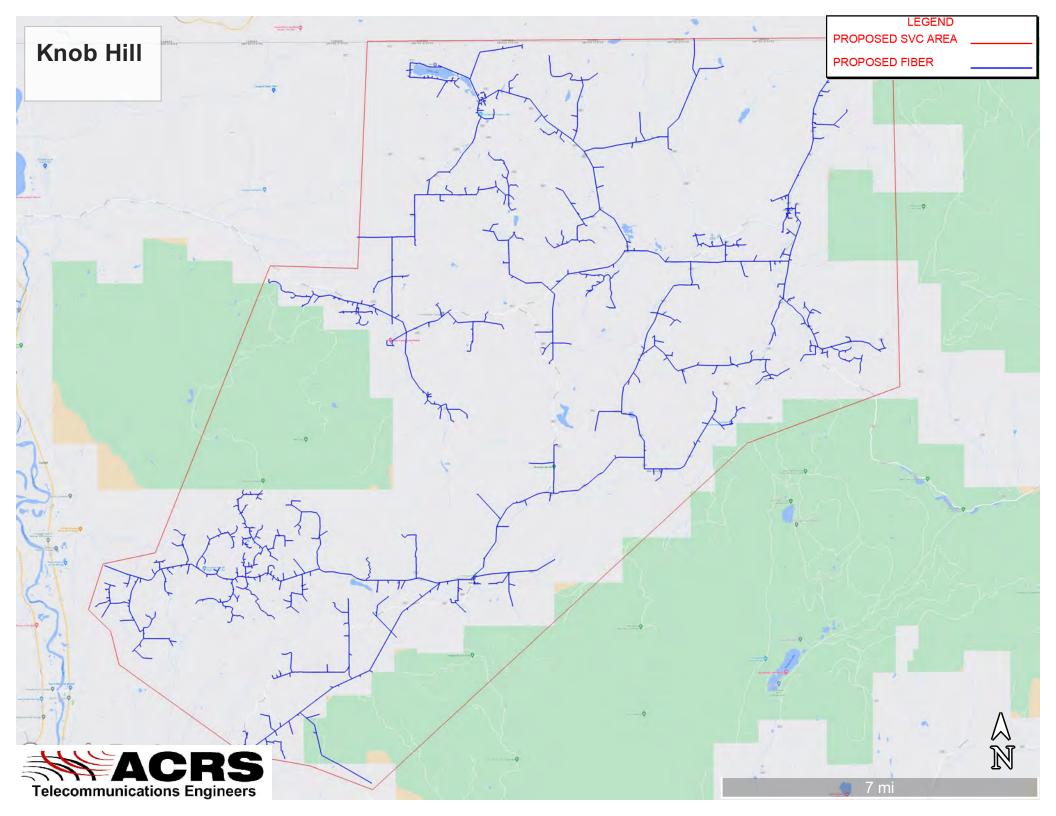


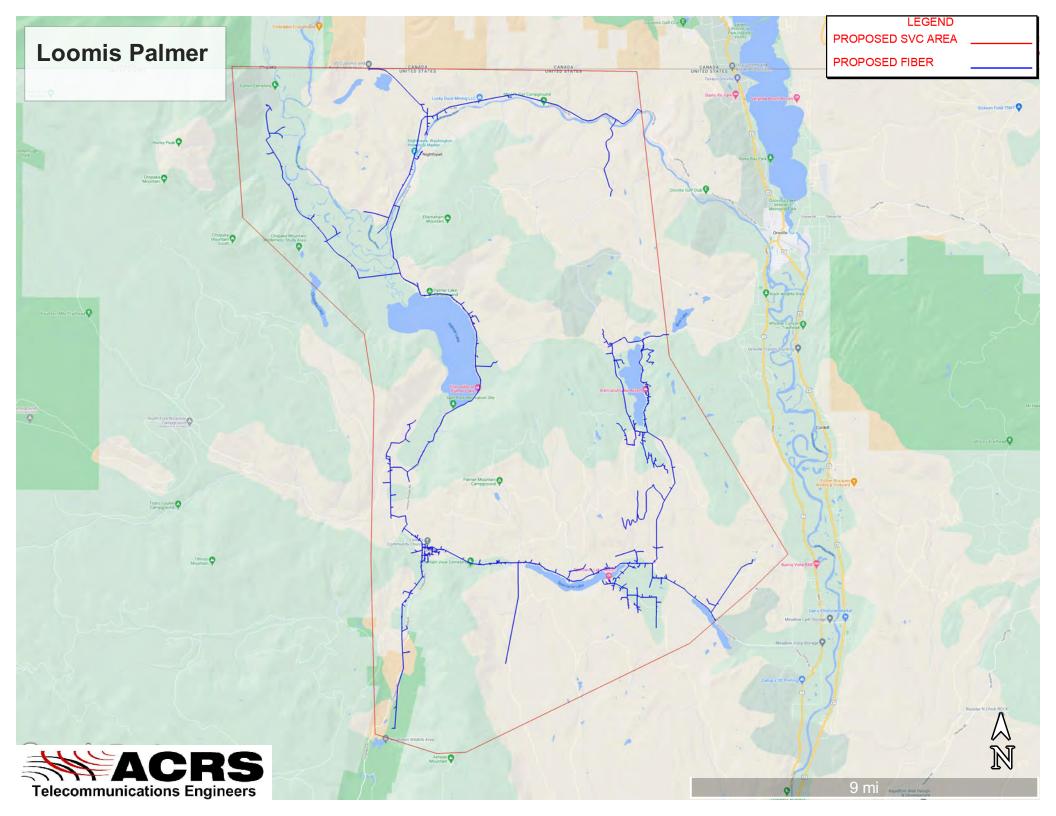


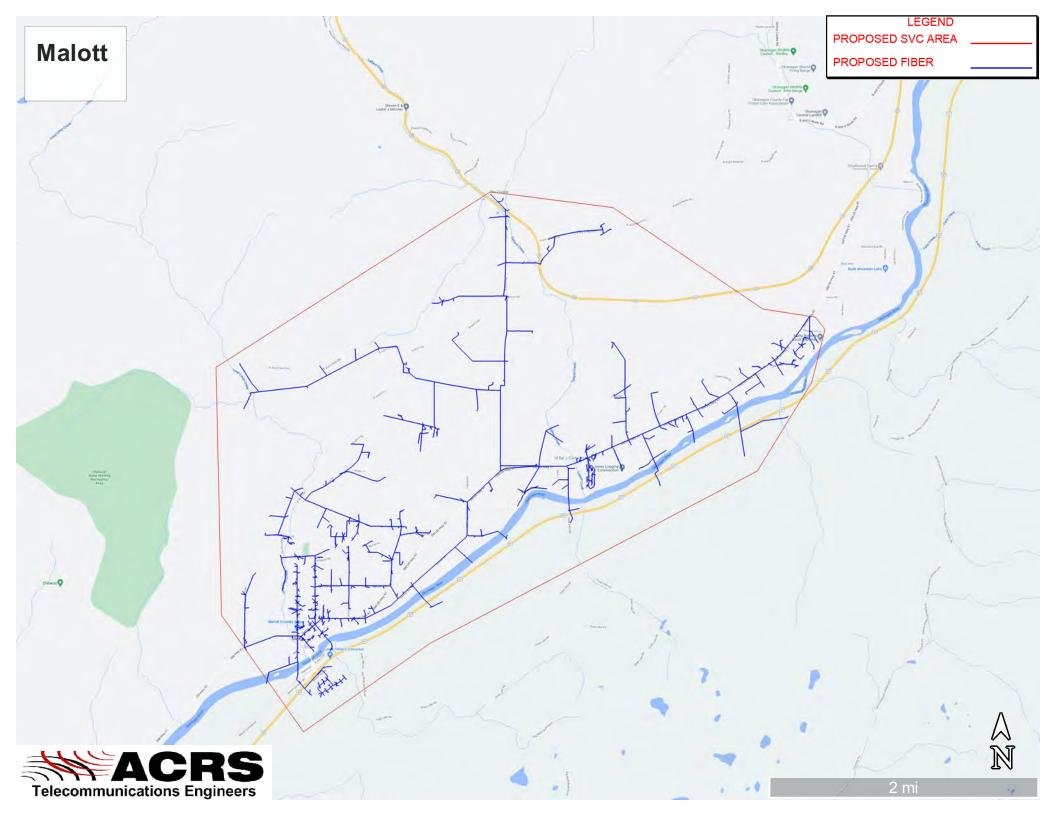


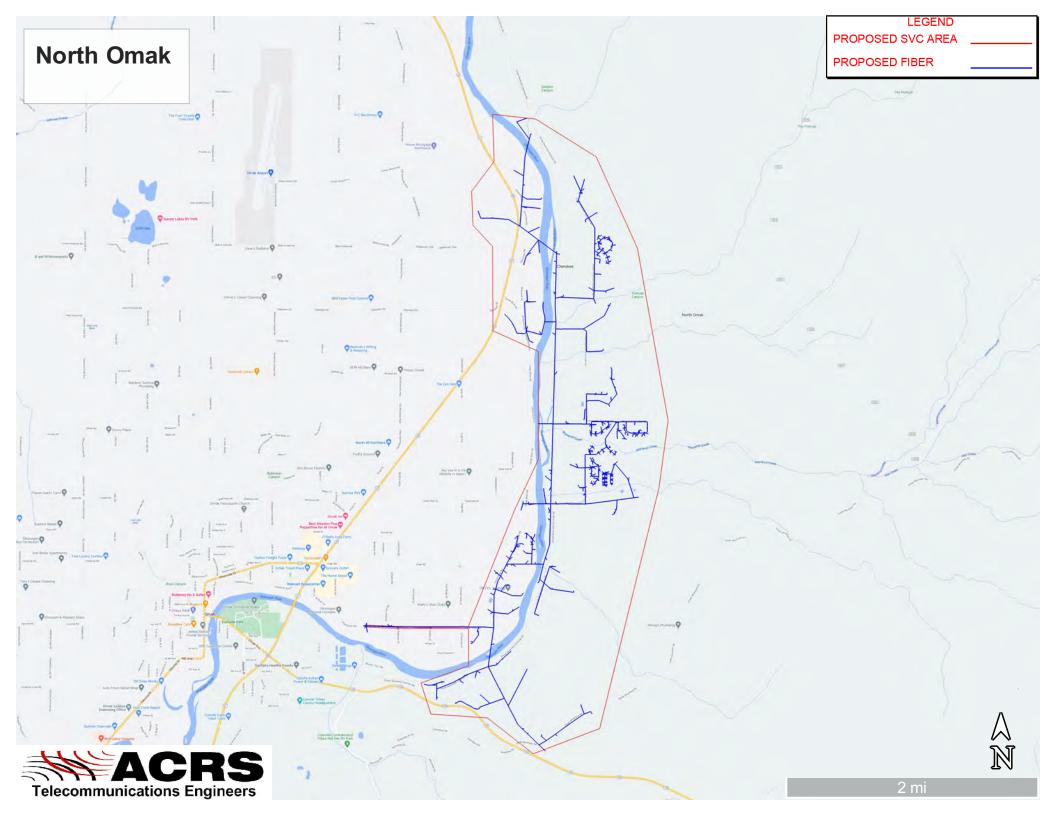


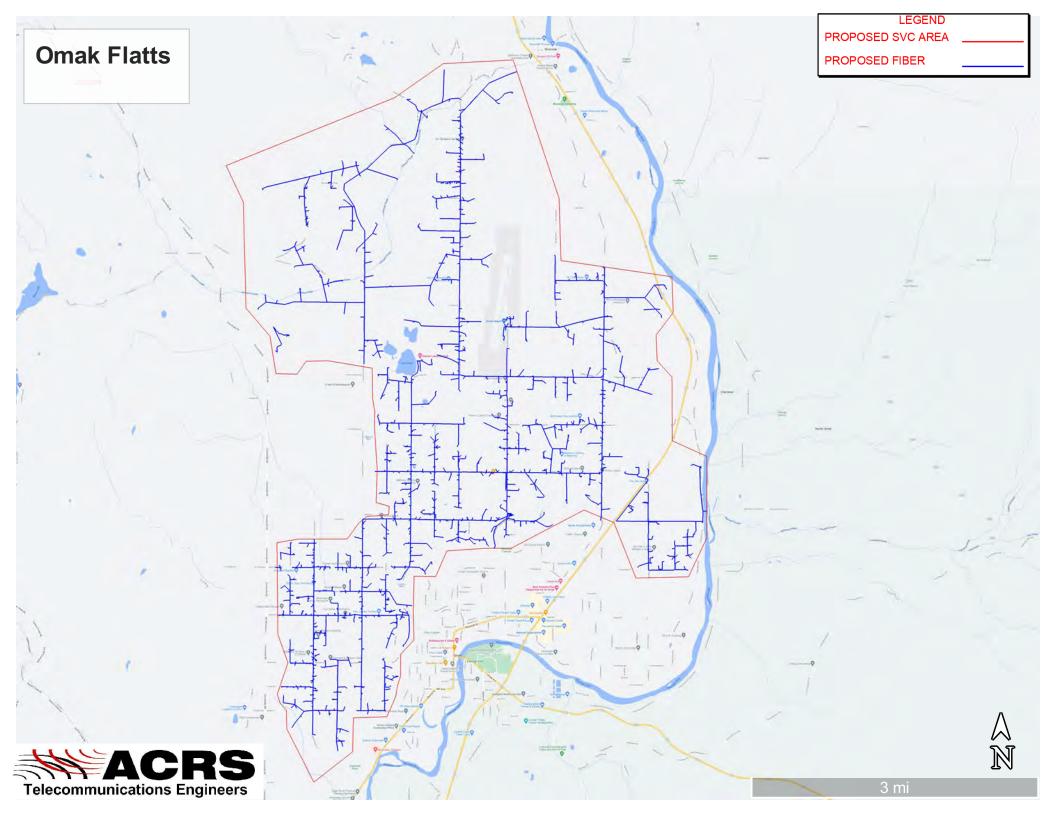


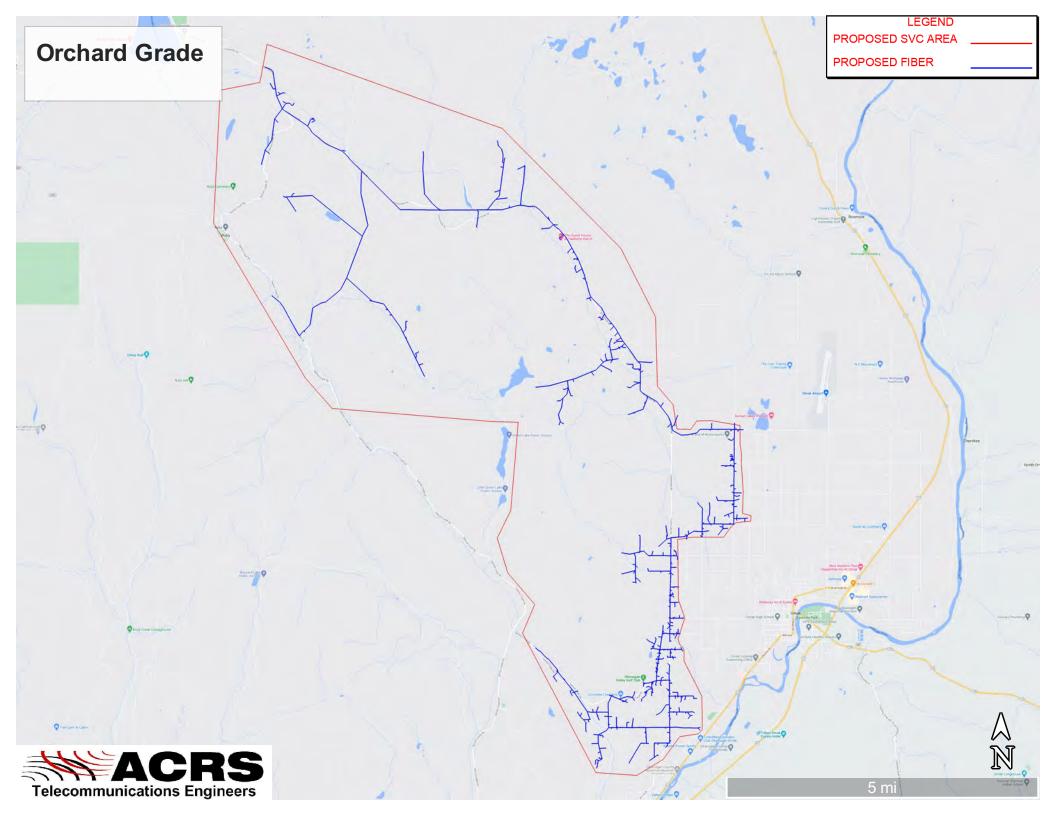


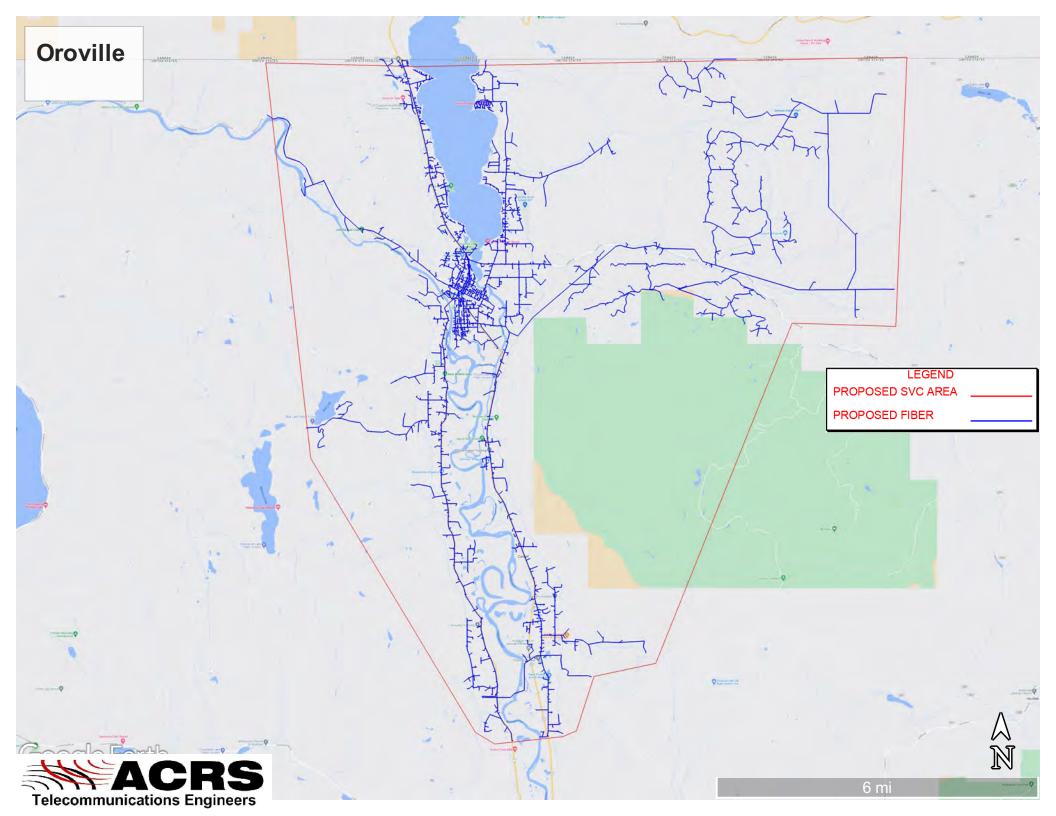


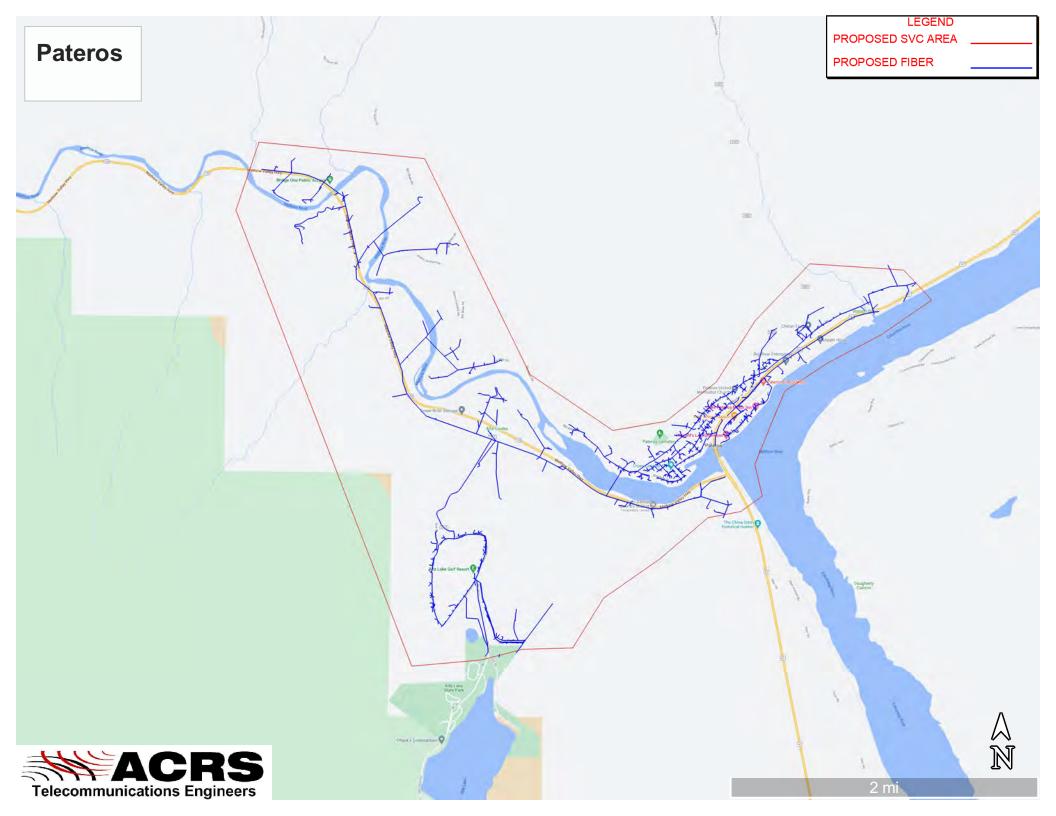


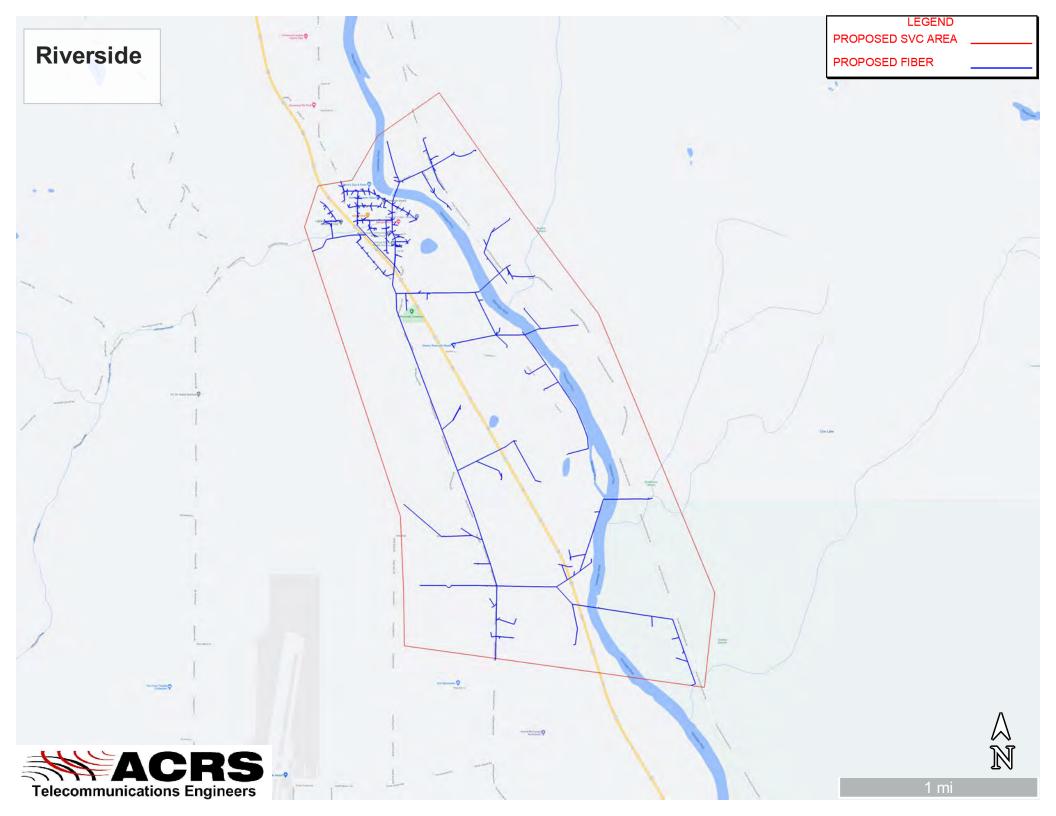


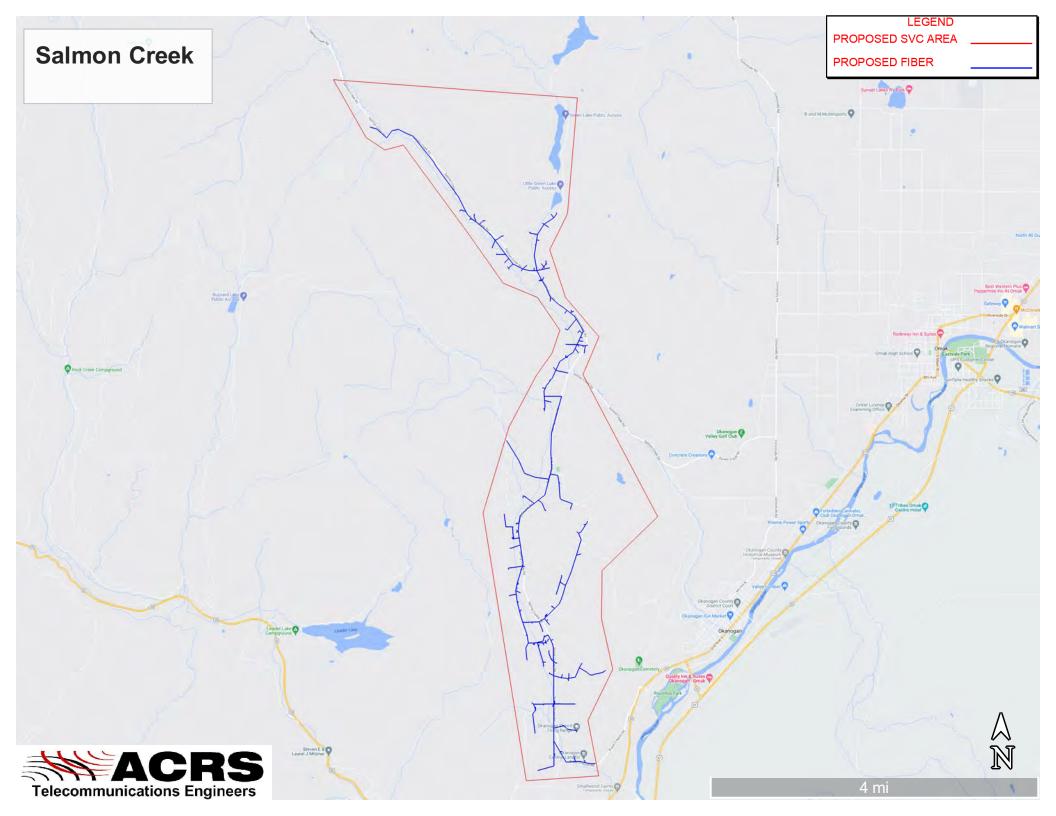


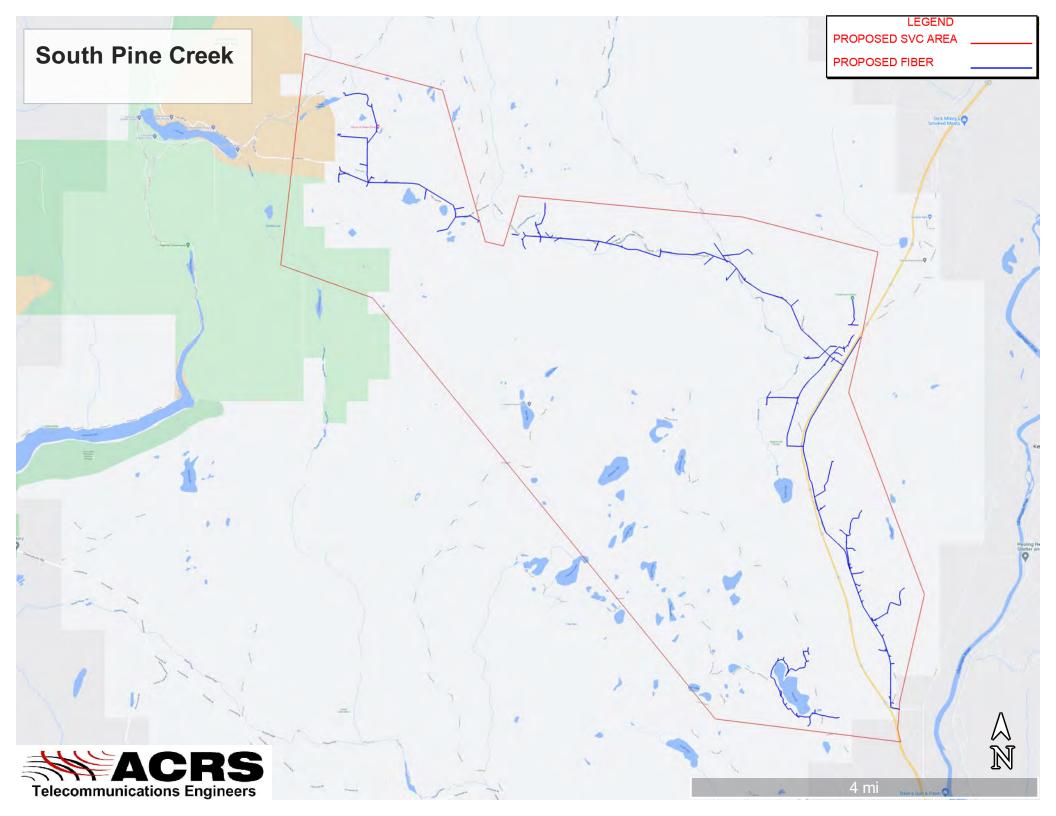


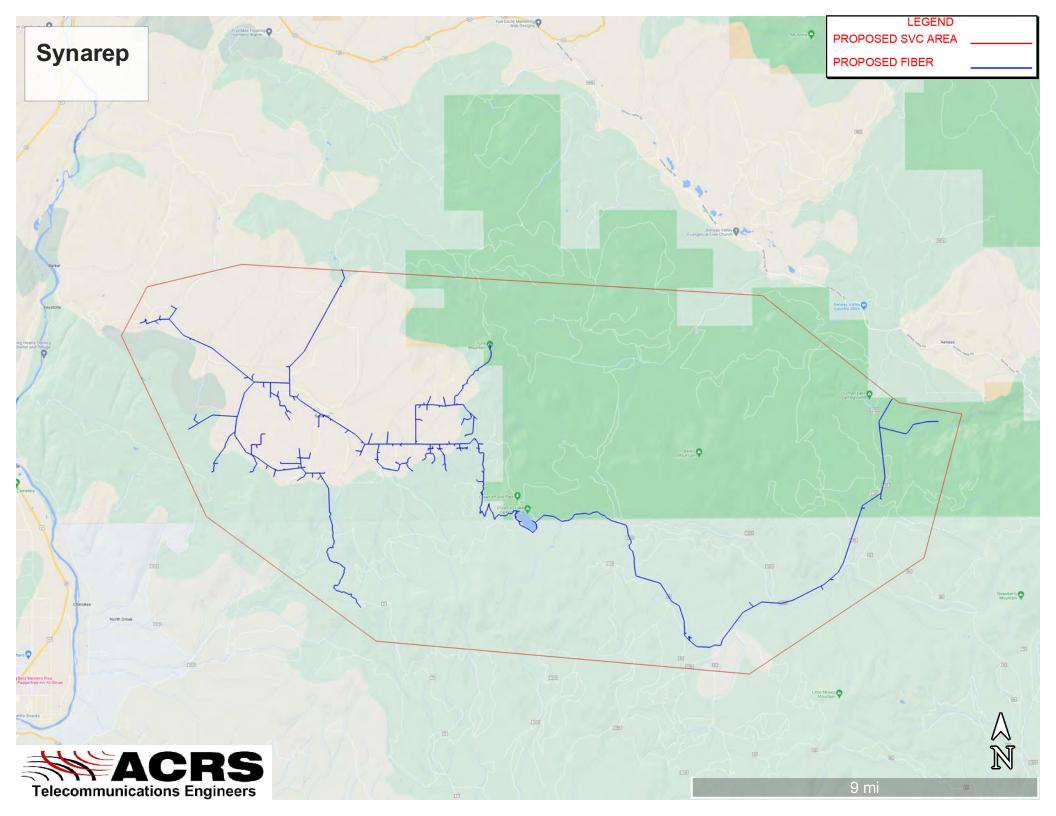


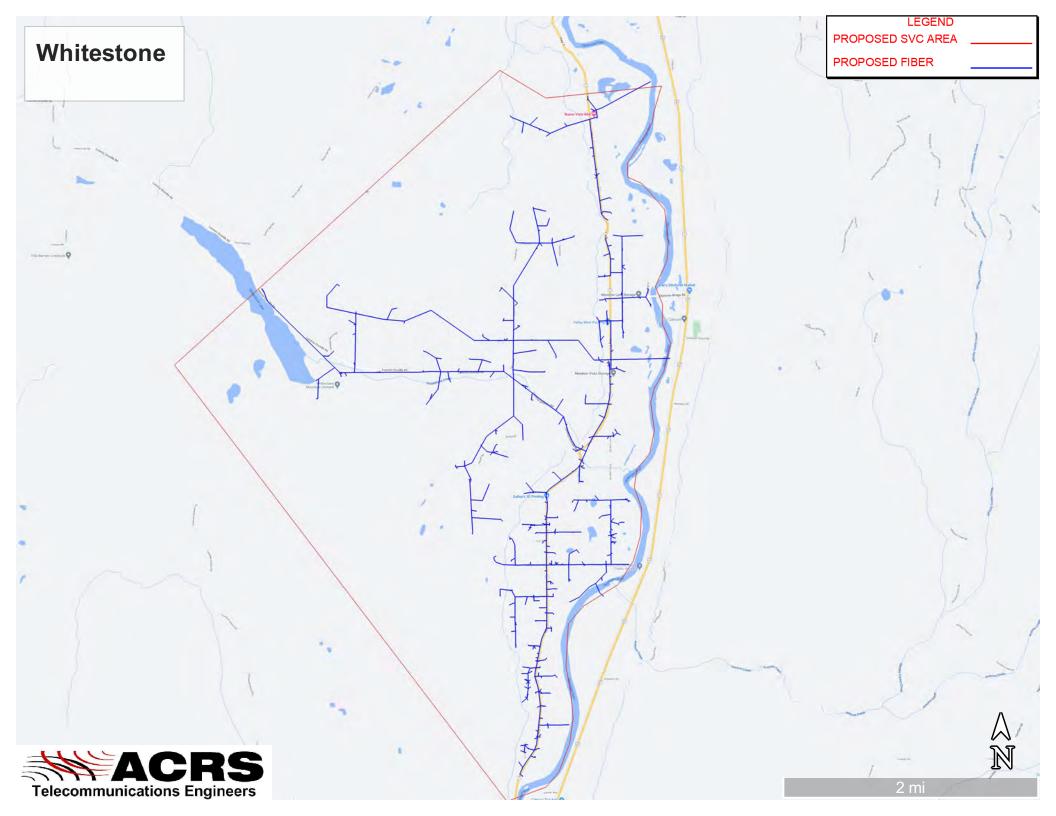


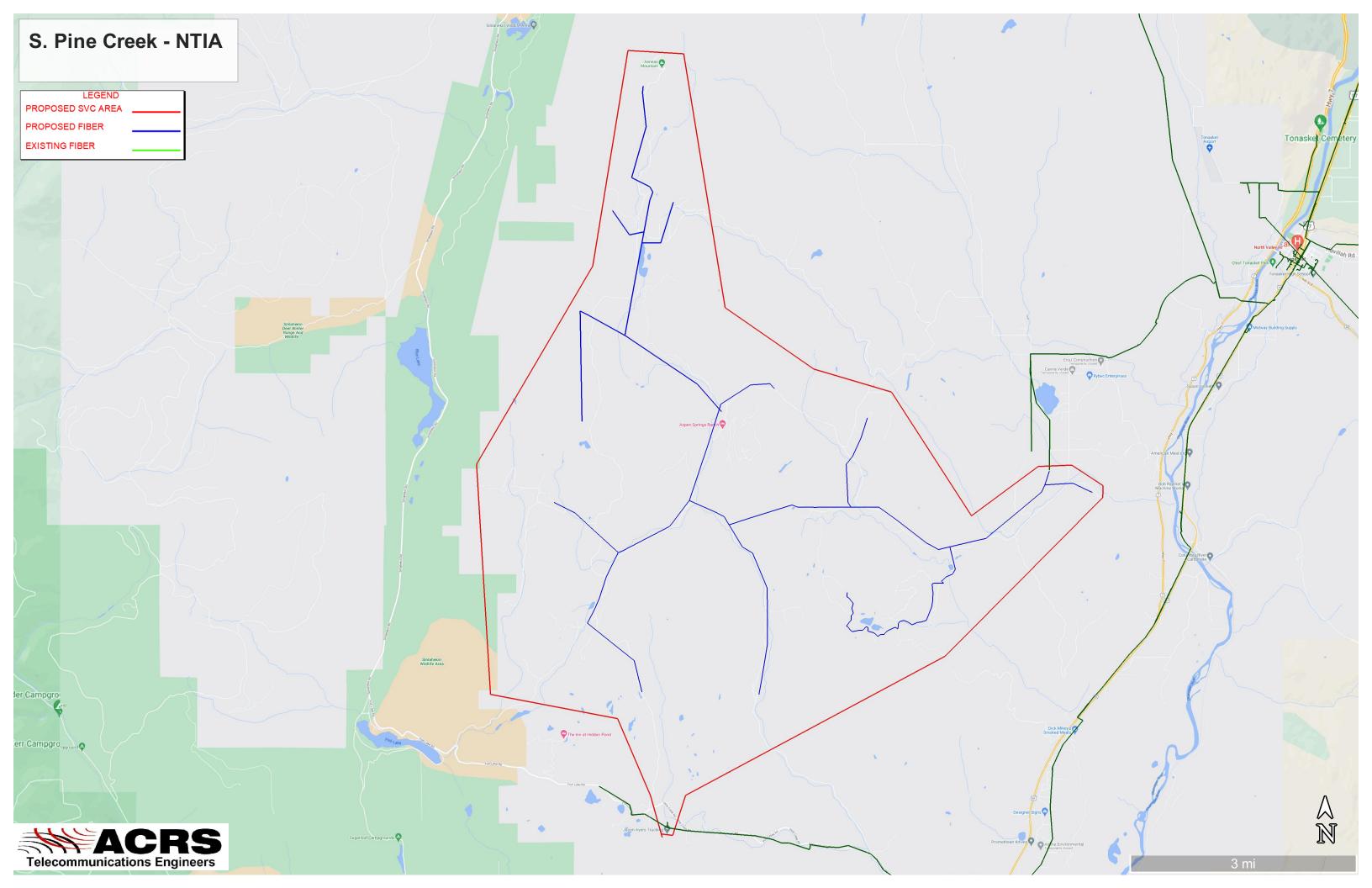


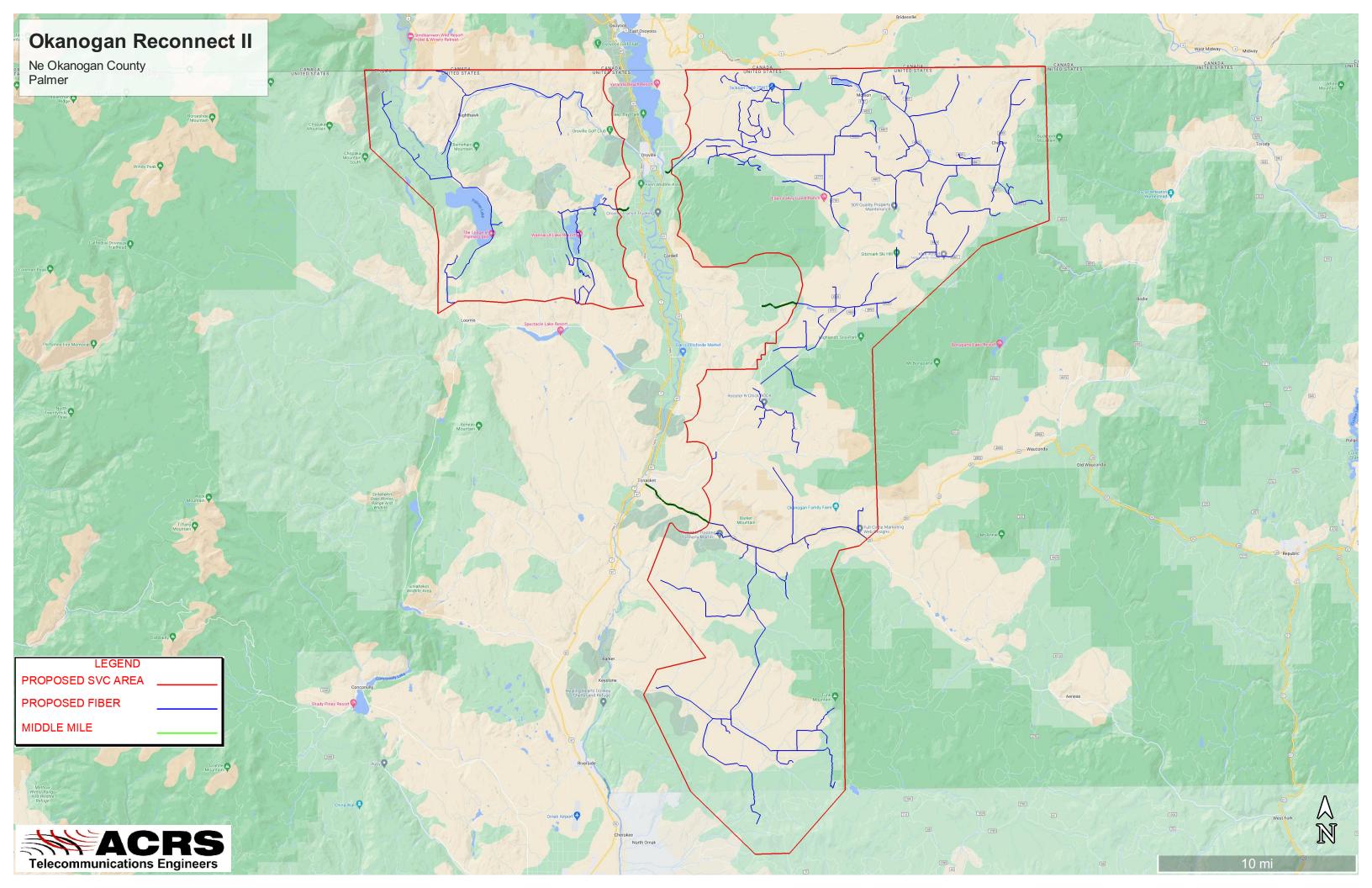










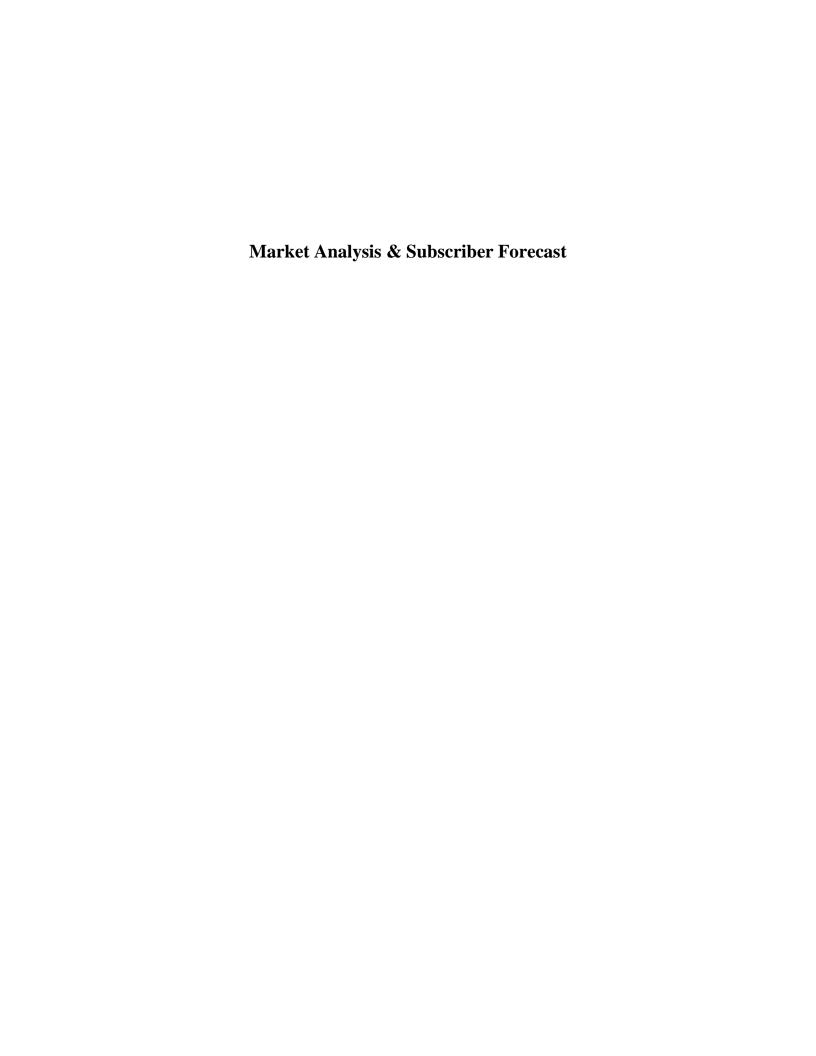




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			QNTY	COST	QNTY	COST	QNTY	COST	QNTY	COST	QNTY	COST	QNTY	COST	QNTY	COST	QNTY	COST
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Transport		\$ -	-	\$ - \$ -	-	\$ - \$ -	-	\$ - \$ -	-	\$ - \$ -	-	\$ - \$ -	-	\$ - \$ -	- 9	- -	-	\$ - \$ -
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Fiber Patch Panels, Splitters & Jumpers	Rack with patch panels, splitters & jumpers	\$ 50,000.00	2.00	\$ 100,000.00 \$ - \$ -	1.00	\$ 50,000.00 \$ -	1.00	\$ 50,000.00 \$ - \$ -	1.00	\$ 50,000.00 \$ -	1.00	\$ 50,000.00 \$ - \$ -	1.00	Ψ	1.00	50,000.00	1.00	Ψ
OUTSIDE PLANT		φ -	-	<del>у</del> -	-	ф <u>-</u>	-	φ -	_	ф -	-	<del>ф</del> -	-	ψ -	- ,	-	-	<del>ф</del> -
Cables	Aerial Cable (Distribution) Buried Cable (Distribution)	\$ 32,000.00 \$ 65,000.00	96.00 6.00	\$ 3,072,000.00 \$ 390,000.00	21.00 9.00	\$ 672,000.00 \$ 585,000.00	16.00 5.00	\$ 512,000.00 \$ 325,000.00	13.00 3.00	\$ 416,000.00 \$ 195,000.00	6.00 6.00	\$ 192,000.00 \$ 390,000.00	11.00 3.00	\$ 352,000.00 \$ 195,000.00	9.00	288,000.00 650,000.00	17.00 3.00	
	Fiber Backhaul 144 & 288 PON Cabinets & Splitters	\$ 20,000.00 \$ 12,500.00	8	\$ -	11	\$ -		\$ - \$ 12,500.00	21.00	\$ 420,000.00		\$ -	-	\$ -	3.25	65,000.00	- 1	\$ -
	Cable Relcocations	\$ 200.00	384.00	\$ 76,800.00	84.00	\$ 16,800.00	64.00	\$ 12,800.00	52.00	\$ 10,400.00	24.00	\$ 4,800.00	44.00	\$ 8,800.00	36.00	7,200.00	68.00	\$ 13,600.00
Make Ready	Pole Replacements Aerial Drops - ave. 200'	\$ 3,500.00 \$ 650.00	1,450.00 531	\$ 5,075,000.00 \$ 345,150.00	133.00 788	\$ 465,500.00 \$ 512,200.00	50.00 60	\$ 175,000.00 \$ 39,000.00	179.00 306	•	20.00	\$ 70,000.00 \$ 72,150.00	11.00 318		113.00 S		30.00 99	
Drop Cable Smart Grid	Buried Drops - ave. 200'	\$ 1,250.00	286	\$ 357,500.00	424	\$ 530,000.00	33	\$ 41,250.00	165	\$ 206,250.00	59	\$ 73,750.00	171		28 \$	35,000.00	53	
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LAND, BUILDINGS & T	OWERS	\$ -	-	\$ -		\$ -		\$ -		\$ -		\$ -		\$ -	9	· -		\$ -
New Building Construction		\$ - \$ -	-	\$ - \$ -	-	\$ - \$ -	-	\$ - \$ -	-	\$ - \$ -	-	\$ - \$ -	-	\$ - \$ -	- 9	- -	-	\$ - \$ -
Pre-Fab Huts	Pre-fab hut, power, HVAC Land for Huts	\$ 50,000.00 \$ 10,000.00 \$ -	2.00	\$ 100,000.00 \$ 20,000.00 \$ -	1.00	\$ 50,000.00 \$ 10,000.00 \$ -	1.00	\$ 50,000.00 \$ 10,000.00 \$ -	1.00		1.00	\$ 50,000.00 \$ 10,000.00 \$ -	1.00		1.00 9	50,000.00 10,000.00	1.00	
Building		\$ -	-	\$ -		\$ -		\$ -		\$ -		\$ -		\$ -	9	-		\$ -
Improvements & Renovation		\$ - \$ -	-	\$ - \$ -		\$ -		\$ - \$ -		\$ - \$ -		\$ - \$ -		\$ - \$ -		<del>-</del>		\$ - \$ -
Towers		\$ - \$ -		\$ - \$ -		\$ - \$ -		\$ - \$ -		\$ - \$ -		\$ - \$ -		\$ - \$ -	9	- -		\$ - \$ -
		\$ -	-	\$ -		\$ -		\$ -		\$ -		\$ -		\$ -	9	-		\$ -
CUSTOMER PREMISE	Indoor ONT	\$ 450.00	817	\$ 367,650.00	1,212	\$ 545,400.00	93	\$ 41,850.00	471	\$ 211,950.00	170	\$ 76,500.00	489	\$ 220,050.00	79 9	35,550.00	152	\$ 68,400.00
FTTH ONTs				\$ -	,	\$ -		\$ -		\$ -		\$ -		\$ -	9	-		\$ -
BILLING AND OPERAT	I FIONAL SUPPORT SYSTEMS	-	-	\$ -		\$ -		\$ -		\$ -		\$ -		\$ -	3	-		Ф -
Billing Support	Accounting & Billing Software & Fiber Mapping	\$ 750,000.00 \$ -	-	\$ - \$ -		\$ - \$ -		\$ - \$ -		\$ - \$ -		\$ - \$ -		\$ - \$ -	9	- -		\$ - \$ -
Systems		\$ -	-	\$ -		\$ -		\$ -		\$ -		\$ -		\$ -	9	-		\$ -
Customer Care		\$ - \$ -	-	\$ - \$ -		\$ - \$ -		\$ - \$ -		\$ - \$ -		\$ - \$ -		\$ - \$ -	9	<del>-</del>		\$ - \$ -
Systems		\$ - \$ -	-	\$ - \$ -		\$ - \$ -		\$ - \$ -		\$ - \$ -		\$ - \$ -		\$ - \$ -		-		\$ - \$ -
Other Support		\$ -	-	\$ -		\$ -		\$ -		\$ -		\$ -		\$ -	3	-		\$ -
OPERATING EQUIPME	I ENT	-	-	\$ -		\$ -		\$ -		\$ -		\$ -		\$ -	9	-		\$ -
	Installation-Maint Vehicles-Geek Squad Van	\$ 30,000.00	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	- 9	-	-	\$ -
Vehicles	Manager vehicle Bucket Truck Versalift - Ford F550	\$ 58,000.00 \$ 145,000.00	-	\$ - \$ -	-	\$ - \$ -	-	\$ - \$ -	-	\$ - \$ -	-	φ - \$ -	-	\$ - \$ -	- 9	- -	-	\$ - \$ -
Other	Splice Trailer  NOC - CSR Furniture	\$ 25,000.00 \$ 2,000.00	-	\$ -	_	\$ -	-	\$ -	-	\$ -		\$ -	_	\$ -	_ 9	· -	-	\$ -
Equipment/	NOC - CSR Computers	\$ 2,500.00		\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	- 9	-	-	\$ -
Furniture	Technician Tools/Fusion Splicer & Test Gear	\$ - \$ 40,000.00	-	\$ - \$ -	-	\$ - \$ -	-	\$ - \$ -	-	\$ -	-	\$ - \$ -	-	\$ -	- 9	5 - 5 -	-	\$ - \$ -
Other	Fusion Splicer	\$ 11,000.00 \$ -	-	\$ - \$ -	-	\$ - \$ -	-	\$ - \$ -	-	\$ - \$ -	-	\$ - \$ -	-	\$ - \$ -	- 9	<del>-</del>		\$ - \$ -
PROFESSIONAL SERV		\$ -	- 1	\$ 1,223,306	-	\$ 388,000	-	\$ 162,819	-	\$ 288,506	-	\$ 126,588	-	\$ 157,781	- 9	5 208,919	-	\$ 148,213
Engineering	, , , , , , , , , , , , , , , , , , , ,	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	- 9	-	-	\$ -
Design	Project Management	\$ - \$ 75,000.00	-	\$ - \$ -	-	\$ - \$ -	-	\$ - \$ -	-	\$ -	-	\$ - \$ -	-	\$ - \$ -	- 9	S -	-	\$ - \$ -
Project Management		\$ - \$ -	-	\$ - \$ -	-	\$ - \$ -	-	\$ - \$ -	-	\$ - \$ -	-	\$ - \$ -	-	\$ - \$ -	- 9	- -		\$ - \$ -
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Consulting		\$ - \$ -	-	\$ - \$ -	-	\$ - \$ -		\$ - \$ -	-	\$ - \$ -		\$ - \$ -		\$ - \$ -	- 9	<del>-</del>		\$ - \$ -
Other		\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	- 9	-	-	\$ -
Other		\$ - \$ -	-	\$ - \$ -	-	\$ - \$ -	-	\$ - \$ -	-	\$ - \$ -	-	\$ - \$ -	-	\$ - \$ -	- 3	- -		\$ - \$ -
Total Cost				\$ 11,377,406.00		\$ 4,037,400.00		\$ 1,507,219.00		\$ 2,808,506.00		\$ 1,215,788.00		\$ 1,640,081.00		1,915,819.00		\$ 1,402,313.00
				Aeneas		Brewster		Chillwist		Coconully	1	Crumbacher		East Omak	<u> </u>	Harmony Heights		Keystone

		Ser	vice Area	Se	ervice Area	Se	rvice Area	Se	rvice Area	Ser	vice Area	Se	rvice Area	Se	rvice Area	Serv	vice Area
		Kı	nob Hill	Loc	omis Palmer		Malott	NE Ok	anogan County	Nor	th Omak	0	mak Flats	Ord	hard Grade	0	roville
		QNTY	COST	QNTY	COST	QNTY	COST	QTY	COST	QNTY	COST	QNTY	COST	QNTY	COST	QNTY	COST
NETWORK AND ACCE	ESS EQUIPMENT	- \$			\$ -	-	\$ -	-	\$ -	- ;	т	-	\$ -		\$ -	-	\$ -
Routing		- \$ - \$	<del>-</del>	-	\$ - \$ -	-	\$ - \$ -	-	\$ - \$ -	- ;	*	-	\$ - \$ -	+	\$ - \$ -	-	\$ - \$ -
Transport		- \$ - \$			\$ - \$ -	-	\$ - \$ -	-	\$ - \$ -	- ;	T	-	\$ - \$ -		\$ - \$ -	-	\$ - \$ -
	OLT - Optical Line Terminals	- \$ 1.00 \$	75,000.00	-	\$ - \$ 75,000.00	- 1.00	\$ - \$ 75,000.00	3.00	\$ - \$ 225,000.00	1.00	\$ -	1.00	\$ - \$ 75,000.00	+	\$ -	- 1.00	\$ - \$ 75,000.00
Access / Network Distribution	OLT - Optical Line Terminals	- \$	-	-	\$ -	-	\$ -	3.00	\$ -	- ;	\$ -	-	\$ -	-	\$ -		\$ 75,000.00
Fiber Patch Panels, Splitters & Jumpers	Rack with patch panels, splitters & jumpers	- \$ 1.00 \$ - \$	50,000.00	1.00	\$ - \$ 50,000.00 \$ - \$ -	1.00	\$ - \$ 50,000.00 \$ - \$ -	3.00	\$ - \$ 150,000.00 \$ - \$ -	1.00	\$ -	1.00	\$ 50,000.00 \$ -	1.00	\$ - \$ 50,000.00 \$ - \$ -	- 1.00 - -	\$ 50,000.00 \$ - \$ -
OUTSIDE PLANT	The data Oalth (Discillation)	450.00	5 000 000 00	70.00	<b>*</b> • • • • • • • • • • • • • • • • • • •	00.00	Φ 000 000 00	100.00	Φ 0.070.000.00	40.00	<b>570,000,00</b>	05.00	Φ 0 000 000 00			105.00	<u> </u>
Cables	Aerial Cable (Distribution) Buried Cable (Distribution) Fiber Backhaul 144 & 288 PON Cabinets & Splitters	159.00 \$ 32.00 \$ 2.50 \$	5,088,000.00 5,080,000.00 5,0000.00 100,000.00	21.00	\$ 2,432,000.00 \$ 1,365,000.00 \$ - \$ 62,500.00	28.00 5.00	\$ 896,000.00 \$ 325,000.00 \$ - \$ 62,500.00	196.00 10.00	\$ -	18.00 5.00	\$ -		\$ 2,080,000.00 \$ 1,170,000.00 \$ - \$ 137,500.00	53.00 6.00	\$ 390,000.00 \$ -		\$ 4,000,000.00 \$ 4,030,000.00 \$ - \$ 312,500.00
Maka Daada	Cable Relcocations	636.00 \$	127,200.00	304.00	\$ 60,800.00	112.00	\$ 22,400.00	784.00	\$ 156,800.00	72.00	\$ 14,400.00	260.00	\$ 52,000.00	212.00	\$ 42,400.00	500.00	\$ 100,000.00
Make Ready	Pole Replacements Aerial Drops - ave. 200'	810.00 \$ 537 \$	2,835,000.00 349,050.00	150.00 329	\$ 213,850.00	148.00 382	\$ 518,000.00 \$ 248,300.00	392.00 423	\$ 1,372,000.00 \$ 274,950.00	250.00 S	\$ 157,950.00	768		300.00 273	\$ 177,450.00	1,789	\$ 3,556,000.00 \$ 1,162,850.00
Drop Cable Smart Grid	Buried Drops - ave. 200'	289 \$	361,250.00	177	\$ 221,250.00 \$ -	205	\$ 256,250.00 \$ -	228	\$ 285,525.00	131	\$ 163,750.00	413	\$ 516,250.00 \$ -	147	\$ 183,750.00 \$ -	963	\$ 1,203,750.00 \$ -
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LAND BUILDINGS S	TOWERS	\$	-		\$ -		\$ -	-	\$ -	:	\$ -		\$ -		\$ -		\$ -
LAND, BUILDINGS & 1	IOWERS	\$	-		\$ -		\$ -	-	\$ -		\$ -		\$ -		\$ -		\$ -
New Building Construction	Pre-fab hut, power, HVAC	- \$ \$ 1.00 \$	50,000.00		\$ - \$ - \$ 50,000.00	1.00	\$ - \$ - \$ 50,000.00	3.00	\$ - \$ - \$ 150,000.00	1.00	\$ -	1.00	\$ - \$ 50,000.00		\$ - \$ - \$ 50,000.00	1.00	\$ - \$ - \$ 50,000.00
Pre-Fab Huts	Land for Huts	1.00 \$	10,000.00	1.00	\$ 10,000.00 \$ -	1.00	\$ 10,000.00 \$ -	3.00	\$ 30,000.00 \$ -	1.00		1.00	\$ 10,000.00 \$ -	1.00	\$ 10,000.00 \$ -	1.00	\$ 10,000.00 \$ -
Building Improvements & Renovation		\$	-		\$ - \$ - \$ -		\$ - \$ - \$ -	-	\$ - \$ -		\$ - \$ -		\$ - \$ - \$ -		\$ - \$ - \$ -		\$ - \$ -
Towers		\$ \$ \$	-		\$ - \$ - \$ -		\$ - \$ - \$ -	_	\$ - \$ -		\$ - \$ -		\$ - \$ -		\$ - \$ - \$ -		\$ - \$ -
CUSTOMER PREMISE	E EQUIPMENT Indoor ONT	826 \$	371,700.00	506	\$ 227,700.00	587	\$ 264,150.00	651	\$ 293,139.00	374	\$ 168,300.00	1,181	\$ 531,450.00	420	\$ 189,000.00	2.752	\$ 1,238,400.00
FTTH ONTs	IIIdool Olvi	\$	-	300	\$ - \$ -	307	\$ - \$ -	-	\$ -	374	\$ -	1,101	\$ - \$ -		\$ - \$ -	2,102	\$ - e
BILLING AND OPERAT	TIONAL SUPPORT SYSTEMS	Ψ					•	-	<b>•</b>	, v	Α.		φ -		*		ψ -
Billing Support	Accounting & Billing Software & Fiber Mapping	\$			\$ - \$ -		\$ - \$ -	-	\$ - \$ -	:	<del>\$ -</del> \$ -		\$ - \$ -		\$ - \$ -		\$ - \$ -
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Customer Care		\$	-		\$ -		\$ -	-	\$ -	;	\$ -		\$ -		\$ -		\$ -
Systems		\$	-		\$ - \$ -		\$ - \$ -	-	\$ -	;	\$ -		\$ - \$ -		\$ - \$ -		φ - \$ -
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OPERATING EQUIPME							*		¢.		T		Ф.		*		1
Vehicles	Installation-Maint Vehicles-Geek Squad Van Manager vehicle Bucket Truck Versalift - Ford F550 Splice Trailer	- \$ - \$ - \$			\$ - \$ -		\$ - \$ - \$ -	-	\$ - \$ -	- ; - ;	\$ - \$ -	-	\$ - \$ -		\$ - \$ - \$ -		\$ - \$ - \$ -
Other Equipment/	NOC - CSR Furniture	- \$ - \$			\$ - \$ -	-	\$ - \$ -	-	\$ -		\$ -	-	\$ -		\$ -		\$ - \$ -
Equipment/ Furniture	NOC - CSR Computers	- \$	-	-	\$ -	-	\$ -	-	\$ - \$ -	- ;	\$ -	-	\$ -	-	\$ - \$ -	-	\$ -
Other	Technician Tools/Fusion Splicer & Test Gear Fusion Splicer	- \$ - \$ - \$	-	-	\$ - \$ - \$ -		\$ - \$ - \$ -	-	\$ - \$ -	- ; - ;	\$ -	-	\$ - \$ - \$ -	-	\$ - \$ - \$ -		\$ - \$ - \$ -
PROFESSIONAL SER	VICES FTTx System Engineering	- \$	1,396,938		\$ 633,175	_	\$ 314,181	-	\$ 1,205,159	- !	\$ 291,825	-	\$ 776,869	-	\$ 471,825	-	\$ 1,818,763
Engineering	T T A Gystem Engineening	- \$	-	-	\$ -	-	\$ -	-	\$ -	- ;	\$ -	-	\$ -	-	\$ -	-	\$ 1,010,703
Design	Project Management	- \$ - \$			\$ - \$ -	-	\$ - \$ -	-	\$ - \$ -	- ;	\$ - \$ -	-	\$ - \$ -		\$ - \$ -	-	\$ - \$ -
Project Management		- \$		-	\$ - \$ -	-	\$ - \$ -	-	\$ - \$ -		\$ -	-	\$ - \$ -	-	\$ - \$ -	-	\$ - \$ -
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Consulting		- \$ - \$			\$ - \$ -	-	\$ - \$ -	-	\$ - \$ -	- :	<del>\$ -</del> \$ -	-	\$ - \$ -		\$ - \$ -	-	\$ - \$ -
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		Se	rvice Area	Se	rvice Area	Ser	vice Area		Service Area	;	Service Area		Service Area	Se	ervice Area	Se	ervice Area	Total
			Palmer		Pateros	Ri	verside	S.	Pine Creek Rd.	S. Pin	e Creek Rd. NTIA	Sa	lmon Creek Rd.		Synarep	W	/hitestone	Costs
NETWORK AND ACCE	FOO FOLUDATAT	QNTY	COST	QNTY	COST	QNTY	COST	QNTY	COST	QNTY	COST	QNTY	COST	QNTY	COST	QNTY	COST	
NETWORK AND ACCE	ESS EQUIPMENT	-	\$ -	-	\$ -	- (	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ - 5	-
Routing		-	\$ - \$ -	-	\$ - \$ -	- (	<del>\$ -</del> \$ -	-	\$ - \$ -	-	\$ - \$ -	-	\$ - \$ -	-	\$ - \$ -	-	\$ - S	<del>-</del> -
Transport		-	\$ - \$ -	-	\$ - \$ -	- 3	\$ - \$ -	-	\$ - \$ -	-	\$ - \$ -	-	\$ - \$ -	-	\$ - \$ -		\$ - S	<del>-</del>
Assess (National	OLT - Optical Line Terminals	1.00	\$ - \$ 75,000.00	1.00	\$ - \$ 75,000.00	1.00	\$ - \$ 75,000.00	1.00	\$ - \$ 75,000.00	- 1.00	\$ - \$ 75,000.00	- 1.00	\$ - \$ 75,000.00	1.00	\$ - \$ 75,000.00	1.00	*	- 5 2,025,000
Access / Network Distribution		-	\$ -	-	\$ - \$ -	- 3	\$ - \$ -	-	\$ - \$ -	-	\$ - \$ -	-	\$ -	-	\$ -	-	\$ - 5	-
Fiber Patch Panels, Splitters & Jumpers	Rack with patch panels, splitters & jumpers	1.00	\$ 50,000.00 \$ - \$ -	1.00	\$ 50,000.00 \$ - \$ -	1.00 5	\$ 50,000.00 \$ - \$ -	1.00	\$ 50,000.00 \$ - \$ -	1.00	\$ 50,000.00 \$ - \$ -	1.00	\$ 50,000.00 \$ - \$ -	1.00	\$ 50,000.00 \$ - \$ -	1.00	\$ 50,000.00 \$ \$ - \$ \$ - \$	1,350,000 5 - 5 -
OUTSIDE PLANT	Aerial Cable (Distribution)	54.00	\$ 1,728,000.00	17.00	\$ 544,000.00	21.00	\$ 672,000.00	18.00	\$ 576,000.00	48.00	\$ 1,536,000.00	19.00	\$ 608,000.00	51.00	\$ 1,632,000.00	30.00	\$ 960,000.00	\$ 37,344,000
Cables	Buried Cable (Distribution) Fiber Backhaul	3.00	. , ,	11.00			\$ 130,000.00	6.00		16.00		2.00	·		\$ 1,170,000.00 \$ -	1.00		17,095,000 5 535,000
	144 & 288 PON Cabinets & Splitters Cable Relcocations	2 216.00	<b>—</b> — 0,000.00	6 68.00	,	2 S 84.00 S	\$ 25,000.00 \$ 16,800.00	72.00	,	3 192.00		76.00	\$ 12,500.00 \$ 15,200.00	204.00	Ψ =0,000.00	3 120.00		1,500,000 933,600
Make Ready	Pole Replacements Aerial Drops - ave. 200'	108.00 135	\$ 378,000.00	134.00 387	\$ 469,000.00	100.00 S	\$ 350,000.00 \$ 81,250.00	478.00 84	\$ 1,673,000.00	478.00 158	\$ 1,673,000.00	270.00 95	\$ 945,000.00	150.00 144	\$ 525,000.00	120.00 200	\$ 420,000.00	25,690,000 5,418,400
Drop Cable Smart Grid	Buried Drops - ave. 200'	73		208	, ,	67 5	\$ 83,750.00	45		158		51		78	. ,	108		5,700,200
Siliait Griu			\$ -		\$ -	<u> </u>	\$ -		\$ -	T	\$ -		\$ -		\$ -		\$ - 5	-
			\$ - \$ -		\$ - \$ -	3	\$ - \$ -		\$ -	\$ - \$ -	\$ - \$ -		\$ - \$ -		\$ - \$ -		\$ - S \$ - S	- -
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LAND, BUILDINGS & 1	TOWERS		Φ.		Φ.		Φ		·		•		0		Φ.		Φ.	
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Construction	Pre-fab hut, power, HVAC	1.00	. ,	1.00		1.00	\$ - \$ 50,000.00	1.00	\$ 50,000.00	\$ - \$ -	\$ - \$ -	1.00	\$ - \$ 50,000.00	1.00	,	1.00	,	5 - 5 1,300,000
Pre-Fab Huts	Land for Huts	1.00	\$ 10,000.00 \$ -	1.00	\$ 10,000.00 \$ -	1.00	\$ 10,000.00 \$ -	1.00		\$ - \$ -	\$ - \$ -	1.00	\$ 10,000.00 \$ -	1.00	\$ 10,000.00 \$ -	1.00	\$ 10,000.00 S \$ - S	260,000
Building Improvements &			\$ - \$ -		\$ - \$ -		\$ - \$ -		,	\$ - \$ -	\$ - \$ -		\$ - \$ -		\$ - \$ -		\$ - S	
Renovation			\$ - \$ -		\$ - \$ -		\$ -		Ψ	\$ - \$ -	\$ - \$ -		\$ - \$ -		\$ -		\$ - 5	-
Towers			\$ - \$ -		\$ -		\$ -		\$ -	\$ -	\$ - \$ -		\$ -		\$ -		\$ - 3	-
CUSTOMER PREMISE			Ψ		<del>-</del>		<del>-</del>		*	,	Ψ		-		<b>5</b> -		ų (	- -
FTTH ONTs	Indoor ONT	208	\$ 93,483.00 \$ -	595	\$ 267,750.00 \$ -	192 3	\$ 86,400.00 \$ -	129		316.00 \$ -	\$ 142,200.00 \$ -	146	\$ 65,700.00 \$ -	222	\$ 99,900.00 \$ -	308	\$ 138,600.00 S \$ - S	5,803,272
BILLING AND OPERA	TIONAL SUPPORT SYSTEMS		\$ -		\$ -		\$ -		\$ -	\$ -	\$ -		\$ -		\$ -		\$ - \$	-
Billing Support	Accounting & Billing Software & Fiber Mapping		\$ - \$ -		\$ - \$ -		\$ - \$ -		\$ - \$ -		\$ - \$ -		\$ - \$ -		\$ - \$ -		\$ - S	-
Systems			\$ -		\$ -	(	<u>-</u>		\$ -		\$ -		\$ -		\$ -		\$ - 3	-
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OPERATING EQUIPMI	ENT Installation-Maint Vehicles-Geek Squad Van	-	\$ -	-	\$ -	- 5	\$ -	-	\$ -		\$ -	_	\$ -	-	\$ -	-	\$ - 5	-
Vehicles	Manager vehicle  Bucket Truck Versalift - Ford F550	-	\$ - \$ -	-	\$ - \$ -	- 9	\$ - \$ -	-	\$ -	\$ 1.00	\$ -	-	\$ - \$	-	\$ -		\$ - 5	- 5 145,000
Other	Splice Trailer  NOC - CSR Furniture		•		\$ - \$ -		\$ - \$ -	_	\$ -	\$ 1.00	\$ 25,000.00	-	\$ -		\$ -		\$ -	25,000
Equipment/	NOC - CSR Furniture NOC - CSR Computers	-	\$ -	-	\$ -	- 9	<u>-</u>	-	\$ - \$ -		\$ - \$ -	-	\$ - \$ -	-	\$ -	-	\$ - 9	
Furniture	Technician Tools/Fusion Splicer & Test Gear	-	\$ - \$ -	-	\$ - \$ -	- 9	\$ - \$ -	-	\$ - \$ -		\$ - \$ -	-	\$ - \$ -	-	\$ - \$ -	-	\$ - S \$ - S	-
Other	Fusion Splicer	-	\$ - \$ -		\$ - \$ -		\$ - \$ -	-	\$ - \$ -	\$ 1.00	\$ 11,000.00 \$ -	-	\$ - \$ -	-	\$ - \$ -		\$ - S	\$ 11,000 \$ -
PROFESSIONAL SER	VICES FTTx System Engineering	-	\$ 341,609	-	\$ 314,144	- 5	\$ 192,975	-	\$ 370,219		\$ 593,763	-	\$ 252,650		\$ 471,113	-	\$ 244,563	12,393,903
Engineering Design		-	\$ - \$ -	-	\$ - \$ -	- 3	\$ - \$ -	-	\$ - \$ -		\$ - \$ -	-	\$ - \$ -	-	\$ -		\$ - 5	
Project	Project Management	-	\$ - \$ -	-	\$ - \$ -	- (	Ψ	-	¥	\$ 1.00	Ψ	-	\$ - \$ -	-	\$ -	-	\$ - S	75,000
Management		-	\$ -	-	\$ -	- 9	\$ -	-	\$ -		\$ -	-	\$ -	-	\$ -	-	\$ - 3	-
Consulting		-	\$ - \$ -	-	\$ - \$ -	- 9	\$ - \$ -	-	\$ - \$ -		\$ - \$ -	-	\$ - \$ -	-	\$ -		\$ - S \$ - S	-
		-	\$ - \$ -	-	\$ - \$ -	- 3	\$ - \$ -	-	\$ - \$ -		\$ - \$ -	-	\$ - \$ -	-	\$ - \$ -		\$ - S	- -
Other		-	\$ - \$ -		\$ - \$ -	- 3	\$ - \$ -	-	\$ - \$ -		\$ - \$ -	-	\$ - \$ -	-	\$ - \$ -		\$ - S \$ - S	- 5 -
Total Cost			\$ 3,167,967.00		\$ 3,095,044.00		\$ 1,823,175.00		\$ 3,390,019.00		\$ 5,742,063.00	10	\$ 2,339,550.00		\$ 4,339,913.00		\$ 2,339,663.00	\$ 117,604,375.00
			Palmer		Pateros		Riverside		S. Pine Creek Rd.		S. Pine Creek Rd. NT	ΊΑ	Salmon Creek Rd.		Synarep		Whitestone	







#### **MARKET ANALYSIS & SUBSCRIBER FORECAST**

The following is a summary of the results of all demographic data research conducted for the proposed service areas and the research of the Okanogan County/Colville Confederated Tribes Broadband Action Team (BAT) competition, i.e. the existing broadband service providers. This research was used to develop the following Market Analysis and Subscriber Forecast.

#### **Demographic Research Data**

Multiple sources of data were used to compile variables for developing the subscriber penetration rates for each service area. One data source is the publicly available American Fact Finder website which is a product of the US Census Bureau using the most recent 5-year Census estimates from 2013-2017 and the 2010 Census, there is still limited data available in this format from the 2020 Census. Data related to age, income, household size and commute time to work were all obtained from the census data. Copies of this U.S. Census Bureau data is included in the Feasibility Study exhibits.

#### **Demographic Variables**

The following is a list of the variables or factors used in the formula to develop the forecasted subscriber take rate. The tables are used with the research data described above for selecting unique factors for each service area.

For areas not listed as a Census Designated Place, default values are also included in the tables below.

Age Factor (National Median Age 37.6)

Median Age	Factor
< 40	1.1
40-65	1.0
> 65	0.9
Non CDP	1.0





# Income (National Average Families Below Poverty Level 11.3%)

Families Below	Factor
Poverty Level	
< 5%	1.2
5 – 15%	1.1
15 – 20%	1.0
20 – 30%	0.9
>30%	0.8
Non CDP	1.0

# Average Household Size (National Average 2.65)

Average Size	Factor
< 1.9	0.9
1.9 – 2.5	1.0
> 2.5	1.1
Non CDP	1.0

#### Mean Travel Time to Work (National Average 25.9 Minutes)

Mean Time	Factor
< 20	1.0
20-45	1.1
>45	1.15
Non CDP	1.1





#### Competition

The number of existing providers or more accurately the number of service provider types such as cable operators using cable modem technology, landline telephone operators offering Digital Subscriber Line service or Fiber-to-the-Home service, and fixed wireless operators is used to obtain a Competition factor. Although multiple fixed wireless companies may claim to offer service in an area, these were only counted once for the purpose of a Competition factor. Mobile wireless or cellular carriers and satellite carriers were not considered in this calculation as the use of such technologies for in-home or business data needs is rare.

The total number of existing service providers, as discussed within the Narrative & Executive Summary was taken from a combination of knowledge of the area and those registered in the National Broadband Map published by the FCC. A copy of the results from the National Broadband Map and all existing service provider offerings is attached. This research on existing service providers was not only used for developing the BAT forecasted penetration rate into each service area but could aid in the development of future proposed service plans. Additionally, a spreadsheet of all existing providers with their speeds, tiers of service and rates is attached as an exhibit to this section.

The competition factor used in the penetration rate formula is taken from the table below.

#### **Broadband Competition**

Competitors	Factor
None	1.0
One Service Provider	0.75
Two Service Providers	0.66
Three Service Providers	0.5

#### **Statewide Penetration**

In addition to demographic data from the U.S. Census Bureau website and the competition factor, the final factor in developing the penetration rate is the overall statewide internet usage. This percentage of use was obtained from a national report and indicates the Washington statewide penetration rate to be 72%. A copy of this report may be viewed under in the exhibits.





#### **Forecasted Penetration Rates**

The forecasted penetration rates are based upon all factors discussed above and are ultimately used in the subscriber forecast. A formula was developed using each of these factors to result in a more scientific methodology rather than pure conjecture or relying solely on national or local statistics. In addition, a second subscriber forecast was generated to account for existing subscribers with the Okanogan PUD. The results show the potential subscribers to be gained with the proposed upgrades. This additional subscriber forecast is attached as an exhibit in this section.

The formula used for developing the local penetration rates for each service area is as follows:

Age x Income x Household Size x Commute Time x Competition x State Penetration Rate =

Local Penetration Rate

#### **Households Passed & Businesses**

To develop an actual subscriber forecast, an accurate count of the number of households passed and businesses is also required. This number was obtained primarily from electric meter counts for both residential and business customers of the Okanogan PUD. Additional business data is based on internet research, county and chambers of commerce websites and local knowledge of the area.

#### **Subscriber Forecast**

The ultimate subscriber forecast and formula is based upon a local penetration rate for each service area and the number of residential and business establishments.

The formula is as follows:

#### Local Penetration Rate x Households Passed & Businesses = Subscriber Forecast

We have conservatively estimated the final subscriber forecast for the BAT with an overall average take rate of 51.2% for all residences and 66.8% for all businesses. The take rates vary from service area to service area depending on all of the factors above.

A copy of the actual subscriber projections and calculations can be viewed in the attached.



### Okanogan-Colville Subscriber Projections Census Data

Service Area	COUNTY	STATE	Median Age	Poverty Level	HH Size	Commute Time	Population	# of Businesses	Total HHP	#-Type of Service Providers
Aeneas	Okanogan	WA	37.9	17.0	2.31	17.5	1,719	63	754	1
Brewster CDP	Okanogan	WA	24.9	17.6	3.05	14.6	2,871	277	935	2
Chillwist	Okanogan	WA	37.9	17.0	2.31	17.5	154	7	86	1
Conconully CDP	Okanogan	WA	59.6	11.3	1.5	31.3	544	54	363	2
Crumbacker	Okanogan	WA	37.9	17.0	2.31	17.5	404	7	163	2
East Omak	Okanogan	WA	37.1	21.3	2.32	20.4	1,018	15	368	3
Harmony Heights	Okanogan	WA	37.9	17.0	2.31	17.5	154	6	73	3
Keystone	Okanogan	WA	37.9	17.0	2.31	17.5	367	12	140	1
Knob Hill	Okanogan	WA	37.9	17.0	2.31	17.5	1,227	47	779	1
Loomis-Palmer	Okanogan	WA	61.5	23.2	2.23	17.5	817	38	468	1
Malott	Okanogan	WA	27.2	55.7	3.96	22.3	1,289	122	465	2
NE Okanogan County	Okanogan	WA	37.9	17.0	2.31	17.5	1,912	130	521	1
North Omak	Okanogan	WA	37.1	21.3	2.32	20.4	773	41	333	1
Omak Flats	Okanogan	WA	37.9	17.0	2.31	17.5	2,296	197	994	1
Orchard Grade	Okanogan	WA	37.9	17.0	2.31	17.5	913	25	395	1
Oroville	Okanogan	WA	39.1	32.9	2.22	10.2	5,330	351	2,401	3
Palmer	Okanogan	WA	37.9	17.0	2.31	17.5	500	22	186	0
Pateros CDP	Okanogan	WA	27	13.1	2.82	11.9	1,410	95	500	2
Riverside	Okanogan	WA	43.7	14.4	2.27	20.0	388	21	171	1
S. Pine Creek Rd.	Okanogan	WA	37.9	17.0	2.31	17.5	273	11	118	1
S. Pine Creek NTIA	Okanogan	WA	37.9	17.0	2.31	17.5	603	55	261	1
Salmon Creek Rd.	Okanogan	WA	37.9	17.0	2.31	17.5	314	10	136	2
Synarep	Okanogan	WA	37.9	17.0	2.31	17.5	485	12	210	1
Whitestone	Okanogan	WA	37.9	17.0	2.31	17.5	688	10	298	1
Note: where no census data for t	the area existed. Cou	ntv data wa	as used							
Total	3. 3. 3. 3. 3. 3. 3. 3. 3. 3. 3. 3.	, data we						1,628	11,118	

### Okanogan-Colville Subscriber Projections Census Data

		Fa	ctors				
	Age Factor	Income Factor	Household Size Factor	Commute Time	Competition	State Penetration Rate	Forecasted Local Penetration Rate (Data)
Aeneas	1.10	1.00	1.00	1.00	0.75	72%	59.40%
Brewster CDP	1.10	1.00	1.10	1.00	0.66	72%	57.50%
Chillwist	1.10	1.00	1.00	1.00	0.75	72%	59.40%
Conconully CDP	1.00	1.10	0.90	1.10	0.66	72%	51.75%
Crumbacker	1.10	1.00	1.00	1.00	0.66	72%	52.27%
East Omak	1.10	0.90	1.00	1.00	0.50	72%	35.64%
Harmony Heights	1.10	1.00	1.00	1.00	0.50	72%	39.60%
Keystone	1.10	1.00	1.00	1.00	0.75	72%	59.40%
Knob Hill	1.10	1.00	1.00	1.00	0.75	72%	59.40%
Loomis-Palmer	1.00	0.90	1.00	1.00	0.75	72%	48.60%
Malott	1.10	0.80	1.10	1.00	0.66	72%	46.00%
NE Okanogan County	1.10	1.00	1.00	1.00	0.75	72%	59.40%
North Omak	1.10	0.90	1.00	1.00	0.75	72%	53.46%
Omak Flats	1.10	1.00	1.00	1.00	0.75	72%	59.40%
Orchard Grade	1.10	1.00	1.00	1.00	0.75	72%	59.40%
Oroville	1.10	0.80	1.00	1.00	0.50	72%	31.68%
Palmer	1.10	1.00	1.00	1.00	1.00	72%	79.20%
Pateros CDP	1.10	1.10	1.10	1.00	0.66	72%	63.25%
Riverside	1.00	1.10	1.00	1.00	0.75	72%	59.40%
S. Pine Creek Rd.	1.10	1.00	1.00	1.00	0.75	72%	59.40%
S. Pine Creek NTIA	1.10	1.00	1.00	1.00	0.75	72%	59.40%
Salmon Creek Rd.	1.10	1.00	1.00	1.00	0.66	72%	52.27%
Synarep	1.10	1.00	1.00	1.00	0.75	72%	59.40%
Whitestone	1.10	1.00	1.00	1.00	0.75	72%	59.40%
0							
0							
0							
0							
0							
0							
0							
Average Penet	tration Rate						55%

	Busii	nesses	
# of Businesses	Competition	State Penetration Rate	Composite Business Penetration Rate
63	0.75	100%	75%
277	0.66	100%	66%
7	0.75	100%	75%
54	0.66	100%	66%
7	0.66	100%	66%
15	0.50	100%	50%
6	0.50	100%	50%
12	0.75	100%	75%
47	0.75	100%	75%
38	0.75	100%	75%
122	0.66	100%	66%
130	0.75	100%	75%
41	0.75	100%	75%
197	0.75	100%	75%
25	0.75	100%	75%
351	0.50	100%	50%
22	1.00	100%	100%
95	0.66	100%	66%
21	0.75	100%	75%
11	0.75	100%	75%
55	0.75	100%	75%
10	0.66	100%	66%
12	0.75	100%	75%
10	0.75	100%	75%
Average Per	netration Rate		71%

### Okanogan-Colville Subscriber Projections Census Data

	Residential								
	Households	Forecasted Local Penetration Rates	Fifth Year Residential Subscriber Projections						
		Data	Data						
Aeneas	754	59.40%	448						
Brewster CDP	935	57.50%	538						
Chillwist	86	59.40%	51						
Conconully CDP	363	51.75%	188						
Crumbacker	163	52.27%	85						
East Omak	368	35.64%	131						
Harmony Heights	73	39.60%	29						
Keystone	140	59.40%	83						
Knob Hill	779	59.40%	463						
Loomis-Palmer	468	48.60%	227						
Malott	465	46.00%	214						
NE Okanogan County	521	59.40%	309						
North Omak	333	53.46%	178						
Omak Flats	994	59.40%	590						
Orchard Grade	395	59.40%	235						
Oroville	2,401	31.68%	761						
Palmer	186	79.20%	147						
Pateros CDP	500	63.25%	316						
Riverside	171	59.40%	102						
S. Pine Creek Rd.	118	59.40%	70						
S. Pine Creek NTIA	261	59.40%	155						
Salmon Creek Rd.	136	52.27%	71						
Synarep	210	59.40%	125						
Whitestone	298	59.40%	177						
0									
0									
0									
0									
0									
0									
0									

	Business											
Businesses	Forecasted Local Penetration Rates	Fifth Year Business Subscriber Projections Data										
63	0.75	47										
277	0.66	183										
7	0.75	5										
54	0.66	36										
7	0.66	5										
15	0.50	8										
6	0.50	3										
12	0.75	9										
47	0.75	35										
38	0.75	29										
122	0.66	81										
130	0.75	98										
41	0.75	31										
197	0.75	148										
25	0.75	19										
351	0.50	176										
22	1.00	22										
95	0.66	63										
21	0.75	16										
11	0.75	8										
55	0.75	41										
10	0.66	7										
12	0.75	9										
10	0.75	8										
		1,087										

Total Fifth
Year
Subscriber
Projections
Data
495
721
56
224
90
139
32
92
498
256
295
407
209
738
254
937
169
379
118
78
196
78
134
185
C 700

Total 5th Year Subscribers
Total Composite Subscriber Take Rate

5,693 51.21%

1,087 66.77% 6,780



			Speed	Speed				Residential/B	
PFSA	Provider	Technology	down	up	Service	Description	Cost	usiness	Notes
	Hughes Network								
Aeneas	Systems	Satellite	25	3	Data	10GB	\$59.99	Residential	
	Hughes Network								
Aeneas	Systems	Satellite	25	3	Data	20GB	\$69.99	Residential	
	Hughes Network								
Aeneas	Systems	Satellite	25	3	Data	30GB	\$99.99	Residential	
	Hughes Network								
Aeneas	Systems	Satellite	25	3	Data	50GB	\$149.99	Residential	
	Hughes Network								
Aeneas	Systems	Satellite	25	3	Data	Business 35	\$69.99	Business	
Aeneas	King Street Wireless, LLC	Fixed Wireless	10	2	Data				
									FCC site says 100 down/10 up. NCI website
									does not provide this speed in fixed wireless
Aeneas	NCI Datacom	Fixed Wireless	5	1	Video/Data	Essential	\$35.00	Residential	in Okanogan Co.
									FCC site says 100 down/10 up. NCI website
									does not provide this speed in fixed wireless
Aeneas	NCI Datacom	Fixed Wireless	5	1.5	Video/Data	Swift Stream	\$45.00	Residential	in Okanogan Co.
					,		·		FCC site says 100 down/10 up. NCI website
									does not provide this speed in fixed wireless
Aeneas	NCI Datacom	Fixed Wireless	7	2	Video/Data	Swift Stream	\$60.00	Residential	in Okanogan Co.
							,		FCC site says 100 down/10 up. NCI website
									does not provide this speed in fixed wireless
Aeneas	NCI Datacom	Fixed Wireless	10	2.5	Video/Data	Advantage	\$45.00	Residential	in Okanogan Co.
					,	Ü	·		FCC site says 100 down/10 up. NCI website
									does not provide this speed in fixed wireless
Aeneas	NCI Datacom	Fixed Wireless	25	4	Video/Data	Family	\$60.00	Residential	in Okanogan Co.
					,	'			FCC site says 100 down/10 up. NCI website
									does not provide this speed in fixed wireless
Aeneas	NCI Datacom	Fixed Wireless	40	6	Video/Data	Ultimate	\$75.00	Residential	in Okanogan Co.
					,		,		
Aeneas	ViaSat, Inc.	Satellite	35	3	Data	Unlimited Gold 30	\$150.00	Residential	
							7_22.00		
Aeneas	ViaSat, Inc.	Satellite	35	4	Data	Business Unlimited 35	\$175.00	Business	
							,		
Aeneas	ViaSat, Inc.	Satellite			Video	Select	\$35.00	Residential	
							Ç33.00		
Aeneas	VSAT Systems, LLC	Satellite	2	1.3	Data				Managed network service for business
	1 , ,		_		1	1	1	ı	

			Speed	Speed				Residential/B	
PFSA	Provider	Technology	down	up	Service	Description	Cost	usiness	Notes
	Frontier	Ĭ.				·			
Brewster	Communications Corp	ADSL	6	1	Data	Simply Broadband Core	\$27 99	Residential	
biewste.	Frontier	/ LDSL	- U		Dutu	Simply Broadband core	Ψ <u></u> 27.33	Residential	
Brewster	Communications Corp	ADSL	25	2	Data	Frontier Preferred	\$34.99	Residential	
	Hughes Network	-					,		
Brewster	Systems	Satellite	25	3	Data	10GB	\$59.99	Residential	
	Hughes Network						·		
Brewster	Systems	Satellite	25	3	Data	20GB	\$69.99	Residential	
	Hughes Network								
Brewster	Systems	Satellite	25	3	Data	30GB	\$99.99	Residential	
	Hughes Network								
Brewster	Systems	Satellite	25	3	Data	50GB	\$149.99	Residential	
	Hughes Network								
Brewster	Systems	Satellite	25	3	Data	Business 35	\$69.99	Business	
	,								FCC site says 100 down/10 up. NCI website
									does not provide this speed in fixed wireless
Brewster	NCI Datacom	Fixed Wireless	5	1	Video/Data	Essential	\$35.00	Residential	in Okanogan Co.
									FCC site says 100 down/10 up. NCI website
									does not provide this speed in fixed wireless
Brewster	NCI Datacom	Fixed Wireless	5	1.5	Video/Data	Swift Stream	\$45.00	Residential	in Okanogan Co.
									FCC site says 100 down/10 up. NCI website
									does not provide this speed in fixed wireless
Brewster	NCI Datacom	Fixed Wireless	7	2	Video/Data	Swift Stream	\$60.00	Residential	in Okanogan Co.
									FCC site says 100 down/10 up. NCI website
									does not provide this speed in fixed wireless
Brewster	NCI Datacom	Fixed Wireless	10	2.5	Video/Data	Advantage	\$45.00	Residential	in Okanogan Co.
									FCC site says 100 down/10 up. NCI website
									does not provide this speed in fixed wireless
Brewster	NCI Datacom	Fixed Wireless	25	4	Video/Data	Family	\$60.00	Residential	in Okanogan Co.
Brewster	NCI Datacom	Fixed Wireless	40	6	Video/Data	Ultimate	\$75.00	Residential	
Brewster	ViaSat, Inc.	Satellite	35	3	Data	Unlimited Gold 30	\$150.00	Residential	
Brewster	ViaSat, Inc.	Satellite	35	4	Data	<b>Business Unlimited 35</b>	\$175.00	Business	
Brewster	ViaSat, Inc.	Satellite			Video	Select	\$35.00	Residential	
Brewster	VSAT Systems, LLC	Satellite	2	1.3	Data				Managed network service for business

			Speed	Speed				Residential/B	
PFSA	Provider	Technology	down	up	Service	Description	Cost	usiness	Notes
	Hughes Network								
Chillwist	Systems	Satellite	25	3	Data	10GB	\$59.99	Residential	
	Hughes Network								
Chillwist	Systems	Satellite	25	3	Data	20GB	\$69.99	Residential	
	Hughes Network								
Chillwist	Systems	Satellite	25	3	Data	30GB	\$99.99	Residential	
	Hughes Network								
Chillwist	Systems	Satellite	25	3	Data	50GB	\$149.99	Residential	
	Hughes Network								
Chillwist	Systems	Satellite	25	3	Data	Business 35	\$69.99	Business	
									does not provide this speed in fixed wireless
Chillwist	NCI Datacom	Fixed Wireless	5	1	Video/Data	Essential	\$35.00	Residential	in Okanogan Co.
									does not provide this speed in fixed wireless
Chillwist	NCI Datacom	Fixed Wireless	5	1.5	Video/Data	Swift Stream	\$45.00	Residential	in Okanogan Co.
									does not provide this speed in fixed wireless
Chillwist	NCI Datacom	Fixed Wireless	7	2	Video/Data	Swift Stream	\$60.00	Residential	in Okanogan Co.
Chillwist	NCI Datacom	Fixed Wireless	7	2	Data		\$45.00	Residential	Reseller for PUD #1
									does not provide this speed in fixed wireless
Chillwist	NCI Datacom	Fixed Wireless	10	2.5	Video/Data	Advantage	\$45.00	Residential	in Okanogan Co.
									does not provide this speed in fixed wireless
Chillwist	NCI Datacom	Fixed Wireless	25	4	Video/Data	Family	\$60.00	Residential	in Okanogan Co.
									does not provide this speed in fixed wireless
Chillwist	NCI Datacom	Fixed Wireless	40	6	Video/Data	Ultimate	\$75.00	Residential	in Okanogan Co.
Chillwist	ViaSat, Inc.	Satellite	35	3	Data	Unlimited Gold 30	\$150.00	Residential	
Chillwist	ViaSat, Inc.	Satellite	35	4	Data	<b>Business Unlimited 35</b>	\$175.00	Business	
				_					
Chillwist	ViaSat, Inc.	Satellite			Video	Select	\$35.00	Residential	
Chillwist	VSAT Systems, LLC	Satellite	2	1.3	Data				Managed network service for business

			Speed	Speed				Residential/B	
PFSA	Provider	Technology	down	up	Service	Description	Cost	usiness	Notes
Conconully	CenturyLink, Inc.	ADSL	1.5	0.896	Data		\$50.00	Residential	
Conconully	CommunityNet	Wireless	3	1	Data		\$45.00	Residential	Reseller for PUD #1
Conconully	CommunityNet	Wireless	7	2	Data		\$53.00	Residential	Reseller for PUD #1
Conconully	CommunityNet	Wireless	12	3	Data		\$61.00	Residential	Reseller for PUD #1
Conconully	CommunityNet	Wireless	20	5	Data		\$75.00	Residential	Reseller for PUD #1
Conconully	Highland Internet	Wireless	3	1	Data		\$40.00	Residential	Reseller for PUD #1
Conconully	Highland Internet	WIFI	3	1	Data		\$40.00	Residential	Reseller for PUD #1
Conconully	Highland Internet	Wireless	7	3	Data		\$50.00	Residential	Reseller for PUD #1
Conconully	Highland Internet	WIFI	7	3	Data		\$48.00	Residential	Reseller for PUD #1
Conconully	Highland Internet	WIFI	10	5	Data		\$60.00	Residential	Reseller for PUD #1
Conconully	Highland Internet	Wireless	12	6	Data		\$65.00	Residential	Reseller for PUD #1
Conconully	Highland Internet	WIFI	12	6	Data		\$65.00	Residential	Reseller for PUD #1
Conconully	Highland Internet	WIFI	20	10	Data		\$75.00	Residential	Reseller for PUD #1
Conconully	Highland Internet	Fiber							Also reseller for PUD
Conconully	Hughes Network Systems	Satellite	25	3	Data	10GB	\$59.99	Residential	
Conconully	Hughes Network Systems	Satellite	25	3	Data	20GB	\$69.99	Residential	
Conconully	Hughes Network Systems	Satellite	25	3	Data	30GB	\$99.99	Residential	
Conconully	Hughes Network Systems	Satellite	25	3	Data	50GB	\$149.99	Residential	
Conconully	Hughes Network Systems	Satellite	25	3	Data	Business 35	\$69.99	Business	
Conconully	LocalTel	Fiber	100	10	Data		51.44	Residential	Reseller for PUD #1
Conconully	LocalTel	Fiber	100	100	Data		71.64	Residential	Reseller for PUD #1
Conconully	LocalTel	Fiber	1000	100	Data		74.95	Residential	Reseller for PUD #1
Conconully	Methownet	Fixed Wireless	3	1	Data		\$49.00	Residential	Reseller for PUD #1
Conconully	Methownet	Fixed Wireless	7	2 or 3	Data		\$59.00	Residential	Reseller for PUD #1

			Speed	Speed				Residential/B	
PFSA	Provider	Technology	down	up	Service	Description	Cost	usiness	Notes
Conconully	Methownet	Fixed Wireless	12	3 or 6	Data		\$79.00	Residential	Reseller for PUD #1
Conconully	Methownet	Fixed Wireless	20	5 or 10	Data		\$99.00	Residential	Reseller for PUD #1
Conconully	NCI Datacom	Fixed Wireless	3	1	Data		\$35.00	Residential	Reseller for PUD #1
									FCC site says 100 down/10 up. NCI website does not provide this speed in fixed wireless
Conconully	NCI Datacom	Fixed Wireless	5	1	Video/Data	Essential	\$35.00	Residential	in Okanogan Co.
Conconully	NCI Datacom	Fixed Wireless	5	1.5	Video/Data	Swift Stream	¢4E 00	Residential	FCC site says 100 down/10 up. NCI website does not provide this speed in fixed wireless in Okanogan Co.
Conconting	NCI Datacom	rixeu Wireless	3	1.5	Video/Data	Swiit Stream	\$45.00	Residential	FCC site says 100 down/10 up. NCI website
Conconully	NCI Datacom	Fixed Wireless	7	2	Video/Data	Swift Stream	\$60.00	Residential	does not provide this speed in fixed wireless in Okanogan Co.
Conconully	NCI Datacom	Fixed Wireless	7	2	Data		\$45.00	Residential	Reseller for PUD #1
									FCC site says 100 down/10 up. NCI website
									does not provide this speed in fixed wireless
Conconully	NCI Datacom	Fixed Wireless	10	2.5	Video/Data	Advantage	\$45.00	Residential	in Okanogan Co.
Conconully	NCI Datacom	Fixed Wireless	12	3	Data		\$60.00	Residential	Reseller for PUD #1
Conconully	NCI Datacom	Fixed Wireless	20	10	Data		\$75.00	Residential	Reseller for PUD #1
containy	Trei Butacom	inca vinciess	20	- 10			ψ,σ.σσ	riesia erreia.	FCC site says 100 down/10 up. NCI website
									does not provide this speed in fixed wireless
Conconully	NCI Datacom	Fixed Wireless	25	4	Video/Data	Family	\$60.00	Residential	in Okanogan Co.
Conconully	NCI Datacom	Fixed Wireless	40	6	Video/Data	Ultimate	\$75.00	Residential	FCC site says 100 down/10 up. NCI website does not provide this speed in fixed wireless in Okanogan Co.
							,		
Conconully	PC Telecom	Wireless	1		Data		29.99	Residential	Reseller for PUD #1
Conconully	PC Telecom	Wireless	3		Data		39.99	Residential	Reseller for PUD #1
Conconully	PC Telecom	Wireless	5		Data		49.99	Residential	Reseller for PUD #1
Conconully	PC Telecom	Fiber	5		Data		59.99	Residential	Reseller for PUD #1
Conconully	PC Telecom	Wireless	7		Data		59.99	Residential	Reseller for PUD #1
Conconully	PC Telecom	Wireless	10		Data		69.99	Residential	Reseller for PUD #1
Conconully	PC Telecom	Fiber	10		Data		69.99	Residential	Reseller for PUD #1
Conconully	PC Telecom	Fiber	20		Data		79.99	Residential	Reseller for PUD #1
Conconully	PC Telecom	Fiber	50		Data		89.99	Residential	Reseller for PUD #1

			Speed	Speed				Residential/B	
PFSA	Provider	Technology	down	up	Service	Description	Cost	usiness	Notes
Conconully	PC Telecom	Fiber	100		Data		99.99	Residential	Reseller for PUD #1
Conconully	Startouch								Carrier & Business solutions only
Conconully	ViaSat, Inc.	Satellite	35	3	Data	Unlimited Gold 30	\$150.00	Residential	
Conconully	ViaSat, Inc.	Satellite	35	4	Data	Business Unlimited 35	\$175.00	Business	
Conconully	ViaSat, Inc.	Satellite			Video	Select	\$35.00	Residential	
Conconully	VSAT Systems, LLC	Satellite	2	1.3	Data				Managed network service for business
Conconully	WillConnect	Wireless	3	1	Data		\$40.00	Residential	Reseller for PUD #1
Conconully	WillConnect	Wireless	7	2	Data		\$50.00	Residential	Reseller for PUD #1
Conconully	WillConnect	Wireless	12	3	Data		\$65.00	Residential	Reseller for PUD #1
Conconully	WillConnect	Wireless	20	5	Data		\$75.00	Residential	Reseller for PUD #1

			Speed	Speed				Residential/B	
PFSA	Provider	Technology	down	up	Service	Description	Cost	usiness	Notes
		j.				·			
Crumbacher	CenturyLink, Inc.	ADSL	40	2	Data		\$55.00	Residential	
	Hughes Network								
Crumbacher	Systems	Satellite	25	3	Data	10GB	\$59.99	Residential	
	Hughes Network								
Crumbacher	Systems	Satellite	25	3	Data	20GB	\$69.99	Residential	
	Hughes Network								
Crumbacher	Systems	Satellite	25	3	Data	30GB	\$99.99	Residential	
	Hughes Network								
Crumbacher	Systems	Satellite	25	3	Data	50GB	\$149.99	Residential	
	Hughes Network								
Crumbacher	Systems	Satellite	25	3	Data	Business 35	\$69.99	Business	
									FCC site says 100 down/10 up. NCI website
									does not provide this speed in fixed wireless
Crumbacher	NCI Datacom	Fixed Wireless	5	1	Video/Data	Essential	\$35.00	Residential	in Okanogan Co.
									FCC site says 100 down/10 up. NCI website
									does not provide this speed in fixed wireless
Crumbacher	NCI Datacom	Fixed Wireless	5	1.5	Video/Data	Swift Stream	\$45.00	Residential	in Okanogan Co.
									FCC site says 100 down/10 up. NCI website
									does not provide this speed in fixed wireless
Crumbacher	NCI Datacom	Fixed Wireless	7	2	Video/Data	Swift Stream	\$60.00	Residential	in Okanogan Co.
Crumbacher	NCI Datacom	Fixed Wireless	7	2	Data		\$45.00	Residential	Reseller for PUD #1
									FCC site says 100 down/10 up. NCI website
									does not provide this speed in fixed wireless
Crumbacher	NCI Datacom	Fixed Wireless	10	2.5	Video/Data	Advantage	\$45.00	Residential	in Okanogan Co.
									FCC site says 100 down/10 up. NCI website
									does not provide this speed in fixed wireless
Crumbacher	NCI Datacom	Fixed Wireless	25	4	Video/Data	Family	\$60.00	Residential	in Okanogan Co.
									FCC site says 100 down/10 up. NCI website
									does not provide this speed in fixed wireless
Crumbacher	NCI Datacom	Fixed Wireless	40	6	Video/Data	Ultimate	\$75.00	Residential	in Okanogan Co.
Crumbacher	ViaSat, Inc.	Satellite	35	3	Data	Unlimited Gold 30	\$150.00	Residential	
Crumbacher	ViaSat, Inc.	Satellite	35	4	Data	Business Unlimited 35	\$175.00	Business	
							4		
Crumbacher	ViaSat, Inc.	Satellite			Video	Select	\$35.00	Residential	
Crumbacher	VSAT Systems, LLC	Satellite	2	1.3	Data				Managed network service for business

			Speed	Speed				Residential/B	
PFSA	Provider	Technology	down	up	Service	Description	Cost	usiness	Notes
East Omak	CenturyLink, Inc.	ADSL	10	1	Data		\$50.00	Residential	
East Omak	Charter Communications	Cable	120	10	Voice/Video/Data	Triple play select	\$99.97	Residential	125 Channels
5 . 0 . 1		6.11	420	40	V : A :: 1	T . I	4440.00		475 Cl
East Omak	Charter Communications	Cable	120	10	Voice/Video/Data	Triple play silver	\$119.99	Residential	175 Channels
East Omak	Charter Communications	Cable	120	10	Voice/Video/Data	Triple play gold	\$130.07	Residential	200 Channels
Last Offiak	Charter Communications	Cable	120	10	Voice/ Video/ Data	Triple play gold	Ş133.37	Residential	200 Chameis
East Omak	Charter Communications	Cable	120	10	Data	Internet	\$44.99	Residential	
	Hughes Network						7		
East Omak	_	Satellite	25	3	Data	10GB	\$59.99	Residential	
	Hughes Network								
East Omak	Systems	Satellite	25	3	Data	20GB	\$69.99	Residential	
	Hughes Network								
East Omak	Systems	Satellite	25	3	Data	30GB	\$99.99	Residential	
	Hughes Network								
East Omak	Systems	Satellite	25	3	Data	50GB	\$149.99	Residential	
	Hughes Network								
East Omak	Systems	Satellite	25	3	Data	Business 35	\$69.99	Business	
East Omak	King Street Wireless, LLC	Fixed Wireless	10	2	Data				
5 . 0 . 1	NGI D. I	E11	400	20			405.00		D II 6 DUD #4
East Omak	NCI Datacom	Fiber	100	20	Data		\$95.00	Residential	Reseller for PUD #1
East Omak	NCI Datacom	Fiber	100	100	Data		\$120.00	Residential	Reseller for PUD #1
Last Offiak	NCI Datacom	ribei	100	100	Data		\$120.00	Residential	Reseller for FOD #1
East Omak	NCI Datacom	Fiber	100	20	Data		\$105.00	Business	Reseller for PUD #1
zast smart	Trei Butacom		100		200		ψ105.00	545655	110001101 101 1 00 112
East Omak	NCI Datacom	Fiber	100	100	Data		\$130.00	Business	Reseller for PUD #1
East Omak	ViaSat, Inc.	Satellite	35	3	Data	Unlimited Gold 30	\$150.00	Residential	
East Omak	ViaSat, Inc.	Satellite	35	4	Data	Business Unlimited 35	\$175.00	Business	
East Omak	ViaSat, Inc.	Satellite			Video	Select	\$35.00	Residential	
East Omak	VSAT Systems, LLC	Satellite	2	1.3	Data				Managed network service for business

			Speed	Speed				Residential/B	
PFSA	Provider	Technology	down	up	Service	Description	Cost	usiness	Notes
	Frontier								
Harmony Heights	Communications Corp	ADSL	6	1	Data	Simply Broadband Core	\$27.99	Residential	
	Frontier								
Harmony Heights	Communications Corp	ADSL	25	2	Data	Frontier Preferred	\$34.99	Residential	
	<b>Hughes Network</b>								
Harmony Heights	Systems	Satellite	25	3	Data	10GB	\$59.99	Residential	
	Hughes Network								
Harmony Heights	Systems	Satellite	25	3	Data	20GB	\$69.99	Residential	
	Hughes Network								
Harmony Heights	Systems	Satellite	25	3	Data	30GB	\$99.99	Residential	
	<b>Hughes Network</b>								
Harmony Heights	Systems	Satellite	25	3	Data	50GB	\$149.99	Residential	
	<b>Hughes Network</b>								
Harmony Heights	Systems	Satellite	25	3	Data	Business 35	\$69.99	Business	
Harmony Heights	NCI Datacom	Fiber	100	20	Data		\$95.00	Residential	Reseller for PUD #1
Harmony Heights	NCI Datacom	Fiber	100	100	Data		\$120.00	Residential	Reseller for PUD #1
Harmony Heights	NCI Datacom	Fiber	100	20	Data		\$105.00	Business	Reseller for PUD #1
Harmony Heights	NCI Datacom	Fiber	100	100	Data		\$130.00	Business	Reseller for PUD #1
Harmony Heights	ViaSat, Inc.	Satellite	35	3	Data	Unlimited Gold 30	\$150.00	Residential	
Harmony Heights	ViaSat, Inc.	Satellite	35	4	Data	Business Unlimited 35	\$175.00	Business	
Harmony Heights	ViaSat, Inc.	Satellite			Video	Select	\$35.00	Residential	
Harmony Heights	VSAT Systems, LLC	Satellite	2	1.3	Data				Managed network service for business

			Speed	Speed				Residential/B	
PFSA	Provider	Technology	down	up	Service	Description	Cost	usiness	Notes
	Hughes Network								
Keystone	Systems	Satellite	25	3	Data	10GB	\$59.99	Residential	
	Hughes Network								
Keystone	Systems	Satellite	25	3	Data	20GB	\$69.99	Residential	
	Hughes Network								
Keystone	Systems	Satellite	25	3	Data	30GB	\$99.99	Residential	
	Hughes Network								
Keystone	Systems	Satellite	25	3	Data	50GB	\$149.99	Residential	
	Hughes Network								
Keystone	Systems	Satellite	25	3	Data	Business 35	\$69.99	Business	
Keystone	NCI Datacom	Fiber	100	20	Data		\$95.00	Residential	Reseller for PUD #1
Keystone	NCI Datacom	Fiber	100	100	Data		\$120.00	Residential	Reseller for PUD #1
Keystone	NCI Datacom	Fiber	100	20	Data		\$105.00	Business	Reseller for PUD #1
Keystone	NCI Datacom	Fiber	100	100	Data		\$130.00	Business	Reseller for PUD #1
Keystone	ViaSat, Inc.	Satellite	35	3	Data	Unlimited Gold 30	\$150.00	Residential	
Keystone	ViaSat, Inc.	Satellite	35	4	Data	Business Unlimited 35	\$175.00	Business	
Keystone	ViaSat, Inc.	Satellite			Video	Select	\$35.00	Residential	
Keystone	VSAT Systems, LLC	Satellite	2	1.3	Data				Managed network service for business

			Speed	Speed				Residential/B	
PFSA	Provider	Technology	down	up	Service	Description	Cost	usiness	Notes
Knob Hill	CenturyLink, Inc.	ADSL	10	1	Data		\$50.00	Residential	
	Hughes Network								
Knob Hill	Systems	Satellite	25	3	Data	10GB	\$59.99	Residential	
	Hughes Network								
Knob Hill	Systems	Satellite	25	3	Data	20GB	\$69.99	Residential	
	Hughes Network								
Knob Hill	Systems	Satellite	25	3	Data	30GB	\$99.99	Residential	
	Hughes Network								
Knob Hill	Systems	Satellite	25	3	Data	50GB	\$149.99	Residential	
	Hughes Network								
Knob Hill	Systems	Satellite	25	3	Data	Business 35	\$69.99	Business	
	·								
Knob Hill	NCI Datacom	Fiber	100	20	Data		\$95.00	Residential	Reseller for PUD #1
							·		
Knob Hill	NCI Datacom	Fiber	100	100	Data		\$120.00	Residential	Reseller for PUD #1
							,		
Knob Hill	NCI Datacom	Fiber	100	20	Data		\$105.00	Business	Reseller for PUD #1
	ive. Butuse		100		5444		Ψ100.00	243633	nesener for t ob #1
Knob Hill	NCI Datacom	Fiber	100	100	Data		\$130.00	Business	Reseller for PUD #1
	ive. Butuse		100	100	5444		Ψ100.00	243633	nesener for t ob #1
Knob Hill	ViaSat, Inc.	Satellite	35	3	Data	Unlimited Gold 30	\$150.00	Residential	
KIIOD TIIII	Viasat, me.	Satemite	33	,	Data	Offillitieca dola 30	7130.00	Residential	
Knob Hill	ViaSat, Inc.	Satellite	35	4	Data	Business Unlimited 35	\$175.00	Business	
THIS THIS	viasac, me.	Jaconice	33		Data	basiness oriminited 55	7175.00	Dasiness	
Knob Hill	ViaSat, Inc.	Satellite			Video	Select	\$35.00	Residential	
KIIOO IIIII	viasat, iiic.	Jatemile			VIUCU	Jeiect	333.00	nesidential	
Knob Hill	VSAT Systems, LLC	Satellite	2	1.3	Data				Managed network service for business
KIIOOTIIII	VOAT SYSTEMS, LLC	Jaccinte		1.5	Data			1	ivialiaged licework service for business

			Speed	Speed				Residential/B	
PFSA	Provider	Technology	down	up	Service	Description	Cost	usiness	Notes
	Hughes Network								
Loomis-Palmer	Systems	Satellite	25	3	Data	10GB	\$59.99	Residential	
	Hughes Network								
Loomis-Palmer	Systems	Satellite	25	3	Data	20GB	\$69.99	Residential	
	Hughes Network								
Loomis-Palmer	Systems	Satellite	25	3	Data	30GB	\$99.99	Residential	
	Hughes Network								
Loomis-Palmer	Systems	Satellite	25	3	Data	50GB	\$149.99	Residential	
	Hughes Network								
Loomis-Palmer	Systems	Satellite	25	3	Data	Business 35	\$69.99	Business	
Loomis-Palmer	NCI Datacom	Fiber	100	20	Data		\$95.00	Residential	Reseller for PUD #1
Loomis-Palmer	NCI Datacom	Fiber	100	100	Data		\$120.00	Residential	Reseller for PUD #1
Loomis-Palmer	NCI Datacom	Fiber	100	20	Data		\$105.00	Business	Reseller for PUD #1
Loomis-Palmer	NCI Datacom	Fiber	100	100	Data		\$130.00	Business	Reseller for PUD #1
Loomis-Palmer	ViaSat, Inc.	Satellite	35	3	Data	Unlimited Gold 30	\$150.00	Residential	
Loomis-Palmer	ViaSat, Inc.	Satellite	35	4	Data	<b>Business Unlimited 35</b>	\$175.00	Business	
Loomis-Palmer	ViaSat, Inc.	Satellite			Video	Select	\$35.00	Residential	
Loomis-Palmer	VSAT Systems, LLC	Satellite	2	1.3	Data				Managed network service for business

			Speed	Speed				Residential/B	
PFSA	Provider	Technology	down	up	Service	Description	Cost	usiness	Notes
Malott	CenturyLink, Inc.	ADSL	60	5	Data		\$55.00	Residential	
Malott	CommunityNet	Wireless	3	1	Data		\$45.00	Residential	Reseller for PUD #1
Malott	CommunityNet	Wireless	7	2	Data		\$53.00	Residential	Reseller for PUD #1
Malott	CommunityNet	Wireless	12	3	Data		\$61.00	Residential	Reseller for PUD #1
Malott	CommunityNet	Wireless	20	5	Data		\$75.00	Residential	Reseller for PUD #1
Malott	Highland Internet	Wireless	3	1	Data		\$40.00	Residential	Reseller for PUD #1
Malott	Highland Internet	WIFI	3	1	Data		\$40.00	Residential	Reseller for PUD #1
Malott	Highland Internet	Wireless	7	3	Data		\$50.00	Residential	Reseller for PUD #1
Malott	Highland Internet	WIFI	7	3	Data		\$48.00	Residential	Reseller for PUD #1
Malott	Highland Internet	WIFI	10	5	Data		\$60.00	Residential	Reseller for PUD #1
Malott	Highland Internet	Wireless	12	6	Data		\$65.00	Residential	Reseller for PUD #1
Malott	Highland Internet	WIFI	12	6	Data		\$65.00	Residential	Reseller for PUD #1
Malott	Highland Internet	WIFI	20	10	Data		\$75.00	Residential	Reseller for PUD #1
Malott	Highland Internet	Fiber							Also reseller for PUD
Malott	Hughes Network Systems	Satellite	25	3	Data	10GB	\$59.99	Residential	
Malott	Hughes Network Systems	Satellite	25	3	Data	20GB	\$69.99	Residential	
Malott	Hughes Network Systems	Satellite	25	3	Data	30GB	\$99.99	Residential	
Malott	Hughes Network Systems	Satellite	25	3	Data	50GB	\$149.99	Residential	
Malott	Hughes Network Systems	Satellite	25	3	Data	Business 35	\$69.99	Business	
Malott	King Street Wireless, LLC	Fixed Wireless	10	2	Data				
Malott	LocalTel	Fiber	100	10	Data		51.44	Residential	Reseller for PUD #1
Malott	LocalTel	Fiber	100	100	Data		71.64	Residential	Reseller for PUD #1
Malott	LocalTel	Fiber	1000	100	Data		74.95	Residential	Reseller for PUD #1
Malott	Methownet	Fixed Wireless	3	1	Data		\$49.00	Residential	Reseller for PUD #1

			Speed	Speed				Residential/B	
PFSA	Provider	Technology	down	up	Service	Description	Cost	usiness	Notes
Malott	Methownet	Fixed Wireless	7	2 or 3	Data		\$59.00	Residential	Reseller for PUD #1
Malott	Methownet	Fixed Wireless	12	3 or 6	Data		\$79.00	Residential	Reseller for PUD #1
Malott	Methownet	Fixed Wireless	20	5 or 10	Data		\$99.00	Residential	Reseller for PUD #1
Malott	NCI Datacom	Fixed Wireless	3	1	Data		\$35.00	Residential	Reseller for PUD #1
Malott	NCI Datacom	Fixed Wireless	5	1	Video/Data	Essential	\$35.00	Residential	FCC site says 100 down/10 up. NCI website does not provide this speed in fixed wireless in Okanogan Co.
Malott	NCI Datacom	Fixed Wireless	5	1.5	Video/Data	Swift Stream	\$45.00	Residential	FCC site says 100 down/10 up. NCI website does not provide this speed in fixed wireless in Okanogan Co.
Malott	NCI Datacom	Fixed Wireless	7		Video/Data	Swift Stream		Residential	FCC site says 100 down/10 up. NCI website does not provide this speed in fixed wireless in Okanogan Co.
Malott	NCI Datacom	Fixed Wireless	7		Data	own, on cum		Residential	Reseller for PUD #1
	NCI Datacom		10		Video/Data	Advantage	-	Residential	FCC site says 100 down/10 up. NCI website does not provide this speed in fixed wireless
Malott	NCI Datacom	Fixed Wireless	10	2.5	Video/ Data	Advantage	\$45.00	Residential	in Okanogan Co.
Malott	NCI Datacom	Fixed Wireless	12	3	Data		\$60.00	Residential	Reseller for PUD #1
Malott	NCI Datacom	Fixed Wireless	20	10	Data		\$75.00	Residential	Reseller for PUD #1
Malott	NCI Datacom	Fixed Wireless	25	4	Video/Data	Family	\$60.00	Residential	FCC site says 100 down/10 up. NCI website does not provide this speed in fixed wireless in Okanogan Co.
	NCI Datacom	Fixed Wireless	40		Video/Data	Ultimate	·	Residential	FCC site says 100 down/10 up. NCI website does not provide this speed in fixed wireless
Malott Malott	NCI Datacom	Fiber	40		Data	Ottimate		Residential	in Okanogan Co.  Reseller for PUD #1
Malott	NCI Datacom	Fiber	40		Data			Residential	Reseller for PUD #1
Malott	NCI Datacom	Fiber	40	8	Data		\$89.00	Business	Reseller for PUD #1
Malott	NCI Datacom	Fiber	40	40	Data		\$109.00	Business	Reseller for PUD #1
Malott	NCI Datacom	Fiber	100	20	Data		\$95.00	Residential	Reseller for PUD #1
Malott	NCI Datacom	Fiber	100	100	Data		\$120.00	Residential	Reseller for PUD #1
Malott	NCI Datacom	Fiber	100	20	Data		\$105.00	Business	Reseller for PUD #1
Malott	NCI Datacom	Fiber	100	100	Data		\$130.00	Business	Reseller for PUD #1

			Speed	Speed				Residential/B	
PFSA	Provider	Technology	down	up	Service	Description	Cost	usiness	Notes
Malott	PC Telecom	Wireless	1		Data		29.99	Residential	Reseller for PUD #1
Malott	PC Telecom	Wireless	3		Data		39.99	Residential	Reseller for PUD #1
Malott	PC Telecom	Wireless	5		Data		49.99	Residential	Reseller for PUD #1
Malott	PC Telecom	Fiber	5		Data		59.99	Residential	Reseller for PUD #1
Malott	PC Telecom	Wireless	7		Data		59.99	Residential	Reseller for PUD #1
Malott	PC Telecom	Wireless	10		Data		69.99	Residential	Reseller for PUD #1
Malott	PC Telecom	Fiber	10		Data		69.99	Residential	Reseller for PUD #1
Malott	PC Telecom	Fiber	20		Data		79.99	Residential	Reseller for PUD #1
Malott	PC Telecom	Fiber	50		Data		89.99	Residential	Reseller for PUD #1
Malott	PC Telecom	Fiber	100		Data		99.99	Residential	Reseller for PUD #1
Malott	Startouch								Carrier & Business solutions only
Malott	ViaSat, Inc.	Satellite	35	3	Data	Unlimited Gold 30	\$150.00	Residential	
Malott	ViaSat, Inc.	Satellite	35	4	Data	Business Unlimited 35	\$175.00	Business	
Malott	ViaSat, Inc.	Satellite			Video	Select	\$35.00	Residential	
Malott	VSAT Systems, LLC	Satellite	2	1.3	Data				Managed network service for business
Malott	WillConnect	Wireless	3	1	Data		\$40.00	Residential	Reseller for PUD #1
Malott	WillConnect	Wireless	7	2	Data		\$50.00	Residential	Reseller for PUD #1
Malott	WillConnect	Wireless	12	3	Data		\$65.00	Residential	Reseller for PUD #1
Malott	WillConnect	Wireless	20	5	Data		\$75.00	Residential	Reseller for PUD #1

			Speed	Speed				Residential/B	
PFSA	Provider	Technology	down	up	Service	Description	Cost	usiness	Notes
	Hughes Network								
NE Okanogan County	Systems	Satellite	25	3	Data	10GB	\$59.99	Residential	
	Hughes Network								
NE Okanogan County	Systems	Satellite	25	3	Data	20GB	\$69.99	Residential	
	Hughes Network								
NE Okanogan County	Systems	Satellite	25	3	Data	30GB	\$99.99	Residential	
	Hughes Network								
NE Okanogan County	Systems	Satellite	25	3	Data	50GB	\$149.99	Residential	
	Hughes Network								
NE Okanogan County	Systems	Satellite	25	3	Data	Business 35	\$69.99	Business	
NE Okanogan County	NCI Datacom	Fiber	100	20	Data		\$95.00	Residential	Reseller for PUD #1
NE Okanogan County	NCI Datacom	Fiber	100	100	Data		\$120.00	Residential	Reseller for PUD #1
NE Okanogan County	NCI Datacom	Fiber	100	20	Data		\$105.00	Business	Reseller for PUD #1
NE Okanogan County	NCI Datacom	Fiber	100	100	Data		\$130.00	Business	Reseller for PUD #1
NE Okanogan County	ViaSat, Inc.	Satellite	35	3	Data	Unlimited Gold 30	\$150.00	Residential	
NE Okanogan County	ViaSat, Inc.	Satellite	35	4	Data	Business Unlimited 35	\$175.00	Business	
NE Okanogan County	ViaSat, Inc.	Satellite			Video	Select	\$35.00	Residential	
NE Okanogan County	VSAT Systems, LLC	Satellite	2	1.3	Data				Managed network service for business

İ			Speed	Speed				Residential/B	
PFSA	Provider	Technology	down	up	Service	Description	Cost	usiness	Notes
	Hughes Network								
N. Omak	Systems	Satellite	25	3	Data	10GB	\$59.99	Residential	
	Hughes Network								
N. Omak	Systems	Satellite	25	3	Data	20GB	\$69.99	Residential	
	Hughes Network								
N. Omak	Systems	Satellite	25	3	Data	30GB	\$99.99	Residential	
	Hughes Network								
N. Omak	Systems	Satellite	25	3	Data	50GB	\$149.99	Residential	
	Hughes Network								
N. Omak	Systems	Satellite	25	3	Data	Business 35	\$69.99	Business	
									FCC site says 100 down/10 up. NCI website
1									does not provide this speed in fixed wireless
N. Omak	NCI Datacom	Fixed Wireless	5	1	Video/Data	Essential	\$35.00	Residential	in Okanogan Co.
									FCC site says 100 down/10 up. NCI website
1									does not provide this speed in fixed wireless
N. Omak	NCI Datacom	Fixed Wireless	5	1.5	Video/Data	Swift Stream	\$45.00	Residential	in Okanogan Co.
									FCC site says 100 down/10 up. NCI website
1									does not provide this speed in fixed wireless
N. Omak	NCI Datacom	Fixed Wireless	7	2	Video/Data	Swift Stream	\$60.00	Residential	in Okanogan Co.
N. Omak	NCI Datacom	Fixed Wireless	7	2	Data		\$45.00	Residential	Reseller for PUD #1
									FCC site says 100 down/10 up. NCI website
1									does not provide this speed in fixed wireless
N. Omak	NCI Datacom	Fixed Wireless	10	2.5	Video/Data	Advantage	\$45.00	Residential	in Okanogan Co.
N. Omak	NCI Datacom	Fixed Wireless	12	3	Data		\$60.00	Residential	Reseller for PUD #1
N. Omak	NCI Datacom	Fixed Wireless	20	10	Data		\$75.00	Residential	Reseller for PUD #1
									FCC site says 100 down/10 up. NCI website
1									does not provide this speed in fixed wireless
N. Omak	NCI Datacom	Fixed Wireless	25	4	Video/Data	Family	\$60.00	Residential	in Okanogan Co.
									FCC site says 100 down/10 up. NCI website
1									does not provide this speed in fixed wireless
N. Omak	NCI Datacom	Fixed Wireless	40	6	Video/Data	Ultimate	\$75.00	Residential	in Okanogan Co.
N. Omak	ViaSat, Inc.	Satellite	35	3	Data	Unlimited Gold 30	\$150.00	Residential	
N. Omak	ViaSat, Inc.	Satellite	35	4	Data	Business Unlimited 35	\$175.00	Business	
1									
N. Omak	ViaSat, Inc.	Satellite			Video	Select	\$35.00	Residential	
			]						
N. Omak	VSAT Systems, LLC	Satellite	2	1.3	Data				Managed network service for business

			Speed	Speed				Residential/B	
PFSA	Provider	Technology	down	up	Service	Description	Cost	usiness	Notes
PF3A	Hughes Network	recimology	down	up	Service	Description	Cost	usiness	Notes
Omak Flats	Systems	Satellite	25	3	Data	10GB	\$50.00	Residential	
Office Field	Hughes Network	Satemite	23	,	Data	1000	γ33.33	Residential	
Omak Flats	Systems	Satellite	25	3	Data	20GB	\$69.99	Residential	
Omakinas	Hughes Network	Satemee	23		Dutu	2005	Ç03.33	Residential	
Omak Flats	Systems	Satellite	25	3	Data	30GB	\$99.99	Residential	
	Hughes Network			_			700.00		
Omak Flats	Systems	Satellite	25	3	Data	50GB	\$149.99	Residential	
	Hughes Network								
Omak Flats	Systems	Satellite	25	3	Data	Business 35	\$69.99	Business	
	ĺ								FCC site says 100 down/10 up. NCI website
									does not provide this speed in fixed wireless
Omak Flats	NCI Datacom	Fixed Wireless	5	1	Video/Data	Essential	\$35.00		in Okanogan Co.
									FCC site says 100 down/10 up. NCI website
									does not provide this speed in fixed wireless
Omak Flats	NCI Datacom	Fixed Wireless	5	1.5	Video/Data	Swift Stream	\$45.00	Residential	in Okanogan Co.
									FCC site says 100 down/10 up. NCI website
									does not provide this speed in fixed wireless
Omak Flats	NCI Datacom	Fixed Wireless	7	2	Video/Data	Swift Stream	\$60.00	Residential	in Okanogan Co.
Omak Flats	NCI Datacom	Fixed Wireless	7	2	Data		\$45.00	Residential	Reseller for PUD #1
									FCC site says 100 down/10 up. NCI website
									does not provide this speed in fixed wireless
Omak Flats	NCI Datacom	Fixed Wireless	10	2.5	Video/Data	Advantage	\$45.00	Residential	in Okanogan Co.
Omak Flats	NCI Datacom	Fixed Wireless	12	3	Data		\$60.00	Residential	Reseller for PUD #1
							4== 00		
Omak Flats	NCI Datacom	Fixed Wireless	20	10	Data		\$75.00	Residential	Reseller for PUD #1
									FCC site says 100 down/10 up. NCI website
0 151.	NGI D. I	E: 1340 1	25		V. 1 / 15 ·	5 "	450.00		does not provide this speed in fixed wireless
Omak Flats	NCI Datacom	Fixed Wireless	25	4	Video/Data	Family	\$60.00		in Okanogan Co. FCC site says 100 down/10 up. NCI website
									1
Omal, Flata	NCI Datasam	Fived Mineless	40	_	Video/Dete	I Ilkimaka	ć7F 00		does not provide this speed in fixed wireless
Omak Flats	NCI Datacom	Fixed Wireless	40	6	Video/Data	Ultimate	\$75.00	Residential	in Okanogan Co.
Omak Flats	ViaCat Inc	Catallita	25	,	Data	Unlimited Cold 20	¢1E0.00	Residential	
Omak Flats	ViaSat, Inc.	Satellite	35	3	Data	Unlimited Gold 30	\$150.00	Residential	
Omak Flats	ViaSat, Inc.	Satellite	35	4	Data	Business Unlimited 35	\$175.00	Business	
Olliak Hats	viasat, iiic.	Jatemile	33	4	Data	Dusiness Offillitilled 55	Ş1/3.00	Dusilless	
Omak Flats	ViaSat, Inc.	Satellite			Video	Select	\$35,00	Residential	
Olluk Fides	viasat, iiic.	Jatemie			Video	Jeicet	Ç33.00	residential	
Omak Flats	VSAT Systems, LLC	Satellite	2	1.3	Data				Managed network service for business
Service depends on location. The o				1 1.5	12000	1	1	I	The state of the s

			Speed	Speed				Residential/B	
PFSA	Provider	Technology	down	up	Service	Description	Cost	usiness	Notes
	Hughes Network					I I			
Orchard Grade	Systems	Satellite	25	3	Data	10GB	\$59.99	Residential	
	Hughes Network								
Orchard Grade	Systems	Satellite	25	3	Data	20GB	\$69.99	Residential	
	Hughes Network								
Orchard Grade	Systems	Satellite	25	3	Data	30GB	\$99.99	Residential	
	Hughes Network								
Orchard Grade	Systems	Satellite	25	3	Data	50GB	\$149.99	Residential	
	Hughes Network								
Orchard Grade	Systems	Satellite	25	3	Data	Business 35	\$69.99	Business	
									FCC site says 100 down/10 up. NCI website
									does not provide this speed in fixed wireless
Orchard Grade	NCI Datacom	Fixed Wireless	5	1	Video/Data	Essential	\$35.00	Residential	in Okanogan Co.
									FCC site says 100 down/10 up. NCI website
									does not provide this speed in fixed wireless
Orchard Grade	NCI Datacom	Fixed Wireless	5	1.5	Video/Data	Swift Stream	\$45.00	Residential	in Okanogan Co.
									FCC site says 100 down/10 up. NCI website
									does not provide this speed in fixed wireless
Orchard Grade	NCI Datacom	Fixed Wireless	7	2	Video/Data	Swift Stream	\$60.00	Residential	in Okanogan Co.
Orchard Grade	NCI Datacom	Fixed Wireless	7	2	Data		\$45.00	Residential	Reseller for PUD #1
									FCC site says 100 down/10 up. NCI website
									does not provide this speed in fixed wireless
Orchard Grade	NCI Datacom	Fixed Wireless	10	2.5	Video/Data	Advantage	\$45.00	Residential	in Okanogan Co.
Orchard Grade	NCI Datacom	Fixed Wireless	12	3	Data		\$60.00	Residential	Reseller for PUD #1
Orchard Grade	NCI Datacom	Fixed Wireless	20	10	Data		\$75.00	Residential	Reseller for PUD #1
									FCC site says 100 down/10 up. NCI website
									does not provide this speed in fixed wireless
Orchard Grade	NCI Datacom	Fixed Wireless	25	4	Video/Data	Family	\$60.00	Residential	in Okanogan Co.
									FCC site says 100 down/10 up. NCI website
									does not provide this speed in fixed wireless
Orchard Grade	NCI Datacom	Fixed Wireless	40	6	Video/Data	Ultimate	\$75.00	Residential	in Okanogan Co.
Orchard Grade	ViaSat, Inc.	Satellite	35	3	Data	Unlimited Gold 30	\$150.00	Residential	
Orchard Grade	ViaSat, Inc.	Satellite	35	4	Data	Business Unlimited 35	\$175.00	Business	
Orchard Grade	ViaSat, Inc.	Satellite			Video	Select	\$35.00	Residential	
		L			_				
Omak Flats	VSAT Systems, LLC	Satellite	2	1.3	Data				Managed network service for business

PFSA   Provider   Technology   down   up   Service   Description   Cost   usiness   Notes				Speed	Speed				Residential/B	
Charter Communications   Cable   120   10   Voice/Video/Data   Triple play select   599.97   Residential   125 Channels	PFSA	Provider	Technology	•	-	Service	Description	Cost	-	Notes
Charter Communications   Cable   120   10   Voice/Video/Data   Triple play select   599.97   Residential   125 Channels										
Controlle	Oroville	CenturyLink, Inc.	ADSL	20	2	Data		\$50.00	Residential	
Controlle	_									
Provide Charter Communications Cable 120 10 Voice/Video/Data Triple play gold 5139.97 Residential 200 Channels  Provide Charter Communications Cable 120 10 Data Internet 544.99 Residential Communications Cable 120 10 Data Internet 545.00 Residential Communications Cable 120 10 Data Internet 545.00 Residential Reseller for PUD #1  Provide CommunicyNet Wireless 7 2 Data 553.00 Residential Reseller for PUD #1  Provide CommunicyNet Wireless 12 3 Data 556.00 Residential Reseller for PUD #1  Provide CommunicyNet Wireless 12 3 Data 556.00 Residential Reseller for PUD #1  Provide Highland Internet Wireless 1 1 Data 540.00 Residential Reseller for PUD #1  Provide Highland Internet Wireless 7 3 Data 550.00 Residential Reseller for PUD #1  Provide Highland Internet Wireless 7 3 Data 550.00 Residential Reseller for PUD #1  Provide Highland Internet Wireless 7 3 Data 550.00 Residential Reseller for PUD #1  Provide Highland Internet Wireless 7 3 Data 550.00 Residential Reseller for PUD #1  Provide Highland Internet Wireless 12 6 Data 560.00 Residential Reseller for PUD #1  Provide Highland Internet Wireless 12 6 Data 560.00 Residential Reseller for PUD #1  Provide Highland Internet Wireless 12 6 Data 560.00 Residential Reseller for PUD #1  Provide Highland Internet Wireless 12 6 Data 560.00 Residential Reseller for PUD #1  Provide Highland Internet Wireless 12 6 Data 560.00 Residential Reseller for PUD #1  Provide Highland Internet Wireless 2 5 Data 560.00 Residential Reseller for PUD #1  Provide Highland Internet Wireless 2 5 Data 560.00 Residential Reseller for PUD #1  Provide Highland Internet Wireless 2 5 Data 560.00 Residential Reseller for PUD #1  Provide Highland Internet Wireless 2 5 Data 560.00 Residential Reseller for PUD #1  Provide Highland Internet Wireless 2 5 Data 560.00 Residential Reseller for PUD #1  Provide Systems Satellite 25 Data 560.00 Residential Reseller for PUD #1  Provide Systems Satellite 25 Data 560.00 Span Residential For PUD #1  Provide Systems Satellite 25 Data 560.00 Span Residential For PUD	Oroville	Charter Communications	Cable	120	10	Voice/Video/Data	Triple play select	\$99.97	Residential	125 Channels
Provide Charter Communications Cable 120 10 Voice/Video/Data Triple play gold 5189.97 Residential 200 Channels  Provide Charter Communications Cable 120 10 Data Internet 544.98 Residential Communications Cable 120 10 Data Internet 545.00 Residential Reseller for PUD #1  Provide CommunityNet Wireless 7 2 Data 553.00 Residential Reseller for PUD #1  Provide CommunityNet Wireless 12 3 Data 551.00 Residential Reseller for PUD #1  Provide CommunityNet Wireless 12 3 Data 551.00 Residential Reseller for PUD #1  Provide CommunityNet Wireless 12 3 Data 551.00 Residential Reseller for PUD #1  Provide Highland Internet Wireless 3 1 Data 550.00 Residential Reseller for PUD #1  Provide Highland Internet Wireless 7 3 Data 550.00 Residential Reseller for PUD #1  Provide Highland Internet Wireless 7 3 Data 550.00 Residential Reseller for PUD #1  Provide Highland Internet Wireless 7 3 Data 550.00 Residential Reseller for PUD #1  Provide Highland Internet Wireless 7 3 Data 550.00 Residential Reseller for PUD #1  Provide Highland Internet Wireless 12 6 Data 560.00 Residential Reseller for PUD #1  Provide Highland Internet Wireless 12 6 Data 560.00 Residential Reseller for PUD #1  Provide Highland Internet Wireless 12 6 Data 560.00 Residential Reseller for PUD #1  Provide Highland Internet Wireless 12 6 Data 560.00 Residential Reseller for PUD #1  Provide Highland Internet Wireless 12 6 Data 560.00 Residential Reseller for PUD #1  Provide Highland Internet Wireless 2 7 Data 560.00 Residential Reseller for PUD #1  Provide Highland Internet Wireless 2 7 Data 560.00 Residential Reseller for PUD #1  Provide Highland Internet Fiber Highland Internet Fiber Highland Internet Fiber Statemen Sta	Oravilla	Charter Communications	Cablo	120	10	Voice Widee /Data	Triple play silver	¢110.00	Residential	175 Channels
Charter Communications   Cable   120   10   Data   Internet   544.99   Residential	Orovine	Charter Communications	Cable	120	10	voice/ video/ Data	Triple play sliver	Ş113.33	Residential	173 Chamieis
Charter Communications   Cable   120   10   Data   Internet   544.99   Residential	Oroville	Charter Communications	Cable	120	10	Voice/Video/Data	Triple play gold	\$139.97	Residential	200 Channels
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			Speed	Speed				Residential/B	
PFSA	Provider	Technology	down	up	Service	Description	Cost	usiness	Notes
Oroville	LocalTel	Fiber	100	100	Data		71.64	Residential	Reseller for PUD #1
Oroville	LocalTel	Fiber	1000	100	Data		74.95	Residential	Reseller for PUD #1
Oroville	Methownet	Fixed Wireless	3	1	Data		\$49.00	Residential	Reseller for PUD #1
Oroville	Methownet	Fixed Wireless	7	2 or 3	Data		\$59.00	Residential	Reseller for PUD #1
Oroville	Methownet	Fixed Wireless	12	3 or 6	Data		\$79.00	Residential	Reseller for PUD #1
Oroville	Methownet	Fixed Wireless	20	5 or 10	Data		\$99.00	Residential	Reseller for PUD #1
Oroville	NCI Datacom	Fixed Wireless	3	1	Data		\$35.00	Residential	Reseller for PUD #1
Oroville	NCI Datacom	Fixed Wireless	5	1	Video/Data	Essential	\$35.00	Residential	FCC site says 100 down/10 up. NCI website does not provide this speed in fixed wireless in Okanogan Co.
Oroville	NCI Datacom	Fixed Wireless	5	1.5	Video/Data	Swift Stream	\$45.00	Residential	FCC site says 100 down/10 up. NCI website does not provide this speed in fixed wireless in Okanogan Co.
Oroville	NCI Datacom	Fixed Wireless	7	2	Video/Data	Swift Stream	\$60.00	Residential	FCC site says 100 down/10 up. NCI website does not provide this speed in fixed wireless in Okanogan Co.
Oroville	NCI Datacom	Fixed Wireless	7	2	Data		\$45.00	Residential	Reseller for PUD #1
Oroville	NCI Datacom	Fixed Wireless	10	2.5	Video/Data	Advantage	\$45.00	Residential	FCC site says 100 down/10 up. NCI website does not provide this speed in fixed wireless in Okanogan Co.
Oroville	NCI Datacom	Fixed Wireless	12		Data	, in turning		Residential	Reseller for PUD #1
Oroville	NCI Datacom	Fixed Wireless	20	10	Data		\$75.00	Residential	Reseller for PUD #1
Oroville	NCI Datacom	Fixed Wireless	25	4	Video/Data	Family	\$60.00	Residential	FCC site says 100 down/10 up. NCI website does not provide this speed in fixed wireless in Okanogan Co.
Oroville	NCI Datacom	Fixed Wireless	40	6	Video/Data	Ultimate	\$75.00	Residential	FCC site says 100 down/10 up. NCI website does not provide this speed in fixed wireless in Okanogan Co.
Oroville	NCI Datacom	Fiber	40	8	Data		\$79.00	Residential	Reseller for PUD #1
Oroville	NCI Datacom	Fiber	40	40	Data		\$99.00	Residential	Reseller for PUD #1
Oroville	NCI Datacom	Fiber	40	8	Data		\$89.00	Business	Reseller for PUD #1
Oroville	NCI Datacom	Fiber	40	40	Data		\$109.00	Business	Reseller for PUD #1
Oroville	NCI Datacom	Fiber	100	20	Data		\$95.00	Residential	Reseller for PUD #1

			Speed	Speed					
PFSA	Provider	Technology	down	up	Service	Description	Cost	usiness	Notes
Oroville	NCI Datacom	Fiber	100	100	Data		\$120.00	Residential	Reseller for PUD #1
Oroville	NCI Datacom	Fiber	100	20	Data		\$105.00	Business	Reseller for PUD #1
Oroville	NCI Datacom	Fiber	100	100	Data		\$130.00	Business	Reseller for PUD #1
Oroville	PC Telecom	Wireless	1		Data		29.99	Residential	Reseller for PUD #1
Oroville	PC Telecom	Wireless	3		Data		39.99	Residential	Reseller for PUD #1
Oroville	PC Telecom	Wireless	5		Data		49.99	Residential	Reseller for PUD #1
Oroville	PC Telecom	Fiber	5		Data		59.99	Residential	Reseller for PUD #1
Oroville	PC Telecom	Wireless	7		Data		59.99	Residential	Reseller for PUD #1
Oroville	PC Telecom	Wireless	10		Data		69.99	Residential	Reseller for PUD #1
Oroville	PC Telecom	Fiber	10		Data		69.99	Residential	Reseller for PUD #1
Oroville	PC Telecom	Fiber	20		Data		79.99	Residential	Reseller for PUD #1
Oroville	PC Telecom	Fiber	50		Data		89.99	Residential	Reseller for PUD #1
Oroville	PC Telecom	Fiber	100		Data		99.99	Residential	Reseller for PUD #1
Oroville	Startouch								Carrier & Business solutions only
Oroville	ViaSat, Inc.	Satellite	35	3	Data	Unlimited Gold 30	\$150.00	Residential	
Oroville	ViaSat, Inc.	Satellite	35	4	Data	Business Unlimited 35	\$175.00	Business	
Oroville	ViaSat, Inc.	Satellite			Video	Select	\$35.00	Residential	
Oroville	VSAT Systems, LLC	Satellite	2	1.3	Data				Managed network service for business
Oroville	WillConnect	Wireless	3	1	Data		\$40.00	Residential	Reseller for PUD #1
Oroville	WillConnect	Wireless	7	2	Data		\$50.00	Residential	Reseller for PUD #1
Oroville	WillConnect	Wireless	12	3	Data		\$65.00	Residential	Reseller for PUD #1
Oroville	WillConnect	Wireless	20	5	Data		\$75.00	Residential	Reseller for PUD #1

			Speed	Speed				Residential/B	
PFSA	Provider	Technology	down	up	Service	Description	Cost	usiness	Notes
	Hughes Network								
Palmer	Systems	Satellite	25	3	Data	10GB	\$59.99	Residential	
	Hughes Network								
Palmer	Systems	Satellite	25	3	Data	20GB	\$69.99	Residential	
	Hughes Network								
Palmer	Systems	Satellite	25	3	Data	30GB	\$99.99	Residential	
	Hughes Network								
Palmer	Systems	Satellite	25	3	Data	50GB	\$149.99	Residential	
	Hughes Network								
Palmer	Systems	Satellite	25	3	Data	Business 35	\$69.99	Business	
Palmer	ViaSat, Inc.	Satellite	35	3	Data	Unlimited Gold 30	\$150.00	Residential	
Palmer	ViaSat, Inc.	Satellite	35	4	Data	Business Unlimited 35	\$175.00	Business	
Palmer	ViaSat, Inc.	Satellite			Video	Select	\$35.00	Residential	
i uniter	viasac, inc.	Jaconite			VIGCO	Jeicet	<del>-</del>	residential	
Palmer	VSAT Systems, LLC	Satellite	2	1.3	Data				Managed network service for business

			Speed	Speed				Residential/B	
PFSA	Provider	Technology	down	up	Service	Description	Cost	usiness	Notes
Pateros	CenturyLink, Inc.	ADSL	20	2	Data		\$50.00	Residential	
Pateros	CommunityNet	Wireless	3	1	Data		\$45.00	Residential	Reseller for PUD #1
Pateros	CommunityNet	Wireless	7	2	Data		\$53.00	Residential	Reseller for PUD #1
Pateros	CommunityNet	Wireless	12	3	Data		\$61.00	Residential	Reseller for PUD #1
Pateros	CommunityNet	Wireless	20	5	Data		\$75.00	Residential	Reseller for PUD #1
Pateros	Highland Internet	Wireless	3	1	Data		\$40.00	Residential	Reseller for PUD #1
Pateros	Highland Internet	WIFI	3	1	Data		\$40.00	Residential	Reseller for PUD #1
Pateros	Highland Internet	Wireless	7	3	Data		\$50.00	Residential	Reseller for PUD #1
Pateros	Highland Internet	WIFI	7	3	Data		\$48.00	Residential	Reseller for PUD #1
Pateros	Highland Internet	WIFI	10	5	Data		\$60.00	Residential	Reseller for PUD #1
Pateros	Highland Internet	Wireless	12	6	Data		\$65.00	Residential	Reseller for PUD #1
Pateros	Highland Internet	WIFI	12	6	Data		\$65.00	Residential	Reseller for PUD #1
Pateros	Highland Internet	WIFI	20	10	Data		\$75.00	Residential	Reseller for PUD #1
Pateros	Highland Internet	Fiber							Also reseller for PUD
Pateros	Hughes Network Systems	Satellite	25	3	Data	10GB	\$59.99	Residential	
Pateros	Hughes Network Systems	Satellite	25	3	Data	20GB	\$69.99	Residential	
Pateros	Hughes Network Systems	Satellite	25	3	Data	30GB	\$99.99	Residential	
Pateros	Hughes Network Systems	Satellite	25	3	Data	50GB	\$149.99	Residential	
Pateros	Hughes Network Systems	Satellite	25	3	Data	Business 35	\$69.99	Business	
Pateros	LocalTel	Fiber	100	10	Data		51.44	Residential	Reseller for PUD #1
Pateros	LocalTel	Fiber	100	100	Data		71.64	Residential	Reseller for PUD #1
Pateros	LocalTel	Fiber	1000	100	Data		74.95	Residential	Reseller for PUD #1
Pateros	Methownet	Fixed Wireless	3	1	Data		\$49.00	Residential	Reseller for PUD #1
Pateros	Methownet	Fixed Wireless	7	2 or 3	Data		\$59.00	Residential	Reseller for PUD #1

			Speed	Speed				Residential/B	
PFSA	Provider	Technology	down	up	Service	Description	Cost	usiness	Notes
Pateros	Methownet	Fixed Wireless	12	3 or 6	Data		\$79.00	Residential	Reseller for PUD #1
Pateros	Methownet	Fixed Wireless	20	5 or 10	Data		\$99.00	Residential	Reseller for PUD #1
Pateros	NCI Datacom	Fixed Wireless	3	1	Data		\$35.00	Residential	Reseller for PUD #1
Pateros	NCI Datacom	Fixed Wireless	5	1	Video/Data	Essential	\$35.00	Residential	does not provide this speed in fixed wireless in Okanogan Co.
									FCC site says 100 down/10 up. NCI website does not provide this speed in fixed wireless
Pateros	NCI Datacom	Fixed Wireless	5	1.5	Video/Data	Swift Stream	\$45.00	Residential	in Okanogan Co.
									FCC site says 100 down/10 up. NCI website
Deterres	NCI Data sam	Fived Mineless	7	2	Video/Dete	Coulfe Change	¢c0.00	Docidontial	does not provide this speed in fixed wireless
Pateros	NCI Datacom	Fixed Wireless	/		Video/Data	Swift Stream	\$60.00	Residential	in Okanogan Co.
Pateros	NCI Datacom	Fixed Wireless	7	2	Data		\$45.00	Residential	Reseller for PUD #1
									FCC site says 100 down/10 up. NCI website
									does not provide this speed in fixed wireless
Pateros	NCI Datacom	Fixed Wireless	10	2.5	Video/Data	Advantage	\$45.00	Residential	in Okanogan Co.
Pateros	NCI Datacom	Fixed Wireless	12	3	Data		\$60.00	Residential	Reseller for PUD #1
Pateros	NCI Datacom	Fixed Wireless	20	10	Data		\$75.00	Residential	Reseller for PUD #1
Datavas	NCI Poto com	Fixed Mineless	25	4	Video/Data	Family	¢c0.00	Dasidantial	FCC site says 100 down/10 up. NCI website does not provide this speed in fixed wireless
Pateros	NCI Datacom	Fixed Wireless	25	4	Video/Data	Family	\$60.00	Residential	in Okanogan Co. FCC site says 100 down/10 up. NCI website
									does not provide this speed in fixed wireless
Pateros	NCI Datacom	Fixed Wireless	40	6	Video/Data	Ultimate	\$75.00	Residential	in Okanogan Co.
Pateros	PC Telecom	Wireless	1		Data		29.99	Residential	Reseller for PUD #1
Pateros	PC Telecom	Wireless	3		Data		39.99	Residential	Reseller for PUD #1
Pateros	PC Telecom	Wireless	5		Data		49.99	Residential	Reseller for PUD #1
Pateros	PC Telecom	Fiber	5		Data		59.99	Residential	Reseller for PUD #1
Pateros	PC Telecom	Wireless	7		Data		59.99	Residential	Reseller for PUD #1
Pateros	PC Telecom	Wireless	10		Data		69.99	Residential	Reseller for PUD #1
Pateros	PC Telecom	Fiber	10		Data		69.99	Residential	Reseller for PUD #1
Pateros	PC Telecom	Fiber	20		Data		79.99	Residential	Reseller for PUD #1
Pateros	PC Telecom	Fiber	50		Data		89.99	Residential	Reseller for PUD #1

			Speed	Speed				Residential/B	
PFSA	Provider	Technology	down	up	Service	Description	Cost	usiness	Notes
Pateros	PC Telecom	Fiber	100		Data		99.99	Residential	Reseller for PUD #1
Pateros	Startouch								Carrier & Business solutions only
Pateros	ViaSat, Inc.	Satellite	35	3	Data	Unlimited Gold 30	\$150.00	Residential	
Pateros	ViaSat, Inc.	Satellite	35	4	Data	Business Unlimited 35	\$175.00	Business	
Pateros	ViaSat, Inc.	Satellite			Video	Select	\$35.00	Residential	
Pateros	VSAT Systems, LLC	Satellite	2	1.3	Data				Managed network service for business
Pateros	WillConnect	Wireless	3	1	Data		\$40.00	Residential	Reseller for PUD #1
Pateros	WillConnect	Wireless	7	2	Data		\$50.00	Residential	Reseller for PUD #1
Pateros	WillConnect	Wireless	12	3	Data		\$65.00	Residential	Reseller for PUD #1
Pateros	WillConnect	Wireless	20	5	Data		\$75.00	Residential	Reseller for PUD #1

			Speed	Speed				Residential/B	
PFSA	Provider	Technology	down	up	Service	Description	Cost	usiness	Notes
	Hughes Network				557775				110000
Riverside	Systems	Satellite	25	3	Data	10GB	\$59.99	Residential	
	Hughes Network						·		
Riverside	Systems	Satellite	25	3	Data	20GB	\$69.99	Residential	
	Hughes Network								
Riverside	Systems	Satellite	25	3	Data	30GB	\$99.99	Residential	
	Hughes Network								
Riverside	Systems	Satellite	25	3	Data	50GB	\$149.99	Residential	
	Hughes Network								
Riverside	Systems	Satellite	25	3	Data	Business 35	\$69.99	Business	
	·								FCC site says 100 down/10 up. NCI website
									does not provide this speed in fixed wireless
Riverside	NCI Datacom	Fixed Wireless	5	1	Video/Data	Essential	\$35.00	Residential	in Okanogan Co.
									FCC site says 100 down/10 up. NCI website
									does not provide this speed in fixed wireless
Riverside	NCI Datacom	Fixed Wireless	5	1.5	Video/Data	Swift Stream	\$45.00	Residential	in Okanogan Co.
									FCC site says 100 down/10 up. NCI website
									does not provide this speed in fixed wireless
Riverside	NCI Datacom	Fixed Wireless	7	2	Video/Data	Swift Stream	\$60.00	Residential	in Okanogan Co.
Riverside	NCI Datacom	Fixed Wireless	7	2	Data		\$45.00	Residential	Reseller for PUD #1
									FCC site says 100 down/10 up. NCI website
									does not provide this speed in fixed wireless
Riverside	NCI Datacom	Fixed Wireless	10	2.5	Video/Data	Advantage	\$45.00	Residential	in Okanogan Co.
Riverside	NCI Datacom	Fixed Wireless	12	3	Data		\$60.00	Residential	Reseller for PUD #1
Riverside	NCI Datacom	Fixed Wireless	20	10	Data		\$75.00	Residential	Reseller for PUD #1
									FCC site says 100 down/10 up. NCI website
									does not provide this speed in fixed wireless
Riverside	NCI Datacom	Fixed Wireless	25	4	Video/Data	Family	\$60.00	Residential	in Okanogan Co.
									FCC site says 100 down/10 up. NCI website
									does not provide this speed in fixed wireless
Riverside	NCI Datacom	Fixed Wireless	40	6	Video/Data	Ultimate	\$75.00	Residential	in Okanogan Co.
				_			44====		
Riverside	ViaSat, Inc.	Satellite	35	3	Data	Unlimited Gold 30	\$150.00	Residential	
					<u>_</u>		4	<u>.</u> .	
Riverside	ViaSat, Inc.	Satellite	35	4	Data	Business Unlimited 35	\$1/5.00	Business	
Diverside	VioCot Inc	C-+-III:			\ (; d = -	Calaat	625.00	Danisla sakial	
Riverside	ViaSat, Inc.	Satellite			Video	Select	\$35.00	Residential	
Diverside	VCAT Systems II C	Catallita	,	1 2	Data				Managed nativary consists for business
Riverside	VSAT Systems, LLC	Satellite	2	1.3	Data	1	l		Managed network service for business

			Speed	Speed				Residential/B	
PFSA	Provider	Technology	down	up	Service	Description	Cost	usiness	Notes
						P			
S. Pine Creek Rd.	Charter Communications	Cable	120	10	Voice/Video/Data	Triple play select	\$99.97	Residential	125 Channels
S. Pine Creek Rd.	Charter Communications	Cable	120	10	Voice/Video/Data	Triple play silver	\$119.99	Residential	175 Channels
S. Pine Creek Rd.	Charter Communications	Cable	120	10	Voice/Video/Data	Triple play gold	\$139.97	Residential	200 Channels
S. Pine Creek Rd.	Charter Communications	Cable	120	10	Data	Internet	\$44.99	Residential	
	Frontier								
S. Pine Creek Rd.	Communications Corp	ADSL	6	1	Data	Simply Broadband Core	\$27.99	Residential	
	Frontier								
S. Pine Creek Rd.	Communications Corp	ADSL	12	1	Data	Simply Broadband Ultra	\$34.99	Residential	
	Hughes Network								
S. Pine Creek Rd.	Systems	Satellite	25	3	Data	10GB	\$59.99	Residential	
	Hughes Network								
S. Pine Creek Rd.	Systems	Satellite	25	3	Data	20GB	\$69.99	Residential	
	Hughes Network								
S. Pine Creek Rd.	Systems	Satellite	25	3	Data	30GB	\$99.99	Residential	
	Hughes Network			_					
S. Pine Creek Rd.	Systems	Satellite	25	3	Data	50GB	\$149.99	Residential	
	Hughes Network						4		
S. Pine Creek Rd.	Systems	Satellite	25	3	Data	Business 35	\$69.99	Business	
C. Dina Conale Del	Vio - Church Windows II C	Fire d Minelese	10	2	D-+-				
S. Pine Creek Rd.	King Street Wireless, LLC	Fixed Wireless	10	2	Data				
C. Dina Craals Dd	NCI Data sam	Tib or	100	20	Data		Ć0F 00	Residential	
S. Pine Creek Rd.	NCI Datacom	Fiber	100	20	Data		\$95.00	Residential	
S. Pine Creek Rd.	NCI Datacom	Fiber	100	100	Data		\$120.00	Residential	Reseller for PUD #1
3. Fine creek Na.	NCI Datacom	ribei	100	100	Data		\$120.00	Residential	Neseller for FOD #1
S. Pine Creek Rd.	NCI Datacom	Fiber	100	20	Data		\$105.00	Business	Reseller for PUD #1
or time dicentification	Troi Butucom		100		2444		ψ200.00	243.11633	
S. Pine Creek Rd.	NCI Datacom	Fiber	100	100	Data		\$130.00	Business	Reseller for PUD #1
							,		
S. Pine Creek Rd.	ViaSat, Inc.	Satellite	35	3	Data	Unlimited Gold 30	\$150.00	Residential	
							*		
S. Pine Creek Rd.	ViaSat, Inc.	Satellite	35	4	Data	Business Unlimited 35	\$175.00	Business	
S. Pine Creek Rd.	ViaSat, Inc.	Satellite			Video	Select	\$35.00	Residential	
S. Pine Creek Rd.	VSAT Systems, LLC	Satellite	2	1.3	Data				Managed network service for business

			Speed	Speed				Residential/B	
PFSA	Provider	Technology	down	up	Service	Description	Cost	usiness	Notes
	Hughes Network								
S. Pine Creek Rd NTIA	Systems	Satellite	25	3	Data	10GB	\$59.99	Residential	
	Hughes Network								
S. Pine Creek Rd NTIA	Systems	Satellite	25	3	Data	20GB	\$69.99	Residential	
	Hughes Network								
S. Pine Creek Rd NTIA	Systems	Satellite	25	3	Data	30GB	\$99.99	Residential	
	Hughes Network								
S. Pine Creek Rd NTIA	Systems	Satellite	25	3	Data	50GB	\$149.99	Residential	
	Hughes Network								
S. Pine Creek Rd NTIA	Systems	Satellite	25	3	Data	Business 35	\$69.99	Business	
									FCC site says 100 down/10 up. NCI website
									does not provide this speed in fixed wireless
S. Pine Creek Rd NTIA	NCI Datacom	Fixed Wireless	5	1	Video/Data	Essential	\$35.00	Residential	in Okanogan Co.
									FCC site says 100 down/10 up. NCI website
									does not provide this speed in fixed wireless
S. Pine Creek Rd NTIA	NCI Datacom	Fixed Wireless	5	1.5	Video/Data	Swift Stream	\$45.00	Residential	in Okanogan Co.
									FCC site says 100 down/10 up. NCI website
									does not provide this speed in fixed wireless
S. Pine Creek Rd NTIA	NCI Datacom	Fixed Wireless	7	2	Video/Data	Swift Stream	\$60.00	Residential	in Okanogan Co.
S. Pine Creek Rd NTIA	NCI Datacom	Fixed Wireless	7	2	Data		\$45.00	Residential	Reseller for PUD #1
									FCC site says 100 down/10 up. NCI website
									does not provide this speed in fixed wireless
S. Pine Creek Rd NTIA	NCI Datacom	Fixed Wireless	10	2.5	Video/Data	Advantage	\$45.00	Residential	in Okanogan Co.
S. Pine Creek Rd NTIA	NCI Datacom	Fixed Wireless	12	3	Data		\$60.00	Residential	Reseller for PUD #1
S. Pine Creek Rd NTIA	NCI Datacom	Fixed Wireless	20	10	Data		\$75.00	Residential	Reseller for PUD #1
									FCC site says 100 down/10 up. NCI website
									does not provide this speed in fixed wireless
S. Pine Creek Rd NTIA	NCI Datacom	Fixed Wireless	25	4	Video/Data	Family	\$60.00	Residential	in Okanogan Co.
									FCC site says 100 down/10 up. NCI website
									does not provide this speed in fixed wireless
S. Pine Creek Rd NTIA	NCI Datacom	Fixed Wireless	40	6	Video/Data	Ultimate	\$75.00	Residential	in Okanogan Co.
S. Pine Creek Rd NTIA	ViaSat, Inc.	Satellite	35	3	Data	Unlimited Gold 30	\$150.00	Residential	
S. Pine Creek Rd NTIA	ViaSat, Inc.	Satellite	35	4	Data	Business Unlimited 35	\$175.00	Business	
S. Pine Creek Rd NTIA	ViaSat, Inc.	Satellite			Video	Select	\$35.00	Residential	
S. Pine Creek Rd NTIA	VSAT Systems, LLC	Satellite	2	1.3	Data				Managed network service for business

			Speed	Speed				Residential/B	
PFSA	Provider	Technology	down	up	Service	Description	Cost	usiness	Notes
	Hughes Network								
Salmon Creek Rd.	Systems	Satellite	25	3	Data	10GB	\$59.99	Residential	
	Hughes Network								
Salmon Creek Rd.	Systems	Satellite	25	3	Data	20GB	\$69.99	Residential	
	<b>Hughes Network</b>								
Salmon Creek Rd.	Systems	Satellite	25	3	Data	30GB	\$99.99	Residential	
	<b>Hughes Network</b>								
Salmon Creek Rd.	Systems	Satellite	25	3	Data	50GB	\$149.99	Residential	
	<b>Hughes Network</b>								
Salmon Creek Rd.	Systems	Satellite	25	3	Data	Business 35	\$69.99	Business	
Salmon Creek Rd.	King Street Wireless, LLC	Fixed Wireless	10	2	Data				
Salmon Creek Rd.	NCI Datacom	Fiber	100	20	Data		\$95.00	Residential	Reseller for PUD #1
Salmon Creek Rd.	NCI Datacom	Fiber	100	100	Data		\$120.00	Residential	Reseller for PUD #1
Salmon Creek Rd.	NCI Datacom	Fiber	100	20	Data		\$105.00	Business	Reseller for PUD #1
Salmon Creek Rd.	NCI Datacom	Fiber	100	100	Data		\$130.00	Business	Reseller for PUD #1
							4.=0.00		
Salmon Creek Rd.	ViaSat, Inc.	Satellite	35	3	Data	Unlimited Gold 30	\$150.00	Residential	
	VC 6	c	25				4475.00		
Salmon Creek Rd.	ViaSat, Inc.	Satellite	35	4	Data	Business Unlimited 35	\$1/5.00	Business	
Salman Craal, Dd	ViaCat Inc	Catallita			Vidoo	Coloot	ć2F 00	Dasidontial	
Salmon Creek Rd.	ViaSat, Inc.	Satellite			Video	Select	\$35.00	Residential	
Salmon Creek Rd.	VSAT Systems, LLC	Satellite	2	1.3	Data				Managed network service for business
Jaimon Creek Ru.	VSAT SYSTEMS, LLC	Jatellite	۷	1.5	Data	I	l		ivialiageu lietwork service for busifiess

			Speed	Speed				Residential/B	
PFSA	Provider	Technology	down	up	Service	Description	Cost	usiness	Notes
	Hughes Network					I I			
Synarep	Systems	Satellite	25	3	Data	10GB	\$59.99	Residential	
	Hughes Network								
Synarep	Systems	Satellite	25	3	Data	20GB	\$69.99	Residential	
	Hughes Network								
Synarep	Systems	Satellite	25	3	Data	30GB	\$99.99	Residential	
	Hughes Network								
Synarep	Systems	Satellite	25	3	Data	50GB	\$149.99	Residential	
	Hughes Network								
Synarep	Systems	Satellite	25	3	Data	Business 35	\$69.99	Business	
									FCC site says 100 down/10 up. NCI website
									does not provide this speed in fixed wireless
Synarep	NCI Datacom	Fixed Wireless	5	1	Video/Data	Essential	\$35.00	Residential	in Okanogan Co.
									FCC site says 100 down/10 up. NCI website
									does not provide this speed in fixed wireless
Synarep	NCI Datacom	Fixed Wireless	5	1.5	Video/Data	Swift Stream	\$45.00	Residential	in Okanogan Co.
									FCC site says 100 down/10 up. NCI website
									does not provide this speed in fixed wireless
Synarep	NCI Datacom	Fixed Wireless	7	2	Video/Data	Swift Stream	\$60.00	Residential	in Okanogan Co.
Synarep	NCI Datacom	Fixed Wireless	7	2	Data		\$45.00	Residential	Reseller for PUD #1
									FCC site says 100 down/10 up. NCI website
									does not provide this speed in fixed wireless
Synarep	NCI Datacom	Fixed Wireless	10	2.5	Video/Data	Advantage	\$45.00	Residential	in Okanogan Co.
Synarep	NCI Datacom	Fixed Wireless	12	3	Data		\$60.00	Residential	Reseller for PUD #1
Synarep	NCI Datacom	Fixed Wireless	20	10	Data		\$75.00	Residential	Reseller for PUD #1
									FCC site says 100 down/10 up. NCI website
									does not provide this speed in fixed wireless
Synarep	NCI Datacom	Fixed Wireless	25	4	Video/Data	Family	\$60.00	Residential	in Okanogan Co.
									FCC site says 100 down/10 up. NCI website
						Later .	4== 00		does not provide this speed in fixed wireless
Synarep	NCI Datacom	Fixed Wireless	40	6	Video/Data	Ultimate	\$75.00	Residential	in Okanogan Co.
	\". C	G . III	25		<u>.</u>		4450.00		
Synarep	ViaSat, Inc.	Satellite	35	3	Data	Unlimited Gold 30	\$150.00	Residential	
Suparan	ViaCat Inc	Catallita	25	_	Data	Duning and Unlimited 1.35	Ć17F 00	Dusinasa	
Synarep	ViaSat, Inc.	Satellite	35	4	Data	Business Unlimited 35	\$1/5.00	Business	
Synaron	ViaCat Inc	Catallita			Vidoo	Soloct	625.00	Docidor+ial	
Synarep	ViaSat, Inc.	Satellite			Video	Select	\$35.00	Residential	
Synaron	VSAT Systems II C	Satellite	2	1.3	Data				Managed network convice for business
Synarep	VSAT Systems, LLC		2	1.5	Data	_1	l	<u> </u>	Managed network service for business

			Speed	Speed				Residential/B	
PFSA	Provider	Technology	down	up	Service	Description	Cost	usiness	Notes
	Frontier								
Whitestone	Communications Corp	ADSL	6	1	Data	Simply Broadband Core	\$27.99	Residential	
	Frontier						7-1100		
Whitestone	Communications Corp	ADSL	25	2	Data	Frontier Preferred	\$34.99	Residential	
	Hughes Network						,		
Whitestone	Systems	Satellite	25	3	Data	10GB	\$59.99	Residential	
	Hughes Network								
Whitestone	Systems	Satellite	25	3	Data	20GB	\$69.99	Residential	
	Hughes Network						,		
Whitestone	Systems	Satellite	25	3	Data	30GB	\$99.99	Residential	
	Hughes Network								
Whitestone	Systems	Satellite	25	3	Data	50GB	\$149.99	Residential	
	Hughes Network								
Whitestone	Systems	Satellite	25	3	Data	Business 35	\$69.99	Business	
									FCC site says 100 down/10 up. NCI website
									does not provide this speed in fixed wireless
Whitestone	NCI Datacom	Fixed Wireless	5	1	Video/Data	Essential	\$35.00		in Okanogan Co.
									FCC site says 100 down/10 up. NCI website
									does not provide this speed in fixed wireless
Whitestone	NCI Datacom	Fixed Wireless	5	1.5	Video/Data	Swift Stream	\$45.00	Residential	in Okanogan Co.
									FCC site says 100 down/10 up. NCI website
									does not provide this speed in fixed wireless
Whitestone	NCI Datacom	Fixed Wireless	7	2	Video/Data	Swift Stream	\$60.00	Residential	in Okanogan Co.
									FCC site says 100 down/10 up. NCI website
									does not provide this speed in fixed wireless
Whitestone	NCI Datacom	Fixed Wireless	10	2.5	Video/Data	Advantage	\$45.00	Residential	in Okanogan Co.
									FCC site says 100 down/10 up. NCI website
									does not provide this speed in fixed wireless
Whitestone	NCI Datacom	Fixed Wireless	25	4	Video/Data	Family	\$60.00	Residential	in Okanogan Co.
Whitestone	NCI Datacom	Fixed Wireless	40	6	Video/Data	Ultimate	\$75.00	Residential	
Whitestone	ViaSat, Inc.	Satellite	35	3	Data	Unlimited Gold 30	\$150.00	Residential	
Whitestone	ViaSat, Inc.	Satellite	35	4	Data	<b>Business Unlimited 35</b>	\$175.00	Business	
			_						
Whitestone	ViaSat, Inc.	Satellite			Video	Select	\$35.00	Residential	
Whitestone	VSAT Systems, LLC	Satellite	2	1.3	Data				Managed network service for business



### **RUS MAP DATA**

Service Area Name	Population	Housing Units	Households	Businesses	Square Miles
Aeneas	1,719	1,460	765	152	297.32
Brewster	2,871	923	856	110	4.83
Chilliwest	154	103	74	6	14.19
Conconully	277	330	135	132	10.94
Crumbacher	404	188	164	137	2.28
East Omak	1,018	397	368	389	1.73
Harmony Heights	154	86	63	110	8.37
Keystone	367	184	156	148	6.92
Knob Hill	1,227	1,103	595	229	178.59
Loomis Palmer	817	541	330	232	155.17
Malott	1,289	518	457	244	10.74
North Omak	1,500	536	506	261	5.35
Omak Flatts	2,506	1,038	940	400	19.02
Orchard Grade	1,377	666	546	404	44.85
Oroville	4,015	2,258	1,645	229	103.92
Pateros	1010	503	378	142	6.35
Riverside	559	260	228	272	3.47
S. Pine Creek	304	178	130	276	28.41
Salmon Creek	399	182	165	128	10.96
Synarep	322	373	157	417	169.03
Whitestone	802	325	268	229	12.62
Pine Creek NTIA	365	191	148	137	36.81



### Okanogan-Colville Broadband Pro Forma Summary

7/8/2022 9:30	Year 1	Year 2	Year 3	Year 4	Year 5
INCOME STATEMENT					
REVENUE	556,426	2,212,531	3,295,250	4,340,190	4,561,446
BAD DEBT	(2,782)	(11,063)	(16,476)	(21,701)	(22,807)
S EXPENSES	2,015,795	4,385,418	6,572,880	8,680,515	10,452,496
PROFIT BEFORE TAX	(1,462,151)	(2,183,950)	(3,294,107)	(4,362,025)	(5,913,857)
TAX	7.85% (114,779)	7.85% (171,440)	7.85% (258,587)	7.85% (342,419)	7.85% (464,238)
NET PROFIT AFTER TAX	(1,347,372)	(2,012,510)	(3,035,519)	(4,019,606)	(5,449,619)
CASH FLOW STATEMENT					
CASH RECIEPTS	553,644	2,201,468	3,278,773	4,318,489	4,538,639
OPERATING EXPENSES	881,487	1,907,463	2,838,674	3,690,059	4,371,597
LESS RECIEVABLES	(4,637)	(13,801)	(13,660)	(22,509)	(15,503)
PLUS PAYABLES	16,798	19,747	35,027	37,310	49,794
PRINCIPAL PAYMENTS  NET PROFIT AFTER TAX	0 (1,347,372)	0 (2,012,510)	2,791,807 (3,035,519)	3,950,986 (4,019,606)	5,174,221 (5,449,619)
DIVIDENDS PAID	(1,347,372)	0	(3,033,379)	(4,019,000)	(5,449,019)
RETAINED CASH	(315,682)	299,951	(2,330,341)	(3,307,754)	(4,972,889)
CAPITAL EXPENDITURES	22,940,548	24,391,366	23,811,039	23,811,039	22,650,384
DEBT FINANCING	22,940,548	24,391,366	23,811,039	23,811,039	22,650,384
EQUITY FINANCING	315,682	0	2,330,341	3,307,754	4,972,889
ACCUMULATED CASH	0	299,951	299,951	299,951	299,951
BALANCE SHEET					
CASH	0	<b>299,951</b>	299,951	299,951	299,951
PIXED ASSETS LESS DEPRECIATI  TOTAL ASSETS	21,806,240 21,806,240	43,719,651 44,019,601	63,796,484 64,096,434	82,617,066 82,917,017	99,186,552 99,486,503
LOAN DEBT LESS PRINCIPLE	22,940,548	47,331,914	68,351,145	88,211,198	105,687,361
OWNERS' EQUITY	(1,134,308)	(3,312,312)	(4,254,711)	(5,294,180)	(6,200,858)
TOTAL LIABILITY	21,806,240	44,019,601	64,096,434	82,917,017	99,486,503
OWNER PROCEEDS	0	0	0	0	0
CAPITAL DEPLOYMENT	22 040 549	47 224 044	71,142,952	04.052.004	117 604 275
Yearly % of Loan	22,940,548	47,331,914	71,142,952	94,953,991	117,604,375
Yearly Deployment	22,940,548	24,391,366	23,811,039	23,811,039	22,650,384
Yearly Depreciation	1,134,308	2,477,955	3,734,206	4,990,456	6,080,898
2 Yearly Interest 3 Yearly Principal Paid	688,216 0	1,419,957 0	2,134,289 2,791,807	2,764,866 3,950,986	3,325,847 5,174,221
REVENUE BROADBAND Revenue	556,426 545,466	2,212,531 2,178,611	3,295,250 3,266,290	4,340,190 4,307,971	4,561,446 4,534,706
Installation Revnue	10,960	21,919	10,960	8,220	2,740
VoIP Revenue   Video	- 0	0	0	0	0
NRC & Other Revenue \$K	0	12,000	18,000	24,000	24,000
EXPENSES	2,015,795	4,385,418	6,572,880	8,680,515	10,452,496
Depreciation	1,134,308	2,477,955	3,734,206	4,990,456	6,080,898
Vehicles	-	-	-	-	-
Insurance	-	6,851	10,585	14,537	14,973
3 Interest	688,216	1,419,957	2,134,289	2,764,866	3,325,847
Rent/Lease	-	-	-	-	-
) Calami		422.000	200 070	204 400	202.022
) Salary	-	133,900	206,876	284,109	292,632
Repairs/Maintenance	114,703	236,660	355,715	474,770	588,022
Office Furniture Computers & Office Equipment	-	-	0	0	0
			Ü	Ü	Ŭ
Software Systems Marketing	18,000	18,000	12,000	12,000	6,000
Wholesale Voice, Bandwidth &					•
Video Content General Office Supplies	42,000.00	42,000.00	42,000.00	42,000.00	42,000.00
General Office Supplies	-	-	-	-	-
Accounting, Banking, Legal, Misc.	9,000	9,000	15,000	15,000	15,000
Dillin -	0.500	20.440	E0 00E	70.400	00.500
Billing	9,568	39,110	59,085	78,402	82,528
Call Center Expense	-	-	-	-	-
Meter Reading	-	-	-	-	-
Annual Property Tax	0	0	0	0	0
Pole Attachment Fees	0	0	0	0	0
	ŭ				
Utilities	-	1,985	3,126	4,376	4,595

Page 1 of 9 7/8/2022

### **Assumptions Operating Expenses**

	All Inputs are Highlighted										
	7 m mpate are 1 mg/mg/mea	Year 0	Year 1		Year 2		Year 3		Year 4		Year 5
	PAYROLL										
5	Number of Executives	0	0		0		0		0		0
	Broadband Manager	0	0		0		0		0		0
6	Number of Admin Assistants	0	0		0		0		0		0
7	Number of Network Technicians	0	-		2		3		4		4
8	Billing Manager	0	-		0		0		0		0
9	Billing Assistant	0	-		0		0		0		0
10	Finance Administrator	0	-		0		0		0		0
11	Mgr. of Customer Relations	0	-		0		0		0		0
12	Regional Sales Manager	0	-		0		0		0		0
13	Outside Sales	0	-		0		0		0		0
14	Shift Supervisor	0	-		0		0		0		0
15	Marketing Manager	0	-		0		0		0		0
16	Technician Manager	0	-		0		0		0		0
	Infrastructure Manager	0	-		0		0		0		0
	Project Manager	0	_		0		0		0		0
	IT Engineers	0	_		0		0		0		0
	Tech Support Supervisors	0	_		0		0		0		0
	Number of Customer Service	0	_		-		-		-		-
	SALARIES	Ŭ			<u> </u>						
22	Average Executive	\$ -	\$ _	\$	_	\$	_	\$	_	\$	_
	Average Broadband Manager	\$ 75.000	\$ 75.000	\$	77.250	\$	79.568	\$	81,955	\$	84.413
	Average Admin. Assistant	\$ 35,000	\$ 35,000	\$	36,050	\$	37,132	\$	38,245	\$	39,393
	Average Network Technician	\$ 50.000	\$ 50,000	\$	51,500	\$	53,045	\$	54,636	\$	56,275
	Average Billing Manager	\$ 50,000	\$ 50,000	\$	51,500	\$	53,045	\$	54,636	\$	56,275
	Average Billing Assistant	\$ 28,000	\$ 28,000	\$	28,840	\$	29,705	\$	30,596	\$	31,514
	Average Finance Administrator	\$ 55,000	\$ 55,000	\$	56,650	\$	58,350	\$	60,100	\$	61,903
	•	\$ 55,000	\$	\$	56,650	\$	58,350	\$	60,100	\$	61,903
	Average Mgr. of Customer Relations	\$ 55,000	\$ 55,000	Ф \$	•	\$		\$			
	Average Regional Sales Manager	\$ 	\$ 55,000	\$ \$	56,650	\$ \$	58,350	\$	60,100	\$ \$	61,903
	Average Outside Sales	35,000	35,000		36,050		37,132		38,245		39,393
	Average Shift Supervisor	\$ 	\$ -	\$	-	\$	-	\$	-	\$	-
	Average Marketing Manager	\$	\$ -	\$	-	\$	-	\$	-	\$	- 07.504
	Average Technician Manager	\$ 60,000	\$ 60,000	\$	61,800	\$	63,654	\$	65,564	\$	67,531
	Average Infrastructure Manager	\$ -	\$ -	\$	-	\$	-	\$	-	\$	-
	Average Project Manager	\$ -	\$ <u>-</u>	\$	<u>-</u>	\$	<u>-</u>	\$	-	\$	- -
	Average IT Engineers	\$ 55,000	\$ 55,000	\$	56,650	\$	58,350	\$	60,100	\$	61,903
	Average Tech Support Supervisors	\$ 55,000	\$ 55,000	\$	56,650	\$	58,350	\$	60,100	\$	61,903
	Average Customer Service	\$ 35,000	\$ 35,000	\$	36,050	\$	37,132	\$	38,245	\$	39,393
	Annual Escalator	1.030	1.030		1.030		1.030		1.030		1.030
41	Benefit Factor	0.300	0.300		0.300		0.300		0.300		0.300
42	Bonus Factor	0.030	0.030		0.030		0.030		0.030		0.030
43	Total Salaries	\$ -	\$ -	\$	103,000	\$	159,135	\$	218,545	\$	225,102
44	Benefits	\$ -	\$ -	\$	30,900	\$	47,741	\$	65,564	\$	67,531
45	Bonuses	\$ -	\$ <u> </u>	\$		\$		\$		\$	
46	Total Payroll Compensation	\$ -	\$ -	\$	133,900	\$	206,876	\$	284,109	\$	292,632
	LEVEL 1 SUPPORT										
47	Amount per subscriber	\$ -	\$ -	\$	-	\$	-	\$	-	\$	-
	Subscribers		797		3,259		4,924	_	6,533		6,877
49	Total Level 1 Support (Outsourced)	\$ -	\$ -	\$	-	\$	-	\$	-	\$	-

Page 2 of 9 7/8/2022

### **Assumptions Operating Expenses**

TOWER LEASE						
50 Number of Tower Co. Sites	0	0	0	0	0	0
51 Number of Municiple/Private Sites	0	0	0	0	0	0
<b>52</b> Average Lease Per Tower Co./Mo.	750	750	750	750	750	750
53 Ave. Municipality/Private Lease/Mo.	300	300	300	300	300	300
54 Annual Escalator	1.00	1.00	1.00	1.00	1.00	1.00
55 Tower Co. Leasing	\$ - \$	- \$	- \$			\$ -
56 Municipality/Private Leasing	\$ - \$	- \$	<u> </u>			\$ -
57 Total Tower Lease Costs	\$ - \$	- \$	- \$			\$ -
Or rotal rowel Edde Costs	Ψ - Ψ	- ψ	- ψ		Ψ -	Ψ -
REAL ESTATE LEASE 58 Number of square feet leased 59 Price per Square Foot	- \$ 15 \$ 1.05	-   16 \$	-   17 \$ 1.05		•	- \$ 19
60 Annual Escalator 61 Total Real Estate Lease	\$ - \$	1.05	- \$	1.05	1.05 \$ -	1.05 \$ -
VEHICLE EXPENSE 62 Number of Technician Vehicles	0	- \$	- \$	0	0	0
63 Number of company cars	0	0	0	0	0	0
Vehicle Lease	0	0	0	0	0	0
64 Ave. mo. fuel per tech vehicle	450	457	464	471	478	485
65 Ave. mo. fuel per company car	225	228	232	235	239	242
66 Ave. yr. tag and tax per vehicle	100	102	103	105	106	108
<b>67</b> Ave. yr. maintenance per vehicle	250	254	258	261	265	269
68 Annual rate of cost increase	1.015	0.015	0.015	0.015	0.015	0.015
69 Vehicle Expenses	\$ - \$	- \$	- \$	-	\$ -	\$ -
INSURANCE	4.050					
70 Policy Premium per Auto	1,250	-	-	-	-	-
<ul><li>70 Policy Premium per Auto</li><li>71 General Liability</li></ul>		- 0	- 2,319	3,583	- 4,921	- 5,069
<ul><li>70 Policy Premium per Auto</li><li>71 General Liability</li><li>72 Hazard (property)</li></ul>	1,250 0.000	0.000	0.000	0.000	0.000	0.000
<ul> <li>70 Policy Premium per Auto</li> <li>71 General Liability</li> <li>72 Hazard (property)</li> <li>73 Fixed Assets Insured</li> </ul>			0.000 47,331,914	0.000 71,142,952	0.000 94,953,991	0.000 117,604,375
<ul> <li>70 Policy Premium per Auto</li> <li>71 General Liability</li> <li>72 Hazard (property)</li> <li>73 Fixed Assets Insured</li> <li>74 Worker's Comp</li> </ul>	0.000	0.000 22,940,548 -	0.000 47,331,914 4,532	0.000 71,142,952 7,002	0.000 94,953,991 9,616	0.000
<ul> <li>70 Policy Premium per Auto</li> <li>71 General Liability</li> <li>72 Hazard (property)</li> <li>73 Fixed Assets Insured</li> <li>74 Worker's Comp</li> <li>75 Umbrella Policy</li> </ul>	0.000	0.000	0.000 47,331,914	0.000 71,142,952	0.000 94,953,991	0.000 117,604,375
<ul> <li>70 Policy Premium per Auto</li> <li>71 General Liability</li> <li>72 Hazard (property)</li> <li>73 Fixed Assets Insured</li> <li>74 Worker's Comp</li> </ul>	0.000 - - 5.00%	0.000 22,940,548 - -	0.000 47,331,914 4,532 - -	0.000 71,142,952 7,002 - -	0.000 94,953,991 9,616 - -	0.000 117,604,375 9,904 - -
<ul> <li>70 Policy Premium per Auto</li> <li>71 General Liability</li> <li>72 Hazard (property)</li> <li>73 Fixed Assets Insured</li> <li>74 Worker's Comp</li> <li>75 Umbrella Policy</li> <li>76 Director's Insurance</li> <li>77 Annual rate of cost increase</li> </ul>	0.000	0.000 22,940,548 -	0.000 47,331,914 4,532 - - - 1.1	0.000 71,142,952 7,002 - - 1.1	0.000 94,953,991 9,616 - - 1.1	0.000 117,604,375 9,904 - - 1.1
<ul> <li>70 Policy Premium per Auto</li> <li>71 General Liability</li> <li>72 Hazard (property)</li> <li>73 Fixed Assets Insured</li> <li>74 Worker's Comp</li> <li>75 Umbrella Policy</li> <li>76 Director's Insurance</li> </ul>	0.000 - - 5.00%	0.000 22,940,548 - -	0.000 47,331,914 4,532 - -	0.000 71,142,952 7,002 - -	0.000 94,953,991 9,616 - -	0.000 117,604,375 9,904 - -
<ul> <li>70 Policy Premium per Auto</li> <li>71 General Liability</li> <li>72 Hazard (property)</li> <li>73 Fixed Assets Insured</li> <li>74 Worker's Comp</li> <li>75 Umbrella Policy</li> <li>76 Director's Insurance</li> <li>77 Annual rate of cost increase</li> </ul>	0.000 - - 5.00%	0.000 22,940,548 - -	0.000 47,331,914 4,532 - - - 1.1	0.000 71,142,952 7,002 - - 1.1	0.000 94,953,991 9,616 - - 1.1	0.000 117,604,375 9,904 - - - 1.1
70 Policy Premium per Auto 71 General Liability 72 Hazard (property) 73 Fixed Assets Insured 74 Worker's Comp 75 Umbrella Policy 76 Director's Insurance 77 Annual rate of cost increase 78 Total Insurance	0.000 - - 5.00% 1.1	0.000 22,940,548 - -	0.000 47,331,914 4,532 - - - 1.1	0.000 71,142,952 7,002 - - 1.1	0.000 94,953,991 9,616 - - 1.1	0.000 117,604,375 9,904 - - - 1.1
70 Policy Premium per Auto 71 General Liability 72 Hazard (property) 73 Fixed Assets Insured 74 Worker's Comp 75 Umbrella Policy 76 Director's Insurance 77 Annual rate of cost increase 78 Total Insurance 79 ANNUAL PROPERTY TAX	0.000 - - 5.00% 1.1	0.000 22,940,548 - -	0.000 47,331,914 4,532 - - - 1.1	0.000 71,142,952 7,002 - - 1.1	0.000 94,953,991 9,616 - - 1.1	0.000 117,604,375 9,904 - - - 1.1
70 Policy Premium per Auto 71 General Liability 72 Hazard (property) 73 Fixed Assets Insured 74 Worker's Comp 75 Umbrella Policy 76 Director's Insurance 77 Annual rate of cost increase 78 Total Insurance 79 ANNUAL PROPERTY TAX WHOLESALE VOICE COSTS	0.000 - - 5.00% 1.1	0.000 22,940,548 - - - 1.1 -	0.000 47,331,914 4,532 - - 1.1 6,851	0.000 71,142,952 7,002 - - 1.1 10,585	0.000 94,953,991 9,616 - - 1.1 14,537	0.000 117,604,375 9,904 - - - 1.1
70 Policy Premium per Auto 71 General Liability 72 Hazard (property) 73 Fixed Assets Insured 74 Worker's Comp 75 Umbrella Policy 76 Director's Insurance 77 Annual rate of cost increase 78 Total Insurance 79 ANNUAL PROPERTY TAX  WHOLESALE VOICE COSTS 84 Voice Subscribers	0.000 - - 5.00% 1.1	0.000 22,940,548 - - - 1.1 - -	0.000 47,331,914 4,532 - - - 1.1 6,851	0.000 71,142,952 7,002 - - 1.1 10,585	0.000 94,953,991 9,616 - - 1.1 14,537	0.000 117,604,375 9,904 - - 1.1 14,973
70 Policy Premium per Auto 71 General Liability 72 Hazard (property) 73 Fixed Assets Insured 74 Worker's Comp 75 Umbrella Policy 76 Director's Insurance 77 Annual rate of cost increase 78 Total Insurance 79 ANNUAL PROPERTY TAX WHOLESALE VOICE COSTS	0.000 - - 5.00% 1.1	0.000 22,940,548 - - - 1.1 -	0.000 47,331,914 4,532 - - 1.1 6,851	0.000 71,142,952 7,002 - - 1.1 10,585	0.000 94,953,991 9,616 - - 1.1 14,537	0.000 117,604,375 9,904 - - 1.1
70 Policy Premium per Auto 71 General Liability 72 Hazard (property) 73 Fixed Assets Insured 74 Worker's Comp 75 Umbrella Policy 76 Director's Insurance 77 Annual rate of cost increase 78 Total Insurance 79 ANNUAL PROPERTY TAX  WHOLESALE VOICE COSTS 84 Voice Subscribers 85 Third Party voice costs cost per sub	0.000 - - 5.00% 1.1	0.000 22,940,548 - - - 1.1 - - - 10.00	0.000 47,331,914 4,532 - - 1.1 6,851 - 10.00	0.000 71,142,952 7,002 - - 1.1 10,585 - 10.00	0.000 94,953,991 9,616 - - 1.1 14,537 -	0.000 117,604,375 9,904 - - 1.1 14,973 - -
70 Policy Premium per Auto 71 General Liability 72 Hazard (property) 73 Fixed Assets Insured 74 Worker's Comp 75 Umbrella Policy 76 Director's Insurance 77 Annual rate of cost increase 78 Total Insurance 79 ANNUAL PROPERTY TAX  WHOLESALE VOICE COSTS 84 Voice Subscribers 85 Third Party voice costs cost per sub 86 Total Wholesale Voice Costs  BANDWIDTH & Fiber Costs	0.000 - - 5.00% 1.1	0.000 22,940,548 - - - 1.1 - - - 10.00	0.000 47,331,914 4,532 - - 1.1 6,851 - 10.00	0.000 71,142,952 7,002 - - 1.1 10,585 - 10.00	0.000 94,953,991 9,616 - - 1.1 14,537 -	0.000 117,604,375 9,904 - - 1.1 14,973 - -
70 Policy Premium per Auto 71 General Liability 72 Hazard (property) 73 Fixed Assets Insured 74 Worker's Comp 75 Umbrella Policy 76 Director's Insurance 77 Annual rate of cost increase 78 Total Insurance 79 ANNUAL PROPERTY TAX  WHOLESALE VOICE COSTS 84 Voice Subscribers 85 Third Party voice costs cost per sub 86 Total Wholesale Voice Costs  BANDWIDTH & Fiber Costs Fiber IRU	0.000 - 5.00% 1.1 - -	0.000 22,940,548 1.1 10.00 0	0.000 47,331,914 4,532 - - 1.1 6,851 - 10.00 0	0.000 71,142,952 7,002 1.1 10,585 - 10.00 0	0.000 94,953,991 9,616 - - 1.1 14,537 - - 10.00 0	0.000 117,604,375 9,904 - - 1.1 14,973 - - 10.00 0
70 Policy Premium per Auto 71 General Liability 72 Hazard (property) 73 Fixed Assets Insured 74 Worker's Comp 75 Umbrella Policy 76 Director's Insurance 77 Annual rate of cost increase 78 Total Insurance 79 ANNUAL PROPERTY TAX  WHOLESALE VOICE COSTS 84 Voice Subscribers 85 Third Party voice costs cost per sub 86 Total Wholesale Voice Costs  BANDWIDTH & Fiber Costs Fiber IRU 87 Ave. Cost per 1 Gbps Link	0.000 - 5.00% 1.1 - - 10.00	0.000 22,940,548 - - - 1.1 - - - 10.00 0	0.000 47,331,914 4,532 - - 1.1 6,851 - 10.00 0	0.000 71,142,952 7,002 1.1 10,585 - 10.00 0	0.000 94,953,991 9,616 - - 1.1 14,537 - - 10.00 0	0.000 117,604,375 9,904 - - 1.1 14,973 - 10.00 0
70 Policy Premium per Auto 71 General Liability 72 Hazard (property) 73 Fixed Assets Insured 74 Worker's Comp 75 Umbrella Policy 76 Director's Insurance 77 Annual rate of cost increase 78 Total Insurance 79 ANNUAL PROPERTY TAX  WHOLESALE VOICE COSTS 84 Voice Subscribers 85 Third Party voice costs cost per sub 86 Total Wholesale Voice Costs  BANDWIDTH & Fiber Costs Fiber IRU 87 Ave. Cost per 1 Gbps Link 88 Ave. Cost per 10 Gig Link	0.000 - 5.00% 1.1 - - 10.00	0.000 22,940,548 1.1 10.00 0	0.000 47,331,914 4,532 - - 1.1 6,851 - 10.00 0	0.000 71,142,952 7,002 1.1 10,585 - 10.00 0	0.000 94,953,991 9,616 - - 1.1 14,537 - - 10.00 0	0.000 117,604,375 9,904 - - 1.1 14,973 - - 10.00 0
70 Policy Premium per Auto 71 General Liability 72 Hazard (property) 73 Fixed Assets Insured 74 Worker's Comp 75 Umbrella Policy 76 Director's Insurance 77 Annual rate of cost increase 78 Total Insurance 79 ANNUAL PROPERTY TAX  WHOLESALE VOICE COSTS 84 Voice Subscribers 85 Third Party voice costs cost per sub 86 Total Wholesale Voice Costs  BANDWIDTH & Fiber Costs Fiber IRU 87 Ave. Cost per 1 Gbps Link 88 Ave. Cost per 10 Gig Link 89 No. of 1 Gbps Links	0.000 - 5.00% 1.1 - - 10.00 3,500 0	0.000 22,940,548 1.1 10.00 0 - 2,100 3,500	0.000 47,331,914 4,532 - - 1.1 6,851 - 10.00 0	0.000 71,142,952 7,002 1.1 10,585 - 10.00 0 - 2,100 3,500	0.000 94,953,991 9,616 - - 1.1 14,537 - - 10.00 0	0.000 117,604,375 9,904 - - 1.1 14,973 - 10.00 0
70 Policy Premium per Auto 71 General Liability 72 Hazard (property) 73 Fixed Assets Insured 74 Worker's Comp 75 Umbrella Policy 76 Director's Insurance 77 Annual rate of cost increase 78 Total Insurance 79 ANNUAL PROPERTY TAX  WHOLESALE VOICE COSTS 84 Voice Subscribers 85 Third Party voice costs cost per sub 86 Total Wholesale Voice Costs  BANDWIDTH & Fiber Costs Fiber IRU 87 Ave. Cost per 1 Gbps Link 88 Ave. Cost per 10 Gig Link	0.000 - 5.00% 1.1 - - 10.00	0.000 22,940,548 - - - 1.1 - - - 10.00 0	0.000 47,331,914 4,532 - - 1.1 6,851 - 10.00 0	0.000 71,142,952 7,002 1.1 10,585 - 10.00 0	0.000 94,953,991 9,616 - - 1.1 14,537 - - 10.00 0	0.000 117,604,375 9,904 - - 1.1 14,973 - 10.00 0

Page 3 of 9 7/8/2022

### **Assumptions Operating Expenses**

	VIDEO CONTENT							
	Video Subscribers		-	-	-	-		-
	Ave. cost of Content per Sub	(5)	(5)	(5)	(5)	(5	)	(5)
	Total Video Content Cost		-	-	-	-		-
	POLE ATTACHMENT FEES							
100	Annual Pole Attachment Fees	0.00	0.00	0.00	0.00	0.0	)	0.00
	UTILITIES							
101	Number of tower sites	0	0	0	0		0	0
102	Number of offices	0	0	0	0	(	0	0
103	Number of cell phones	0	0	2	3		4	4
104	Utility Rate per tower site/ mo.	100	105	110	116	122		128
105	Utility Rate per office / mo.	500	525	551	579	608		638
106	Average Cell Phone Cost / mo.	75	79	83	87	91		96
	Utility Rate Increase	1.05	1.05	1.05	1.05	1.0	5	1.05
	Utility Expense	-	-	-	-	-		-
109	Cell Phone Expense		 <u> </u>	 165	 260	365	_	383
110	Total Utilities Expense	-	-	1,985	3,126	4,376		4,595
	OFFICE SUPPLIES							
111	Furniture	-	-	-	-	-		-
112	Office Supplies	-	-	-	-	-		-
113	Computers & Office Equipment	-	-	-	-	-		-
114	Software	-	-	-	-	-		-
114A	Misc		3,000	3,000	3,000	3,000		3,000
115	Total Supplies	-	-	-	-	-		-
	PLANT REPAIRS & MAINTENANCE							
116	Invested Fixed Assets	\$0	\$ 22,940,548	\$ 47,331,914	\$ 71,142,952 \$	94,953,991	\$	117,604,375
117	Maintenance Rate	0.005	0.005	0.005	0.005	0.00	5	0.005
118	Annual Repairs & Maintenance	\$ -	\$ 114,703	\$ 236,660	\$ 355,715 \$	474,770	\$	588,022
119								
120	MARKETING							
121	Monthly Investment	\$ -	\$ 1,500	\$ 1,500	\$ 1,000 \$	1,000	\$	500
122	Total Marketing Investment		18,000	18,000	12,000	12,00	0	6,000
	BILLING							
	Annual Billing Cost @ \$1.00/sub/mo	\$1.00	9,568	39,110	59,085	78,40	2	82,528
	Meter Reading	\$0.00	0	0	0		0	0
	meters	0						
	PROFESSIONAL FEES							
123	Engineering	-	-	-	6,000	6,000		6,000
	Accounting/Financial	-	6,000	6,000	6,000	6,000		6,000
	Legal	-	3,000	3,000	3,000	3,000		3,000
126	Total Professional Fees	-	9,000	9,000	15,000	15,000		15,000

Page 4 of 9 7/8/2022

### **Subscriber Revenue Projections**

Estimated Service Plan Subscriptions			Yr 1 % Take Rate	Yr 2 % Take Rate 45.00%	Yr 3 % Take Rate 70.00%	Yr 4 % Take Rate 95.00%	Yr 5 % Take Rate 100.00%
DATA SERVICES	MONTHLY	Percentage Take Rate	Year 1	Year 2	Year 3	Year 4	Year 5
RESIDENTIAL BRONZE 25/3 Mbps	\$35.00		260	1,171	1,821	2,472	
RESIDENTIAL SILVER 100/10 Mbps	\$59.95		231	1,041	1,619		· ·
RESIDENTIAL GOLD 250/25 Mbps	\$79.95		75	338			· ·
RESIDENTIAL GOLD 230/23 Mbps RESIDENTIAL PLATINUM 1,000/100 Mbps	\$99.00		12	52		110	
Total Residential Data Subscribers	ψ33.00	100.00%	578	2,602			
		100.0070	20.00%	60.00%	80.00%	95.00%	100.00%
BUS BROADBAND Non-Profit 25/3 Mbps	\$49.95	40.00%	88	263		416	
BUS BROADBAND SILVER 100/10 Mbps	\$69.95	35.00%	77	230	307	364	384
BUS BROADBAND GOLD 250/25 Mbps	\$89.95	15.00%	33	99	132	156	164
BUS BROADBAND PLATINUM 1/100 Mbps	\$149.95	10.00%	22	66	88	104	110
Total Business Data Subscribers		100.00%	219	658	877	1,041	1,096
Total Voice Subscribers		0.00%	0	0	0	0	0
Total Video Subscribers		0.00%	0	0	0	0	0
Annual Revenue Projections							
DATA SERVICES	MONTHLY		Year 1	Year 2	Year 3	Year 4	Year 5
RESIDENTIAL BRONZE 25/3 Mbps	\$35.00		\$109,268	\$491,705	\$764,874	\$1,038,043	\$1,092,677
RESIDENTIAL SILVER 100/10 Mbps	\$59.95		\$166,364	\$748,640	\$1,164,551	\$1,580,462	\$1,663,644
RESIDENTIAL GOLD 250/25 Mbps	\$79.95		\$72,106	\$324,478	\$504,744	\$685,010	\$721,063
RESIDENTIAL PLATINUM 1,000/100 Mbps	\$99.00		\$13,737	\$61,814	\$96,156	\$130,497	\$137,365
Total Residential Data Annual Revenue			\$361,475	\$1,626,637	\$2,530,324	\$3,434,012	\$3,614,749
BUS BROADBAND Non-Profit 25/3 Mbps	\$49.95		\$52,554	\$157,662	\$210.216	\$249,631	\$262,770
BUS BROADBAND SILVER 100/10 Mbps	\$69.95		\$64,397	\$193,191	\$257,588		
BUS BROADBAND GOLD 250/25 Mbps	\$89.95		\$27,599	\$82,796			
BUS BROADBAND PLATINUM 1/100 Mbps	\$149.95		\$39,442	\$118,325			
Total Business Data Annual Revenue			\$183,991	\$551,974			
Total Annual Revenue			\$545,466	\$2,178,611	\$3,266,290	\$4,307,971	\$4,534,706
Total Voice Annual Revenue (ARPU)	\$0.00		\$0	\$0	\$0	\$0	\$0
Total Video Annual Revenue (ARPU)	\$0.00		\$0	\$0	\$0	\$0	\$0
Total Annual Res Intallation Revenue	\$50.00		\$28,907	\$101,174	\$72,267	\$72,267	\$14,453
Total Annual Bus Intallation Revenue	\$50.00		\$10,960	\$21,919	\$10,960	\$8,220	\$2,740
Total Facility Revenue Savings	\$0.00		\$0	\$0	\$0	\$0	\$0
Total cell site revenues (\$500/mo/tower)	\$6,000.00		\$0	\$12,000	\$18,000	\$24,000	\$24,000
Total dark fiber & Bandwidth Rev.	\$0.00		\$0	\$0	\$0	\$0	\$0
Total Smart Home & Security Rev.	\$0.00		\$0	\$0	\$0	\$0	\$0
Total Annual Other Revenue			\$0	\$12,000	\$18,000	\$24,000	\$24,000
Total HHP Total 5 yr residential data subs 5,781	11,118 52.00%						
Total Businesses Total 5 yr bus data subs 1,096	1,628 67.32%						

Total 5 yr Data Subscribers 6,877

Page 5 of 9 7/8/2022

### Depreciation

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### YEAR 1 INVESTMENT

	Life	Year 1	Year 2	Year 3	Year 4	Year 5
Network Access Equipment	7	96,429	96,429	96,429	96,429	96,429
Outside Plant & Towers	20	942,162	942,162	942,162	942,162	942,162
Buildings & Land	25	10,400	10,400	10,400	10,400	10,400
Customer Premise Equipment	7	82,904	82,904	82,904	82,904	82,904
Billing & Operations Support	15	2,413	2,413	2,413	2,413	2,413
Operating Equipment	10		-	-	-	-
Engineering & Professional Services	15		_	_	-	_
Testing	15	_	_	_	-	_
Site Preparation	25		-	_	-	-
Total		1,134,308	1,134,308	1,134,308	1,134,308	1,134,308
		, , , , , , , , , , , , , , , , , , , ,	, . ,	, . ,	, . ,	, , , , , , , ,
		V4		R 2 INVESTMENT	V 4	V F
Notwork Assess Equipment	7	Year 1	Year 2	Year 3	Year 4	Year 5
Network Access Equipment Outside Plant & Towers	20		96,429 942,162	96,429 942,162	96,429 942,162	96,429 942,162
Buildings & Land	25		12,480	12,480	12,480	12,480
Customer Premise Equipment	7		290,164	290,164	290,164	290,164
Billing & Operations Support	15		2,413	2,413	2,413	2,413
Operating Equipment	10			-	-	-
Engineering & Professional Services	15		-	-	-	-
Testing	15		-	-	-	-
Site Preparation	25		-	-	-	-
Total			1,343,648	1,343,648	1,343,648	1,343,648
			YEAF	R 3 INVESTMENT		
		Year 1	Year 2	Year 3	Year 4	Year 5
Network Access Equipment	7			96,429	96,429	96,429
Outside Plant & Towers	20			942,162	942,162	942,162
Buildings & Land	25			10,400	10,400	10,400
Customer Premise Equipment	7			207,260	207,260	207,260
Billing & Operations Support	15			0	-	-
Operating Equipment	10 15			0	-	-
Engineering & Professional Services Testing	15			0	-	-
Site Preparation	25			0	_	_
Total				1,256,250	1,256,250	1,256,250
			V= 4 F			
		Year 1	YEAF Year 2	R 4 INVESTMENT Year 3	Year 4	Year 5
Network Access Equipment	7	i cai i	rear z	rear 5	96,429	96,429
Outside Plant & Towers	20				942,162	942,162
Buildings & Land	25				10,400	10,400
Customer Premise Equipment	7				207,260	207,260
Billing & Operations Support	15				-	-
Operating Equipment	10				-	-
Engineering & Professional Services	15				-	-
Testing Site Properation	15 25					-
Site Preparation Total	25			•	1,256,250	1,256,250
					,,	,,
		V 4		R 5 INVESTMENT		v -
Noticelly Access Facilities	7	Year 1	Year 2	Year 3	Year 4	Year 5
Network Access Equipment Outside Plant & Towers	7 20					96,429 942,162
Buildings & Land	25					10,400
Customer Premise Equipment	7					41,452
Billing & Operations Support	15					- 1,102
Operating Equipment	10					-
Engineering & Professional Services	15					
Testing	15					
Site Preparation	25					-
Total						1,090,443

Page 6 of 9 7/8/2022

### Depreciation

			TOTAL PR	OJECT DEPRECIA	TION	
		Year 1	Year 2	Year 3	Year 4	Year 5
Network Access Equipment	7	96,429	192,857	289,286	385,714	482,143
Outside Plant & Towers	20	942,162	1,884,324	2,826,486	3,768,648	4,710,810
Buildings & Land	25	10,400	22,880	33,280	43,680	54,080
Customer Premise Equipment	7	82,904	373,067	580,327	787,587	829,039
Billing & Operations Support	10	2,413	4,827	4,827	4,827	4,827
Operating Equipment	10	-	-	-	-	-
Engineering & Professional Services	10	-	-	-	-	-
Testing	10	-	-	-	-	-
Site Preparation	25	-	-	-	-	-
Total		1,134,308	2,477,955	3,734,206	4,990,456	6,080,898

Page 7 of 9 7/8/2022

### **Debt Amortization**

Green are on	ly inputs (cell reference	s) in this tab			
CAPX - Year 1 Term Interest Monthly Payment	22,940,548 20 3.00% 127,228				
Annual Interest Annual Principle Loan Balance	Year 1 688,216 - 22,940,548	Year 2 688,216 - 22,940,548	Year 3 688,216 838,516 22,102,032	<b>Year 4</b> 663,061 863,672 21,238,360	<b>Year 5</b> 637,151 889,582 20,348,778
CAPX - Year 2 Term Interest Monthly Payment	1	24,391,366 19 3.00% 140,480			
Annual Interest Annual Principle Loan Balance		Year 2 731,741 - 24,391,366	<b>Year 3</b> 731,741 954,018 23,437,348	<b>Year 4</b> 703,120 982,638 22,454,709	<b>Year 5</b> 673,641 1,012,118 21,442,592
CAPX - Year 3 Term Interest Monthly Payment		l	23,811,039 18 3.00% 142,800		
Annual Interest Annual Principle Loan Balance			Year 3 714,331 999,273 22,811,766	Year 4 684,353 1,029,251 21,782,514	Year 5 653,475 1,060,129 20,722,386
CAPX - Year 4 Term Interest Monthly Payment			1	23,811,039 17 3.00% 149,146	
Annual Interest Annual Principle Loan Balance				Year 4 714,331 1,075,425 22,735,614	Year 5 682,068 1,107,687 21,627,926
CAPX - Year 5 Term Interest Monthly Payment					22,650,384 16 3.00% 148,685
Annual Interest Annual Principle Loan Balance					Year 5 679,512 1,104,705 21,545,679
CAPX - Total					117,604,375
Annual Interest Annual Principle Loan Balance	Year 1 688,216 - 22,940,548	Year 2 1,419,957 - 47,331,914	<b>Year 3</b> 2,134,289 2,791,807 68,351,145	<b>Year 4</b> 2,764,866 3,950,986 88,211,198	<b>Year 5</b> 3,325,847 5,174,221 105,687,361

Page 8 of 9 7/8/2022

CAPX

#### SUMMARY OF PROJECT COSTS BY YEAR

	Prior Years						Γotal		F	Replacement Cost	ts			
Budget Category		Year 1	Year 2	Year 3	Year 4			Year 6 Y	ear 7	Year 8		Year 10		
NETWORK/ACCESS EQUIPMENT		\$675,000.00	\$675,000.00	\$675,000.00	\$675,000.00	\$675,000.00	\$3,375,000.00			\$3,375,000.00				
OUTSIDE PLANT		\$18,843,240.00	\$18,843,240.00	\$18,843,240.00	\$18,843,240.00	\$18,843,240.00	\$94,216,200.00							
BUILDINGS		\$260,000.00	\$260,000.00	\$260,000.00	\$260,000.00	\$260,000.00	\$1,300,000.00							
LAND		\$52,000.00	\$52,000.00	\$52,000.00	\$52,000.00	\$52,000.00	\$260,000.00							
TOWERS		\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00							
CUSTOMER PREMISE EQUIPMENT		\$580,327.20	\$2,031,145.20	\$1,450,818.00	\$1,450,818.00	\$290,163.60	\$5,803,272.00			\$5,803,272.00				
BILLING SUPPORT & OPERATING EQUIP.		\$36,200.00	\$36,200.00	\$36,200.00	\$36,200.00	\$36,200.00	\$181,000.00							
ENGINEERING		\$2,493,780.60	\$2,493,780.60		\$2,493,780.60	\$2,493,780.60	\$12,468,903.00							
		\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00							
TOTAL		\$22,940,547.80	\$24,391,365.80	\$23,811,038.60	\$23,811,038.60	\$22,650,384.20	\$117,604,375.00			\$9,178,272.00				
													Total	
	Prior Years			Year 2		Year 3		Year 4		Year 5		Total	Project	Cost
Budget Category														
	_		Non-Loan Funds		Non-Loan Funds				lon-Loan Funds				Non-Loan Funds	
NETWORK/ACCESS EQUIPMENT	0	\$675,000.00	\$0.00	\$675,000.00	\$0.00	\$675,000.00	\$0.00	\$675,000.00	\$0.00	\$675,000.00	\$0.00	\$3,375,000.00	\$0.00	\$3,375,000.00
NETWORK/ACCESS EQUIPMENT OUTSIDE PLANT	0	\$675,000.00 \$18,843,240.00	\$0.00 \$0.00	\$675,000.00 \$18,843,240.00	\$0.00 \$0.00	\$675,000.00 \$18,843,240.00	\$0.00 \$0.00	\$675,000.00 \$18,843,240.00	\$0.00 \$0.00	\$675,000.00 \$18,843,240.00	\$0.00 \$0.00	\$3,375,000.00 \$94,216,200.00	\$0.00 \$0.00	\$94,216,200.00
NETWORK/ACCESS EQUIPMENT OUTSIDE PLANT BUILDING	0 0 0	\$675,000.00 \$18,843,240.00 \$260,000.00	\$0.00 \$0.00 \$0.00	\$675,000.00 \$18,843,240.00 \$260,000.00	\$0.00 \$0.00 \$0.00	\$675,000.00 \$18,843,240.00 \$260,000.00	\$0.00 \$0.00 \$0.00	\$675,000.00 \$18,843,240.00 \$260,000.00	\$0.00 \$0.00 \$0.00	\$675,000.00 \$18,843,240.00 \$260,000.00	\$0.00 \$0.00 \$0.00	\$3,375,000.00 \$94,216,200.00 \$1,300,000.00	\$0.00 \$0.00 \$0.00	\$94,216,200.00 \$1,300,000.00
NETWORKIÁCĆESS EQUIPMENT OUTSIDE PLANT BUILDING LAND	0 0 0	\$675,000.00 \$18,843,240.00 \$260,000.00 \$52,000.00	\$0.00 \$0.00 \$0.00 \$0.00	\$675,000.00 \$18,843,240.00 \$260,000.00 \$52,000.00	\$0.00 \$0.00 \$0.00 \$0.00	\$675,000.00 \$18,843,240.00 \$260,000.00 \$52,000.00	\$0.00 \$0.00 \$0.00 \$0.00	\$675,000.00 \$18,843,240.00 \$260,000.00 \$52,000.00	\$0.00 \$0.00 \$0.00 \$0.00	\$675,000.00 \$18,843,240.00 \$260,000.00 \$52,000.00	\$0.00 \$0.00 \$0.00 \$0.00	\$3,375,000.00 \$94,216,200.00 \$1,300,000.00 \$260,000.00	\$0.00 \$0.00 \$0.00 \$0.00	\$94,216,200.00 \$1,300,000.00 \$260,000.00
NETWORK/ACCESS EQUIPMENT OUTSIDE PLANT BUILDING LAND TOWER	0 0 0 0	\$675,000.00 \$18,843,240.00 \$260,000.00 \$52,000.00 \$0.00	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$675,000.00 \$18,843,240.00 \$260,000.00 \$52,000.00 \$0.00	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$675,000.00 \$18,843,240.00 \$260,000.00 \$52,000.00 \$0.00	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$675,000.00 \$18,843,240.00 \$260,000.00 \$52,000.00 \$0.00	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$675,000.00 \$18,843,240.00 \$260,000.00 \$52,000.00 \$0.00	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$3,375,000.00 \$94,216,200.00 \$1,300,000.00 \$260,000.00 \$0.00	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$94,216,200.00 \$1,300,000.00 \$260,000.00 \$0.00
NETWORK/ÄCĆESS EQUIPMENT OUTSIDE PLANT BUILDING BUILDING LAND TOWER CUSTOMER PREMISES EQUIPMENT*	0 0 0 0 0	\$675,000.00 \$18,843,240.00 \$260,000.00 \$52,000.00 \$0.00 \$580,327.20	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$675,000.00 \$18,843,240.00 \$260,000.00 \$52,000.00 \$0.00 \$2,031,145.20	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$675,000.00 \$18,843,240.00 \$260,000.00 \$52,000.00 \$0.00 \$1,450,818.00	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$675,000.00 \$18,843,240.00 \$260,000.00 \$52,000.00 \$0.00 \$1,450,818.00	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$675,000.00 \$18,843,240.00 \$260,000.00 \$52,000.00 \$0.00 \$290,163.60	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$3,375,000.00 \$94,216,200.00 \$1,300,000.00 \$260,000.00 \$0.00 \$5,803,272.00	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$94,216,200.00 \$1,300,000.00 \$260,000.00 \$0.00 \$5,803,272.00
NETWORK/ACCESS EQUIPMENT OUTSIDE PLANT BUILDING LAND TOWER CUSTOMER PREMISES EQUIPMENT* BILLING SUPPORT & OPERATING EQUIP.	0 0 0 0 0 0	\$675,000.00 \$18,843,240.00 \$260,000.00 \$52,000.00 \$0.00 \$580,327.20 \$36,200.00	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$675,000.00 \$18,843,240.00 \$260,000.00 \$52,000.00 \$0.00 \$2,031,145.20 \$36,200.00	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$675,000.00 \$18,843,240.00 \$260,000.00 \$52,000.00 \$0.00 \$1,450,818.00 \$36,200.00	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$675,000.00 \$18,843,240.00 \$260,000.00 \$52,000.00 \$0.00 \$1,450,818.00 \$36,200.00	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$675,000.00 \$18,843,240.00 \$260,000.00 \$52,000.00 \$0.00 \$290,163.60 \$36,200.00	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$3,375,000.00 \$94,216,200.00 \$1,300,000.00 \$260,000.00 \$0.00 \$5,803,272.00 \$181,000.00	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$94,216,200.00 \$1,300,000.00 \$260,000.00 \$0.00 \$5,803,272.00 \$181,000.00
NETWORKJÄCĆESS EQUIPMENT OUTSIDE PLANT BUILDING LAND TOWER CUSTOMER PREMISES EQUIPMENT* BILLING SUPPORT & OPERATING EQUIP. ENGINEERING	0 0 0 0 0	\$675,000.00 \$18,843,240.00 \$260,000.00 \$52,000.00 \$580,327.20 \$36,200.00 \$2,493,780.60	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$675,000.00 \$18,843,240.00 \$260,000.00 \$52,000.00 \$2,031,145.20 \$36,200.00 \$2,493,780.60	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$675,000.00 \$18,843,240.00 \$260,000.00 \$52,000.00 \$0.00 \$1,450,818.00 \$36,200.00 \$2,493,780.60	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$675,000.00 \$18,843,240.00 \$260,000.00 \$52,000.00 \$0.00 \$1,450,818.00 \$36,200.00 \$2,493,780.60	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$675,000.00 \$18,843,240.00 \$260,000.00 \$52,000.00 \$0.00 \$290,163.60 \$36,200.00 \$2,493,780.60	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$3,375,000.00 \$94,216,200.00 \$1,300,000.00 \$260,000.00 \$5,803,272.00 \$181,000.00 \$12,468,903.00	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$94,216,200.00 \$1,300,000.00 \$260,000.00 \$0.00 \$5,803,272.00 \$181,000.00 \$12,468,903.00
NETWORK/ĂCĆESS EQUIPMENT OUTSIDE PLANT BUILDING LAND TOWER CUSTOMER PREMISES EQUIPMENT* BILLING SUPPORT & OPERATING EQUIP. ENGINEERING ACQUISTION	0 0 0 0 0 0 0	\$675,000.00 \$18,843,240.00 \$260,000.00 \$52,000.00 \$580,327.20 \$36,200.00 \$2,493,780.60 \$0.00	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$675,000.00 \$18,843,240.00 \$260,000.00 \$52,000.00 \$0.00 \$2,031,145.20 \$36,200.00 \$2,493,780.60 \$0.00	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$675,000.00 \$18,843,240.00 \$260,000.00 \$52,000.00 \$0.00 \$1,450,818.00 \$36,200.00 \$2,493,780.60 \$0.00	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$675,000.00 \$18,843,240.00 \$260,000.00 \$52,000.00 \$0.00 \$1,450,818.00 \$36,200.00 \$2,493,780.60 \$0.00	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$675,000.00 \$18,843,240.00 \$260,000.00 \$52,000.00 \$0.00 \$290,163.60 \$36,200.00 \$2,493,780.60	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$3,375,000.00 \$94,216,200.00 \$1,300,000.00 \$260,000.00 \$5,803,272.00 \$181,000.00 \$12,468,903.00	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$94,216,200.00 \$1,300,000.00 \$260,000.00 \$0.00 \$5,803,272.00 \$181,000.00 \$12,468,903.00 \$0.00
NETWORKJÄCĆESS EQUIPMENT OUTSIDE PLANT BUILDING LAND TOWER CUSTOMER PREMISES EQUIPMENT* BILLING SUPPORT & OPERATING EQUIP. ENGINEERING	0 0 0 0 0 0 0 0 0	\$675,000.00 \$18,843,240.00 \$260,000.00 \$52,000.00 \$580,327.20 \$36,200.00 \$2,493,780.60	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$675,000.00 \$18,843,240.00 \$260,000.00 \$52,000.00 \$2,031,145.20 \$36,200.00 \$2,493,780.60	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$675,000.00 \$18,843,240.00 \$260,000.00 \$52,000.00 \$0.00 \$1,450,818.00 \$36,200.00 \$2,493,780.60 \$0.00	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$675,000.00 \$18,843,240.00 \$260,000.00 \$52,000.00 \$0.00 \$1,450,818.00 \$36,200.00 \$2,493,780.60 \$0.00	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$675,000.00 \$18,843,240.00 \$260,000.00 \$52,000.00 \$0.00 \$290,163.60 \$36,200.00 \$2,493,780.60	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$3,375,000.00 \$94,216,200.00 \$1,300,000.00 \$260,000.00 \$5,803,272.00 \$181,000.00 \$12,468,903.00	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$94,216,200.00 \$1,300,000.00 \$260,000.00 \$0.00 \$5,803,272.00 \$181,000.00 \$12,468,903.00
NETWORK/ĂCĆESS EQUIPMENT OUTSIDE PLANT BUILDING LAND TOWER CUSTOMER PREMISES EQUIPMENT* BILLING SUPPORT & OPERATING EQUIP. ENGINEERING ACQUISTION	0 0 0 0 0 0 0 0 0	\$675,000.00 \$18,843,240.00 \$260,000.00 \$52,000.00 \$580,327.20 \$36,200.00 \$2,493,780.60 \$0.00	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$675,000.00 \$18,843,240.00 \$260,000.00 \$52,000.00 \$0.00 \$2,031,145.20 \$36,200.00 \$2,493,780.60 \$0.00	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$675,000.00 \$18,843,240.00 \$260,000.00 \$52,000.00 \$0.00 \$1,450,818.00 \$36,200.00 \$2,493,780.60 \$0.00	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$675,000.00 \$18,843,240.00 \$260,000.00 \$52,000.00 \$0.00 \$1,450,818.00 \$36,200.00 \$2,493,780.60 \$0.00	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$675,000.00 \$18,843,240.00 \$260,000.00 \$52,000.00 \$0.00 \$290,163.60 \$36,200.00 \$2,493,780.60	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$3,375,000.00 \$94,216,200.00 \$1,300,000.00 \$260,000.00 \$5,803,272.00 \$181,000.00 \$12,468,903.00	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$94,216,200.00 \$1,300,000.00 \$260,000.00 \$0.00 \$5,803,272.00 \$181,000.00 \$12,468,903.00 \$0.00

Inputs from cost tab
NETWORK/ACCESS EQUIPMENT
OUTSIDE PLANT
BUILDING
LAND
TOWER
CUSTOMER PREMISES EQUIPMENT\*
BILLING SUPPORT & OPERATING EQUIP.
ENGINEERING
ACQUISTION
TOTAL

Total Funded CAPX	Total Non- Funded CAPX
\$3,375,000.00	
\$94,216,200.00	
\$1,300,000.00	
\$260,000.00	
\$0.00	
\$5,803,272.00	
\$181,000.00	
\$12,468,903.00	
\$117,604,375.00	\$0.00

CAPX buildout	t timeline									
	20%	0%	20%	0%	20%	0%	20%	0%	20%	0%
yr 1 funded	yr 1 n	on-funded y	yr 2 funded	yr 2 non-funded	yr 3 funded	yr 3 non-funded	yr 3 funded	yr 3 non-funded	yr 3 funded	yr 3 non-funded

Page 9 of 9 7/8/2022

### Okanogan-Colville Broadband Pro Forma Summary

7/8/2022 9:33	Year 1	Year 2	Year 3	Year 4	Year 5
INCOME STATEMENT					
REVENUE	556,426	2,212,531	3,295,250	4,340,190	4,561,446
BAD DEBT	(2,782)	(11,063)	(16,476)	(21,701)	(22,807)
EXPENSES	1,327,578	2,965,461	4,438,591	5,915,649	7,126,648
PROFIT BEFORE TAX	(773,935)	(763,993)	(1,159,818)	(1,597,160)	(2,588,010)
TAX	7.85% (60,754)	7.85% (59,973)	7.85% (91,046)	7.85% (125,377)	7.85% (203,159)
NET PROFIT AFTER TAX	(713,181)	(704,020)	(1,068,772)	(1,471,783)	(2,384,851)
CASH FLOW STATEMENT					
CASH RECIEPTS	553,644	2,201,468	3,278,773	4,318,489	4,538,639
OPERATING EXPENSES	193,271	487,506	704,386	925,193	1,045,750
LESS RECIEVABLES	(4,637)	(13,801)	(13,660)	(22,509)	(15,503)
PLUS PAYABLES	11,063	13,649	23,339	25,958	33,431
PRINCIPAL PAYMENTS  NET PROFIT AFTER TAX	(712.101)	(704 000)	(4.060.773)	0	0
DIVIDENDS PAID	(713, 181) <b>0</b>	(704,020) <b>0</b>	(1,068,772) <b>0</b>	(1,471,783) <b>0</b>	(2,384,851)
RETAINED CASH	366,799	1,713,810	2,584,067	3,396,745	3,510,816
CAPITAL EXPENDITURES	22,940,548	24,391,366	23,811,039	23,811,039	22,650,384
GRANT FINANCING	22,940,548	24,391,366	23,811,039	23,811,039	22,650,384
EQUITY FINANCING	0	0	0	0	0
ACCUMULATED CASH	366,799	2,080,610	4,664,677	8,061,422	11,572,239
BALANCE SHEET CASH	266 700	2 000 640	4 664 677	0.064.422	44 572 220
P FIXED ASSETS LESS DEPRECIATI	<b>366,799</b> 21,806,240	<b>2,080,610</b> 43,719,651	<b>4,664,677</b> 63,796,484	<b>8,061,422</b> 82,617,066	<b>11,572,239</b> 99,186,552
TOTAL ASSETS	22,173,039	45,800,260	68,461,161	90,678,489	110,758,791
LOAN DEBT LESS PRINCIPLE	22,940,548	47,331,914	71,142,952	94,953,991	117,604,375
OWNERS' EQUITY	(767,508)	(1,531,653)	(2,681,792)	(4,275,502)	(6,845,584
TOTAL LIABILITY	22,173,039	45,800,260	68,461,161	90,678,489	110,758,791
OWNER PROCEEDS	0	0	0	0	0
CAPITAL DEPLOYMENT	22,940,548	47,331,914	71,142,952	94,953,991	117,604,375
Yearly % of Loan					
Yearly Deployment	22,940,548	24,391,366	23,811,039	23,811,039	22,650,384
Yearly Depreciation Yearly Interest	1,134,308	2,477,955	3,734,206	4,990,456	6,080,898
Yearly Principal Paid	0	0	0	0	0
REVENUE	556,426	2,212,531	3,295,250	4,340,190	4,561,446
BROADBAND Revenue	545,466	2,178,611	3,266,290	4,307,971	4,534,706
Installation Revnue	10,960	21,919	10,960	8,220	2,740
Video	0	0	0	0	0
NRC & Other Revenue \$K	0	12,000	18,000	24,000	24,000
EXPENSES	1,327,578	2,965,461	4,438,591	5,915,649	7,126,648
Depreciation	1,134,308	2,477,955	3,734,206	4,990,456	6,080,898
Vehicles	-	-	-	-	-
7 Insurance 3 Interest	-	6,851 -	10,585	14,537	14,973
Rent/Lease					
Trenvedase	_	_	_	_	_
Salary	-	133,900	206,876	284,109	292,632
2 Repairs/Maintenance	114,703	236,660	355,715	474,770	588,022
Office Furniture Computers & Office Equipment	-	-	0	0	0
	-	-	U	Ü	U
Software Systems Marketing	- 18,000	18,000	- 12,000	- 12,000	6,000
Wholesale Voice, Bandwidth &					
Video Content General Office Supplies	42,000.00	42,000.00	42,000.00	42,000.00	42,000.00
o deficial office dapplies					
Accounting, Banking, Legal, Misc.	9,000	9,000	15,000	15,000	15,000
B Billing	9,568	39,110	59,085	78,402	82,528
Call Center Expense	-	,			-2,020
Meter Reading	_	_	_	_	_
	-	-	-	-	-
Annual Property Tax	0	0	0	0	0
Pole Attachment Fees	0	0	0	0	0
Utilities	-	1,985	3,126	4,376	4,595
-			•		,

Page 1 of 9 7/8/2022

# **Assumptions Operating Expenses**

	All Inputs are Highlighted										
	7 m mpate are ringinigine a	Year 0	Year 1		Year 2		Year 3		Year 4		Year 5
	PAYROLL										
5	Number of Executives	0	0		0		0		0		0
	Broadband Manager	0	0		0		0		0		0
6	Number of Admin Assistants	0	0		0		0		0		0
7	Number of Network Technicians	0	-		2		3		4		4
8	Billing Manager	0	-		0		0		0		0
9	Billing Assistant	0	-		0		0		0		0
10	Finance Administrator	0	-		0		0		0		0
11	Mgr. of Customer Relations	0	-		0		0		0		0
12	Regional Sales Manager	0	-		0		0		0		0
13	Outside Sales	0	-		0		0		0		0
14	Shift Supervisor	0	-		0		0		0		0
15	Marketing Manager	0	-		0		0		0		0
16	Technician Manager	0	-		0		0		0		0
	Infrastructure Manager	0	-		0		0		0		0
	Project Manager	0	_		0		0		0		0
	IT Engineers	0	_		0		0		0		0
	Tech Support Supervisors	0	_		0		0		0		0
	Number of Customer Service	0	_		-		-		-		-
	SALARIES	Ŭ			<u> </u>						
22	Average Executive	\$ -	\$ _	\$	_	\$	_	\$	_	\$	_
	Average Broadband Manager	\$ 75.000	\$ 75.000	\$	77.250	\$	79.568	\$	81,955	\$	84.413
	Average Admin. Assistant	\$ 35,000	\$ 35,000	\$	36,050	\$	37,132	\$	38,245	\$	39,393
	Average Network Technician	\$ 50.000	\$ 50,000	\$	51,500	\$	53,045	\$	54,636	\$	56,275
	Average Billing Manager	\$ 50,000	\$ 50,000	\$	51,500	\$	53,045	\$	54,636	\$	56,275
	Average Billing Assistant	\$ 28,000	\$ 28,000	\$	28,840	\$	29,705	\$	30,596	\$	31,514
	Average Finance Administrator	\$ 55,000	\$ 55,000	\$	56,650	\$	58,350	\$	60,100	\$	61,903
	•	\$ 55,000	\$	\$	56,650	\$	58,350	\$	60,100	\$	61,903
	Average Mgr. of Customer Relations	\$ 55,000	\$ 55,000	Ф \$	•	\$		\$			
	Average Regional Sales Manager	\$ 	\$ 55,000	\$ \$	56,650	\$ \$	58,350	\$	60,100	\$ \$	61,903
	Average Outside Sales	 35,000	35,000		36,050		37,132		38,245		39,393
	Average Shift Supervisor	\$ 	\$ -	\$	-	\$	-	\$	-	\$	-
	Average Marketing Manager	\$	\$ -	\$	-	\$	-	\$	-	\$	- 07.504
	Average Technician Manager	\$ 60,000	\$ 60,000	\$	61,800	\$	63,654	\$	65,564	\$	67,531
	Average Infrastructure Manager	\$ -	\$ -	\$	-	\$	-	\$	-	\$	-
	Average Project Manager	\$ -	\$ <u>-</u>	\$	<u>-</u>	\$	<u>-</u>	\$	-	\$	- -
	Average IT Engineers	\$ 55,000	\$ 55,000	\$	56,650	\$	58,350	\$	60,100	\$	61,903
	Average Tech Support Supervisors	\$ 55,000	\$ 55,000	\$	56,650	\$	58,350	\$	60,100	\$	61,903
	Average Customer Service	\$ 35,000	\$ 35,000	\$	36,050	\$	37,132	\$	38,245	\$	39,393
	Annual Escalator	1.030	1.030		1.030		1.030		1.030		1.030
41	Benefit Factor	0.300	0.300		0.300		0.300		0.300		0.300
42	Bonus Factor	0.030	0.030		0.030		0.030		0.030		0.030
43	Total Salaries	\$ -	\$ -	\$	103,000	\$	159,135	\$	218,545	\$	225,102
44	Benefits	\$ -	\$ -	\$	30,900	\$	47,741	\$	65,564	\$	67,531
45	Bonuses	\$ -	\$ <u> </u>	\$		\$		\$		\$	
46	Total Payroll Compensation	\$ -	\$ -	\$	133,900	\$	206,876	\$	284,109	\$	292,632
	LEVEL 1 SUPPORT										
47	Amount per subscriber	\$ -	\$ -	\$	-	\$	-	\$	-	\$	-
	Subscribers		797		3,259		4,924	_	6,533		6,877
49	Total Level 1 Support (Outsourced)	\$ -	\$ -	\$	-	\$	-	\$	-	\$	-

Page 2 of 9 7/8/2022

# **Assumptions Operating Expenses**

TOWER LEASE						
50 Number of Tower Co. Sites	0	0	0	0	0	0
51 Number of Municiple/Private Sites	0	0	0	0	0	0
<b>52</b> Average Lease Per Tower Co./Mo.	750	750	750	750	750	750
53 Ave. Municipality/Private Lease/Mo.	300	300	300	300	300	300
54 Annual Escalator	1.00	1.00	1.00	1.00	1.00	1.00
55 Tower Co. Leasing	\$ - \$	- \$	- \$			\$ -
56 Municipality/Private Leasing	\$ - \$	- \$	<u> </u>			\$ -
57 Total Tower Lease Costs	\$ - \$	- \$	- \$			\$ -
Or rotal rowel Edde Costs	Ψ - Ψ	- ψ	- ψ		Ψ -	Ψ -
REAL ESTATE LEASE 58 Number of square feet leased 59 Price per Square Foot	- \$ 15 \$ 1.05	-   16 \$	-   17 \$ 1.05		•	- \$ 19
60 Annual Escalator 61 Total Real Estate Lease	\$ - \$	1.05	- \$	1.05	1.05 \$ -	1.05 \$ -
VEHICLE EXPENSE 62 Number of Technician Vehicles	0	- \$	- \$	0	0	0
63 Number of company cars	0	0	0	0	0	0
Vehicle Lease	0	0	0	0	0	0
64 Ave. mo. fuel per tech vehicle	450	457	464	471	478	485
65 Ave. mo. fuel per company car	225	228	232	235	239	242
66 Ave. yr. tag and tax per vehicle	100	102	103	105	106	108
<b>67</b> Ave. yr. maintenance per vehicle	250	254	258	261	265	269
68 Annual rate of cost increase	1.015	0.015	0.015	0.015	0.015	0.015
69 Vehicle Expenses	\$ - \$	- \$	- \$	-	\$ -	\$ -
INSURANCE	4.050					
70 Policy Premium per Auto	1,250	-	-	-	-	-
<ul><li>70 Policy Premium per Auto</li><li>71 General Liability</li></ul>		- 0	- 2,319	3,583	- 4,921	- 5,069
<ul><li>70 Policy Premium per Auto</li><li>71 General Liability</li><li>72 Hazard (property)</li></ul>	1,250 0.000	0.000	0.000	0.000	0.000	0.000
<ul> <li>70 Policy Premium per Auto</li> <li>71 General Liability</li> <li>72 Hazard (property)</li> <li>73 Fixed Assets Insured</li> </ul>			0.000 47,331,914	0.000 71,142,952	0.000 94,953,991	0.000 117,604,375
<ul> <li>70 Policy Premium per Auto</li> <li>71 General Liability</li> <li>72 Hazard (property)</li> <li>73 Fixed Assets Insured</li> <li>74 Worker's Comp</li> </ul>	0.000	0.000 22,940,548 -	0.000 47,331,914 4,532	0.000 71,142,952 7,002	0.000 94,953,991 9,616	0.000
<ul> <li>70 Policy Premium per Auto</li> <li>71 General Liability</li> <li>72 Hazard (property)</li> <li>73 Fixed Assets Insured</li> <li>74 Worker's Comp</li> <li>75 Umbrella Policy</li> </ul>	0.000	0.000	0.000 47,331,914	0.000 71,142,952	0.000 94,953,991	0.000 117,604,375
<ul> <li>70 Policy Premium per Auto</li> <li>71 General Liability</li> <li>72 Hazard (property)</li> <li>73 Fixed Assets Insured</li> <li>74 Worker's Comp</li> </ul>	0.000 - - 5.00%	0.000 22,940,548 - -	0.000 47,331,914 4,532 - -	0.000 71,142,952 7,002 - -	0.000 94,953,991 9,616 - -	0.000 117,604,375 9,904 - -
<ul> <li>70 Policy Premium per Auto</li> <li>71 General Liability</li> <li>72 Hazard (property)</li> <li>73 Fixed Assets Insured</li> <li>74 Worker's Comp</li> <li>75 Umbrella Policy</li> <li>76 Director's Insurance</li> <li>77 Annual rate of cost increase</li> </ul>	0.000	0.000 22,940,548 -	0.000 47,331,914 4,532 - - - 1.1	0.000 71,142,952 7,002 - - 1.1	0.000 94,953,991 9,616 - - 1.1	0.000 117,604,375 9,904 - - - 1.1
<ul> <li>70 Policy Premium per Auto</li> <li>71 General Liability</li> <li>72 Hazard (property)</li> <li>73 Fixed Assets Insured</li> <li>74 Worker's Comp</li> <li>75 Umbrella Policy</li> <li>76 Director's Insurance</li> </ul>	0.000 - - 5.00%	0.000 22,940,548 - -	0.000 47,331,914 4,532 - -	0.000 71,142,952 7,002 - -	0.000 94,953,991 9,616 - -	0.000 117,604,375 9,904 - -
<ul> <li>70 Policy Premium per Auto</li> <li>71 General Liability</li> <li>72 Hazard (property)</li> <li>73 Fixed Assets Insured</li> <li>74 Worker's Comp</li> <li>75 Umbrella Policy</li> <li>76 Director's Insurance</li> <li>77 Annual rate of cost increase</li> </ul>	0.000 - - 5.00%	0.000 22,940,548 - -	0.000 47,331,914 4,532 - - - 1.1	0.000 71,142,952 7,002 - - 1.1	0.000 94,953,991 9,616 - - 1.1	0.000 117,604,375 9,904 - - - 1.1
70 Policy Premium per Auto 71 General Liability 72 Hazard (property) 73 Fixed Assets Insured 74 Worker's Comp 75 Umbrella Policy 76 Director's Insurance 77 Annual rate of cost increase 78 Total Insurance	0.000 - - 5.00% 1.1	0.000 22,940,548 - -	0.000 47,331,914 4,532 - - - 1.1	0.000 71,142,952 7,002 - - 1.1	0.000 94,953,991 9,616 - - 1.1	0.000 117,604,375 9,904 - - - 1.1
70 Policy Premium per Auto 71 General Liability 72 Hazard (property) 73 Fixed Assets Insured 74 Worker's Comp 75 Umbrella Policy 76 Director's Insurance 77 Annual rate of cost increase 78 Total Insurance 79 ANNUAL PROPERTY TAX	0.000 - - 5.00% 1.1	0.000 22,940,548 - -	0.000 47,331,914 4,532 - - - 1.1	0.000 71,142,952 7,002 - - 1.1	0.000 94,953,991 9,616 - - 1.1	0.000 117,604,375 9,904 - - - 1.1
70 Policy Premium per Auto 71 General Liability 72 Hazard (property) 73 Fixed Assets Insured 74 Worker's Comp 75 Umbrella Policy 76 Director's Insurance 77 Annual rate of cost increase 78 Total Insurance 79 ANNUAL PROPERTY TAX WHOLESALE VOICE COSTS	0.000 - - 5.00% 1.1	0.000 22,940,548 - - - 1.1 -	0.000 47,331,914 4,532 - - 1.1 6,851	0.000 71,142,952 7,002 - - 1.1 10,585	0.000 94,953,991 9,616 - - 1.1 14,537	0.000 117,604,375 9,904 - - - 1.1
70 Policy Premium per Auto 71 General Liability 72 Hazard (property) 73 Fixed Assets Insured 74 Worker's Comp 75 Umbrella Policy 76 Director's Insurance 77 Annual rate of cost increase 78 Total Insurance 79 ANNUAL PROPERTY TAX  WHOLESALE VOICE COSTS 84 Voice Subscribers	0.000 - - 5.00% 1.1	0.000 22,940,548 - - - 1.1 - -	0.000 47,331,914 4,532 - - - 1.1 6,851	0.000 71,142,952 7,002 - - 1.1 10,585	0.000 94,953,991 9,616 - - 1.1 14,537	0.000 117,604,375 9,904 - - 1.1 14,973
70 Policy Premium per Auto 71 General Liability 72 Hazard (property) 73 Fixed Assets Insured 74 Worker's Comp 75 Umbrella Policy 76 Director's Insurance 77 Annual rate of cost increase 78 Total Insurance 79 ANNUAL PROPERTY TAX WHOLESALE VOICE COSTS	0.000 - - 5.00% 1.1	0.000 22,940,548 - - - 1.1 -	0.000 47,331,914 4,532 - - 1.1 6,851	0.000 71,142,952 7,002 - - 1.1 10,585	0.000 94,953,991 9,616 - - 1.1 14,537	0.000 117,604,375 9,904 - - - 1.1
70 Policy Premium per Auto 71 General Liability 72 Hazard (property) 73 Fixed Assets Insured 74 Worker's Comp 75 Umbrella Policy 76 Director's Insurance 77 Annual rate of cost increase 78 Total Insurance 79 ANNUAL PROPERTY TAX  WHOLESALE VOICE COSTS 84 Voice Subscribers 85 Third Party voice costs cost per sub	0.000 - - 5.00% 1.1	0.000 22,940,548 - - - 1.1 - - - 10.00	0.000 47,331,914 4,532 - - 1.1 6,851 - 10.00	0.000 71,142,952 7,002 - - 1.1 10,585 - 10.00	0.000 94,953,991 9,616 - - 1.1 14,537 -	0.000 117,604,375 9,904 - - 1.1 14,973 - -
70 Policy Premium per Auto 71 General Liability 72 Hazard (property) 73 Fixed Assets Insured 74 Worker's Comp 75 Umbrella Policy 76 Director's Insurance 77 Annual rate of cost increase 78 Total Insurance 79 ANNUAL PROPERTY TAX  WHOLESALE VOICE COSTS 84 Voice Subscribers 85 Third Party voice costs cost per sub 86 Total Wholesale Voice Costs  BANDWIDTH & Fiber Costs	0.000 - - 5.00% 1.1	0.000 22,940,548 - - - 1.1 - - - 10.00	0.000 47,331,914 4,532 - - 1.1 6,851 - 10.00	0.000 71,142,952 7,002 - - 1.1 10,585 - 10.00	0.000 94,953,991 9,616 - - 1.1 14,537 -	0.000 117,604,375 9,904 - - 1.1 14,973 - -
70 Policy Premium per Auto 71 General Liability 72 Hazard (property) 73 Fixed Assets Insured 74 Worker's Comp 75 Umbrella Policy 76 Director's Insurance 77 Annual rate of cost increase 78 Total Insurance 79 ANNUAL PROPERTY TAX  WHOLESALE VOICE COSTS 84 Voice Subscribers 85 Third Party voice costs cost per sub 86 Total Wholesale Voice Costs  BANDWIDTH & Fiber Costs Fiber IRU	0.000 - 5.00% 1.1 - -	0.000 22,940,548 1.1 10.00 0	0.000 47,331,914 4,532 - - 1.1 6,851 - 10.00 0	0.000 71,142,952 7,002 1.1 10,585 - 10.00 0	0.000 94,953,991 9,616 - - 1.1 14,537 - - 10.00 0	0.000 117,604,375 9,904 - - 1.1 14,973 - - 10.00 0
70 Policy Premium per Auto 71 General Liability 72 Hazard (property) 73 Fixed Assets Insured 74 Worker's Comp 75 Umbrella Policy 76 Director's Insurance 77 Annual rate of cost increase 78 Total Insurance 79 ANNUAL PROPERTY TAX  WHOLESALE VOICE COSTS 84 Voice Subscribers 85 Third Party voice costs cost per sub 86 Total Wholesale Voice Costs  BANDWIDTH & Fiber Costs Fiber IRU 87 Ave. Cost per 1 Gbps Link	0.000 - 5.00% 1.1 - - 10.00	0.000 22,940,548 - - - 1.1 - - - 10.00 0	0.000 47,331,914 4,532 - - 1.1 6,851 - 10.00 0	0.000 71,142,952 7,002 1.1 10,585 - 10.00 0	0.000 94,953,991 9,616 - - 1.1 14,537 - - 10.00 0	0.000 117,604,375 9,904 - - 1.1 14,973 - 10.00 0
70 Policy Premium per Auto 71 General Liability 72 Hazard (property) 73 Fixed Assets Insured 74 Worker's Comp 75 Umbrella Policy 76 Director's Insurance 77 Annual rate of cost increase 78 Total Insurance 79 ANNUAL PROPERTY TAX  WHOLESALE VOICE COSTS 84 Voice Subscribers 85 Third Party voice costs cost per sub 86 Total Wholesale Voice Costs  BANDWIDTH & Fiber Costs Fiber IRU 87 Ave. Cost per 1 Gbps Link 88 Ave. Cost per 10 Gig Link	0.000 - 5.00% 1.1 - - 10.00	0.000 22,940,548 1.1 10.00 0	0.000 47,331,914 4,532 - - 1.1 6,851 - 10.00 0	0.000 71,142,952 7,002 1.1 10,585 - 10.00 0	0.000 94,953,991 9,616 - - 1.1 14,537 - - 10.00 0	0.000 117,604,375 9,904 - - 1.1 14,973 - - 10.00 0
70 Policy Premium per Auto 71 General Liability 72 Hazard (property) 73 Fixed Assets Insured 74 Worker's Comp 75 Umbrella Policy 76 Director's Insurance 77 Annual rate of cost increase 78 Total Insurance 79 ANNUAL PROPERTY TAX  WHOLESALE VOICE COSTS 84 Voice Subscribers 85 Third Party voice costs cost per sub 86 Total Wholesale Voice Costs  BANDWIDTH & Fiber Costs Fiber IRU 87 Ave. Cost per 1 Gbps Link 88 Ave. Cost per 10 Gig Link 89 No. of 1 Gbps Links	0.000 - 5.00% 1.1 - - 10.00 3,500 0	0.000 22,940,548 1.1 10.00 0 - 2,100 3,500	0.000 47,331,914 4,532 - - 1.1 6,851 - 10.00 0	0.000 71,142,952 7,002 1.1 10,585 - 10.00 0 - 2,100 3,500	0.000 94,953,991 9,616 - - 1.1 14,537 - - 10.00 0	0.000 117,604,375 9,904 - - 1.1 14,973 - 10.00 0
70 Policy Premium per Auto 71 General Liability 72 Hazard (property) 73 Fixed Assets Insured 74 Worker's Comp 75 Umbrella Policy 76 Director's Insurance 77 Annual rate of cost increase 78 Total Insurance 79 ANNUAL PROPERTY TAX  WHOLESALE VOICE COSTS 84 Voice Subscribers 85 Third Party voice costs cost per sub 86 Total Wholesale Voice Costs  BANDWIDTH & Fiber Costs Fiber IRU 87 Ave. Cost per 1 Gbps Link 88 Ave. Cost per 10 Gig Link	0.000 - 5.00% 1.1 - - 10.00	0.000 22,940,548 - - - 1.1 - - - 10.00 0	0.000 47,331,914 4,532 - - 1.1 6,851 - 10.00 0	0.000 71,142,952 7,002 1.1 10,585 - 10.00 0	0.000 94,953,991 9,616 - - 1.1 14,537 - - 10.00 0	0.000 117,604,375 9,904 - - 1.1 14,973 - 10.00 0

Page 3 of 9 7/8/2022

# **Assumptions Operating Expenses**

	VIDEO CONTENT							
	Video Subscribers		-	-	-	-		-
	Ave. cost of Content per Sub	(5)	(5)	(5)	(5)	(5	)	(5)
	Total Video Content Cost		-	-	-	-		-
	POLE ATTACHMENT FEES							
100	Annual Pole Attachment Fees	0.00	0.00	0.00	0.00	0.0	)	0.00
	UTILITIES							
101	Number of tower sites	0	0	0	0		0	0
102	Number of offices	0	0	0	0	(	0	0
103	Number of cell phones	0	0	2	3		4	4
104	Utility Rate per tower site/ mo.	100	105	110	116	122		128
105	Utility Rate per office / mo.	500	525	551	579	608		638
106	Average Cell Phone Cost / mo.	75	79	83	87	91		96
	Utility Rate Increase	1.05	1.05	1.05	1.05	1.0	5	1.05
	Utility Expense	-	-	-	-	-		-
109	Cell Phone Expense		 <u> </u>	 165	 260	365	_	383
110	Total Utilities Expense	-	-	1,985	3,126	4,376		4,595
	OFFICE SUPPLIES							
111	Furniture	-	-	-	-	-		-
112	Office Supplies	-	-	-	-	-		-
113	Computers & Office Equipment	-	-	-	-	-		-
114	Software	-	-	-	-	-		-
114A	Misc		3,000	3,000	3,000	3,000		3,000
115	Total Supplies	-	-	-	-	-		-
	PLANT REPAIRS & MAINTENANCE							
116	Invested Fixed Assets	\$0	\$ 22,940,548	\$ 47,331,914	\$ 71,142,952 \$	94,953,991	\$	117,604,375
117	Maintenance Rate	0.005	0.005	0.005	0.005	0.00	5	0.005
118	Annual Repairs & Maintenance	\$ -	\$ 114,703	\$ 236,660	\$ 355,715 \$	474,770	\$	588,022
119								
120	MARKETING							
121	Monthly Investment	\$ -	\$ 1,500	\$ 1,500	\$ 1,000 \$	1,000	\$	500
122	Total Marketing Investment		18,000	18,000	12,000	12,00	0	6,000
	BILLING							
	Annual Billing Cost @ \$1.00/sub/mo	\$1.00	9,568	39,110	59,085	78,40	2	82,528
	Meter Reading	\$0.00	0	0	0		0	0
	meters	0						
	PROFESSIONAL FEES							
123	Engineering	-	-	-	6,000	6,000		6,000
	Accounting/Financial	-	6,000	6,000	6,000	6,000		6,000
	Legal	-	3,000	3,000	3,000	3,000		3,000
126	Total Professional Fees	-	9,000	9,000	15,000	15,000		15,000

Page 4 of 9 7/8/2022

### **Subscriber Revenue Projections**

Estimated Service Plan Subscriptions			Yr 1 % Take Rate	Yr 2 % Take Rate 45.00%	Yr 3 % Take Rate 70.00%	Yr 4 % Take Rate 95.00%	Yr 5 % Take Rate 100.00%
DATA SERVICES	MONTHLY	Percentage Take Rate	Year 1	Year 2	Year 3	Year 4	Year 5
RESIDENTIAL BRONZE 25/3 Mbps	\$35.00		260	1,171	1,821	2,472	
RESIDENTIAL SILVER 100/10 Mbps	\$59.95		231	1,041	1,619		· ·
RESIDENTIAL GOLD 250/25 Mbps	\$79.95		75	338			· ·
RESIDENTIAL GOLD 230/23 Mbps RESIDENTIAL PLATINUM 1,000/100 Mbps	\$99.00		12	52		110	
Total Residential Data Subscribers	ψ33.00	100.00%	578	2,602			
		100.0070	20.00%	60.00%	80.00%	95.00%	100.00%
BUS BROADBAND Non-Profit 25/3 Mbps	\$49.95	40.00%	88	263		416	
BUS BROADBAND SILVER 100/10 Mbps	\$69.95	35.00%	77	230	307	364	384
BUS BROADBAND GOLD 250/25 Mbps	\$89.95	15.00%	33	99	132	156	164
BUS BROADBAND PLATINUM 1/100 Mbps	\$149.95	10.00%	22	66	88	104	110
Total Business Data Subscribers		100.00%	219	658	877	1,041	1,096
Total Voice Subscribers		0.00%	0	0	0	0	0
Total Video Subscribers		0.00%	0	0	0	0	0
Annual Revenue Projections							
DATA SERVICES	MONTHLY		Year 1	Year 2	Year 3	Year 4	Year 5
RESIDENTIAL BRONZE 25/3 Mbps	\$35.00		\$109,268	\$491,705	\$764,874	\$1,038,043	\$1,092,677
RESIDENTIAL SILVER 100/10 Mbps	\$59.95		\$166,364	\$748,640	\$1,164,551	\$1,580,462	\$1,663,644
RESIDENTIAL GOLD 250/25 Mbps	\$79.95		\$72,106	\$324,478	\$504,744	\$685,010	\$721,063
RESIDENTIAL PLATINUM 1,000/100 Mbps	\$99.00		\$13,737	\$61,814	\$96,156	\$130,497	\$137,365
Total Residential Data Annual Revenue			\$361,475	\$1,626,637	\$2,530,324	\$3,434,012	\$3,614,749
BUS BROADBAND Non-Profit 25/3 Mbps	\$49.95		\$52,554	\$157,662	\$210.216	\$249,631	\$262,770
BUS BROADBAND SILVER 100/10 Mbps	\$69.95		\$64,397	\$193,191	\$257,588		
BUS BROADBAND GOLD 250/25 Mbps	\$89.95		\$27,599	\$82,796			
BUS BROADBAND PLATINUM 1/100 Mbps	\$149.95		\$39,442	\$118,325			
Total Business Data Annual Revenue			\$183,991	\$551,974			
Total Annual Revenue			\$545,466	\$2,178,611	\$3,266,290	\$4,307,971	\$4,534,706
Total Voice Annual Revenue (ARPU)	\$0.00		\$0	\$0	\$0	\$0	\$0
Total Video Annual Revenue (ARPU)	\$0.00		\$0	\$0	\$0	\$0	\$0
Total Annual Res Intallation Revenue	\$50.00		\$28,907	\$101,174	\$72,267	\$72,267	\$14,453
Total Annual Bus Intallation Revenue	\$50.00		\$10,960	\$21,919	\$10,960	\$8,220	\$2,740
Total Facility Revenue Savings	\$0.00		\$0	\$0	\$0	\$0	\$0
Total cell site revenues (\$500/mo/tower)	\$6,000.00		\$0	\$12,000	\$18,000	\$24,000	\$24,000
Total dark fiber & Bandwidth Rev.	\$0.00		\$0	\$0	\$0	\$0	\$0
Total Smart Home & Security Rev.	\$0.00		\$0	\$0	\$0	\$0	\$0
Total Annual Other Revenue			\$0	\$12,000	\$18,000	\$24,000	\$24,000
Total HHP Total 5 yr residential data subs 5,781	11,118 52.00%						
Total Businesses Total 5 yr bus data subs 1,096	1,628 67.32%						

Total 5 yr Data Subscribers 6,877

Page 5 of 9 7/8/2022

## Depreciation

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#### YEAR 1 INVESTMENT

	Life	Year 1	Year 2	Year 3	Year 4	Year 5
Network Access Equipment	7	96,429	96,429	96,429	96,429	96,429
Outside Plant & Towers	20	942,162	942,162	942,162	942,162	942,162
Buildings & Land	25	10,400	10,400	10,400	10,400	10,400
Customer Premise Equipment	7	82,904	82,904	82,904	82,904	82,904
Billing & Operations Support	15	2,413	2,413	2,413	2,413	2,413
Operating Equipment	10		-	· -	, -	· -
Engineering & Professional Services	15	_	-	-	_	_
Testing	15		_	_	_	_
Site Preparation	25	_	-	-	_	_
Total		1,134,308	1,134,308	1,134,308	1,134,308	1,134,308
1000		1,104,000	1,104,000	1,104,000	1,104,000	1,104,000
				R 2 INVESTMENT		
Network Assess Equipment	7	Year 1	Year 2	Year 3	Year 4	Year 5
Network Access Equipment Outside Plant & Towers	20		96,429 942,162	96,429 942,162	96,429 942,162	96,429 942,162
Buildings & Land	25		12,480	12,480	12,480	12,480
Customer Premise Equipment	7		290,164	290,164	290,164	290,164
Billing & Operations Support	15		2,413	2,413	2,413	2,413
Operating Equipment	10		2,	-	-,	-,
Engineering & Professional Services	15		_	-	-	_
Testing	15		-	-	-	-
Site Preparation	25		-	-	-	-
Total		·	1,343,648	1,343,648	1,343,648	1,343,648
			YEAR	R 3 INVESTMENT		
		Year 1	Year 2	Year 3	Year 4	Year 5
Network Access Equipment	7			96,429	96,429	96,429
Outside Plant & Towers	20			942,162	942,162	942,162
Buildings & Land	25			10,400	10,400	10,400
Customer Premise Equipment	7			207,260	207,260	207,260
Billing & Operations Support	15			0	-	-
Operating Equipment	10			0	-	-
Engineering & Professional Services	15			0	-	-
Testing	15			0	-	-
Site Preparation	25			0	-	
Total				1,256,250	1,256,250	1,256,250
			YEAF	R 4 INVESTMENT		
		Year 1	Year 2	Year 3	Year 4	Year 5
Network Access Equipment	7				96,429	96,429
Outside Plant & Towers	20				942,162	942,162
Buildings & Land	25				10,400	10,400
Customer Premise Equipment	7				207,260	207,260
Billing & Operations Support	15 10					-
Operating Equipment	15					-
Engineering & Professional Services Testing	15					-
Site Preparation	25					_
Total					1,256,250	1,256,250
			\/_ A =			
		Year 1	YEAF Year 2	R 5 INVESTMENT Year 3	Year 4	Year 5
Network Access Equipment	7				1001 7	96,429
Outside Plant & Towers	20					942,162
Buildings & Land	25					10,400
Customer Premise Equipment	7					41,452
Billing & Operations Support	15					_
Operating Equipment	10					_
Engineering & Professional Services	15					_
Testing	15					_
Site Preparation	25					-
Total						1,090,443

Page 6 of 9 7/8/2022

# Depreciation

			TOTAL PR	OJECT DEPRECIA	TION	
		Year 1	Year 2	Year 3	Year 4	Year 5
Network Access Equipment	7	96,429	192,857	289,286	385,714	482,143
Outside Plant & Towers	20	942,162	1,884,324	2,826,486	3,768,648	4,710,810
Buildings & Land	25	10,400	22,880	33,280	43,680	54,080
Customer Premise Equipment	7	82,904	373,067	580,327	787,587	829,039
Billing & Operations Support	10	2,413	4,827	4,827	4,827	4,827
Operating Equipment	10	-	-	-	-	-
Engineering & Professional Services	10	-	-	-	-	-
Testing	10	-	-	-	-	-
Site Preparation	25	-	-	-	-	-
Total		1,134,308	2,477,955	3,734,206	4,990,456	6,080,898

Page 7 of 9 7/8/2022

## **Debt Amortization**

Green are on	ly inputs (cell reference	s) in this tab			
CAPX - Year 1 Term Interest Monthly Payment	22,940,548 20 3.00% 127,228				
Annual Interest Annual Principle Loan Balance	Year 1 688,216 - 22,940,548	Year 2 688,216 - 22,940,548	Year 3 688,216 838,516 22,102,032	<b>Year 4</b> 663,061 863,672 21,238,360	<b>Year 5</b> 637,151 889,582 20,348,778
CAPX - Year 2 Term Interest Monthly Payment	1	24,391,366 19 3.00% 140,480			
Annual Interest Annual Principle Loan Balance		Year 2 731,741 - 24,391,366	<b>Year 3</b> 731,741 954,018 23,437,348	<b>Year 4</b> 703,120 982,638 22,454,709	<b>Year 5</b> 673,641 1,012,118 21,442,592
CAPX - Year 3 Term Interest Monthly Payment		l	23,811,039 18 3.00% 142,800		
Annual Interest Annual Principle Loan Balance			Year 3 714,331 999,273 22,811,766	Year 4 684,353 1,029,251 21,782,514	Year 5 653,475 1,060,129 20,722,386
CAPX - Year 4 Term Interest Monthly Payment			l	23,811,039 17 3.00% 149,146	
Annual Interest Annual Principle Loan Balance				Year 4 714,331 1,075,425 22,735,614	Year 5 682,068 1,107,687 21,627,926
CAPX - Year 5 Term Interest Monthly Payment					22,650,384 16 3.00% 148,685
Annual Interest Annual Principle Loan Balance					<b>Year 5</b> 679,512 1,104,705 21,545,679
CAPX - Total					117,604,375
Annual Interest Annual Principle Loan Balance	Year 1 688,216 - 22,940,548	Year 2 1,419,957 - 47,331,914	<b>Year 3</b> 2,134,289 2,791,807 68,351,145	<b>Year 4</b> 2,764,866 3,950,986 88,211,198	<b>Year 5</b> 3,325,847 5,174,221 105,687,361

Page 8 of 9 7/8/2022

CAPX

#### SUMMARY OF PROJECT COSTS BY YEAR

	Prior Years						Total			Replacement Cost	's			
Budget Category		/ear 1	Year 2	Year 3	Year 4	Year 5	Project Cost	Year 6	Year 7			Year 10		
NETWORK/ACCESS EQUIPMENT		\$675,000.00	\$675,000.00		\$675.000.00					\$3,375,000.00				
OUTSIDE PLANT		\$18.843,240.00				\$18.843.240.00				**,***********				
BUILDINGS		\$260,000.00	\$260,000.00		\$260,000.00									
LAND		\$52,000.00	\$52,000,00	\$52,000.00	\$52,000,00	\$52,000.00								
TOWERS		\$0.00	\$0.00	\$0.00	\$0.00									
CUSTOMER PREMISE EQUIPMENT		\$580.327.20	\$2.031.145.20	\$1,450,818,00	\$1,450,818,00					\$5,803,272.00				
BILLING SUPPORT & OPERATING EQUIP.		\$36,200.00	\$36,200.00	\$36,200.00	\$36,200.00	\$36,200.00	\$181,000.00			**,****				
ENGINEERING		\$2,493,780,60	\$2,493,780,60		\$2,493,780,60									
		\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	)						
TOTAL		\$22,940,547,80			\$23.811.038.60		\$117,604,375.00			\$9,178,272.00				
				, .,. ,	, .,. ,		, ,,							
													Tota	d
	Prior Years Y	/ear 1		Year 2		Year 3		Year 4		Year 5		Total	Proje	ect Cost
Budget Category	L		Non-Loan Funds		Non-Loan Funds				Non-Loan Funds				Non-Loan Fund	
NETWORK/ACCESS EQUIPMENT	0	\$675,000.00	\$0.00		\$0.00						\$0.00	\$3,375,000.00	\$0.00	\$3,375,000.00
OUTSIDE PLANT	0	\$18,843,240.00		\$18,843,240.00						\$18,843,240.00	\$0.00	\$94,216,200.00	\$0.00	\$94,216,200.00
BUILDING	0	\$260,000.00	\$0.00	\$260,000.00	\$0.00						\$0.00	\$1,300,000.00	\$0.00	\$1,300,000.00
LAND	0	\$52,000.00	\$0.00	\$52,000.00	\$0.00						\$0.00	\$260,000.00	\$0.00	\$260,000.00
TOWER	0	\$0.00	\$0.00		\$0.00						\$0.00	\$0.00	\$0.00	\$0.00
CUSTOMER PREMISES EQUIPMENT*	0	\$580,327.20	\$0.00		\$0.00						\$0.00	\$5,803,272.00	\$0.00	\$5,803,272.00
BILLING SUPPORT & OPERATING EQUIP.	. 0	\$36,200.00	\$0.00	\$36,200.00	\$0.00						\$0.00	\$181,000.00	\$0.00	\$181,000.00
ENGINEERING	0	\$2,493,780.60	\$0.00		\$0.00						\$0.00	\$12,468,903.00	\$0.00	\$12,468,903.00
ACQUISTION	<u>0</u>	\$0.00	\$0.00		\$0.00						\$0.00	\$0.00	\$0.00	\$0.00
TOTAL	0	\$22,940,547.80	\$0.00	\$24,391,365.80	\$0.00	\$23,811,038.60	\$0.00	\$23,811,038.60	\$0.00	\$22,650,384.20	\$0.00	\$117,604,375.00	\$0.00	\$117,604,375.00
			Total Non-											
Inputs from cost tab	т	Total Funded CAPX												
NETWORK/ACCESS EQUIPMENT	<u> </u>	\$3.375.000.00	I unucu OAI X											
OUTSIDE PLANT		\$94.216.200.00												
BUILDING		\$1,300,000,00												
LAND		\$260,000,00												
TOWER		\$0.00												
CUSTOMER PREMISES EQUIPMENT*		\$5,803,272.00												
BILLING SUPPORT & OPERATING EQUIP.		\$181,000.00												
ENGINEERING		\$12,468,903.00												
ACOLUSTION		,,,,												

\$3,375,000.00 \$94,216,200.00 \$1,300,000.00	
\$260,000.00 \$0.00	
\$5,803,272.00	
\$181,000.00	
\$12,468,903.00	
\$117,604,375.00	\$0.00

ACQUISTION TOTAL

CAPX buildou	ıt timeline									
	20%	0%	20%	0%	20%	0%	20%	0%	20%	0%
yr 1 funded	yr 1 nor	n-funded yr 2 fu	nded yr 2 noi	n-funded yr 3 fur	nded yr 3 no	on-funded yr 4 fu	ınded yr 4 nor	n-funded yr 5 fur	nded yr 5	non-funded

7/8/2022 Page 9 of 9



#### Broadband FTTx Study

#### Financial Pro Forma Assumptions

#### **ASSUMPTIONS**

The following assumptions were used in the Okanogan – Colville Tribes Broadband Action Team (BAT) Feasibility Study and financial pro forma. The assumptions are based on a combination of industry standards, recent comparable labor costs and actual material quotes.

#### A. Cost Estimates

#### **Labor Costs**

All labor costs were based on recent competitively bid proposals for similar projects.

- 1. <u>Aerial Fiber Cable Installation</u> An average labor and material cost of \$32,000 per mile was used in the budget and financial pro forma.
- 2. <u>Aerial Make Ready –</u> It was assumed average cable relocations and pole replacements would run \$200 and \$3,500 Respectively. Cable relocations are based on 4 per mile with pole replacements varying based on feedback form the PUD and electric coops.
- 3. <u>Buried Fiber Cable Installation</u> An average labor and material cost of \$65,000 per mile was used in the budget and financial pro forma.
- 4. <u>Aerial Fiber Drop Cable Installation</u> An average length of 200' was assumed with an average aerial drop cost of \$650 inclusive of all labor and material.
- 5. <u>Buried Fiber Drop Cable Installation</u> An average length of 200' was assumed with an average buried drop cost of \$1,250 Inclusive of all labor and materials.
- 6. <u>Electronics Installation</u> Installation costs for all FTTH related electronics are based on industry standards for turnkey labor and recent material pricing from equipment vendors and included in the total unit costs reflected of the Detailed Costs with a copy recent quotes contained herein under the exhibits.

#### Broadband FTTx Study

#### Financial Pro Forma Assumptions

#### **Material Costs**

- 1. <u>Fiber Cable</u> Actual material quotes for all fiber optic cable at various cable sizes were obtained and contained herein under the exhibits.
- 2. <u>Fiber Drop Cable</u> Actual material quotes were obtained and contained herein under the exhibits.
- 3. <u>Broadband Electronics</u> The costs contained within the pro forma are part of the total unit costs depicted on the Detail Costs schedule which are inclusive of all labor and material, shipping, taxes and related cost estimates. These are based on recent comparable projects similar to the one proposed by the BST
- 4. Microwave Backhaul N/A
- 5. Wireless Distribution N/A

#### **B.** Subscriber Forecast

A subscriber forecast is contained under Tab 4. Accompanying the forecast is a Market Survey describing the basis for the forecasted projections. As described within the Market Survey, the projections are based on a combination of census data and local knowledge of the area including a total count of households passed, businesses, local demographics for the area and a customer survey of the local residents and businesses. National statistics, take rates for comparable broadband projects and information related to existing service providers were also factored into the BAT study subscriber projections.

Local knowledge of the area along with census data and information from the BAT were all utilized to obtain an accurate count of the households passed and businesses for the proposed service area.

#### Broadband FTTx Study

#### Financial Pro Forma Assumptions

The FCC's National Broadband Map and local knowledge of the area was used to obtain a list of existing broadband providers. Additional research was necessary to obtain detailed service plan information.

The US Census website was used to obtain demographic information like family income, household size and commute time to work. Each of these factors and more is part of the subscriber projections with a copy of the results contained in the attached exhibit.

Each of these factors was used to develop an actual formula to predict the total 5-year subscriber projections. The final results yielded a residential take rate of 52% and 67%.

Additional factors were needed however to accurately project the revenue streams from the forecasted subscribers such as the growth rate over the 5-year ultimate forecast and the subscription breakdown of the various service offerings. Each of these last two factors was taken from actual statistics of a similar broadband project.

The growth rate of the final 5-year penetration rate is as follows:

Year 1	10%
Year 2	45%
Year 3	70%
Year 4	95%
Year 5	100%

The breakdown of services taken by each subscriber is heavily dependent on the pricing of each plan with 45% of all subscribers electing to subscribe to the least expensive plan.

### C. Pro Forma

#### Revenues

1. <u>Local Voice Service Revenues – Not applicable</u>. No voice services are proposed at this time.

### Broadband FTTx Study

#### Financial Pro Forma Assumptions

2. <u>Broadband Data Revenues</u> – Multiple service plans will be offered with the following breakdown.

25/3 Mbps	\$35.00
100/10 Mbps	\$59.95
250/25 Mbps	\$79.95
1,000/100 Gbps	\$99.00
25/3 Mbps	\$49.95
100/10 Mbps	\$69.95
250/25 Mbps	\$89.95
1,000/100 Gbps	\$149.95
	100/10 Mbps 250/25 Mbps 1,000/100 Gbps 25/3 Mbps 100/10 Mbps 250/25 Mbps

- 3. <u>Video Service Revenues</u> Not applicable. No video services are proposed at this time.
- 4. Middle Mile Revenues No middle mile revenues are forecasted herein.
- 5. <u>Universal Service Fund</u> Neither regulated telecommunications services nor participation in the Universal Service Fund/Connect America Fund was contemplated herein.
- 6. <u>Toll Service/Long Distance Voice N/A.</u> Voice services are not proposed as part of this study.
- 7. <u>Installation Revenues –</u> Consists of a one-time service call charge averaging \$50.00 for all services as part of the typical truck roll for the initial installation of service.
- 8. Amortized Grant Revenues Not applicable.
- 9. Other Operating Revenues Although other services may be offered and available over time such as Geek Squad type services, additional static IP addresses, and specialty services such as smart home/security system and cell site bandwidth, to name a few. A conservative approach was taken however, with only the standard broadband services, installation fees and some cell site services taken into account.

### Broadband FTTx Study

#### Financial Pro Forma Assumptions

10. <u>Uncollectable Revenues</u> – Based on historical statistics of similar operating companies, an average rate of 0.5% of revenues was used to forecast uncollectable revenue.

#### **Expenses**

- Salaries Salaries were based on national statistics and local rates. A detailed list
  of all projected personnel is contained within the pro forma under the
  "Assumptions Operating Expenses". It was determined existing BAT and tribal IT
  personnel would be capable of accomplishing the majority of all functions and
  staffing needs. Only some additional supporting staff primarily related to
  technician and customer service representatives were added.
- 2. Tower Colocation Lease Fees N/A
- 3. <u>Real Estate-</u> N/A. It was assumed all required floor space is existing today and will utilize existing PUD and Colville Tribes facilities.
- 4. <u>Company Vehicles –</u> The acquisition of new company vehicles was assumed for all new field technicians.
- 5. <u>Insurance</u> Auto, General Liability, Hazard/Property, Workers Comp and an Umbrella policy were all estimated with a detailed breakdown of each provided under "Assumptions & Operating Expenses".
- 6. Property Tax N/A
- 7. Wholesale Voice Costs Not applicable.
- 8. <u>Bandwidth</u> The cost for bandwidth and backhaul facilities is expressed within the detailed line item expenses of the pro forma. Recent circuit pricing was used for one 10 Gbps link for \$3,500 per month per circuit.
- 9. Video Content Not applicable
- 10. <u>Pole Attachment Fees</u> N/A All proposed poles attachments will be on PUD or Nespelem Valley Electric owned poles.

### Broadband FTTx Study

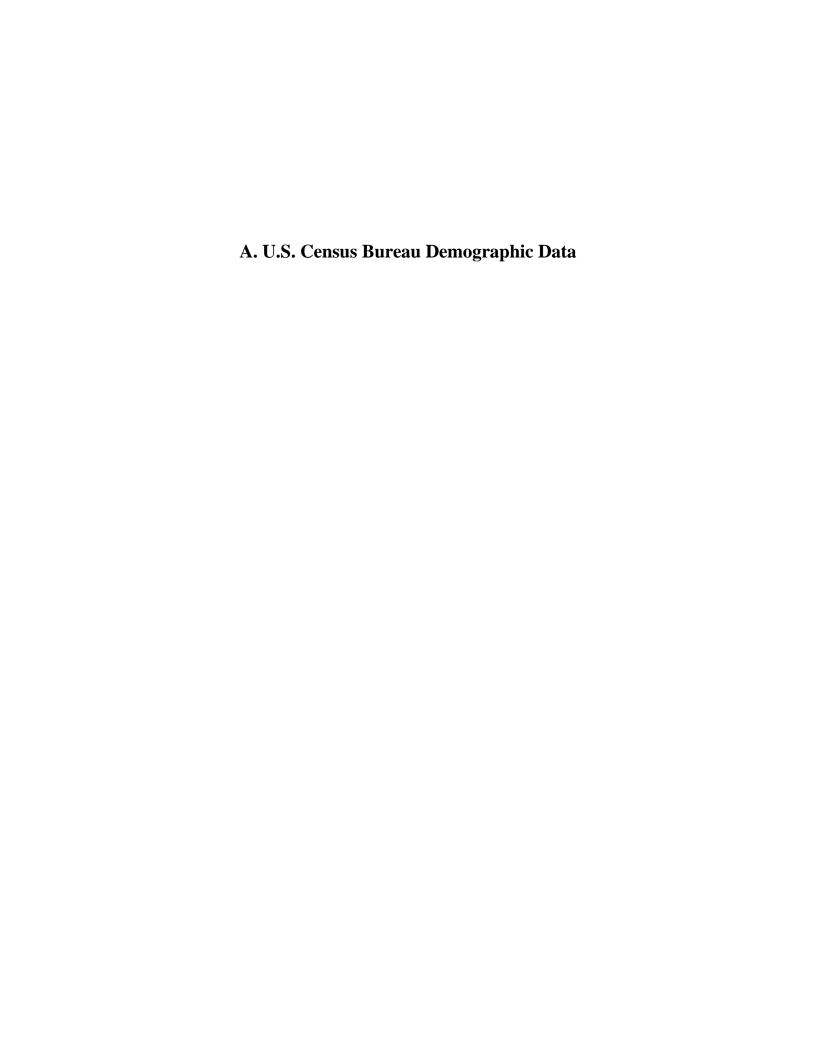
#### Financial Pro Forma Assumptions

- 11. <u>Utilities Varies from year to year but covers office utilities, cell phone charges and tower site electric service.</u>
- 12. <u>Office Supplies</u> A monthly expense of \$250 was assumed for all miscellaneous office supplies.
- 13. <u>Plant Repairs & Maintenance-</u> The total cost is based on a 0.005% rate of total assets.
- 14. <u>Sales & Marketing</u> A monthly investment of \$1,500 was assumed for the initial two years with this tapering off to \$1,000 per month for the subsequent two years and then down to \$500 for year five.
- 15. <u>Customer Billing</u> A total cost of \$1.00 per month per subscriber was used in the pro forma.



					an-Colville Tribes Broa					1		I
<u>D</u>	Ð	Task Name Okanogan-Colville	Sample Single Projec	ct Broadband Tim	Durati		Start Mon 10/3/22	Finish Mon 1/1/24	Predecessors	Half 2, 2022Ha	lf 1, 202	Half 2, 2
2	•	Acquisition of Fir	nancing		90 (	days	Mon 10/3/22	Fri 2/3/23		10/3	2/3	 
3		FTTH & Transmis	ssion Electronics		236 (	lays	Mon 2/6/23	Mon 1/1/24	2	•		
4		Review of Requ	irements		15 (	days	Mon 2/6/23	Fri 2/24/23		2/6	2/24	 
5		Plans & Specs			30 (	days	Mon 2/27/23	Fri 4/7/23	4	2/27	4/7	
6		Bid Process			21	days	Mon 4/10/23	Mon 5/8/23	5	4/	10 5	/8 
7		Order & Installa	tion & Configuration		90 (	days	Tue 6/20/23	Mon 10/23/23	6FS+30 days	- 	6/20	
3		Friendly Custon	ner Installs		10 (	days	Tue 10/24/23	Mon 11/6/23	7,17SS+5 days			10/24
)		Trial Billing & Tr	roublshooting Network		20 (	days	Tue 11/7/23	Mon 12/4/23	8			11/7
0		Commence with	n Full Commercial Dep	loyment	5 (	days	Tue 12/26/23	Mon 1/1/24	9FS+15 days			12
I		Outside Plant Fib	er Cable		186 (	lays	Mon 2/6/23	Mon 10/23/23	2			
2		Initial Design &	Review of Requireme	nts	20 (	days	Mon 2/6/23	Fri 3/3/23		2/6	3/3	 
3		Staking Process	s - Multiple Contracts o	or Amendments	45 (	days	Mon 3/6/23	Fri 5/5/23	12	3/6	5/	15
1		OSP Plans & Sp	pecifications - Multiple	Contracts or Ame	ndments 20	days	Tue 4/4/23	Mon 5/1/23	13SS+21 days	4	5/	1
5		Bid Process			15 (	days	Tue 4/18/23	Mon 5/8/23	14SS+10 days	4.	/18 5	/8
3		Construction Pr	ocess			days	Tue 5/30/23		15SS+30 days		5/30	- - -
7	- ·	Drop Constructi	on		90 (	days	Tue 6/20/23	Mon 10/23/23	16SS+15 days		6/20	
			Task		Split	1						
			Critical Task	<b>^</b>	External Tasks			Manual Summ	ary 🔷			
. : -	atı Ol-	anagan DLID 8 Calcula Tall	Milestone	<b>—</b>	Project Summary External Milestone	_		Start-only Finish-only				
	ct: Oka Fri 7/8	anogan PUD & Colville Trib 3/22	Summary Rolled Up Task	<b>—</b>	Inactive Milestone	_		Finish-only  External Tasks				
			Rolled Up Critical Task		Inactive Milestone Inactive Summary							
			Rolled Up Milestone	<b>♦</b>	Manual Task	()	 >	Progress				
			Rolled Up Progress	<u> </u>	Duration-only		/ 	D ""	<b>♦</b>			





			<u> </u>		Coulee D	am	I		I	
Census	Brewster	city	Conconu	lly town	town,	ann	Disautel	CDB	Elmer Cit	v town
CCIISUS	Washing	• •	Washing	•	Washing	ton	Washing	,	Washing	
	Estimate			Percent			Estimate		Estimate	
EMPLOYMENT STATUS	Estimate	rereene	Latimate	rereene	Latimate	rereene	Lotimate	rerecite	Estimate	rereene
Population 16 years and over	1,711	1,711	197	197	969	969	16	16	285	285
In labor force	1,253	73.2%		45.7%		54.3%		0.0%		50.9%
Civilian labor force	1,218	71.2%	90	45.7%	526	54.3%	0	1	145	50.9%
Employed	1,148	67.1%	80	40.6%	514	53.0%	0		132	46.3%
Unemployed	70	4.1%	10	5.1%	12	1.2%	0		13	4.6%
Armed Forces	35	2.0%	0	0.0%	0	0.0%	0		0	
Not in labor force	458	26.8%	107	54.3%	443	45.7%	16		140	49.1%
Civilian labor force	1,218	1,218	90	90	526	526	0		145	145
Unemployment Rate	(X)	5.7%	(X)	11.1%	(X)	2.3%	(X)		(X)	9.0%
Females 16 years and over	820	820	96	96	473	473	16		155	155
In labor force	567	69.1%	36	37.5%	242	51.2%	0		73	47.1%
Civilian labor force	567	69.1%	36	37.5%	242	51.2%	0		73	47.1%
	567	69.1%	28	29.2%	236	49.9%	0		68	
Employed										43.9%
Own children of the householder under 6 years	280	280	0	0	83	83	0		25	25
All parents in family in labor force	249	88.9%	0	-	49	59.0%	0		19	76.0%
Own children of the householder 6 to 17 years	697	697	4	4	174	174	0		35	35
All parents in family in labor force	681	97.7%	2	50.0%	147	84.5%	0	-	29	82.9%
COMMUTING TO WORK							_			
Workers 16 years and over	1,118	1,118	78	78	503	503	0			130
Car, truck, or van drove alone	784	70.1%	62	79.5%	409	81.3%	0		112	86.2%
Car, truck, or van carpooled	198	17.7%	7	9.0%	61	12.1%	0		11	8.5%
Public transportation (excluding taxicab)	4	0.4%	0	0.0%	0	0.0%	0		0	0.0%
Walked	83	7.4%	7	9.0%	18	3.6%	0		1	0.8%
Other means	29	2.6%	0	0.0%	6	1.2%	0		2	1.5%
Worked at home	20	1.8%	2	2.6%	9	1.8%	0		4	3.1%
Mean travel time to work (minutes)	14.6	(X)	31.3	(X)	17.3	(X)	-	(X)	14.2	(X)
INCOME AND BENEFITS (IN 2018 INFLATION-										
ADJUSTED DOLLARS)										
Total households	832	832	135	135	544	544	16	16	171	171
Less than \$10,000	75	9.0%	9	6.7%	24	4.4%	0	0.0%	14	8.2%
\$10,000 to \$14,999	39	4.7%	6	4.4%	21	3.9%	0	0.0%	13	7.6%
\$15,000 to \$24,999	85	10.2%	34	25.2%	41	7.5%	16	100.0%	16	9.4%
\$25,000 to \$34,999	108	13.0%	16	11.9%	42	7.7%	0	0.0%	19	11.1%
\$35,000 to \$49,999	193	23.2%	15	11.1%	128	23.5%	0	0.0%	37	21.6%
\$50,000 to \$74,999	223		28		91		0			
\$75,000 to \$99,999	64	7.7%	17	12.6%	79	14.5%				13.5%
\$100.000 to \$149.999	45	5.4%	10	7.4%	95	17.5%		-		
\$150,000 to \$199,999	0		0	0.0%	19			-		2.3%
\$200,000 or more	0		0	0.0%	4		0			
Median household income (dollars)	46,442	(X)	37,639	(X)			-	(X)		(X)
Mean household income (dollars)	45,960		44.417	(X)			N			(X)
PERCENTAGE OF FAMILIES AND PEOPLE	13,300	(//)	,-1	(//)	55,000	(//)	11	'\	32,042	(//)
WHOSE INCOME IN THE PAST 12 MONTHS IS										
BELOW THE POVERTY LEVEL										
All families	(X)	16.8%	(X)	5.3%	(X)	7.8%	(X)	<del>                                     </del>	(X)	16.7%
									. ,	
All people	(X)	17.6%	(X)	11.3%	(X)	14.5%	(X)	0.0%	(X)	19.2%



# SELECTED SOCIAL CHARACTERISTICS IN THE UNITED STATES

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							_			
Estimate	Percent	Estimate	Percent	Estimate	Percent	Estimate	Percent	Estimate	Percent	
000	000	405	405			4.0	4.0	474	4-4	
						16			171	
						-				
3./3	(X)	2.09	(X)	2.7	(X)	-	(X)	2.32	(X)	
									62	
									12.90%	
									3.20%	
							-		45.20%	
						_	-		19.40%	
72	8.10%	5	45.50%	36	12.80%	0	-	12	19.40%	
1,292	1,292	178	178	843	843	16	16	236	236	
447	34.60%	6	3.40%	18	2.10%	0	0.00%	0	0.00%	
194	15.00%	4	2.20%	69	8.20%	9	56.30%	17	7.20%	
199	15.40%	76	42.70%	224	26.60%	0	0.00%	72	30.50%	
198	15.30%	46	25.80%	242	28.70%	7	43.80%	61	25.80%	
34	2.60%	20	11.20%	125	14.80%	0	0.00%	23	9.70%	
163	12.60%	20	11.20%	102	12.10%	0	0.00%	38	16.10%	
57	4.40%	6	3.40%	63	7.50%	0	0.00%	25	10.60%	
651	50.40%	168	94.40%	756	89.70%	7	43.80%	219	92.80%	
220	17.00%	26	14.60%	165	19.60%	0	0.00%	63	26.70%	
2,501	2,501	203	203	1,230	1,230	16	16	345	345	
232	9.30%	49	24.10%	211	17.20%	0	0.00%	66	19.10%	
1,026	1,026	7	7	290	290	0	0	69	69	
31	3.00%	0	0.00%	9	3.10%	0	-	2	2.90%	
1.328		118		681	681	7	7		190	
114	8.60%			94	13.80%		0.00%	28	14.70%	
147	147			259	259	9	9	86	86	
87	59.20%	33	42.30%	108	41.70%	0	0.00%	36	41.90%	
3.		30			270		3.2270	30		
832	832	135	135	544	544	16	16	171	171	
		114	84.40%	469		7	43.80%	144	84.20%	
						7			75.40%	
	Wash Estimate  832 3.05 3.73  889 27 85 514 191 72  1,292 447 194  199 198 34 163 57 651 220  2,501 232 1,026 31 1,328 114 147	832 832 3.05 (X) 3.73 (X)  889 889 27 3.00% 85 9.60% 514 57.80% 191 21.50% 72 8.10%  1,292 1,292 447 34.60% 194 15.00% 199 15.40% 198 15.30% 34 2.60% 163 12.60% 57 4.40% 651 50.40% 220 17.00%  2,501 2,501 232 9.30% 1,026 1,026 31 3.00% 1,328 1,328 114 8.60% 147 147 87 59.20%  832 832 657 79.00%	Washington         Wash           Estimate         Percent         Estimate           832         832         135           3.05         (X)         1.5           3.73         (X)         2.09           889         889         11           27         3.00%         0           85         9.60%         2           514         57.80%         2           191         21.50%         2           72         8.10%         5           1,292         1,292         178           447         34.60%         6           194         15.00%         4           199         15.40%         76           198         15.30%         46           34         2.60%         20           57         4.40%         6           651         50.40%         168           220         17.00%         26           2,501         2,501         203           232         9.30%         49           1,026         1,026         7           31         3.00%         0           1,328         1,328	Washington         Washington           Estimate         Percent         Estimate         Percent           832         832         135         135           3.05         (X)         1.5         (X)           3.73         (X)         2.09         (X)           889         889         11         11           27         3.00%         0         0.00%           85         9.60%         2         18.20%           514         57.80%         2         18.20%           72         8.10%         5         45.50%           191         21.50%         2         18.20%           72         8.10%         5         45.50%           1,292         1,292         178         178           447         34.60%         6         3.40%           194         15.00%         4         2.20%           199         15.40%         76         42.70%           198         15.30%         46         25.80%           34         2.60%         20         11.20%           57         4.40%         6         3.40%           651         50.40%	Washington         Washington         Wash           Estimate         Percent         Estimate         Estimate           832         832         135         135         544           3.05         (X)         1.5         (X)         2.26           3.73         (X)         2.09         (X)         2.7           889         889         11         11         281           27         3.00%         0         0.00%         29           85         9.60%         2         18.20%         19           514         57.80%         2         18.20%         69           72         8.10%         5         45.50%         36           1,292         1,292         178         178         843           447         34.60%         6         3.40%         18           194         15.00%         4         2.20%         69           199         15.40%         76         42.70%         224           198         15.30%         46         25.80%         242           198         15.30%         46         25.80%         242           163         12.60%	Washington   Washington   Estimate   Percent   Estimate   Percent   Estimate   Percent   Estimate   Percent   Estimate   Percent   Sasa   S	Washington	Washington   Washington   Washington   Estimate   Percent   Percen	Washington   Washington   Washington   Washington   Washington   Washington   Estimate   Percent   P	



	Colville Reservation and Off-			
Colville Reservation	Reservation Tr	ust Land, WA		
	Estimate	Percent		
EMPLOYMENT STATUS				
Population 16 years and over	5,693	5,693		
In labor force	3,030	53.2%		
Civilian labor force	3,030	53.2%		
Employed	2,685	47.2%		
Unemployed	345	6.1%		
Armed Forces	0	0.0%		
Not in labor force	2,663	46.8%		
Civilian labor force	3,030	3,030		
Unemployment Rate	(X)	11.4%		
Females 16 years and over	2,880	2,880		
In labor force	1,494	51.9%		
Civilian labor force	1,494	51.9%		
Employed	1,364	47.4%		
Own children of the householder under 6 years	557	557		
All parents in family in labor force	323	58.0%		
Own children of the householder 6 to 17 years	922	922		
All parents in family in labor force	640	69.4%		
COMMUTING TO WORK				
Workers 16 years and over	2,614	2,614		
Car, truck, or van drove alone	1,980	75.7%		
Car, truck, or van carpooled	395	15.1%		
Public transportation (excluding taxicab)	20	0.8%		
Walked	103	3.9%		
Other means	21	0.8%		
Worked at home	95	3.6%		
Mean travel time to work (minutes)	20.4	(X)		
OCCUPATION				
Civilian employed population 16 years and over	2,685	2,685		
Management, business, science, and arts occupations	873	32.5%		
Service occupations	639	23.8%		
Sales and office occupations	444	16.5%		
Natural resources, construction, and maintenance occupations	425	15.8%		



	Colville Reserv	ation and Off-
Colville Reservation	Reservation Tr	ust Land, WA
Production, transportation, and material moving occupations	304	11.3%
INDUSTRY		
Civilian employed population 16 years and over	2,685	2,685
Agriculture, forestry, fishing and hunting, and mining	209	7.8%
Construction	166	6.2%
Manufacturing	95	3.5%
Wholesale trade	34	1.3%
Retail trade	221	8.2%
Transportation and warehousing, and utilities	76	2.8%
Information	22	0.8%
Finance and insurance, and real estate and rental and leasing	47	1.8%
Professional, scientific, and management, and administrative		
and waste management services	170	6.3%
Educational services, and health care and social assistance	618	23.0%
Arts, entertainment, and recreation, and accommodation and		
food services	273	10.2%
Other services, except public administration	54	2.0%
Public administration	700	26.1%
CLASS OF WORKER		
Civilian employed population 16 years and over	2,685	2,685
Private wage and salary workers	1,037	38.6%
Government workers	1,483	55.2%
Self-employed in own not incorporated business workers	157	5.8%
Unpaid family workers	8	0.3%
DOLLARS)		
Total households	2,910	2,910
Less than \$10,000	306	10.5%
\$10,000 to \$14,999	306	10.5%
\$15,000 to \$24,999	304	10.4%
\$25,000 to \$34,999	313	10.8%
\$35,000 to \$49,999	565	19.4%
\$50,000 to \$74,999	480	16.5%
\$75,000 to \$99,999	260	8.9%
\$100,000 to \$149,999	241	8.3%



	Colville Reserva	ation and Off-
Colville Reservation	Reservation Tr	ust Land, WA
\$150,000 to \$199,999	92	3.2%
\$200,000 or more	43	1.5%
Median household income (dollars)	39,483	(X)
Mean household income (dollars)	51,519	(X)
With earnings	1,986	68.2%
Mean earnings (dollars)	56,045	(X)
With Social Security	1,009	34.7%
Mean Social Security income (dollars)	16,328	(X)
With retirement income	504	17.3%
Mean retirement income (dollars)	21,725	(X)
With Supplemental Security Income	182	6.3%
Mean Supplemental Security Income (dollars)	8,896	(X)
With cash public assistance income	180	6.2%
Mean cash public assistance income (dollars)	3,969	(X)
With Food Stamp/SNAP benefits in the past 12 months	812	27.9%
Families	1,957	1,957
Less than \$10,000	181	9.2%
\$10,000 to \$14,999	134	6.8%
\$15,000 to \$24,999	153	7.8%
\$25,000 to \$34,999	212	10.8%
\$35,000 to \$49,999	389	19.9%
\$50,000 to \$74,999	392	20.0%
\$75,000 to \$99,999	182	9.3%
\$100,000 to \$149,999	199	10.2%
\$150,000 to \$199,999	95	4.9%
\$200,000 or more	20	1.0%
Median family income (dollars)	44,205	(X)
Mean family income (dollars)	57,504	(X)
Per capita income (dollars)	20,792	(X)
Nonfamily households	953	953
Median nonfamily income (dollars)	23,348	(X)
Mean nonfamily income (dollars)	32,648	(X)
Median earnings for workers (dollars)	27,367	(X)
Median earnings for male full-time, year-round workers (dollars)	43,031	(X)



	Colville Reserv	ation and Off-
Colville Reservation	Reservation Tr	ust Land, WA
(dollars)	36,132	(X)
HEALTH INSURANCE COVERAGE		
Civilian noninstitutionalized population	7,205	7,205
With health insurance coverage	5,959	82.7%
With private health insurance	3,088	42.9%
With public coverage	3,650	50.7%
No health insurance coverage	1,246	17.3%
Civilian noninstitutionalized population under 19 years	1,868	1,868
No health insurance coverage	244	13.1%
Civilian noninstitutionalized population 19 to 64 years	4,218	4,218
In labor force:	2,824	2,824
Employed:	2,496	2,496
With health insurance coverage	2,016	80.8%
With private health insurance	1,660	66.5%
With public coverage	436	17.5%
No health insurance coverage	480	19.2%
Unemployed:	328	328
With health insurance coverage	198	60.4%
With private health insurance	40	12.2%
With public coverage	163	49.7%
No health insurance coverage	130	39.6%
Not in labor force:	1,394	1,394
With health insurance coverage	1,033	74.1%
With private health insurance	348	25.0%
With public coverage	738	52.9%
No health insurance coverage	361	25.9%
PERCENTAGE OF FAMILIES AND PEOPLE WHOSE INCOME IN THE		
PAST 12 MONTHS IS BELOW THE POVERTY LEVEL		
All families	(X)	21.3%
With related children of the householder under 18 years	(X)	29.5%
With related children of the householder under 5 years only	(X)	37.8%
Married couple families	(X)	11.1%
With related children of the householder under 18 years	(X)	18.6%
With related children of the householder under 5 years only	(X)	14.3%



	Colville Reserv	ation and Off-
Colville Reservation	Reservation Tr	ust Land, WA
Families with female householder, no husband present	(X)	37.3%
With related children of the householder under 18 years	(X)	44.4%
With related children of the householder under 5 years only	(X)	57.4%
All people	(X)	26.4%
Under 18 years	(X)	33.7%
Related children of the householder under 18 years	(X)	33.4%
Related children of the householder under 5 years	(X)	45.5%
Related children of the householder 5 to 17 years	(X)	28.0%
18 years and over	(X)	24.1%
18 to 64 years	(X)	26.2%
65 years and over	(X)	16.1%
People in families	(X)	22.8%
Unrelated individuals 15 years and over	(X)	39.2%

## Colville Reservation and Off-Reservation Trust Land, WA

			Male	Female	
Census			householder,	householder, no	
Bureau		Married-couple	no wife	husband	
		family	present,	present, family	Nonfamily
	Total	household	family	household	household
	Estimate	Estimate	Estimate	Estimate	Estimate
HOUSEHOLDS					
Total households	2,883	1,097	305	529	952
Average household size	2.58	3.14	3.14	3.38	1.29
FAMILIES					
Total families	1,931	1,097	305	529	(X)
Average family size	3.01	3.09	2.59	3.1	(X)
AGE OF OWN CHILDREN					
Households with own children of the					
householder under 18 years	882	366	197	319	(X)
Under 6 years only	19.3%	5.5%	20.3%	34.5%	(X)
Under 6 years and 6 to 17 years	25.3%	28.1%	17.3%	27.0%	(X)
6 to 17 years only	55.4%	66.4%	62.4%	38.6%	(X)
Total households	2,883	1,097	305	529	952
SELECTED HOUSEHOLDS BY TYPE					
Households with one or more people					
under 18 years	39.4%	44.2%	74.1%	73.5%	3.9%
Households with one or more people					
60 years and over	41.7%	47.9%	20.0%	23.4%	51.6%
Householder living alone	26.8%	(X)	(X)	(X)	81.2%
65 years and over	11.7%	(X)	(X)	(X)	35.3%
UNMARRIED-PARTNER HOUSEHOLDS					
Same sex	0.0%	(X)	(X)	(X)	(X)
Opposite sex	10.0%	(X)	(X)	(X)	(X)
UNITS IN STRUCTURE					
1-unit structures	64.5%	69.1%	62.0%	71.1%	56.3%
2-or-more-unit structures	10.4%	4.6%	8.9%	11.3%	17.1%
Mobile homes and all other types of					
units	25.1%	26.3%	29.2%	17.6%	26.6%
HOUSING TENURE					
Owner-occupied housing units	63.7%	73.7%	57.0%	45.7%	64.3%
Renter-occupied housing units	36.3%	26.3%	43.0%	54.3%	35.7%

	Loomis CDP, Was	shington		
Label	Estimate	Margin of Error	Percent	Percent Margin of Error
HOUSEHOLDS BY TYPE				
Total households	38	±29	38	(X)
Married-couple household	27	±26	71.1%	±32.7
With children of the				
householder under 18 years	(X)	(X)	(X)	(X)
Cohabiting couple household	5	±8	13.2%	±20.8
With children of the				
householder under 18 years	(X)	(X)	(X)	(X)
Male householder, no				
spouse/partner present	0	±13	0.0%	±51.7
With children of the				
householder under 18 years	(X)	(X)	(X)	(X)
Householder living alone	0	±13	0.0%	±51.7
65 years and over	0	±13	0.0%	±51.7
Female householder, no				
spouse/partner present	6	±9	15.8%	±27.5
With children of the				
householder under 18 years	(X)	(X)	(X)	(X)
Householder living alone	0	±13	0.0%	±51.7
65 years and over	0	±13	0.0%	±51.7
Households with one or more				
people under 18 years	6	±10	15.8%	±26.4
Households with one or more				
people 65 years and over	26	±25	68.4%	±31.8
Average household size	2.66	±1.20	(X)	(X)
Average family size	2.73	±1.39	(X)	(X)
RELATIONSHIP				
Population in households	101	±76	101	(X)
Householder	38	±29	37.6%	±16.5

	Loomis CDP, Was	shington		
Label	Estimate	Margin of Error	Percent	Percent Margin of Error
Spouse	32	±29	31.7%	±12.5
Unmarried partner	6	±9	5.9%	±9.3
Child	23	±32	22.8%	±23.7
Other relatives	2	±3	2.0%	±3.8
Other nonrelatives	0	±13	0.0%	±30.1
MARITAL STATUS				
Males 15 years and over	45	±37	45	(X)
Never married	11	±17	24.4%	±28.7
Now married, except separated	27	±26	60.0%	±29.2
Separated	0	±13	0.0%	±47.5
Widowed	0	±13	0.0%	±47.5
Divorced	7	±9	15.6%	±21.1
Females 15 years and over	56	±40	56	(X)
Never married	12	±17	21.4%	±22.5
Now married, except separated	32	±29	57.1%	±24.5
Separated	0	±13	0.0%	±42.6
Widowed	12	±14	21.4%	±27.0
Divorced	0	±13	0.0%	±42.6
FERTILITY				
Number of women 15 to 50 years				
old who had a birth in the past 12				
months	0	±13	0	(X)
Unmarried women (widowed, divorced, and never married)	0	±13	-	**
Per 1,000 unmarried women	0	±920	(X)	(X)

	Loomis CDP, Washington				
Label	Estimate	Margin of Error	Percent	Percent Margin of Error	
Per 1,000 women 15 to 50 years					
old	0	±679	(X)	(X)	
Per 1,000 women 15 to 19 years					
old	0	±920	(X)	(X)	
Per 1,000 women 20 to 34 years					
old	_	**	(X)	(X)	
Per 1,000 women 35 to 50 years					
old	0	±1,000	(X)	(X)	
GRANDPARENTS					
Number of grandparents living					
with own grandchildren under 18					
years	0	±13	0 (X)		
Grandparents responsible for					
grandchildren	0	±13	-	**	
Years responsible for					
grandchildren					
Less than 1 year	0	±13	-	**	
1 or 2 years	0	±13	-	**	
3 or 4 years	0	±13	-	**	
5 or more years	0	±13	-	**	
Number of grandparents					
responsible for own grandchildren					
under 18 years	0	±13	0	(X)	
Who are female	0	±13	-	**	
Who are married	0	±13	-	**	
SCHOOL ENROLLMENT					
Population 3 years and over					
enrolled in school	23	±32 23 (X)		(X)	
Nursery school, preschool	0	±13	0.0%	±66.4	
Kindergarten	0	±13 0.0% ±66.4		±66.4	

	Loomis CDP, Washington					
Label	Estimate	Margin of Error	Percent	Percent Margin of Error		
			0.0%			
Elementary school (grades 1-8)	0	±13	±66.4			
High school (grades 9-12)	23	±32	100.0%	±66.4		
College or graduate school	0	±13	0.0%	±66.4		
EDUCATIONAL ATTAINMENT						
Population 25 years and over	78	±58	78	(X)		
Less than 9th grade	2	±3	2.6%	±4.6		
9th to 12th grade, no diploma	16	±23	20.5%	±29.3		
High school graduate (includes						
equivalency)	25		±27 32.1%			
Some college, no degree	22	±25	28.2%	±18.8		
Associate's degree	6	±9	7.7%	±14.8		
Bachelor's degree	0	±13	0.0%	±35.8		
Graduate or professional degree	7	±10	9.0%	±13.2		
High school graduate or higher	60	±52	76.9%	±28.2		
Bachelor's degree or higher	7	±10	9.0%	±13.2		
VETERAN STATUS						
Civilian population 18 years and						
over	90	±65	90	(X)		
Civilian veterans	14	±21	15.6%	±18.4		
DISABILITY STATUS OF THE CIVILIAN NONINSTITUTIONALIZED POPULATION						
Total Civilian Noninstitutionalized	101	176	101	(V)		
Population	101	±76	101	(X)		
With a disability	20	±24	19.8%	±21.1		

	Loomis CDP, Washington					
Label	Estimate	Margin of Error	Percent	Percent Margin of Erro		
Under 18 years	11	±17	11	(X)		
With a disability	0	±13	0.0%	±96.0		
18 to 64 years	42	±39	42	(X)		
With a disability	6	±9	14.3%	±30.4		
65 years and over	48	±48	48	(X)		
With a disability	14	±22	29.2%	±25.6		
RESIDENCE 1 YEAR AGO						
Population 1 year and over	101	±76	101	(X)		
Same house	101	±76	100.0%	±30.1		
Different house (in the U.S. or						
abroad)	0	±13	0.0%	±30.1		
Different house in the U.S.	0	±13	0.0%	±30.1		
Same county	0	±13	0.0%	±30.1		
Different county	0	±13	0.0%	±30.1		
Same state	0	±13	0.0%	±30.1		
Different state	0	±13	0.0%	±30.1		
Abroad	0	±13	0.0%	±30.1		
PLACE OF BIRTH						
Total population	101	±76	101	(X)		
Native	95	±70	94.1%	±8.5		
Born in United States	89	±67	88.1%	±11.4		
State of residence	63	±44	62.4%	±14.9		
Different state	26	±28	25.7%	±15.8		
Born in Puerto Rico, U.S. Island						
areas, or born abroad to						
American parent(s)	6	±9 5.9%		±9.3		
Foreign born	6	±10	±10 5.9% ±8.5			
U.S. CITIZENSHIP STATUS						
Foreign-born population	6	±10	6	(X)		
Naturalized U.S. citizen 6		±10	100.0%	±100.0		

	Loomis CDP, Washington				
Label	Estimate	Margin of Error	Percent	Percent Margin of Error	
Not a U.S. citizen	0	±13	0.0%		
YEAR OF ENTRY					
Population born outside the					
United States	12	±14	12	(X)	
Native	6	±9	6	(X)	
Entered 2010 or later	0	±13	0.0%	±100.0	
Entered before 2010	6	±9	100.0%	±100.0	
Foreign born	6	±10	6	(X)	
Entered 2010 or later	0	±13	0.0%	±100.0	
Entered before 2010	6	±10	100.0%	±100.0	
WORLD REGION OF BIRTH OF FOREIGN BORN					
Foreign-born population, excludi	ng				
population born at sea	6	±10	6	(X)	
Europe	0	±13	0.0%	±100.0	
Asia	0	±13	0.0%	±100.0	
Africa	0	±13	0.0%	±100.0	
Oceania	0	±13	0.0%	±100.0	
Latin America	6	±10	100.0%	±100.0	
Northern America	0	±13	0.0%	±100.0	
LANGUAGE SPOKEN AT HOME					
Population 5 years and over	101	±76	101	(X)	
English only	95	±70	94.1%	±8.5	
Language other than English	6	±10	5.9%	±8.5	
Speak English less than "very					
well"	6	±10	±10 5.9%		
Spanish	6	±10	5.9%	±8.5	
Speak English less than "very					
well"	6	±10	5.9%	±8.5	

	Loomis CDP, Washington				
Label	Estimate	Margin of Error	Percent	Percent Margin of Error	
Other Inde Frances lenguages	0	±13	0.0%	±30.1	
Other Indo-European languages  Speak English less than "very	0	±13	0.0%	±30.1	
well"	0	±13	0.0%	±30.1	
Asian and Pacific Islander	0	113	0.0%	±30.1	
		112	0.00/	130.4	
languages	0	±13	0.0%	±30.1	
Speak English less than "very		142	0.00/	130.4	
well"	0	±13	0.0%	±30.1	
Other languages	0	±13	0.0%	±30.1	
Speak English less than "very			2.22/		
well"	0	±13	0.0%	±30.1	
ANCESTRY					
Total population	101	±76	101	(X)	
American	0	±13	0.0%	±30.1	
Arab	0	±13	0.0%	±30.1 ±30.1	
Czech	0	±13	±13 0.0%		
Danish	0	±13	0.0%	±30.1	
Dutch	0	±13	0.0%	±30.1	
English	49	±49	48.5%	±35.0	
French (except Basque)	33	±46	32.7%	±34.1	
French Canadian	0	±13	0.0%	±30.1	
German	0	±13	0.0%	±30.1	
Greek	0	±13	0.0%	±30.1	
Hungarian	0	±13	0.0%	±30.1	
Irish	6	±9	5.9%	±9.3	
Italian	0	±13	0.0%	±30.1	
Lithuanian	0	±13	0.0%	±30.1	
Norwegian	0	±13	0.0%	±30.1	
Polish	0	±13	0.0%	±30.1	
Portuguese	0	±13	±30.1		

Table: ACSDP5Y2020.DP02

Label	Loomis CDP, Washington				
	Estimate	Margin of Error	Percent	Percent Margin of Error	
Russian	0	±13	0.0%	±30.1	
Scotch-Irish	8	±12	7.9%	±11.5	
Scottish	0	±13	0.0%	±30.1	
Slovak	0	±13	0.0%	±30.1	
Subsaharan African	0	±13	0.0%	±30.1	
Swedish	0	±13	0.0%	±30.1	
Swiss	0	±13	0.0%	±30.1	
Ukrainian	5	±8	5.0%	±8.4	
Welsh	0	±13	0.0%	±30.1	
West Indian (excluding Hispanic					
origin groups)	0	±13	0.0%	±30.1	
COMPUTERS AND INTERNET USE					
Total households	38 ±29	±29	38	(X)	
With a computer	38	±29	100.0%	±51.7	
With a broadband Internet					
subscription	38	±29	100.0%	±51.7	

# Loomis CDP, Washington

		,	0	Percent	
	Total	Percent	Male	Male	Female
	Estimate	Estimate	Estimate	Estimate	Estimate
Total population	125	(X)	73	(X)	52
AGE					
Under 5 years	0	0.0%	0	0.0%	0
5 to 9 years	0	0.0%	0	0.0%	0
10 to 14 years	0	0.0%	0	0.0%	0
15 to 19 years	31	24.8%	13	17.8%	18
20 to 24 years	0	0.0%	0	0.0%	0
25 to 29 years	0	0.0%	0	0.0%	0
30 to 34 years	0	0.0%	0	0.0%	0
35 to 39 years	0	0.0%	0	0.0%	0
40 to 44 years	12	9.6%	0	0.0%	12
45 to 49 years	0	0.0%	0	0.0%	0
50 to 54 years	6	4.8%	6	8.2%	0
55 to 59 years	10	8.0%	4	5.5%	6
60 to 64 years	7	5.6%	7	9.6%	0
65 to 69 years	28	22.4%	28	38.4%	0
70 to 74 years	0	0.0%	0	0.0%	0
75 to 79 years	0	0.0%	0	0.0%	0
80 to 84 years	31	24.8%	15	20.5%	16
85 years and over	0	0.0%	0	0.0%	0
SELECTED AGE CATEGORIES					
5 to 14 years	0	0.0%	0	0.0%	0
15 to 17 years	13	10.4%	13	17.8%	0
Under 18 years	13	10.4%	13	17.8%	0
18 to 24 years	18	3 14.4%	0	0.0%	18
15 to 44 years	43	34.4%	13	17.8%	30
16 years and over	125	100.0%	73	100.0%	52
18 years and over	112	89.6%	60	82.2%	52
21 years and over	94	75.2%	60	82.2%	34
60 years and over	66	52.8%	50	68.5%	16
62 years and over	59	47.2%	43	58.9%	16
65 years and over	59	47.2%	43	58.9%	16
75 years and over	31	24.8%	15	20.5%	16

SUMMARY INDICATORS								
Median age (years)		61.5	(X)		67 (X)		42.7	
Sex ratio (males per 100 females)		140.4	(X)	(X)	(X)	(X)		
Age dependency ratio		135.8	(X)	(X)	(X)	(X)		
Old-age dependency ratio		111.3	(X)	(X)	(X)	(X)		
Child dependency ratio		24.5	(X)	(X)	(X)	(X)		
PERCENT ALLOCATED								
Sex	(X)		0.0%	(X)	(X)	(X)		
Age	(X)		0.0%	(X)	(X)	(X)		

# Malott CDP, Washington

Percent		, ,	,	Percent		Percent
Female	Total	Percent	Male	Male	Female	Female
Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate
(X)	808	(X)	412	(X)	396	(X)
0.0%	64	7.9%	17	4.1%	47	11.9%
0.0%	91	11.3%	38	9.2%	53	13.4%
0.0%	106	13.1%	67	16.3%	39	9.8%
34.6%	57	7.1%	37	9.0%	20	5.1%
0.0%	40	5.0%	40	9.7%	0	0.0%
0.0%	66	8.2%	31	7.5%	35	8.8%
0.0%	0	0.0%	0	0.0%	0	0.0%
0.0%	130	16.1%	45	10.9%	85	21.5%
23.1%	11	1.4%	0	0.0%	11	2.8%
0.0%	58	7.2%	36	8.7%	22	5.6%
0.0%	46	5.7%	14	3.4%	32	8.1%
11.5%	33	4.1%	33	8.0%	0	0.0%
0.0%	54	6.7%	20	4.9%	34	8.6%
0.0%	25	3.1%	25	6.1%	0	0.0%
0.0%	8	1.0%	0	0.0%	8	2.0%
0.0%	9	1.1%	9	2.2%	0	0.0%
30.8%	10	1.2%	0	0.0%	10	2.5%
0.0%	0	0.0%	0	0.0%	0	0.0%
0.0%	197	24.4%	105	25.5%	92	23.2%
0.0%	37	4.6%	29	7.0%	8	2.0%
0.0%	298	36.9%	151	36.7%	147	37.1%
34.6%	60	7.4%	48	11.7%	12	3.0%
57.7%	304	37.6%	153	37.1%	151	38.1%
100.0%	518	64.1%	261	63.3%	257	64.9%
100.0%	510	63.1%	261	63.3%	249	62.9%
65.4%	490	60.6%	253	61.4%	237	59.8%
30.8%	106	13.1%	54	13.1%	52	13.1%
30.8%	66	8.2%	48	11.7%	18	4.5%
30.8%	52	6.4%	34	8.3%	18	4.5%
30.8%	19	2.4%	9	2.2%	10	2.5%

(X)	2	27.2 (X)	2	25.9 (X)	3	6.1 (X)
(X)		104 (X)	(X)	(X)	(X)	(X)
(X)	7	'6.4 (X)	(X)	(X)	(X)	(X)
(X)	1	.1.4 (X)	(X)	(X)	(X)	(X)
(X)	6	55.1 (X)	(X)	(X)	(X)	(X)
(X)	(X)	1.0%	(X)	(X)	(X)	(X)
(X)	(X)	0.0%	(X)	(X)	(X)	(X)

	Loomis CDP, Washington			
	Total		Male	
		Margin of		Margin of
	Estimate	Error	Estimate	Error
Workers 16 years and over		18 +/-28		6 +/-11
MEANS OF TRANSPORTATION TO	1			
Car, truck, or van	100.0%	+/-69.9	100.0%	+/-100.0
Drove alone	100.0%	+/-69.9	100.0%	+/-100.0
Carpooled	0.0%	+/-69.9	0.0%	+/-100.0
In 2-person carpool	0.0%	+/-69.9	0.0%	+/-100.0
In 3-person carpool	0.0%	+/-69.9	0.0%	+/-100.0
In 4-or-more person carpool	0.0%	+/-69.9	0.0%	+/-100.0
Workers per car, truck, or van	N	N	N	N
Public transportation (excluding ta	a 0.0%	+/-69.9	0.0%	+/-100.0
Walked	0.0%	+/-69.9	0.0%	+/-100.0
Bicycle	0.0%	+/-69.9	0.0%	+/-100.0
Taxicab, motorcycle, or other mea	0.0%	+/-69.9	0.0%	+/-100.0
Worked at home	0.0%	+/-69.9	0.0%	+/-100.0
PLACE OF WORK				
Worked in state of residence	100.0%	+/-69.9	100.0%	+/-100.0
Worked in county of residence	100.0%	+/-69.9	100.0%	+/-100.0
Worked outside county of residen	(0.0%	+/-69.9	0.0%	+/-100.0
Worked outside state of residence	e 0.0%	+/-69.9	0.0%	+/-100.0
Living in a place	100.0%	+/-69.9	100.0%	+/-100.0
Worked in place of residence	33.3%	+/-26.6	100.0%	+/-100.0
Worked outside place of residence	e 66.7%	+/-26.6	0.0%	+/-100.0
Not living in a place	0.0%	+/-69.9	0.0%	+/-100.0
Living in 12 selected states	0.0%	+/-69.9	0.0%	+/-100.0
Worked in minor civil division of re	€0.0%	+/-69.9	0.0%	+/-100.0
Worked outside minor civil divisio	r 0.0%	+/-69.9	0.0%	+/-100.0
Not living in 12 selected states	100.0%	+/-69.9	100.0%	+/-100.0
Workers 16 years and over who di	İı	18 +/-28		6 +/-11
TIME LEAVING HOME TO GO TO V		·		•
12:00 a.m. to 4:59 a.m.	0.0%	+/-69.9	0.0%	+/-100.0
5:00 a.m. to 5:29 a.m.	0.0%	+/-69.9	0.0%	+/-100.0
5:30 a.m. to 5:59 a.m.	0.0%	+/-69.9	0.0%	+/-100.0
6:00 a.m. to 6:29 a.m.	0.0%	+/-69.9	0.0%	+/-100.0
	<b>,-</b>	,		, =====

6:30 a.m. to 6:59 a.m.	0.0%	+/-69.9	0.0%	+/-100.0
7:00 a.m. to 7:29 a.m.	33.3%	+/-26.6	100.0%	+/-100.0
7:30 a.m. to 7:59 a.m.	0.0%	+/-69.9	0.0%	+/-100.0
8:00 a.m. to 8:29 a.m.	0.0%	+/-69.9	0.0%	+/-100.0
8:30 a.m. to 8:59 a.m.	0.0%	+/-69.9	0.0%	+/-100.0
9:00 a.m. to 11:59 p.m.	66.7%	+/-26.6	0.0%	+/-100.0
TRAVEL TIME TO WORK				
Less than 10 minutes	33.3%	+/-26.6	100.0%	+/-100.0
10 to 14 minutes	0.0%	+/-69.9	0.0%	+/-100.0
15 to 19 minutes	0.0%	+/-69.9	0.0%	+/-100.0
20 to 24 minutes	0.0%	+/-69.9	0.0%	+/-100.0
25 to 29 minutes	0.0%	+/-69.9	0.0%	+/-100.0
30 to 34 minutes	66.7%	+/-26.6	0.0%	+/-100.0
35 to 44 minutes	0.0%	+/-69.9	0.0%	+/-100.0
45 to 59 minutes	0.0%	+/-69.9	0.0%	+/-100.0
60 or more minutes	0.0%	+/-69.9	0.0%	+/-100.0
Mean travel time to work (minute	s N	N	N	N
VEHICLES AVAILABLE				
Workers 16 years and over in hous	s <b>1</b> 8	3 +/-28	(	6 +/-11
No vehicle available	0.0%	+/-69.9	0.0%	+/-100.0
1 vehicle available	0.0%	+/-69.9	0.0%	+/-100.0
2 vehicles available	100.0%	+/-69.9	100.0%	+/-100.0
3 or more vehicles available	0.0%	+/-69.9	0.0%	+/-100.0
PERCENT ALLOCATED				
Means of transportation to work	0.0%	(X)	(X)	(X)
Private vehicle occupancy	0.0%	(X)	(X)	(X)
Place of work	0.0%	(X)	(X)	(X)
Time leaving home to go to work	0.0%	(X)	(X)	(X)
Travel time to work	0.0%	(X)	(X)	(X)
Vehicles available	0.0%	(X)	(X)	(X)

Malott CDP, Washington

Female		Total	vvasiiiigtoii	Male	
remaie	Margin of		Margin of	Widie	Margin of
Estimate	Error	Estimate	Error	Estimate	Error
	2 +/-19		8 +/-131		) +/-81
	·		,		,
100.0%	+/-85.6	89.7%	+/-12.2	81.4%	+/-20.5
100.0%	+/-85.6	65.6%	+/-28.5	37.9%	+/-35.7
0.0%	+/-85.6	24.1%	+/-26.4	43.6%	+/-38.8
0.0%	+/-85.6	18.2%	+/-21.9	32.9%	+/-35.2
0.0%	+/-85.6	0.0%	+/-12.0	0.0%	+/-20.5
0.0%	+/-85.6	5.9%	+/-14.9	10.7%	+/-25.4
N	N	1.19	+/-0.29	1.43	3 +/-0.72
0.0%	+/-85.6	0.0%	+/-12.0	0.0%	+/-20.5
0.0%	+/-85.6	4.7%	+/-10.3	8.6%	+/-18.3
0.0%	+/-85.6	0.0%	+/-12.0	0.0%	+/-20.5
0.0%	+/-85.6	0.0%	+/-12.0	0.0%	+/-20.5
0.0%	+/-85.6	5.5%	+/-9.6	10.0%	+/-17.1
100.0%	+/-85.6	100.0%	+/-12.0	100.0%	+/-20.5
100.0%	+/-85.6	96.0%	+/-7.1	92.9%	+/-13.1
0.0%	+/-85.6	4.0%	+/-7.1	7.1%	+/-13.1
0.0%	+/-85.6	0.0%	+/-12.0	0.0%	+/-20.5
100.0%	+/-85.6	100.0%	+/-12.0	100.0%	+/-20.5
0.0%	+/-85.6	15.4%	+/-19.6	20.7%	+/-29.0
100.0%	+/-85.6	84.6%	+/-19.6	79.3%	+/-29.0
0.0%	+/-85.6	0.0%	+/-12.0	0.0%	+/-20.5
0.0%	+/-85.6	0.0%	+/-12.0	0.0%	+/-20.5
0.0%	+/-85.6	0.0%	+/-12.0	0.0%	+/-20.5
0.0%	+/-85.6	0.0%	+/-12.0	0.0%	+/-20.5
100.0%	+/-85.6	100.0%	+/-12.0	100.0%	+/-20.5
12	2 +/-19	239	+/-130	126	5 +/-79
0.0%	+/-85.6	0.0%	+/-12.7	0.0%	+/-22.5
0.0%	+/-85.6	0.0%	+/-12.7	0.0%	+/-22.5
0.0%	+/-85.6	0.0%	+/-12.7	0.0%	+/-22.5
0.0%	+/-85.6	5.9%	+/-9.8	11.1%	+/-19.9

0.0%	+/-85.6	4.2%	+/-7.6	7.9%	+/-14.7
0.0%	+/-85.6	37.2%	+/-35.0	42.9%	+/-39.2
0.0%	+/-85.6	0.0%	+/-12.7	0.0%	+/-22.5
0.0%	+/-85.6	20.1%	+/-20.5	9.5%	+/-19.7
0.0%	+/-85.6	0.0%	+/-12.7	0.0%	+/-22.5
100.0%	+/-85.6	32.6%	+/-22.2	28.6%	+/-34.6
0.0%	+/-85.6	11.3%	+/-17.8	21.4%	+/-29.4
0.0%	+/-85.6	0.0%	+/-12.7	0.0%	+/-22.5
0.0%	+/-85.6	16.7%	+/-20.4	31.7%	+/-34.6
0.0%	+/-85.6	33.9%	+/-19.4	35.7%	+/-32.5
0.0%	+/-85.6	18.8%	+/-18.0	0.0%	+/-22.5
100.0%	+/-85.6	0.0%	+/-12.7	0.0%	+/-22.5
0.0%	+/-85.6	13.4%	+/-17.2	0.0%	+/-22.5
0.0%	+/-85.6	5.9%	+/-9.8	11.1%	+/-19.9
0.0%	+/-85.6	0.0%	+/-12.7	0.0%	+/-22.5
N	N	22.3	8 +/-6.9	17.6	5 +/-7.5
12	2 +/-19	238	3 +/-126	125	5 +/-73
0.0%	+/-85.6	0.0%	+/-12.7	0.0%	+/-22.6
0.0%	+/-85.6	10.9%	+/-17.1	0.0%	+/-22.6
100.0%	+/-85.6	40.3%	+/-34.4	48.8%	+/-36.4
0.0%	+/-85.6	48.7%	+/-33.0	51.2%	+/-36.4
(X)	(X)	11.9%	(X)	(X)	(X)
(X)	(X)	13.2%	(X)	(X)	(X)
(X)	(X)	17.8%	(X)	(X)	(X)
(X)	(X)	12.6%	(X)	(X)	(X)
(X)	(X)	12.6%	(X)	(X)	(X)
(X)	(X)	0.0%	(X)	(X)	(X)

## Female

remale	
	Margin of
Estimate	Error
113	+/-78
100.0%	+/-24.6
100.0%	+/-24.6
0.0%	+/-24.6
0.0%	+/-24.6
0.0%	+/-24.6
0.0%	+/-24.6
0.98	+/-0.07
0.0%	+/-24.6
0.0%	+/-24.6
0.0%	+/-24.6
0.0%	+/-24.6
0.0%	+/-24.6
100.0%	+/-24.6
100.0%	+/-24.6
0.0%	+/-24.6
0.0%	+/-24.6
100.0%	+/-24.6
8.8%	+/-17.9
91.2%	+/-17.9
0.0%	+/-24.6
0.0%	+/-24.6
0.0%	+/-24.6
0.0%	+/-24.6
100.0%	+/-24.6
113	+/-78
0.0%	+/-24.6
0.0%	+/-24.6
0.0%	+/-24.6
0.0%	+/-24.6

0.0%	+/-24.6
31.0%	+/-38.7
0.0%	+/-24.6
31.9%	+/-36.7
0.0%	+/-24.6
37.2%	+/-34.1
0.0%	+/-24.6
0.0%	+/-24.6
0.0%	+/-36.7
31.9%	+/-38.3
39.8%	+/-24.6
0.0%	+/-33.2
28.3%	+/-24.6
0.0%	+/-24.6
0.0%	27.7 +/-6.0
0.0% 23.0% 31.0% 46.0% (X) (X) (X) (X) (X) (X)	113 +/-78 +/-24.6 +/-32.9 +/-38.7 +/-39.0 (X) (X) (X) (X) (X) (X)

	North Omak CDP, Washington				
Label	Estimate	Margin of Error	Percent	Percent Margin of Error	
HOUSEHOLDS BY TYPE					
Total households	220	±73	220	(X)	
Married-couple household	68	±53	30.9%	±18.8	
With children of the					
householder under 18 years	(X)	(X)	(X)	(X)	
Cohabiting couple household	13	±22	5.9%	±9.5	
With children of the					
householder under 18 years	(X)	(X)	(X)	(X)	
Male householder, no					
spouse/partner present	65	±40	29.5%	±16.4	
With children of the					
householder under 18 years	(X)	(X)	(X)	(X)	
Householder living alone	34	±26	15.5%	±12.3	
65 years and over	13	±20	5.9%	±9.4	
Female householder, no					
spouse/partner present	74	±42	33.6%	±18.6	
With children of the					
householder under 18 years	(X)	(X)	(X)	(X)	
Householder living alone	28	±26	12.7%	±12.5	
65 years and over	17	±19	7.7%	±8.9	
Households with one or more					
people under 18 years	57	±43	25.9%	±17.0	
, ,					
Households with one or more					
people 65 years and over	106	±61	48.2%	±21.1	
Average household size	1.86	±0.34	(X)	(X)	
Average family size	2.15	±0.41	(X)	(x)	
RELATIONSHIP					
Population in households	410	±144	410	(X)	
Householder	220	±73	53.7%	±9.6	

	North Omak CDP, Washington					
Label	Estimate	Margin of Error	Percent	Percent Margin of Erro		
Spouse	59	±45	14.4%	±9.5		
Unmarried partner	14	±25	3.4%	±6.0		
Child	77	±56	18.8%	±10.7		
Other relatives	31	±34	7.6%	±7.7		
Other nonrelatives	9	±16	2.2%	±3.6		
MARITAL STATUS						
Males 15 years and over	153	±57	153	(X)		
Never married	94	±47	61.4%	±21.4		
Now married, except separated	59	±39	38.6%	±21.4		
Separated	0	±13	0.0%	±21.5		
Widowed	0	±13	0.0%	±21.5		
Divorced	0	±13	0.0%	±21.5		
Females 15 years and over	187	±74	187	(X)		
Never married	53	±39	28.3%	±17.8		
Now married, except separated	81	±59	43.3%	±20.7		
Separated	8	±13	4.3%	±7.0		
Widowed	17	±19	9.1%	±10.7		
Divorced	28	±22	15.0%	±13.2		
FERTILITY						
Number of women 15 to 50 years						
old who had a birth in the past 12						
months	8	±14	8	(X)		
Unmarried women (widowed,						
divorced, and never married)	8	±14	100.0%	±100.0		
Per 1,000 unmarried women	125	±214	(X)	(X)		

	North Omak CDP, Washington			
Label	Estimate	Margin of Error	Percent	Percent Margin of Error
Per 1,000 women 15 to 50 years				
old	96	±161	(X)	(X)
Per 1,000 women 15 to 19 years				
old	-	**	(X)	(X)
Per 1,000 women 20 to 34 years				
old	111	±191	(X)	(X)
Per 1,000 women 35 to 50 years				
old	0	±960	(X)	(X)
GRANDPARENTS				
Number of grandparents living				
with own grandchildren under 18				
years	8	±13	8	(X)
Grandparents responsible for				
grandchildren	8	±13	100.0%	±100.0
Years responsible for				
grandchildren				
Less than 1 year	0	±13	0.0%	±100.0
1 or 2 years	0	±13	0.0%	±100.0
3 or 4 years	8	±13	100.0%	±100.0
5 or more years	0	±13	0.0%	±100.0
Number of grandparents				
responsible for own grandchildren				
under 18 years	8	±13	8	(X)
Who are female	8	±13	100.0%	±100.0
Who are married	8	±13	100.0%	±100.0
SCHOOL ENROLLMENT				
Population 3 years and over				
enrolled in school	50	±37	50	(X)
Nursery school, preschool	17	±19	34.0%	±32.6
Kindergarten	0	±13	0.0%	±45.1

	North Omak CDP	, Washington				
Label	Estimate	Margin of Error	Percent	Percent Margin of Error		
Elementary school (grades 1-8)	21	±23	42.0%	±33.8		
High school (grades 9-12)	0	±13	0.0%	±45.1		
College or graduate school	12	±18	24.0%	±32.3		
EDUCATIONAL ATTAINMENT						
Population 25 years and over	301	±110	301	(X)		
Less than 9th grade	0	±13	0.0%	±11.7		
9th to 12th grade, no diploma	42	±40	14.0%	±12.5		
High school graduate (includes						
equivalency)	109	±67	36.2%	±19.0		
Some college, no degree	105	±84	34.9%	±21.6		
Associate's degree	4	±9	1.3%	±3.0		
Bachelor's degree	31	±18	10.3%	±6.8		
Graduate or professional degree	10	±16	3.3%	±5.5		
High school graduate or higher	259	±103	86.0%	±12.5		
Bachelor's degree or higher	41	±21	13.6%	±7.7		
VETERAN STATUS						
Civilian population 18 years and						
over	340	±116	340	(X)		
Civilian veterans	34	±32	10.0%	±8.7		
DISABILITY STATUS OF THE CIVILIAN NONINSTITUTIONALIZED POPULATION						
Total Civilian Noninstitutionalized Population	410	±144	410	(X)		
With a disability	140	±58	34.1%	±11.6		

	North Omak CDF	, Washington					
Label	Estimate	Margin of Error	Percent	Percent Margin of Error			
Under 18 years	70	±54	70	(X)			
With a disability	6	±11	8.6%	±12.2			
18 to 64 years	192	±88	192	(X)			
With a disability	68	±49	35.4%	±17.8			
65 years and over	148	±99	148	(X)			
With a disability	66	±45	44.6%	±23.9			
RESIDENCE 1 YEAR AGO							
Population 1 year and over	403	±140	403	(X)			
Same house	403	±140	100.0%	±8.9			
Different house (in the U.S. or							
abroad)	0	±13	0.0%	±8.9			
Different house in the U.S.	0	±13	0.0%	±8.9			
Same county	0	±13	0.0%	±8.9			
Different county	0	±13	0.0%	±8.9			
Same state	0	±13	0.0%	±8.9			
Different state	0	±13	0.0%	±8.9			
Abroad	0	±13	0.0%	±8.9			
PLACE OF BIRTH							
Total population	410	±144	410	(X)			
Native	388	±130	94.6%	±8.1			
Born in United States	388	±130	94.6%	±8.1			
State of residence	359	±126	87.6%	±12.3			
Different state	29	±27	7.1%	±6.0			
Born in Puerto Rico, U.S. Island							
areas, or born abroad to							
American parent(s)	0	±13	0.0%	±8.7			
Foreign born	22	±36	5.4%	±8.1			
U.S. CITIZENSHIP STATUS							
Foreign-born population	22	±36	22	(X)			
Naturalized U.S. citizen	22	±36	100.0%	±67.9			

	North Omak CDP	, Washington		
Label	Estimate	Margin of Error	Percent	Percent Margin of Error
Not a U.S. citizen	0	±13	0.0%	±67.9
YEAR OF ENTRY				
Population born outside the				
United States	22	±36	22	(X)
Native	0	±13	0	(X)
Entered 2010 or later	0	±13	-	**
Entered before 2010	0	±13	-	**
Foreign born	22	±36	22	(X)
Entered 2010 or later	0	±13	0.0%	±67.9
Entered before 2010	22	±36	100.0%	±67.9
WORLD REGION OF BIRTH OF FOREIGN BORN				
Foreign-born population, excludi	~			
population born at sea	22	±36	22	(X)
Europe	0	±13	0.0%	±67.9
Asia	22	±36	100.0%	±67.9
Africa	0	±13	0.0%	±67.9
Oceania	0	±13	0.0%	±67.9
Latin America	0	±13	0.0%	±67.9
Northern America	0	±13	0.0%	±67.9
LANGUAGE SPOKEN AT HOME				
Population 5 years and over	367	±126	367	(X)
English only	361	±124	98.4%	±2.9
Language other than English	6	±11	1.6%	±2.9
Speak English less than "very				
well"	0	±13	0.0%	±9.7
Spanish	0	±13	0.0%	±9.7
Speak English less than "very				
well"	0	±13	0.0%	±9.7

	North Omak CDP, Washington				
Label	Estimate	Margin of Error	Percent	Percent Margin of Error	
Other Indo-European languages	0	±13	0.0%	±9.7	
Speak English less than "very		113	0.070	±5.7	
well"	0	±13	0.0%	±9.7	
Asian and Pacific Islander		115	0.070	15.7	
languages	0	±13	0.0%	±9.7	
Speak English less than "very			0.070		
well"	0	±13	0.0%	±9.7	
Other languages	6	±11	1.6%	±2.9	
Speak English less than "very			2.070		
well"	0	±13	0.0%	±9.7	
ANCESTRY			0.070		
Total population	410	±144	410	(X)	
American	14	±25	3.4%	±6.0	
Arab	0	±13	0.0%	±8.7	
Czech	0	±13	0.0%	±8.7	
Danish	0	±13	0.0%	±8.7	
Dutch	0	±13	0.0%	±8.7	
English	9	±16	2.2%	±3.6	
French (except Basque)	9	±16	2.2%	±3.6	
French Canadian	15	±24	3.7%	±6.1	
German	0	±13	0.0%	±8.7	
Greek	0	±13	0.0%	±8.7	
Hungarian	0	±13	0.0%	±8.7	
Irish	11	±17	2.7%	±4.2	
Italian	0	±13	0.0%	±8.7	
Lithuanian	0	±13	0.0%	±8.7	
Norwegian	0	±13	0.0%	±8.7	
Polish	0	±13	0.0%	±8.7	
Portuguese	0	±13	0.0%	±8.7	

Table: ACSDP5Y2020.DP02

Label	North Omak CDP, Washington			
	Estimate	Margin of Error	Percent	Percent Margin of Error
Russian	0	±13	0.0%	±8.7
Scotch-Irish	0	±13	0.0%	±8.7
Scottish	0	±13	0.0%	±8.7
Slovak	0	±13	0.0%	±8.7
Subsaharan African	0	±13	0.0%	±8.7
Swedish	38	±39	9.3%	±9.1
Swiss	0	±13	0.0%	±8.7
Ukrainian	0	±13	0.0%	±8.7
Welsh	0	±13	0.0%	±8.7
West Indian (excluding Hispanic				
origin groups)	0	±13	0.0%	±8.7
COMPUTERS AND INTERNET USE				
Total households	220	±73	220	(X)
With a computer	171	±66	77.7%	±17.4
With a broadband Internet				
subscription	171	±66	77.7%	±17.4

	North Omak CDP	, Washington				
Label	Estimate	Margin of Error	Percent	Percent Margin of Error		
EMPLOYMENT STATUS						
Population 16 years and over	340	±116	340	(X)		
In labor force	129	±65	37.9%	±14.5		
Civilian labor force	129	±65	37.9%	±14.5		
Employed	129	±65	37.9%	±14.5		
Unemployed	0	±13	0.0%	±10.4		
Armed Forces	0	±13	0.0%	±10.4		
Not in labor force	211	±89	62.1%	±14.5		
Civilian labor force	129	±65	129	(X)		
Unemployment Rate	(X)	(X)	0.0%	±24.8		
Females 16 years and over	187	±74	187	(X)		
In labor force	73	±44	39.0%	±21.5		
Civilian labor force	73	±44	39.0%	±21.5		
Employed	73	±44	39.0%	±21.5		
Own children of the householder						
under 6 years	49	±34	49	(X)		
All parents in family in labor						
force	31	±33	63.3%	±42.2		
Own children of the householder 6						
to 17 years	21	±23	21	(X)		
All parents in family in labor						
force	21	±23	100.0%	±69.5		
COMMUTING TO WORK						
Workers 16 years and over	129	±65	129	(X)		
Car, truck, or van drove alone	111	±65	86.0%	±17.4		
Car, truck, or van carpooled	18	±22	14.0%	±17.4		
Public transportation (excluding						
taxicab)	0	±13	0.0%	±24.8		
Walked	0	±13	0.0%	±24.8		

	North Omak CDP	, Washington		
Label	Estimate	Margin of Error	Percent	Percent Margin of Erro
Other means	0	±13	0.0%	±24.8
Worked from home	0	±13	0.0%	±24.8
Mean travel time to work				
(minutes)	16.4	±6.3	(X)	(X)
OCCUPATION				
Civilian employed population 16				
years and over	129	±65	129	(X)
Management, business, science,				
and arts occupations	41	±33	31.8%	±24.8
Service occupations	38	±49	29.5%	±29.0
Sales and office occupations	28	±29	21.7%	±20.3
Natural resources, construction, and maintenance occupations	4	±9	3.1%	±7.3
Production, transportation, and material moving occupations	18	±24	14.0%	±18.0
INDUSTRY				
Civilian employed population 16				
years and over	129	±65	129	(X)
Agriculture, forestry, fishing and				
hunting, and mining	0	±13	0.0%	±24.8
Construction	24	±35	18.6%	±26.0
Manufacturing	0	±13	0.0%	±24.8
Wholesale trade	0	±13	0.0%	±24.8
Retail trade	18	±24	14.0%	±18.0
Transportation and warehousing,				
and utilities	4	±9	3.1%	±7.3
Information	0	±13	0.0%	±24.8

	North Omak CDP	, Washington				
Label	Estimate	Margin of Error	Percent	Percent Margin of Error		
Finance and insurance, and real						
estate and rental and leasing	0	±13	0.0%	±24.8		
Professional, scientific, and						
management, and administrative						
and waste management services	14	±21	10.9%	±15.8		
Educational services, and health						
care and social assistance	17	±20	13.2%	±17.0		
Arts entertainment and						
Arts, entertainment, and recreation, and accommodation						
and food services	39	±38	30.2%	±21.5		
Other services, except public		130	30.270	121.5		
administration	0	±13	0.0%	±24.8		
Public administration	13	±22	10.1%	±14.0		
CLASS OF WORKER			10.170			
Civilian employed population 16						
years and over	129	±65	129	(x)		
Private wage and salary workers	97	±51	75.2%	±20.1		
Government workers	32	±33	24.8%	±20.1		
Self-employed in own not						
incorporated business workers	0	±13	0.0%	±24.8		
Unpaid family workers	0	±13	0.0%	±24.8		
INCOME AND BENEFITS (IN 2020						
INFLATION-ADJUSTED DOLLARS)	222	.72	222	100		
Total households	220	±73	220	(X)		

	North Omak CDP	, Washington				
Label	Estimate	Margin of Error	Percent	Percent Margin of Error		
Less than \$10,000	25	±30	11.4%	±12.9		
\$10,000 to \$14,999	68	±41	30.9%	±17.6		
\$15,000 to \$24,999	0	±13	0.0%	±15.6		
\$25,000 to \$34,999	0	±13	0.0%	±15.6		
\$35,000 to \$49,999	54	±38	24.5%	±16.8		
\$50,000 to \$74,999	35	±41	15.9%	±15.7		
\$75,000 to \$99,999	0	±13	0.0%	±15.6		
\$100,000 to \$149,999	38	±36	17.3%	±16.1		
\$150,000 to \$199,999	0	±13	0.0%	±15.6		
\$200,000 or more	0	±13	0.0%	±15.6		
Median household income						
(dollars)	39,375	±21,672	(X)	(X)		
Mean household income						
(dollars)	41,972	±14,884	(X)	(X)		
With earnings	128	±55	58.2%	±19.3		
Mean earnings (dollars)	40,205	±14,711	(X)	(X)		
With Social Security	131	±63	59.5%	±19.9		
Mean Social Security income						
(dollars)	19,788	±5,473	(X)	(X)		
With retirement income	38	±41	17.3%	±16.7		
Mean retirement income						
(dollars)	31,226	±3,930	(X)	(X)		
With Supplemental Security						
Income	19	±17	8.6%	±7.5		
Mean Supplemental Security						
Income (dollars)	N	N	(X)	(X)		
With cash public assistance						
income	12	±18	5.5%	±7.9		
Mean cash public assistance						
income (dollars)	N	N	(X)	(X)		

	North Omak CDF	P, Washington		
Label	Estimate	Margin of Error	Percent	Percent Margin of Error
With Food Stamp/SNAP benefits				
in the past 12 months	97	±52	44.1%	±18.3
Families	145	±74	145	(X)
Less than \$10,000	17	±26	11.7%	±17.4
\$10,000 to \$14,999	24	±26	16.6%	±16.7
\$15,000 to \$24,999	0	±13	0.0%	±22.5
\$25,000 to \$34,999	14	±21	9.7%	±14.8
\$35,000 to \$49,999	34	±32	23.4%	±21.8
\$50,000 to \$74,999	22	±36	15.2%	±21.6
\$75,000 to \$99,999	0	±13	0.0%	±22.5
\$100,000 to \$149,999	34	±37	23.4%	±23.4
\$150,000 to \$199,999	0	±13	0.0%	±22.5
\$200,000 or more	0	±13	0.0%	±22.5
Median family income (dollars)	39,479	±16,663	(X)	(X)
Mean family income (dollars)	47,919	±19,355	(X)	(X)
Per capita income (dollars)	20,174	±8,101	(X)	(X)
Nonfamily households	75	±43	75	(X)
Median nonfamily income				
(dollars)	13,831	±10,856	(X)	(X)
Mean nonfamily income (dollars)	29,217	±15,761	(X)	(X)
Median earnings for workers		·	, ,	
(dollars)	30,804	±12,088	(X)	(X)
Median earnings for male full-				
time, year-round workers (dollars)	-	**	(X)	(X)

	North Omak CDP	, Washington				
Label	Estimate	Margin of Error	Percent	Percent Margin of Error		
Adadis a service for force to fill						
Median earnings for female full-	22.425	111 020	()()	()()		
time, year-round workers (dollars) HEALTH INSURANCE COVERAGE	33,125	±11,938	(X)	(X)		
Civilian noninstitutionalized	440	1444	440	00		
population	410	±144	410	(X)		
With health insurance coverage	350	±114	85.4%	±9.8		
With private health insurance	105	±49	25.6%	±11.9		
With public coverage	290	±113	70.7%	±11.9		
No health insurance coverage	60	±51	14.6%	±9.8		
Civilian noninstitutionalized						
population under 19 years	70	±54	70	(X)		
No health insurance coverage	0	±13	0.0%	±38.1		
Civilian noninstitutionalized						
population 19 to 64 years	192	±88	192	(X)		
In labor force:	105	±61	105	(X)		
Employed:	105	±61	105	(X)		
With health insurance						
coverage	91	±59	86.7%	±19.9		
With private health						
insurance	60	±41	57.1%	±25.6		
With public coverage	31	±32	29.5%	±22.7		
No health incurance coverage	14	±21	13.3%	±19.9		
No health insurance coverage						
Unemployed:	0	±13	0	(X)		

	North Omak CDF	P, Washington			
Label	Estimate	Margin of Error	Percent	Percent Margin of Error	
With health insurance					
coverage	0	±13	-	**	
With private health					
insurance	0	±13	-	**	
With public coverage	0	±13	-	**	
No health insurance coverage	0	±13	-	**	
Not in labor force:	87	±58	87	(X)	
With health insurance coverage	63	±37	72.4%	±23.2	
With private health insurance	0	±13	0.0%	±33.4	
With public coverage	63	±37	72.4%	±23.2	
No health insurance coverage	24	±29	27.6%	±23.2	
PERCENTAGE OF FAMILIES AND					
PEOPLE WHOSE INCOME IN THE					
PAST 12 MONTHS IS BELOW THE					
POVERTY LEVEL All families	(X)	(X)	28.3%	±21.5	
With related children of the		(//)	20.570	221.5	
householder under 18 years	(X)	(X)	61.4%	±37.1	
With related children of the householder under 5 years only	(X)	(X)	68.0%	±56.5	
Married couple families	(X)	(X)	0.0%	±38.6	
With related children of the	,	, ,			
householder under 18 years	(X)	(X)	-	**	

	North Omak CDP, Washington				
Label	Estimate	Margin of Error	Percent	Percent Margin of Error	
With related children of the					
householder under 5 years					
only	(X)	(X)	-	**	
Families with female					
householder, no spouse present	(X)	(X)	52.2%	±41.3	
With related children of the					
householder under 18 years	(X)	(X)	45.0%	±46.3	
With related children of the					
householder under 5 years					
only	(X)	(X)	0.0%	±100.0	
All people	(X)	(X)	33.9%	±18.2	
Under 18 years	(X)	(X)	48.6%	±44.5	
Related children of the					
householder under 18 years	(X)	(X)	48.6%	±44.5	
Related children of the					
householder under 5 years	(X)	(X)	46.5%	±41.2	
Related children of the					
householder 5 to 17 years	(X)	(X)	51.9%	±51.9	
18 years and over	(X)	(X)	30.9%	±17.2	
18 to 64 years	(X)	(X)	44.8%	±21.2	
65 years and over	(X)	(X)	12.8%	±16.7	
People in families	(X)	(X)	28.5%	±21.9	
Unrelated individuals 15 years					
and over	(X)	(X)	51.0%	±29.9	

	North Omak CDP, Washington					
Label	Estimate	Margin of Error	Percent	Percent Margin of Error		
SEX AND AGE						
Total population	410	±144	410	(X)		
Male	216	±79	52.7%	±7.1		
Female	194	±77	47.3%	±7.1		
Sex ratio (males per 100 females)	111.3	±32.5	(X)	(X)		
Under 5 years	43	±28	10.5%	±5.1		
5 to 9 years	20	±24	4.9%	±5.2		
10 to 14 years	7	±11	1.7%	±2.4		
15 to 19 years	0	±13	0.0%	±8.7		
20 to 24 years	39	±49	9.5%	±11.4		
25 to 34 years	82	±58	20.0%	±11.4		
35 to 44 years	30	±26	7.3%	±6.6		
45 to 54 years	16	±17	3.9%	±4.6		
55 to 59 years	17	±21	4.1%	±5.1		
60 to 64 years	8	±13	2.0%	±3.2		
65 to 74 years	78	±77	19.0%	±18.5		
75 to 84 years	60	±53	14.6%	±11.8		
85 years and over	10	±16	2.4%	±3.7		
Median age (years)	37.5	±31.6	(X)	(X)		
Under 18 years	70	±54	17.1%	±10.4		
16 years and over	340	±116	82.9%	±10.4		
18 years and over	340	±116	82.9%	±10.4		
21 years and over	327	±109	79.8%	±10.6		
62 years and over	148	±99	36.1%	±20.6		
65 years and over	148	±99	36.1%	±20.6		
18 years and over	340	±116	340	(X)		
Male	153	±57	45.0%	±8.8		
Female	187	±74	55.0%	±8.8		

	North Omak CDP, Washington					
Label	Estimate	Margin of Error	Percent	Percent Margin of Error		
Sex ratio (males per 100						
females)	81.8	±30.0	(X)	(X)		
65 years and over	148	±99	148	(X)		
Male	57	±43	38.5%	±14.0		
Female	91	±65	61.5%	±14.0		
Sex ratio (males per 100						
females)	62.6	±38.6	(X)	(X)		
RACE						
Total population	410	±144	410	(X)		
One race	383	±134	93.4%	±8.9		
Two or more races	27	±39	6.6%	±8.9		
One race	383	±134	93.4%	±8.9		
White	85	±51	20.7%	±10.1		
Black or African American	0	±13	0.0%	±8.7		
American Indian and Alaska						
Native	276	±99	67.3%	±13.7		
Cherokee tribal grouping	0	±13	0.0%	±8.7		
Chippewa tribal grouping	0	±13	0.0%	±8.7		
Navajo tribal grouping	0	±13	0.0%	±8.7		
Sioux tribal grouping	0	±13	0.0%	±8.7		
Asian	22	±36	5.4%	±8.1		
Asian Indian	0	±13	0.0%	±8.7		
Chinese	0	±13	0.0%	±8.7		
Filipino	0	±13	0.0%	±8.7		
Japanese	0	±13	0.0%	±8.7		
Korean	22	±36	5.4%	±8.1		
Vietnamese	0	±13	0.0%	±8.7		
Other Asian	0	±13	0.0%	±8.7		
Native Hawaiian and Other						
Pacific Islander	0	±13	0.0%	±8.7		

	North Omak CDP, Washington					
Label	Estimate	Margin of Error	Percent	Percent Margin of Error		
Native Hawaiian	0	±13	0.0%	±8.7		
Chamorro	0	±13	0.0%	±8.7		
Samoan	0	±13	0.0%	±8.7		
Other Pacific Islander	0	±13	0.0%	±8.7		
Some other race	0	±13	0.0%	±8.7		
Two or more races	27	±39	6.6%	±8.9		
White and Black or African						
American	0	±13	0.0%	±8.7		
White and American Indian and						
Alaska Native	27	±39	6.6%	±8.9		
White and Asian	0	±13	0.0%	±8.7		
Black or African American and						
American Indian and Alaska						
Native	0	±13	0.0%	±8.7		
Race alone or in combination with						
one or more other races						
Total population	410	±144	410	(X)		
White	112	±63	27.3%	±11.1		
Black or African American	0	±13	0.0%	±8.7		
American Indian and Alaska						
Native	303	±111	73.9%	±13.1		
Asian	22	±36	5.4%	±8.1		
Native Hawaiian and Other						
Pacific Islander	0	±13	0.0%	±8.7		
Some other race	0	±13	0.0%	±8.7		
HISPANIC OR LATINO AND RACE						
Total population	410	±144	410	(X)		
Hispanic or Latino (of any race)	0	±13	0.0%	±8.7		
Mexican	0	±13	0.0%	±8.7		

	North Omak CDP, Washington					
Label	Estimate	Margin of Error	Percent	Percent Margin of Error		
Puerto Rican	0	±13	0.0%	±8.7		
Cuban	0	±13	0.0%	±8.7		
Other Hispanic or Latino	0	±13	0.0%	±8.7		
Not Hispanic or Latino	410	±144	100.0%	±8.7		
White alone	85	±51	20.7%	±10.1		
Black or African American alone	0	±13	0.0%	±8.7		
American Indian and Alaska						
Native alone	276	±99	67.3%	±13.7		
Asian alone	22	±36	5.4%	±8.1		
Native Hawaiian and Other						
Pacific Islander alone	0	±13	0.0%	±8.7		
Some other race alone	0	±13	0.0%	±8.7		
Two or more races	27	±39	6.6%	±8.9		
Two races including Some						
other race	0	±13	0.0%	±8.7		
Two races excluding Some						
other race, and Three or						
more races	27	±39	6.6%	±8.9		
Total housing units	238	±74	(X)	(X)		
CITIZEN, VOTING AGE POPULATION						
Citizen, 18 and over population	340	±116	340	(X)		
Male	153	±57	45.0%	±8.8		
Female	187	±74	55.0%	±8.8		



# Okanogan County, Washington

				Percent		Percent
	Total	Percent	Male	Male	Female	Female
	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate
Total population	41,638	(X)	21,061	(X)	20,577	(X)
AGE						
Under 5 years	2,608	6.3%	1,371	6.5%	1,237	6.0%
5 to 9 years	2,663	6.4%	1,344	6.4%	1,319	6.4%
10 to 14 years	2,737	6.6%	1,458	6.9%	1,279	6.2%
15 to 19 years	2,368	5.7%	1,244	5.9%	1,124	5.5%
20 to 24 years	2,236	5.4%	1,185	5.6%	1,051	5.1%
25 to 29 years	2,152	5.2%	1,072	5.1%	1,080	5.2%
30 to 34 years	2,246	5.4%	1,150	5.5%	1,096	5.3%
35 to 39 years	2,358	5.7%	1,126	5.3%	1,232	6.0%
40 to 44 years	2,304	5.5%	1,243	5.9%	1,061	5.2%
45 to 49 years	2,264	5.4%	1,132	5.4%	1,132	5.5%
50 to 54 years	2,553	6.1%	1,280	6.1%	1,273	6.2%
55 to 59 years	3,210	7.7%	1,413	6.7%	1,797	8.7%
60 to 64 years	3,313	8.0%	1,740	8.3%	1,573	7.6%
65 to 69 years	3,012	7.2%	1,666	7.9%	1,346	6.5%
70 to 74 years	2,340	5.6%	1,100	5.2%	1,240	6.0%
75 to 79 years	1,477	3.5%	727	3.5%	750	3.6%
80 to 84 years	1,124	2.7%	556	2.6%	568	2.8%
85 years and over	673	1.6%	254	1.2%	419	2.0%
SELECTED AGE CATEGORIES						
5 to 14 years	5,400	13.0%	2,802	13.3%	2,598	12.6%
15 to 17 years	1,556	3.7%	802	3.8%	754	3.7%
Under 18 years	9,564	23.0%	4,975	23.6%	4,589	22.3%
18 to 24 years	3,048	7.3%	1,627	7.7%	1,421	6.9%
15 to 44 years	13,664	32.8%	7,020	33.3%	6,644	32.3%
16 years and over	33,122	79.5%	16,631	79.0%	16,491	80.1%
18 years and over	32,074	77.0%	16,086	76.4%	15,988	77.7%
21 years and over	30,992	74.4%	15,536	73.8%	15,456	75.1%
60 years and over	11,939	28.7%	6,043	28.7%	5,896	28.7%
62 years and over	10,802	25.9%	5,438	25.8%	5,364	26.1%
65 years and over	8,626	20.7%	4,303	20.4%	4,323	21.0%

75 years and over	3,274	7.9%	1,537	7.3%	1,737	8.4%
SUMMARY INDICATORS						
Median age (years)	42.9	(X)	42.4	(X)	43.9	(X)
Sex ratio (males per 100 females)	102.4	(X)	(X)	(X)	(X)	(X)
Age dependency ratio	77.6	(X)	(X)	(X)	(X)	(X)
Old-age dependency ratio	36.8	(X)	(X)	(X)	(X)	(X)
Child dependency ratio	40.8	(X)	(X)	(X)	(X)	(X)
PERCENT ALLOCATED						
Sex	(X)	0.0%	(X)	(X)	(X)	(X)
Age	(X)	2.0%	(X)	(X)	(X)	(X)



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## QuickFacts

Okanogan County, Washington; United States

QuickFacts provides statistics for all states and counties, and for cities and towns with a *population of 5,000 or more*.

### Table

Families & Living Arran	Okanogan County, Washington	United States
Population, Census, April 1, 2010	41,120	308,745,538
<b>1</b> PEOPLE		
Families & Living Arrangements		
Households, 2014-2018	17,527	119,730,128
Persons per household, 2014-2018	2.31	2.63
Living in same house 1 year ago, percent of persons age 1 year+, 2014-2018	84.2%	85.5%
Language other than English spoken at home, percent of persons age 5 years+, 2014-2018	17.9%	21.5%

About datasets used in this table

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Regional Offices	2010 Census	E-Stats	Income
History	Economic Census	International Trade	Poverty
Research	Interactive Maps	Export Codes	Population Estimates
Scientific Integrity	Training & Workshops	NAICS	Population Projections
Census Careers	Data Tools	Governments	Health Insurance
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## QuickFacts

Okanogan County, Washington; United States

QuickFacts provides statistics for all states and counties, and for cities and towns with a population of 5,000 or more.

### Table

All Topics	Okanogan County, Washington	United States
Population, Census, April 1, 2010	41,120	308,745,538
<b>1</b> PEOPLE		
Population	_	
Population estimates, July 1, 2019, (V2019)	42,243	328,239,523
Population estimates base, April 1, 2010, (V2019)	41,117	308,758,109
Population, percent change - April 1, 2010 (estimates base) to July 1, 2019, (V2019)	2.7%	6.3%
Population, Census, April 1, 2010	41,120	308,745,538
Age and Sex		
Persons under 5 years, percent	▲ 6.2%	<b>▲</b> 6.1%
Persons under 18 years, percent	<b>a</b> 23.2%	<b>a</b> 22.4%
Persons 65 years and over, percent	<b>1</b> 21.6%	<b>1</b> 6.0%
Female persons, percent	<b>4</b> 9.7%	▲ 50.8%
Race and Hispanic Origin		
White alone, percent	<b>&amp;</b> 81.5%	<b>A</b> 76.5%
Black or African American alone, percent (a)	▲ 0.9%	<b>1</b> 3.4%
American Indian and Alaska Native alone, percent (a)	<b>1</b> 3.0%	<b>1</b> .3%
Asian alone, percent (a)	<b>1.2%</b>	<b>a</b> 5.9%
Native Hawaiian and Other Pacific Islander alone, percent (a)	▲ 0.3%	<b>a</b> 0.29
Two or More Races, percent	▲ 3.1%	<b>a</b> 2.79
Hispanic or Latino, percent (b)	<b>a</b> 20.5%	<b>å</b> 18.3%
White alone, not Hispanic or Latino, percent	<b>6</b> 4.7%	<b>6</b> 0.49
Population Characteristics		
Veterans, 2014-2018	3,501	18,611,43
Foreign born persons, percent, 2014-2018	10.3%	13.5%
Housing		
Housing units, July 1, 2019, (V2019)	23,516	139,684,24
Owner-occupied housing unit rate, 2014-2018	66.2%	63.89
Median value of owner-occupied housing units, 2014-2018	\$173,500	\$204,90
Median selected monthly owner costs -with a mortgage, 2014-2018	\$1,185	\$1,55
Median selected monthly owner costs -without a mortgage, 2014-2018	\$378	\$490
Median gross rent, 2014-2018	\$681	\$1,02
Building permits, 2019	156	1,386,04
Families & Living Arrangements		
Households, 2014-2018	17,527	119,730,12
Persons per household, 2014-2018	2.31	2.6
Living in same house 1 year ago, percent of persons age 1 year+, 2014-2018	84.2%	85.5%
Language other than English spoken at home, percent of persons age 5 years+, 2014-2018	17.9%	21.5%
Computer and Internet Use		
Households with a computer, percent, 2014-2018	84.4%	88.8%
Households with a broadband Internet subscription, percent, 2014-2018	73.7%	80.4%
Education		
High school graduate or higher, percent of persons age 25 years+, 2014-2018	83.5%	87.7%
Bachelor's degree or higher, percent of persons age 25 years+, 2014-2018	19.0%	31.5%
Health		
With a disability, under age 65 years, percent, 2014-2018	12.0%	8.6%
Persons without health insurance, under age 65 years, percent	<b>1</b> 4.4%	<b>1</b> 0.0%
Economy		

In civilian labor force, total, percent of population age 16 years+, 2014-2018	54.7%	62.9%
In civilian labor force, female, percent of population age 16 years+, 2014-2018	53.1%	58.2%
Total accommodation and food services sales, 2012 (\$1,000) (c)	54,794	708,138,598
Total health care and social assistance receipts/revenue, 2012 (\$1,000) (c)	143,831	2,040,441,203
Total manufacturers shipments, 2012 (\$1,000) (c)	123,688	5,696,729,632
Total merchant wholesaler sales, 2012 (\$1,000) (c)	D	5,208,023,478
Total retail sales, 2012 (\$1,000) (c)	446,957	4,219,821,871
Total retail sales per capita, 2012 (c)	\$10,829	\$13,443
Transportation		
Mean travel time to work (minutes), workers age 16 years+, 2014-2018	17.5	26.6
Income & Poverty		
Median household income (in 2018 dollars), 2014-2018	\$45,808	\$60,293
Per capita income in past 12 months (in 2018 dollars), 2014-2018	\$23,961	\$32,621
Persons in poverty, percent	<b>1</b> 7.0%	<b>1</b> 1.8%
BUSINESSES		
Businesses		
Total employer establishments, 2017	1,143	7,860,674
Total employment, 2017	8,194	128,591,812
Total annual payroll, 2017 (\$1,000)	276,115	6,725,346,754
Total employment, percent change, 2016-2017	-4.8%	1.5%
Total nonemployer establishments, 2018	2,387	26,485,532
All firms, 2012	3,182	27,626,360
Men-owned firms, 2012	1,601	14,844,597
Women-owned firms, 2012	892	9,878,397
Minority-owned firms, 2012	228	7,952,386
Nonminority-owned firms, 2012	2,735	18,987,918
Veteran-owned firms, 2012	440	2,521,682
Nonveteran-owned firms, 2012	2,436	24,070,685
⊕ GEOGRAPHY		
Geography		
Population per square mile, 2010	7.8	87.4
Land area in square miles, 2010	5,267.98	3,531,905.43
FIPS Code	53047	1

About datasets used in this table

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History	Economic Census	International Trade	Poverty
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Scientific Integrity	Training & Workshops	NAICS	Population Projections
Census Careers	Data Tools	Governments	Health Insurance
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Okanogan County, Washington; United States

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#### Table

Income & Poverty	Okanogan County, Washington	United States
Population, Census, April 1, 2010	41,120	308,745,53
<b>♣</b> PEOPLE		
Income & Poverty		
Median household income (in 2018 dollars), 2014-2018	\$45,808	\$60,29
Per capita income in past 12 months (in 2018 dollars), 2014-2018	\$23,961	\$32,62
Persons in poverty, percent	<b>1</b> 7.0%	<b>1</b> 1.89

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History	Economic Census	International Trade	Poverty
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Scientific Integrity	Training & Workshops	NAICS	Population Projections
Census Careers	Data Tools	Governments	Health Insurance
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#### Table

Transportation	Okanogan County, Washington	United States
Population, Census, April 1, 2010	41,120	308,745,538
<b>♣</b> PEOPLE		
Transportation		
Mean travel time to work (minutes), workers age 16 years+, 2014-2018	17.5	26.6

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Regional Offices	2010 Census	E-Stats	Income
History	Economic Census	International Trade	Poverty
Research	Interactive Maps	Export Codes	Population Estimates
Scientific Integrity	Training & Workshops	NAICS	Population Projections
Census Careers	Data Tools	Governments	Health Insurance
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## SELECTED SOCIAL CHARACTERISTICS IN THE UNITED STATES

	Okanogan city,		Omak city,		Pateros city,	
American Community Survey	Washington		Washington		Washington	
, ,	Estimate	Percent	Estimate	Percent	Estimate	Percent
HOUSEHOLDS BY TYPE						
Total households	988	988	2,049	2,049	213	213
Average household size	2.33	(X)	2.32		2.82	
Average family size	2.97		2.79		3.7	
SCHOOL ENROLLMENT		,		, ,		. ,
Population 3 years and over enrolled in						
school	665	665	1,082	1,082	210	210
Nursery school, preschool	48	7.20%	52	4.80%	12	5.70%
Kindergarten	13	2.00%		6.90%	15	7.10%
Elementary school (grades 1-8)	360			50.20%	87	41.40%
High school (grades 9-12)	177	26.60%	237	21.90%	85	40.50%
College or graduate school	67	10.10%	175	16.20%	11	5.20%
EDUCATIONAL ATTAINMENT						
Population 25 years and over	1,685	1,685	3,111	3,111	311	311
Less than 9th grade	170	,		7.20%	90	28.90%
9th to 12th grade, no diploma	173	10.30%	185	5.90%	48	15.40%
, ,						
High school graduate (includes equivalency)	534	31.70%	1,229	39.50%	76	24.40%
Some college, no degree	340	20.20%		25.80%	45	14.50%
Associate's degree	174			11.40%	14	4.50%
Bachelor's degree	149	8.80%	194	6.20%	29	9.30%
Graduate or professional degree	145		121	3.90%	9	2.90%
High school graduate or higher	1,342	79.60%	2,701	86.80%	173	55.60%
Bachelor's degree or higher	294		315	10.10%	38	12.20%
DISABILITY STATUS OF THE CIVILIAN						
NONINSTITUTIONALIZED POPULATION						
Total Civilian Noninstitutionalized						
Population	2,298	2,298	4,762	4,762	601	601
With a disability	527				72	12.00%
Under 18 years	699	699	1,391	1,391	212	212
With a disability	55	7.90%			0	0.00%
18 to 64 years	1,265			2,590	337	337
With a disability	297	23.50%		21.30%	54	16.00%
65 years and over	334			781	52	52
With a disability	175	52.40%		56.00%	18	34.60%
COMPUTERS AND INTERNET USE						
Total households	988	988	2,049	2,049	213	213
With a computer	878		1,701	83.00%	168	78.90%
With a broadband Internet subscription	781	79.00%	1,400	68.30%	129	60.60%

	Riverside town, Washington				
Label	Estimate	Margin of Error	Percent	Percent Margin of Error	
HOUSEHOLDS BY TYPE					
Total households	182	±59	182	(X)	
Married-couple household	47	±26	25.8%	±15.4	
With children of the					
householder under 18 years	(X)	(X)	(X)	(X)	
Cohabiting couple household	21	±18	11.5%	±8.9	
With children of the					
householder under 18 years	(X)	(X)	(X)	(X)	
Male householder, no					
spouse/partner present	39	±21	21.4%	±13.3	
With children of the					
householder under 18 years	(X)	(X)	(X)	(X)	
Householder living alone	25	±16	13.7%	±10.2	
65 years and over	5	±7	2.7%	±4.1	
Female householder, no					
spouse/partner present	75	±56	41.2%	±20.2	
With children of the					
householder under 18 years	(X)	(X)	(X)	(X)	
Householder living alone	25	±20	13.7%	±11.3	
65 years and over	13	±12	7.1%	±6.6	
Households with one or more					
people under 18 years	94	±59	51.6%	±18.0	
Households with one or more					
people 65 years and over	36	±17	19.8%	±9.7	
Average household size	2.18	±0.38	(X)	(X)	
Average family size	2.42	±0.62	(X)	(X)	
RELATIONSHIP			, ,		
Population in households	396	±120	396	(X)	
Householder	182	±59	46.0%	±8.5	

	Riverside town, Washington					
Label	Estimate	Margin of Error	Percent	Percent Margin of Erro		
Spouse	51	±27	12.9%	±6.6		
Unmarried partner	22	±14	5.6%	±3.4		
Child	86	±47	21.7%	±8.8		
Other relatives	40	±33	10.1%	±6.5		
Other nonrelatives	15	±18	3.8%	±4.5		
MARITAL STATUS						
Males 15 years and over	121	±34	121	(X)		
Never married	35	±23	28.9%	±15.9		
Now married, except separated	47	±24	38.8%	±17.8		
Separated	2	±3	1.7%	±2.5		
Widowed	13	±12	10.7%	±9.4		
Divorced	24	±15	19.8%	±13.2		
Females 15 years and over	161	±65	161	(X)		
Never married	29	±25	18.0%	±15.1		
Now married, except separated	53	±26	32.9%	±19.2		
Separated	1	±4	0.6%	±2.3		
Widowed	42	±49	26.1%	±22.9		
Divorced	36	±24	22.4%	±14.2		
FERTILITY						
Number of women 15 to 50 years						
old who had a birth in the past 12						
months	11	±11	11	(X)		
Unmarried women (widowed,						
divorced, and never married)	11	±11	100.0%	±96.0		
Per 1,000 unmarried women	229	±225	(X)	(X)		

	Riverside town, Washington				
Label	Estimate	Margin of Error	Percent	Percent Margin of Error	
Per 1,000 women 15 to 50 years					
old	133	±134	(X)	(X)	
Per 1,000 women 15 to 19 years					
old	0	±1,000	(X)	(X)	
Per 1,000 women 20 to 34 years					
old	379	±346	(X)	(X)	
Per 1,000 women 35 to 50 years					
old	0	±442	(X)	(X)	
GRANDPARENTS					
Number of grandparents living					
with own grandchildren under 18					
years	9	±11	9	(X)	
Grandparents responsible for					
grandchildren	6	±10	66.7%	±51.1	
Years responsible for					
grandchildren					
Less than 1 year	0	±13	0.0%	±100.0	
1 or 2 years	0	±13	0.0%	±100.0	
3 or 4 years	0	±13	0.0%	±100.0	
5 or more years	6	±10	66.7%	±51.1	
Number of grandparents					
responsible for own grandchildren					
under 18 years	6	±10	6	(X)	
Who are female	6	±10	100.0%	±100.0	
Who are married	0	±13	0.0%	±100.0	
SCHOOL ENROLLMENT					
Population 3 years and over					
enrolled in school	108	±61	108	(X)	
Nursery school, preschool	5	±6	4.6%	±5.5	
Kindergarten	18	±23	16.7%	±18.0	

	Riverside town, Washington				
Label	Estimate	Margin of Error	Percent	Percent Margin of Error	
Elementary school (grades 1-8)	68	±41	63.0%	±16.4	
High school (grades 9-12)	1	±4	0.9%	±3.9	
College or graduate school	16	±15	14.8%	±10.4	
EDUCATIONAL ATTAINMENT					
Population 25 years and over	267	±72	267	(X)	
Less than 9th grade	11	±10	4.1%	±3.5	
9th to 12th grade, no diploma	21	±16	7.9%	±5.4	
High school graduate (includes					
equivalency)	70	±22	26.2%	±9.8	
Some college, no degree	112	±59	41.9%	±13.4	
Associate's degree	26	±14	9.7%	±5.3	
Bachelor's degree	5	±6	1.9%	±2.5	
Graduate or professional degree	22	±16	8.2%	±6.1	
High school graduate or higher	235	±66	88.0%	±7.5	
Bachelor's degree or higher	27	±16	10.1%	±6.3	
VETERAN STATUS					
Civilian population 18 years and					
over	280	±77	280	(X)	
Civilian veterans	21	±14	7.5%	±5.0	
DISABILITY STATUS OF THE CIVILIAN NONINSTITUTIONALIZED POPULATION					
Total Civilian Noninstitutionalized Population	396	±120	396	(X)	
With a disability	93	±76	23.5%	±15.4	

	Riverside town, Washington					
Label	Estimate	Margin of Error	Percent	Percent Margin of Error		
Under 18 years	116	±58	116	(X)		
With a disability	18	±23	15.5%	±16.4		
18 to 64 years	234	±73	234	(X)		
With a disability	48	±54	20.5%	±19.0		
65 years and over	46	±20	46	(X)		
With a disability	27	±15	58.7%	±25.8		
RESIDENCE 1 YEAR AGO						
Population 1 year and over	385	±115	385	(X)		
Same house	335	±110	87.0%	±8.6		
Different house (in the U.S. or						
abroad)	50	±34	13.0%	±8.6		
Different house in the U.S.	50	±34	13.0%	±8.6		
Same county	15	±11	3.9%	±3.1		
Different county	35	±35	9.1%	±8.7		
Same state	33	±35	8.6%	±8.6		
Different state	2	±3	0.5%	±0.8		
Abroad	0	±13	0.0%	±9.3		
PLACE OF BIRTH						
Total population	396	±120	396	(X)		
Native	388	±120	98.0%	±1.8		
Born in United States	388	±120	98.0%	±1.8		
State of residence	305	±106	77.0%	±8.2		
Different state	83	±35	21.0%	±7.7		
Born in Puerto Rico, U.S. Island						
areas, or born abroad to						
American parent(s)	0	±13	0.0%	±9.0		
Foreign born	8	±7	2.0%	±1.8		
U.S. CITIZENSHIP STATUS						
Foreign-born population	8	±7	8	(X)		
Naturalized U.S. citizen	3	±4	37.5%	±47.4		

	Riverside town, Washington				
Label	Estimate	Margin of Error	Percent	Percent Margin of Error	
Not a U.S. citizen	5	±5	62.5%	±47.4	
YEAR OF ENTRY					
Population born outside the					
United States	8	±7	8	(X)	
Native	0	±13	0	(X)	
Entered 2010 or later	0	±13	-	**	
Entered before 2010	0	±13	-	**	
Foreign born	8	±7	8	(X)	
Entered 2010 or later	0	±13	0.0%	±100.0	
Entered before 2010	8	±7	100.0%	±100.0	
WORLD REGION OF BIRTH OF					
FOREIGN BORN					
Foreign-born population, excluding population born at sea	8	±7	8	(X)	
Europe	6	±6	75.0%	±35.5	
Asia	0	±13	0.0%	±100.0	
Africa	0	±13	0.0%	±100.0	
Oceania	0	±13	0.0%	±100.0	
Latin America	2	±3	25.0%	±35.5	
Northern America	0	±13	0.0%	±100.0	
LANGUAGE SPOKEN AT HOME					
Population 5 years and over	375	±115	375	(X)	
English only	368	±113	98.1%	±2.7	
Language other than English	7	±11	1.9%	±2.7	
Speak English less than "very					
well"	2	±3	0.5%	±0.8	
Spanish	7	±11	1.9%	±2.7	
Speak English less than "very					
well"	2	±3	0.5%	±0.8	

	Riverside town, Washington				
Label	Estimate	Margin of Error	Percent	Percent Margin of Error	
Other Inde Frances lenguages	0	112	0.0%	±9.5	
Other Indo-European languages  Speak English less than "very	0	±13	0.0%	±9.5	
well"		112	0.00/	10.5	
Asian and Pacific Islander	0	±13	0.0%	±9.5	
		142	0.00/	10.5	
languages	0	±13	0.0%	±9.5	
Speak English less than "very			0.00/		
well"	0	±13	0.0%	±9.5	
Other languages	0	±13	0.0%	±9.5	
Speak English less than "very					
well"	0	±13	0.0%	±9.5	
ANCESTRY					
Total population	396	±120	396	(X)	
American	67	±48	16.9%	±11.2	
Arab	0	±13	0.0%	±9.0	
Czech	0	±13	0.0%	±9.0	
Danish	0	±13	0.0%	±9.0	
Dutch	21	±31	5.3%	±7.6	
English	9	±11	2.3%	±2.8	
French (except Basque)	8	±10	2.0%	±2.7	
French Canadian	0	±13	0.0%	±9.0	
German	77	±48	19.4%	±10.7	
Greek	0	±13	0.0%	±9.0	
Hungarian	0	±13	0.0%	±9.0	
Irish	33	±34	8.3%	±8.1	
Italian	2	±3	0.5%	±0.8	
Lithuanian	0	±13	0.0%	±9.0	
Norwegian	6	±7	1.5%	±1.9	
Polish	2	±4	0.5%	±1.0	
Portuguese	6	±10	1.5%	±2.7	

Table: ACSDP5Y2020.DP02

Label	Riverside town,	n, Washington			
	Estimate	Margin of Error	Percent	Percent Margin of Error	
Russian	0	±13	0.0%	±9.0	
Scotch-Irish	4	±6	1.0%	±1.6	
Scottish	2	±5	0.5%	±1.2	
Slovak	0	±13	0.0%	±9.0	
Subsaharan African	0	±13	0.0%	±9.0	
Swedish	8	±9	2.0%	±2.3	
Swiss	0	±13	0.0%	±9.0	
Ukrainian	0	±13	0.0%	±9.0	
Welsh	5	±7	1.3%	±2.0	
West Indian (excluding Hispanic					
origin groups)	0	±13	0.0%	±9.0	
COMPUTERS AND INTERNET USE					
Total households	182	±59	182	(X)	
With a computer	175	±60	96.2%	±4.6	
With a broadband Internet					
subscription	129	±34	70.9%	±19.2	

	Riverside town, \	<b>W</b> ashington				
Label	Estimate	Margin of Error	Percent	Percent Margin of Error		
EMPLOYMENT STATUS						
Population 16 years and over	280	±77	280	(X)		
In labor force	179	±49	63.9%	±14.8		
Civilian labor force	179	±49	63.9%	±14.8		
Employed	162	±46	57.9%	±13.2		
Unemployed	17	±12	6.1%	±4.5		
Armed Forces	0	±13	0.0%	±12.5		
Not in labor force	101	±57	36.1%	±14.8		
Civilian labor force	179	±49	179	(X)		
Unemployment Rate	(X)	(X)	9.5%	±6.4		
Females 16 years and over	159	±65	159	(X)		
In labor force	82	±29	51.6%	±19.9		
Civilian labor force	82	±29	51.6%	±19.9		
Employed	77	±30	48.4%	±19.9		
Own children of the householder						
under 6 years	18	±14	18	(X)		
All parents in family in labor						
force	14	±14	77.8%	±35.9		
Own children of the householder 6						
to 17 years	59	±40	59	(X)		
All parents in family in labor						
force	44	±35	74.6%	±33.6		
COMMUTING TO WORK						
Workers 16 years and over	162	±46	162	(X)		
Car, truck, or van drove alone	116	±41	71.6%	±14.0		
Car, truck, or van carpooled	33	±23	20.4%	±12.9		
Public transportation (excluding						
taxicab)	0	±13	0.0%	±20.5		
Walked	2	±3	1.2%	±2.1		

	Riverside town, \	Washington				
Label	Estimate	Margin of Error	Percent	Percent Margin of Error		
Other means	0	±13	0.0%	±20.5		
Worked from home	11	±12	6.8%	±7.7		
Mean travel time to work						
(minutes)	20.0	±2.9	(X)	(X)		
OCCUPATION						
Civilian employed population 16						
years and over	162	±46	162	(X)		
Management, business, science,						
and arts occupations	33	±20	20.4%	±12.8		
Service occupations	45	±25	27.8%	±12.3		
Sales and office occupations	32	±19	19.8%	±10.5		
Natural resources, construction, and maintenance occupations	40	±25	24.7%	±12.2		
Production, transportation, and						
material moving occupations	12	±11	7.4%	±6.8		
INDUSTRY						
Civilian employed population 16						
years and over	162	±46	162	(X)		
Agriculture, forestry, fishing and						
hunting, and mining	32	±24	19.8%	±12.5		
Construction	5	±6	3.1%	±3.9		
Manufacturing	5	±6	3.1%	±4.0		
Wholesale trade	0	±13	0.0%	±20.5		
Retail trade	32	±16	19.8%	±9.3		
Transportation and warehousing,						
and utilities	2	±3	1.2%	±1.6		
Information	0	±13	0.0%	±20.5		

Riverside town, Washington				
Label	Estimate	Margin of Error	Percent	Percent Margin of Error
Finance and insurance, and real				
estate and rental and leasing	0	±13	0.0%	±20.5
Professional, scientific, and management, and administrative				
and waste management services	5	±8	3.1%	±5.1
Educational services, and health				
care and social assistance	37	±22	22.8%	±12.1
Arts, entertainment, and recreation, and accommodation				
and food services	4	±9	2.5%	±5.0
Other services, except public				
administration	2	±3	1.2%	±2.1
Public administration	38	±26	23.5%	±15.0
CLASS OF WORKER				
Civilian employed population 16				6.0
years and over	162	±46	162	(X)
Private wage and salary workers	100	±39	61.7%	±15.8
Government workers	57	±28	35.2%	±15.0
Self-employed in own not				
incorporated business workers	5	±8	3.1%	±5.1
Unpaid family workers	0	±13	0.0%	±20.5
INCOME AND BENEFITS (IN 2020				
INFLATION-ADJUSTED DOLLARS)				(6.0)
Total households	182	±59	182	(X)

	Riverside town,	Washington				
Label	Estimate	Margin of Error	Percent	Percent Margin of Error		
Less than \$10,000	18	±13	9.9%	±8.3		
\$10,000 to \$14,999	2	±3	1.1%	±1.6		
\$15,000 to \$24,999	29	±18	15.9%	±9.9		
\$25,000 to \$34,999	47	±50	25.8%	±21.0		
\$35,000 to \$49,999	29	±20	15.9%	±9.7		
\$50,000 to \$74,999	33	±20	18.1%	±11.5		
\$75,000 to \$99,999	8	±9	4.4%	±5.0		
\$100,000 to \$149,999	6	±10	3.3%	±5.5		
\$150,000 to \$199,999	7	±11	3.8%	±6.2		
\$200,000 or more	3	±5	1.6%	±2.9		
Median household income						
(dollars)	33,438	±20,007	(X)	(X)		
Mean household income	-	·				
(dollars)	48,331	±13,261	(X)	(X)		
With earnings	122	±32	67.0%	±20.6		
Mean earnings (dollars)	47,657	±12,866	(X)	(X)		
With Social Security	78	±54	42.9%	±19.0		
Mean Social Security income						
(dollars)	9,497	±4,426	(X)	(X)		
With retirement income	56	±51	30.8%	±20.7		
Mean retirement income						
(dollars)	8,916	±3,121	(X)	(X)		
With Supplemental Security		· ·				
Income	3	±5	1.6%	±2.7		
Mean Supplemental Security						
Income (dollars)	5,800	±5,336	(X)	(X)		
With cash public assistance						
income	10	±13	5.5%	±6.8		
Mean cash public assistance						
income (dollars)	4,300	±353	(X)	(X)		

	Riverside town, \	Washington				
Label	Estimate	Margin of Error	Percent	Percent Margin of Error		
With Food Stamp/SNAP benefits						
in the past 12 months	21	±13	11.5%	±7.7		
Families	125	±61	125	(X)		
Less than \$10,000	12	±13	9.6%	±10.3		
\$10,000 to \$14,999	1	±2	0.8%	±1.8		
\$15,000 to \$24,999	13	±14	10.4%	±10.3		
\$25,000 to \$34,999	51	±50	40.8%	±24.9		
\$35,000 to \$49,999	15	±15	12.0%	±12.2		
\$50,000 to \$74,999	13	±10	10.4%	±8.2		
\$75,000 to \$99,999	6	±9	4.8%	±7.0		
\$100,000 to \$149,999	6	±10	4.8%	±7.9		
\$150,000 to \$199,999	7	±11	5.6%	±8.9		
\$200,000 or more	1	±3	0.8%	±2.2		
Median family income (dollars)	29,964	±11,835	(X)	(X)		
Mean family income (dollars)	48,055	±17,687	(X)	(X)		
Per capita income (dollars)	21,550	±5,059	(X)	(X)		
Nonfamily households	57	±24	57	(X)		
Median nonfamily income						
(dollars)	_	**	(X)	(X)		
(donaio)			(**)	(**)		
Mean nonfamily income (dollars)	42,554	±20,147	(X)	(X)		
Median earnings for workers	,	,				
(dollars)	26,429	±2,845	(X)	(X)		
(	-,		V-7	V		
Median earnings for male full-						
time, year-round workers (dollars)	29.875	±18,440	(X)	(X)		

	Riverside town,	Washington		
Label	Estimate	Margin of Error	Percent	Percent Margin of Error
Marillan and the Control of H				
Median earnings for female full-		**	()()	00
time, year-round workers (dollars)	-		(X)	(X)
HEALTH INSURANCE COVERAGE				
Civilian noninstitutionalized				6.0
population	396	±120	396	(X)
With health insurance coverage	356	±112	89.9%	±7.0
With private health insurance	134	±45	33.8%	±12.4
With public coverage	270	±112	68.2%	±12.5
No health insurance coverage	40	±30	10.1%	±7.0
Civilian noninstitutionalized				
population under 19 years	117	±58	117	(X)
No health insurance coverage	1	±2	0.9%	±1.6
Civilian noninstitutionalized				
population 19 to 64 years	233	±73	233	(X)
In labor force:	167	±45	167	(X)
Employed:	151	±42	151	(X)
With health insurance				
coverage	130	±37	86.1%	±11.3
With private health				
insurance	91	±34	60.3%	±14.7
With public coverage	57	±26	37.7%	±15.3
No health insurance coverage	21	±19	13.9%	±11.3
Unemployed:	16	±12	16	(X)

	Riverside town,	Washington				
Label	Estimate	Margin of Error	Percent	Percent Margin of Error		
With health insurance						
coverage	4	±6	25.0%	±36.1		
With private health						
insurance	0	±13	0.0%	±79.6		
With public coverage	4	±6	25.0%	±36.1		
No health insurance coverage	12	±11	75.0%	±36.1		
Not in labor force:	66	±54	66	(X)		
With health insurance coverage	60	±54	90.9%	±16.4		
With private health insurance	6	±6	9.1%	±11.8		
With public coverage	54	±53	81.8%	±21.4		
No health insurance coverage	6	±9	9.1%	±16.4		
PERCENTAGE OF FAMILIES AND						
PEOPLE WHOSE INCOME IN THE PAST 12 MONTHS IS BELOW THE						
POVERTY LEVEL						
All families	(X)	(X)	14.4%	±9.9		
With related children of the						
householder under 18 years	(X)	(X)	12.8%	±11.3		
With related children of the householder under 5 years only	(X)	(X)	12.5%	±35.2		
Married couple families	(X)	(X)	21.3%	±18.6		
With related children of the	- ,					
householder under 18 years	(X)	(X)	19.2%	±27.3		

	Riverside town,	Washington				
Label	Estimate	Margin of Error	Percent	Percent Margin of Error		
With related children of the						
householder under 5 years						
only	(X)	(X)	-	**		
Families with female						
householder, no spouse present	(X)	(X)	11.1%	±19.2		
With related children of the						
householder under 18 years	(X)	(X)	10.3%	±21.5		
With related children of the						
householder under 5 years						
only	(X)	(X)	-	**		
All people	(X)	(X)	17.5%	±10.1		
Under 18 years	(X)	(X)	20.6%	±19.7		
Related children of the						
householder under 18 years	(X)	(X)	19.8%	±19.6		
Related children of the						
householder under 5 years	(X)	(X)	30.0%	±53.6		
Related children of the						
householder 5 to 17 years	(X)	(X)	18.7%	±21.6		
18 years and over	(X)	(X)	16.4%	±8.1		
18 to 64 years	(X)	(X)	16.2%	±8.8		
65 years and over	(X)	(X)	17.4%	±22.3		
People in families	(X)	(X)	17.2%	±12.4		
Unrelated individuals 15 years						
and over	(X)	(X)	18.8%	±12.8		

	Riverside town, \	Washington				
Label	Estimate	Margin of Error	Percent	Percent Margin of Error		
SEX AND AGE						
Total population	396	±120	396	(X)		
Male	195	±61	49.2%	±9.7		
Female	201	±81	50.8%	±9.7		
Sex ratio (males per 100 females)	97.0	±36.3	(X)	(X)		
Under 5 years	21	±13	5.3%	±3.1		
5 to 9 years	43	±29	10.9%	±5.3		
10 to 14 years	50	±34	12.6%	±6.8		
15 to 19 years	3	±7	0.8%	±1.9		
20 to 24 years	12	±16	3.0%	±3.9		
25 to 34 years	45	±20	11.4%	±5.7		
35 to 44 years	54	±30	13.6%	±6.9		
45 to 54 years	62	±34	15.7%	±8.1		
55 to 59 years	40	±49	10.1%	±10.7		
60 to 64 years	20	±12	5.1%	±3.3		
65 to 74 years	15	±13	3.8%	±3.2		
75 to 84 years	19	±16	4.8%	±4.3		
85 years and over	12	±11	3.0%	±2.9		
Median age (years)	39.6	±6.1	(X)	(X)		
Under 18 years	116	±58	29.3%	±8.3		
16 years and over	280	±77	70.7%	±8.3		
18 years and over	280	±77	70.7%	±8.3		
21 years and over	279	±77	70.5%	±8.3		
62 years and over	58	±22	14.6%	±6.1		
65 years and over	46	±20	11.6%	±5.6		
18 years and over	280	±77	280	(X)		
Male	121	±34	43.2%	±11.2		
Female	159	±65	56.8%	±11.2		

	Riverside town,	Washington				
Label	Estimate	Margin of Error	Percent	Percent Margin of Error		
Sex ratio (males per 100						
females)	76.1	±34.6	(X)	(X)		
65 years and over	46	±20	46	(X)		
Male	18	±12	39.1%	±21.4		
Female	28	±16	60.9%	±21.4		
Sex ratio (males per 100						
females)	64.3	±56.2	(X)	(X)		
RACE						
Total population	396	±120	396	(X)		
One race	360	±111	90.9%	±7.6		
Two or more races	36	±33	9.1%	±7.6		
One race	360	±111	90.9%	±7.6		
White	318	±106	80.3%	±9.6		
Black or African American	0	±13	0.0%	±9.0		
American Indian and Alaska						
Native	40	±28	10.1%	±7.0		
Cherokee tribal grouping	0	±13	0.0%	±9.0		
Chippewa tribal grouping	0	±13	0.0%	±9.0		
Navajo tribal grouping	0	±13	0.0%	±9.0		
Sioux tribal grouping	0	±13	0.0%	±9.0		
Asian	0	±13	0.0%	±9.0		
Asian Indian	0	±13	0.0%	±9.0		
Chinese	0	±13	0.0%	±9.0		
Filipino	0	±13	0.0%	±9.0		
Japanese	0	±13	0.0%	±9.0		
Korean	0	±13	0.0%	±9.0		
Vietnamese	0	±13	0.0%	±9.0		
Other Asian	0	±13	0.0%	±9.0		
Native Hawaiian and Other						
Pacific Islander	0	±13	0.0%	±9.0		

	Riverside town,	Washington				
Label	Estimate	Margin of Error	Percent	Percent Margin of Error		
Native Hawaiian	0	±13	0.0%	±9.0		
Chamorro	0	±13	0.0%	±9.0		
Samoan	0	±13	0.0%	±9.0		
Other Pacific Islander	0	±13	0.0%	±9.0		
Some other race	2	±3	0.5%	±0.8		
Two or more races	36	±33	9.1%	±7.6		
White and Black or African						
American	4	±7	1.0%	±1.7		
White and American Indian and						
Alaska Native	32	±31	8.1%	±7.3		
White and Asian	0	±13	0.0%	±9.0		
Black or African American and						
American Indian and Alaska						
Native	0	±13	0.0%	±9.0		
Race alone or in combination with						
one or more other races						
Total population	396	±120	396	(X)		
White	354	±116	89.4%	±6.9		
Black or African American	4	±7	1.0%	±1.7		
American Indian and Alaska						
Native	72	±42	18.2%	±9.8		
Asian	0	±13	0.0%	±9.0		
Native Hawaiian and Other						
Pacific Islander	0	±13	0.0%	±9.0		
Some other race	2	±3	0.5%	±0.8		
HISPANIC OR LATINO AND RACE						
Total population	396	±120	396	(X)		
Hispanic or Latino (of any race)	33	±40	8.3%	±9.4		
Mexican	33	±40	8.3%	±9.4		

	Riverside town, Washington					
Label	Estimate	Margin of Error	Percent	Percent Margin of Error		
Puerto Rican	0	±13	0.0%	±9.0		
Cuban	0	±13	0.0%	±9.0		
Other Hispanic or Latino	0	±13	0.0%	±9.0		
Not Hispanic or Latino	363	±110	91.7%	±9.4		
White alone	290	±98	73.2%	±11.5		
Black or African American alone	0	±13	0.0%	±9.0		
American Indian and Alaska						
Native alone	35	±24	8.8%	±6.4		
Asian alone	0	±13	0.0%	±9.0		
Native Hawaiian and Other						
Pacific Islander alone	0	±13	0.0%	±9.0		
Some other race alone	2	±3	0.5%	±0.8		
Two or more races	36	±33	9.1%	±7.6		
Two races including Some						
other race	0	±13	0.0%	±9.0		
Two races excluding Some						
other race, and Three or						
more races	36	±33	9.1%	±7.6		
Total housing units	187	±60	(X)	(X)		
CITIZEN, VOTING AGE POPULATION						
Citizen, 18 and over population	275	±77	275	(X)		
Male	118	±33	42.9%	±11.3		
Female	157	±65	57.1%	±11.3		



US AGE & SEX

		_				
		Percent		Percent	,	Percent
	Total /	/  -	Male /	Male /	Female /	Female /
Label	Estimate	Estimate			Estimate	Estimate
Total population	328239523	(X)	161588973	(X)	166650550	(X)
AGE						
Under 5 years	19404835					1
5 to 9 years	19690437	6	10033518	6.2	9656919	5.8
10 to 14 years	21423479	6.5	10987313	6.8	10436166	6.3
15 to 19 years	21353524	6.5	10903653	6.7	10449871	6.3
20 to 24 years	21468680	6.5	11014460	6.8	10454220	6.3
25 to 29 years	23233299	7.1	11817829	7.3	11415470	6.8
30 to 34 years	22345176	6.8	11281470	7	11063706	6.6
35 to 39 years	21728259	6.6	10892040	6.7	10836219	6.5
40 to 44 years	20186586	6.1	10028675	6.2	10157911	6.1
45 to 49 years	20398226	6.2	10079567	6.2	10318659	6.2
50 to 54 years	20464881	6.2	10075795	6.2	10389086	6.2
55 to 59 years	21484060	6.5	10440265	6.5	11043795	6.6
60 to 64 years	20984053	6.4	10051170	6.2	10932883	6.6
65 to 69 years	17427013	5.3	8191111	5.1	9235902	5.5
70 to 74 years	14148548	4.3	6529918	4	7618630	4.6
75 to 79 years	9759764	3	4367764	2.7	5392000	3.2
80 to 84 years	6380474	1.9	2671396	1.7	3709078	2.2
85 years and over	6358229	1.9	2284092	1.4	4074137	2.4
SELECTED AGE CATEGORIES						
5 to 14 years	41113916	12.5	21020831	13	20093085	12.1
15 to 17 years	12449034	3.8	6361859	3.9	6087175	3.7
Under 18 years	72967785	22.2	37321627	23.1	35646158	21.4
18 to 24 years	30373170	9.3	15556254	9.6	14816916	8.9
15 to 44 years	130315524	39.7	65938127	40.8	64377397	38.6
16 years and over	263534161	80.3	128496159	79.5	135038002	81
18 years and over	255271738	77.8	124267346	76.9	131004392	78.6
21 years and over	241886206	73.7	117407269	72.7	124478937	74.7
60 years and over	75058081	22.9	34095451	21.1	40962630	24.6
62 years and over	66395660	20.2	29927016	18.5	36468644	21.9
65 years and over	54074028	16.5	24044281	14.9	30029747	
75 years and over	22498467	6.9	9323252	5.8	13175215	i e



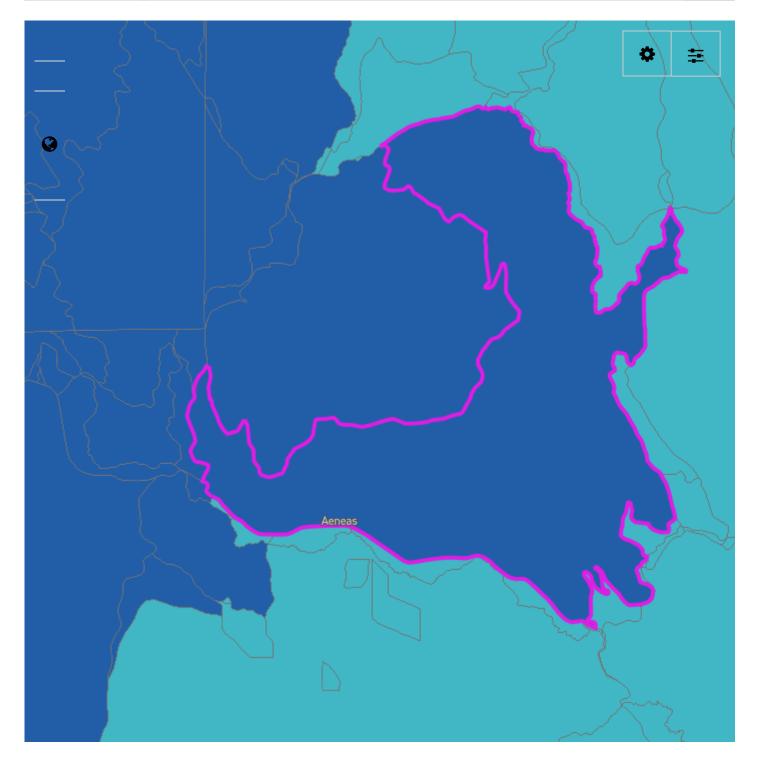
US AGE & SEX

		Percent		Percent		Percent
	Total /	/	Male /	Male /	Female /	Female /
Label	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate
SUMMARY INDICATORS						
Median age (years)	38.5	(X)	37.2	(X)	39.8	(X)
Sex ratio (males per 100 females	97	(X)	(X)	(X)	(X)	(X)
Age dependency ratio	63.1	(X)	(X)	(X)	(X)	(X)
Old-age dependency ratio	26.9	(X)	(X)	(X)	(X)	(X)
Child dependency ratio	36.3	(X)	(X)	(X)	(X)	(X)
PERCENT ALLOCATED						
Sex	(X)	0.1	(X)	(X)	(X)	(X)
Age	(X)	1.7	(X)	(X)	(X)	(X)

B. FCC Fixed Broadband Deployment Service Provider Reporting

Aeneas, Washington, United States Address ▼

Q







## **Number of Fixed Residential Broadband Providers**

0	1	2	3	4	6	12 or more

# Broadband

## \*

## Technology

ADSL, Cable, Fiber, Fixed Wireless, Satellite, Other

### Speed

≥ 25/3 Mbps

### Date

June 2019 (latest public release)

Provider	Tech	<b>Down</b> ▼ (Mbps)	<b>Up</b> (Mbps)
■ NCI Datacom NCI	Fixed Wireless	100	20
■ ViaSat, Inc. Viasat Inc	Satellite	35	3
■ Hughes Network Systems, LLC HNS License Sub, LLC HughesNet	Satellite	25	3
■ King Street Wireless, LP King Street Wireless, L.P. King Street Wireless L.P.	Fixed Wireless	10	2
■ VSAT Systems, LLC Skycasters	Satellite	2	1.3

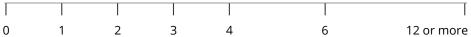
Address ▼ Brewster, Washington, United States Q







## **Number of Fixed Residential Broadband Providers**



## 0 1 2 3 4 6 12011110

## \*

### **Technology**

**Broadband** 

ADSL, Cable, Fiber, Fixed Wireless, Satellite, Other

### Speed

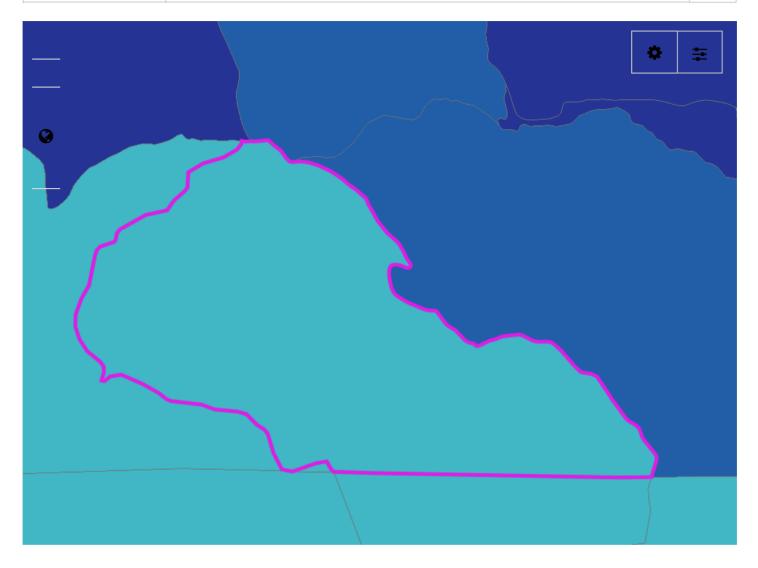
≥ 25/3 Mbps

## Date

June 2019 (latest public release)

Provider	Tech	Down (Mbps)	<b>Up</b> (Mbps)
■ NCI Datacom NCI	Fixed Wireless	100	20
■ ViaSat, Inc. Viasat Inc	Satellite	35	3
Frontier Communications Corporation	ADSL	25	2
Frontier Communications Corporation	ADSL	25	2
■ Hughes Network Systems, LLC HNS License Sub, LLC HughesNet	Satellite	25	3
Frontier Communications Corporation	ADSL	6	1
■ VSAT Systems, LLC Skycasters	Satellite	2	1.3

Coordinates ▼ Chillwist Q









0	1	2	3	4	6	12 or more

## **Broadband**



## Technology

ADSL, Cable, Fiber, Fixed Wireless, Satellite, Other

### Speed

≥ 25/3 Mbps

### Date

Dec. 2020 (latest public release)

Provider •	Tech	<b>Down</b> (Mbps)	<b>Up</b> (Mbps)
■ Hughes Network Systems, LLC HNS License Sub, LLC HughesNet	Satellite	25	3
Okanogan County PUD No. 1 OKPUD	Fixed Wireless	20	10
■ ViaSat, Inc. Viasat Inc	Satellite	35	3
NCI Datacom	Fixed Wireless	20	4
VSAT Systems, LLC	Satellite	2	1.3

Address ▼ Conconully, Washington, United States

Q







## **Number of Fixed Residential Broadband Providers**

0	1	2	3	4	6	12 or more

## Broadband

\*

## Technology

ADSL, Cable, Fiber, Fixed Wireless, Satellite, Other

## Speed

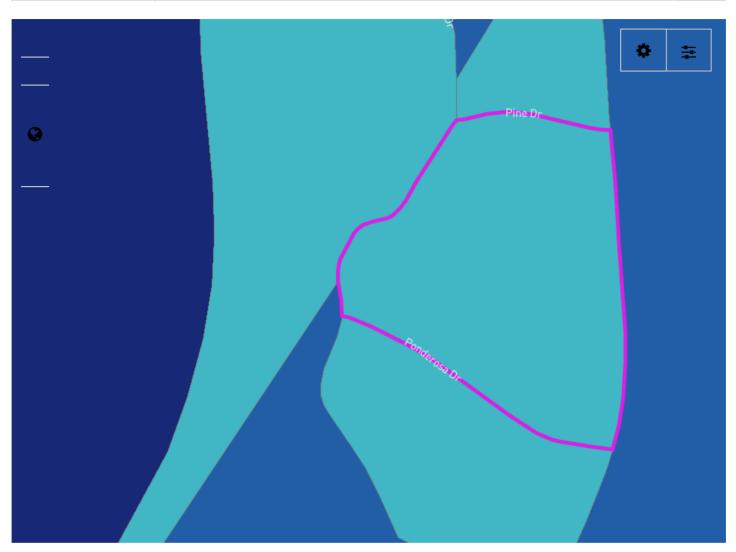
≥ 25/3 Mbps

### Date

June 2019 (latest public release)

Provider	Tech	<b>Down</b> ▼ (Mbps)	<b>Up</b> (Mbps)
■ NCI Datacom NCI	Fixed Wireless	100	20
■ ViaSat, Inc. Viasat Inc	Satellite	35	3
■ Hughes Network Systems, LLC HNS License Sub, LLC HughesNet	Satellite	25	3
Okanogan County PUD No. 1	Fixed Wireless	20	10
■VSAT Systems, LLC Skycasters	Satellite	2	1.3
■ CenturyLink, Inc. CenturyLink	ADSL	1.5	0.896





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**All Providers Reporting Service** 





0	1	2	3	4	6	12 or more



## Technology

ADSL, Cable, Fiber, Fixed Wireless, Satellite, Other

## Speed

≥ 25/3 Mbps

#### Date

Provider	Tech	<b>Down</b> ▼ (Mbps)	<b>Up</b> (Mbps)
■ ViaSat, Inc. Viasat Inc	Satellite	35	3
■ Hughes Network Systems, LLC HNS License Sub, LLC HughesNet	Satellite	25	3
Okanogan County PUD No. 1 OKPUD	Fixed Wireless	20	10
NCI Datacom	Fixed Wireless	20	4
VSAT Systems, LLC	Satellite	2	1.3
Lumen Technologies, Inc. CenturyLink, Inc. CenturyLink	ADSL	1.5	0.5

Coordinates ▼ East Omak Q



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**All Providers Reporting Service** 





0	1	2	3	4	6	12 or more

Technology

ADSL, Cable, Fiber, Fixed Wireless, Satellite, Other

## Speed

≥ 25/3 Mbps

## Date

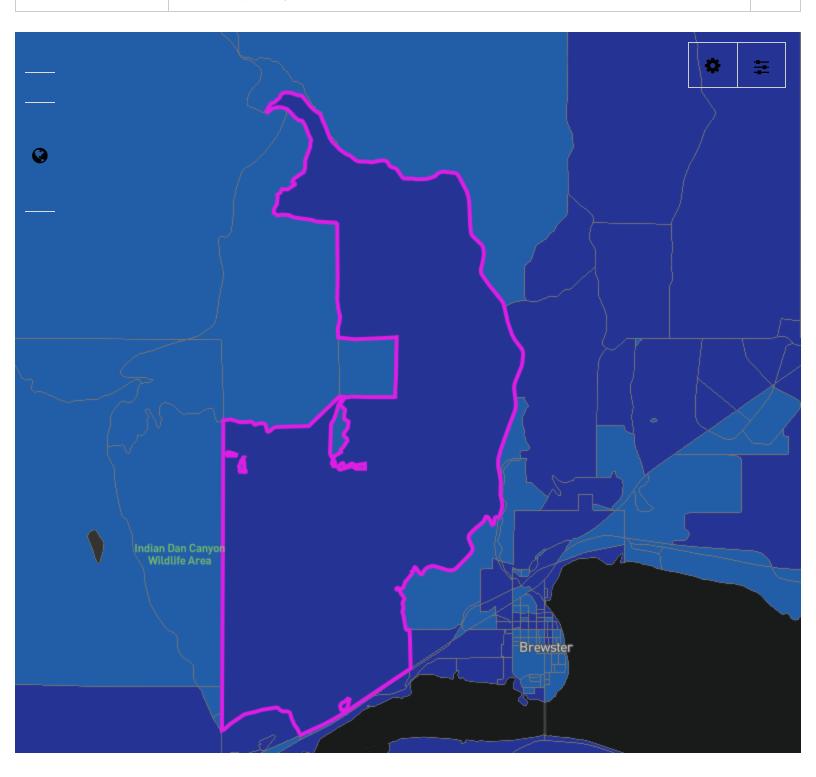
June 2019 (latest public release)

Provider 📤	Tech	<b>Down</b> (Mbps)	<b>Up</b> (Mbps)
■ CenturyLink, Inc. CenturyLink	ADSL	10	1
Charter Communications Charter Communications, Inc. Charter Communications Inc	Cable	120	10
■ Hughes Network Systems, LLC HNS License Sub, LLC HughesNet	Satellite	25	3
■ King Street Wireless, LP King Street Wireless, L.P. King Street Wireless L.P.	Fixed Wireless	10	2
■ NCI Datacom NCI	Fixed Wireless	100	20
■ ViaSat, Inc. Viasat Inc	Satellite	35	3
Skycasters	Satellite	2	1.3
Okanogan County PUD No. 1	Fixed Wireless	20	10

Coordinates ▼

Harmony Heights, WA

Q







0	1	2	3	4	6	12 or more

Technology

ADSL, Cable, Fiber, Fixed Wireless, Satellite, Other

Speed

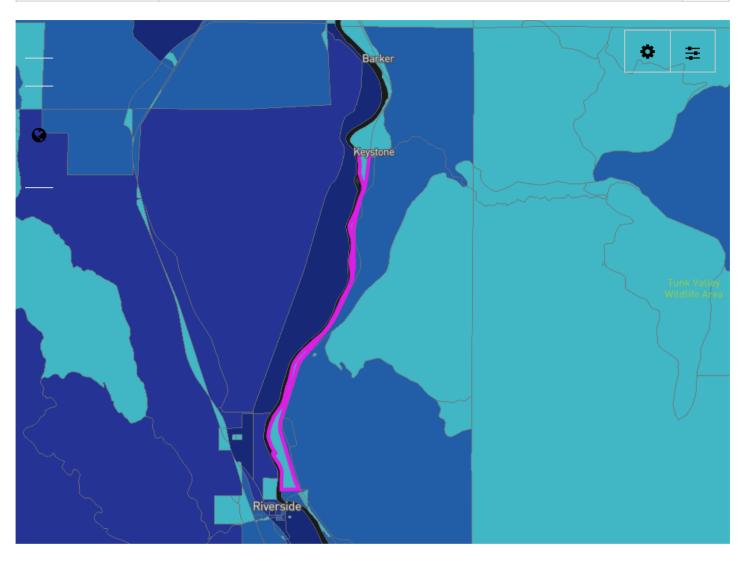
≥ 25/3 Mbps

Date

June 2019 (latest public release)

Provider	Tech	<b>Down ▼</b> (Mbps)	<b>Up</b> (Mbps)
Okanogan County PUD No. 1	Fiber	100	100
■ NCI Datacom NCI	Fixed Wireless	100	20
■ ViaSat, Inc. Viasat Inc	Satellite	35	3
Frontier Communications Corporation	ADSL	25	2
Frontier Communications Corporation	ADSL	25	2
■ Hughes Network Systems, LLC HNS License Sub, LLC HughesNet	Satellite	25	3
Okanogan County PUD No. 1	Fixed Wireless	20	10
Frontier Communications Corporation	ADSL	6	1
■ VSAT Systems, LLC Skycasters	Satellite	2	1.3

Coordinates ▼ Keystone Q







0	1	2	3	4	6	12 or more



## Technology

ADSL, Cable, Fiber, Fixed Wireless, Satellite, Other

## Speed

≥ 25/3 Mbps

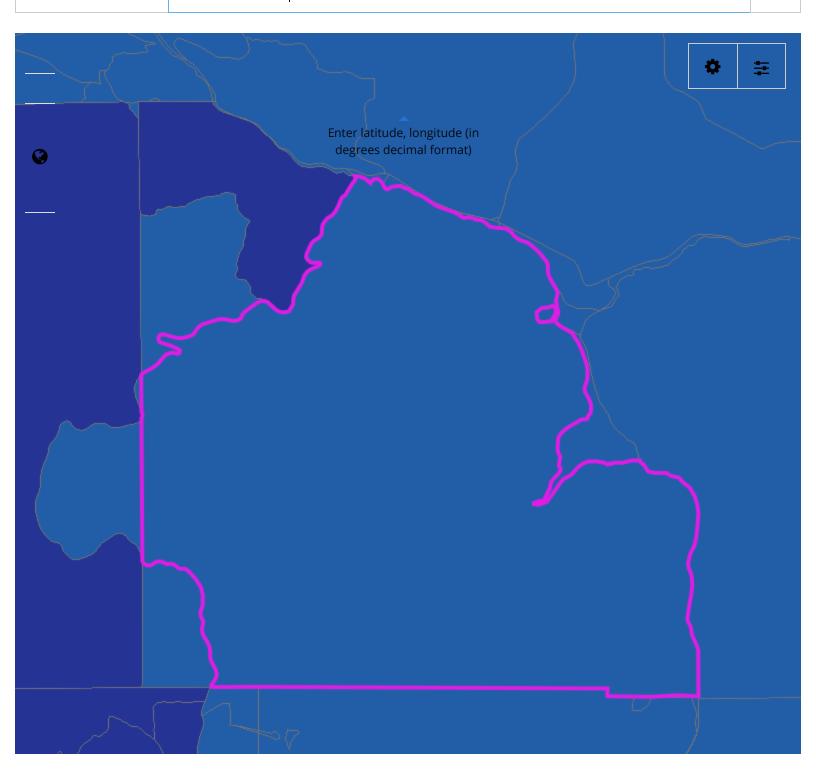
#### Date

Provider •	Tech	<b>Down</b> (Mbps)	<b>Up</b> (Mbps)
■ Hughes Network Systems, LLC HNS License Sub, LLC HughesNet	Satellite	25	3
Okanogan County PUD No. 1 OKPUD	Fixed Wireless	20	10
■ ViaSat, Inc. Viasat Inc	Satellite	35	3
NCI Datacom	Fixed Wireless	20	4
VSAT Systems, LLC	Satellite	2	1.3

Coordinates ▼

Knob Hill WA

Q



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**All Providers Reporting Service** 





0	1	2	3	4	6	12 or more

Technology

ADSL, Cable, Fiber, Fixed Wireless, Satellite, Other

Speed

≥ 25/3 Mbps

Date

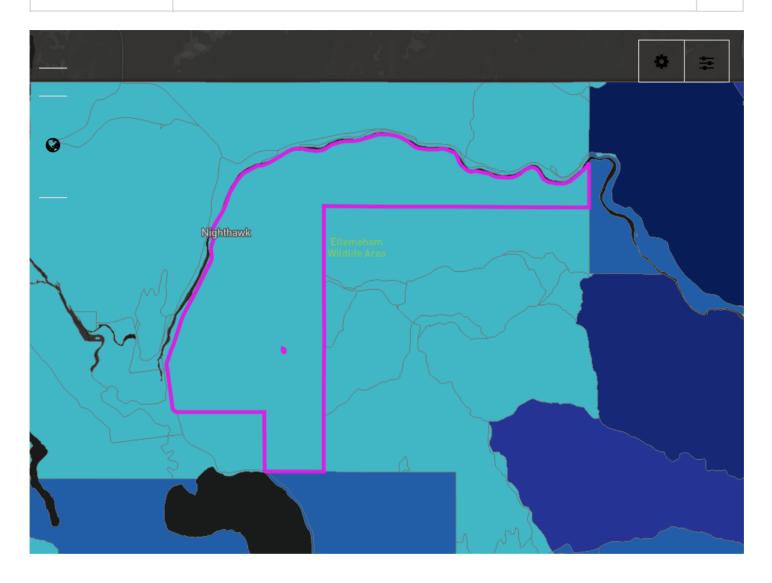
June 2019 (latest public release)

Provider	Tech	<b>Down</b> ▼ (Mbps)	<b>Up</b> (Mbps)
■ NCI Datacom NCI	Fixed Wireless	100	20
■ ViaSat, Inc. Viasat Inc	Satellite	35	3
■ Hughes Network Systems, LLC HNS License Sub, LLC HughesNet	Satellite	25	3
CenturyLink, Inc. CenturyLink	ADSL	10	1
■ VSAT Systems, LLC Skycasters	Satellite	2	1.3

Coordinates ▼ Lo

Loomis-Palmer North

Q



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0	1	2	3	4	6	12 or more

## Technology

ADSL, Cable, Fiber, Fixed Wireless, Satellite, Other

## Speed

≥ 25/3 Mbps

#### Date

Provider 📤	Tech	<b>Down</b> (Mbps)	<b>Up</b> (Mbps)
■ Hughes Network Systems, LLC HNS License Sub, LLC HughesNet	Satellite	25	3
■ ViaSat, Inc. Viasat Inc	Satellite	35	3
VSAT Systems, LLC	Satellite	2	1.3

Coordinates ▼ Loomis-Palmer South

Q



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0	1	2	3	4	6	12 or more



## Technology

ADSL, Cable, Fiber, Fixed Wireless, Satellite, Other

## Speed

≥ 25/3 Mbps

#### Date

Provider 📤	Tech	<b>Down</b> (Mbps)	<b>Up</b> (Mbps)
■ Hughes Network Systems, LLC HNS License Sub, LLC HughesNet	Satellite	25	3
Okanogan County PUD No. 1 OKPUD	Fixed Wireless	20	10
■ ViaSat, Inc. Viasat Inc	Satellite	35	3
VSAT Systems, LLC	Satellite	2	1.3

Address ▼ Malott, Washington, United States Q







## **Number of Fixed Residential Broadband Providers**

0	1	2	3	4	6	12 or more

# Broadband



# Technology

ADSL, Cable, Fiber, Fixed Wireless, Satellite, Other

## Speed

≥ 25/3 Mbps

## Date

June 2019 (latest public release)

Provider	Tech	<b>Down</b> ▼ (Mbps)	<b>Up</b> (Mbps)
Okanogan County PUD No. 1	Fiber	100	100
■ NCI Datacom NCI	Fixed Wireless	100	20
■ CenturyLink, Inc. CenturyLink	ADSL	60	5
■ ViaSat, Inc. Viasat Inc	Satellite	35	3
■ Hughes Network Systems, LLC HNS License Sub, LLC HughesNet	Satellite	25	3
Okanogan County PUD No. 1	Fixed Wireless	20	10
■ King Street Wireless, LP King Street Wireless, L.P. King Street Wireless L.P.	Fixed Wireless	10	2
■ VSAT Systems, LLC Skycasters	Satellite	2	1.3

Address ▼ NE Okanogan County

Q









0	1	2	3	4	6	12 or more



## Technology

ADSL, Cable, Fiber, Fixed Wireless, Satellite, Other

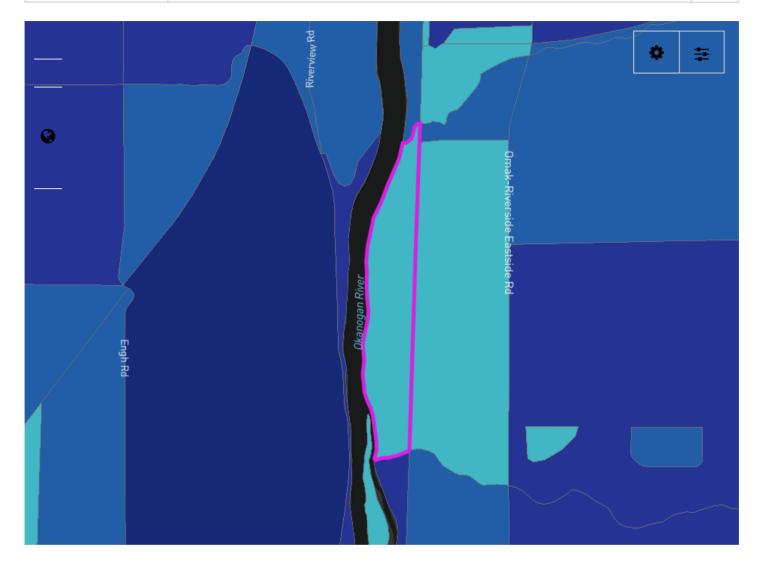
## Speed

≥ 25/3 Mbps

#### Date

Provider	Tech	<b>Down</b> ▼ (Mbps)	<b>Up</b> (Mbps)
■ ViaSat, Inc. Viasat Inc	Satellite	35	3
■ Hughes Network Systems, LLC HNS License Sub, LLC HughesNet	Satellite	25	3
NCI Datacom	Fixed Wireless	20	4
VSAT Systems, LLC	Satellite	2	1.3

Coordinates ▼ North Omak Q



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0	1	2	3	4	6	12 or more

## Technology

ADSL, Cable, Fiber, Fixed Wireless, Satellite, Other

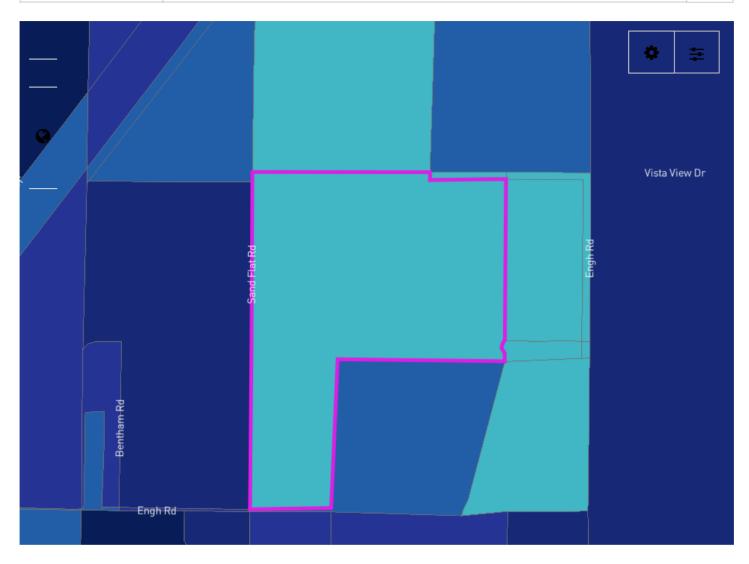
## Speed

≥ 25/3 Mbps

#### Date

Provider •	Tech	<b>Down</b> (Mbps)	<b>Up</b> (Mbps)
■ Hughes Network Systems, LLC HNS License Sub, LLC HughesNet	Satellite	25	3
■ ViaSat, Inc. Viasat Inc	Satellite	35	3
NCI Datacom	Fixed Wireless	20	4
VSAT Systems, LLC	Satellite	2	1.3

Coordinates ▼ Omak Flats Q







0	1	2	3	4	6	12 or more

## Technology

ADSL, Cable, Fiber, Fixed Wireless, Satellite, Other

## Speed

≥ 25/3 Mbps

#### Date

Provider	Tech	<b>Down</b> ▼ (Mbps)	<b>Up</b> (Mbps)
■ ViaSat, Inc. Viasat Inc	Satellite	35	3
■ Hughes Network Systems, LLC HNS License Sub, LLC HughesNet	Satellite	25	3
Okanogan County PUD No. 1 OKPUD	Fixed Wireless	20	10
NCI Datacom	Fixed Wireless	20	4
VSAT Systems, LLC	Satellite	2	1.3

Coordinates ▼ Orchard Grade Q



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0	1	2	3	4	6	12 or more

## Technology

ADSL, Cable, Fiber, Fixed Wireless, Satellite, Other

## Speed

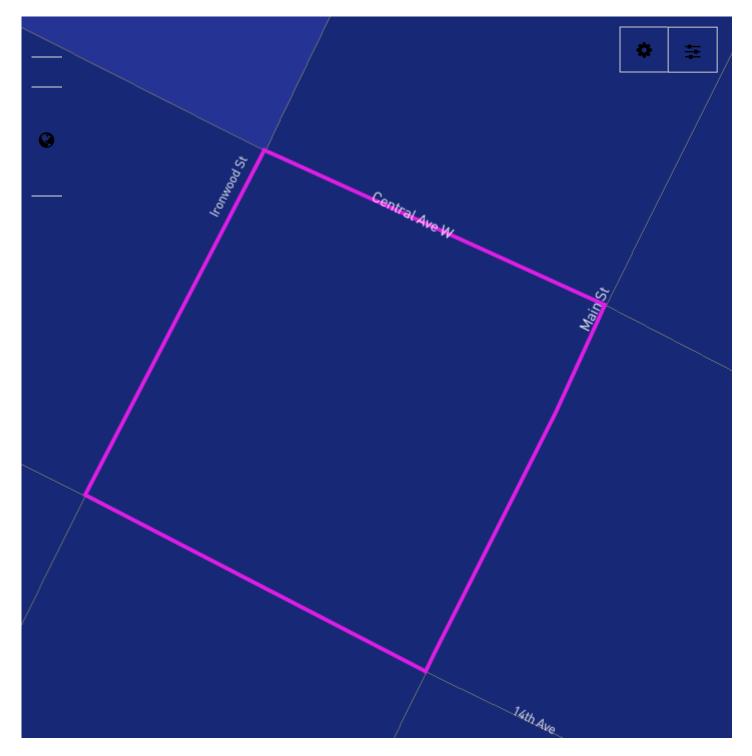
≥ 25/3 Mbps

#### Date

Provider •	Tech	<b>Down</b> (Mbps)	<b>Up</b> (Mbps)
■ Hughes Network Systems, LLC HNS License Sub, LLC HughesNet	Satellite	25	3
■ ViaSat, Inc. Viasat Inc	Satellite	35	3
NCI Datacom	Fixed Wireless	20	4
VSAT Systems, LLC	Satellite	2	1.3

Address ▼ Oroville, Washington, United States

Q







## **Number of Fixed Residential Broadband Providers**

0	1	2	3	4	6	12 or more

## **Broadband**



# Technology

ADSL, Cable, Fiber, Fixed Wireless, Satellite, Other

## Speed

≥ 25/3 Mbps

## Date

June 2019 (latest public release)

Provider	Tech	<b>Down ▼</b> (Mbps)	<b>Up</b> (Mbps)
■ Charter Communications Charter Communications, Inc. Charter Communications Inc	Cable	120	10
Okanogan County PUD No. 1	Fiber	100	100
■ NCI Datacom NCI	Fixed Wireless	100	20
■ ViaSat, Inc. Viasat Inc	Satellite	35	3
■ Hughes Network Systems, LLC HNS License Sub, LLC HughesNet	Satellite	25	3
■ CenturyLink, Inc. CenturyLink	ADSL	20	2
Okanogan County PUD No. 1	Fixed Wireless	20	10
■ VSAT Systems, LLC Skycasters	Satellite	2	1.3

Q Coordinates ▼ Palmer





0	1	2	3	4	6	12 or more

## Technology

ADSL, Cable, Fiber, Fixed Wireless, Satellite, Other

## Speed

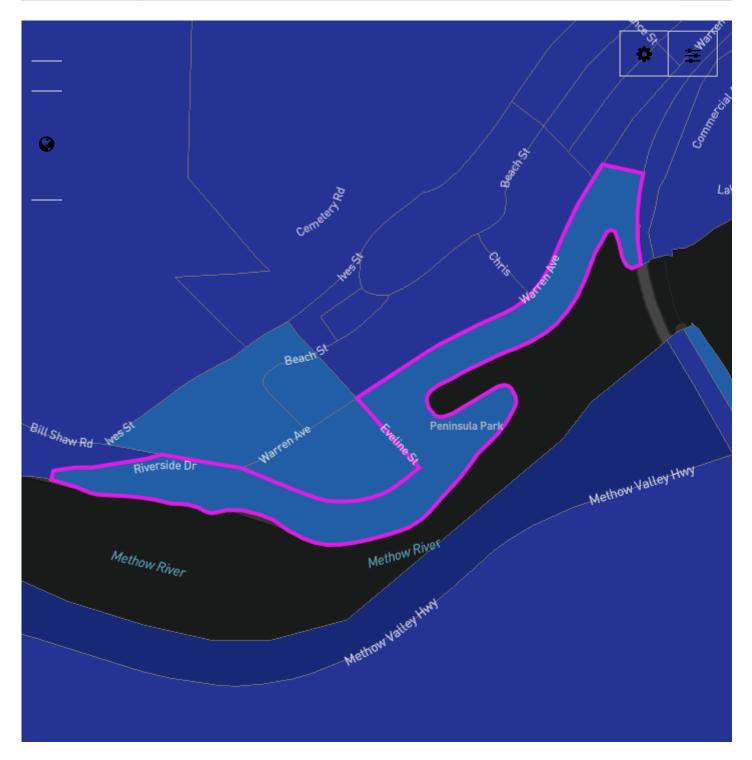
≥ 25/3 Mbps

#### Date

Provider	Tech	<b>Down</b> ▼ (Mbps)	<b>Up</b> (Mbps)
■ ViaSat, Inc. Viasat Inc	Satellite	35	3
■ Hughes Network Systems, LLC HNS License Sub, LLC HughesNet	Satellite	25	3
VSAT Systems, LLC	Satellite	2	1.3

Pateros, Washington, United States Address ▼

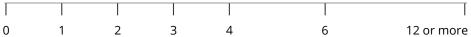
Q







# **Number of Fixed Residential Broadband Providers**



# 0 1 2 5 4 6 12 of more

# \*

#### **Technology**

**Broadband** 

ADSL, Cable, Fiber, Fixed Wireless, Satellite, Other

## Speed

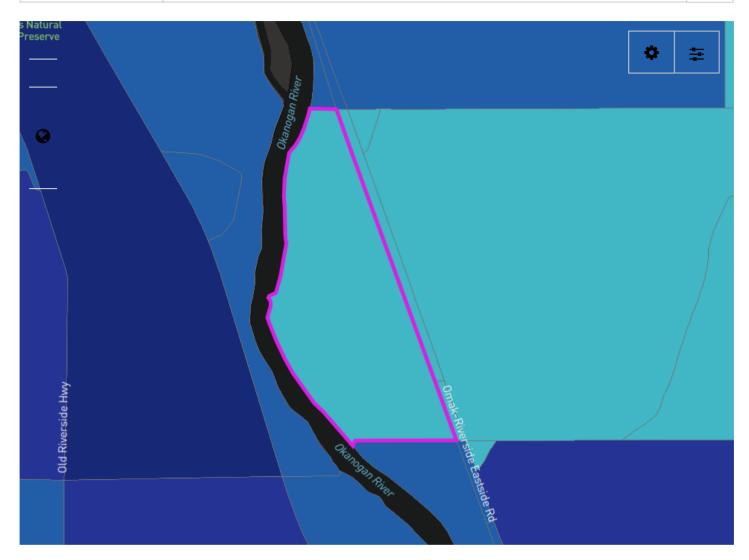
≥ 25/3 Mbps

## Date

June 2019 (latest public release)

Provider	Tech	<b>Down</b> ▼ (Mbps)	<b>Up</b> (Mbps)
■ NCI Datacom NCI	Fixed Wireless	100	20
■ ViaSat, Inc. Viasat Inc	Satellite	35	3
■ Hughes Network Systems, LLC HNS License Sub, LLC HughesNet	Satellite	25	3
■ CenturyLink, Inc. CenturyLink	ADSL	20	2
Okanogan County PUD No. 1	Fixed Wireless	20	10
■VSAT Systems, LLC Skycasters	Satellite	2	1.3

Coordinates ▼ Riverside Q







0	1	2	3	4	6	12 or more



## Technology

ADSL, Cable, Fiber, Fixed Wireless, Satellite, Other

## Speed

≥ 25/3 Mbps

#### Date

Provider •	Tech	<b>Down</b> (Mbps)	<b>Up</b> (Mbps)
■ Hughes Network Systems, LLC HNS License Sub, LLC HughesNet	Satellite	25	3
Okanogan County PUD No. 1 OKPUD	Fixed Wireless	20	10
■ ViaSat, Inc. Viasat Inc	Satellite	35	3
NCI Datacom	Fixed Wireless	20	4
VSAT Systems, LLC	Satellite	2	1.3

Coordinates ▼ South Pine Creek 2 Q



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0	1	2	3	4	6	12 or more



## Technology

ADSL, Cable, Fiber, Fixed Wireless, Satellite, Other

## Speed

≥ 25/3 Mbps

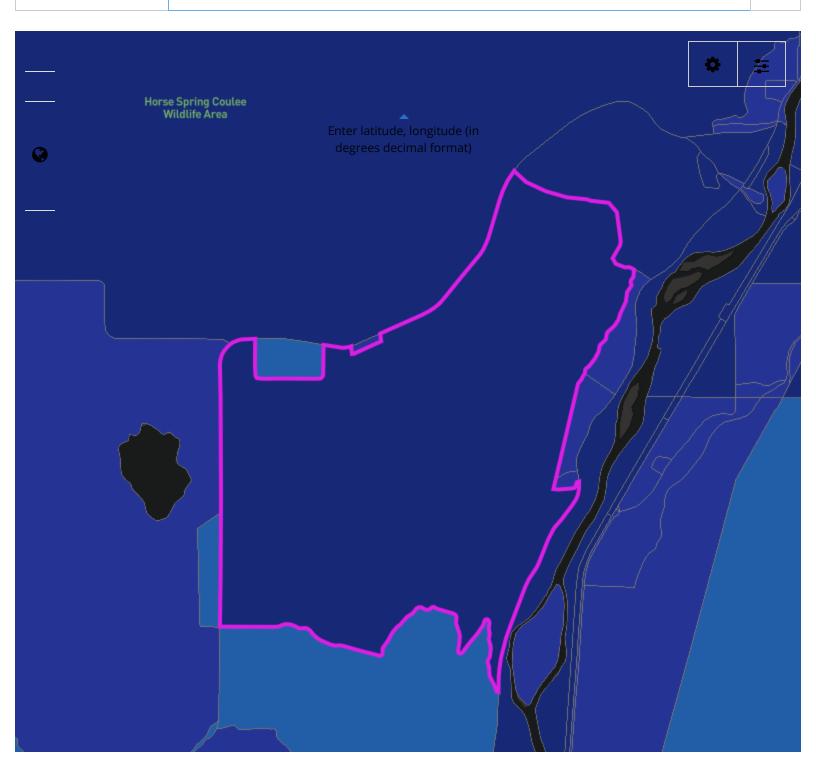
#### Date

Provider	Tech	<b>Down</b> ▼ (Mbps)	<b>Up</b> (Mbps)
■ ViaSat, Inc. Viasat Inc	Satellite	35	3
■ Hughes Network Systems, LLC HNS License Sub, LLC HughesNet	Satellite	25	3
NCI Datacom	Fixed Wireless	20	4
VSAT Systems, LLC	Satellite	2	1.3

Coordinates ▼

S.Pine Creek Rd

Q





0	1	2	3	4	6	12 or more

Technology

ADSL, Cable, Fiber, Fixed Wireless, Satellite, Other

## Speed

≥ 25/3 Mbps

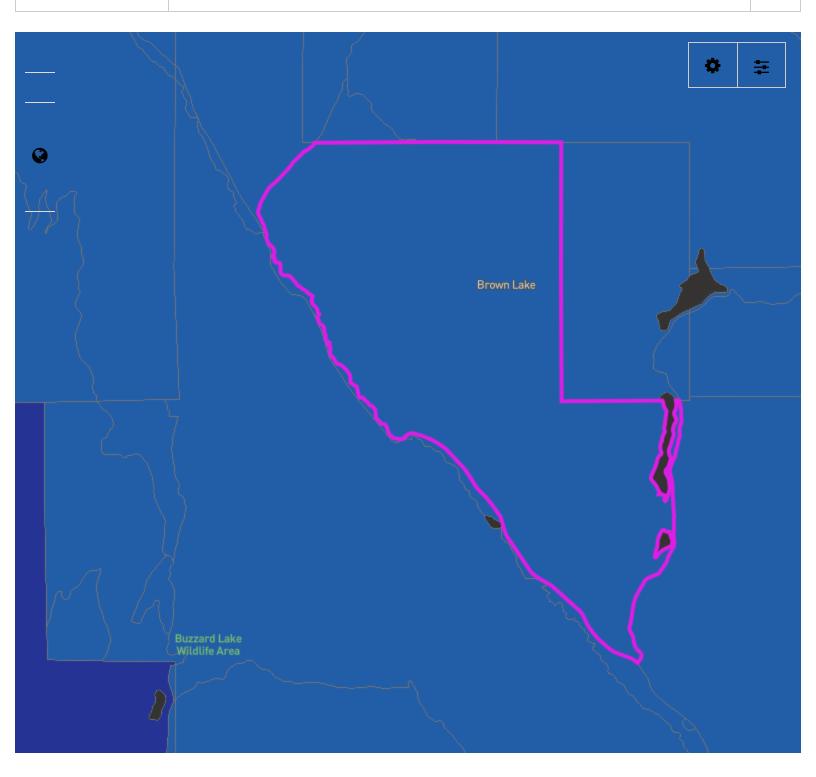
## Date

June 2019 (latest public release)

Provider	Tech	<b>Down ▼</b> (Mbps)	<b>Up</b> (Mbps)
Charter Communications Charter Communications, Inc. Charter Communications Inc	Cable	120	10
Okanogan County PUD No. 1	Fiber	100	100
■ NCI Datacom NCI	Fixed Wireless	100	20
■ ViaSat, Inc. Viasat Inc	Satellite	35	3
■ Hughes Network Systems, LLC HNS License Sub, LLC HughesNet	Satellite	25	3
Okanogan County PUD No. 1	Fixed Wireless	20	10
Frontier Communications Corporation	ADSL	12	1
■ King Street Wireless, LP King Street Wireless, L.P. King Street Wireless L.P.	Fixed Wireless	10	2
Frontier Communications Corporation	ADSL	6	1
Frontier Communications Corporation	ADSL	6	1
■ VSAT Systems, LLC Skycasters	Satellite	2	1.3

Coordinates ▼ Salmon Creek Rd

Q



© Mapbox © OpenStreetMap





0	1	2	3	4	6	12 or more

# **Broadband**

Technology

ADSL, Cable, Fiber, Fixed Wireless, Satellite, Other

# Speed

≥ 25/3 Mbps

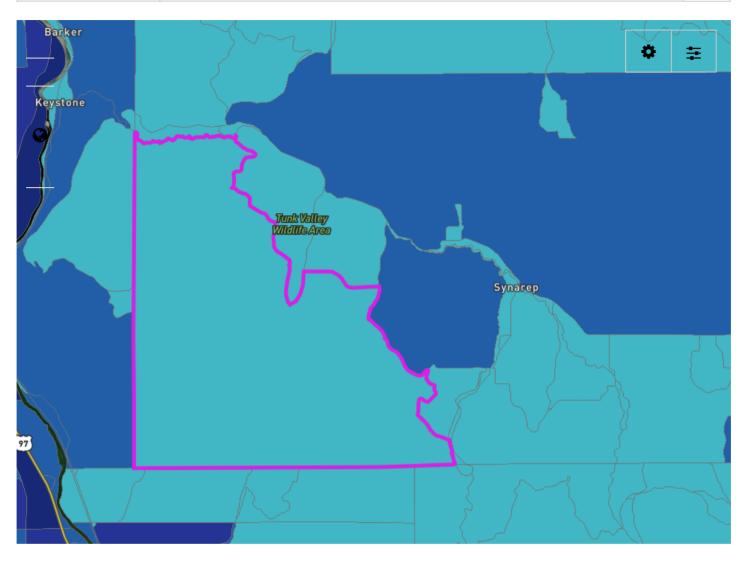
# Date

June 2019 (latest public release)

Provider	Tech	Down (Mbps)	<b>Up</b> (Mbps)
■ NCI Datacom NCI	Fixed Wireless	100	20
■ ViaSat, Inc. Viasat Inc	Satellite	35	3
■ Hughes Network Systems, LLC HNS License Sub, LLC HughesNet	Satellite	25	3
■ King Street Wireless, LP King Street Wireless, L.P. King Street Wireless L.P.	Fixed Wireless	10	2
■ VSAT Systems, LLC Skycasters	Satellite	2	1.3

# Fixed Broadband at a Location

Coordinates ▼ Synarep Q



© Mapbox © OpenStreetMap © Maxar





0	1	2	3	4	6	12 or more

# **Broadband**

# Technology

ADSL, Cable, Fiber, Fixed Wireless, Satellite, Other

# Speed

≥ 25/3 Mbps

# Date

Dec. 2020 (latest public release)

Provider •	Tech	<b>Down</b> (Mbps)	<b>Up</b> (Mbps)
■ Hughes Network Systems, LLC HNS License Sub, LLC HughesNet	Satellite	25	3
■ ViaSat, Inc. Viasat Inc	Satellite	35	3
NCI Datacom	Fixed Wireless	20	4
VSAT Systems, LLC	Satellite	2	1.3

# Fixed Broadband at a Location

Coordinates ▼ Whitestone Q



© Mapbox © OpenStreetMap © Maxar





0	1	2	3	4	6	12 or more

# **Broadband**

# Technology

ADSL, Cable, Fiber, Fixed Wireless, Satellite, Other

# Speed

≥ 25/3 Mbps

# Date

Dec. 2020 (latest public release)

Provider 📤	Tech	Down	Up
Hughes Network Systems, LLC  HNS License Sub, LLC  HughesNet	Satellite	(Mbps) 25	(Mbps) 3
Northwest Fiber, LLC Ziply Fiber Northwest Fiber, LLC dba Ziply Fiber Frontier Communications Northwest, LLC, dba Ziply Fiber	ADSL	25	2
Northwest Fiber, LLC Ziply Fiber Northwest Fiber, LLC dba Ziply Fiber Frontier Communications Northwest, LLC, dba Ziply Fiber	ADSL	6	1
Northwest Fiber, LLC Ziply Fiber Northwest Fiber, LLC dba Ziply Fiber Frontier Communications Northwest, LLC, dba Ziply Fiber	ADSL	12	1
Okanogan County PUD No. 1 OKPUD	Fixed Wireless	20	10
■ViaSat, Inc. Viasat Inc	Satellite	35	3

Provider •	Tech	<b>Down</b> (Mbps)	<b>Up</b> (Mbps)
NCI Datacom	Fixed Wireless	40	6
VSAT Systems, LLC	Satellite	2	1.3

C. NTCA 2016 Broadband/Internet Availability Survey Report



# NTCA 2016 BROADBAND/INTERNET AVAILABILITY SURVEY REPORT

July 2017

**DISCLAIMER:** Data from the survey has been presented as reported.

To get more information on this report please contact Rick Schadelbauer at NTCA (703-351-2019, <u>rschadelbauer@ntca.org</u>).



# TABLE OF CONTENTS

EXECUTIVE SUMMARY	3
INTRODUCTION	4
OVERVIEW OF SURVEY	5
SURVEY RESULTS	5
CONCLUSIONS	14
Appendix A	15
<u>FIGURES</u>	
Figure 1. Broadband Customers Served by Network Platform	6
Figure 2. Maximum Speed Availability	7
Figure 3. Broadband Take Rates by Speed Tier	8
Figure 4. Barriers to Fiber Deployment	10
Figure 5. Broadband Marketing Promotions	11
Figure 6. Offering Video Service?	12
Figure 7 Barriers to Video Deployment	13



#### **EXECUTIVE SUMMARY**

For nearly two decades, NTCA—The Rural Broadband Association has conducted its annual Broadband/Internet Availability Survey to gauge the deployment rates of advanced services by its member companies. In the spring of 2017, NTCA sent an electronic survey form to each of the companies (as reflected at the holding company level) in NTCA's email database; 172 members (29%) responded.

One hundred percent of the 2016 survey respondents offer broadband to some part of their customer bases, compared with the 58% of the year 2000 survey respondents who offered the then-lower definition of broadband service. Respondents indicated that they use a variety of technologies within their respective serving areas to provide at least basic levels of broadband to their customers. Forty-one percent of respondents' broadband customers are served via fiber to the home (FTTH), 36% via copper loops, 12% cable modem, 9% fiber to the node (FTTN), 1% licensed and unlicensed fixed wireless, and 0.2% satellite.

Fifty-two percent of those survey respondents currently deploying fiber serve at least 50% of their customers with FTTH, while 24% serve 20% of their customers or less via such technology. Eighty-two percent of survey respondents indicated they had a long-term fiber deployment strategy. Thirty-nine percent of those respondents with a fiber deployment strategy plan to offer fiber to the node to more than 75% of their customers by year-end 2019, while 66% plan to offer fiber to the home to at least 50% of their customers over the same time frame. An additional 31% have already completed fiber deployments to all customers.

Deployment cost remains the most significant barrier to widespread deployment of fiber, followed by regulatory uncertainty, long loops, current regulatory rules, low customer demand, obtaining financing, fiber order fulfillment delays, and obtaining cost-effective equipment. Throughout the history of the survey, deployment cost has been respondents' most significant concern.

Approximately 0.3% of respondents' customers can receive a maximum <u>downstream</u> speed of between 768 kilobits per second (kbps) and 1.0 megabits per second (Mbps); 0.8% 1.0 to 1.5 Mbps; 2% 1.5 to 3.0 Mbps; 1% 3.0 to 4.0 Mbps; 3% 4.0 to 6.0 Mbps; 7% 6.0 to 10.0 Mbps; 20% 10.0 Mbps to 25.0 Mbps; and 67% greater than 25.0 Mbps.

Forty-one percent of survey respondents' customers taking broadband subscribe to service greater than or equal to 10 Mbps downstream. The next most popular speed tiers

<sup>&</sup>lt;sup>1</sup> Beginning with the 2015 survey, broadband was defined as throughput of at least 3 Mbps in one direction. This was an update from earlier NTCA Broadband Surveys, which defined broadband as throughput of at least 768 kbps (from 2009 through 2014) or 200 kbps (from 2000 through 2008) in one direction.



are 6.0 Mbps to 10.0 Mbps (10%), and 4.0 Mbps to 6.0 Mbps (9%). The overall take rate for broadband service is 72% (virtually unchanged from 73% last year).

The average respondent is 68 miles from its primary internet connection; the median respondent is 38 miles away. Eighty-eight percent of those who recently changed backbone providers did so for price reasons. Seventy-three percent of respondents indicated they are generally satisfied with their current backbone access provider, while 27% are generally dissatisfied.

Survey respondents indicated they face some type of competition for broadband in limited portions of their serving areas from national internet service providers (ISPs), cable companies and fixed and/or mobile wireless internet service providers (WISPs.) Respondents are taking numerous marketing steps to increase broadband take rates, including free customer premise equipment installation, bundling of services, price promotions, free introductory service, free education and training, discounted computers or tablets, and free modems.

Thirty-three percent of respondents currently offer voice over internet protocol (VoIP) service, unchanged from last year. Forty-seven percent of respondents not currently offering VoIP have plans to do so in the foreseeable future, up from 38% last year. Seventy percent of respondents offer video service to their customers, down slightly from 72% last year.

# INTRODUCTION

In the spring of 2017, NTCA—The Rural Broadband Association surveyed its members on their activities in the areas of providing broadband services and internet availability to their members/customers. NTCA is a national association representing nearly 850 rural rate-of-return regulated operating company telecommunications providers in 45 states. All NTCA members are small carriers that are "rural telephone companies" as defined in the Communications Act of 1934, as amended by the Telecommunications Act of 1996. Only four NTCA member study areas comprise 40,000 lines or more; the largest is just over 58,000. Population density in most member service areas is generally in the 1 to 5 customers per square mile range.

This latest broadband survey is a follow-up to similar surveys conducted in recent years by NTCA, and seeks to build upon the results of those surveys.<sup>2</sup> This year's survey asked about technologies used to provide broadband service, broadband availability and subscription rates, prices charged, quantity and type of competition, broadband marketing

<sup>&</sup>lt;sup>2</sup> Copies of this and previous NTCA survey reports may be downloaded from the NTCA web site, www.ntca.org/survey-reports/survey-reports.html.



efforts, fiber deployment, emerging technologies, internet backbone connections, finance and availability of capital. The survey also provided an opportunity for respondents to provide any specific comments they wished to share.

#### OVERVIEW OF SURVEY

The 2016 NTCA Broadband/Internet Availability Survey was conducted online. Every effort was made to minimize the reporting burden on the survey respondents.

The survey was composed of general questions about the respondents' current operations, competition/marketing and current and planned fiber deployment. Additional questions dealt with the internet backbone, voice over internet protocol (VoIP) and video. The survey also provided an opportunity for respondents to offer any miscellaneous thoughts.

# SURVEY RESULTS

The survey URL for each part of the survey was distributed via email to all member companies in NTCA's email database. The message contained instructions for online access to the survey. Responses were received from 172 member companies, a 29% response rate.<sup>3</sup>

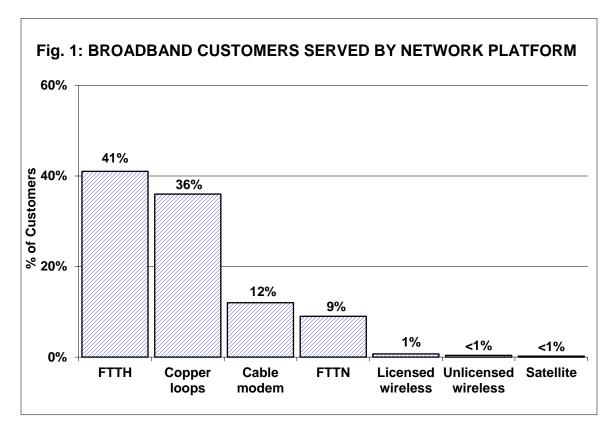
Fifty-seven percent of survey respondents' service areas are 500 square miles or larger; 25% are at least 2,000 square miles. Half—51%—have customer densities in their service area of 10 residential customers per square mile or less. More than one-fifth—22%—have customer densities of two residential customers per square mile or less.

The average survey respondent serves 4,723 residential and 1,463 business voice grade access lines; a few larger companies skew these numbers upward, hence the median respondent serves 2,227 residential and 611 business lines. One hundred percent of survey respondents offer broadband service to some part of their customer base.<sup>4</sup> Respondents indicated that they use a variety of technologies, even within individual serving areas, to offer at least basic levels of broadband to their customers: 41% of respondents' broadband customers are served via fiber to the home (FTTH), 36% via copper loops, 12% cable modem, 9% fiber to the node (FTTN), 1.1% licensed and unlicensed wireless, and 0.2% satellite. (See Figure 1.)

 $<sup>^3</sup>$  Based on the sample size, results of this survey can be assumed to be accurate to within  $\pm$  6% at the 95% confidence level.

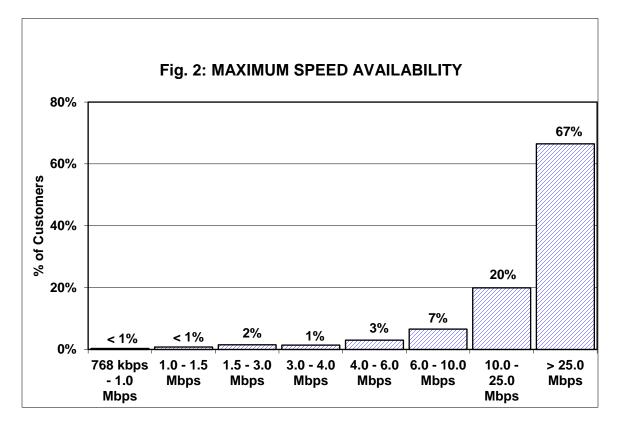
<sup>&</sup>lt;sup>4</sup> For the purpose of this survey, broadband is defined as throughput of at least 3 Mbps in one direction.





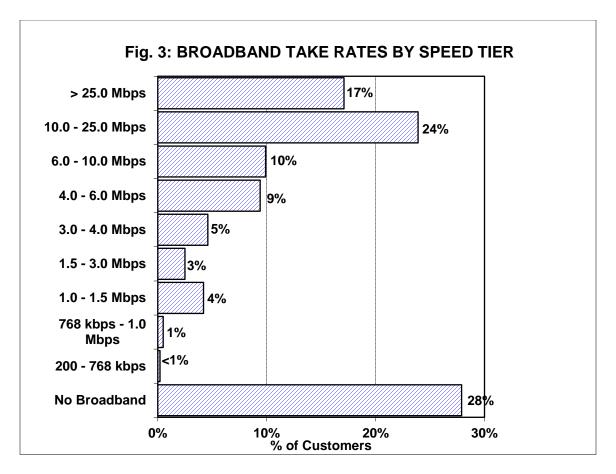
Approximately 0.3% of respondents' customers can subscribe to a maximum speed 768 kbps to 1.0 megabits per second (Mbps) service; 0.8% to 1.0 to 1.5 Mbps; 2% to 1.5 to 3.0 Mbps; 1% to 3.0 to 4.0 Mbps; 3% to 4.0 to 6.0 Mbps; 7% to 6.0 to 10.0 Mbps; 20% to 10.0 to 25.0 Mbps; and 67% to greater than 25 Mbps service. (See Figure 2.)





Survey results indicate an overall broadband take rate from NTCA member companies of 72%, approximately the same as 73% a year ago. By far, the most popular speed tier among survey respondents' broadband subscribers is between 10.0 Mbps and 25.0 Mbps—24% of survey respondents' customers subscribe to this level of service. Next most popular is greater than 25.0 Mbps (17%), followed by 6.0 Mbps to 10.0 Mbps (10%), 4.0 Mbps to 6.0 Mbps (9%), 3.0 to 4.0 Mbps (5%), 1.0 Mbps to 1.5 Mbps (4%), and 1.5 Mbps to 3.0 Mbps (3%) Non-broadband subscribers make up 28% of survey respondents' customer base. (See Fig. 3.)





Typical prices charged range from \$34.95 to \$44.95 for cable modem service, \$29.95 to \$49.95 per month for DSL service, \$39.95 to \$49.95 for wireless broadband service, and \$39.95 to \$59.95 for fiber-based broadband service.

Forty-two percent of survey respondents indicated their customers may purchase so-called "stand-alone DSL"—broadband service without a voice component. Take rates for stand-alone DSL service are relatively low, however, with the majority of those respondents offering stand-alone DSL reporting take rates of 10% or less, although some have take rates between 15 and 25%.

Twenty-seven percent of respondents estimate that they could bring all of their customers currently receiving service below 25 Mbps up to that speed for between \$1 million and \$10 million in additional capital investment. An additional 27% could do so for between \$20 million and \$50 million, 21% at a cost of \$10 to \$20 million, 18% for \$1 million or less, and 7% estimate the total cost would be more than \$50 million.

Survey respondents provide critically important broadband service to anchor institutions in their communities. The median respondent serves four public service entities (police,



fire, etc.); three primary/secondary schools; one public library; one hospital or medical clinic; as well as 911 call centers, post offices and city halls.

# **Fiber Deployment**

Fifty-two percent of those survey respondents currently deploying fiber serve at least 50% of their customers using fiber to the home (down from 55% last year), while 24% serve 20% of their customer base or less with fiber to the home (FTTH) technology (down from 26%.)

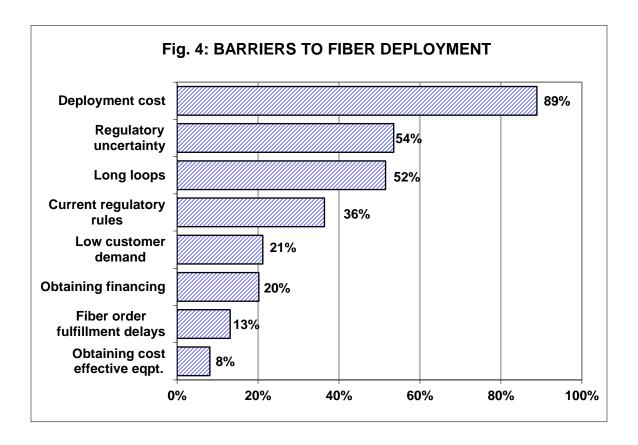
Survey respondents described their companies' plans to deploy fiber to the node (FTTN) and/or FTTH to their customers. Eighty-two percent of survey respondents indicated that they have a long-term fiber deployment strategy. Thirty-nine percent of those survey respondents with a fiber deployment strategy expect to offer fiber to the node to more than 75% of their customers by the end of 2019. Sixty-six percent of respondents expect to be able to provide FTTH to at least half of their customers by year-end 2019. An additional 31% have already completed fiber deployment to all of their customers.

Eighty-nine percent of survey respondents identified the cost of fiber deployment as a significant barrier to widespread deployment. Regulatory uncertainty was the number two barrier (54%, down from 79% last year), followed by long loops (52%), current regulatory rules (36%, down from 56%), obtaining financing (20%), low customer demand (21%), fiber order fulfillment delays (13%) and obtaining cost-effective equipment (8%).<sup>5</sup> (See Figure 4.)

-

<sup>&</sup>lt;sup>5</sup> Totals exceed 100% as respondents were allowed to select more than one barrier.





#### **Internet Backbone**

Survey respondents are, on average, 68 miles from their primary internet connection; the median distance is 38 miles. Eighty-eight percent of those respondents who recently switched internet backbone access providers did so for price reasons, while 25% switched due to quality of service concerns and 25% for other reasons, such as the ability to add redundant routes. Seventy-three percent of respondents indicated they are generally satisfied with their current backbone access provider, while 27% are generally dissatisfied. Fifty-five percent of all survey respondents expect to need additional backbone capacity in one year or less.

# Competition/Marketing

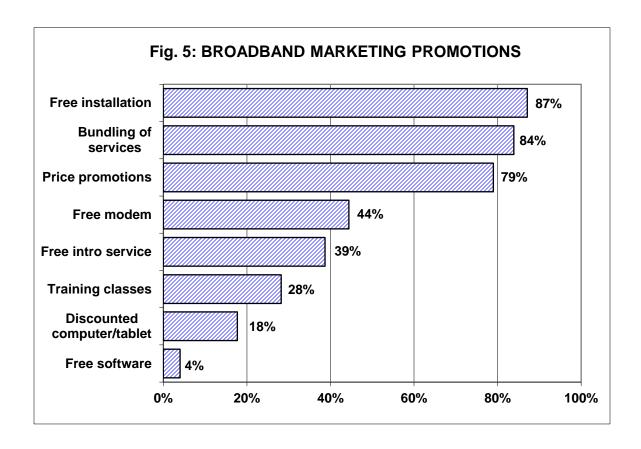
Virtually all survey respondents indicated that they face competition from at least one other service provider in some portion of their service area. Survey respondents typically compete with national ISPs, fixed and/or mobile wireless internet service providers

<sup>&</sup>lt;sup>6</sup> Totals exceed 100% as respondents were allowed to select more than one reason for switching providers.



(WISPs) and satellite broadband providers. Other potential competitors include cable companies, electric utilities, local ISPs and neighboring cooperatives.

Rural incumbent local exchange carriers are taking numerous steps in the marketing arena to increase broadband take rates. Eighty-seven percent are offering free installation, 84% are bundling services, 79% are offering price promotions, 44% are offering free modems, 39% are offering free service for an introductory time period (such as 30 days), 28% are offering free education/training classes, 18% are offering discounted computers or tablets, and 4% are offering free software. (See Figure 5.) Respondents consider their price promotions, bundling of services, and free installation to be their most effective marketing promotions.



NTCA 2016 Broadband/Internet Availability Survey Report

<sup>&</sup>lt;sup>7</sup> Totals exceed 100% as respondents' companies may be offering more than one marketing promotion.



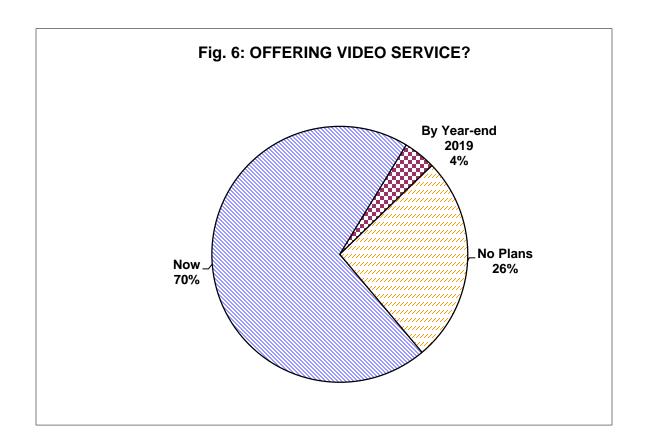
# **Other Services**

#### VoIP

Thirty-three percent of survey respondents currently offer VoIP service to their customers, up slightly from 31% one year ago. Forty-seven percent of those respondents not currently offering VoIP have plans to do so in the foreseeable future, up from 38% last year.

#### Video

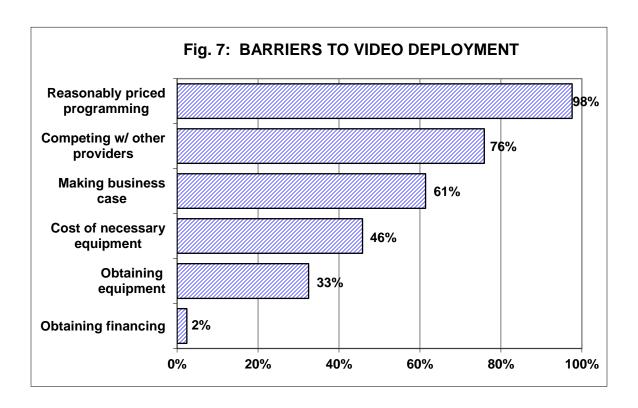
Seventy percent of survey respondents offer video service to their customers. Fourteen percent of those respondents not currently offering video (4% of all respondents) plan to do so by year-end 2019. The remaining 86% of those not currently offering video (26% of all respondents) currently have no plans to offer video service. (See Figure 6.) Seventy-eight percent of those planning a future video offering intend to offer internet protocol television (IPTV) service in the foreseeable future.





Of those respondents currently offering video services, 86% offer IPTV, and 51% offer legacy coax (CATV) service. Twenty-nine percent of those providing CATV service use an analog system, while 71% use a digital system. The average respondent offers their customers three "tiers" of entertainment television packages from which to choose, unchanged from last year. Seventy-eight percent of the customers of those survey respondents offering video are able to watch programming on multiple devices, both inside and outside their home (i.e., "TV everywhere"), about the same as last year.

The main barrier facing those survey respondents providing video service is access to reasonably priced programming, as cited by 98% of survey respondents. Seventy-six percent cited difficulty competing with other providers, 61% the challenge of making a business case for video service, 46% the cost of necessary equipment, 33% difficulty obtaining necessary equipment, and 2% difficulty obtaining necessary financing. (See Fig. 7.)



<sup>&</sup>lt;sup>8</sup> Totals exceed 100% as respondents may offer more than one type of video service.

<sup>&</sup>lt;sup>9</sup> Totals exceed 100% as respondents may be facing more than one barrier.



#### Miscellaneous

Survey respondents were asked what specific obstacles they have encountered in their efforts to deploy fiber to their customers, and how conditions would need to change to allow them to successfully overcome those obstacles. Their responses are presented in Appendix A of this report.

# **CONCLUSIONS**

Respondents' customers are subscribing to faster broadband speeds. While the overall broadband take rate is generally the same (72% this year versus 73% last year), subscribers are moving up to higher speeds. This year, 17% of respondents' customers subscribed to broadband service in excess of 25 Mbps, versus 8% a year ago. Sixty percent subscribe to service of 4 Mbps or greater, versus 55% a year ago. And only 12% subscribe to service between 1 and 4 Mbps, versus 16%. Consumers are moving up the broadband speed chain; providers need to be prepared to offer them the level of service they demand.

While concerns about regulatory uncertainty have eased somewhat, they remain substantial. Fifty-four percent of survey respondents cited regulatory uncertainty as a significant barrier to broadband deployment, down from 79% in last year's survey. This is at least partially a result of steps taken by the FCC to attempt to ease the uncertainty. However, recent events have shown that small, rural providers are still subject to unforeseen and drastic changes to their support levels—clearly, much more remains to be done.

The pursuit of reasonably-priced video programming remains a nearly-universal struggle. Virtually all survey respondents offering video—98%—cited their ability to access affordably-priced programming as a significant impediment to their ongoing video operations. Unless this issue can be adequately addressed in the very near-term future, the ability of these providers to offer their customers high-quality, reasonably-priced video service will be seriously challenged.

Survey respondents provide critically important broadband service to community anchor institutions. These small providers serve public service entities (such as police and fire), primary and secondary schools, public libraries, hospitals and medical clinics, and numerous other important anchor institutions. In so doing, they make significant contributions to the safety, health and overall well-being of their customers. Their service helps facilitate the overall viability of rural America.



#### APPENDIX A

Q: What specific obstacles have you encountered in your efforts to deploy fiber to your customers, and how would conditions need to change to allow you to successfully overcome these obstacles?

New financial dynamics (viability) given new regulatory environment.

Cost of construction, regulatory environment

If grants were available to help with cost we would deploy fiber.

Cost of construction. We are ACAM so we are spending there, but without it we would have to have a business case and that is difficult in our very rural areas.

Less regulatory constraints.

Have been 100% FTTH since 2011. Very expensive to construct and operate, but delivers the bandwidth for future services.

We have completed fiber to all customers, trying to recover the build out costs, will take time, due to increasing expense cost to provide all services.

Length of subscriber loops and cost of fiber deployment.

Cost for deployment and customers don't want to pay more for higher speeds

Large service area. Lot of money to extend our fiber plant.

#### Reduced USF

It is expensive. Doing it in the rural area (2 customers/mile) has no hope on return on investment.

Some customers just don't want it because they feel a cell phone is enough

Cost and financing.

Once fiber is deployed, the cost of the customer premise equipment per location.

I have deployed 100% but construction costs are the biggest obstacle to deploying fiber. Increased penetration will justify costs eventually.



Time and money is issue. Selected ACAM and working to meet obligations and offer better service.

Rate of Return rules and FCC Obstacles

Reduction in support dollars due to fiber penetration. Broadband only support not realistic. Reduction in HCLS dollars.

Obtaining sufficient and sustainable cost recovery. You need the right people who support the availability of a wired network for the benefit of Rural Consumers.

I would like the FCC to stop chipping away at my recovery. Get more money in the USF budget to fund this. My other issue is pricing standalone broadband competitively and still being able to maximize recovery/profit.

The only way to deploy fiber in rural areas is to have some level of support for cost recovery.

We are a high cost area dependent on support for infrastructure build, at the time we need the support the most it has been reduced due to inaccurate data and insufficient challenge process giving no consideration for carriers in areas with COLR obligations as well as lack of choices for the rural consumer

Money, money, money. Shorter loops or un-capped USF programs.

Cost. Long loops.

Cost, Long Loops, Time to install

Money and time

Price barriers. Customers not interested in paying higher prices for fiber rate plans with greater speeds. Copper lines provide speeds with affordable plans.

High construction costs. TVA Electric Cooperatives have very high pole attachment rates and there needs to be some way for these costs to come down to reasonable levels.

Terrain adds to costs. Budget Control Mechanisms contained in the USF reforms have cut the amount of capital we have for fiber builds. These budget controls should be removed and the FCC should full fund the program to meet the demand of rural consumers and ensure they have services that are comparable and as affordable as urban Americans.



Money

Costs due to population density and number of subscribers

We have nearly 100% build out but financing was an issue. We received stimulus funds in the form of a grant and a loan. Without financial help, it wouldn't have been possible.

Financial cost to deploy

Not having the capital resources to deploy. However, the recent FCC A-CAM Model-based support will help us deploy fiber from 65% - 75% of our customer service base over 10 years. Would like to see the FCC extended the Model-based program to allow companies to be able to reach 100% of their customer service base.

We have built the lease expensive customers. Now faced by longer loop costs. Limited by FCC per location limit and effect of budget control mechanism

The cost of construction, conversion costs, and the cost of additional equipment.

We average 1/2 customer per square mile with extremely rough and rocky terrain. Cost of construction is prohibitive.

The sparse population in our service area when compared to the cost of deployment does not give us a business plan to do it. The regulatory environment would needs to change to cover those cost either through some mechanism.

Long loops.

We are 100% deployed

1. Difficult terrain 2. Existing utility congestion within easements. Changes needed: We need regulatory certainty that if one borrows money to complete the fiber build out, the support needed to repay that debt will not be taken away.

Regulatory uncertainty and cost recovery over time. Took the chance anyway, \$10M for 973 customers for FTTH

Overall cost of the build and decreasing support dollars to pay back loans for that buildout

None



Having the cash flow to continue our phases of constructing and deploying FTTH. USF or any other support mechanism.

# None

Increasing broadband adoption rates would help us (figuring out if it is on-line literacy, computer equipment in the home, or other factors that would increase take-rates)

Take rate and need for affordable financing options are our largest obstacles. Cost. Additionally, as long as broadband only support remains broken we will continue to be unable to compete with encroaching cable companies like Time Warner/Spectrum.

Sufficient cost recovery is the biggest obstacle.

Rights of way is becoming harder to obtain.

Availability of fiber, cost, overcoming regulatory obstacles to serve other areas petitioning for fiber

# D. Construction Quotes1. Aerial & Buried Cable Installation

# **Bid Tabulation Sheet**

Units	Quantity	Labor	N	Material	U	nit Price	Total
BDO 288 P		\$ -	\$	-	\$	-	\$ -
BDO 576 P	1	\$ 1,000.00	\$	13,350.00	\$	14,350.00	\$ 14,350.00
BFO 144	1,000	\$ 0.35	\$	0.98	\$	1.33	\$ 1,330.00
BFO 144 COIL	250	\$ 0.35	\$	0.98	\$	1.33	\$ 332.50
BFO 144 I	500	\$ 0.70	\$	0.98	\$	1.68	\$ 840.00
BFO 24	250	\$ 0.35	\$	0.31	\$	0.66	\$ 165.00
BFO 24 COIL	400	\$ 0.35	\$	0.31	\$	0.66	\$ 264.00
BFO 24 I	2,350	\$ 0.70	\$	0.31	\$	1.01	\$ 2,373.50
BFO 288	250	\$ 0.35	\$	1.66	\$	2.01	\$ 502.50
BFO 288 COIL	100	\$ 0.35	\$	1.66	\$	2.01	\$ 201.00
BFO 288 I	1,475	\$ 0.70	\$	1.66	\$	2.36	\$ 3,481.00
BFO 48		\$ -	\$	-	\$	-	\$ -
BFO 48 COIL		\$ -	\$	-	\$	-	\$ -
BFO 48 I		\$ -	\$	-	\$	-	\$ -
BFO 96		\$ -	\$	-	\$	-	\$ -
BFO 96 COIL	50	\$ 0.35	\$	0.69	\$	1.04	\$ 52.00
BFO 96 I	450	\$ 0.70	\$	0.69	\$	1.39	\$ 625.50
BFO96		\$ -	\$	-	\$	-	\$ -
BHF(24X36X30)T	8	\$ 400.00	\$	600.00	\$	1,000.00	\$ 8,000.00
BHF(36X24X30)T		\$ -	\$	-	\$	-	\$ -
BHF(48X30X36)T		\$ -	\$	-	\$	-	\$ -
BM2(1/2)(5)	9	\$ 50.00	\$	14.00	\$	64.00	\$ 576.00
BM2A	12	\$ 50.00	\$	13.00	\$	63.00	\$ 756.00
BM2E	2,350	\$ 0.25	\$	0.15	\$	0.40	\$ 940.00
BM53F	10	\$ 50.00	\$	25.00	\$	75.00	\$ 750.00
BM55F	8	\$ 100.00	\$	78.00	\$	178.00	\$ 1,424.00
BM60 (1.25) X (2)		\$ -	\$	-	\$	-	\$ -
BM60 (1.25) X (3)	50	\$ 10.00	\$	1.50	\$	11.50	\$ 575.00
BM60 (1.25) X (4)		\$ -	\$	-	\$	-	\$ -
BM60(1.25)	4,350	\$ 8.00	\$	0.50	\$	8.50	\$ 36,975.00
BM60(1.25)D		\$ -	\$	-	\$	-	\$ -
BM71	1,100	\$ 14.00	\$	-	\$	14.00	\$ 15,400.00
BM81	15	\$ 50.00	\$	11.00	\$	61.00	\$ 915.00
BM82	1	\$ 50.00	\$	12.50	\$	62.50	\$ 62.50
CFO 144	12,000	\$ 0.60	\$	1.32	\$	1.92	\$ 23,040.00
CFO 144 COIL	2,000	\$ 0.60	\$	1.10	\$	1.70	\$ 3,400.00
CFO 24	5,700	\$ 0.60	\$	0.58	\$	1.18	\$ 6,726.00
CFO 24 COIL	1,750	\$ 0.60	\$	0.34	\$	0.94	\$ 1,645.00
CFO 288	9,650	\$ 0.60	\$	2.62	\$	3.22	\$ 31,073.00
CFO 288 COIL	950	\$ 0.60	\$	2.38	\$	2.98	\$ 2,831.00
CFO 48	3,000	\$ 0.60	\$	0.70	\$	1.30	\$ 3,900.00

CFO 48 (6M)	1,000	\$ 1.52	\$ 1.04	\$ 2.56	\$ 2,560.00
CFO 48 COIL	950	\$ 0.60	\$ 0.46	\$ 1.06	\$ 1,007.00
CFO 6	1,500	\$ 0.60	\$ 0.55	\$ 1.15	\$ 1,725.00
CFO 6 COIL	250	\$ 0.60	\$ 0.31	\$ 0.91	\$ 227.50
CFO 96	4,200	\$ 0.60	\$ 0.99	\$ 1.59	\$ 6,678.00
CFO 96 COIL	750	\$ 0.60	\$ 0.75	\$ 1.35	\$ 1,012.50
CO 144 COIL	0	\$	\$ -	\$ -	\$ -
CO 288 COIL	0	\$	\$ -	\$ -	\$ -
CO 96 COIL	0	\$	\$ -	\$ -	\$ -
HAC0 ( 6 )	3	\$ 185.00	\$ 315.00	\$ 500.00	\$ 1,500.00
HACO(144)	14	\$ 425.00	\$ 420.00	\$ 845.00	\$ 11,830.00
HACO(24)	10	\$ 215.00	\$ 315.00	\$ 530.00	\$ 5,300.00
HACO(288)	5	\$ 625.00	\$ 575.00	\$ 1,200.00	\$ 6,000.00
HACO(48)	3	\$ 285.00	\$ 335.00	\$ 620.00	\$ 1,860.00
HACO(96)	3	\$ 355.00	\$ 380.00	\$ 735.00	\$ 2,205.00
HBFO (12)		\$ -	\$ -	\$ -	\$ -
HBFO(144)	2	\$ 425.00	\$ 550.00	\$ 975.00	\$ 1,950.00
HBFO(24)	5	\$ 215.00	\$ 465.00	\$ 680.00	\$ 3,400.00
HBFO(288)	2	\$ 625.00	\$ 660.00	\$ 1,285.00	\$ 2,570.00
HBFO(48)		\$ -	\$ -	\$ -	\$ -
HBFO(96)	2	\$ 355.00	\$ 610.00	\$ 965.00	\$ 1,930.00
HO1	2,150	\$ 18.50	\$ 0.18	\$ 18.68	\$ 40,162.00
NPE1-2G	70	\$ 65.00	\$ 45.00	\$ 110.00	\$ 7,700.00
NPE2-2G	10	\$ 100.00	\$ 60.00	\$ 160.00	\$ 1,600.00
PF3-3	20	\$ 150.00	\$ 30.00	\$ 180.00	\$ 3,600.00
PM (AUX)	60	\$ 13.00	\$ 11.00	\$ 24.00	\$ 1,440.00
PM11	80	\$ 3.30	\$ 3.45	\$ 6.75	\$ 540.00
PM52	75	\$ 3.30	\$ 3.00	\$ 6.30	\$ 472.50
PM69	75	\$ 75.00	\$ 28.00	\$ 103.00	\$ 7,725.00

Total Project Cost \$ 278,500.00

\$91,229.89 Estimate Buried Cost \$172,920.11 Estimated Aerial Cost \$76,763.95 Estimated Buried Cost per Mile

\$24,642.87 Estimated Aerial Cost per Mile

# **Bid Tabulation Sheet**

UNITS	QUANTITY	LABOR	MATERIALS	UNIT PRICE	TOTAL
BDO 288 P	1	\$550.00	\$7,500.00	\$8,050.00	\$8,050.00
BFO 144	24	\$0.65	\$0.88	\$1.53	\$36.72
BFO 144 COIL	30	\$0.65	\$0.88	\$1.53	\$45.90
BFO 144 I	410	\$0.70	\$0.91	\$1.61	\$660.10
BFO 24	24	\$0.65	\$0.30	\$0.95	\$22.80
BFO 24 COIL	30	\$0.65	\$0.30	\$0.95	\$28.50
BFO 24 I	455	\$0.70	\$0.32	\$1.02	\$464.10
BFO 288 COIL	850	\$0.65	\$1.50	\$2.15	\$1,827.50
BFO 288 I	10,300	\$0.70	\$1.53	\$2.23	\$22,969.00
BFO 48	24	\$0.65	\$0.39	\$1.04	\$24.96
BFO 48 COIL	30	\$0.65	\$0.39	\$1.04	\$31.20
BFO 48 I	250	\$0.70	\$0.42	\$1.12	\$280.00
BFO 96	48	\$0.65	\$0.65	\$1.30	\$62.40
BFO 96 COIL	470	\$0.65	\$0.65	\$1.30	\$611.00
BFO 96 I	565	\$0.70	\$0.68	\$1.38	\$779.70
BHF(36X24X30)T	10	\$600.00	\$550.00	\$1,150.00	\$11,500.00
BM2(1/2)(5)	11	\$25.00	\$16.00	\$41.00	\$451.00
BM2A	5	\$2.00	\$1.00	\$3.00	\$15.00
BM2E	1,270	\$0.30	\$0.18	\$0.48	\$609.60
BM53F	19	\$25.00	\$55.00	\$80.00	\$1,520.00
BM60(1.25)	12,500	\$7.50	\$0.43	\$7.93	\$99,125.00
BM81	5	\$10.00	\$12.00	\$22.00	\$110.00
BM 71	2,420	\$10.00		\$10.00	\$24,200.00
CFO 144	540	\$1.32	\$1.00	\$2.32	\$1,252.80
CFO 144 COIL	310	\$1.32	\$1.03	\$2.35	\$728.50
CFO 24	5,340	\$1.32	\$0.34	\$1.66	\$8,864.40
CFO 24 COIL	1,230	\$1.32	\$0.38	\$1.70	\$2,091.00
CFO 48	1,670	\$1.32	\$0.45	\$1.77	\$2,955.90
CFO 48 COIL	510	\$1.32	\$0.50	\$1.82	\$928.20
CFO 96	10,480	\$1.32	\$0.70	\$2.02	\$21,169.60
CFO 96 (6.6M)	650	\$1.62	\$0.95	\$2.57	\$1,670.50
CFO 96 COIL	2,450	\$1.32	\$0.75	\$2.07	\$5,071.50
HACO(144)	1	\$210.00	\$400.00	\$610.00	\$610.00
HACO(24)	8	\$210.00	\$225.00	\$435.00	\$3,480.00
HACO(288)	5	\$210.00	\$400.00	\$610.00	\$3,050.00
HACO(48)	3	\$210.00	\$225.00	\$435.00	\$1,305.00
HACO(96)	12	\$210.00	\$225.00	\$435.00	\$5,220.00
HBFO(24)	1	\$210.00	\$225.00	\$435.00	\$435.00
HO1	750	\$16.00	\$0.25	\$16.25	\$12,187.50
NPE1-2G	56	\$45.00	\$45.50	\$90.50	\$5,068.00
NPE2-2G	12	\$55.00	\$48.00	\$103.00	\$1,236.00
PF3-3	7	\$185.00	\$23.00	\$208.00	\$1,456.00

Total Bid					\$257,808.38
PM69	46	\$40.00	\$11.00	\$51.00	\$2,346.00
PM52	49	\$10.00	\$2.00	\$12.00	\$588.00
PM11	55	\$10.00	\$4.00	\$14.00	\$770.00
PM (AUX)	50	\$22.00	\$16.00	\$38.00	\$1,900.00

\$170,490.54 Estimate Buried Cost \$79,157.84 Estimated Aerial Cost \$74,395.87 Estimated Buried Cost per Mile \$22,374.38 Estimated Aerial Cost per Mile

# **Bid Tabulation Sheet**

Units	Quantity	L	₋abor	М	aterial	Uı	nit Price	Total		
BFO 288	500	\$	0.45	\$	1.74	\$	2.19	\$	1,095.00	
BFO 288 COIL	1,100	\$	0.15	\$	1.64	\$	1.79	\$	1,969.00	
BFO 288 I	14,200	\$	0.45	\$	1.74	\$	2.19	\$	31,098.00	
BHF(36X24X30)T	12	\$	400.00	\$	580.00	\$	980.00	\$	11,760.00	
BHF(48X30X36)T	2	\$	450.00	\$	770.00	\$	1,220.00	\$	2,440.00	
BM71	2,750	\$	10.00	\$	-	\$	10.00	\$	27,500.00	
BM 81	14	\$	10.00	\$	12.00	\$	22.00	\$	308.00	
BM2(1/2)(5)	14	\$	15.00	\$	23.10	\$	38.10	\$	533.40	
BM60 (3) (1.25)	3,000	\$	7.75	\$	1.29	\$	9.04	\$	27,120.00	
BM60(1.25)	8,000	\$	7.50	\$	0.43	\$	7.93	\$	63,440.00	
CFO 288	19,000	\$	0.70	\$	3.17	\$	3.87	\$	73,530.00	
CFO 288 COIL	2,750	\$	0.05	\$	3.17	\$	3.22	\$	8,855.00	
CO 288 (6.6M EHS)	138,550	\$	0.70	\$	2.14	\$	2.84	\$	393,482.00	
CO 288 E	9,975	\$	0.70	\$	2.14	\$	2.84	\$	28,329.00	
CO 288 COIL	9,575	\$	0.05	\$	1.64	\$	1.69	\$	16,181.75	
HACO(288)	4	\$	210.00	\$	400.00	\$	610.00	\$	2,440.00	
HBFO(288)	2	\$	210.00	\$	376.00	\$	586.00	\$	1,172.00	
HO1	2,088	\$	16.00	\$	0.10	\$	16.10	\$	33,616.80	
NPE1-2G	80	\$	45.00	\$	45.15	\$	90.15	\$	7,212.00	
NPE2-2G	20	\$	55.00	\$	48.00	\$	103.00	\$	2,060.00	
PF3-3	100	\$	40.00	\$	22.65	\$	62.65	\$	6,265.00	
PM 11	100	\$	10.00	\$	4.00	\$	14.00	\$	1,400.00	
PM 52	200	\$	2.00	\$	1.00	\$	3.00	\$	600.00	
PM 69	150	\$	35.00	\$	11.00	\$	46.00	\$	6,900.00	
WBHF	1	\$	400.00	\$	20.00	\$	420.00	\$	420.00	
WHBFO	1	\$	210.00	\$	20.00	\$	230.00	\$	230.00	
XXBHF(36X24X30)T	2	\$	400.00	\$	40.00	\$	440.00	\$	880.00	

Total Project Cost \$ 750,836.95

\$172,526.29 Estimate Buried Cost \$578,310.66 Estimated Aerial Cost \$61,968.63 Estimated Buried Cost per Mile \$19,381.02 Estimated Aerial Cost per Mile

# **D.** Construction Quotes

# 2. Aerial & Buried Drop Installation

**Aerial & Buried Drop Installation** 

Units	Quantity		Labor	N	/laterial	Ur	it Price	Total
BM2E	500	\$	7.80	\$	0.20	\$	8.00	\$ 4,000.00
BM61	250	\$	10.00	\$	-	\$	10.00	\$ 2,500.00
BM71	250	\$	14.00	\$	-	\$	14.00	\$ 3,500.00
BM 80	10	\$	50.00	\$	10.00	\$	60.00	\$ 600.00
BM 83	48	\$	11.70	\$	2.40	\$	14.10	\$ 676.80
HO-1	146	\$	49.70	\$	0.30	\$	50.00	\$ 7,300.00
NID	98	\$	30.00	\$	70.00	\$	100.00	\$ 9,800.00
NID4BM2	48	\$	40.00	\$	90.00	\$	130.00	\$ 6,240.00
SEBP-100	2	\$	270.00			\$	270.00	\$ 540.00
SEBP-150	4	\$	290.00			\$	290.00	\$ 1,160.00
SEBP-200	3	\$	320.00			\$	320.00	\$ 960.00
SEBP-250	2	\$	340.00			\$	340.00	\$ 680.00
SEBP-300	2	\$	390.00			\$	390.00	\$ 780.00
SEBP-400	2	\$	440.00			\$	440.00	\$ 880.00
SEBP-500	2	\$	475.00			\$	475.00	\$ 950.00
SEBP-750	2	\$	510.00			\$	510.00	\$ 1,020.00
SEBP-1000	2	\$	550.00			\$	550.00	\$ 1,100.00
SEAP-100	37	\$	120.00			\$	120.00	\$ 4,440.00
SEAP-150	15	\$	140.00			\$	140.00	\$ 2,100.00
SEAP-200	15	\$	170.00			\$	170.00	\$ 2,550.00
SEAP-250	5	\$	190.00			\$	190.00	\$ 950.00
SEAP-300	5	\$	220.00			\$	220.00	\$ 1,100.00
SEAP-400	5	\$	275.00			\$	275.00	\$ 1,375.00
SEAP-500	5	\$	325.00			\$	325.00	\$ 1,625.00
SEAP-750	5	\$	430.00			\$	430.00	\$ 2,150.00
SEAP-1000	5	\$	500.00			\$	500.00	\$ 2,500.00
SEABP-100	3	\$	120.00			\$	120.00	\$ 360.00
SEABP-150	3	\$	140.00			\$	140.00	\$ 420.00
SEABP-200	3	\$	170.00			\$	170.00	\$ 510.00
SEABP-250	3	\$	190.00			\$	190.00	\$ 570.00
SEABP-300	3	\$	220.00			\$	220.00	\$ 660.00
SEABP-400	3	\$	275.00			\$	275.00	\$ 825.00
SEABP-500	3	\$	325.00			\$	325.00	\$ 975.00
SEABP-750	3	\$	430.00			\$	430.00	\$ 1,290.00
SEABP-1000	3	\$	500.00			\$	500.00	\$ 1,500.00
		\$	-	\$	-	\$	-	\$ -
		\$	-	\$	-	\$	-	\$ -
		\$	-	\$	-	\$	-	\$ -

# E. Cable Material Pricing1. Buried & ADSS Fiber Cable Material Quotes

#### **Buried Fiber Cable RFP Summary**

Quantity	Description	Cable Strand Size	Company A Unit Cost	Company A Total Cost	Company A Cable Type	Company B Unit Cost	Company B Total Cost	Company B Cable Type	Company C Unit Cost	Company C Total Cost	Company C Cable Type	Company D Unit Cost	Company D Total Cost	Company D Cable Type	Company E Unit Cost	Company E Total Cost	Company E Cable Type
	Single armor, single PE jacket, dielectric central																
	member, zero water pek-low water peak, 0.35/0.25																
	db/km 1310/1550nm, dry core, gel filled buffer tubes,																
1768800	RUS Buy American standards	24	0.2810	\$497,032.80	5	0.30922	\$546,948.34	13	0.27547	\$487,251.34	5	0.3040	\$537,715.20	9	0.29022	\$513,341.14	1
	Single armor, single PE jacket, dielectric central																
	member, zero water pek-low water peak, 0.35/0.25																
	db/km 1310/1550nm, dry core, gel filled buffer tubes,																
528000	RUS Buy American standards	48	0.3764	\$198,739.20	6	0.40396	\$213,290.88	14	0.36901	\$194,837.28	6	0.3930	\$207,504.00	10	0.39075	\$206,316.00	2
	Single armor, single PE jacket, dielectric central																
	member, zero water pek-low water peak, 0.35/0.25																
	db/km 1310/1550nm, dry core, gel filled buffer tubes,																
396000	RUS Buy American standards	96	0.6460	\$255,816.00	7	0.72000	\$285,120.00	15	0.63294	\$250,644.24	7	0.6170	\$244,332.00	11	0.68290	\$270,428.40	3
	Single armor, single PE jacket, dielectric central																
	member, zero water pek-low water peak, 0.35/0.25																
	db/km 1310/1550nm, dry core, gel filled buffer tubes,																
79200	RUS Buy American standards	144	0.9366	\$74,178.72	8	1.02543	\$81,214.06	16	0.91825	\$72,725.40	8	0.9090	\$71,992.80	12	0.97957	\$77,581.94	4
Total Bid				\$1,025,766.72			\$1,126,573.27			\$1,005,458.26	;		\$1,061,544.00			\$1,067,667.48	

lotal Bid \$1,025,766.72 \$1,126,573.27 \$1,005,436.26 \$1,001,544.00 \$1,007,067.41

lelivery Time Frame

12 weeks

34 weeks - negotiable

5-6 weeks

6-8 weeks

Per call with David R., shipping free if over \$30k

Shipping Notes Delivery Time Frame Footnote Cable Type

OFS light armor, single PE jacket, single armor, dielectric central member, ALL-WAVE-SM. 35/.25 dbkm.1310/1383/1550

OFS light armor, single PE jacket, single armor, AT-3BEH2TT-024 OFS light armor, single PE jacket, single armor, dielectric central member, ALL-WAVE-SM. 35/.25 db/km. 1310/1383/1550
OFS light armor, single PE jacket, single armor, dielectric central member, ALL-WAVE-SM. 35/.25 db/km. 1310/1383/1550
OFS light armor, single PE jacket, single armor, single PE jacket, single armor, single PE jacket, single armor, single PE jacket, single armor, single ALL-WAVE-SM. 35/.25 db/km. 1310/1383/1550. AT-3BEH2TT-048 AT-3BEH2TT-096 db/km 1310/1383/1550 AT-3BEH2TT-144 dD/km 1310/1383/1550 Corning 24fiber Single Mode Armor Gel-filled, ALTOS® LITE# GEL-FILLED CABLE Corning 48fiber Single Mode Armor Gel-filled, ALTOS® 024euc-t4100a20 Corning LITE# GEL-FILLED CABLE 048euc-t4100a20 Corning 96fiber Single Mode Armor Gel-filled, ALTOS® LITE# GEL-FILLED CABLE 096euc-t4100a20 Corning Corning 144fiber Single Mode Armor Gel-filled, ALTOS® LITE# GEL-FILLED CABLE 144euc-t4100a20 Corning 24 strand, single mode, single armor/single jacket, dry core, with gel filled buffer tubes, RUS approved 4802474EEBSLWN ? 48 strand, single mode, single armor/single jacket, dry core, with gel filled buffer tubes, RUS approved 4804874EEBSLWN ? 10 96 strand, single mode, single armor/single jacket, dry core, with gel filled buffer tubes, RUS approved 4809674EEBSLWN ? 144 strand, single mode, single armor/single jacket, dry core, with gel filled buffer tubes, RUS approved 4814474EEBSLWN 12 D-024-LA-8W-F12NS S-OP-24-LA-A-3E-BK 13 8107300/DB D-048-LA-8W-F12NS S-OP-48-LA-A-3E-BK CommScope 15 8107303/DB D-096-LA-8W-F12NS S-OP-96-LA-A-3E-BK CommScope BI07393/DB B107395-05-07-121N-B107305/DB Single Jacket, single, armor, losse tube get wCorning SMF284-48 CT singlemode, single jacket, single, armor, losse tube get wCorning SMF284-96 CT singlemode, single jacket, single, armor, losse tube get wCorning SMF284-band wild voices SMF284-S-OP-144-LA-A-3E-BK CommScope 16 F90240204B 17 Teldor F90480489B Teldor tube gel w/Corning SMF28e+

144 CT singlemode, single jacket, single, armor, loose 19 F90960855B 20 tube gel w/Corning SMF28e+ ExpressLT ™ Cable, SA/SJ, 12F/tube, gel free tubes, Corning Single Mode (ITU G.652.D), 0.35/0.31/0.25 F91441253B dB/km at 1310/1383/1550 nm (zero water peak, 1383 nm uncabled), GR-20, RUS CFR-1755-900, ANSI/ICEA S-87-640 21 F-ETH1A1J-12-CE-024-ES Prysmiam ExpressLT ™ Cable, SA/SJ, 12F/tube, gel free tubes, Corning Single Mode (ITU G.652.D), 0.35/0.31/0.25 dB/km at 1310/1383/1550 nm (zero water peak, 1383 nm uncabled), GR-20, RUS CFR-1755-900, ANSI/ICEA S-87-640 22 F-ETH1A1J-12-CE-048-ES Prysmiam ExpressLT ™ Cable, SA/SJ, 12F/tube, gel free tubes, Coming Single Mode (ITU G.652.D), 0.35/0.31/0.25 dB/km at 1310/1383/1550 nm (zero water peak, 1383) nm uncabled), GR-20, RUS CFR-1755-900, ANSI/ICEA S-87-640 F-ETH1A1J-12-CE-096-ES Prysmiam ExpressLT ™ Cable, SA/SJ, 12F/tube, gel free tubes, Coming Single Mode (ITU G.652.D), 0.35/0.31/0.25 dB/km at 1310/1383/1550 nm (zero water peak, 1383 nm uncabled), GR-20, RUS CFR-1755-900, ANSI/ICEA S-87-640 F-ETH1A1J-12-CE-0144-E Prysmiam

#### **Buried Fiber Cable RFP Summary**

Quantity	Description	Cable Strand Size	Company E-2 Unit Cost	Company E-2 Total Cost	Company E-2 Cable Type	Company F Unit Cost	Company F Total Cost	Company F Cable Type	Company G Unit	Company G Total Cost	Company G Cable Type	Company H Unit Cost	Company H Total Cost	Company H Cable Type	Company I Unit Cost	Company I Total Cost	Company I Cable Type	Company J Unit Cost	Company I Total Cost	Company I Cable Type
1768800	Single armor, single PE jacket, dielectric central member, zero water pek-low water peak, 0.35/0.25 db/km 1310/1550nm, dry core, gel filled buffer tubes, RUS Buy American standards	24	0.2976	\$526,394.88	13	0.2690	\$475,807.20	17	0.28935	\$511,802.28	21	0.29161	\$515,799.77	1	0.30000	\$530,640.00	1	0.27300	\$482,882.40	17
528000	Single armor, single PE jacket, dielectric central member, zero water pek-low water peak, 0.35/0.25 db/km 1310/1550nm, dry core, gel filled buffer tubes, RUS Buy American standards	48	0.3888	\$205,275.84	14	0.3519	\$185,803,20	18	0.39283	\$207.414.24	22	0.39870	\$210,513.60	2	0.41000	\$216,480.00	2	0.35600	\$187,968.00	18
	Single armor, single PE jacket, dielectric central member, zero water pek-low water peak, 0.35/0.25 db/km 1310/1550nm, dry core, gel filled buffer tubes, RUS Buy American standards	96	0.6929	\$274,404.24	15	0.5840	\$231,264.00	19	0.66826	\$264,630.96	23	0.70419	\$278,859.24	3	0.72400	\$286,704.00	3	0.59100	\$234,036.00	19
	Single armor, single PE jacket, dielectric central member, zero water pek-low water peak, 0.35/0.25 db/km 1310/1550nm, dry core, gel filled buffer tubes, RUS Buy American standards	144	0.9869	\$78,161.69	16	0.8519	\$67,470.48	20		\$77,840.14	24	1.01387	\$80,298.50	4	1.04200	\$82,526.40	4	0.86200	\$68,270.40	20
79200	RUS Buy American standards	144	0.9869	\$78,161.69		0.8519	\$67,470.48 \$960.344.88		0.98283	\$77,840.14		1.01387	\$80,298.50	- 4	1.04200	\$82,526.40 \$1.116.350.40	4	0.86200	\$68,270.4	

| 0.9869 | 378,101.ev| | 10 | 0.9519| | 30,7470.48 | 2u| 0.902.03 | 37,7490.14 | 24 | 1.01367 | 3002.750.00 | 7 | 1.010.09 | 320,020.70 | 7 | 1.010.09 | 320,020.70 | 7 | 1.010.09 | 320,020.70 | 7 | 1.010.09 | 320,020.70 | 7 | 1.010.09 | 320,020.70 | 7 | 1.010.09 | 320,020.70 | 7 | 1.010.09 | 320,020.70 | 7 | 1.010.09 | 320,020.70 | 7 | 1.010.09 | 320,020.70 | 7 | 1.010.09 | 320,020.70 | 7 | 1.010.09 | 320,020.70 | 7 | 1.010.09 | 320,020.70 | 7 | 1.010.09 | 320,020.70 | 7 | 1.010.09 | 320,020.70 | 7 | 1.010.09 | 320,020.70 | 7 | 1.010.09 | 320,020.70 | 7 | 1.010.09 | 320,020.70 | 7 | 1.010.09 | 320,020.70 | 7 | 1.010.09 | 320,020.70 | 7 | 1.010.09 | 320,020.70 | 7 | 1.010.09 | 320,020.70 | 7 | 1.010.09 | 320,020.70 | 7 | 1.010.09 | 320,020.70 | 7 | 1.010.09 | 320,020.70 | 7 | 1.010.09 | 320,020.70 | 7 | 1.010.09 | 320,020.70 | 7 | 1.010.09 | 320,020.70 | 7 | 1.010.09 | 320,020.70 | 7 | 1.010.09 | 320,020.70 | 7 | 1.010.09 | 320,020.70 | 7 | 1.010.09 | 320,020.70 | 7 | 1.010.09 | 320,020.70 | 7 | 1.010.09 | 320,020.70 | 7 | 1.010.09 | 320,020.70 | 7 | 1.010.09 | 320,020.70 | 7 | 1.010.09 | 320,020.70 | 7 | 1.010.09 | 320,020.70 | 7 | 1.010.09 | 320,020.70 | 7 | 1.010.09 | 320,020.70 | 7 | 1.010.09 | 320,020.70 | 7 | 1.010.09 | 320,020.70 | 7 | 1.010.09 | 320,020.70 | 7 | 1.010.09 | 320,020.70 | 7 | 1.010.09 | 320,020.70 | 320,020.70 | 320,020.70 | 320,020.70 | 320,020.70 | 320,020.70 | 320,020.70 | 320,020.70 | 320,020.70 | 320,020.70 | 320,020.70 | 320,020.70 | 320,020.70 | 320,020.70 | 320,020.70 | 320,020.70 | 320,020.70 | 320,020.70 | 320,020.70 | 320,020.70 | 320,020.70 | 320,020.70 | 320,020.70 | 320,020.70 | 320,020.70 | 320,020.70 | 320,020.70 | 320,020.70 | 320,020.70 | 320,020.70 | 320,020.70 | 320,020.70 | 320,020.70 | 320,020.70 | 320,020.70 | 320,020.70 | 320,020.70 | 320,020.70 | 320,020.70 | 320,020.70 | 320,020.70 | 320,020.70 | 320,020.70 | 320,020.70 | 320,020.70 | 320,020.70 | 320,020.70 | 320,020.70 | 320,020.70 | 320,020.70 | 320,020.70 | 320,020.70 | 320,020.70 | 320,020.70 | 320,020.70 | 32

#### ADSS Fiber Cable Material Quotes

											г	
Quantity	Description	Part Number	Company A	Company A Total Cost	Company B	Company B Total Cost	Company C	Company C Total Cost	Company D	Company D Total Cost	Company E	Company E Total Cost
	OFS 350 ft span											
4.477.004	24F 100% DRY Single Jkt PowerGuide ADSS Single PE Jkt, Dielectric Central Member ALLWAVE-SM- 35/.31/.25 db/km@1310/1385/1550 CABLE DIAMETER: 11.7mm (.461 in.)	AT 00517N/ 004 CLCA	0.07/4	<b>\$205.000.70</b>	0.0444	<b>*</b> 207 710 F2	0.0740	#210 F/F 20	0.0447	\$307.859.69	0.26150	<b>*</b> 207.424.42
1,176,384	ABE 100% DRY Single Jkt PowerGuide ADSS Single PE Jkt, Dielectric Central Member ALLWAVE-SM- .35/.31/.25 db/km@1310/1385/1550	AT-3BE17N6-024-CLGA	0.2764	\$325,093.72	0.2616	\$307,718.53	0.2640	\$310,565.38	0.2617	\$307,869.69	0.20150	\$307,624.42
1,176,384	CABLE DIAMETER: 11.7mm (.461 in.) 72F 100% DRY Single Jkt PowerGuide ADSS Single PE Jkt, Dielectric Central Member ALLWAVE-SM-	AT-3BE17NT-048-CLGA	0.3678	\$432,615.22	0.3481	\$409,487.51	0.3510	\$412,910.78	0.3483	\$409,734.55	0.34800	\$409,381.63
1,176,384	. 35/.31/.25 db/km@1310/1385/1550 CABLE DIAMETER: 12.7mm (.500 in.) 96F 100% DRY Single Jkt PowerGuide ADSS Single	AT-3BE17NT-072-CLGA	0.5043	\$593,262.22	0.4774	\$561,546.90	0.4810	\$565,840.70	0.4776	\$561,841.00	0.47720	\$561,370.44
1 176 384	PE Jkt, Dielectric Central Member ALLWAVE-SM- .35/.31/.25 db/km@1310/1385/1550 CABLE DIAMETER: 14.7mm (.579 in.)	AT-3BE17NT-096-CLGA	0.6430	\$756,438.44	0.6087	\$716,006.12	0.6130	\$721,123.39	0.6090	\$716,417.86	0.60850	\$715,829.66
	144F 100% DRY Single Jkt PowerGuide ADSS Single PE Jkt, Dielectric Central Member ALLWAVE- SM35/.31/.25 db/km@1310/1385/1550 CABLE DIAMETER: 18.5mm (.728 in.)	AT-3BE17NT-144-CLGA	0.9365	\$1,101,671.85		\$1,041,688.03	0.8920	\$1,049,334.53		\$1,042,158.59		\$1,041,570.39
1,170,304	OFS 500 ft span	AT-3BET/INT-144-CEGA	0.9303	\$1,101,071.80	0.0000	\$3,036,447.09	0.0320	\$1,047,334.03	0.0003	\$1,042,100.09	0.88340	\$3,035,776.55
1,176,384	24F 100% DRY Single Jkt PowerGuide ADSS Single PE Jkt, Dielectric Central Member ALLWAVE-SM- 35/.31/.25 db/km@1310/1385/1550 CABLE DIAMETER: 11.8mm (.465 in.)	AT-3BE17N6-024-CMEA	0.2914	\$342,798.30	0.2758	\$324,482.00	0.2780	\$327,034.75	0.2759	\$324,564.35	0.27570	
1 176 384	48F 100% DRY Single Jkt PowerGuide ADSS Single PE Jkt, Dielectric Central Member ALLWAVE-SM-35/.31/.25 db/km@1310/1385/1550 CABLE DIAMETER: 11.8mm (.465 in.)	AT-3BE17NT-048-CMGA	0.3936	\$462,965.92	0.3725	\$438,226. <b>5</b> 7	0.3750	\$441,144.00	0.3727	\$438,438.32	0.37240	\$438,085.40
, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	72F 100% DRY Single Jkt PowerGuide ADSS Single PE Jkt, Dielectric Central Member ALLWAVE-SM35/.31/.25 db/km@1310/1385/1550	AT-SDET/INT-O40-GINICA										
1,176,384	CABLE DIAMETER: 12.8mm (.506 in.) 96F 100% DRY Single Jkt PowerGuide ADSS Single PE Jkt, Dielectric Central Member ALLWAVE-SM35/.31/.25 db/km@1310/1385/1550	AT-3BE17NT-072-CMIA	0.5248	\$617,307.50	0.4967	\$584,298.17	0.5010	\$589,368.38	0.4969	\$584,545.21	0.49650	\$584,074.66
1,176,384	CABLE DIAMETER: 14.8mm (.583 in.)  144F 100% DRY Single Jkt PowerGuide ADSS Single PE Jkt, Dielectric Central Member ALLWAVE-	AT-3BE17NT-096-CMFA	0.6667	\$784,259.92	0.6310	\$742,345.36	0.6360	\$748,180.22	0.6314	\$742,768.86	0.63090	\$742,180.67
1,176,384	SM35/.31/.25 db/km@1310/1385/1550 CABLE DIAMETER: 18.6mm (.732 in.) OFS 400 ft span	AT-3BE17NT-144-CMEA	0.9505	\$1,118,200.05	0.8997	\$1,058,439.74 \$3,147,791.83	0.9070	\$1,066,980.29	0.9002	\$1,058,980.88	0.89950	\$1,058,157.41 \$3,146,827.20
1,176,384	24F 100% DRY Single Jkt PowerGuide ADSS Single PE Jkt, Dielectric Central Member ALLWAVE-SM- .35/.31/.25 db/km@1310/1385/1550 CABLE DIAMETER: 11.7mm (.461 in.) 400 ft span	AT-3BE17N6-024-CLGA		\$0.00		\$0.00		\$0.00		\$0.00	0.27570	\$324,329.07
1,176,384	48F 100% DRY Single Jkt PowerGuide ADSS Single PE Jkt, Dielectric Central Member ALLWAVE-SM- .35/.31/.25 db/km@1310/1385/1550 CABLE DIAMETER: 11.8mm (.456 in.) 400 ft span	AT-3BE17NT-048-CMEA		\$0.00		\$0.00		\$0.00		\$0.00	0.37240	\$438,085.40
1,176,384	72F 100% DRY Single Jkt PowerGuide ADSS Single PE Jkt, Dielectric Central Member ALLWAVE-SM- .35/.31/.25 db/km@1310/1385/1550 CABLE DIAMETER: 12.8mm (.504 in.) 400 ft span	AT-3BE17NT-072-CMIA		\$0.00		\$0.00		\$0.00		\$0.00	0.49650	\$584,074.66
	96F 100% DRY Single Jkt PowerGuide ADSS Single PE Jkt, Dielectric Central Member ALLWAVE-SM- .35/.31/.25 db/km@1310/1385/1550 CABLE DIAMETER: 14.7mm (.579 in.) 400 ft span	AT-3BE17NT-096-CLGA		\$0.00		\$0.00		\$0.00		\$0.00	0.63090	
1,176,384	144F 100% DRY Single Jkt PowerGuide ADSS Single PE Jkt, Dielectric Central Member ALLWAVE- SM-35/.31/.25 db/km@1310/1385/1550 CABLE DIAMETER: 18.5mm (.738 in.) 400 ft span	AT-3BE17NT-144-CLGA		\$0.00		\$0.00		\$0.00		\$0.00	0.89130	\$1,048,511.06
1,176,384	288F 100% DRY Single Jkt PowerGuide ADSS Single PE Jkt, Dielectric Central Member ALLWAVE- SM35/.31/.25 db/km@1310/1385/1550 CABLE DIAMETER: 18.5mm (.738 in.) 400 ft span	AT-3BE27DT-288-CNAB		\$0.00		\$0.00 \$0.00		\$0.00		\$0.00	1.97520	\$2,323,593.68 \$5.460.774.53

\$0.00 \$5,460,774.53

# **E.** Cable Material Pricing

2. Aerial & Buried Fiber Drop Cable Material Quotes

## QUOTE

 QUOTE DATE
 ORDER NO.

 08/14/20
 50361287-00

 PLACED BY
 P.O. NO.
 PAGE #

 Stephen
 Drop Fiber
 1

CUST.#:

SHIP TO:

REMIT TO:

BILL TO:

INSTRUCTI	ONS		
SHIP POINT	SHIP VIA	SHIPPED	TAKEN BY
SMC Joplin	Best Way		jme

Acceptance of SMC's goods/services is your acceptance of SMC's Terms and Conditions posted on www.smcelectric.com/terms.

LINE NO.	PRODUCT AND DESCRIPTION	COUNTRY OF ORIGIN	QUANTITY ORDERED	QTY. U/M	UNIT PRICE		AMOUNT
1 ESX6	6U0023101 WP FTTP UNIV MDPE D/F;D/F~;		6056	FT	144.29	М	873.82

Total 873.82 Invoice Total 873.82

Last Page

### **Aerial Drop Cable Material RFP**

Drop Length	Quantity	Company A	Company B	Company C	Company D	Company E
100'	100	\$36.55	\$45.40	\$35.0628	\$35.0628	\$55.00
150'	100	\$43.33	\$52.02	\$41.5285	\$41.5285	\$65.97
200'	100	\$50.05	\$58.64	\$47.9942	\$47.9942	\$76.92
250'	100	\$57.10	\$65.25	\$54.4711	\$54.4711	\$87.89
300'	100	\$73.45	\$71.87	\$70.4617	\$70.4617	\$98.84
400'	100	\$94.25	\$85.10	\$81.0338	\$90.3743	\$120.76
500'	50	\$109.10	\$98.33	\$93.8502	\$104.6504	\$142.68
750′	25	\$161.95	\$131.35	\$139.2932	\$155.3563	\$197.47
1000'	25	\$199.15	\$164.49	\$171.2975	\$191.0690	\$252.36
Total @ Quantities above	700	\$49,955.50	\$50,140.50	\$45,512.49	\$47,882.41	\$68,917.75

 ${\bf Corning\ ROC\ Fast\ Access\ cable\ with\ Corning\ OptiTap.}$ 

### **Buried Fiber Cable RFP Summary**

Unit Qty	Unit	Item Qty per Unit	Vendor part #	Description	Price	U of M
	CORNING	MATERIAL				
		20	004301EB1TR100F	00 - Pigtail, 43 - OptiTap SC/APC, 1 SMF-28e ROC Toneable Drop, 100 Feet Country of Origin: MEXICO	35.6474	EA
		45	004301EB1TR150F	00 - Pigtail, 43 - OptiTap SC/APC, 1 SMF-28e SST Toneable Drop, 150 Feet Country of Origin: MEXICO 00 - Pigtail, 43 - OptiTap SC/APC, 1 SMF-28e	42.2220	EA
		45	004301EB1TR200F	ROC Dielectric Drop, 200 Feet Country of Origin: MEXICO 00 - Pigtail, 43 - OptiTap SC/APC, 1 SMF-28e	48.8077	EA
		40	004301EB1TR250F	ROC Toneable Drop, 250 Feet Country of Origin: MEXICO 00 - Pigtail, 43 - OptiTap SC/APC, 1 SMF-28e	55.3822	EA
		25	004301EB1TR300F	ROC Toneable Drop, 300 Feet Country of Origin: MEXICO 00 - Pigtail, 43 - OptiTap SC/APC, 1 SMF-28e	71.4397	EA
		30	004301EB1TR500F	ROC Toneable Drop, 500 Feet Country of Origin: MEXICO 00 - Pigtail, 43 - OptiTap SC/APC, 1 SMF-28e	106.1288	EA
		5	004301EB1TR750F	ROC Toneable Drop, 750 Feet Country of Origin: MEXICO 00 - Pigtail, 43 - OptiTap SC/APC, 1 SMF-28e	157.3434	EA
		3	004301EB1TRA00F	ROC Toneable Drop, 1000 Feet Country of Origin: MEXICO	193.6260	EA

# F. Electronics Pricing & Product Literature

## 1. GPON FTTH Electronics

#### **BUDGETARY QUOTATION**

## NOKIA

Customer: Location: Partner Quotation Date: May 5, 2020 Quote Number: 18.US.844430 Delivery: 2020 Prices FCA: ORIGIN

Equipment: Nokia 7360 ISAM Equipment

ISAM Shelf Part Number	MNEM	Description	Quantity	,	Sale Price	Ext	ended Price
OLT							
3HG01392AA	Kit	Redundant FX-8 Starter Kit w/ 16-PON Card.	1	_			
3FE64936BB		Each kit includes: 7360 ISAM FX-8 shelf (ANSI variant), 48V		\$	20,677.99	\$	20,677.99
31 E04930BB		only, incl. BFAN unit	1				
3FE67300AA		FX-8 Horizontal mounting kit for 19" or 23" rack	1				
3FE61087EB		Fiber Routing Kit for ANSI FX-8	1				
3FE53701BD		7360 ISAM FX 480Gbps NT with ANSI T1 BITS, Synchronous Ethernet and IEEE1588 for					
		high density/high bandwidth applications,	2				
		without SFPs (ANSI variant)					
3FE68954AB		ISAM FX 16port GPON Line board	1				
3FE65651BA		Filler Panel for NTIO and LT, no pre-cabling	8				
3FE62600DA		SFP+ 1310 nm 0°C to + 70°C 10 km 10 dB	2				
2555244440		Duplex LC					
3FE53441AC		ISAM FD/FX GPON SFP OLT (I-temp) Class B+	1				
		-					
Line Cards							
3FE53441AC	SFP B+	ISAM FD/FX GPON SFP OLT (I-temp) Class B+	-1	\$	143.61	\$	(143.6
				•		·	,
Sub Total ISAM	Shelf						\$20,534.3
							<b>4</b> _0,00
Outdoor ONT fo	r Commercial Units						
	MNEM	Description	Quantity			Ex	
		<b>Description</b> Hardened 2 POTS, 4GE, fits universal Enclosure	<b>Quantity</b>	•	00.42	Ex	
			•	\$	98.43	Ex	
			•	\$	98.43	Ex	
3FE55691AA		Hardened 2 POTS, 4GE, fits universal Enclosure	0	\$	98.43	Ex	
3FE55691AA	G-240G-A (outdoor)		•	\$	98.43	Ex	\$0.0
3FE55691AA 1AB383340010	G-240G-A (outdoor)	Hardened 2 POTS, 4GE, fits universal Enclosure  8' power cable (IEC 320-C5 to NEMA 5-15 [Type	0			Ex	\$0.0
3FE55691AA 1AB383340010	G-240G-A (outdoor)  Cable	Hardened 2 POTS, 4GE, fits universal Enclosure  8' power cable (IEC 320-C5 to NEMA 5-15 [Type B]) for NA applications	0				\$0.0 \$0.0
3FE55691AA 1AB383340010	G-240G-A (outdoor)  Cable	Hardened 2 POTS, 4GE, fits universal Enclosure  8' power cable (IEC 320-C5 to NEMA 5-15 [Type B]) for NA applications WiFi GPON residential gateway,2xPOTS,4xGE	0		4.60		\$0.0 <sup>(</sup> \$0.0
Part Number 3FE55691AA  1AB383340010 3FE47358AA  Sub Total Outdo	G-240G-A (outdoor)  Cable	Hardened 2 POTS, 4GE, fits universal Enclosure  8' power cable (IEC 320-C5 to NEMA 5-15 [Type B]) for NA applications WiFi GPON residential gateway,2xPOTS,4xGE UNI,3x3 11n+4x4 11ac,US plug	0		4.60		<b>\$0.0</b> ( <b>\$0.0</b> ( \$1,895.6)
3FE55691AA  1AB383340010  3FE47358AA  Sub Total Outdo	G-240G-A (outdoor)  Cable G-240W-E	Hardened 2 POTS, 4GE, fits universal Enclosure  8' power cable (IEC 320-C5 to NEMA 5-15 [Type B]) for NA applications WiFi GPON residential gateway,2xPOTS,4xGE UNI,3x3 11n+4x4 11ac,US plug	0		4.60		<b>\$0.0</b> <b>\$0.0</b> \$1,895.6
3FE55691AA  1AB383340010  3FE47358AA  Sub Total Outdo  Element Manage Part Number	G-240G-A (outdoor)  Cable G-240W-E  oor ONT for Commercement Software MNEM	Hardened 2 POTS, 4GE, fits universal Enclosure  8' power cable (IEC 320-C5 to NEMA 5-15 [Type B]) for NA applications WiFi GPON residential gateway,2xPOTS,4xGE UNI,3x3 11n+4x4 11ac,US plug	0		4.60		\$0.0 \$0.0 \$1,895.6 \$1,895.6
3FE55691AA  1AB383340010  3FE47358AA  Sub Total Outdo  Element Manage Part Number  SSP Kit with 3 Y	Cable G-240W-E  or ONT for Commercement Software MNEM Year Contract	Hardened 2 POTS, 4GE, fits universal Enclosure  8' power cable (IEC 320-C5 to NEMA 5-15 [Type B]) for NA applications WiFi GPON residential gateway,2xPOTS,4xGE UNI,3x3 11n+4x4 11ac,US plug  cial Units  Description	0 0 10		4.60		\$0.0 \$0.0 \$1,895.6 \$1,895.6
3FE55691AA  1AB383340010  3FE47358AA  Sub Total Outdo  Element Manage Part Number  SSP Kit with 3 Y	G-240G-A (outdoor)  Cable G-240W-E  oor ONT for Commercement Software MNEM	Hardened 2 POTS, 4GE, fits universal Enclosure  8' power cable (IEC 320-C5 to NEMA 5-15 [Type B]) for NA applications WiFi GPON residential gateway,2xPOTS,4xGE UNI,3x3 11n+4x4 11ac,US plug  cial Units  Description  5520/5529 AMS SSP Starter Kit Bundle includes:	0 0 10		4.60		\$0.0 \$0.0 \$1,895.6 \$1,895.6
3FE55691AA  1AB383340010  3FE47358AA  Sub Total Outdo  Element Manage  Part Number  SSP Kit with 3 Y	Cable G-240W-E  or ONT for Commercement Software MNEM Year Contract	B' power cable (IEC 320-C5 to NEMA 5-15 [Type B]) for NA applications WiFi GPON residential gateway,2xPOTS,4xGE UNI,3x3 11n+4x4 11ac,US plug  Cial Units  Description  5520/5529 AMS SSP Starter Kit Bundle includes: 5520 Core Platform	0 0 10		4.60		\$0.0 \$0.0 \$1,895.6 \$1,895.6
3FE55691AA  1AB383340010  3FE47358AA  Sub Total Outdo  Element Manage  Part Number  SSP Kit with 3 Y	Cable G-240W-E  or ONT for Commercement Software MNEM Year Contract	B' power cable (IEC 320-C5 to NEMA 5-15 [Type B]) for NA applications WiFi GPON residential gateway,2xPOTS,4xGE UNI,3x3 11n+4x4 11ac,US plug  Cial Units  Description  5520/5529 AMS SSP Starter Kit Bundle includes: 5520 Core Platform Five Operator Position Licenses	0 0 10		4.60		\$0.0 \$0.0 \$1,895.6 \$1,895.6
3FE55691AA  1AB383340010  3FE47358AA  Sub Total Outdo  Element Manage Part Number  SSP Kit with 3 Y	Cable G-240W-E  or ONT for Commercement Software MNEM Year Contract	B' power cable (IEC 320-C5 to NEMA 5-15 [Type B]) for NA applications WiFi GPON residential gateway,2xPOTS,4xGE UNI,3x3 11n+4x4 11ac,US plug  Cial Units  Description  5520/5529 AMS SSP Starter Kit Bundle includes: 5520 Core Platform	0 0 10		4.60		\$0.0 \$0.0 \$1,895.6 \$1,895.6
3FE55691AA  1AB383340010  3FE47358AA  Sub Total Outdo  Element Manage Part Number  SSP Kit with 3 Y	Cable G-240W-E  or ONT for Commercement Software MNEM Year Contract	B' power cable (IEC 320-C5 to NEMA 5-15 [Type B]) for NA applications WiFi GPON residential gateway,2xPOTS,4xGE UNI,3x3 11n+4x4 11ac,US plug  cial Units  Description  5520/5529 AMS SSP Starter Kit Bundle includes: 5520 Core Platform Five Operator Position Licenses ISAM and GPON Mgmt Modules	0 10 Quantity	\$	4.60 \$189.56	Ex	\$0.0 \$1,895.6 \$1,895.6
3FE55691AA  1AB383340010  3FE47358AA  Sub Total Outdo  Element Manage Part Number  SSP Kit with 3 Y	Cable G-240W-E  or ONT for Commercement Software MNEM Year Contract	B' power cable (IEC 320-C5 to NEMA 5-15 [Type B]) for NA applications WiFi GPON residential gateway,2xPOTS,4xGE UNI,3x3 11n+4x4 11ac,US plug  cial Units  Description  5520/5529 AMS SSP Starter Kit Bundle includes: 5520 Core Platform Five Operator Position Licenses ISAM and GPON Mgmt Modules Cold Stadby	0 0 10		4.60 \$189.56	Ex	\$0.0 \$1,895.6 \$1,895.6
3FE55691AA  1AB383340010  3FE47358AA  Sub Total Outdo  Element Manage  Part Number  SSP Kit with 3 Y	Cable G-240W-E  or ONT for Commercement Software MNEM Year Contract	8' power cable (IEC 320-C5 to NEMA 5-15 [Type B]) for NA applications WiFi GPON residential gateway,2xPOTS,4xGE UNI,3x3 11n+4x4 11ac,US plug  Cial Units  Description  5520/5529 AMS SSP Starter Kit Bundle includes: 5520 Core Platform Five Operator Position Licenses ISAM and GPON Mgmt Modules Cold Stadby 5529 APC GUI and XML NBI 5529 IDM GUI 5529 OAD and XML NBI	0 10 Quantity	\$	4.60 \$189.56	Ex	\$0.0 \$1,895.6 \$1,895.6
3FE55691AA  1AB383340010  3FE47358AA  Sub Total Outdo  Element Manage Part Number	Cable G-240W-E  or ONT for Commercement Software MNEM Year Contract	8' power cable (IEC 320-C5 to NEMA 5-15 [Type B]) for NA applications WiFi GPON residential gateway,2xPOTS,4xGE UNI,3x3 11n+4x4 11ac,US plug  Cial Units  Description  5520/5529 AMS SSP Starter Kit Bundle includes: 5520 Core Platform Five Operator Position Licenses ISAM and GPON Mgmt Modules Cold Stadby 5529 APC GUI and XML NBI 5529 IDM GUI 5529 OAD and XML NBI Documentation	0 10 Quantity	\$	4.60 \$189.56	Ex	\$0.0 \$0.0 \$1,895.6 \$1,895.6
3FE55691AA  1AB383340010  3FE47358AA  Sub Total Outdo  Element Manage Part Number  SSP Kit with 3 Y	Cable G-240W-E  or ONT for Commercement Software MNEM Year Contract	8' power cable (IEC 320-C5 to NEMA 5-15 [Type B]) for NA applications WiFi GPON residential gateway,2xPOTS,4xGE UNI,3x3 11n+4x4 11ac,US plug  Cial Units  Description  5520/5529 AMS SSP Starter Kit Bundle includes: 5520 Core Platform Five Operator Position Licenses ISAM and GPON Mgmt Modules Cold Stadby 5529 APC GUI and XML NBI 5529 IDM GUI 5529 OAD and XML NBI	0 10 Quantity	\$	4.60 \$189.56	Ex	\$0.00 \$0.00 \$1,895.60 \$1,895.60 \$1,897.78

Software Subsc	•	00D AMO/7000/7040/7000   DTILLVD4			
301049607	SSP	SSP - AMS/7330/7342/7360 per line RTU YR1 (annual charge, requires 3 year contract, see Pricing Notes)	0	\$ 9.13	\$ -
301049607	SSP	SSP - AMS/7330/7342/7360 per line RTU YR2 (annual charge, requires 3 year contract, see Pricing Notes)	0	\$ 9.13	\$ -
301049607	SSP	SSP - AMS/7330/7342/7360 per line RTU YR3 (annual charge, requires 3 year contract, see Pricing Notes)	0	\$ 9.13	\$ -
Sub Total EMS					\$11,487.78
Services Part Number		Description	Quantity		Extended Price
Engineering and	d Installation				
301036679 301036679		PER SITE/ PER SURVEY Installation Engineering for one (1) 7360 FX-8 chassis	1 1	\$2,983.70 \$6,217.40	
301036851		7360 FX-8 shelf installation	1	\$5,774.46	\$ 5,774.46
Professional Se 301093985	rvices - System Integ	ration and Turn-up Professional Support Services, including one week on-site for system integration and turn-up and knowledge transfer (see Statement of Work for details) Additional training available - see Training tab for recommended web-based and instructor led courses	1	\$20,040.76	\$ 20,040.76
Sub Total Service	ces				\$35,016.32
Maintenance Part Number		Description	Quantity		Extended Price
301013249		Technical Support - Gold YR1	1	\$1,268.24	\$1.268.24
301013249		Technical Support - Gold YR2	1	\$1,268.24	\$1,268.24
301013249		Technical Support - Gold YR3	1	\$1,268.24	\$1,268.24
300426210		GPON Advanced Exchange (NBD) YR1	1	\$646.19	\$646.19
300426210		GPON Advanced Exchange (NBD) YR2	1	\$646.19	\$646.19
300426210		GPON Advanced Exchange (NBD) YR3	1	\$646.19	\$646.19
Sub Total Maint	enance				\$5,743.29
<b>Grand Total</b>					\$74,677.37
Options Spares					
Part Number	MNEM	Description	Quantity		Extended Price
3HG01392AA	Kit	Redundant FX-8 Starter Kit w/ 16-PON Card. Each kit includes:	1		\$20,677.99
3FE55691AA	G-240G-A (outdoor)	Hardened 2 POTS, 4GE, fits universal Enclosure	1		\$0.00
	ne .				\$20,677.99
Sub Total Spare	.5				
•	r Multiple Commercia	al Units			
Outdoor ONT fo	r Multiple Commercia MNEM	Description	Quantity		Extended Price
Outdoor ONT fo	r Multiple Commercia		<b>Quantity</b>		Extended Price

#### **Indoor ONT for Multiple Commercial Units**

Part Number	MNEM	Description	Quantity	Extended Price
3FE56074AB	G-881G-B	Indoor ONT (Rack Mount), 8 POTS, 8 GE, 1RF	0	
3EM23372AA	UPS	UPS 90-264VAC/48VDC, Wall Mount, 50 Watt, - 20C to +55C for SOHO and Business ONT	0	
1AB383340010	Cable	8' power cable (IEC 320-C5 to NEMA 5-15 [Type B]) for NA applications	0	
1AF17581ABAA	Battery	Batteries (Installation) 16.8Ah*12V_UPS	0	

#### **Sub Total Indoor ONT for Multiple Commercial Units**

\$0.00

Indoor	Integrated	ONT	Gateway	,
macoi	micgialca	0111	Catcway	,

Part Number	MNEM	Description	Quantity	Extended Price
3FE47358AA G-240W-E		WiFi GPON residential gateway,2xPOTS,4xGE	0	
		UNI,3x3 11n+4x4 11ac,US plug		

#### **Sub Total Indoor Integrated ONT Gateway**

\$0.00

#### **Pricing Notes**

- Pricing levels are volume based and assume commitment for the total number of OLT and ONT shown
- · Pricing is valid for 60 days
- · Hardware and Software warranties are 1 year
- Pricing per Alcatel-Lucent Standard Terms and Conditions
- Server(s) for the 5520 AMS are not included in pricing
  Standard product lead times: (8) weeks Forecasted, (12) weeks Unforecasted, plus shipping and processing time
- Maintenance Pricing requires a 3 yr contract.
- Software pricing assumes a SSP (Software Subscription Plan) is executed. SSP charges will be billed annually, based on number of deployed ONTs and requires a 3 yr contract.

  SW and customer documentation are downloaded at no charge from CARES.
- This pricing is for Layer 2 licenses only it does not include any Right to Use (RTU) for Layer 3, MPLS features and associated enhanced features.



# Alcatel-Lucent 7360 Intelligent Services Access Manager FX Shelf

Alcatel-Lucent 7360 ISAM FX shelves are high-capacity access shelves included in the ISAM family of IP access products. These shelves address the need for mass-market, high-capacity fiber deployments by simultaneously supporting multiple Passive Optical Network (PON) technologies along with high-density point-to-point services over a non-blocking future-ready backplane architecture. High-bandwidth service throughput is guaranteed by backplane technology that enables dual 100-Gb/s backplane connections to each line termination (LT) slot.



FX-16



FX-8



With three Alcatel-Lucent 7360 ISAM FX shelf sizes to choose from, service providers have maximum flexibility for deploying in Central Office (CO), outside plant cabinet or other remote environments. All Alcatel-Lucent 7360 ISAM FX shelves are ready to support any future fiber-based access application with full flexibility for mixing 10G XG-PON, EPON, GPON and point-to-point access technologies on the same platform. As a result, operators are not locked in to a certain fiber access technology or shelf density; they can choose to deploy different options based on techno-economics, local regulations or services offered.

For operators with an Alcatel-Lucent 7302 ISAM or Alcatel-Lucent 7330 ISAM (ETSI) installed base, the Alcatel-Lucent 7360 ISAM FX shelves offer smooth complementary evolution to an increased shelf capacity when needed. All products in the Alcatel-Lucent ISAM product family, including the Alcatel-Lucent 7360 ISAM FX, are supported by the same Alcatel-Lucent

5520 Access Management System (AMS) and Alcatel-Lucent ISAM software stream, resulting in lower cost and time-to-market when deploying new ISAM technologies.

#### **Features**

- High-capacity backplane: 2 x 100 Gb/s per slot
- Four-slot (FX-4), eight-slot (FX-8) and sixteen-slot (FX-16) shelf options
- Simultaneous support of multiple fiber access technologies
- High-density 10G XG-PON, EPON, GPON and point-to-point support
- Residential, mobile and business applications converge on a single platform
- IP/Ethernet access platform supporting Multi-Protocol Label Switching (MPLS)
- Application and subscriber intelligence to extract more value from the network

#### **Benefits**

- High-bandwidth capacity to meet increasing demand
- Shelf-size options that support every application in central office (CO) or outside plant (OSP)
- One ISAM family: Any technology, any service, any deployment model
- Intuitive service provisioning practices for both fiber and copper access technologies
- Commonality of software, line cards and deployment practices across the Alcatel-Lucent ISAM shelf types (FD and FX)
- Supported existing practices and proven ISAM technology
- Allows multiple service providers to offer their services over a single network using an open access platform
- Supported by the Alcatel-Lucent 5520 AMS

## Technical specifications

#### Full service platform

- Multiservice access support
  - ¬ IPTV services
  - ¬ Multimedia service
  - ¬ High-speed Internet access (HSIA)
  - ¬ Business access
  - ¬ Cell-site backhaul G.987.1: XG-PON1 service requirements
- LT support
  - ¬ 4-port 10G PON line card
  - ¬ 8-port GPON line card
  - ¬ 8-port Ethernet PON (EPON) line card
  - ¬ 32-port high-density point-topoint-fiber line card
  - ¬ Cell site backhaul G.987.1: XG-PON1 service requirements
- NT support: Alcatel-Lucent ISAM FANT-F NT
  - ¬ 480 Gb/s switching matrix (bi-directional)
  - ¬ Active-active redundancy
  - ¬ 4 configurable 10 Gb/s or 1 Gb/s network links
  - ¬ Small Form Factor Pluggable (SFP)+ cages

#### Management

 Fully managed by the Alcatel-Lucent 5520 AMS

#### **Eco-sustainability**

- Product lifetime maximized by modular, shelf-based concept and by implementing new features and functionalities through remote software download
- Power consumption targets CoC power-consumption limits
- Compliant with the European directive 2002/95/EC on the restriction of the use of certain hazardous substances (RoHS)
- Product collection and treatment under Alcatel-Lucent responsibility complies with the national laws on product treatment applied at the end of life for Wastes from Electrical and Electronic Equipment (WEEE), implementing the European Directive (2002/96/EC)
- Product-packaging materials are free from Hydrochloroflurocarbon (HCFC)
- Plastic product-packaging material is marked according to ISO 11469, referring to ISO 1043 (97/129/EEC)

#### Standards compliance

- Environmental
  - ¬ ETS EN 300 019-1-1 storage − Class 1.1 weather-protected, partly temperature-controlled locations
  - ¬ ETS EN 300 019-1-2 transport − Class 2.3 public transportation
- ¬ ETS EN 300 019-1-3 stationary use – Class 3.1E and Class 3.3 (assuming no condensation and icing)
- ¬ GR-63-CORE
- ¬ TP76200MP
- ¬ GR-3108-CORE

#### Powering

- ¬ ETS EN 300 132-2
- Protection
- ¬ ITU-T K.20 enhanced and K.45 basic
- Safety
  - ¬ IEC 60950, EN60950 Class 1, AS/NZS 60950.1
  - ¬ UL/CSA 60950-1-03
- ¬ EN 60950-1
- FMC
  - ¬ ETS EN 300 386 for telecommunications center installation environment
  - ¬ FTS FS 201 468
  - ¬ GR-1089-CORE
  - ¬ FCC part 15 Class A
  - ¬ EN 55022
- Acoustic noise
  - ¬ ETS 300 753

#### **Operating conditions**

- Operating temperature range: -40°C to +65°C (-40°F to +149°F)
- Relative humidity: 5% to 93% (non-condensing)
- Over-temperature sensors and over-temperature shutdown

#### Power

- Input
  - ¬ 48/60 V DC nominal
  - ¬ Fully redundant power feeding (branch A and B)

#### **Dimensions**

- FX-16
- ¬ Height: 600 mm (23.62 in.) (~14 RU)
- ¬ Width: 500 mm (19.68 in.); can be used in ETSI-sized 600 x 300 mm racks
- ¬ Depth: 280 mm (11.02 in.); can be used in ETSI-sized 600 x 300 mm racks
- FX-8
- ¬ Height: 360 mm (14.17 in.) (8 RU)
- ¬ Width: 445 mm (17.52 in.); can be used in 19-in. racks
- ¬ Depth: 280 mm (11.02 in.)
- FX-4
  - ¬ Height: 223 mm. (8.77 in.) (5 RU)
  - ¬ Width: 445 mm (17.52 in.); can be used in 19-in. racks
  - ¬ Depth: 280 mm (11.02 in.)
- Rack-mounting pitch of 25 mm (0.984 in.)

#### Construction based on FX-16

- 16 wire-speed LT slots
- 64 10G XG-PON ports per shelf: 4 ports x 16 slots
- 128 GPON ports per shelf: 8 ports x 16 slots

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## Alcatel-Lucent 7342 ISAM FTTU

I-24X INDOOR OPTICAL NETWORK TERMINAL (ETSI/ANSI)

The Alcatel-Lucent I-24x Indoor Optical Network Terminal (ONT) with 4 Gigabit Ethernet, 2 POTS and optional RF interfaces is part of the industry leading Alcatel-Lucent 7342 ISAM FTTU product family. It is designed to deliver triple play services with high bandwidth capacity to homes where multiple Ethernet ports are required, and terminates a Full Service Access Network (FSAN)-compliant GPON fiber interface.



#### **Features**

- Supported interfaces: 4 Gigabit Ethernet (with 10/100/1000Base-T auto-negotiation), 2 POTS RJ-11 interfaces and optional RF interface (Type F coaxial)
- IP video with multistage IGMPv3 or IGMPv2 for channel change
- VoIP software client (SIP and H.248) for legacy POTS interworking
- All ports can be independently turned on or off
- Support for MAC and IP antispoofing support
- Connectivity Fault Management as defined in IEEE 802.1ag for continuity check, loopback and trace-route functions as well as AIS reporting
- Dynamic bandwidth management and prioritization per port, per service

#### **Benefits**

- Large number of Gigabit Ethernet ports allows service per port configurations
- Can be readily used as the demarcation point in an open/wholesale business model
- Multistage IGMP processing enables faster IPTV channel changes, and reduces the upstream control message flow and access bandwidth requirements.
- Supports smooth migration from legacy TDM voice to VoIP
- Advanced performance management and security features
- Fine control of bandwidth and QoS for the best subscriber experience.

## **Applications**

The Alcatel-Lucent 7342 ISAM FTTU I-240 ONT provides four RJ-45 Gigabit Ethernet Interfaces with 10/100/1000Base-T auto-negotiation and two POTS (RJ-11) interfaces. The I-241 has an additional coaxial port (75 W F connector) for RF video distribution. Both variants are designed to deliver ultra-high bandwidth to users who need multiple Ethernet ports for port-based service separation.

This ONT is ideal for open/wholesale business models with one operator providing basic Ethernet connectivity and multiple service providers on different ports. Along with data, the Alcatel-Lucent 7342 ISAM FTTU I-24x ONT provides two legacy voice interfaces. The voice service is emulated over the GPON network and can be terminated in a Class 5 switch via the PSTN gateway. In addition, the

ONT supports SIP-based VoIP clients, and lets voice services be terminated by an NGN switch.

Both RF video overlay, using a coax interface, as well as IPTV service architectures, are supported. IPTV is supported on all Ethernet interfaces with IGMP snooping to assure banding efficiency and secure multicasting.

## Technical specifications

#### **GPON** interface

- 2.488 Gb/s line rate downstream and 1.244 Gb/s line rate upstream
- Class B+ optics with 28 dB optical link loss and nominal 20 km reach
- 1490 nm wavelength downstream, 1310 nm wavelength upstream, optional 1550 nm wavelength for RF overlay
- Single mode fiber (SC/APC connector)
- GEM mode support for IP/Ethernet service traffic transport
- G.984.3 compliant dynamic bandwidth reporting
- G.984.3 compliant Advanced Encryption System (AES) with operator enable/disable on a per port-id level
- G.984.3 compliant Forward Error Correction (FEC) in both upstream and downstream
- OMCI management and provisioning.

#### **POTS** interface

- Voice ports compliant with GR-909-CORE
- Two RJ-11 connectors
- Loop start signaling
- DC supervisory range: 750 Ohm loops
- Minimum on-hook voltage -43 V

- Nominal loop current 25 mA
- G.168 echo cancellation
- Balanced sinusoidal ring signal with 18 V DC offset: 42 VRMS

#### **Gigabit Ethernet interfaces**

- IEEE 802.3 compliant 10/100/1000 Base-T ports
- 4 RJ-45 connectors
- Full/duplex operation
- Auto-negotiation or manual setting by operator of Ethernet interface line rate
- 802.1Q support
- 802.1p support
- Up to four QoS classes for traffic prioritization per Ethernet port using 802.1p
- Layer 3 DSCP to 802.1p mapping allows Layer 3 CoS over the Layer 2 network. Mapping is operator provisionable.
- IEEE 802.1x port-based authentication with enable/disable by operator

#### IP video service

- IGMPv3 and IGMPv2 snooping
- G.984.3 compliant multicast using a single GEM Port-ID for all video traffic (as mandated by G.984.3)
- Up to 64 video multicast streams shared by 4 GE ports

#### RF video service interface

- Optional coaxial port (75 W F connector)
- Operating wavelength range: 1550 nm to 1560 nm
- Operating RF bandwidth: 47 MHz to 870 MHz
- Video output power: 18 dBmV at 450 MHz

#### Voice adaptation and signaling

- Voice loop emulation over GPON with Megaco/H.248 signaling between PSTN gateway and ONT
- Interworking with Genband PSTN gateway with V5.2/GR-303 signaling with Class 5 switch
- SIP client software for NGN-based voice

#### Power

- Local powering with 12 V DC input
- External power supply: 110/220 V AC input
- Up to 8 hours with optional battery backup
- · Visual status indicator
- Max power consumption: 15W
- Typical power consumption: 12W

#### Dimensions

- Height: 25.32 cm (9.97 in)
- Width: 19.21 cm (7.56 in.)
- Depth: 4.18 cm (1.65 in.)
- Weight: .95 kg (33.51 oz.) (production weight)

#### **Environment**

- Operating temperature range: 0°C to +40°C (32°F to 104°F)
- Maximum operating altitude: 3,048 m (10,000 ft.)
- Maximum non-operating altitude: 12,192 m (40,000 ft.)
- Relative humidity (non-condensing) range: 5% to 93%

## Regulatory/standards approvals

• CE approved and marked

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# ALCATEL-LUCENT ISAM NGLT-C 8-PORT GPON LINE CARD

The Alcatel-Lucent Intelligent Services Access Manager (ISAM) NGLT-C is a Gigabit Passive Optical Network (GPON) line termination card, with eight GPON interfaces that can serve up to 1024 Optical Network Terminals (ONTs) per card and up to 512 UNIs per PON. The NGLT-C is available in ISAM FD and ISAM FX. When used in a shelf equipped with dual Active-Active controllers, the NGLT-C supports a total non-blocking capacity of 20 Gb/s.



Each PON interface delivers 2.5 Gb/s in downstream and 1.2 Gb/s in upstream, and has a reach of up to 60 km (37.3 miles), which makes this card ideal for costeffective delivery of high-bandwidth IP services to residential and business users.

#### **KEY FEATURES**

- · 8-port GPON line card
- Class C+ optics (32 dB link loss budget) and B+ optics (28 dB link loss budget)
- Pluggable optics
- Received Signal Strength Indicator (RSSI) capable optics; Optical Time Domain Reflectometer (OTDR) HW-ready through SFP swap
- Supports IPTV and RF overlay
- Supports 1:128 split; support for 30 km/60 km (18.6 miles/37.3 miles) reach with B+/C+ optics
- Type B PON protection
- OISGv2 and TR-156 compliant for ONT Management and Control Interface (OMCI) interoperability
- Industrial hardened

#### **KEY BENEFITS**

- High-density deployments due to eight ports and 1:128 split ratio
- Long reach enables wide coverage area for CO consolidation and CAPEX/OPEX savings
- Flexible deployments (B+ or C+ optics) enabled by pluggable optics
- OPEX savings with extensive RSSI troubleshooting capabilities and evolution to embedded OTDR
- Indoor/outdoor deployments

#### **TECHNICAL SPECIFICATIONS**

#### **External interfaces**

- 8-port GPON interfaces, using pluggable B+ or C+ optics, allowing 28 dB or 32 dB optical loss budget respectively, based on:
  - ¬ G.984.1 (GPON service requirements)
  - ¬ G.984.2 (GPON PMD Layer)
  - ¬ G.984.2 (GPON PMD Layer) Amendment 1
  - G.984.3 (GPON TC Layer GEM based)
  - ¬ G.984.3 (GPON TC Layer) Amendments 1 and 2
  - $\neg$  G.988 (GPON OMCI) Appendixes I and II
  - ¬ TR-156
- Support for:
  - ¬ Advanced Encryption Standard (AES)
  - ¬ Forward Error Correction (FEC)
  - ¬ Dynamic Bandwidth Allocation (DBA)
  - Configurable Delay Tolerance

#### **Forwarding**

- L2 Forwarding Generic: Ethernet packet types include Ethernet II Encapsulation on Ethernet and LLC/SNAP on Ethernet; any combination of untagged/priority/ single-tagged packets; selective IPoE/ PPPoE protocol filtering; VLAN assignment for untagged/priority-tagged packets based on port- and protocol-default VLAN, Multi-VLAN support at UNI
- L2 Forwarding CC mode: VLAN stacking (S-VLAN CC and S-VLAN/C-VLAN CC)
- L2 Forwarding RB mode: VLAN stacking (S-iBridge), selective broadcast
- L3 Multicast: High-performance Internet Group Management Protocol (IGMP) processing, IGMP proxy, immediate leave, source-specific multicast/any-source multicast (SSM/ASM)
- Active-Active load sharing for up to 2 x 10 Gb/s bidirectional aggregate

#### **Protocols**

- · Management using SNMP, CLI, and TL1
- Provisioning and surveillance interface between Optical Line Terminal (OLT) and ONT is assured using standard OMCI
- User access protocols: ARP, IEEE 802.1X authentication, DHCP Option 82 insertion, PPPoE relay tag

#### Oos

- QoS classification based on L2/L3/L4 multi-field classification
- Priority bit (re)marking
- Connection Admission Control (CAC) at various levels of aggregation
- Policing
- Flexible Traffic Manager combining TD/WRED buffer admission, SP/WFQ scheduling and shaping at various levels
- In-field upgradable, fully programmable packet processing
- Advanced Traffic Management capabilities for SLA execution

#### Security

- · Protection against malicious MAC-move
- · Assignment of virtual MAC address
- Proxies to avoid downstream multicast/ broadcast (ARP)
- IPv4/IPv6 address anti-spoofing for user data packets/ARP/IGMP/DHCP
- Access Control List (ACL) based on L2/L3/ L4 multi-field classification
- Rate control of control packets

# Standards compliance Environmental

- ETS 300 019-1-1 storage Class 1.1 (weather-protected, partly temperaturecontrolled locations)
- ETS 300 019-1-2 transport Class 2.3 (packed, public transportation)
- ETS 300 019-1-3 stationary use Class 3.1E (temperature-controlled locations), when used in fully populated ISAM FD racks
- ETS 300 019-1-3 stationary use Class 3.3 (not temperature-controlled locations), when used in standalone ISAM shelves

#### **Protection**

• ITU-T K.20/K.45

#### Safety

- IEC 60950-1/EN 60950-1
- EMC and ESD: ETS 300 386 V1.3.3 (2005-04) for telecommunication network equipment
- European directive 2002/95/EC on the restriction of the use of certain hazardous substances (RoHS)

#### **Operation conditions**

- -5°C to +45°C (23°F to 113°F) inlet/ ambient temperature range, when used in fully populated ISAM racks (with more than one shelf)
- -40°C to +65°C (-40°F to +149°F) inlet/ ambient temperature range, when used in standalone ISAM shelf
- Over-temperature sensors and overtemperature shutdown
- Humidity: 10% to 95% (non-condensing)

#### **Dimensions**

- Height: 405 mm (15.94 in.)
- Width
  - ¬ Top: 225 mm (8.85 in.)
  - Bottom: 205 mm (8.07 in.)
- Board-to-board pitch: 25 mm (0.98 in.)



# Introduction

The Methow Valley Broadband Action Team (BAT) has recently completed the required elements of the Community Economic Revitalization Board (CERB) broadband planning with broadband consultants Tilson Technology Management (Tilson). Tilson produced four separate reports on a wide range of broadband planning issues, including a comprehensive inventory assessment of existing telecommunications assets, a broadband availability assessment and broadband gap analysis, and produced a high level network design to address the identified broadband gap. In addition to the four written reports, Tilson created for the BAT an Esri ArcGIS Online (AGOL) map of existing assets, the broadband gap, demand assessment points, speed test results, and the high level design itself. This AGOL map is available to CERB as part of the BAT's presentation of broadband planning information to CERB.

## Contents

1)	COIVII	MUNITY SUPPORT	L
,	a)	Create a Community Broadband Team	5
	b)	Hold at least one Community Broadband Meeting	5
2)	PROJE	ECT FOCUS	8
	a)	Define local broadband needs and goals	3
	b)	Inventory existing broadband infrastructure assets within the community	2
	c) meet t	Include a gap analysis defining the additional broadband infrastructure necessary to the identified goals.	
	d) busine	Include one or more potential network designs, cost estimates, operating models and ess models	
	e) impac	Include an assessment of municipal procedures, policies, rules and ordinances that or influence broadband infrastructure deployment	
	f)	Digital Inclusion	3
3)	CREAT	TE A VISION STATEMENT	40
	a)	Status of Vision Statement40	)
	b) comm	The statement should describe the role broadband would play in the nunity's future40	
	c) vision	Explain how this effort conforms to other planning documents/published	

4)	FINAN	CIAL COMMITMENT AND BUDGET	42
	a) tasks.	Submit a budget for the plan aligned to significant project plan milestones, costs and 42	
	b)	Submit Pro Forma Income Statement and Expenses	
	c)	Identify potential sources of funding for the broadband infrastructure46	
	d)	Include letters of commitment for community funding	
	e)	Include letters of commitment from any Internet Service Providers46	
5)	IDENT	IFY KEY DOCUMENTS/EXISTING EFFORTS	47
	a) the ser	Does the municipality or region use broadband to deliver municipal services? (Describe rvices, and how broadband is used to deliver these services)	
	b) role? (	Is there local or regional economic development plans in which broadband could play a lf so, provide a list of these documents)	
6)	IDENT	TIFY POTENTIAL COMMUNITY ANCHOR INSTITUTIONS AND BUSINESSES	49
	a)	Provide a list of potential community anchor institutions*	
	-	Provide a list of businesses** that could benefit from lower cost, higher bandwidth, r improved reliability of broadband. i - Including the level of broadband improvements d by the business to become and/or remain competitive and/or expand markets) 49	
7)	DEVEL	OPMENT OF A MANAGEMENT PLAN	50
	a)	Define (or refine) the broadband plan	
8)	COMP	LETE READINESS SELF-ASSESSMENT	52

9)	EVALUATE	HOW	THE	PROJECT	WOULD	BENEFIT	HEALTH	AND	SAFETY	FOR	THE	
COMN	1UNITY											53
10)	EVALUATE I	HOW TH	HIS PR	OJECT WO	JLD BENE	FIT EDUCA	TION ACC	ESS (FC	OR ALL AG	GES)		54
11)	IDENTIFY IF	THE CC	MMU	INITY IS UN	ISERVED C	R UNDERS	SERVED (A	S DEFII	NED BY TI	НЕ ВАТ	¯)	55
	a) Prov	vide evic	lence (	of how this	was deter	mined					58	

## 1) Community Support

## a) Create a Community Broadband Team

With leadership initially provided by the Mayor of Twisp WA, Soo Ing-Moody, the Methow Valley Broadband Action Team (BAT) was formed in July 2018. Methow Valley BAT members include: Soo Ing-Moody, Mayor of Twisp, Ashley Thrasher, Programs Manager for TwispWorks, Don Linnertz, Executive Director of TwispWorks, Don Rudolph, Senior Consultant, Network Computing Architects Inc., Andy Hover, Okanogan County Commissioner, Sally Ranzau, Mayor of Winthrop and Harry Grant, Methow Valley resident. Partners for Rural Washington (PRWA) Executive Director Mario Villanueva also worked with the BAT to provide additional staffing capacity for this planning effort. A Memorandum of Understanding to govern work to be done per the involvement of the BAT members for this planning project was crafted and signed between the public jurisdictions represented on the BAT and PRWA (see Attachment A).

The group met in person and by telephone multiple times to establish the goals and plan the work of the BAT. From the outset, there was discussion and general agreement that improved broadband services were needed to some degree in some areas of the Methow Valley. Based on this discussion, initial work also focused around steps needed to agree upon what the target area for this broadband assessment was.

There was general consensus that the boundaries of the Methow Valley School District would be the broadband planning target area. The BAT also sought to: 1) assess community opinion on the quality of current broadband service, 2) identify how current broadband service was being delivered (i.e., who were the service providers, what was their service area and what technologies were being used for their services – this included broadband network backbone (wholesale) and retail systems), 3) identify what areas are currently underserved or unserved, and 4) determine how various stakeholders could help to meet the goal of improving broadband service in the Methow Valley where this might be needed. It was also agreed that community outreach was a key initial goal for the BAT.

The Methow Valley BAT decided on two steps to accomplish the initial goal of community outreach. The first step was to hold a community meeting on October 10, 2018 in Twisp to gather public input on current service and the potential need for improved high-speed broadband service in the Methow Valley. The second step was to conduct an online survey to gather community feedback and opinion about the level and quality of the broadband services the general public were receiving. (See **Attachments B and C** for notes submitted by PRWA from the Community Meeting on October 10<sup>th</sup>, 2018 and the summary results of the online survey conducted by TwispWorks, respectively).

## b) Hold at least one Community Broadband Meeting

The first Methow Valley Broadband Community Meeting was held in Twisp WA at the Methow Valley Community Center on Wednesday October 10<sup>th</sup>, 2017 at 7 pm. Marketing for the meeting was done well in advance and utilized the local newspaper, local radio with spots in English and Spanish and the TwispWorks website. The meeting was well attended by approximately 40 persons and included very good participation by the general public in attendance. (see attendees list and meeting agenda in

#### Attachment D).

Prior to the Community Meeting, the Methow Valley BAT deemed it appropriate to meet with local Internet Service Providers (ISP's) to apprise them of the BAT's efforts to assess broadband need in the Methow Valley. To this end, a meeting with 5 ISP's, including the public backbone provider Okanogan County PUD was held on October 4<sup>th</sup>, 2018 in Twisp WA at TwispWorks (see agenda for meeting, attendees list and invitational flyer as **Attachment** E). ISP providers, and industry and other stakeholders in attendance included Okanogan County PUD, NCI Datacom, The Colville Tribe, Noel Communications, Okanogan County Electrical Co-op, Okanogan County, TwispWorks and the Towns of Twisp and Winthrop.

As mentioned, part of the BAT's work was to reach out to community members to assess public opinion on broadband need. TwispWorks staff person Ashley Thrasher, supported by PRWA, led the effort to create a community online broadband survey and invited the general public to respond to this via the TwispWorks website. We received 268 responses to the survey (please see survey sample reference page as **Attachment F**). We intend to follow up on this successful survey format to gather additional information about ISP's used by customers, levels of internet speed and exact addresses/ locations of those indicating a desire/need for better service, and possibly other relevant data. This will help with future broadband network mapping and design, cost estimating for improvements and with assessing how best to structure permanent financing for needed improvements and the subsequent cost impacts on rate payers.

The BAT conducted two additional public meetings in February 2020, with consultants from Tilson present. On Tuesday, February 18<sup>th</sup>, 2020, just prior to the onset of the coronavirus pandemic, Tilson conducted a broadband focus group with the Methow Valley Broadband Advisory Council. The meeting was attended by about 25 members of the Council including representation from a range of stakeholder organizations serving the Methow Valley including local ISPs, homeowner associations in affected parts of the Valley, and small business representatives. Agendas and attendees can be found in **Attachment G**.

Participants split into two small groups to discuss three questions:

- 1) How does better broadband across the Methow Valley support my organization and its work?
- 2) What is the problem with broadband available to my organization?
- 3) What is *not* the problem with broadband available to my organization?

As some members present represented groups of users more than organizations, the facilitator directed participants to modify questions as appropriate to reflect broadband service to those users, instead of an organization.

After brainstorming and discussing these questions, each group reported out to the whole and then the whole group worked to envision a positive future for broadband in the Valley. The facilitator asked the group to imagine that 3-5 years from the present great things had happed to bring better broadband to the Methow Valley and how that had happened. Prompts for the group included the following:

- What things are new or different?
- What good things are happening because better broadband is available?
- What important things happened to get the Valley there?
- What has stayed the same?

Comments described do not necessarily represent consensus views of all the participants.

On Tuesday, February 18, 2020, Tilson conducted a community-wide focus group with Methow Valley residents. The meeting was attended by about 40 people. Promotional fliers, agendas and attendees can be found in **Attachment H**.

Participants were asked to brainstorm on the question, "What about broadband do we want to see improved in the Methow Valley?" Responses were grouped into five categories and the group broke out into five sub-groups to continue to flesh out, consolidate, and discuss the issues raised in the large group brainstorm. The five groups were:

- 1. Availability
- 2. Speed/Performance
- 3. Choice, Competition, and Affordability
- 4. Support for Businesses and Employees
- 5. Support for Public Services

Once each group created a summarized issue list, they identified ways that these issues (or addressing these issues) impacted or would impact the Methow Valley. Although divided into issue areas, in many cases different working groups expressed some overlapping concerns.

## 2) Project Focus

## a) Define local broadband needs and goals

It is important to note some of the information in the broadband needs and goals section of this report was collected prior to the Coronavirus pandemic and the effect that has had on Methow Valley residents working and attending school from home utilizing their residential Internet connections. Information received post onset of the Coronavirus pandemic only reinforces overall sentiment that broadband availability in the valley is largely inadequate for telecommuting and distance learning, and that many second home owners are not utilizing their residences in the valley the way they would if they had broadband connections. Several valley second-homeowners voiced concerns they were not able to use their Methow Valley homes during the pandemic because the location lacked the broadband connection necessary for working from home. Other second homeowners commented their plans to retire to their Methow Valley homes may in fact be impacted by a lack of broadband availability, stating that the Internet access was possibly good enough for continued weekend visits to the valley but not suitable for their full time residency. Many full time valley residents also suggested their current Internet connections were inadequate for basic tasks such as working from home and watching online video content, and suggested their Internet connections, that were already inadequate, had slowed to a crawl with the increased recent usage.<sup>1</sup>

Below we discuss demand assessment feedback from residents of various locations throughout the Methow Valley.<sup>2</sup>

#### **Pine Forest Owners Association survey**

Recently, residents of the Pine Forest community participated in a broadband satisfaction survey conducted by the Pine Forest Owners Association. The Pine Forest area is representative of the larger Methow Valley in that broadband availability within the community depends greatly on specific location. Some locations within the community have adequate line of site and proximity to Methownet fixed wireless infrastructure and some do not. Some locations within the community have pre-existing CenturyLink DSL service and others do not as CenturyLink limits adding new customers. Most of the remaining locations have access to satellite Internet access as a last resort.

While there were several comments expressing satisfaction with their Methownet Internet access connection, the overwhelming majority of comments expressed serious concern regarding the state of broadband Internet access infrastructure in the community. Here are a few examples of responses from survey participants:<sup>3</sup>

• We have to have all phones on airplane mode when we are working and attempting to stream. Sometimes, the service is so bad we cannot even open an email. Century Link has been to our home several times and say that our line is simply overloaded and there is nothing they can do unless we as an organization pay to put in fiber optics.

<sup>&</sup>lt;sup>1</sup> Various resident emails to the BAT, names withheld for privacy.

<sup>2</sup> Ibid.

<sup>&</sup>lt;sup>3</sup> Pine Forest Homeowners Association Broadband Survey, 2020.

- My job entails me to participate in daily online conferences and sometimes this is a challenge for my job. Also, I need to work on internal company websites and portals which is really slow and increases the normal work load times that I must invest.
- o Internet has been slower since more people are here avoiding the virus in Seattle.
- Please, we need access. We might have to reconsider retirement to the community if we cannot get the internet. We are hopeful for a community tower, perhaps 5g.
- Good enough for weekend visits but not fast or stable enough to support work from home.
- It is too slow. Only one person can watch a video at a time and download is slow.
   Upload for work is extremely slow.
- The performance, by Xfinity (comcast) is far superior in a major city (Seattle). I am not familiar with Winthrop or Twisp internet speeds. It is almost as bad as dial up in PF.
- It is actually OK when all the part timers are not here. We live here full time and most of the time it is OK, but now with everyone coming back to shelter here we can barely work.
- Speed and performance are so so. I cannot download some things like upgrading new versions of operating systems.
- o I can't work online, look at the internet or stream movies from Netflix, etc. when the second homeowners come to town. It brings everything to a screeching halt.
- It is really hard for a local to work from home when our internet gets overwhelmed by the second homeowners.
- Download speed after doing speed test is 0.64mbps and upload is 0.18 Mbps; The internet drops out at least once per day in addition to being as slow as it was 10 years ago everywhere else.
- Streaming might work but is choppy and delays. You can't up load and download photos. Only one person can check email at a time. I take devices back to Seattle to perform software upgrades. Wi-Fi calling usually does not work.
- We turn most off because if all 5 devices are going it's too slow; I'd like to only need one provider. Also wish we could improve cell service from Verizon.
- We are not full time residents. Our plan is to spend more and more time in Methow and would like to get internet service for work and general internet access. Even now, I

- would be interested in exploring the possibility of getting it. It is an important issue for Pine Forest to have reliable internet available for Pine Forest residents.
- At the very least I expect to be able to watch Amazon Prime. For the last 4 months no
   AP program has successfully loaded, even after I replaced router as CenturyLink suggested I do.
- o I think many PF owners would be willing to pay an initial lump sum upfront to have reliant high speed internet. As full-time residents, we would.
- We fully support whatever action needed to bring fast broadband to the valley and make it available to anyone who wants it. The internet today is what the telephone was to society 100 years ago—not having access is wrong.
- Highly unreliable and speeds are all over the map. Can no longer perform tasks (i.e. Netflix stream) that were available previously and tasks that should require minutes take hours.
- o I currently cannot live full time in Pine Forest ONLY because lack of internet service. My job would allow if I had fast, reliable service.
- We had CenturyLink for 5 years and it was horrible. Methow Net works well for us but we are lucky to have line of sight.
- We have checked with various providers over the years, but the answer is always the same: "your area of PF is unavailable to internet access." We would use internet if it were available.
- We will be reluctant to give up our CenturyLink access until we are sure we have much faster service because CenturyLink doesn't seem to be taking new customers in the Valley.
- The speed is way too slow. I have called CenturyLink many times and they say that they won't upgrade the speed in the valley because there aren't enough customers to warrant an upgrade.
- o CenturyLink was not available (couldn't get a land line for phone even).
- We need to join this century in technology and internet performance. There's a lot at stake, including economic participation and community safety, and we need infrastructure investment to get there.

#### Lost River Road and the Lost River Airport Association

Residents of Lost River Road and the Lost River Airport Association community also provided feedback to the Broadband Action Team regarding broadband availability and demand in their community. 4 Many of the comments received from residents in this area had to do with the poor quality of CenturyLink DSL service, especially during times of heavy usage. Residents of the Lost River Road and Lost River Airport Association also expressed similar concerns as residents of other parts of the valley in that new customers are often unable to receive CenturyLink DSL service as CenturyLink cannot accommodate requests for new service due to limitations on their DSL network valley-wide. Residents of the Lost River Airport Association community expressed interest via email in the concept of utilizing a special assessment district to help finance broadband infrastructure. Residents of Lost River Road and the Lost River Airport Association overwhelmingly participated in the broadband interest survey online at the Okanogan PUD's website, expressing their interest in better broadband infrastructure.

#### Twisp River Road West of PUD Service Territory

West of the Okanogan PUD service area on Twisp River Road, inside the Okanogan County Electric Cooperative territory, residents provided feedback that CenturyLink DSL service is oversubscribed, slows down during times of heavy usage and unavailable to new subscribers. These comments regarding CenturyLink DSL service are almost universal throughout the Methow Valley. Residents of the Twisp Road area within the Okanogan County Electric Cooperative service territory overwhelmingly participated in the broadband interest survey online at the Okanogan PUD's website, expressing their interest in better broadband infrastructure.

#### **Edelweiss and Liberty Woodlands**

It should be noted that residents of the Edelweiss and Liberty Woodlands subdivisions also participated in very large numbers in the online broadband interest survey hosted on the Okanogan County Public Utility District website, registering their interest in receiving improved broadband infrastructure.

#### Libby Creek and Smith Canyon areas of Carlton

Residents of the Libby Creek and Smith Canyon area shared feedback that CenturyLink or satellite are their only options for Internet access locally.<sup>5</sup> They report having tried to obtain fixed wireless service from Methownet and NCI Datacom but the ISPs could not provide service to the area. They also report that DSL service from CenturyLink is highly unreliable, highly over-subscribed and frustratingly slow. There were also reports among area residents, similar to residents of other parts of the valley, that CenturyLink cannot fulfill new requests for DSL service due to the oversubscription. Additionally, residents of the area report that in recent months the cell service provided by Verizon has dramatically degraded in service quality and availability.<sup>6</sup>

Even though within the Okanogan PUD's electrical service area, the Libby Creek and Smith Canyon areas of Carlton represent an area where residents wanting to connect to the PUD's fiber to the home network would face very high constructions costs to do so, as the closest existing fiber is at the intersection of Route 153 (Methow Valley Highway) and Libby Creek Road. Residents of Libby Creek

<sup>&</sup>lt;sup>4</sup> Emails from community residents to the Methow Valley Broadband Action Team

<sup>&</sup>lt;sup>6</sup> Emails from area residents to the Methow Valley Broadband Action Team.

Road in close proximity to Route 153 are served by utility poles and costs to connect to the PUD's fiber network for residents of the first mile or so would not be much higher than other locations served by the PUD in the valley. However, after a mile or so up Libby Creek Road the utility poles stop and the PUD's electrical lines go underground, meaning any new fiber infrastructure would likely also be installed underground, which is considerably more expensive than an aerial installation.

# b) Inventory existing broadband infrastructure assets within the community.

Broadband availability within the Methow Valley school district varies widely between locations. Within the Okanogan County Public Utility District (PUD) service area, many residents can get 100 Mbps symmetrical Internet access provided over the PUD's wholesale open access fiber to the premise network. North of the PUD service area towards Winthrop and Mazama, and west of the PUD service area down Twisp River Road, broadband availability options are reduced to fixed wireless service from Methownet and NCI Datacom in the 20/4 Mbps range depending on proximity and line of sight to a wireless access point, and CenturyLink DSL service which varies in advertised speeds throughout the valley between .5 Mbps and 80 Mbps. Methownet does operate a limited fiber to the premise network in the towns of Winthrop and Twisp and between, and while the network's reach so far is limited, it contains the foundations for expansion within the town of Winthrop and beyond.

On the BAT's AGOL map, Internet access service availability is depicted across the Methow Valley School District by service provider and by speed. This information is used to determine the valley's 'broadband gap', those areas with insufficient Internet access and therefore not on a level playing field with other Americans for digital opportunities such as telecommuting, distance learning, running a small business form home, telehealth and streaming media, just to name a few.

CenturyLink reports a wide range of advertised Internet access speeds throughout the valley, however community feedback and analysis reveals most of these advertised speeds (which are advertised as "up to" a certain speed) are rarely achieved and during times of heavy usage actual speeds are lower, and service often drops out.

The Okanogan County Public Utility District (PUD) reports symmetrical 100 Mbps Internet access speeds in the census blocks where it operates a fiber to the premise network and 20/10 Mbps speeds in the census blocks it operates a fixed wireless network.

Methownet reports 10/10 Mbps service in the census blocks it operates a fixed wireless network, as well as the census blocks it operates a limited fiber to the premise network. However, Methownet's more recent broadband reporting (not yet publicly available) supposedly indicates service at higher speed tiers.<sup>7</sup>

NCI Datacom reports the availability of 100/20 Mbps Internet access service via its fixed wireless network in almost all census blocks throughout the Methow Valley and beyond. NCI was asked to furnish additional or supplemental information regarding their coverage and speed offerings but

<sup>&</sup>lt;sup>7</sup> Internet service providers are required to report their broadband service availability twice per year on FCC Form 477.

#### declined.

In this report Tilson also looks at the Methow Valley's broadband gap, or the areas that lack sufficient access to broadband Internet that they cannot participate in the economy or digital opportunities on a level playing field with most other Americans.

Rather than relying on the current federal broadband definition of 25/3 Mbps to dictate the broadband gap analysis, which in turn will dictate the design of a multimillion dollar network and may begin the rather monumental process of a community driven broadband expansion project, Tilson's advice was that the Broadband Action Team instead rely on Washington State's recently codified broadband policy goals of all state residents having access to 150 Mbps symmetrical Internet access service by 2028. The broadband gap analysis will be based on the capability of the existing infrastructure, not the current service offerings using the infrastructure. For example, the Okanogan County PUD or Methownet currently do not offer 150 Mbps symmetrical service, but their fiber infrastructure is easily capable of scaling to meet that service level, and Tilson would not recommend overbuilding existing fiber to the premise infrastructure.

After the broadband gap analysis, Tilson reports on demand assessment, including information collected by the Okanogan PUD on their broadband Interest Form Address Search website. <sup>9</sup> The website was originally established to gauge broadband interest amongst locations within the PUD's electrical service area, but from the information collected so far there has been overwhelming interest expressed by locations within the Okanogan County Electric Cooperative's service area. Areas expressing particularly strong interest include Twisp River Road in the Co-op's service area, Lost River Road past Goat River wall including the Lost River Airport Association, Pine Forest, Edelweiss, Liberty Woodlands as well as locations in Mazama, Winthrop and Twisp.

Finally, Tilson reports on two in-person focus groups conducted in Twisp on February 18, 2020, prior to the onset of the Coronavirus pandemic, one with the Methow Valley Broadband Action Team Advisory Council and one with the public at large. Issues such as the importance of broadband to the community, and the challenges of deploying broadband infrastructure in the community were discussed and the feedback was recorded. Even during the pre-pandemic environment, the pre stay at home work at home school at home environment, local concern focused largely on inadequate Internet access speeds and coverage, including the fact that speeds decrease dramatically during times of heavy usage and that coverage was affected by CenturyLink's inability to furnish DSL connections (or even phone lines) to new customers. One can imagine the heightened concern about these subjects now.

It is also worth noting that soon Tilson will be launching a website for the Methow Valley for residents and business owners to participate in an online survey to help advance to possibility of new broadband infrastructure being deployed in unserved and underserved areas of the valley. The survey will include a speed test that will be associated with specific address points which is data the region can utilize for upcoming broadband grant funding opportunities. The survey will also strive to collect information regarding resident's interest in public financing opportunities for broadband infrastructure.

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 $<sup>\</sup>frac{8}{\text{http://lawfilesext.leg.wa.gov/biennium/2019-20/Pdf/Bills/Senate\%20Passed\%20Legislature/5511-S2.PL.pdf?q=20200301080923}$ 

<sup>&</sup>lt;sup>9</sup> https://okpudfiber.org/

# c) Include a gap analysis defining the additional broadband infrastructure necessary to meet the identified goals.

While it is very common to rely on the federal definition of broadband, 25/3 Mbps, for rural broadband studies including broadband gap analyses, there are reasons not to rely on this definition for infrastructure planning purposes. Firstly, the FCC definition of broadband changes over time. It was first introduced in 1997 as part of the Telecommunications Act of 1996, at that time defined as 200 Kbps symmetrical.10 In 2010 the definition was increased to 10/4 Mbps in conjunction with an increase in service obligations for FCC subsidized ISPs.11 In 2015 the FCC raised the definition of broadband to 25/3 Mbps, again in conjunction with an increase in service obligations for subsidized ISPs.12 When the FCC next increases the definition of broadband, and it will, it will again coincide with an increase in service delivery obligations of subsidized ISPs, and those increased obligations may require new infrastructure deployments and the FCC would need to adjust their funding and subsidy mechanisms to facilitate those deployments. Raising the definition of broadband has direct ramifications on the FCC's budget and spending. With the definition at 25/3 Mbps, lower cost platforms such as DSL and many fixed wireless deployments can accommodate the current service obligations. When the FCC raises the definition of broadband above its current level, both DSL and some fixed wireless systems may prove inadequate to the task, and it may trigger funding requirements for new infrastructure deployments.

Many Methow Valley residents who do currently have access to 25/3 Mbps service receive that service through a fixed wireless provider, and with limitations on wireless technology in a mountainous area with dense foliage those locations may not have access to 150 Mbps symmetrical service by 2028. To achieve that level of performance with a fixed wireless network, end user locations must have reasonably close proximity to a wireless access point and relatively clear line of site in order to receive sufficient signal strength, and the access point cannot be oversubscribed or congested. In order to achieve this level of service in a homogeneous and ubiquitous manner, the number of wireless access points required, and the amount of fiber optic backhaul need for the wireless access points, may not make financial sense given the ultimate limitations of the technology. Such a network may have cost requirements not drastically less than a fiber to the premise network, which would be a completely futureproofed, scalable infrastructure that when properly operated and maintained will last generations.

The ramifications of a broadband gap analysis relying on the 25/3 Mbps threshold may be a fiber to the premise network being deployed only to locations currently lacking 25/3 Mbps service, thereby creating a new and even wider broadband gap, on one side premises with access to symmetrical gigabit Internet (easily scalable to 2 Gbps or 10 Gbps) and on the other side premises with access to 25/3 Mbps over fixed wireless, and because of the limitations of that technology to scale, those locations may someday need a broadband infrastructure upgrade of their own.

Another area of concern with utilizing the 25/3 Mbps threshold and creating a network design based on the broadband gap it creates, is that many locations clearly unserved and lacking access to 25/3 Mbps

<sup>10</sup> That's kilobit, not megabit.

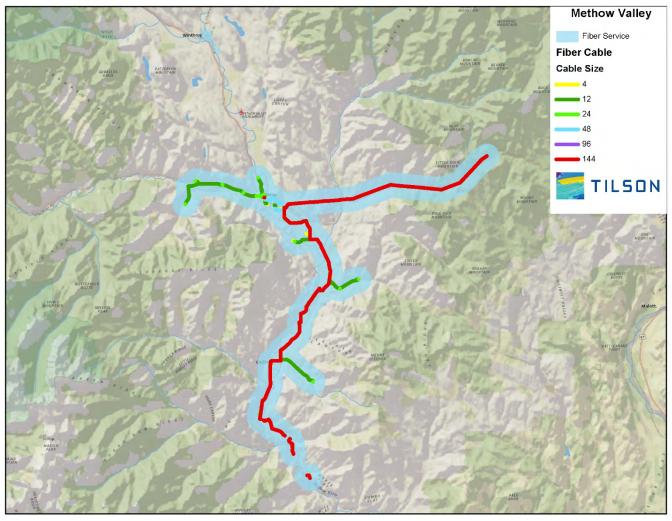
<sup>11</sup> The FCC, in conjunction with the Universal Service Administration Company (USAC) subsidizes some carriers to deliver broadband service using the Universal Service Fund High Cost Program.

<sup>12 25/3</sup> Mbps is the minimum speed eligible for an ISP to receive funding under the Rural Digital Opportunity Fund.

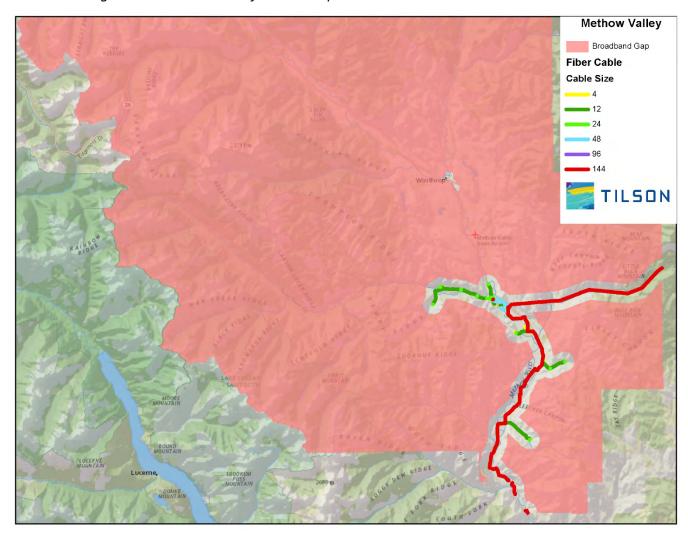
service lay at the geographic fringes of the Methow Valley School District, the populated fringes. Unserved areas (including areas that have expressed serious interest in broadband expansion into their communities based on the online interest survey available on the Okanogan County PUD's website) include Twisp River Road beyond the PUD service area, Lost River Road beyond Mazama, and subdivisions such as Pine Forest, Edelweiss and Liberty Woodlands. Deploying fiber to these locations would involve new fiber infrastructure passing by or close to many locations that currently have 25/3 Mbps service available, but no roadmap beyond that service level. Of course, this can be taken into consideration during network design, with additional fiber strands and fiber access points made available for future expansion.

Using the Washington State broadband policy goal of 150 Mbps symmetrical service as the broadband gap threshold, wherein any location that does not currently have access to or a clear roadmap to 150 Mbps symmetrical Internet access is on the wrong side of the gap, as it were, and therefore would be a location included in any broadband infrastructure upgrade project undertaken in the Methow Valley, would have the practical effect of including virtually all locations not in relatively close proximity to the Okanogan PUD and Methownet fiber to the premise networks. This includes most of the customers served by the Okanogan County Electric Cooperative, and many of the customers in the Okanogan County PUD service area who are located distant from the PUD's existing fiber network. Identifying areas as not in the broadband gap by virtue of being in relatively close proximity to an existing fiber to the premise network does not mean to imply the job is done providing those locations with symmetrical 150 Mbps Internet access. The existing fiber to the premise networks would need to be extended to currently underserved locations and the networks' capacity for backhaul and Internet transit would likely need to be increased, but the underlying foundation for the desired level of connectivity is in place. The completion, or extensions, of these existing fiber to the premise networks can be incorporated into a larger project focused on the installation of new broadband infrastructure capable of symmetrical 150 Mbps service, or as stand-alone projects.

Shaded in light blue in the image below are areas that are currently in close proximity to an existing fiber to the premise network. The shaded southern portion is in close proximity to the Okanogan County Public Utility District's fiber to the premise network and the area in Winthrop is in close proximity to the Methownet fiber to the premise network. While these areas do not currently have the availability of 150 Mbps symmetrical service, the underlying fiber to the premise infrastructure is easily capable of it.



All areas outside the above light blue shaded areas are therefore on the wrong side of the so called broadband gap, without the same level of digital opportunity as most Americans. The areas within the Methow Valley School District broadband gap are shaded in pink in the image below. That's a lot of pink. Tilson's high level design includes a "completion" or "extension" of the existing PUD and Methownet fiber to the premise networks.



d) Include one or more potential network designs, cost estimates, operating models and business models.

Below is the bill of materials for Tilson's high level design. As this design involves a fiber architecture that allows the use of both GPON and Active Ethernet equipment, with GPON intended for residential

usage and Active Ethernet intended for commercial and enterprise usage, and the overwhelming number of locations in the Methow Valley School District are residential, the bill of materials represents 90% GPON and 10% Active Ethernet optics and electronics.

**Materials and Costs** 

Met	how Val	lley HLD
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Total Cost:	\$40,276,885.17
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Description	Unit	Quantit y		Unit Cost		Total Cost
12ct loose tube, Labor	feet	2061285	\$	0.60	\$	1,236,771.00
12ct loose tube, Materials	feet	2061285	\$	0.16	\$	329,805.60
24ct loose tube, Labor	feet	241180	\$	0.60	\$	144,708.00
24ct loose tube, Materials	feet	241180	\$	0.30	\$	72,354.00
48ct loose tube, Labor	feet	238490	\$	0.60	\$	143,094.00
48ct loose tube, Materials	feet	238490	\$	0.33	\$	78,701.70
72ct loose tube, Labor	feet	344710	\$	0.60	\$	206,826.00
72ct loose tube, Materials	feet	344710	\$	0.46	\$	158,566.60
96ct loose tube, Labor	feet	212497	\$	0.60	\$	127,498.20
96ct loose tube, Materials	feet	212497	\$	0.63	\$	133,873.11
144ct loose tube, Labor	feet	142936	\$	0.60	\$	85,761.60
144ct loose tube, Materials	feet	142936	\$	0.94	\$	134,359.84
288ct loose tube, Labor	feet	0	\$	0.60	\$	-
288ct loose tube, Materials	feet	0	\$	1.72	9	\$ -
432ct loose tube, Labor	feet	0	\$	0.60	\$	-
432ct loose tube, Materials	feet	0	\$	2.47	(	\$ -
					\$	2,852,319.65
	12ct loose tube, Labor  12ct loose tube, Materials  24ct loose tube, Labor  24ct loose tube, Materials  48ct loose tube, Labor  48ct loose tube, Materials  72ct loose tube, Labor  72ct loose tube, Materials  96ct loose tube, Materials  144ct loose tube, Materials  28ct loose tube, Labor  288ct loose tube, Materials  432ct loose tube, Labor	12ct loose tube, Labor feet  12ct loose tube, Materials feet  24ct loose tube, Labor feet  24ct loose tube, Materials feet  48ct loose tube, Labor feet  48ct loose tube, Materials feet  72ct loose tube, Labor feet  72ct loose tube, Materials feet  96ct loose tube, Materials feet  144ct loose tube, Materials feet  144ct loose tube, Materials feet  288ct loose tube, Labor feet  288ct loose tube, Labor feet  432ct loose tube, Labor feet	12ct loose tube, Labor feet 2061285  12ct loose tube, Materials feet 2061285  24ct loose tube, Labor feet 241180  24ct loose tube, Materials feet 241180  48ct loose tube, Labor feet 238490  48ct loose tube, Materials feet 238490  72ct loose tube, Materials feet 344710  72ct loose tube, Materials feet 344710  96ct loose tube, Labor feet 212497  96ct loose tube, Materials feet 212497  144ct loose tube, Materials feet 142936  144ct loose tube, Materials feet 0  288ct loose tube, Materials feet 0  288ct loose tube, Labor feet 0	12ct loose tube, Labor feet 2061285 \$  12ct loose tube, Materials feet 2061285 \$  24ct loose tube, Labor feet 241180 \$  24ct loose tube, Materials feet 241180 \$  48ct loose tube, Labor feet 238490 \$  48ct loose tube, Materials feet 238490 \$  72ct loose tube, Labor feet 344710 \$  72ct loose tube, Materials feet 344710 \$  96ct loose tube, Labor feet 212497 \$  96ct loose tube, Materials feet 212497 \$  144ct loose tube, Labor feet 142936 \$  144ct loose tube, Materials feet 0 \$  288ct loose tube, Materials feet 0 \$  288ct loose tube, Materials feet 0 \$  432ct loose tube, Labor feet 0 \$	Description         Unit Cost           12ct loose tube, Labor         feet         2061285         \$ 0.60           12ct loose tube, Materials         feet         2061285         \$ 0.16           24ct loose tube, Labor         feet         241180         \$ 0.60           24ct loose tube, Materials         feet         241180         \$ 0.30           48ct loose tube, Labor         feet         238490         \$ 0.60           48ct loose tube, Materials         feet         344710         \$ 0.60           72ct loose tube, Materials         feet         344710         \$ 0.46           96ct loose tube, Materials         feet         212497         \$ 0.60           96ct loose tube, Materials         feet         212497         \$ 0.60           144ct loose tube, Labor         feet         142936         \$ 0.60           144ct loose tube, Materials         feet         142936         \$ 0.94           288ct loose tube, Labor         feet         0         \$ 0.60           288ct loose tube, Labor         feet         0         \$ 0.60           288ct loose tube, Labor         feet         0         \$ 0.60	Description         Unit         y         Unit Cost           12ct loose tube, Labor         feet         2061285         \$ 0.60         \$           12ct loose tube, Materials         feet         2061285         \$ 0.16         \$           24ct loose tube, Labor         feet         241180         \$ 0.60         \$           24ct loose tube, Materials         feet         241180         \$ 0.30         \$           48ct loose tube, Labor         feet         238490         \$ 0.60         \$           48ct loose tube, Materials         feet         344710         \$ 0.60         \$           72ct loose tube, Materials         feet         344710         \$ 0.60         \$           96ct loose tube, Labor         feet         212497         \$ 0.60         \$           96ct loose tube, Materials         feet         212497         \$ 0.60         \$           144ct loose tube, Labor         feet         142936         \$ 0.60         \$           288ct loose tube, Materials         feet         0         \$ 0.60         \$           288ct loose tube, Labor         feet         0         \$ 0.60         \$           432ct loose tube, Materials         feet         0         \$ 0.60         \$<

#### **Splitters and Closures**

Id	Description	Unit Quantity	Unit Cost	Total Cost	
K-96-32-L	Kit for 96 port closure with 1x32 splitter, Labor	count 0	\$ 3,663.45	\$ -	

K-96-32-M	Kit for 96 port closure with 1x32 splitter, Material	count	0	\$ -	\$	-
S-32-L	Splitter module (1x32 splitter), Labor	count	173	\$ 429.81	\$	74,356.61
S-32-M	Splitter module (1x32 splitter), Material	count	173	\$ 200.00	\$	34,600.00
L-Vault-L	24W X 36L X 24D vault, Labor	count	0	\$ 420.00	\$	-
L-Vault-M	24W X 36L X 24D vault, Material	count	0	\$ 1,500.00	\$	-
M-HH-L	24W X 36L X 24D handhole, Labor	count	1368	\$ 247.80	\$	338,990.40
M-HH-M	24W X 36L X 24D handhole, Material	count	1368	\$ 1,000.00	\$ 1	1,368,000.00
TRM-L	Serving Terminal/ Closure, Labor	count	2518	\$ 250.00	\$	629,500.00
TRM-M	Serving Terminal/ Closure, Material	count	2518	\$ 179.00	\$	450,722.00
SPL-L	Splice case, Labor	count	343	\$ 300.00	\$	102,900.00
SPL-M	Splice case, Material	count	343	\$ 300.00	\$	102,900.00
FDH-72-L	FDH-72, Labor	count	0	\$ 1,500.00	\$	-
FDH-72-M	FDH-72, Material	count	0	\$ 2,585.00	\$	-
FDH-96-L	FDH-96, Labor	count	0	\$ 1,500.00	\$	-
FDH-96-M	FDH-96, Material	count	0	\$ 3,000.00	\$	-
FDH-144-L	FDH-144, Labor	count	2	\$ 1,500.00	\$	3,000.00
FDH-144-M	FDH-144, Material	count	2	\$ 3,750.00	\$	7,500.00
FDH-288-L	FDH-288, Labor	count	4	\$ 3,000.00	\$	12,000.00
FDH-288-M	FDH-288, Material	count	4	\$ 5,225.00	\$	20,900.00
FDH-432-L	FDH-432, Labor	count	14	\$ 4,000.00	\$	56,000.00
FDH-432-M	FDH-432, Material	count	14	\$ 8,000.00	\$	112,000.00
Total					\$	3,313,369.01

## Ducts

ld	Description	Unit	Quantity	Unit Cost		Total Cost
D-114-L 2	2" innerduct, Labor	feet	1030204	\$ 23.00	\$ 2	23,694,692.00
D-114-M 2	2" innerduct, Material	feet	1030204	\$ 0.77	\$	793,257.08
Total					\$ 2	24,487,949.08
Strand						
Id	Description	Unit	Quantit	Unit Cost		Total Cost
Strand - 6M-L	Strand - 6M, Labor	feet	1401643	\$ 0.45	\$	630,739.35
Strand - 6M-M	Strand - 6M, Material	feet	1401643	\$ 0.49	\$	686,805.07
Total					\$	1,317,544.42
Aerial Drops						
Id	Description	Unit	Quantity	Unit Cost		Total Cost
AER-DROP-L	Drop cables, aerial, between 0 and 100 feet, Labor	count	1008	\$ 80.00	\$	80,640.00
AER-DROP-M	Drop cables, aerial, between 0 and 100 feet, Material	count	1008	\$ 36.22	\$	36,509.76
AER-DROP-L	Drop cables, aerial, between 100 and 200 feet, Labor	count	550	\$ 160.00	\$	88,000.00
AER-DROP-M	Drop cables, aerial, between 100 and 200 feet, Material	count	550	\$ 52.11	\$	28,660.50
AER-DROP-L	Drop cables, aerial, between 200 and 400 feet, Labor	count	613	\$ 320.00	\$	196,160.00
AER-DROP-M	Drop cables, aerial, between 200 and 400 feet, Material	count	613	\$ 99.67	\$	61,097.71
AER-DROP-L	Drop cables, aerial, between 400 and 600 feet, Labor	count	369	\$ 480.00	\$	177,120.00
AER-DROP-M	Drop cables, aerial, between 400 and 600 feet, Material	count	369	\$ 132.28	\$	48,811.32
AER-DROP-L	Drop cables, aerial, between 600 and 800 feet, Labor	count	40	\$ 640.00	\$	25,600.00
AER-DROP-M	Drop cables, aerial, between 600 and 800 feet, Material	count	40	\$ 160.33	\$	6,413.20
AER-DROP-L	Drop cables, aerial, between 800 and 1000 feet, Labor	count	0	\$ 800.00	\$	-
AER-DROP-M	Drop cables, aerial, between 800 and 1000 feet, Material	count	0	\$ 192.94	\$	-
	ONT - Optical Network Terminal- Labor	count	2580	\$ 50.00	\$	129,000.00
	ONT - Optical Network Terminal- Material	count	2580	\$ 275.00	\$	709,500.00
	Clear Field NID - Labor	count	2580	\$ 50.00	\$	129,000.00
	Clear Field NID - Material	count	2580	\$ 21.00	\$	54,180.00
Total					\$	1,770,692.49

Buried Drops					
Id	Description	Unit	Quantit y	Unit Cost	Total Cost
BUR-DROP-L	Drop cables, buried, between 0 and 100 feet, Labor	count	1365	\$ 10.00	\$ 13,650.00
BUR-DROP-M	Drop cables, buried, between 0 and 100 feet, Material	count	1365	\$ 36.22	\$ 49,440.30
BUR-DROP-L	Drop cables, buried, between 100 and 200 feet, Labor	count	464	\$ 10.00	\$ 4,640.00
BUR-DROP-M	Drop cables, buried, between 100 and 200 feet, Material	count	464	\$ 52.11	\$ 24,179.04
BUR-DROP-L	Drop cables, buried, between 200 and 400 feet, Labor	count	465	\$ 10.00	\$ 4,650.00
BUR-DROP-M	Drop cables, buried, between 200 and 400 feet, Material	count	465	\$ 99.67	\$ 46,346.55
BUR-DROP-L	Drop cables, buried, between 400 and 600 feet, Labor	count	63	\$ 10.00	\$ 630.00
BUR-DROP-M	Drop cables, buried, between 400 and 600 feet, Material	count	63	\$ 132.28	\$ 8,333.64
BUR-DROP-L	Drop cables, buried, between 600 and 800 feet, Labor	count	3	\$ 10.00	\$ 30.00
BUR-DROP-M	Drop cables, buried, between 600 and 800 feet, Material	count	3	\$ 160.33	\$ 480.99
BUR-DROP-L	Drop cables, buried, between 800 and 1000 feet, Labor	count	0	\$ 10.00	\$ -
BUR-DROP-M	Drop cables, buried, between 800 and 1000 feet, Material	count	0	\$ 192.94	\$ -
	ONT - Optical Network Terminal- Labor	count	2360	\$ 50.00	\$ 118,000.00
	ONT - Optical Network Terminal- Material	count	2360	\$ 275.00	\$ 649,000.00
	Clear Field NID - Labor	count	2360	\$ 50.00	\$ 118,000.00
	Clear Field NID - Material	count	2360	\$ 21.00	\$ 49,560.00
Total					\$ 1,086,940.52

Head End Equipme	nt				
Id	Description	Unit	Quantit y	Unit Cost	Total Cost
Hut 1	Hut #1 Concrete Shelter 12' x 20' - Material	count	1	\$ 150,000.00	\$ 150,000.00
Hut 1	DC Plant	count	1	\$ 3,000.00	\$ 3,000.00
Hut 1	25KV Generator - Material	count	1	\$ 15,000.00	\$ 15,000.00
Hut 1	500 Gal Propane Tank - Material	count	1	\$ 2,000.00	\$ 2,000.00
Hut 1	Security Fence - Material	count	1	\$ 10,000.00	\$ 10,000.00
Hut 1	Compound Construction including Concrete slabs- Labor	count	1	\$ 50,000.00	\$ 50,000.00
Hut 1	Fiber Distribution Panels Materials	count	4	\$ 3,622.00	\$ 14,488.00
Hut 1	Fiber Distribution Panels Labor install & Splicing	count	4	\$ 7,200.00	\$ 28,800.00

Hut 1	Router- Material	count	1	\$ 45,000.00	\$ 45,000.00
Hut 1	Transport Line Cards	count	2	\$ 13,219.00	\$ 26,438.00
Hut 1	Chasis- OLT - Material	count	19	\$ 740.00	\$ 14,060.00
Hut 1	Active E Line Cards - Materal	count	13	\$ 8,568.00	\$ 111,384.00
Hut 1	GPON Line Cards Material	count	22	\$ 12,066.00	\$ 265,452.00
Hut 1	Head End Equipment - Labor	count	1	\$ 40,000.00	\$ 40,000.00
Hut 1	Security Fence - Material	count	1	\$ 10,000.00	\$ 10,000.00
Hut 1	Res 2747 Bus 305 = 3053				
Total					\$ 785,622.00

Id	Description	Unit	Quantity	Unit Cost	Total Cost
Hut 2	Hut #2 Concrete Shelter 12' x 20' - Material	count	1	\$ 150,000.00	\$ 150,000.00
Hut 2	DC Plant	count	1	\$ 3,000.00	\$ 3,000.00
Hut 2	25KV Generator - Material	count	1	\$ 15,000.00	\$ 15,000.00
Hut 2	500 Gal Propane Tank - Material	count	1	\$ 2,000.00	\$ 2,000.00
Hut 2	Security Fence - Material	count	1	\$ 10,000.00	\$ 10,000.00
Hut 2	Compound Construction including Concrete slabs- Labor	count	1	\$ 50,000.00	\$ 50,000.00
Hut 2	Fiber Distribution Panels Materials	count	4	\$ 3,622.00	\$ 14,488.00
Hut 2	Fiber Distribution Panels Labor install & Splicing	count	4	\$ 7,200.00	\$ 28,800.00
Hut 2	Router- Material	count	1	\$ 45,000.00	\$ 45,000.00
Hut 2	Transport Line Cards	count	2	\$ 13,219.00	\$ 26,438.00
Hut 2	Chasis- OLT - Material	count	13	\$ 740.00	\$ 9,620.00
Hut 2	Active E Line Cards - Materal	count	9	\$ 8,568.00	\$ 77,112.00
Hut 2	GPON Line Cards Material	count	15	\$ 12,066.00	\$ 180,990.00
Hut 2	Head End Equipment - Labor	count	1	\$ 40,000.00	\$ 40,000.00
Hut 2	Security Fence - Material	count	1	\$ 10,000.00	\$ 10,000.00
Hut 2	Res 1913 Bus 212 = 2125				
Total					\$ 662,448.00
Make Ready	Make Ready Estimate	Estimat e	1	\$4,000,000	\$ 4,000,000.00

**Grand Total** Res 4660 Bus 517 = 5178 \$40,276,885.17

#### **Business Models**

In Tilson's Work Order with the Twisp PDA, Tilson is to describe two business model options based on our analysis, and that those models will include, but not be limited to the following expansion scenarios:

- PUD buildout plus connections to adjacent institutional, commercial, and or residential customer clusters
- PUD buildout plus multiphase hybrid fiber and wireless buildout to all customers in the PUD's service area
- Attracting provider(s) to enter or be more active on the network.

Business Model No. 1 that Tilson provides below assumes the first bullet point, where the Okanogan County PUD expands its existing fiber to the premise network into the upper Methow Valley and into the Okanogan County Electric Cooperative service territory. This model assumes an all fiber to the premise network. A hybrid fiber and wireless network is not considered in this model because, as discussed at length in previous reports, Washington State broadband policy goals are for symmetrical 150 Mbps service to all residents by 2028, and state broadband grant programs use that definition for funding guidelines. Fixed wireless networks simply aren't capable of that type of service level at any scale in such a mountainous and densely foliated environment.

The third bullet point, "Attracting provider(s) to enter or be more active on the network" is an integral aspect of Model No. 1, because as the Okanogan PUD's network expands within the Methow Valley and reaches more end users, it will become more attractive to additional retail Internet service providers to offer service to residents of the Methow Valley over the PUDs wholesale only open access fiber to the premise network. The PUD's existing wholesale open access fiber to the premise network boasts eight participating retail Internet service providers, but only two currently do business in the PUDs upper Methow Valley network in the vicinity of Twisp. With greater volume of end users available locally more retailers may be willing to devote the resources necessary to serve the area. However, it's worth noting that the business model for PUD network expansion relies only on the PUD's wholesale revenue, increased retail ISP participation may have the effect of a more competitive retail environment, but the wholesale revenue is based on overall subscription volume regardless of the number of retail ISPs.

Business Model No. 2 that Tilson provides below is best described as the alternative to the PUD expansion model. It remains unclear if the Okanogan PUD will be willing to deploy fiber infrastructure outside their current electrical service area, in particular infrastructure installed within the Okanogan County Electrical Cooperative service territory and on utility poles owned by the Cooperative. If the PUD is unable or unwilling to deploy fiber infrastructure installed in the Okanogan County Electrical Cooperative service area for the purpose of extending their wholesale open access fiber to the premise network, the alternate option would be a private enterprise retail network developer investing in the infrastructure, in combination with available grant funding, and operating it as a monopoly retail network. This private enterprise network developer has not been identified, but in the absence of the Okanogan PUD's participation, the likelihood of another public entity taking the lead, such as a municipality or a port district, is quite small.

#### Model No. 1 – Okanogan PUD Fiber to the Premise Network Expansion

Washington State prohibits public utility districts from offering retail telecommunications services. As a result, many PUDs have become the wholesale operator of open access fiber to the premise and

wireless networks by offering wholesale service only to ISP resellers who in turn offer retail service to end users in competition with one another over the same infrastructure owned by the PUDs. In our first model we assume the Okanogan PUD expands its existing wholesale open access fiber to the premise network incrementally throughout the upper Methow Valley. This model assumes the PUD will own the new fiber to the premise infrastructure, installed largely on either on Okanogan County Electric Cooperative utility poles and underground, and operate it in the same way it currently operates its existing wholesale open access fiber to the premise network, including the same wholesale pricing structure.

One major difference between this model and pre-existing Okanogan PUD fiber to the premise operations is that in this model the cost of service drops to premises is included in upfront construction costs and not required from the potential subscriber upon service request, sometime after the initial construction. The service drop costs are built into the model in order to ensure an adoption rate sufficient to make the network sustainable. When potential subscribers are required to pay upfront the cost of their service drop, without the ability to have that cost rolled into their monthly charges either as part of the project's initial CAPEX costs or using a long term financing mechanism such as a special assessment district, it can have serious negative repercussion on network service adoption, network revenue and sustainability.

This model incorporates many of the operational aspects already in place on the PUD's existing wholesale open access fiber to the premise network including the fact that the responsibility for sales and marketing of retail services and adding subscribers to the network largely falls to the participating retail ISPs, who are essentially resellers on the network. While the PUD has information published to their website regarding their wholesale fiber to the home service as well as information about the retail Internet service providers participating on their wholesale open access network, ultimately sales and marketing efforts will fall to the retail ISPs' and that is a crucial role driving network adoption, utilization and sustainability.

As you will see this model, as with model no. 2, requires substantial capital in addition to what the PUD would be willing to invest on its own. The cost to deploy is just too expensive for a viable business case, and additional capital funding would be required in the form of grants, subsidies and special assessment district funding. In previous reports Tilson has described the Kitsap PUD's use of local utility districts, special assessment districts statutorily associated with PUDs, to fund the deployment of fiber to the premise infrastructure, and the Mason PUDs use of a PUD financed line extension fee in order to accomplish the same. These funding and financing mechanisms, used in conjunction with state and federal grant funding sources, may represent the only viable path forward to allowing the PUD to deploy broadband infrastructure in the upper Methow Valley, provided their board of commissioners allows them to do so.

Both models are based on a phased approach to construction, with the project divided into four logical phases. Phase 1 involves the PUD expanding their existing wholesale open access fiber to the premise network within the Methow Valley, which is essentially a middle mile fiber network, into an actual last mile fiber to the premise network with service drops to end users making it more accessible to the community. Phase 2 is essentially an edge out of phase 1 with limited deployment outside the PUD's existing service area and within the Cooperative's service area. Phase 3 begins the northern portion of the network deployment in and around Winthrop and Mazama and Phase 4 is the northern expansion of the network all the way to the Lost River Airport Association.

These phases are logical but theoretical and allow for the business modeling below. Actual network construction segmentation will be driven by available grant funding and the geographic areas chosen for grant funding eligibility, and possibly the locations of special assessment districts.

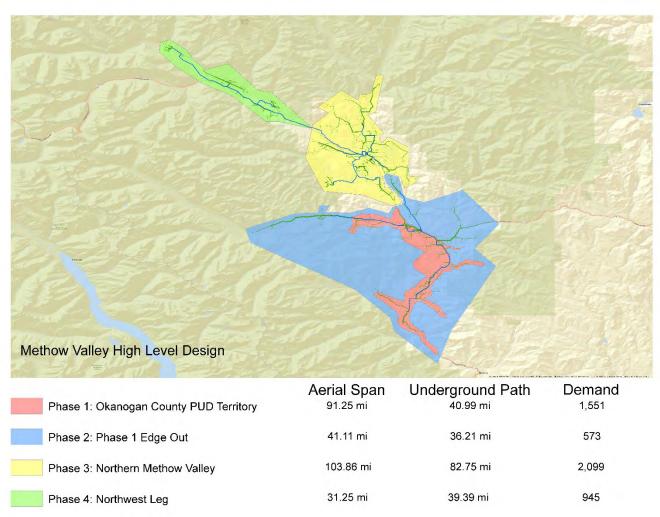


Figure #1: Theoretical construction phases for modeling purposes

### Network Initial Capital Cost Estimate

#### Study Area Overview

	Methow Valley Total	Okenogen County	Phase 1 Edge Out	Northern Methow Vailey	Northwest Leg
Fiber Route Miles	462.0	131.2	76.5	184.6	69.8
Premises passed	5,178	1,554	574	2,103	947
Maximum Subscribers	3,133	940	348	1,272	571
Premises passed/mile	11.2	11.8	7,5	11.4	13.6

#### **Total Initial Capital Costs**

	Methow Valley Total		Okanogan County		Phase 1 Edge Out		Northern Methow Valley		Northwest Leg	
\$/Premises Passed	\$	9,022	\$	8,569	\$	13,187	\$	8,885	5	7,589
Fixed Capital Costs	\$	1,087,381	\$	309,731	\$	178,987	\$	435,468	\$	163,195
Variable Capital Costs	\$	45,630,858	\$	13,006,422	\$	7,391,599	\$18	3,250,875	\$	7,022,615
Total Initial Costs	\$4	6,718,239	\$	13,316,152	\$	7,570,586	\$18	3,686,343	\$	7,185,810

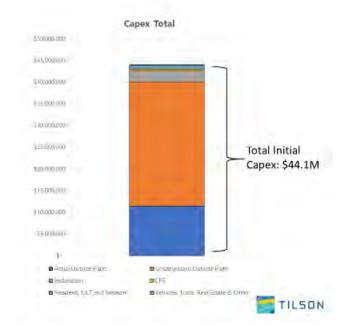
1) Total is hased on PORD designs provided for the project, each "phase" is basenon the average variable per mine and ser suit costs and ser-mine them costs. Total initial costs of from bread suit costs and ser-mine and ser-mi



Commercial Commercial

### Capex Key Assumptions<sup>1</sup>

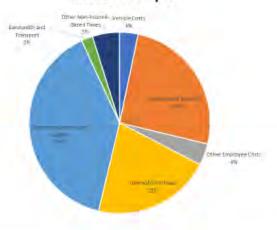
- · 60-month initial construction period
- Operations begin in year one, once portions of the network are live
- Model is based on the assumption that 82% of construction path will be aerial
- Model includes an estimated makeready cost of \$4,000 per mile. This value can vary widely
- Capex estimates also include a materials and labor margin of 8% and 24%, respectively



(a) Based on Methow Valley Total 46, moors (i) Francian Horosco disput Personal

### Annual Operating Expense Assumptions<sup>1,2</sup>

#### **Annual Fixed Opex**



- Variable opex factors include:
  - · Aerial plant: \$513.34 per aerial mile
  - · Underground plant: \$129.00 per underground mile
  - Customer services and support: \$105.24 per subscriber
  - · \$41.50 per new subscriber after initial construction period
- Approx. \$3.53M per year fixed costs
  - · Largest subcomponent is salary and benefits
- 2.5% annual inflation
- (L) Numbers reflect first year OpEx costs. Annual escalator of 2.5% is applied to all costs except in the case of Other Costs and Bandwidth and Transport (2) Based on Methow Valley Total Numbers



### Revenue Assumptions and Profiles

#### **Core Revenue Profiles**

- Tilson used three core profiles to drive revenue assumptions: Enterprise and Institutional, Residential, and
- Take rates for each profile are initially set to 30%, rising to 55% by month 60 and 60.5% by month 120.
- Monthly churn rate assumption is .42%, or approx. 5% annually Implied ARPU's for the three profiles are \$70 (E&d), \$45 (Residential), and \$70 (Commercial)
- Model assumes that revenue can be generated with a partial build of the network

Enterprise & Institutione	Monthly Prior Per Unit	Average # of Units Per Sub Taking the Service	% of Users Subscribing
Local Loop	\$50.00	1.0	100%
Internet Transit	\$20,00	1.0	100%
Service 3			
Service 4			
Service 5			
Service 6			
Implied ARPU	\$70.00		

Neridentia	Monthly Price Per Unit	Average # nf Units Per Sub Taking the Service	* of Users Subscribing
Local Loop	\$35.00	1.0	1009
internet Transit	\$10.00	1.0	1005
Implied ARPU	\$45.00		

Commercial	Monthly Price Per Unit	Average # of Units Per Sub Taking the Service	Winflusers Subscriping
Local Loop	\$50.00	1.0	100%
Internet Transit	\$20,00	1,0	100%
Implied ARPU	\$70.00		



alternatives of decision a

### Pro Forma Cash Flows

Vear	treitial		2	3	4	5	- 6	1	8	9	10
Average Subscribers		551	750	1,180	1,757	2,451	2.874	<u>2</u> 931	2,988	3,045	3,100
Revenue		312,045	433,056	694,384	1,054,448	1,500,056	1,798,984	1,871,716	1,946,046	2,022,600	2,102,024
Operating Expenses		581,524	620,892	689,272	778,638	886,513	954,680	998,350	1,033,035	1,068,839	1,105,880
EBITDA		(269,479)	(187,836)	5,111	275,810	613,543	834,303	873,366	913,011	953,761	996,144
Operating Subskit)											
EBITDA (inc. operating subsidy)		(269,479)	(187,836)	5,111	275,810	613,543	834,303	873,366	913,011	953,761	996,14
Capital Expenditures	10.033,029	9,998,861	9.520.413	9,400,801	9,400,801	11,205	234.963	369.704	515,254	666.419	825.792
FCF (inc. operating subsidy)	(10,033,029)	(10,268,340)	(9,708,249)	(9,395,690)	(9,124,992)	602,338	599,340	503,662	397,757	287,342	170,352
Cumulative FCF	(950,660,002)	(20,301,369)	(30,009,618)	H9,405,308)	(48,530,300)	(47,927,962)	(47,328,621)	(46,824,960)	(46,427,203)	(46,139,861)	(45,969,509
Interest on Cash		(50,933)	(102,479)	(151,251)	(198,499)	(244,476)	(242,527)	(240,947)	(239,870)	(239,332)	(239,357
Net Cash	(10,033,029)	(20,352,302)	(30,163,030)	[39,709,971]	(49,033,461)	(48,675,599)	(48,318,785)	(48,056,071)	(47,898,184)	(47,850,174)	(47,919,179
Project IRR at Year End	Null	Null	Null	Null	Null	Null	Null	Null	Null	Null	Nul

1) Sased on Methow Valley Total Numirers

(n ) 1 on 0 4-a-on



### Pro Forma Cash Flows:

Year	40	12	15	N.	15	16	18	10.	19	20
Average Subscribers	3,133	3,133	3,133	3,133	3,133	3,133	3,133	3,133	3,133	3,133
Revenue	.2,165,446	2,208,755	2,252,930	2,297,989	2,343,948	2,390,827	2,438,644	2,487,417	2,537,165	2,587,909
Operating Expenses	1,140,302	7,171,185	1,202,914	1,235,510	1,268,998	1,303,403	1,338,749	1,375,063	1,412,372	1,450,702
EBITDA	1,025,144	1,037,570	1,050,016	1,062,478	1,074,950	1,087,424	1,099,695	1,112,354	1,124,794	1,137,206
Operating Subsidy							-			
EBITDA (inc. operating subsidy)	7,025,744	7,037,570	1,050,016	1,052,478	1,074,950	1,087,424	7,099,895	7,712,354	1,124,794	1,137,206
Capital Expenditures	987,062	1,159,825	1,345,345	1,584,712	1,737,098	1,839,601	1,883,056	1,928,616	1,970,278	2,016,417
FCF (inc. operating subsidy)	36,082	(122,255)	(295,329)	(472,234)	(662,148)	(752,177)	(783,161)	(814,262)	(845,484)	(879,219)
Cumulative FCF	(45,931,427)	(46,053,682)	(46,349,011)	(46,821,245)	(47,483,395)	(48,235,570)	(49,018,731)	(49,832,993)	(50,678,478)	(51,557,688)
Interest on Cash	(239,995)	(241,369)	(243,587)	(246,690)	(250,728)	(255,578)	(260,696)	(266,001)	(271,485)	(277.162)
Net Cash	(48,121,092)	(48,484,717)	(49,023,633)	(49,742,557)	(50,655,433)	(51,663,188)	(52,707,045)	(53,787,309)	(54,904,279)	(56,060,651)
Project IRR at Year End	Null	Null	Null	Null	Noil	Null	Null	Null	Null	Null

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### 10 Year Cash-Flow Analysis

Subsidy Level	Fiber Route Miles	Initial Capex	Revenue at Year-10	EBITDA at Year-10	10-Year Cumulative FCF
Total Project	462.0	\$46,718,239	\$2,102,024	\$953,761	(\$45,969,509)
Okanogan County	131.2	\$13,316,152	\$631,075	\$158,787	(\$13,619,149)
Phase 1 Edge Out	76.5	\$7,570,586	\$233,151	(\$66,246)	(\$8,899,636)
Northern Methow Valley	184.6	\$18,686,343	\$853,499	\$286,956	(\$18,503,610)
Northwest Leg	69.8	\$7,185,810	\$416,950	\$66,325	(\$7,678,616)
OC + Phase 1 Edge Out	207.6	\$20,886,738	\$864,225	\$266,053	(\$20,981,837)
Northern MV + Northern Leg	254.3	\$25,872,153	\$1,270,449	\$526,720	(\$24,645,507)
OC + Northern MV	315.7	\$32,002,496	\$1,484,574	\$619,081	(\$30,586,524)



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#### **Services Provided**

The PUD is prohibited by law from providing retail services. The PUD offers wholesale services that are published in public rate resolutions to retail resellers. Services offered by retail ISPs on PUD open access networks generally include broadband Internet access at speeds from 25Mbps up to gigabit speeds and telephone service. Other services such as video are not generally offered by local providers as they are easily available over a broadband Internet connection as streaming services from over the top content providers such as Netflix and Amazon, and live television programming streaming providers such as Hulu and Sling.

#### **Technologies Deployed**

Most Washington State PUDs that offer fiber to the premise service do so using a GPON fiber architecture. While the Okanogan PUD currently uses an Active Ethernet architecture for its somewhat limited existing fiber to the premise customer base, expansion of their fiber to the premise system could involve a hybrid system including both Active Ethernet and GPON.

PUDs that offer wholesale wireless broadband access generally utilize point to multipoint wireless access nodes such as the Cambium PMP 450i using unlicensed spectrum. The PUDs manage the wireless access nodes, which are located on utility poles as well as more traditional macro tower sites and require and supply a specific customer premise equipment for compatibility.

#### **Customer Groups Served**

Most Washington State PUDs offering broadband Internet access do so in rural areas. As such, the majority of the customers served are residential. However, the PUD's wholesale network and the retail ISP resellers can provide service to business locations as well as public and governmental entities such as schools, health care facilities and public safety entities.

#### **Funding Sources Utilized**

Washington State PUDs have recently participated in public funding opportunities including state funding from the Community Economic Revitalization Board Rural Broadband Program and federal

funding from the United States Department of Agriculture's ReConnect program. The Mason PUD was a recent recipient of USDA ReConnect Round 2 funding. Previous federal funding opportunities utilized by Washington State PUDs include the National Telecommunications and Information Administration's Broadband Technology Opportunities Program as well as the USDA's Broadband Innovation Program. The Okanogan PUD is currently preparing a grant application for the state Public Works Board broadband grant program.

#### **Rate Schedules**

While the cost for retail broadband Internet access varies across PUDs, along with specific service packages, generally the cost of Internet access ranges from approximately \$30-\$50/mo for 25Mbps service using wireless, approximately \$40-\$75/mo for 100Mbps fiber service and \$60-\$100/mo for gigabit fiber service. The cost differential generally has to do with the size and scale of the PUD fiber to the premise network.

#### **Market Shares**

As wholesale only providers, and the entities that generally take the responsibility for constructing broadband infrastructure in lower revenue rural areas, PUDs have a near monopoly wholesale market share in their broadband service territories. With multiple retail ISP resellers using the PUD's wholesale infrastructure, any one ISP may not have significant market share, but they also don't have significant capital requirements in order to resell the service provided by the PUD and can operate with smaller market share than if a significant capital investment was made in the broadband infrastructure.

#### **Operating Costs**

PUD operating costs are not notably less than the operating costs of a private enterprise retail network owner/operator, with the possible exception that some of a PUD's fiber infrastructure may be used for electrical utility grid communication and operations. As such, a portion of the operating costs for fiber maintenance and repair, and related activities, can be borne by the electric utility business group and not the wholesale telecommunications group. Also, the PUD has existing operating and maintenance costs related to its existing county wide middle mile network and would incur only incremental additional O&M costs as a result of network expansion.

#### **Local Economic Impact**

Quantifying the impact on a local economy as a result of broadband availability is difficult, and it recently got even more difficult as a result of the increased value of the ability to telecommute for work and the ability to distance learn, in addition to the myriad other professional and educational opportunities available online to broadband enabled households, as well as telehealth options. Perhaps the most significant factor in the impact of broadband infrastructure on a local economy is the ability to telecommute. If people can work for companies headquartered along the I-5 corridor (or anywhere in the world for that matter) and live in the Methow Valley their paychecks can be spent in the Methow Valley, on valley real estate, in valley restaurants and retail stores, with valley contractors and small businesses. The distributed effect of telecommuters spending their salaries locally rather than in urban areas can be felt community wide in a direct and impactful way.

#### **Staffing Requirements**

Staffing requirements for a broadband network operator are significant. In addition to network engineers with advanced academic qualifications, staff that is qualified to safely work on cabling installed on utility poles is required for tasks such as fiber splicing, storm damage repair and adding new customers. Additional staff resources are required for customer care, billing, regulatory compliance and other functions. Even the pursuit of grant funding opportunities and executing on those opportunities requires significant human resources. The Okanogan PUD has most of these human resources already in place, but they may need to be bolstered with significant network expansion.

#### **Partnerships Utilized**

Washing State PUDs and other regional network operators have taken the responsibility of constructing

fiber and wireless networks in rural areas generally within their electric service areas. Just as the electricity PUDs sell to customers generally comes from third party generating and transmission facilities, PUDs also reply on partners to deliver Internet connectivity to their local broadband subscribers from places such as Spokane, Seattle and Portland. For this PUDs generally rely on the NoaNet statewide open access middle mile fiber network, but other carriers such as CenturyLink are also utilized. Once in Internet points of presence in Spokane, Seattle and Portland other partners such as Cogent and Zayo are utilized for diverse, redundant Internet transit.

#### **Challenges Overcome**

Washington State PUDs generally operate in rural communities with low population density. As such, making a business case to deploy fiber broadband infrastructure is very difficult without supplemental funding. The pursuit and obtainment of such funding is a significant challenge to overcome for rural PUDs. In addition, in the Methow Valley the majority of unserved and underserved locations are not within the PUD's service territory (they are within the district), rather they are within the service territory of the Okanogan County Electrical Cooperative. A significant challenge for the PUD to overcome will be to decide if they are willing to deploy broadband infrastructure within the Cooperative's service territory, and if so how. For example, if the PUD is willing to deploy within the Cooperative's service territory but not willing to utilize the Cooperative's utility poles, any new fiber broadband infrastructure would need to be buried underground which is significantly more expensive than aerial construction using existing poles. If the PUD is unwilling to deploy fiber broadband infrastructure in Cooperative service territory under any circumstances, the community will be faced with a significant challenge to overcome in the form of finding another entity that is capable and willing to participate in a broadband infrastructure project in the Methow Valley.

#### Model No. 2 – Private Enterprise Retail Owner/Operator

The Okanogan County Public Utility District Board of Commissioners has expressed reservations about deploying broadband infrastructure outside their existing electrical service territory and within the Okanogan County Electric Cooperative service territory. The Board's concerns included first addressing similar needs from their electric ratepayers within their service area, as well as owning, operating and maintaining infrastructure that is not installed on the PUD's own utility pole infrastructure.

In the absence of the PUD's involvement in the upper Methow Valley, the alternate business model involves a private enterprise telecommunications company acting as network developer, owner and retail operator. The alternative to this option, and model no. 1, would be a public or municipally owned and operated network, with possible involved public entities being the public development authority, the town of Twisp or Winthrop, the county, or a newly formed port district. This public option is not something Tilson was asked to model, due in part to the lack of appropriate resources among these public entities to undertake such an endeavor. However, public involvement is an integral part of both business models in the sense that successful infrastructure deployment will rely on the infusion of capital in addition to the capital either the PUD or a private enterprise retail developer will be willing to bring to the table. This additional capital will take the form of state and federal grants, subsidies and possibly from special assessment districts which Tilson has described in previous reports. One possible example of private enterprise retailer developer involvement is CenturyLink. While this may seem an unlikely option given CenturyLink's lack of expansion and improvement of broadband infrastructure in the Valley in recent years, it is a valid example if only because of the lack of other qualified, capable private enterprise companies regionally. CenturyLink wouldn't simply invest the full cost of building a brand new fiber to the premise infrastructure in the Methow Valley based on market

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<sup>&</sup>lt;sup>13</sup> PUD Board meeting August 24<sup>th</sup>, 2020.

demand only. The costs are just too high, there is no business case to be made without the influx of supplemental capital from an outside source. It is possible that with the use of special assessment districts, wherein property owners are assessed an amount that enables CenturyLink to construct the infrastructure, a public private partnership can be formed with CenturyLink in order to fund and deploy their retail fiber to the premise infrastructure.

Other private enterprise retailers may also be interested in this type of public private partnership, however there are few existing companies with the size, scale and resources in place to deploy fiber infrastructure ubiquitously throughout the Methow Valley and operate it sustainably over time. Smaller local retailers such as Methownet may be interested in being a private partner in a public private partnership but may not have the size and scale to support a large deployment. Regardless the specific private enterprise, retail owner/operator involved, their potential interest in the use of public private partnerships for the purpose of utilizing the funding mechanisms provided by special assessment districts will be a vital aspect to the project. If sufficient supplemental funding is not available in the form of state and federal grants and subsidies, the addition of capital from special assessment districts may represent the only viable path to funding broadband infrastructure. It is possible that a Request for Proposals (RFP) can be issued to solicit the interest of private enterprise retail owners/operators. The RFP issuing entity could feasibly be the public development authority or a port district if one existed. Of course, in order for the RFP to garner serious interest it would need to specify the availability of supplemental capital in the form of a specific grant program and/or the specific use of special assessment districts. This RFP would essentially be requesting proposals for a public private partnership, especially if the specific grant opportunity is available only to public entities, such as the USDA Public Works and Economic Adjustment Assistance program, or if the use of special assessment districts is proposed either as a standalone funding mechanism or layered on top of a particular grant funding opportunity.

For example, a particular grant funding opportunity may offer a specific maximum amount, and a private enterprise retail owner/operator may be willing to invest a specific maximum amount, if any additional capital the project needs to come to fruition is guaranteed by the use of special assessment districts the project stands a good chance of proceeding. As an alternative, even in the absence of a particular grant opportunity, if funding from a special assessment district by itself was used to supplement the investment capital of a private enterprise retail owner/operator that may be sufficient to bring a project to fruition, although it would put a large financial responsibility on members of the special assessment district.

### Network Initial Capital Cost Estimate

#### **Study Area Overview**

	Methow Valley Total	Okenogen County	Phase 1 Edge Out	Northern Methow Vailey	Northwest Leg
Fiber Route Miles	462.0	131.2	76.5	184.6	69.8
Premises passed	5,178	1,554	574	2,103	947
Maximum Subscribers	3,133	940	348	1,272	571
Premises passed/mile	11.2	11.8	7,5	11.4	13.6

#### **Total Initial Capital Costs**

	M	ethow Valley Total	J.	Okanogan County	P	Out	M	Northern lethow Valley	No	orthwest Leg
\$/Premises Passed	5	9,090	3	8,657	5	13,224	\$	8,973	5	7,541
Fixed Capital Costs	\$	1,748,320	5	540,330	\$	245,443	5	742,495	\$	220,052
Variable Capital Costs	5	45,319,745	5	12,913,094	3	7,346,835	5	18,128,032	\$	6,919,862
Total Initial Costs	s	47,068,065	\$	13,453,424	s	7,592,279	s	18,870,527	s	7,139,913

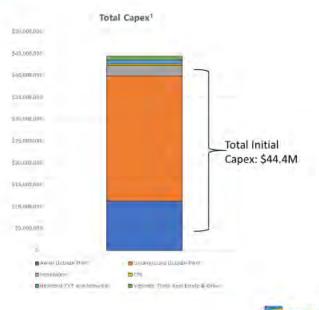
1) Total sinead on POHD designs provided for the project, each Tahase" is basenon the average variable per mine and use still costs and delimited then costs. Total Initial costs of from bless than season they is \$47,095,144.

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### Capex Key Assumptions

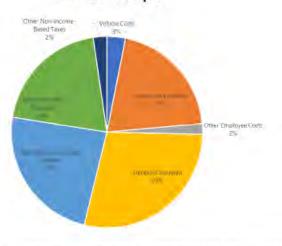
- · 60-month initial construction period
- Operations begin in year one, once portions of the network are live
- Model is based on the assumption that 58% of construction path will be aerial
- Model includes an estimated makeready cost of \$4.000 per mile. This value can vary widely
- Capex estimates also include a materials and labor margin of 8% and 24%, respectively



1) Based on Methow ValleyTotal Numbers

### Annual Operating Expense Assumptions 1.2

#### **Annual Fixed Opex**



- Variable opex factors include:
  - · Aerial plant: \$513.34 per aerial mile
  - · Underground plant: \$129.00 per underground mile
  - Customer services and support: \$105.25 per subscriber
  - \$41.50 per new subscriber after initial construction period
- Approx. \$712K per year fixed costs
  - · Largest subcomponent is salary and benefits
- 2.5% annual inflation

(1) Numbers reflect first year OpEx costs. Annual escalator of 2.5% is applied to all costs except in the case of Other Costs and Bandwidth and Transport (2) Based on Methow Valley Total Numbers

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### Revenue Assumptions and Profiles

#### **Core Revenue Profiles**

- Tilson used three core profiles to drive revenue assumptions: Enterprise and Institutional, Residential, and
- Take rates for each profile are initially set to 10%, rising to 55% by month 60 and 60,5% by month 120.
- Monthly churn rate assumption is 42%, or approx. 5% annually Implied ARPU's for the three profiles are \$1,024.75 (E&I), \$66.24 (Residential), and \$167.28 (Commercial)
- Model assumes that revenue can be generated with a partial build of the network

Enterprise & Institutione	Monthly Prior Per Unit	Average # of Units Per Sub Taking the Service	W. of Usins Subscribing
DIA	5 1,000,00	1.0	50%
Metro E	\$ 100,00	1.0	50%
Hosted PBX Lines	\$ 30.00	9.0	50%
SIP trunks	\$ 40.00	12.0	40%
DID Lines	\$ 12.00	20.0	55%
Switch lease	\$ 35.00	1.0	45%
mplied ARPU	\$ 1,024.75	-	

(lesidentie)	PI	onthly ice Per Unit	Average # nl Units Per Suti Talking The Service	* of Users Subs⊤ibing
Highest Speed Internet	5	105,00	1.0	5%
Mid-High Speed Internet	5	79.99	1.0	15%
Mid-Low Speed Internet	5	59.99	1.0	40%
Lowest Speed Internet	\$	49.99	1,0	40%
Phone	5	- 25:00	100	20%
Implied ARPU	5	66.24		

Commercial		Haly Price or Drift	Average # of Units Per Sub Taking the Service	N. of Users Subscribing
Highest Speed Internet	5	194.99	1.0	10%
Mid-High Speed Internet	s	159,00	1.0	20%
Mid-Low Speed Internet	5	84.99	1.0	50%
Lowest Speed Internet	S	69,95	1,0	20%
Phone	5	35.00	3,0	50%
Static IP	5	7.00	1.0	50%
Switch lease	2	35.00	1.0	10%
Implied ARPU	s	196.30		



### Pro Forma Cash Flows

Vear	unitial		2	3	4		- 6	7	8	9	10
Average Subscribers		297	704	1,180	1,757	2,451	2.874	2,931	2,988	3,045	3,100
Revenue		,280,939	667,261	1,135,532	1,711,774	2,435,918	3,029,965	3,158,202	3,280,031	3,405,470	3,545,236
Operating Expenses		956,930	1,070,505	1,201,700	1,356,702	1,540,284	1,687,067	1,771,397	1,856,877	1,946,358	2,040,312
EBITDA		(675,991)	(403, 244)	(66,168)	355,072	895,634	1,342,897	1,386,805	1,423,154	1,459,112	1,504,925
Operating Subskil)											
EBITDA (inc. operating subsidy)		(675,991)	(403,244)	(66, 768)	355,072	895,634	1,342,897	1,386,805	1,423,154	1,459,112	1,504,92
Capital Expenditures	10.247,017	10.290.295	9.521.034	9.328,719	9.328.719	11.200	234,783	369,396	514,813	666.383	826.837
FCF (inc. operating subsidy)	(10:247,017)	(10,966,286)	(9,924,278)	(9,394,886)	(8,973,647)	884,434	1,108,114	1,017,409	908,341	792,729	678,088
Cumulative FCF	(10,247,017)	(21,213,302)	(31,137,581)	(40,532,467)	(49,506,114)	(48,621,680)	(47,513,566)	[46,496,157]	(45,587,816)	(44,795,087)	(44,116,999
Interest on Cash		(53,012)	(107,642)	(157, 166)	(204,117)	(248,932)	(244,961)	(240,830)	(237,186)	(234,087)	(231,554
Net Cash	(10,247,017)	(21,266,314)	(31,298,234)	(40,850,286)	(50,028,050)	(49,392,548)	(48,529,394)	(47,752,616)	(47,081,661)	(46,523,019)	(46,076,485
Project IRR at Year End	Null	-62.46%	-51.83%	-44.60%	-39.52%						

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### Pro Forma Cash Flows:

Year	-11	12	n	- 14	15	16	17	18.	19	20
Average Subscribers	3,133	3,133	3,133	3,133	3,133	3,133	3,133	3.133	3,133	3,133
Revenue:	3,653,256	3,726,321	3,800,848	3,876,865	3,954,402	4,033,490	4,114,150	4,196,443	4,280,372	4,365,979
Operating Expenses	2,133,548	2,224,459	2,319,580	2,419,264	2,523,747	2,633,274	2,748,107	2,868,518	2,994,797	3,127,248
EBITE/A	1,519,708	1,501,863	1,481,268	1,457,601	1,430,655	1,400,216	1,366,053	7,327,925	1,285,575	1,238,731
Operating Subsidy							-	_		
EBITDA (inc. operating subsizy)	7,519,708	7,507,863	1,481,268	7,457,601	1,430,655	1,400,216	7,366,053	1,327,925	1,285,575	1,238,731
Capital Expenditures	989,412	1,163,200	1,350,142	1,540,648	1,744,417	1,848,509	1,893,633	1,938,956	1,984,616	2,032,470
FCF (inc. operating subsidy)	530,296	338,663	131,126	(83,047)	(313,762)	(448,293)	(527.580)	(611,031)	(699,041)	(793,739)
Cumulative FCF	(43,586,703)	(43,248,040)	(43,116,914)	(43, 199, 952)	(43,513,723)	(45,962,016)	(44,489,595)	(45,100,628)	(45,799,669)	(46,593,408)
Interest on Cash	(229,629)	(228,556)	(228,480)	(229,456)	(231,550)	(234,660)	(238,261)	(242,293)	(246,770)	(251.729)
(Net Cash	(45,775,818)	(45,665.711)	(45,763,065)	(46,075,568)	(46,620,880)	(47,303,834)	(48,069,675)	(48,923,000)	(49,868,812)	(50.914,279)
Project IRR at Year End	-36.27%	-34.97%	-63.10%	Null	Null	Null	Null	Null	Null	Null

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### 10 Year Cash-Flow Analysis

Subsidy Level	Fiber Route Miles	Initial Capex	Revenue at Year-10	EBITDA at Year-10	10-Year Cumulative FCF
Total Project	462.0	\$47,068,065	\$3,545,236	\$1,504,925	(\$46,076,485)
Okanogan County	131.2	\$13,453,424	\$1,067,901	(\$202,287)	(\$17,237,678)
Phase 1 Edge Out	76.5	\$7,592,279	\$396,586	(\$680,589)	(\$13,284,915)
Northern Methow Valley	184,6	\$18,870,527	\$1,434,405	\$58,096	(\$21,941,449)
Northwest Leg	69.8	\$7,139,913	\$620,426	(\$498,800)	(\$12,436,368)
OC + Phase 1 Edge Out	207.6	\$21,045,703	\$1,464,487	\$53,384	(\$24,386,221)
Northern MV + Northern Leg	254.3	\$26,010,441	\$2,054,831	\$495,144	(\$27,118,471)
OC + Northern MV	315.7	\$32,323,951	\$2,502,307	\$791,022	(\$32,267,831)



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#### **Services Provided**

Retail services offered over a network owned and operated by a private enterprise retailer would be similar to those offered by retailers on the PUD's wholesale open access network and would include a gigabit service option, and options for more affordable services such as a 500 Mbps service, a 50 Mbps service and a 25 Mbps service. Most services would likely be offered as symmetrical with both upload and download speeds the same.

#### **Technologies Deployed**

A private enterprise retail network owner/operator would likely deploy the technology described in Tilson's high level design, a hybrid fiber to the premise network with a head end location feeding numerous fiber distribution cabinets installed in the public right of way or on an easement. These fiber distribution cabinets can then house either Active Ethernet hardware or Passive Optical Network splitters for a GPON network. A private enterprise retailer would likely utilize Active Ethernet connections for high bandwidth users such as businesses and utilize GPON for mass market residential service.

#### **Customer Groups Served**

A private enterprise retailer owner/operator would serve all available customer groups locally, including residential, small and medium sized business, enterprise customers, governmental entities and community anchor institutions. Though there is not a high concentration of customers other than residential or small business, these higher bandwidth customers can easily be served by the same network and the added revenue contributes to network sustainability.

#### **Funding Sources Utilized**

Supplemental grant or subsidy funding, or some other source of additional capital, would still be required under the private enterprise retail owner/operator model. The private enterprise retailer will have their own model which will determine how much capital they are willing to invest, taking into consideration their anticipated operational and maintenance costs of the network and anticipated take rate. Any capital in excess of the amount a private enterprise retailer is willing to contribute will need to be supplemented by grant or subsidy funding, or in the form of additional capital raised by special

assessment districts or home owners' associations.

#### **Rate Schedules**

Typical retail rates to be expected on a network owned and operated by a private enterprise retailer would be similar to those available on the PUD's wholesale open access fiber to the premise network. Possible symmetrical services and associated rates may be:

25 Mbps for \$40/mo

50 Mbps for \$45/mo

500 Mbps for \$70/mo

1 Gbps for \$100/mo

In addition to these rates, a private enterprise retail owner/operator may charge a nominal, one-time installation fee of \$100 and may charge a monthly recurring fee for customer premise equipment.

#### Market Shares

As the developer and owner/operator of broadband infrastructure that would be capable of speeds and performance well in excess of existing DSL or fixed wireless service, a private enterprise retail owner/operator can expect to gain a large percentage of market share. In fact, the retailer's own model will likely need to assume a certain, large percentage of market share in order to justify the investment. In a rural area with low population density and a lot of fiber miles to maintain relative to the overall number of customers, a high percentage of market share may be required in order to justify investment and to support network sustainability.

#### **Operating Costs**

The operating costs for a private enterprise retail owner/operator would be on par with the operating costs of the PUD's wholesale open access network. While the PUD can cross subsidize some of their operating costs with their electrical division as it uses fiber for grid operations, they also may potentially have higher operating costs in order to accommodate multiple retail service providers connecting to their network. A private enterprise retail owner/operator that needs to establish operations locally without any pre-existing operations may experience operations and maintenance costs somewhat above average.

#### **Local Economic Impact**

Quantifying the impact on a local economy as a result of broadband availability is difficult, and it recently got even more difficult as a result of the recently increased value of the ability to telecommute for work and the ability to distance learn, in addition to the myriad other professional and educational opportunities available online to broadband enabled households, including telehealth options. Perhaps the most significant factor in the impact of broadband infrastructure on a local economy is the ability to telecommute. If people can work for companies headquartered along the I-5 corridor (or anywhere in the world for that matter) and live in the Methow Valley, their paychecks can be spent in the Methow Valley, on valley real estate, in valley restaurants and retail stores, with valley contractors and small businesses. The distributed effect of telecommuters spending their salaries locally rather than in urban areas can be felt community wide in a very direct and substantial way.

#### **Staffing Requirements**

Staffing requirements for a private enterprise broadband network owner/operator are significant. In addition to network engineers with advanced academic qualifications, staff that is qualified to safely work on cabling installed on utility poles is required for tasks such as fiber splicing, storm damage repair and adding new customers. Additional staff resources are required for customer care, billing, regulatory compliance and other functions. A private enterprise owner/operator will also require the pursuit of grant funding opportunities and executing on those opportunities in order to make a business case for deploying broadband infrastructure, requiring significant human resources.

#### **Partnerships Utilized**

Partnerships for middle mile backhaul to get data traffic from the Methow Valley to the commodity

Internet at points such as Spokane, Seattle and Portland would be required from companies such as NoaNet, CenturyLink or Wholesail Networks. Partnerships with subcontractors may be utilized for local fiber maintenance responsibilities such as fiber splicing, adding fiber service drops to new subscribers and fiber repair and maintenance. A partnership, of sorts, would also be required with the Okanogan PUD and the Okanogan Electrical Cooperative for pole attachment agreements in order for a private enterprise retail owner/operator to install fiber cable on utility poles owned by those utilities.

#### **Challenges Overcome**

The primary challenge to overcome in the private enterprise retail owner/operator model is the lack of sufficient capital to proceed. The pursuit of grant funding is incremental, with only a limited amount of funding available at a time, and without great visibility into what locations would qualify for a specific grant funding opportunity, and no guarantee those locations would be in a logical geographic area to construct to at that time. The implementation of special assessment districts that directly coincide with construction phases, and the additional capital raised by those special assessment districts, is perhaps the most effective way to overcome this particular challenge.

e) Include an assessment of municipal procedures, policies, rules and ordinances that impact or influence broadband infrastructure deployment.

Municipalities offer an important partnership opportunity due to the rights of way they can provide for important broadband projects. The towns of Twisp and Winthrop are very supportive of these efforts and both Mayors have been active on the Methow Valley BAT. Okanogan County has not included broadband in the currently version of their comp plan, but Okanogan County and Colville Confederated Tribes, along with the Methow Valley BAT will continue to pursue inclusion.

#### f) Digital Inclusion

The Methow Valley BAT is exploring various options for digital inclusion and affordability. However, with the primary challenge being the affordability of the new infrastructure required to provide broadband service to unserved and underserved locations. The BAT is exploring the expanded use of existing programs such as FCC's Lifeline program in the valley, as well as closely following potential rules changes to the FCC's E-Rate program which could potentially allow a broadband service subsidy to students at their home location. In addition, the BAT is optimistic that a stakeholder will participate in an upcoming grant funding opportunity from the USDA's Community Connect grant program which requires some of the broadband infrastructure funding be spent on opening and maintaining a publicly accessible computer facility. The BAT believes the above activities satisfies the requirements of 2. f. i-iv.

- i. Affordable Internet –Describe how community will address providing affordable internet options.
- ii. Affordable Equipment Describe how community will expand the availability of affordable equipment to low-income residents.

iii. Digital Literacy Training – Describe how community will teach people to use technology.

iv. Public Computer Access –Describe how community will increase public computer access locations.

#### 3) Create a Vision Statement

#### a) Status of Vision Statement

The Methow Valley BAT's vision statement is mature but evolving. With the recent realization of the importance of increased bandwidth requirements exposed during the recent Coronavirus pandemic, shown mostly in telecommuting and distance learning requirements especially but not entirely, it has become even more important that the BAT's vision statement adhere to the state's broadband policy goals; that broadband infrastructure in the valley should be capable of supporting 150 Mbps symmetrical Internet access to all residents by 2028. This will enable the Methow Valley to bridge the digital divide and provide digital opportunities to valley residents on par with residents of other parts of the state, such as distance learning, telehealth and the ability to telecommute.

It is the vision of the Methow Valley BAT that all residents in the valley, if they choose to, can have access to Internet connections that will allow them to work from their homes in the valley (and spend their paychecks in the valley), educate their children from their homes in the valley using distance learning platforms, secure telehealth resources and in general exist on a level economic playing field with all other residents of Washington State.

## b) The statement should describe the role broadband would play in the community's future.

The role of broadband in the community's future has become more prominent in recent months during the Coronavirus pandemic, and issues such as distance learning, telehealth, elder care and telecommuting are becoming more important concerns to community residents. Broadband will enable the Methow Valley to bridge the digital divide and provide digital opportunities to valley residents on par with residents of other parts of the state, such as distance learning, telehealth and the ability to telecommute. It is the vision of the Methow Valley BAT that all residents in the valley, if they choose to, can have access to Internet connections that will allow them to work from their homes in the valley (and spend their paychecks in the valley), educate their children from their homes in the valley using distance learning platforms and in general exist on a level economic playing field with all other residents of Washington State.

c) Explain how this effort conforms to other planning documents/published visioning efforts on other issues in your community.

The Methow Valley BAT vision statement for broadband planning will adhere as closely as possible to the state's broadband policy goal of making available symmetrical 150 Mbps Internet access to all residents by 2028.

The Methow Valley School District and North Central Washington Regional Libraries have been a consistent partner in this effort, focusing on expansion of access to technology for all members of our community. A new public library in Winthrop will provide high-speed access and be an important hub in the community's infrastructure. The Drop Zone in Winthrop, Mountain

In addition, by participation on the North Central Washington Economic Development District and Okanogan County Economic Alliance's Board of Directors, the BAT has influenced and supported the inclusion of Broadband infrastructure enhancement and deployment in the regional Comprehensive Economic Development Strategy (CEDS).

Okanogan County Commissioners have expressed their ongoing support of continued focus on equitable access to Broadband throughout the county and provided a match to the Methow Valley BAT study and a parallel study being conducted with the Colville Confederated Tribes and the remainder of Okanogan County.

#### 4) Financial Commitment and Budget

## a) Submit a budget for the plan aligned to significant project plan milestones, costs and tasks.

As part of their consulting work for the Methow Valley, Tilson Technology Management produced a high level design for a GPON fiber to the premise network connecting all unserved and underserved locations within the Methow Valley School District. The high level design and associated bill of materials was provided to the Methow Valley BAT. However, due to the scale and cost of this proposed network it is unlikely to be undertaken as a single project. Rather, as Tilson described in their report accompanying their high level design, discrete network segments that may be available for specific grant funding programs will likely be addressed first, with other network segments being more viable after new fiber infrastructure is deployed into the community. Once a specific grant program is identified, such as the next round of the USDA's ReConnect program, depending on that programs funding rules, a specific network design for a conforming area can be developed and a cost estimate and financial model can follow. It was noted in Tilson's report that it is unlikely a broadband infrastructure project in the valley will come to fruition without the influx of broadband grant funding.

### Network Initial Capital Cost Estimate:

#### Study Area Overview

	Methow Valley Total	Okenogen County	Phase 1 Edge Out	Northern Methow Vailey	Northwest Leg
Fiber Route Miles	462.0	131.2	76.5	184.6	69.8
Premises passed	5,178	1,554	574	2,103	947
Maximum Subscribers	3,133	940	348	1,272	571
Premises passed/mile	11.2	11.8	7,5	11.4	13.6

#### **Total Initial Capital Costs**

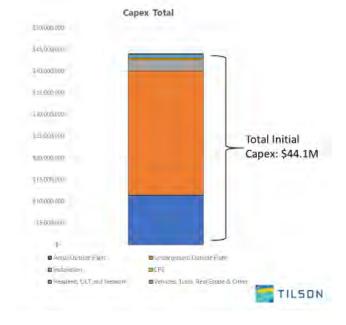
	M	ethow Valley Total	P	Okanogan County	P	hase 1 Edge Out		Northern thow Valley	N	orthwest Leg
\$/Premises Passed	\$	9,022	\$	8,569	\$	13,187	\$	8,885	5	7,589
Fixed Capital Costs	\$	1,087,381	\$	309,731	\$	178,987	\$	435,468	\$	163,195
Variable Capital Costs	\$	45,630,858	\$	13,006,422	\$	7,391,599	\$18	8,250,875	\$	7,022,615
Total Initial Costs	\$4	6,718,239	\$1	3,316,152	\$	7,570,586	\$18	8,686,343	\$	7,185,810

1) To be sensed on PORD designation field for the project, each "phase" is basenon the average variable per mile and use surfaces and per mile their costs from limited but constructed with the project, each "phase" is basenon the average variable per mile and user surfaces and per mile their costs from limited but costs of him been but costs and per mile their costs from limited but costs of him been but costs and per mile their costs from limited but costs of him been but costs



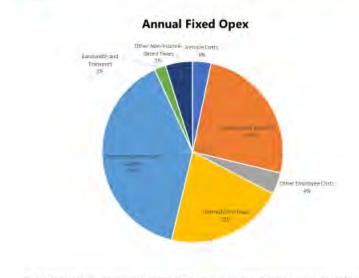
### Capex Key Assumptions<sup>1</sup>

- 60-month initial construction period
- Operations begin in year one, once portions of the network are live
- Model is based on the assumption that 82% of construction path will be aerial
- Model includes an estimated makeready cost of \$4,000 per mile. This value can vary widely
- · Capex estimates also include a materials and labor margin of 8% and 24%, respectively



(1) Based on Methow Valley Total Numbers

### Annual Operating Expense Assumptions 1.2



- Variable opex factors include:
  - · Aerial plant: \$513.34 per aerial mile
  - · Underground plant: \$129.00 per underground mile
  - Customer services and support: \$105.24 per subscriber
  - \$41.50 per new subscriber after initial construction period
- Approx. \$3.53M per year fixed costs
  - · Largest subcomponent is salary and benefits
- 2.5% annual inflation

(ii) Numbers reflect first year OpEx costs. Annual escalator of 2.5% is applied to all costs except in the case of Other Costs and Bandwicth and Transport [2] Based on Methow Valley Total Numbers



b) Submit Pro Forma Income Statement and Expenses.

### **Revenue Assumptions and Profiles**

#### **Core Revenue Profiles**

- Tilson used three core profiles to drive revenue assumptions: Enterprise and Institutional, Residential, and
- Take rates for each profile are initially set to 30%, rising to 55% by month 60 and 60.5% by month 120. Monthly churn rate assumption is 42%, or approx. 5% annually Implied ARPU's for the three profiles are \$70 (E&I), \$45 (Residential), and \$70 (Commercial)

- Model assumes that revenue can be generated with a partial build of the network

Enterprise & Institutione	Monthly Prior Per Unit	Average # of Units Per Sub Taking the Service	% of Users Subscribing	Nacidentia	Monthly Price Per Unit	Average # rif Units Per Sub Taking the Service	* nf Users Subscribing	Commercial	Monthly Price Per Unit	Average # of Units Per Sub Taking the Service	M of Users Subscriping
Local Loop	\$50.00	1.0	100%	Local Loop	\$35.00	0.0	100%	Local Loop	\$50.00	1,0	100%
Internet Transit	\$20,00	1.0	100%					Internet Transit	\$20,00	1.0	100%
Service 3				Internet Transit	\$10.00	1.0	100%				
Service 4					+						
Service 5					+		-				
Service 6							-				
Implied ARPU	\$70.00			Implied ARPU	\$45.00			Implied ARPU	\$70.00		



### Pro Forma Cash Flows:

Vear	tritial		2	3	- 4	5	- 6	1	8	- 0	10
Average Subscribers		551	750	1,180	1,757	2,451	2.874	∆931	2,988	3,045	3,100
Revenue		312,045	433,056	694,384	1,054,448	1,500,056	1,798,984	1,871,716	1,946,046	2,022,600	2,102,024
Operating Expenses		581,524	620,892	689,272	778,638	886,513	954,680	998,350	T,033,035	1,068,839	1,105,880
EBITDA		(269,479)	(187,836)	5,111	275,810	613,543	834,303	873,366	913,011	953,761	996,144
Operating Subskil)											
EBITDA (inc. operating subsidy)		(269,479)	(187,836)	5,111	275,810	613,543	834,303	873,366	913,011	953,761	996,14
Capital Expenditures	10.033.029	9,998,861	9.520.413	9,400,801	9,400,801	11,205	234.963	369.704	515,254	666.419	825.79
FCF (inc. operating subsidy)	(10,033,029)	(10,268,340)	(9,708,249)	(9,395,690)	(9,124,992)	602,338	599,340	503,662	397,757	287,342	170,352
Cumulative FCF	(10,093,029)	(20,301,369)	(30,009,618)	H9,405,308)	(48,530,300)	(47,927,962)	(47,328,621)	(46,824,960)	(46,427,203)	(46,139,861)	(45,969,509
Interest on Cash		(50,933)	(102,479)	(151,251)	(198,499)	(244,476)	(242,527)	(240,947)	(239,870)	(239,332)	(239,357
Net Cash	(10,033,029)	(20,352,302)	(30,163,030)	[39,709,971]	(49,033,461)	(48,675,599)	(48,318,785)	(48,056,071)	(47,898,184)	(47,850,174)	(47,919,179
Project IRR at Year End	Null	Nul									

1) Based on Methow Valley Total Numirers

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### Pro Forma Cash Flows:

Year	-11	12	13	N.	15	16	17	18	19	20
Average Subscribers	3,133	3,133	3,133	3,133	3,133	3,133	3,133	3,133	3,133	3,133
Revenue:	.2,165,446	2,208,755	2,252,930	2,297,989	2,343,948	2,390,827	2,438,644	2,487,417	2,537,165	2,587,905
Operating Expenses	1,140,302	1,171,185	1,202,914	1,235,510	1,268,998	1,303,403	1,338,749	1,375,063	1,412,372	1,450,702
EBITDA	1,025,144	1,037,570	1,050,016	1,062,478	1,074,950	1,087,424	1,099,695	1,112,354	1,124,794	1,137,200
Operating Subsidy									1	
EBITDA (inc. operating subsidy)	7,025,744	7,037,570	1,050,016	1,052,478	1,074,950	1,087,424	7,099,895	7,712,354	1,124,794	1,137,209
Capital Expenditures	987,062	1,159,825	1,345,345	1,584,712	1,737,098	1,839,601	1,883,056	1,928,616	1,970,278	2,016,417
FCF (inc. operating subsidy)	36,082	(122,255)	(295,329)	(472,234)	(662,148)	(752,177)	(783,161)	(814,262)	(845,484)	(879,211
Cumulative FCF	(45,931,427)	(46,053,682)	(46,349,011)	(46,821,245)	(47,483,393)	(48,235,570)	(49,018,731)	(49,832,993)	(50,678,478)	(51,557,688
Interest on Cash	(239,995)	(241.369)	(243,587)	(246,690)	(250,728)	(255,578)	(260,696)	(266,001)	(271,485)	(277.162
Net Cash	(48,121,092)	(48,484,717)	(49,023,633)	(49,742,557)	(50,655,433)	(51,663,188)	(52,707,045)	(53,787,309)	(54,904,279)	(56,060,651
Project IRR at Year End	Null	Nul								

1) Based on Methow Valley Total Numirers



### 10 Year Cash-Flow Analysis

Subsidy Level	Fiber Route Miles	Initial Capex	Revenue at Year-10	EBITDA at Year-10	10-Year Cumulative FCF	
Total Project	462.0	\$46,718,239	\$2,102,024	\$953,761	(\$45,969,509)	
Okanogan County	131.2	\$13,316,152	\$631,075	\$158,787	(\$13,619,149)	
Phase 1 Edge Out	76.5	\$7,570,586	\$233,151	(\$66,246)	(\$8,899,636)	
Northern Methow Valley	184.6	\$18,686,343	\$853,499	\$286,956	(\$18,503,610)	
Northwest Leg	rthwest Leg 69.8		\$416,950	\$66,325	(\$7,678,616)	
OC + Phase 1 Edge Out	207.6	\$20,886,738	\$864,225	\$266,053	(\$20,981,837)	
Northern MV + Northern Leg			\$1,270,449	\$526,720	(\$24,645,507)	
OC + Northern MV	315.7	\$32,002,496	\$1,484,574	\$619,081	(\$30,586,524)	

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With the identification of a specific proposed service area for funding through a specific grant program, a high level design and bill of materials can be prepared as well as a comprehensive financial model including an income statement, balance sheet and cash flow.

#### c) Identify potential sources of funding for the broadband infrastructure.

As stated above, it has been determined that the installation or expansion of broadband infrastructure in the valley will require an influx of applicable grant funding in order to incentivize the participation of private enterprise partners such as retail Internet service providers and a network operator. The likely potential sources for funding that is not private equity would be from the USDA (ReConnect and Community Connect programs), the FCC's Rural Digital Opportunity Fund (RDOF) Round 2 auction, The US EDA's Public Works and Economic Adjustment Assistance (PWEAA) program, and state level broadband infrastructure grant and loan funding.

#### d) Include letters of commitment for community funding.

Letters of support are included in **Attachment I**.

#### e) Include letters of commitment from any Internet Service Providers.

No letters of commitment from ISPs are available.

#### 5) Identify Key Documents/Existing Efforts

The Methow Valley BAT's consultant for the CERB Planning Grant, Tilson Technology Management, has produced four detailed reports as well as high level network designs, available on ArcGIS Online or via shapefiles, and an accompanying comprehensive Bill of Materials for the design. Tilson also produces an ArcGIS Online map of existing and planned broadband infrastructure, existing and planned broadband availability, and other key broadband related information. All of these reports and online maps, as well as shapefiles, are available to CERB for review.

a) <u>Does the municipality or region use broadband to deliver municipal services?</u> (Describe the services, and how broadband is used to deliver these services)

In the southern portion of the Methow Valley School District the Okanogan County Public Utility District operates a fiber network that connects municipal locations as well as other community anchor institutions.

Voting

Voter registration

Amber alerts

Etc.

b) Is there local or regional economic development plans in which broadband could play a role? (If so, provide a list of these documents)

Contact made with the Economic Alliance and the North Central Washington Economic Development District indicates that at present, there is not a full or robust component in current planning documents for these organizations that includes a specific broadband plan for Okanogan County and more specifically, for the Methow Valley. That said, it is also clear, based on the economic development goals for these entities, that it's understood that the availability of adequate high-speed broadband for residents, public and non-governmental organizations (NGO's) and businesses is key to achieving local economic development goals in Okanogan County. In discussions with North Central Washington Economic Development District there is a possibility that this Broadband Plan may serve as an example of good broadband planning that the agency can include in their planning documents.

Are there any on-going community projects focusing on the digital divide or information technology (public access through schools or libraries, training, improving access to broadband, etc.?)

The Methow Valley School District has completed an assessment of all K-12 students enrolled and developed programs to ensure that access to hardware, software and internet is provided for all students. In addition, the school district has a robust resource page on their web site. In some

instances, students report receiving technology they cannot deploy in their home due to lack of sufficient broadband speeds. These students are encouraged to use one of the many Broadband hotspots that have been established in the region.

The NCRL, Town of Winthrop and Friends of the Winthrop Library (FOWL) will open a new regional library in the summer of 2021 with expanded access to computers and broadband. Their <u>design</u> takes into account feedback from a community needs assessment that took place concurrently with the Methow Valley BAT work.

## 6) Identify potential Community Anchor Institutions and Businesses

- a) Provide a list of potential community anchor institutions\*.
  - 1. Aero Methow emergency medical treatment and transport
  - 2. Confluence Health Methow Valley Clinic primary medicine for community
  - 3. Fire District No. 6 community fire department
  - 4. 2. Jamie's Place senior care facility
  - 5. Little Star Montessori early education
  - 6. Methow at Home neighbor support network for those aging in place
  - 7. Methow Conservancy land and resource conservation and support for agriculture
  - 8. Methow Trails trails manager for nation's largest Nordic ski trails system
  - 9. Methow Housing Trust not-for-profit builder of affordable housing for workers
  - 10. Room One community-based social service provider
  - 11. TwispWorks Foundation not-for-profit support for economic incubation and development
  - 12. The Merc Playhouse community theater
  - 13. U.S. Forest Service Methow Ranger District and Smokejumper Base forest management and fire fighting
- b) Provide a list of businesses\*\* that could benefit from lower cost, higher bandwidth, and/or improved reliability of broadband. i Including the level of broadband improvements needed by the business to become and/or remain competitive and/or expand markets).
  - 1. Abby Creek Inn hotelier
  - 2. ArrowLeaf Bistro fine dining
  - 3. Blue Star Coffee Roasters coffee roaster and distributor
  - 4. eqpd designer and manufacturer
  - 5. Farmers State Bank bank
  - 6. Goat's Beard Mountain Supplies ski, climbing and outdoor gear retailer
  - 7. Hank's Harvest Food grocer
  - 8. Harmony House Interiors flooring and window covering supplier
  - 9. Hotel Rio Vista hotelier
  - 10. Loup Loup Ski Bowl alpine ski area
  - 11. Mazama Country Inn hotelier
  - 12. Mazama Ranch House hotelier
  - 13. Methow Cycle and Sport bicycle and ski outfitter
  - 14. Sun Mountain Lodge hotelier

#### 7) Development of a Management Plan

The BAT is currently working with regional stakeholders such as the Okanogan County Public Utility District, the Okanogan County Electric Cooperative, NoaNet and regional retail Internet service providers to discuss roles and responsibilities of stakeholders going forward. For example, approximately 20% of the area that is the Methow Valley School District is served, with electrical service, by the Okanogan PUD, the remaining approximately 80% is served by the Okanogan Electrical Co-op. The PUD is currently considering if it is willing to own and or operate fiber optic infrastructure within the Cooperative's service area, on utility poles owned by the Cooperative. The Cooperative is a willing participant

The key to broadband infrastructure expansion in the Methow Valley is finding supplemental capital funding to enable deployment. There is no business case to be made for a for profit entity to invest the full cost to deploy fiber to the premise infrastructure, the only infrastructure capable of meeting the state's broadband policy goal of symmetrical 150 Mbps service to all residents by 2028. The capability and reach of Internet access networks that can be financed entirely by private investment, with no public contribution, is already on display in the Methow Valley. Fixed wireless infrastructure with limited reach and performance, and aging DSL infrastructure initially installed for telephone service. Additional broadband infrastructure with greater capabilities reaching a much greater population will require the infusion of supplemental funding in the form of state and federal grants, subsidies, and funding from special assessment districts.

Tilson's recommended action plan is two-fold. First and foremost, pursue any and all grant and subsidy funding earmarked for broadband infrastructure. This should be a constant, ongoing effort for years to come. State funding through the Public Works Board and CERB program (if it continues); federal funding through the USDA ReConnect program, US EDA PWEAA program and the FCC's RDOF auction, among others, and additional local funding through the use of special assessment districts. In one of Tilson's previous deliverables we described how the Kitsap Public Utility District successfully utilizes local utility districts, one of several special assessment district options in Washington State, to fund the deployment of broadband infrastructure. Port districts and local improvement districts are other special assessment district options not directly tied to public utility districts, as local utility districts are.

Second, figure out exactly what roles and responsibilities each party can and will have in the deployment and operation of broadband infrastructure within the Cooperative service territory.

Answers to these basic questions need to be established in order for proper planning to continue:

- Is the PUD willing to deploy broadband infrastructure outside their existing service area?
- Is the PUD willing to own, operate and maintain fiber installed on Cooperative utility poles?
- If not, is the PUD willing to own and operate buried fiber infrastructure within the Cooperative service area?
- Is the PUD able to build broadband infrastructure in the Cooperative service area before completing broadband infrastructure projects within the PUD service area?

- If the PUD is not willing to own broadband infrastructure within the Cooperative service area, are they willing to operate fiber infrastructure the Cooperative owns?
- Is the PUD willing to maintain fiber infrastructure the Cooperative owns?
- Would the PUD participate in a grant application wherein the Cooperative would receive funding to build and own fiber infrastructure and the PUD would operate and maintain it as a wholesale open access network?
- Is the Cooperative willing to own fiber optic cable infrastructure attached to their utility poles and installed underground within their service area?
- Is the Cooperative willing to pursue grant funding opportunities for fiber cable infrastructure, in conjunction with an operator partner?

If the Okanogan PUD does not decide that it is willing to operate or maintain broadband infrastructure within the Cooperative's service area, it may be a setback but it is important to clearly identify all possible roles and responsibilities with clarity, identify possible options and impossible options, in order to move forward towards a viable solution.

#### a) Define (or refine) the broadband plan.

In order to guarantee that all residents of the Methow Valley have access to a level economic playing field with other residents of Washington State, in order to guarantee there is not a significant digital divide between the Methow Valley and other parts of the state, the Methow Valley BAT's broadband plan adheres to the state's broadband policy goal of making available symmetrical 150 Mbps Internet access to all residents by 2028. Achieving this plan will require grant or subsidy funding in addition to what has so far been identified by

### 8) Complete Readiness Self-Assessment

The Readiness Self-Assessment has been completed online.

# 9) Evaluate how the project would benefit health and safety for the community.

Access to telehealth services is increasingly becoming a primary method of caregiving, for primary care physicians as well as specialists, whose offices may not be within a reasonable commuting distance for Methow Valley residents. While the Coronavirus pandemic has increased awareness of the convenience and importance of telehealth services in terms of crowd mitigation and social distancing, in parallel telehealth services have also become increasing commonplace as a general matter. While the Methow Valley has dedicated primary care physicians, medical specialists are generally not located in the valley and travel to Spokane or Seattle is often required for specific medical needs. The Methow Valley broadband project will make available fiber based Internet access that is capable of the speeds and capacity needed for telehealth visits, especially the video aspect and larger data transfers often required of telehealth services.

Any newly installed broadband infrastructure will prioritize improving connectivity and communication for public safety entities, especially first responders. The Methow Valley is frequently subject to wildfires with the potential to destroy communications cabling cutting off communications to locations. The presence of additional infrastructure, buried infrastructure and additional cellular infrastructure to complement fixed infrastructure will improve public safety communication, response times and effectiveness.

# 10) Evaluate how this project would benefit education access (for all ages).

The Coronavirus pandemic has driven home the importance of broadband infrastructure capable of facilitating distance learning. The Methow Valley broadband project would bring fiber based Internet connectivity to the valley's students and teachers and would provide the speeds and capacity required for all distance learning programs, including bandwidth intensive video based distance learning programs. While most often associated with K-12 students, significant distance learning programs are also available to postsecondary students for college education as well as professional training classes, all of which will benefit from a broadband infrastructure capable of providing the required connection for this online educational material.

Distance learning is very video intensive. The aspect of distance learning that involves downloading and uploading assignments does not require tremendous bandwidth. However, the interactive aspect of distance learning, arguably the most important part due to the otherwise limited social interaction, requires videoconferencing and a poor Internet connection can cause poor video and audio quality and even the inability to participate effectively in the videoconferencing aspect of distance learning. An adequate Internet connection for distance learning students is vital to allow for equal access to public education resources, now and going forward.

# 11) Identify if the community is unserved or underserved (as defined by the BAT).

It is fairly established from public feedback and comment to date, that good broadband internet services are being provided in some areas of the Methow Valley. Therefore, areas in the target region for this Plan can be deemed as some being underserved, some being unserved, and some being well served. However, it is worth noting that no Internet access is currently being provided by retail service providers in the Methow Valley that meets the state's broadband policy goal of symmetrical 150 Mbps service available by 2028, nor do any of the region's retail Internet service providers have a realistic roadmap for technology advances or deployments that will achieve the state's broadband policy goal.

While it is very common to rely on the federal definition of broadband, 25/3 Mbps, for rural broadband studies including broadband gap analyses, there are reasons not to rely on this definition for infrastructure planning purposes. Firstly, the FCC definition of broadband changes over time. It was first introduced in 1997 as part of the Telecommunications Act of 1996, at that time defined as 200 Kbps symmetrical. In 2010 the definition was increased to 10/4 Mbps in conjunction with an increase in service obligations for FCC subsidized ISPs. In 2015 the FCC raised the definition of broadband to 25/3 Mbps, again in conjunction with an increase in service obligations for subsidized ISPs. When the FCC next increases the definition of broadband, and it will, it will again coincide with an increase in service delivery obligations of subsidized ISPs, and those increased obligations may require new infrastructure deployments and the FCC would need to adjust their funding and subsidy mechanisms to facilitate those deployments. Raising the definition of broadband has direct ramifications on the FCC's budget and spending. With the definition at 25/3 Mbps, lower cost platforms such as DSL and many fixed wireless deployments can accommodate the current service obligations. When the FCC raises the definition of broadband above its current level, both DSL and some fixed wireless systems may prove inadequate to the task, and it may trigger funding requirements for new infrastructure deployments.

Many Methow Valley residents who do currently have access to 25/3 Mbps service receive that service through a fixed wireless provider, and with limitations on wireless technology in a mountainous area with dense foliage those locations may not have access to 150 Mbps symmetrical service by 2028. To achieve that level of performance with a fixed wireless network, end user locations must have reasonably close proximity to a wireless access point and relatively clear line of site in order to receive sufficient signal strength, and the access point cannot be oversubscribed or congested. In order to achieve this level of service in a homogeneous and ubiquitous manner, the number of wireless access points required, and the amount of fiber optic backhaul need for the wireless access points, may not make financial sense given the ultimate limitations of the technology. Such a network may have cost requirements not drastically less than a fiber to the premise network, which would be a completely

<sup>&</sup>lt;sup>14</sup> That's kilobit, not megabit.

<sup>&</sup>lt;sup>15</sup> The FCC, in conjunction with the Universal Service Administration Company (USAC) subsidizes some carriers to deliver broadband service using the Universal Service Fund High Cost Program.

<sup>&</sup>lt;sup>16</sup> 25/3 Mbps is the minimum speed eligible for an ISP to receive funding under the Rural Digital Opportunity Fund.

future proofed, scalable infrastructure that when properly operated and maintained will last generations.

The ramifications of a broadband gap analysis relying on the 25/3 Mbps threshold may be a fiber to the premise network being deployed only to locations currently lacking 25/3 Mbps service, thereby creating a new and even wider broadband gap, on one side premises with access to symmetrical gigabit Internet (easily scalable to 2 Gbps or 10 Gbps) and on the other side premises with access to 25/3 Mbps over fixed wireless, and because of the limitations of that technology to scale, those locations may someday need a broadband infrastructure upgrade of their own.

Another area of concern with utilizing the 25/3 Mbps threshold and creating a network design based on the broadband gap it creates, is that many locations clearly unserved and lacking access to 25/3 Mbps service lay at the geographic fringes of the Methow Valley School District, the populated fringes. Unserved areas (including areas that have expressed serious interest in broadband expansion into their communities based on the online interest survey available on the Okanogan County PUD's website) include Twisp River Road beyond the PUD service area, Lost River Road beyond Mazama, and subdivisions such as Pine Forest, Edelweiss and Liberty Woodlands. Deploying fiber to these locations would involve new fiber infrastructure passing by or close to many locations that currently have 25/3 Mbps service available, but no roadmap beyond that service level. Of course, this can be taken into consideration during network design, with additional fiber strands and fiber access points made available for future expansion.

Using the Washington State broadband policy goal of 150 Mbps symmetrical service as the broadband gap threshold, wherein any location that does not currently have access to or a clear roadmap to 150 Mbps symmetrical Internet access is on the wrong side of the gap, as it were, and therefore would be a location included in any broadband infrastructure upgrade project undertaken in the Methow Valley, would have the practical effect of including virtually all locations not in relatively close proximity to the Okanogan PUD and Methownet fiber to the premise networks. This includes most of the customers served by the Okanogan County Electric Cooperative, and many of the customers in the Okanogan County PUD service area who are located distant from the PUD's existing fiber network. Identifying areas as not in the broadband gap by virtue of being in relatively close proximity to an existing fiber to the premise network does not mean to imply the job is done providing those locations with symmetrical 150 Mbps Internet access. The existing fiber to the premise networks would need to be extended to currently underserved locations and the networks' capacity for backhaul and Internet transit would likely need to be increased, but the underlying foundation for the desired level of connectivity is in place. The completion, or extensions, of these existing fiber to the premise networks can be incorporated into a larger project focused on the installation of new broadband infrastructure capable of symmetrical 150 Mbps service, or as stand-alone projects.

Figure 19: Shaded in light blue in the image below are areas that are currently in close proximity to an existing fiber to the premise network. The shaded southern portion is in close proximity to the Okanogan County Public Utility District's fiber to the premise network and the area in Winthrop is in close proximity to the Methownet fiber to the premise network. While these areas do not currently have the availability of 150 Mbps symmetrical service, the underlying fiber to the premise infrastructure is easily capable of it.

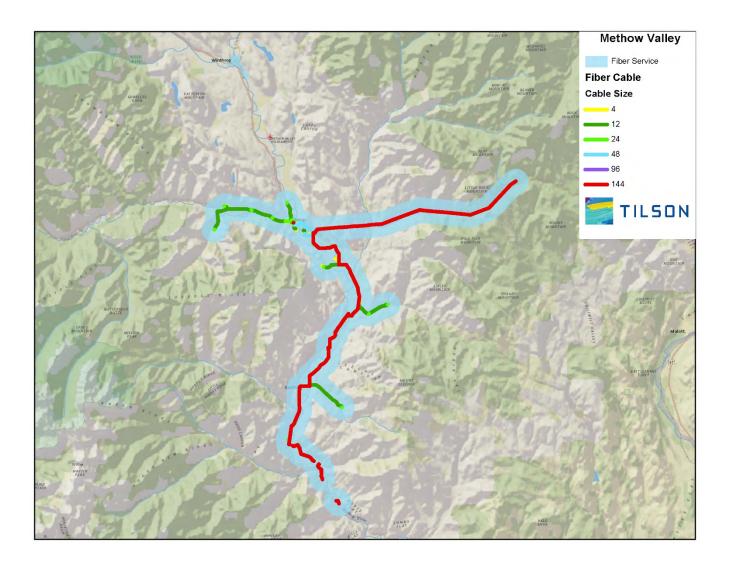
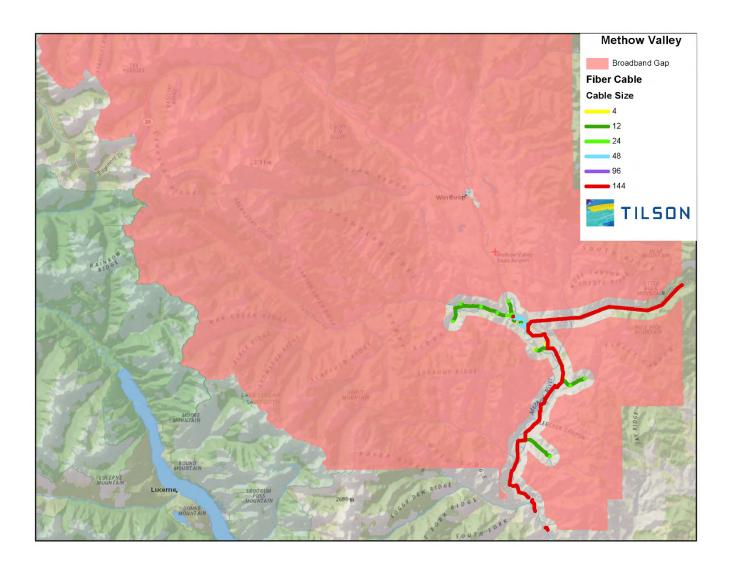


Figure 20: All areas outside the above light blue shaded areas are therefore on the wrong side of the so called broadband gap, without the same level of digital opportunity as most Americans. The areas within the Methow Valley School District broadband gap are shaded in pink in the image below. That's a lot of pink. Tilson's high level design will include a "completion" or "extension" of the existing PUD and Methownet fiber to the premise networks.



#### a) Provide evidence of how this was determined.

In addition to speed test data compiled by the Statewide Broadband Office, and an online broadband demand tool operated by the Okanogan County Public Utility District, the Methow

Valley BAT was provided with Ookla speed test data by Tilson Technology Management. Deployment plans and technology roadmaps of the regions retail Internet service providers were ascertained during stakeholder interviews conducted at the beginning of the BATs planning process.

<sup>\*</sup> Community Anchor Institutions definitions: includes facilities such as libraries, township halls, fire and police stations, city halls, county buildings, state facilities, public safety locations, hospitals and nursing homes, and educational institutions.

<sup>\*\*</sup>Business definitions: all business types; includes farms & home-based businesses, and work-at-home/telecommuter use of broadband.