



Broadband Feasibility Study Port of Walla Walla, WA

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1. Executive Summary

“Broadband access is the great equalizer, leveling the playing field so that every willing and able person, no matter their station in life, has access to the information and tools necessary to achieve the American Dream”.^[1] This quote from Michael K. Powell, former chairman of the FCC, stresses that broadband is a vital element of everyday life and is essential to Walla Walla’s current and future economic vitality. Fast, reliable, and affordable broadband access affects nearly every business, and community anchor institution (e.g. hospitals, fire stations, etc.) within the community. Broadband provides the digital infrastructure necessary to connect communities virtually to the rest of the digital world. As more of Walla Walla’s businesses, community anchor institutions, and community organizations utilize the Internet for critical services and enhanced lifestyle opportunities, the more reliant they become on fast, high quality, affordable broadband services. This, along with the explosion of more sophisticated online business applications (e.g. Telemedicine, Video Advertising), is driving the need for consistently higher bandwidths.

Broadband is high-speed connectivity to the Internet that takes a variety of forms, including DSL over copper, cable, and fixed and mobile wireless platforms. In Walla Walla, most businesses subscribe to either DSL (CenturyLink) or cable services (Charter). Though these services continue to try and evolve to provide greater speeds and reliability to Walla Walla’s consumers, the demand for bandwidth is quickly

WHILE DSL AND CABLE SERVICES ARE CURRENTLY ACCEPTABLE FOR SOME OF WALLA WALLA’S BUSINESS USERS, IT IS UNLIKELY THAT THESE TECHNOLOGIES WILL MEET THE LONG-TERM BROADBAND DEMANDS OF THE WALLA WALLA BUSINESS COMMUNITY. 84% OF THOSE SURVEYED SAID THAT MODERATE, SEVERE OR TOTAL DISRUPTION OF INTERNET HAD AFFECTED THEIR BUSINESS 32% SAID THEIR CURRENT INTERNET OPTIONS ARE INSUFFICIENT FOR THEIR BUSINESS NEEDS.

outpacing the supply because of inherent limitations in these traditional broadband technologies.

To resolve the increasing demand for more bandwidth, next-generation Fiber-to-the-Premise (“FTTP”) broadband technologies are being deployed in cities across the country to provide much greater speeds, reliability, and performance. Communities with next-generation broadband are well positioned to thrive and take full advantage of every opportunity the Internet and electronic world has to offer.

With the move of communities to next-generation FTTP technologies, the question being asked is what will incumbent providers such as CenturyLink and Charter do to remain competitive? Charter has publicly stated that they believe that their current cable platform technology can continue to evolve to allow greater speeds, but even with the latest technology upgrade, they cannot match the speeds or bandwidth capabilities of next-generation FTTP platforms. CenturyLink has announced that it will replace DSL with FTTP over time, but it is focusing initially on the major markets over the next five to ten years.

^[1] Michael K. Powell, former Chairman of the Federal Communications Commission (FCC)



Although broadband providers have made these high-speed fiber-optic services available to Walla Walla's business community, only larger businesses are able to afford them. This leaves Walla Walla's small and medium businesses, which represent about 63% of total GDP, with limited options for their Internet connectivity.

As the pace of the online revolution increases, regions equipped with high-speed, high-quality broadband networks will flourish in the digital world while others struggle to keep up. Government entities are realizing the importance of broadband to their communities, and have become actively engaged in how their local communities are served and actively participate in the broadband development process.

The Port of Walla Walla has the opportunity to be a leader in driving broadband infrastructure throughout the region. As a neutral regional municipal organization, the Port is in a key position to take on the challenge of driving investment in broadband and being the custodian of public infrastructure. To this end, The Port of Walla Walla Broadband Feasibility Study provides an analysis of Walla Walla's current and future broadband needs and proposes initiatives that the Port and its partners can undertake to ensure these needs are met, now and in the future. It provides a range of options for the Port to consider which includes making strategic investments in broadband infrastructure, leveraging the area's existing fiber-optic networks, and through the implementation of broadband-friendly public policy tools.

Goals of the Broadband Feasibility Study include:

1. Document Walla Walla's current broadband environment and identify current gaps and potential future shortcomings
2. Identify ways that the Port can best utilize existing government owned fiber-optic infrastructure and new infrastructure investments to enhance broadband and municipal services in the Walla Walla region
3. Focus on the benefits to economic development, education, public safety, healthcare and overall quality of life through Walla Walla's broadband initiatives
4. Implement broadband-friendly public policy tools to accelerate the deployment of broadband infrastructure and incentivize broadband providers
5. Identify key partnerships with broadband providers that accelerate the deployment of broadband services in the community that leads to Walla Walla becoming a Gigabit Region

A. Summary of Public and Private Strategies

The Port’s greatest impact in accelerating next-generation broadband deployment in Walla Walla will utilize the Port’s strengths in infrastructure to serve the needs of both public and private organizations. The Port should consider Public-Public strategies for providing broadband infrastructure and access to other public agencies located in the region, and Public-Private strategies that would entail partnering with the private sector to bring new broadband infrastructure and services to the business and community anchor communities throughout Walla Walla.

<i>Public-Public Benefits</i>	<i>Public-Private Benefits</i>
<ul style="list-style-type: none"> • Dark fiber connectivity to more of Walla Walla’s community anchors, enabling new capabilities for public agencies at potentially lower costs. • Leverage the Port’s broadband infrastructure to enable collaboration and cost sharing opportunities between public agencies. • Streamlined public policies that incentivize broadband providers to accelerate deployment and drive down costs for Walla Walla’s businesses. 	<ul style="list-style-type: none"> • Broadband PPPs would accelerate deployment of next generation broadband for businesses, create more competition, improve performance, and reduce costs. • Commercial buildings and parcels could be considered “On-Net,” with access to next generation broadband services through multiple providers; making available high quality service more readily available to the small and medium business presence in Walla Walla. • The Port could potentially retain ownership of the broadband infrastructure while generating revenue. The infrastructure would continue to play a key role in the community as a publicly owned asset for decades to come.

1. Work with broadband providers to negotiate strategic public-private partnerships to accelerate deployment of next-generation broadband.

1. Explore the current opportunity with potential broadband providers to accelerate deployment of next-generation broadband to businesses and anchors.
2. Determine how the Port should solicit multiple providers through an open procurement to reach the goals and visions of the region.
3. Verify any state procurement requirements for a potential public-private partnership per Revised Code of Washington.
4. Engage the necessary legal and professional resources to assist the Port in negotiating the public-private partnership.

2. Develop lease and IRU rates for the use of dark fiber assets owned by the Port.

1. Develop lease rates for dark fiber assets; that would allow community anchors and providers to gain access to Port owned infrastructure.
2. Develop IRU rates that would provide the Port with the ability to enter long-term contractual agreements with entities that require access to the Port's infrastructure.

3. Adopt General Plan policies that incorporate broadband as a utility and create a policy framework to promote deployment in public and private projects.

1. Tailor draft policies and standards to the Port and its partner's specific needs and adopt them into local policy, codes, and standards (including policies for "dig-once", joint trenching, and other required engineering standards, etc.).
2. Incorporate broadband in the Port and its partner's Development Impact Fee program and the various local Capital Improvement Plans (CIP) as appropriate, and make a commitment to fund broadband infrastructure.
3. Identify opportunities to install broadband infrastructure in conjunction with public and private construction projects as appropriate.
4. Develop a process so that local Planning and Public Works Departments in the region coordinate with the Port to identify projects that could install this infrastructure at reduced, incremental costs.
5. As the Port makes key infrastructure investments, maintain broadband infrastructure in a GIS system, requiring GIS-based "as-builts" and implementation of other means for accurate documentation.
6. Create policies to streamline the broadband permitting processes within public rights-of-way to ensure broadband providers do not face unnecessary obstacles to building infrastructure.
7. Normalize fees levied on broadband providers for constructing broadband infrastructure to ensure they do not discourage broadband investment.

B. Recommendations

1. Continue Making Strategic Investments in Broadband Fiber-Optic Infrastructure.

The Port of Walla Walla has already partnered with the City of Walla Walla and may partner with the City of College Place to incorporate broadband infrastructure into various capital improvement projects throughout the region. The Port and its partners should continue to build this infrastructure when the opportunity presents itself, thereby allowing the Port to invest in placement of broadband infrastructure at a significant savings. The Port should continue to expand this network whenever there is a sound business case to do so.

2. Issue an RFI to Procure A Strategic Broadband Public-Private Partnership.

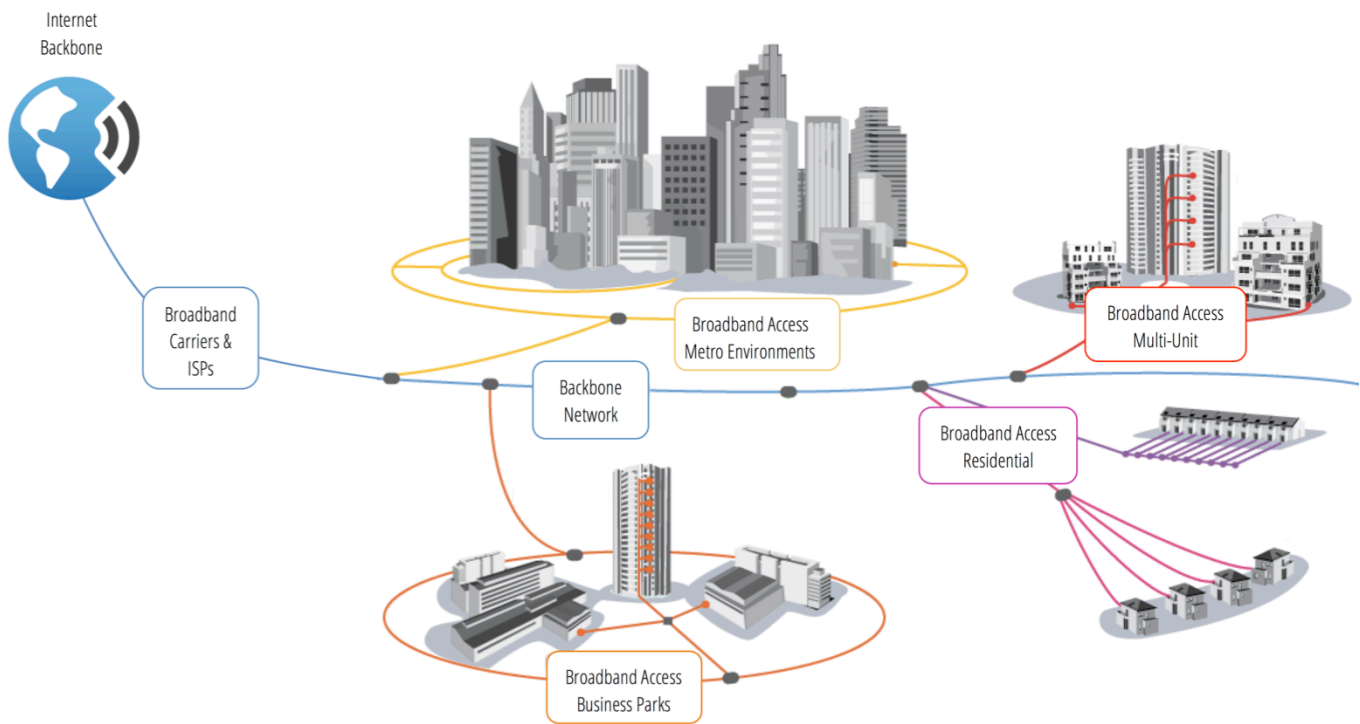
The Port should issue an RFI to recruit broadband providers to help accelerate the deployment of next-generation broadband services to the community. The Port should ensure that it explores all possibilities that could lead to expanded services in Walla Walla through this open procurement. The RFI should:

- Identify available resources from the Port and its partners that may be of value to broadband providers, including conduit, fiber-optic networks, facilities, property and right-of-way and easements.
- Describe what policy incentives the Port and its partners may make available to the provider, including streamlined and blanket permitting, reduced or waived permitting fees and joint use agreements.
- Document the Port's general expectations where next-generation broadband services should be made available, including business and economic development areas.
- Define the types of services the Port expects of broadband providers to make available to the community, including speed, quality and other aspects.

2. Overview of Broadband Technologies

Broadband is deployed throughout communities as wired and wireless infrastructure that carries digital signal between end users and the content they want to access. The content comes in many forms and from many locations across the world in the localized networks that connect the local community to the Internet backbone. Websites, television, streaming video, videoconferencing, cloud services, and even telephone service are just a few types of content that are delivered across local broadband networks. The quality of content delivery depends on the type of infrastructure and kinds of connections available in the local network. Robust local infrastructure results in faster, more reliable access to content. Conversely, local infrastructure that is aging and built on older technologies such as copper plant results in slower, less reliable access to content.

Figure 2-1: How Broadband Connects Our Communities



A. Types of Broadband Services

DSL

DSL is a wireline transmission technology that transmits data over traditional copper telephone lines already installed to homes and businesses. DSL-based broadband provides transmission speeds ranging from several hundred Kbps to millions of bits per second (Mbps). The availability and speed of your DSL service may depend on the distance from your home or business to the closest telephone company facility.

Cable

Cable modems are utilized by cable operators to provide broadband using the same coaxial cables that deliver pictures and sound to your TV set. Most cable modems are external devices that have two connections: one to the cable wall outlet, the other to a computer or wireless router. Subscribers can access their cable modem service by simply turning on their computers; the connection is “always on”. The subscriber can still watch cable TV while using their Internet connection. Transmission speeds vary depending on the type of cable modem, cable network, and traffic load. Speeds are comparable to or faster than DSL depending on these factors.

Wireless

Wireless broadband connects a home or business to the Internet using a radio link between the customer’s location and the service provider’s facility. Wireless broadband can be mobile or fixed. Wireless technologies using longer-range directional equipment are deployed by “WISPs” (Wireless ISPs) and some telcos to provide broadband service in more rural or sparsely populated areas where DSL or cable modem service would be too costly to provide. Speeds are generally comparable to DSL and cable modem. An external antenna is usually required. Wireless broadband Internet access services offered over fixed networks allow consumers to access the Internet from a fixed point while stationary, and often require a direct line-of-sight between the wireless transmitter and receiver. These services have been offered using both licensed spectrum and unlicensed devices. For example, thousands of small WISPs provide such wireless broadband at speeds of around one Mbps using unlicensed devices, often in rural areas not served by cable or wireline broadband networks. Mobile wireless broadband services are also becoming available from mobile telephone service providers and others through deployment of 4G LTE technology. These services are generally appropriate for highly mobile customers and require a special PC card with a built in antenna that plugs into a user’s laptop computer. Speeds associated with 4G LTE are increasing and comparable to DSL or cable modem speeds in many cases, but these speeds are affected by spectrum limitations and congestion from multiple users. Also, data usage charges apply and can become expensive.

Fiber to the Node (FTTN)

Fiber optic technology converts electrical signals carrying data to light and sends the light through transparent glass fibers about the diameter of a human hair. Fiber transmits data at speeds far exceeding current DSL or cable modem speeds, typically by tens or even hundreds of Mbps. Fiber to the Node technologies bring high-capacity fiber-optic cables to local services areas to connect to existing DSL equipment. Rather than bringing fiber-optic cables to every home or business, the fiber is connected to the existing DSL network to increase its capacity. It allows these networks to carry more traffic; however, often times the copper-based “last mile” DSL network, connecting homes and businesses to the local nodes is still a bottleneck and results in subscribers not able to access the true speeds of fiber-optic connections.

Fiber to the Premise (FTTP) – Next-Generation Broadband

Using the same fiber optic technology, Fiber to the Premise brings fiber optic transmission capacity directly to the home or business. The actual speed you experience will vary depending on a variety of factors, including the state and age of the internal premise wiring, and how the service provider configures the service, including the amount of bandwidth used. The same fiber providing your broadband can also simultaneously deliver voice (VoIP) and video services, including video-on-demand. Telecommunications providers offer fiber broadband in limited areas, and include bundled voice, Internet access, and video services. Current plans of providers vary; some are continuing to expand their fiber networks while others (e.g., Verizon) do not have plans to further expand FTTN/FTTP networks. Variations of the technology run the fiber all the way to the customer’s home or business (FTTP), to the curb outside (FTTC), or to a location somewhere between the provider’s facilities and the customer (FTTN).

Figure 2-2 compares traditional broadband technologies such as DSL, cable, and wireless to fiber-based next-generation broadband. Whereas traditional broadband technologies have an upper limit of 150Mbps, next-generation broadband that utilizes fiber-optic connections surpasses these limitations and can provide 1Gbps and greater.²

Figure 2-2: Comparing the Capacity of Regular Broadband to Next-Generation Broadband

Dial-Up – 56Kbps

- Legacy Technology
- Shared Technology

ADSL – 10Mbps

- First Generation of DSL
- Shared Technology

ADSL2 – 24Mbps

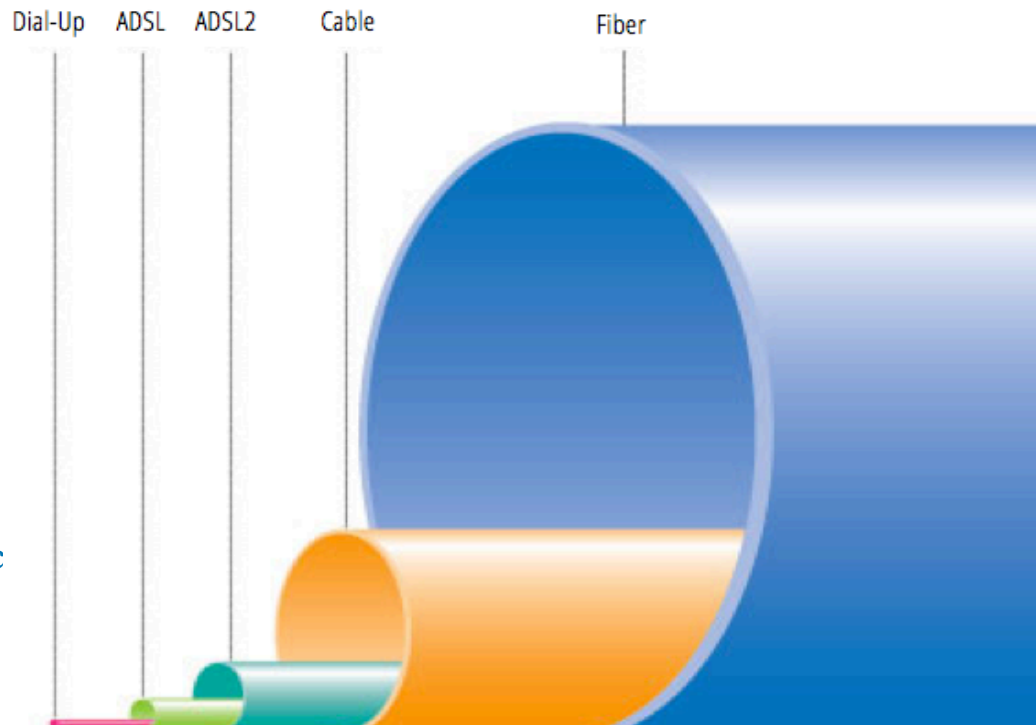
- Second Generation DSL
- Shared Technology

Cable – 150Mbps

- DOCSIS 3.0
- Shared Technology

Next-Generation Fiber-Optic

- PON, Active Ethernet
- Shared and
- Dedicated Technology



² Actual speed and quality of service will depend on the specific service contracted by the end user, whether using a traditional broadband service or a next-generation broadband service.

3. The Current State of Broadband in Walla Walla

A. Walla Walla Infrastructure

The majority of Walla Walla's residents and businesses still utilize copper-based broadband infrastructure to transmit information from a user to the Internet; this includes twisted-pair copper telephone and coaxial cable lines. DSL and cable networks historically have provided sufficient bandwidth to a majority of residential and small business users. However, as internet based applications used by subscribers have evolved, bandwidth requirements have grown, and subscribers demand more and more bandwidth from their telecommunications provider to support more applications and more devices. In reaction to the growing bandwidth needs, DSL and cable networks have evolved to provide more bandwidth to homes and businesses. Broadband providers have continued to upgrade equipment and networks within capital budget limitations to make these lines faster and more reliable, however; several fundamental issues exist with copper infrastructure that pose long-term challenges to the growing bandwidth demand:

- Broadband signals degrade significantly as distances increase in copper-based networks.
- Broadband signals are susceptible to electrical interference and signal degradation in copper-based networks, particularly as they increase in age.
- Copper-based networks delivering broadband services generally utilize shared bandwidth among pools of users that results in an uneven distribution of speed to these users, and the degradation of speed to all as these facilities become congested.

The limitations of Walla Walla's copper-based networks are overcome by deployment of new technologies such as fiber-optic infrastructure. The old standard of copper in local broadband networks is transitioning to fiber-optic, however; the pace of this transition has been uneven and slow in many areas. Costs for deployment of fiber-optic infrastructure are high, particularly in areas where no fiber-optic infrastructure exists. Providers understand that fiber-optic broadband delivers the only long-term solution to the ever-growing bandwidth needs of homes, businesses, and community anchors. Actual speeds associated with fiber-optic broadband connectivity are always dependent on the services provisioned by the service provider who operates the system, however; speeds generally range from 10Mbps³ to 100Gbps⁴.

³ Mbps stands for millions of bits per second or megabits per second and is a measure of bandwidth (the total information flow over a given time) on a telecommunications medium.

⁴ Gbps stands for billions of bits per second or Gigabits per second and is a measure of bandwidth (the total information flow over a given time) on a telecommunications medium.

B. Current Service Offerings

It is important to assess the degree to which high-speed broadband infrastructure has been deployed in Walla Walla to understand where the Port can have the most impact for the community and minimize duplication of potential broadband overbuild. Through this process, we have identified the existence of the necessary facilities, networks, and backhaul capacity to enable expansion of high-speed broadband in Walla Walla. Providers have the necessary capabilities, infrastructure, and service platforms to deploy and manage services within the region and have done so in certain areas.

Fiber-optic broadband services are available in some of the region's corridors and through multiple providers. In many cases this fiber-optic infrastructure may not be available to provide services directly because of its use as backhaul to interconnect communities in the area and to connect the region to long-haul networks that connect to Internet points of presence in Washington, the Pacific Northwest and beyond.

Magellan has studied and evaluated the current state of the broadband networks in Walla Walla. Where information is available we have documented and inventoried network assets to define a baseline from which to evaluate the networks' capabilities, network gaps, and potentials for future applications and expansions. The analysis primarily focuses on fiber-optic facilities rather than wireless since wireless spectrum is a shared capacity (including that used for 4GLTE) such that if some users are consuming the full capacity, additional users have no access to capacity.

The broadband networks in Walla Walla are composed of networks built by private companies such as the telephone and cable TV providers as well as the networks built by local government organizations.

Current Broadband Providers

A variety of companies provide broadband infrastructure in the retail markets in the greater Walla Walla region.

- **CenturyLink** is the incumbent local exchange provider (LEC) in the Walla Walla region. As the incumbent LEC, CenturyLink provides both retail services to consumers and wholesale services to other telecommunications providers. CenturyLink provides voice, Internet and video services. CenturyLink maintains DSL and cable services and has deployed fiber infrastructure selectively throughout the community.

Maps depicting CenturyLink's broadband infrastructure were requested but not provided.

- **Charter Communications** is a cable telecommunications provider serving the Walla Walla region. Charter maintains fiber routes throughout Walla Walla, however its primary service offering is delivered to subscribers via coaxial cable. Charter offers voice, Internet and video services. Gigabit fiber offerings are available in Walla Walla through site surveys and on an individual case basis. Charter will typically allow customers to include aid to construction fees in the monthly recurring charge over a 36 to 60-month period.

Maps depicting Charter's broadband infrastructure were requested but not provided.

- **Pocket iNet** is a competitive provider serving multiple regions throughout Washington including Walla Walla. Pocket provides residential and business Internet, voice and security services using cable and fiber optic networks. Pocket resells DirecTV as its video offering and includes this service as part of a bundle package to subscribers. Gigabit services are available on a customer-to-customer basis and can be rolled out within 60 days.

Pocket iNet provided maps of their broadband infrastructure in the region.

- **Columbia REA** is a local electrical Co-op and local telecommunications provider serving the Walla Walla region. Columbia REA offers Internet over wireless and fiber optic infrastructure. Fiber optics is provided to mostly new Greenfield communities. REA became an Internet provider to serve rural areas throughout the region who lacked services from incumbent providers.

Maps depicting Columbia REA's broadband infrastructure were requested but not provided.

- **NoaNet or Northwest Open Access Network** is a wholesale only telecommunications provider. NoaNet currently operates a fiber network throughout Washington State, connecting the local PUDs and other independent communications networks to each other and to the major carrier connection points in Seattle, Spokane and Portland. This network now supports 61 last-mile providers that serve more than 260,000 customers, many of whom have never before had access to advanced telecommunications services.

Maps depicting NoaNet's broadband infrastructure are readily available on NoaNet's website: <http://www.noanet.net/pdfs/NoaNet%20route%20map%20021714%20.pdf>

C. Commercial Properties and Broadband Availability Analysis

Through analysis of the market, Magellan identified a number of commercial sites by address, selected randomly in various sections of Walla Walla. Magellan’s team contacted each telecommunications provider identified as operating wireline services in the market to determine service availability. The results show that although there are multiple provider options for most addresses, the speeds and pricing varies.

The following site locations were utilized:

- Commercial Site #1 – 1605 SE Meadowbrook Blvd, College Place, WA 99324 Ste. 2
- Commercial Site #2 – 1 W Alder, Walla Walla, WA 99362
- Commercial Site #3 – 107 East Cherry, Walla Walla, WA 99362
- Commercial Site #4 – 1850 E Isaacs Ave, Walla Walla, WA 99362

Figure 3-1: Market Analysis – Commercial Sites 1 – 4

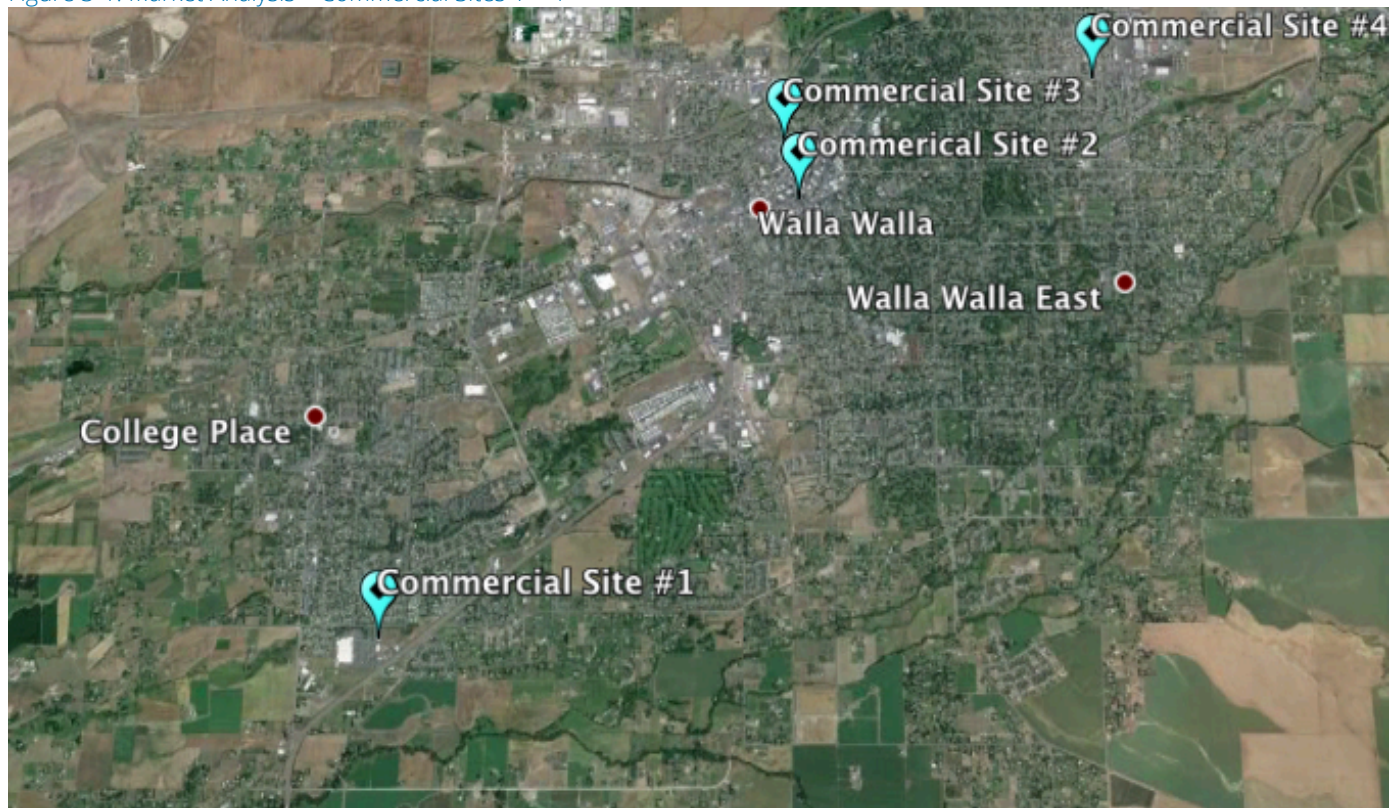


Figure 3-2: Market Analysis – Commercial Sites 1 - 5

Commercial Site #1 – 1605 SE Meadowbrook Blvd, College Place, WA 99324 Ste. 2		
Provider	Type of Service	Cost
CenturyLink	Cable up to 40Mbps/5Mbps	\$162/month
Charter	No Service	N/A
Pocket iNet	Fiber up to 200Mbps/50Mbps	ICB ⁵

Commercial Site #2 – 1 W Alder, Walla Walla, WA 99362		
Provider	Type of Service	Cost
CenturyLink	Cable up to 20Mbps/2Mbps	\$105/month
Charter	Cable up to 100Mbps/7Mbps	\$119/month
Pocket iNet	Fiber up to 200Mbps/50Mbps	ICB

Commercial Site #3 – 107 East Cherry, Walla Walla, WA 99362		
Provider	Type of Service	Cost
CenturyLink	Cable up to 20Mbps/2Mbps	\$105/month
Charter	Cable up to 100Mbps/7Mbps	\$119/month
Pocket iNet	Fiber up to 200Mbps/50Mbps	ICB

Commercial Site #4 – 1850 E Isaacs Ave, Walla Walla, WA 99362		
Provider	Type of Service	Cost
CenturyLink	DSL up to 3Mbps/640Kbps	\$105/month
Charter	Cable up to 100Mbps/7Mbps	\$119/month
Pocket iNet	Fiber up to 200Mbps/50Mbps	\$239/month

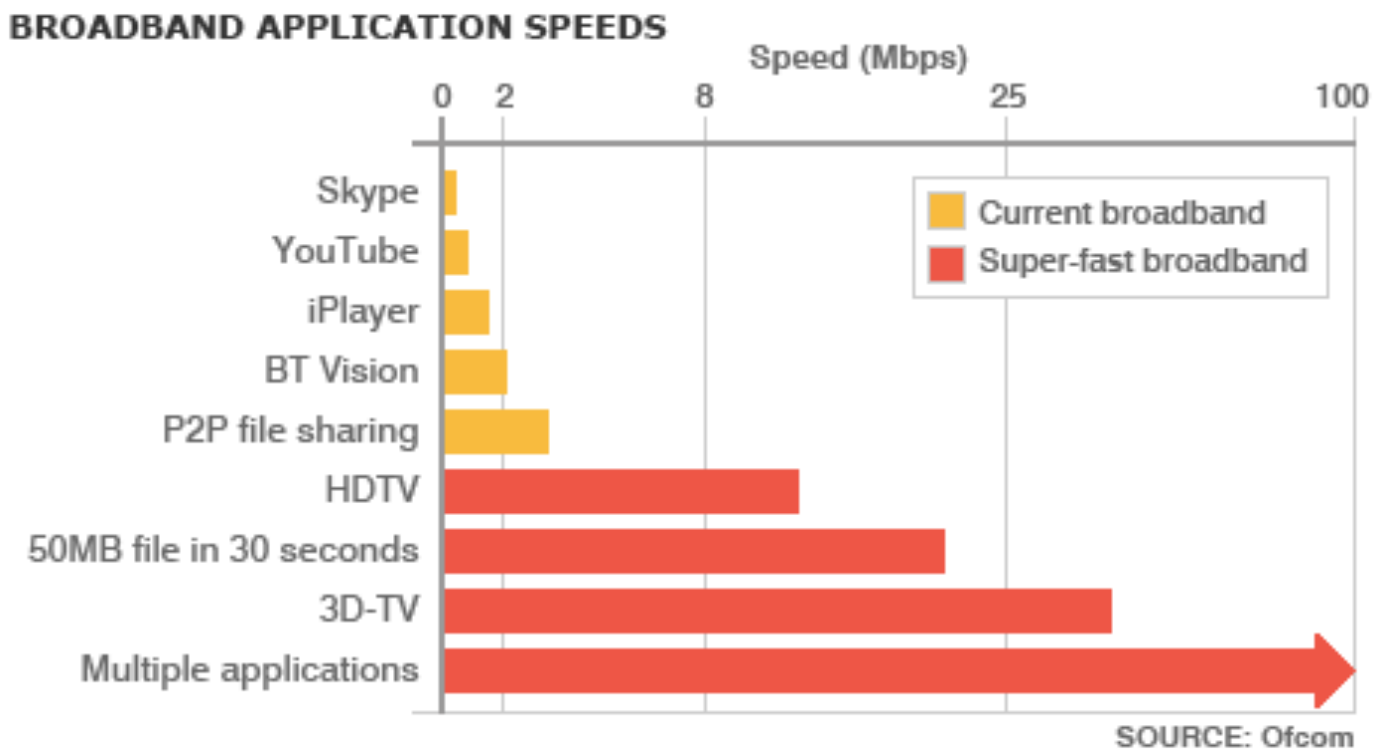
⁵ ICB – Individual Case Basis. Provider stated cost would be based on fiber survey results and construction costs.

4. What is Driving Broadband Demand in Walla Walla?

A. Residential

Broadband technologies have evolved to carry more and more data because of consumer demand for more bandwidth intensive online applications as well as rapid and continuous development of new applications. Every application requires a certain amount of bandwidth on a broadband connection to function properly; as time has progressed, we have witnessed significantly more applications, and more bandwidth-intensive applications. Figure 4-1 illustrates the bandwidth requirements of common applications and the impact of multiple applications running across a broadband connection.

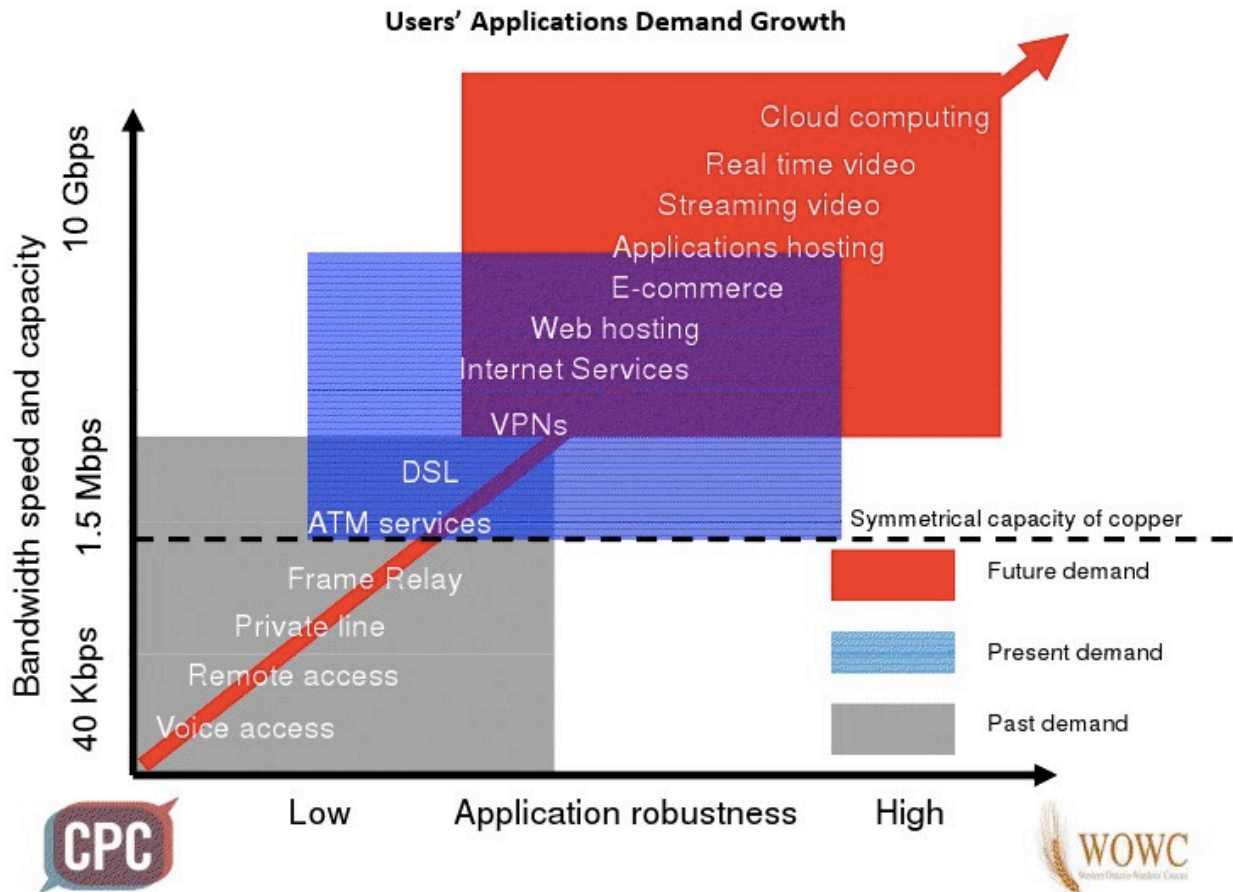
Figure 4-1: Broadband Application Speeds and the Impact of Multiple Applications



Today, broadband subscribers across every user class are utilizing more and more online applications and particularly those that consume larger amounts of bandwidth, such as streaming video services. Figures 4-1 and 4-2 illustrate user demands for applications today and the increases in broadband that are necessary to accommodate this demand. Currently, broadband subscribers make heavy use of the core Internet functions, consisting of Internet browsing, web hosting, e-commerce, virtual private network connectivity, and voice services. However, subscribers are beginning to consume more real time video and streaming applications, which require significant bandwidth, reliability, and performance out of their broadband connections. We are still early in the lifecycle of Internet video applications and these are expected to grow significantly over the next 10 years, replacing much of the text-based Internet applications common today.

In addition, the myriad of cloud services are driving the need for more symmetrical⁶ broadband as real time and cloud applications require additional bandwidth, both in download speed and upload speed. As more of these applications are deployed and replace traditional PC-based software, broadband connections will need to accommodate the increased bandwidth load. Many times these applications synchronize in real time, meaning that they are always consuming bandwidth at a constant rate rather than only when the user is actively engaging the application.

Figure 4-2: User Demands for Applications over Broadband Connections



The proliferation of devices is also driving the need for more bandwidth as more devices in the home, businesses and public places all access existing broadband connections. A report published by Google in 2012 demonstrates the amount of time the average user spends with their devices across each type of device, and how users interact with multiple devices simultaneously. Although the study's primary goals were to "gain a deep understanding of consumer media behavior over a 24-hour period..."⁷ an important

⁶ Symmetrical broadband connections provide equal download and upload speeds, such as 10 Mbps down, 10 Mbps up, instead of traditional asymmetrical broadband services that provide unequal speeds, such as 10 Mbps down and 2 Mbps up.

⁷ The New Multi-Screen World. Understanding Cross-Platform Consumer Behavior" Google 2012.

http://think.withgoogle.com/databoard/media/pdfs/the-new-multi-screen-world-study_research-studies.pdf. Accessed, January 2015.

implied finding is that users are spending significantly more time with their devices, devices that all require broadband connections. As these devices all vie for bandwidth on a users' broadband connections, the demand for more bandwidth to support more applications grow.

Figure 4-3: The Proliferation of Broadband-Connected Devices

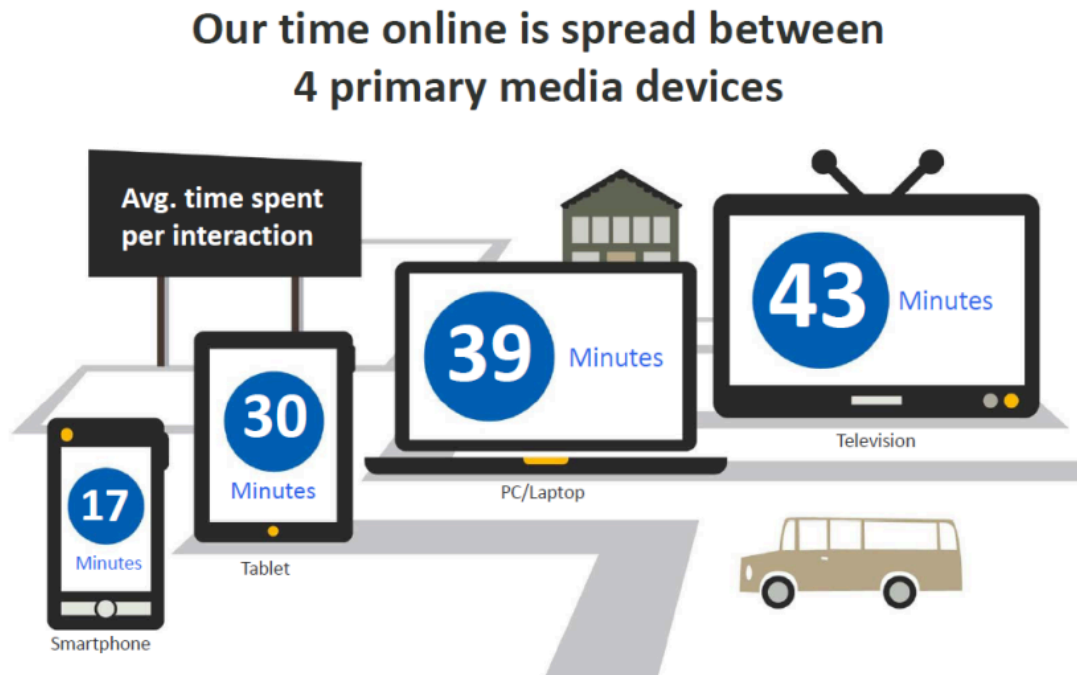
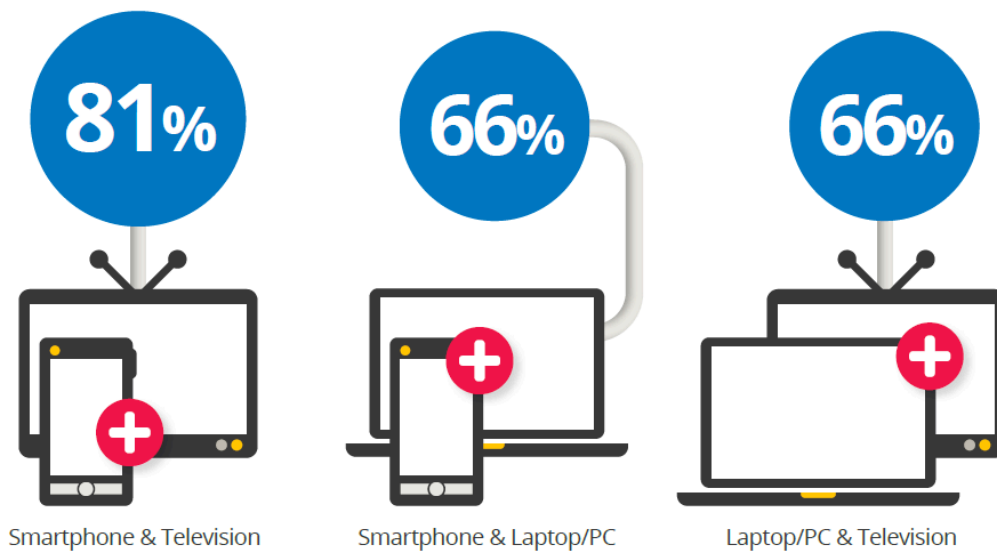


Figure 4-4: The Use of Multiple Broadband-Connected Devices

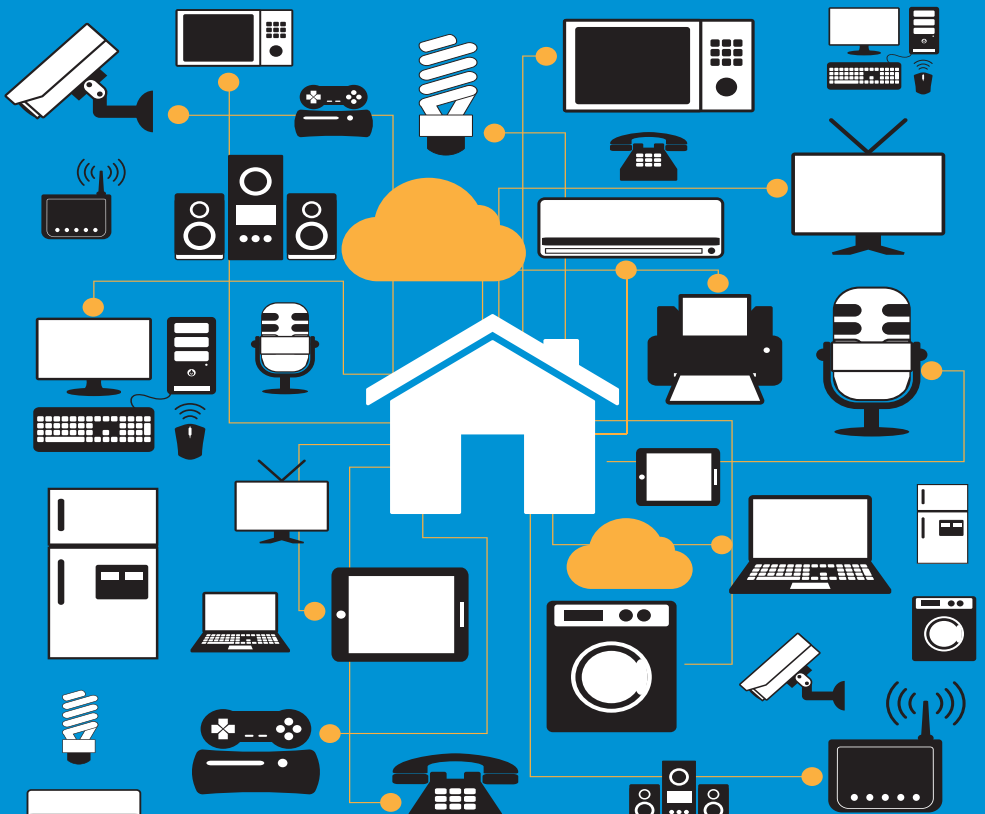
We also multi-screen by using more than one device simultaneously

We use an average of three different screen combinations every day



These demands also extend to many devices inside the home that are now being connected to the Internet and using our broadband connections. Many video/audio systems, thermostats, appliances, irrigation and security systems are now connected to the Internet, consuming more home broadband bandwidth.

The explosion of Internet-connected home devices will lead to increased use of broadband connections, as “always-on” technologies are constantly connected to the Internet.



B. Business and Economic Development

Accessible, affordable, and reliable broadband services are a key economic development tool to attract and retain businesses in Walla Walla. In many cases, bandwidth consumption outpaces the broadband speeds local businesses are able to purchase and upgrading is often times not an option due to the prices businesses are able to afford, service availability, as well as other IT related factors. When these broadband services cannot “keep up” with business needs, businesses lose productivity and efficiency; affecting their bottom line and making them less competitive with regions having more widely deployed and affordable broadband services.



This will eventually result in a less competitive business market from an economic perspective. It also leads to retention issues as businesses that are not able to gain efficiencies with their existing broadband services will, in many cases, move operations to communities that have more availability of these services.

It is Evident that the Internet has changed the way people live and do business. There is proof of this in almost everything we do. Our lives have been changed forever with the past decades advances in Technology. This effect is even more evident in the way small businesses operate daily. A new study just out by the “Internet Association” confirms our observations about the Internet and its driving force on part time small business in the U.S. The study, titled “Internet Enabled Part-Time Small Businesses Bolster the U.S. Economy”, explores how Americans, in an attempt to find more revenue during an economic downturn, have turned to the Internet to start small businesses and earn extra income.

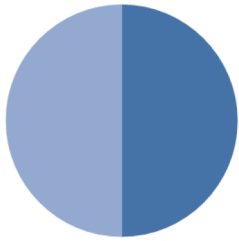
According to the study, “the Internet contributed \$141 billion dollars to the US economy in 2011, with the Internet helping to drive nearly all part-time businesses, with 90% of all those surveyed using the Internet to conduct at least some of their business, and over half saying that they couldn’t conduct business at all without the Internet. These businesses employ 6.6 million people, producing wages of \$797 million. According to the survey, most small businesses owners that rely on the Internet say that if the Internet didn’t exist, at least half of their income would go away.⁸”

This data accurately reflects the Walla Walla market and business makeup. An online survey of Walla Walla’s businesses was conducted to further understand the community’s broadband uses and needs. 56 businesses responded to the online survey, with the details being provided under Appendix B., An overwhelming majority of respondents are serviced by one of two incumbent carriers, either Charter or CenturyLink, as well as Pocket iNet. The four main reasons the Internet is used in the business include email, online research, online banking, and social media. The major industries represented in the survey include, Retail Trade, Real Estate, Manufacturing and Hospitality

⁸ <http://www.theamericanconsumer.org/2013/10/internet-driving-the-economy-and-helping-small-businesses-grow/>

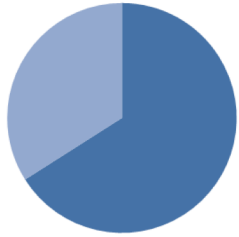
Further details from the survey of businesses include:

- Over three quarters of respondents (78%) were small businesses with 25 or fewer employees, while 15% were businesses with over 50 employees.
- Over three quarters (84%) of businesses have experienced moderate, severe, or total disruption of their business from Internet problems with reliability and speed. Comments include:
 - “Very predictable – at 5pm it goes down for a while.”
 - “Power goes out – Poof, there goes my business.”
- 32% of businesses state current Internet services are insufficient for their business needs, and a further 11% are not sure that current Internet services are sufficient. Reasons current Internet services are not sufficient include:
 - 82%: Not fast enough
 - 12%: Unreliable
 - 6%: Lack of options
- Businesses have not upgraded service to remedy these insufficiencies since services are not available (53%), the price is too high (33%), lack of knowledge of options (7%), and lack of technical skills (7%).
- Businesses indicated that having choice and access to multiple Internet and broadband providers is important to their business. The responses were as follows:
 - 13%: Extremely important
 - 38%: Very important
 - 32%: Moderately important



84%

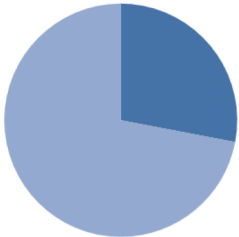
Of Walla Walla businesses reported moderate, severe or total disruption of their business from Internet problems related to reliability or speed.



32%

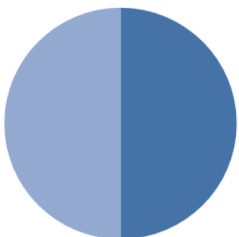
Of Walla Walla businesses reported that their current Internet services are insufficient for their business needs due to reliability and speed issues.

Of the 32% of Walla Walla businesses that reported their Internet services being insufficient for their business needs:



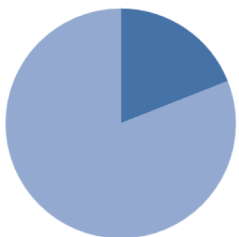
33%

Of businesses reported that they have not upgraded their Internet services because the price is too high



53%

Of businesses reported that they have not upgraded their Internet services because the service is not available



7%

Of businesses reported that they have not upgraded their Internet services because they don't know what options are available

Over 63% of Walla Walla's GDP is produced by businesses with less than 100 employees. Small and medium businesses need high-quality broadband to grow and compete.

In terms of attracting new business, a key focus of the Walla Walla's economic development organizations is to target businesses in the technology, software development and other professional service sectors, all which are dependent on highly automated technology. Broadband is a fundamental utility asset that these

types of businesses will require, as they will rely on broadband to maintain connectedness to the electronic world. The majority of these types of businesses rely on online services to maintain their daily operations, therefore; it is critical that Walla Walla is able to promote the availability and affordability of broadband services in its recruitment efforts. This can be a true differentiator for Walla Walla; through promotion of the community's leading-edge broadband services, prospective businesses and site selectors can be assured that they can locate in the region and have robust access to the rest of the electronic world. Available and affordable high-speed broadband has also gone beyond being a differentiator to being a key part of the "minimum ante" for attracting and retaining desirable businesses and facilities. Additionally, the Chamber of Commerce has been advocating for a "Digital Walla Walla" economic development message designed to attract gaming and movie production industries into the Walla Walla region. The Chamber believes broadband infrastructure is key to moving this concept forward.

C. Education

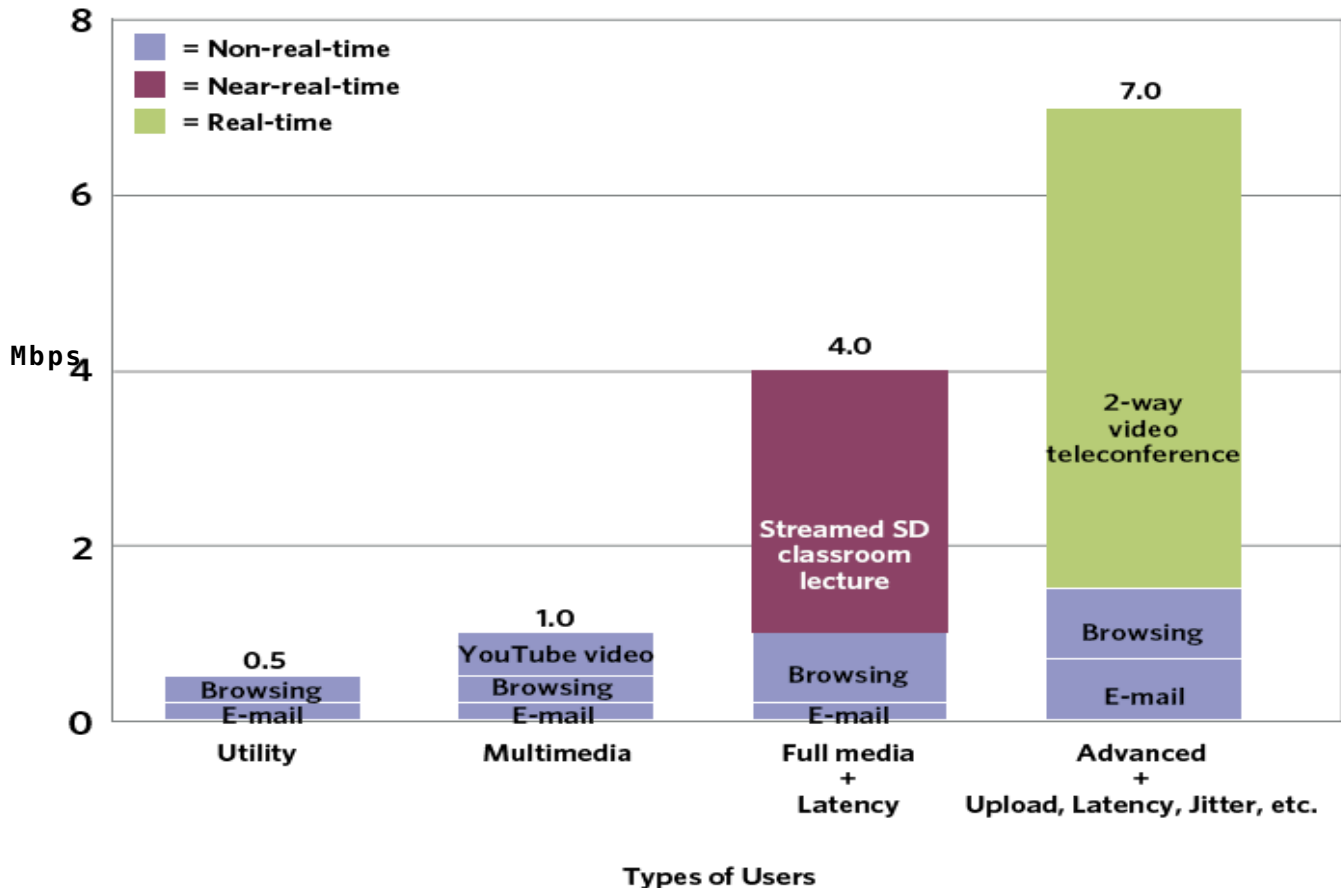
Educational organizations are a major user of broadband in Walla Walla and their needs continue to grow. These include K-12 schools, community colleges, and higher education. Online applications used by these organizations require not only high-bandwidth broadband, but also services that meet strict quality and performance requirements to support real-time video and voice applications such as distance learning and teleconferencing. Online textbooks are in use today, and that utilization is only expanding. Texts and teaching resources incorporate multimedia – sound, graphics, video, and data. Many States have also instituted requirements for online testing or are in the process of doing so, creating an even greater need for high-quality broadband services. Additionally, educational institutions are utilizing more online content to support their curricula, from sources such as YouTube, TeacherTube, Vimeo, and Facebook.



Figure 4-5 illustrates the bandwidth requirements per student for common educational applications and the quality and performance requirements of these applications. Basic educational tools, such as web browsing and YouTube consume up to about 1 Mbps per student. However, moving up to more advanced educational technologies such as streamed classroom lectures and 2-way video teleconferences use significantly more bandwidth per student, 4 Mbps and 7 Mbps, when combined with the basic educational tools. In addition, these advanced tools require not only more bandwidth but also

strict broadband quality metrics that allow them to function properly, such as low latency and higher upload speeds.

Figure 4-5: Bandwidth Requirements of Educational Technologies per Student⁹



The Walla Walla Public School District is comprised of 12 Schools and nearly 6,000 students. The district participates in the federal E-Rate program with an average subsidy rate of 75%; meaning that 75% of its broadband connectivity and Internet costs are paid for by the federal government through the E-Rate program. E-Rate is the commonly used name for the Schools and Libraries Program of the Universal Service Fund, which is administered by the Universal Service Administrative Company (USAC) under the direction of the Federal Communications Commission (FCC). The program provides discounts to assist schools and libraries in the United States to obtain affordable telecommunications and Internet access. It is one of four support programs funded through a Universal Service fee charged to companies that provide interstate and/or international telecommunications services, and this fee is passed on to consumers on their telecommunications bills. Since all households that consume video and/or telephone service are required to pay into the Universal Service Fund, it is important that communities maximize their participation in the E-Rate program to help recoup the investment made by their residents that pay into the fund.

⁹ National Broadband Plan. "Current State of the Ecosystem" <http://www.broadband.gov/plan/3-current-state-of-the-ecosystem/>. Accessed June 2014.

Walla Walla Public Schools obtains its broadband connectivity and Internet services through K-20 Network.¹⁰ The school district currently maintains a 200Mbps Internet connection at a rate of \$450 per month. In addition, Pocket iNet provides dark fiber connectivity to the district for its point-to-point WAN services. The district has several technology initiatives including the use of Google Apps, online subscription based book services, and online testing. 1:1 initiatives are in the early stages, however robust high-speed wireless networks will be required on campus and in school facilities to support a wide deployment to the students. The district is moving forward with BYOD, which will allow students to bring their own devices to use at school. If a student does not have a device, the schools have the ability to loan the student one using a “check out” process.

Walla Walla Community College also shares the need for high-speed broadband infrastructure to support their multiple campuses and online educational applications. The Community College reported using a mix of providers including CenturyLink, Charter, Pocket iNet, and NoaNet. They currently utilize a 1Gbps Internet circuit as the College’s main circuit, with Charter cable service for public Wifi. In addition, Pocket iNet provides fiber access for some buildings, providing access back to the main campus. Walla Walla Community College has an total headcount of 7,000 students in any given quarter with an additional 1,000 students contracted through the State Penitentiary for vocational training.

D. Healthcare

Broadband is crucial for Walla Walla’s healthcare providers that are interested in meaningfully leveraging electronic health records, as many of the capabilities of health IT such as telehealth and electronic exchange of health care information, require high performance broadband capability. It is assumed that Walla Walla’s major hospitals currently maintain access to high-speed broadband services but beyond these organizations, few healthcare providers will maintain or have access to this type of service. Doctor’s offices, clinics, and imaging centers all have growing broadband needs to ensure they stay connected as their organizations transition to the digital healthcare environment. For these smaller organizations, high-speed broadband becomes a critical need to fulfill their mission and provide for long-term success.



Walla Walla is home to a Veteran’s Affairs hospital that is located on an 80-acre parcel. The facility is serviced by CenturyLink and AT&T, which contracts with CenturyLink for Type-II last-mile circuits. The VA hospital is serviced by two regional VA data centers in Denver, CO and Sacramento, CA. Most of the services and systems are located at the data centers, very little remains onsite other than local help desk level support. There is concern that CenturyLink lacks redundancy in its fiber routes throughout the region, but to date outages have been relatively rare.

¹⁰ <http://www.wa-k20.net/>

Future needs of healthcare providers in Walla Walla will continue to grow. As a guide, the FCC has released minimum recommended broadband speeds for healthcare organizations, as part of its Healthcare Connect program. These speeds identified by Healthcare Connect should be considered minimum requirements and Walla Walla's healthcare organizations should have access to more bandwidth if needed.

Single Physician Practice – 4 megabits per second (Mbps)

- Supports practice management functions, email, and web browsing
- Allows simultaneous use of electronic health record (EHR) and high-quality video consultations
- Enables non real-time image downloads
- Enables remote monitoring

Small Physician Practice (2-4 physicians) – 10 Mbps

- Supports practice management functions, email, and web browsing
- Allows simultaneous use of EHR and high-quality video consultations
- Enables non real-time image downloads
- Enables remote monitoring
- Makes possible use of HD video consultations

Nursing home – 10 Mbps

- Supports facility management functions, email, and web browsing
- Allows simultaneous use of EHR and high-quality video consultations
- Enables non real-time image downloads
- Enables remote monitoring
- Makes possible use of HD video consultations

Rural Health Clinic (approximately 5 physicians) – 10 Mbps

- Supports clinic management functions, email, and web browsing
- Allows simultaneous use of EHR and high-quality video consultations
- Enables non real-time image downloads
- Enables remote monitoring
- Makes possible use of HD video consultations

Clinic/Large Physician Practice (5-25 physicians) – 25 Mbps

- Supports clinic management functions, email, and web browsing
- Allows simultaneous use of EHR and high-quality video consultations
- Enables real-time image transfer
- Enables remote monitoring
- Makes possible use of HD video consultations

Hospital – 100 Mbps

- Supports hospital management functions, email, and web browsing
- Allows simultaneous use of EHR and high-quality video consultations
- Enables real-time image transfer
- Enables continuous remote monitoring
- Makes possible use of HD video consultations

Academic/Large Medical Center – 1,000 Mbps

- Supports hospital management functions, email, and web browsing
- Allows simultaneous use of EHR and high-quality video consultations
- Enables real-time image transfer
- Enables continuous remote monitoring
- Makes possible use of HD video consultations

E. Public Safety

We live in a changing world where public safety agencies must address new threats and challenges both natural and man-made. It is no longer enough for first responders to rely on a push-to-talk (PTT) network for situational awareness. Police, fire, and emergency medical services (EMS) play the central roles in emergency response. Mobile technology capable of sending and receiving bandwidth-intensive information can help first responders do their jobs much more effectively and safely. These emergency response organizations need broadband networks that let them share streaming real-time video, detailed maps and blueprints, high resolution photographs, and other files that today's public safety and commercial wireless networks cannot handle, especially during major events or catastrophes.

Broadband technology and infrastructure is critical to the success of our first responders because it provides them with enhanced situational awareness in emergencies. By leveraging broadband networks, public safety organizations can gain access to site information, video surveillance data, medical information or patient records, and other information that would be useful in an emergency. These networks also support and improve 9-1-1 Public Safety Answering Points (PSAPs) response time and efficiency by establishing a foundation for transmission of voice, data, or video to the responding entity.

New broadband technologies give first responders new tools to save lives. These tools include:

- Next-Generation Radio Systems;
- Advanced Security Camera Systems;
- Gunshot Detection Systems;
- Chemical, Biological, Radiological, Nuclear, and Explosives Sensor Systems;
- Body-Worn Cameras; and
- Next-Generation Wireless Data Systems.

F. Community Support

In order for a community to thrive and grow, community support organizations must be in place. Organizations such as local chambers of commerce, human services organizations, churches, and other organizations that help connect people to the services they need in the community. These organizations traditionally access the needs and resources available in the community and collect the data necessary to help fill the gaps in services and investigate opportunities to solve community problems and issues.

Broadband plays a vital role in helping these types of organizations fulfill their missions. Whether it is as simple as a community church streaming their weekly service or the local chamber of commerce advertising their latest event through their web presence and email, broadband equips these organizations with one of the most critical communication tools necessary to ensure they are successful in their support roles.

Broadband availability inspires these organizations to be innovative in their use of technology and brings a higher level of welfare to the communities they serve. Take for example All Saints Church in rural Norfolk County, UK. The church is utilizing its spire (the tallest structure in the area) to deliver wireless Internet service to the surrounding community. Now, in a community that was lucky to see speeds up to 1 Mbps, now speeds of over 8 Mbps are not uncommon. This community support organization has brought broadband service into an area that was previously underserved and is helping to bridge the digital divide that plagues many communities around the globe.

G. Smart Community Innovation

Broadband networks become key drivers of efficiency and innovation as more and more municipal applications are enabled online. As Communities expand online services, broadband will become an even more critical component of the daily operations to serve its constituents. Applications migrated to a community network enjoy greater availability and increased bandwidths over what has traditionally been available; creating more effective and efficient municipal organizations. High-speed, reliable broadband enables these organizations to:

- Improve operational efficiencies;
- Reduce direct and indirect costs;
- Enable new interactions with citizens and businesses;
- Respond more quickly to the local community;
- Ensure better preparedness in times of emergency;
- Provide enhancements to public safety;
- Provide more information to citizens and businesses; and
- Better serve the local community.

Community owned fiber is capable of much more than just providing broadband services. It can provide a publicly owned communications infrastructure that can be used for additional public benefits, including enhanced municipal utilities, new e-government applications, technology collaboration, and infrastructure sharing programs. In addition, a community owned network can provide a platform for long-term innovation of Smart Community technologies and applications, ranging from smart homes to energy conservation and management to green building programs. While the initial goal of this

infrastructure is to enhance local broadband services, it will become a long-term asset to support Smart Community programs that increase efficiency, lower cost, reduce environmental impact, and enhance quality of life.

Through the use of a fiber network, the Port and its partners will take advantage of new and emerging digital technologies to enhance the wellbeing and efficiency of its community, reducing cost, and resource consumption while more effectively engaging its citizens. Smart Communities are more efficient at responding to local, national, and global challenges and position themselves to be more successful than other communities that do not leverage these new technologies.

Through the implementation of a wireless sensor network that utilizes the Port's fiber network infrastructure as a platform, the Port and Cities can take advantage of the rising popularity of "Internet of Things" technologies and monitor many components of the area's infrastructure in real time such as traffic networks, power networks, water and sewage control systems, and street lighting. By actively monitoring these and other systems in real time, the area can more proactively adjust services to better meet the needs of the community while reducing costs by gathering data to conduct efficiency studies on how the services are delivered. The data collected could potentially be used to reduce energy consumption, increase operational efficiencies, and deliver an overall higher quality of service to the community. A few of the technologies being deployed by municipal organizations globally include:

Smart Trash Containers

Smart Trash Containers are an emerging technology that has been successfully implemented in several communities around the globe. These systems rely on embedding refuse containers with wireless sensor technology to monitor and remotely alert when the containers are at capacity and need to be emptied. By alerting only when a container is full, this saves the personnel collecting the refuse time by not having to check or empty containers that are empty or only partially full. Additionally, data can be collected with regard to the rate the containers are reaching capacity and thus allow the waste management service providers to adjust their service in real time to better meet the needs of the community. This technology can also help to determine the best placement of containers geographically in the region and predict with additional capacity may be needed in a service area.

Street Temperature & Air Quality Sensors

By establishing air quality monitoring systems, regions can enhance their understanding of the quality of life within the community. Relationships between air pollutants and human health can be discovered by combining the data of air quality and health outcomes. By establishing early warning thresholds, health risks to the community can be reduced. Many studies on air quality monitoring employ expensive instrumentation to measure variations of air pollution on a large scale and covering vast geographic regions. The newer trend is to establish street-level monitoring systems that can report on areas that are more specific and generate more granular and accurate data.

Establishing a street-level monitoring system of air quality can assist in exploring fine-scale relationships between air pollutants and people. The sensors of a street-level monitoring system can capture fine-scale spatial-temporal variations of air quality and the information gathered can help local leaders gain a more realistic view of the quality of life. With the rapid growth of the manufacturing process in semiconductor technology resulting in smaller chip sizes and new sensing materials, lower-power consumption and better measurement accuracy can be achieved simultaneously. It is now possible to deploy an effective wireless sensor network in urban settings for studies on environmental monitoring.

Smart Street Lighting Systems

The businesses and residents of Walla Walla can benefit from the implementation of a Smart Street Lighting system. These types of systems employ high efficiency Light Emitting Diode (LED) technology to replace traditional incandescent bulb. In power savings alone, LEDs have demonstrated to be approximately 90% more energy efficient than traditional bulb solutions; however, simply replacing the existing bulbs with LEDs does not create an intelligent lighting system. The “Smart” components refer to the system being able to adapt in real time to the movements of pedestrians, cyclists, and automobiles. These systems will dim when no activity is detected and brighten when people or vehicles are present. Additionally, Smart Street Lighting Systems may be used to both deliver and receive data in the future creating useful “LiFi” networks that can provide greater and more efficient coverage than current “WiFi” networks. Benefits that result from this type of technology include:

- Large energy savings from LED technologies and ability to dim lights during low activity levels;
- Reduced maintenance costs because of the long life cycle of LED lights;
- Reduced CO₂ emissions due to reduced energy consumption; and
- Higher Quality of Life due to reduction of light pollution due to dimming.

Smart Community Innovations through Municipal Fiber Networks

Broadband Services

- Common backbone for all anchors
 - County & City
 - Schools
 - Libraries
 - Hospitals
 - Clinics
 - Public Safety
 - Community Support
- Interconnection with service providers
- WiFi in public centers

IT Collaboration

- E-Government applications
- Bulk Internet purchasing
- Application sharing
- Disaster recovery
- EOC communications

Public Safety Applications

- Video monitoring
- First responder support
- Collaboration with State & Federal agencies
- FirstNET preparedness

Future Energy & Utility Management

- Smart Grid & Demand Response
- Automated Meter Reading
- Advanced Metering Infrastructure
- SCADA communications and control



5. Opportunity Assessment

A. What Impact Can the Port Have on Local Broadband?

The Port of Walla Walla has the opportunity to be a community leader in the Walla Walla region by acting as the neutral entity making key investments in fiber optic infrastructure throughout the area. The Port can build and manage infrastructure in the Cities of Walla Walla and College Place, as well as in unincorporated areas of the County and Port properties. As the neutral entity, the Port can invest, build and manage broadband infrastructure that would be used to make new fiber optic capabilities and services available where providers are not willing to make the investments. In addition, the Port can partner with the cities to implement broadband-friendly public policies, and strategic investments to improve access and availability of broadband services in the Walla Walla region. These tools are utilized to increase the supply of broadband infrastructure that is available to serve Walla Walla's businesses, residents, and community anchors. A number of benefits can be realized by expanding access and availability of broadband in Walla Walla, including:

Increasing Adoption

Broadband adoption is influenced by two key factors, relevancy, and affordability. The Port has the opportunity to improve affordability by leveraging existing governmental owned fiber-optic networks and making measured investments in additional infrastructure. Affordability and adoption of broadband services are positively correlated. As affordability increases, so does adoption. Also, the Port can positively influence adoption by negotiating agreements with broadband service providers to provide "lifeline" Internet services at low costs for disadvantaged residents, small businesses and other targeted populations in exchange for discounted use of its broadband assets. These incentive programs can help broadband service providers deploy more quickly and at lower costs in exchange for their participation in such lifeline programs.

Improving Public Efficiency and Effectiveness

Leveraging the Port's broadband assets to connect more public institutions throughout the community creates the opportunity to establish collaborative technology programs across multiple organizations. Establishing institutional access to the Port's conduit and dark fiber networks would create a high-speed, inter-governmental backbone through which these organizations could collaborate with one another on information technology and communications projects. Connecting schools, libraries, local government, public safety, and community organizations to one another could facilitate the sharing of technology resources among the organizations connected. Some of the potential benefits may include cost reductions through joint volume purchasing agreements, application sharing, and improvements to emergency operations and communications.

Reducing Taxpayer Spend

Improving public efficiency and effectiveness should reduce the costs of government to the local taxpayer. If employed effectively, the Port's broadband initiatives can become a tool that facilitates cost reductions, not only for the Port and Cities, but also for other public organizations across the region, including schools, libraries and other community organizations. An inter-governmental network connecting these public organizations should consolidate the purchasing power of all agencies for common information technology and communications services, resulting in lower overall costs. The network can also "futureproof" the connectivity needs of these public agencies and protect them from cost increases, as they require additional bandwidth.

Reducing Lead Times for Installation

The time to install and activate end users' broadband services is significantly determined by the availability of infrastructure in the area. Businesses are negatively impacted by fiber construction lead-times that may result in delays to activate their services. 30 days is the typical industry standard lead-time for activation of fiber-optic broadband services, without a provision for special construction. In many cases, the lead-time may double or triple depending on how much additional fiber construction is necessary to reach the end user's location. The Port's conduit and dark fiber infrastructure can be used to supplement existing broadband service provider infrastructure to reduce these lead times.

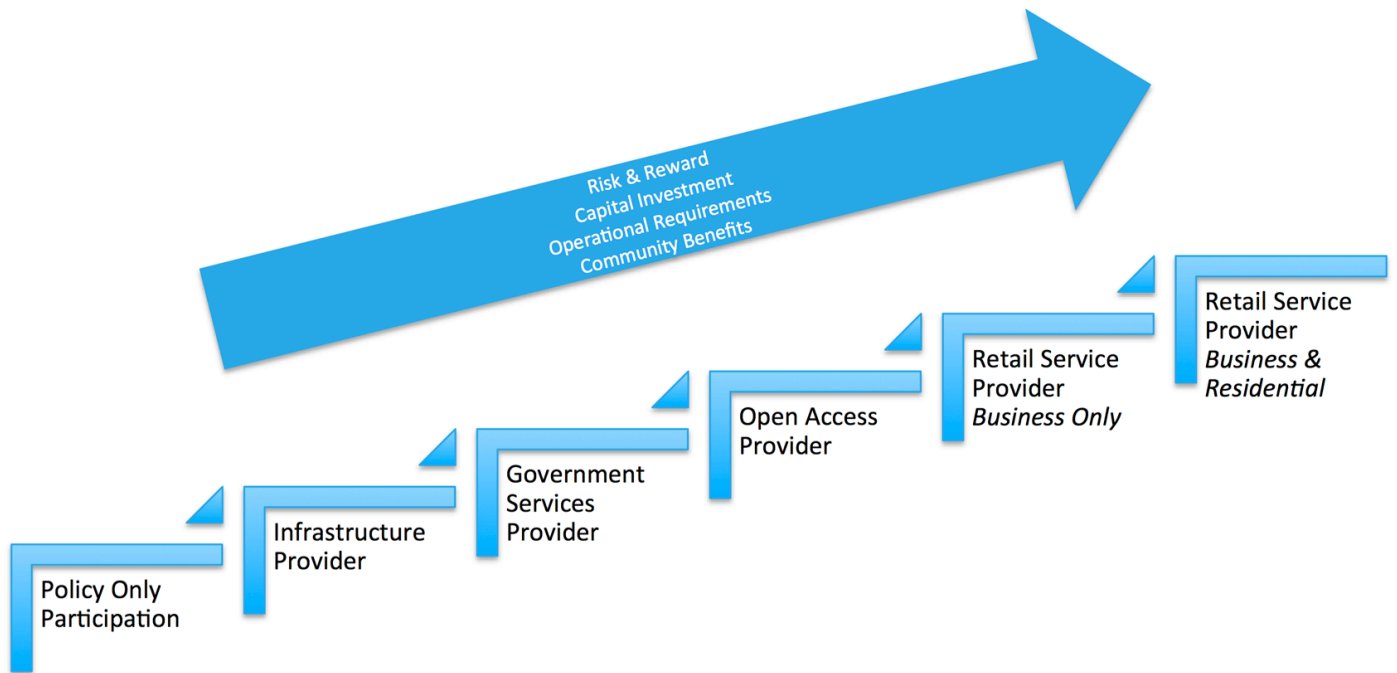
Supporting Reliability and Performance

The Port's broadband assets can be used to support the reliability and performance of broadband services across Walla Walla. These assets can be employed to provide new physical route diversity to the networks of existing broadband service providers and increase capacity in existing routes. They can be used to increase backhaul capacity in areas that are near or at their limit and equip more commercial towers with dark fiber connectivity, increasing the bandwidth available to mobile carriers serving Walla Walla's wireless needs. Community anchors can utilize these assets to achieve significant upgrades in speed and connectivity between their facilities as well as diversity for their primary connectivity.

B. Broadband Business Model Evaluation

Selecting the right business model for the Port of Walla Walla's broadband strategy critically depends on the specific environment, market, needs, appetite for risk, funding availability, payback, and return requirements. The commonly implemented business models fall on a continuum that begins with lower risk, lower impact options and ends with higher risk, higher impact options. Figure 5-1 illustrates this continuum. As the Port evaluates the various business model options from left to right, it will encounter greater degrees of risk and reward; risk, in terms of financial, operational, and regulatory risk; reward, in terms of community benefits, revenue generation, and overall profitability. The Port must determine the most appropriate risk/reward balance to achieve its goals. To do so, Magellan has evaluated each business model to hone in on those that are most feasible for the Port to consider. This evaluation accounted for local market, competition, funding requirements, organizational capabilities, and the regulatory environment.

Figure 5-1: Broadband Business Models Available to the Port



Policy Participation Only

Under this option, the Port and the Cities utilize its public policy tools to influence how broadband services are likely to develop in the region. This includes permitting, right of way access, construction, fees, and franchises that regulate the cost of constructing and maintaining broadband infrastructure within its jurisdiction. This option is not considered a true business model, but does significantly affect the local broadband environment and is therefore included as one option. Municipalities that do not wish to take a more active role in broadband development often utilize policy participation to positively impact the local broadband environment.

Example: Santa Cruz County, CA

The Santa Cruz County board of supervisors in November 2013 approved an eight-month timeline to overhaul its broadband infrastructure plans and regulations. Specific areas of focus include permitting fee reductions and a proposed “dig once” ordinance that would make it easier to install new fiber-optic cables during other work on area roads or utilities lanes. “The County will continue a focus on broadband infrastructure throughout the county to enable businesses to function in the digital era, and students and households to have high quality access to information and communication. The County will work with industry providers to develop a Broadband Master Plan in order to identify focus areas within the county that will be most suitable for gigabyte services, particularly as the Sunesys backbone line is constructed during 2014 and 2015. The County will work with service (last mile) providers to ensure that these focus areas are deemed a priority, in order to support streaming requirements, product development, job creation and online selling capability.”

Infrastructure Provider

The Port leases and/or sells physical infrastructure, such as conduit, dark fiber, poles, tower space, and property to broadband service providers that need access within the community. These providers are often challenged with the capital costs required to construct this infrastructure, particularly in high cost urbanized environments. The municipal infrastructure provides a cost effective alternative to providers constructing the infrastructure themselves. In these cases, municipalities generally use a utility model or enterprise fund model to develop programs to manage these infrastructure systems, and offer them to broadband service providers using standardized rate structures.

Example: City of Palo Alto, CA

In 1996, Palo Alto built a 33-mile optical fiber ring routed within the City to enable better Internet connections. Since then, we have been licensing use of this fiber to businesses. For the past decade, this activity has shown substantial positive cash flow and is currently making in excess of \$2 million a year for the city. We now have that money in the bank earmarked for more fiber investments."

Government Services Provider

If the Port becomes a government service provider, it will utilize its fiber-optic network to interconnect multiple public organizations (community anchor institutions) with fiber-optic or wireless connectivity. These organizations are generally limited to the community anchors that fall within their jurisdiction, including local governments, school districts, higher educational organizations, public safety organizations, utilities, and occasionally healthcare providers. The majority of these anchors require higher capacity connectivity and often, the municipal network provides higher capacity at lower costs than these organizations are able to obtain commercially. Local government networks across the country have been built to interconnect cities, counties, school districts, and utilities to one another at lower costs and with long-term growth capabilities that support these organizations' future needs and protect them from rising costs. In these cases, entities extending networking to CAIs may be ports, cities, counties, or consortia that build and maintain the network. The entities utilize inter-local agreements between public agencies to establish connectivity, rates and the terms and conditions of service.

Example: Seminole County, FL

Seminole County owns and operated a 450-mile fiber-optic network that was installed over the past 20 years by the County's Public Works departments primarily to serve the needs of transportation. Since that time, the network has grown to connect the majority of the County's facilities, 5 cities within Seminole County, Seminole Community College, Seminole County Schools, and other public network to a common fiber-optic backbone. The network has saved millions of dollars in taxpayer dollars across the County and has become a long-term asset that enables the County and the other connected organizations to meet their growing connectivity needs.

Open-access Provider

Municipalities that adopt open-access generally own and operate a substantial fiber-optic network in their communities. Open-access allows these municipalities to “light” the fiber and equip the network with the electronics necessary to establish a “transport service” or “circuit” for service providers interconnecting to incorporate additional capacity and connectivity into their local network. Service providers are connected from a common interconnection point with the open-access network and have access to all customers connected to that network. Open-access refers to a network that is available for any qualified service provider¹¹ to utilize in order to connect their customers. It allows municipalities to provide an aggregation of local customers on a single network that service providers are able to compete for efficiently and cost effectively to provide services. The concept of open-access is designed to enable competition among service providers across an open network that is owned by the municipality. The municipality remains neutral and ensures non-discriminatory practices and access for all providers who operate on the network. The municipality establishes a standard rate structure and terms of service for use by all participating service providers.

Example: City of Palm Coast, FL

In 2006, the Palm Coast City Council approved a 5-Year fiber-optic deployment project funded at \$500,000 annually for a total investment of \$2.5 million. The network was developed to support growing municipal technology needs across all public organizations in the area, including city, county, public safety, and education. It was also planned to support key initiatives such as emergency operations, traffic signalization, collaboration, and video monitoring. The City utilized a phased approach to build its network using cost-reducing opportunities to invest in new fiber-optic infrastructure. As each phase was constructed, the City connected its own facilities and coordinated with other public organizations to connect them; incrementally reducing costs for all organizations connected to the broadband network. Showing a reasonable payback from each stage of investment allowed the City to continue to fund future expansion of the network. Through deployment of this network, the City has realized a savings of nearly \$1 million since 2007 and projects further annual operating savings of \$350,000 annually. In addition to these savings, the City’s network provides valuable new capabilities that enhance its mission of serving the residents and businesses of the community.

¹¹ “Qualified” can mean an entity that has been certificated and authorized by the state’s public utilities commission.

Retail Service Provider – Business Only

Municipalities that provide end users services to businesses customers are considered retail service providers.¹² Most commonly, municipalities provide voice and Internet services to local businesses. In many cases, a municipality may have built a fiber network for the purposes of connecting the city's primary sites that has been expanded to connect local businesses, in effort to support local economic development needs for recruitment and retention of businesses in the City. Municipalities that provide these services are responsible for managing customers at a retail level. They manage all operational functions necessary to connect customers to the network and provide Internet and voice services. Municipalities compete directly with service providers in the local business market, which requires the municipality to manage an effective sales and marketing function in order to gain sufficient market share to operate at a break-even or better. This may or may not require certification and authority from the state's public utilities commission.

Example: Fort Pierce Utilities Authority

Primary FPUAnet services are Dedicated Internet Access, fiber Bandwidth Connections, E-Rate IP Links, and Dark Fiber Links. FPUAnet services also include Wireless Broadband Internet and Wireless Bandwidth Connections, which extend FPUA's fiber through wireless communications. The FPUAnet Communications mission statement is "To help promote economic development and meet the needs of our community with enhanced, reasonably priced communications alternatives. It all began around 1994, when FPUA began to build a fiber-optic network to replace leased data links between its buildings in Fort Pierce. The new optical fiber system proved more reliable and cost effective, and was built with sufficient capacity for external customers. In 2000, FPUA allocated separate fibers through which it began to offer Dark Fiber Links to other institutions. This soon expanded to include businesses and more service types.

Retail Service Provider – Business & Residential

Municipalities that provide end users services to businesses and residential customers are considered retail service providers. Most commonly, municipalities provide voice, television, and Internet services to their businesses and residents through a municipally owned public utility or enterprise fund of the city. As a retail service provider that serves businesses and residents, the municipality is responsible for a significant number of operational functions, including management of its retail voice, television and Internet offerings, network operations, billing, provisioning, network construction, installation and general operations and maintenance. The municipality competes with service providers in the business and residential markets and must be effective in its sales and marketing program to gain sufficient market share to support the operation. Many municipalities that have implemented these services are electric utilities that serve small to midsize markets, which already operate and maintain a fiber optic network for internal uses. Many of these markets are rural or underserved in areas that have not received significant investments by broadband service providers. Retail service providers must comply with state and federal statutes for any regulated telecommunications services. These organizations must also comply with state

¹² This does not preclude provision of open access network services for use by service providers in serving residential customers also.

statutes concerning municipal and public utility broadband providers; a set of rules has been developed in most states that govern the financing, provision, and deployment of these enterprises. This may or may not require certification and authority from the state's public utilities commission.

Example: Bristol Virginia Utilities (BVU OptiNet)

BVU OptiNet is a nonprofit division of BVU, launched in 2001, that provides telecommunication services to approximately 11,500 customers in areas around Southwest Virginia. OptiNet is known for its pioneering work in the area of municipal broadband throughout the area. BVU is acknowledged as the first municipal utility in the United States to deploy an all-fiber network offering the triple play of video, voice and data services. Offering digital cable, telephone service, and high-speed Internet from a remote-area utility provider makes BVU exceptional, even on a global level.

Figure 5-2: Comparing Broadband Business Models

Comparison of Broadband Business Models

	Infrastructure Provider	Government Services Provider	Open Access Provider	Retail Service Provider Business Only	Retail Service Provider Business & Residential
Services Offered	<ul style="list-style-type: none"> • Conduit • Right of way • Dark fiber • Tower space • Property 	<ul style="list-style-type: none"> • Connectivity services to public organizations, plus • Conduit • Right of way • Dark fiber • Tower space • Property 	<ul style="list-style-type: none"> • Wholesale transport service to service providers, plus • Connectivity services to public organizations • Conduit • Right of way • Dark fiber • Tower space • Property 	<ul style="list-style-type: none"> • Internet, voice and other business-focused retail services, plus • Connectivity services to public organizations • Conduit • Right of way • Dark fiber • Tower space • Property 	<ul style="list-style-type: none"> • Internet, voice, video and other business and residential retail services, plus • Connectivity services to public organizations • Conduit • Right of way • Dark fiber • Tower space • Property
Customers	<ul style="list-style-type: none"> • Service providers • Community anchors 	<ul style="list-style-type: none"> • Service providers • Community anchors 	<ul style="list-style-type: none"> • Service providers • Community anchors 	<ul style="list-style-type: none"> • Businesses • Community anchors • Service providers 	<ul style="list-style-type: none"> • Residents • Businesses • Community anchors
Opportunity	<ul style="list-style-type: none"> • Improvements to general broadband access and availability • Accelerate broadband deployments • Reduce costs to provide new services 	<ul style="list-style-type: none"> • Enhanced capacity and capabilities to community anchors • Increased efficiencies and collaboration among public organizations • Reduced cost for public organizations 	<ul style="list-style-type: none"> • Specialized fiber services to serve business and economic development • Establishing a more competitive market with more providers • Accelerated delivery to the market 	<ul style="list-style-type: none"> • Improved services to the business community • Establishing a more competitive market with more providers 	<ul style="list-style-type: none"> • Triple-play fiber services to homes and businesses • Control over how and where services are available to maximize community impact
Risks	<ul style="list-style-type: none"> • Slow uptake • Inefficient utilization of assets 	<ul style="list-style-type: none"> • Execution and collaboration with other public organizations 	<ul style="list-style-type: none"> • Operating expertise • Meeting service provider performance requirements • Service provider adoption of a municipal broadband network 	<ul style="list-style-type: none"> • Operating expertise • Significant funding required • Competition with service providers 	<ul style="list-style-type: none"> • Operating expertise • Politically challenging • Market response • Significant funding required • Questionable financial sustainability • Competition with service providers

C. Feasible Business Models for the Port

The Port has many opportunities to positively influence its constituents' access to broadband services. Rather than select a single business model for its broadband initiatives, Magellan recommends that the Port allow for a range of options that permits it the flexibility to accommodate the many opportunities at hand. The Port needs the flexibility to work with both public and private organizations to explore a range of possibilities, from providing dark fiber, to connectivity services, to wholesale services and even potentially Internet and other "retail" services in certain cases to other government organizations.

This range of options does however eliminate certain business models that are not complementary and appear through this Study's analysis to be infeasible for the Port. Magellan does not recommend that the Port consider providing retail services (other than perhaps to other government organizations) as a part of its broadband strategy. This would preclude providing any retail services to businesses and residents of the community, including Internet, television, telephone, wireless, or other end-user services.

Reasons why the Port SHOULD NOT become a retail telecommunications utility:

1. The Port is Regulated by State Law – RCW 53.08.370

RCW 53.08.370 clearly defines the roles that a rural port district may entertain as it relates to the deployment of telecommunication facilities and services. While the law allows the Port to make investments in telecommunication facilities, it does not allow the port districts to provide retail services. With that being said, the regulation clearly allows and supports the Ports investment in telecommunications infrastructure for its own internal use and for the provision of wholesale telecommunications services within its district's limits. In addition, it requires port districts to ensure that rates, terms, and conditions for such services are not unduly or unreasonably discriminatory or preferential. The Port, however, has the ability to petition the FCC to allow it to provide retail services if it desires to do so.

2. Financial sustainability of such an endeavor appears questionable

Competition in Walla Walla may be significant enough that it would challenge the Port's ability to gain enough market share to produce the revenues necessary to support capital, operational and debt service expenses of a telecommunications utility. Broadband providers could be expected to lower existing prices and lock in customers to long-term contracts to maintain their existing market share, and impede entry by the Port. In addition, the region has multiple providers delivering business and residential services today, not only by incumbent cable and telephone providers, but Walla Walla has several competitive carriers such as Pocket iNet and Columbia REA. It is not clear the market would support another provider. In addition, through discussions and stakeholder outreach, it is evidently clear that regional leadership will most likely not support the development of a new provider organization – but tends to lean toward enabling competition in the market.

3. Funding such an endeavor could be fiscally challenging

Initial funding of a telecommunications utility would require a significant upfront investment in fiber-optic network, equipment, and professional services to implement the utility. In addition, significant ongoing funding for operations and management would be required to support the utility for many years until revenues were great enough to cover all of the utility's operating expenses, debt service, and reserves. Telecommunications utilities generally utilize revenue bonds to fund these projects. It is unlikely that the municipal bond market would provide favorable rates and covenants based on the financial projections for a retail provider.

4. The Port does not maintain the core competencies to become a retail provider

The Port does not currently have the capabilities to manage a telecommunications utility, which would require significant operations and management resources. These services stray from the Port's core competencies to the degree that starting a telecommunications utility could potentially result in significant challenges to providing quality retail services commensurate with those currently available from broadband providers.

5. It could severely limit the Port's other options, opportunities and partnerships

As a retail provider, the Port would be forced to compete with broadband providers to gain enough market share to maintain financial sustainability. This would create a hostile environment between the Port and broadband providers that would eliminate meaningful public-private partnerships.

6. Lack of political support for the Port of Walla Walla to be a retail provider

While participating in outreach and stakeholder meetings conducted in Walla Walla, it became very clear that many of the region's leaders would not support the Port getting into the retail provider business directly competing with the providers in market. It was felt that this was not a good role for the Port and that it should focus more on investing in infrastructure and enabling competition.

D. Broadband Strategy for the Port

The Port's greatest impact in accelerating next-generation broadband deployment in the Walla Walla region will utilize the Port's strengths in infrastructure to serve the needs of both public and private organizations. The Port should execute two types of strategies, those that entail public organizations (public-public strategies) and those that entail private organizations (public-private strategies). In support of these strategies, the Port should implement broadband-friendly public policy tools.

Implement Broadband-Friendly Public Policy Tools

What are Broadband-Friendly Public Policy Tools?

Broadband-friendly public policies are tools that municipalities can utilize to accelerate deployment and reduce the cost of constructing broadband infrastructure within their jurisdictions. These policies also enable municipalities to create more opportunities for the installation of broadband infrastructure in conjunction with other public and private projects occurring within the region. Public policy tools are implemented according to each city's existing ordinances and processes; there is no "cookie cutter" approach to implementing them.

The Port and its partnering Cities have already begun to utilize public policy tools to include broadband infrastructure in various municipal capital projects on a limited trial basis. The City of Walla Walla's Alder Street project and the City of College Place's CARS project included broadband infrastructure in the designs and bid documents. These are excellent examples of how Joint Trenching and Dig Once policies can be implemented in the local region. Both of these were "trial" projects with loosely defined infrastructure standards. The Port and the Cities should adopt broadband standards and specifications so these investments provide long-term value to the region.

Comprehensive Broadband Standards & Joint Trenching Policies

Integrating broadband "utility" standards into the Port's, Cities' and County's land development code will enable the region to incorporate basic broadband infrastructure requirements into the land development process and encourage broadband construction to occur in conjunction with other capital projects. Road widening, sidewalk, trail, and lighting projects all may be opportunities for the installation of basic conduit infrastructure at favorable costs. By installing conduit in concert with these related capital projects, the Port can avoid incurring the significant costs of constructing this infrastructure by doing so when the ground is already open. Since the majority of costs to build broadband infrastructure in Walla Walla are incurred through trenching, boring, and restoration this strategy can alleviate some costs of constructing underground infrastructure. The municipalities, in alignment with its CIP, can determine which projects will help build usable infrastructure.

This process should also be coordinated with local service providers to minimize overbuilding and to ensure that service providers have an opportunity to place their infrastructure in capital projects as well. Joint trenching policies between the Port, Cities, County, utility companies, and broadband providers can facilitate more opportunities to install conduit, fiber, and other infrastructure at much lower costs. Joint trenching agreements are developed between public and private organizations to minimize the cost of constructing conduit in the local area, by allowing each entity to take advantage of trenches that have been opened through each other's projects. Standardization of these agreements across all potential owners of underground infrastructure can be established to ensure all parties are aware of the joint trenching opportunities as they become available.

Infrastructure Fund

The Port would establish an infrastructure fund set-aside, allocating monies to build broadband infrastructure when opportunities arise, aligned with the region's capital project schedule. The Port would determine how much funding to allocate based on the capital project schedule and locations where the Port could favorably build infrastructure at low costs. This fund would typically roll from year to year and maintain a reserve or set-aside for unanticipated projects.

The Port has the opportunity to utilize 9/10th sales tax dollars that are distributed locally for economic development type projects. The Port could utilize dollars that are currently banked to immediately fund infrastructure investment and could continue to allocate a portion of the annual funds provided to the region.

Record Keeping

The Cities maintain Geographic Information Systems (GIS) that contain detailed maps of the community, right of way, easements, and other information. As the Port considers implementing broadband-friendly public policy measures, it should ensure that GIS documentation of any broadband infrastructure is made a requirement. The Port should invest in a Port owned GIS based fiber management system to ensure documentation is consistent should it begin to invest in broadband infrastructure. This will allow the Port to maintain a clear understanding and records of locations of broadband infrastructure; which may include conduit, vaults, pull boxes, transitions, fiber-optic cable, and other outside plant resources. There are numerous Fiber Management Systems available that provide the functionality required to adequately document and record broadband infrastructure.

How Would the Port Implement Broadband-Friendly Public Policy Tools?

Developing broadband friendly-public policies requires the Port and the Cities to evaluate current land use, permitting, construction, and right-of-way policies to determine how these can be tailored to incentivize development of more broadband infrastructure in Walla Walla. Below is a basic guide explaining how many regions have implemented these policies:

The Port, Cities and County should adopt General Plan policies that incorporate broadband as a public utility and create a policy framework to promote its deployment in public and private projects as appropriate, including:

- a) Tailor draft policies and standards to the region's specific needs and adopt them into local policy, codes, and standards (including policies, dig-once, joint trenching, engineering standards, etc.).
- b) Incorporate broadband in the region's Development Impact Fee programs and Capital Improvement Plans (CIP) as appropriate and make a commitment to fund broadband infrastructure.
- c) Identify opportunities to install broadband infrastructure in conjunction with public and private construction projects as appropriate.
- d) Develop a process so that local Planning and Public Works Departments coordinate

- with the Port to identify projects that could install this infrastructure at reduced costs.
- e) As the Port makes key infrastructure investments, maintain broadband infrastructure in a Port owned GIS based fiber management system, requiring GIS-based as-builts and implementation of other means for accurate documentation.
 - f) Evaluate ways to streamline the broadband permitting processes within public rights-of-way to ensure broadband providers do not face unnecessary obstacles to building infrastructure.
 - g) Evaluate fees levied on broadband providers for constructing broadband infrastructure to ensure they do not discourage broadband investment.

What Municipalities Have Implemented Broadband-Friendly Public Policies?

Example: City of Palm Coast, FL

In 2005, the City created specifications for broadband standards that were adopted by the City Council and became part of the City's engineering standards for all projects. Since 2005, the City has built 30+ miles of underground conduit infrastructure at a fraction of the cost by incorporating it into the design of water and sewer, road widening, and street lighting projects. The City has also worked with local developers to incorporate these standards into their commercial and residential projects to ensure that any new or retrofit development is outfitted with basic broadband infrastructure.

Example: Santa Cruz County, CA (County Organization)

Santa Cruz County has implemented a number of broadband-friendly public policies that act to streamline, expedite, and reduce the cost of building broadband infrastructure. The County has implemented the following:

- 1. A master lease agreement allowing the placement of broadband infrastructure on County assets.*
- 2. A new ordinance that more easily allows the installation or upgrades of broadband infrastructure in the County rights-of-way.*
- 3. Conduit specifications for placement of conduit during construction projects (dig once).*
- 4. A broadband master plan to target sections of the county (such as economic vitality areas) for additional broadband infrastructure.*

What are the Risks?

Implementing broadband-friendly public policies pose little financial risk to municipalities because they require little upfront funding if managed correctly. In some cases, municipalities have struggled with incorporating broadband into their existing land use policies because they are unfamiliar with how to manage a new "utility" type of asset. This requires the collaboration of multiple departments and the ability of these departments to work together to a common goal. The Port, Cities and the County should expect that some new business and operational

processes would be required as well as changes to existing processes in order for the policies to be effective.

E. Public-Private Strategies

The Port should evaluate public-private partnership opportunities with existing broadband providers before it embarks on any additional public-private strategies. This is an important first step for the Port to take that will help it understand what benefits can be achieved working in partnership with broadband providers. As every public-private partnership is different, the Port should consider some key questions around these complex relationships. The following section provides some guidance on broadband public-private partnerships (PPPs).

Broadband Public-Private Partnerships

What are Broadband Public-Private Partnerships?

A broadband public-private partnership ("PPP") is a negotiated contract between a public and private entity to fulfill certain obligations to expand broadband services in a given area. PPPs have gained popularity over recent years as more municipalities employ public broadband and utility infrastructure in conjunction with private broadband providers. PPPs leverage public broadband assets, such as fiber, conduit, poles, facilities with private broadband provider assets and expertise to increase the availability and access to broadband services. Municipalities forgo "getting into the business" of providing retail services and instead, make targeted investments in their broadband infrastructure, and make it available to private broadband providers with the goal of enhancing their communities. In this type of model, the Port would be considered an Infrastructure Provider who maintains permanent ownership interest in the broadband infrastructure that is funded by the Port.

How Would the Port Implement a Broadband PPP?

One option to develop a broadband PPP is to hold a competitive negotiation with one or more broadband providers. This option is utilized when the Port has determined that it will pursue public-private partnership(s) with broadband providers. The public-private partnership may take different forms, depending on the needs of the Port and its partners. In the Port's case, it would bring public broadband assets to the negotiating table with private broadband providers to achieve mutually desirable benefits to both the Port and the partner(s). The Port could consider issuing an RFI in an open procurement to recruit, evaluate and select a provider.

In this case, the Port could issue a public procurement that would invite broadband providers to submit information concerning how they would make use of the Port's broadband infrastructure to achieve a pre-defined set of goals laid out by the Port. RFIs are generally not evaluated on price as the revenues and costs within the project negotiated between the parties are a "moving target" and many times are not determined until well into the negotiation. Rather, they are executed on the total value derived from the project, in terms of economic development, new jobs, increases in the tax base, pricing for services, quality of services, and other "non-financial" benefits.

What are the Reasons to Utilize an RFI?

Municipalities utilize the RFI approach for several reasons. First, in cases where organizations do not want to engage in managing broadband resources, they have used RFIs to negotiate the wholesale use of their assets while retaining the underlying public ownership. Second, they often want to utilize established procurement vehicles through which they can negotiate “partnerships” with broadband providers. RFIs are a commonly used form of procurement; enabling municipalities to follow procurement and negotiation guidelines that are familiar to them. Third, the organizations often want to ensure their procurements are open and non-discriminatory to qualified broadband providers. RFIs utilize public procurement channels to ensure that all qualified broadband providers are given a chance to respond. This enables municipalities to include local incumbents, competitive providers, CLECs, and non-facilities based providers in the procurement.

What Questions are Important to Answer in Broadband PPPs?

As the Port begins its discussions with the current broadband providers, it is important to consider the following questions to ensure it is making informed decisions about moving forward:

1. Should the Port negotiate with one or multiple broadband providers?

The decision to form a Broadband PPP with a single or multiple providers will determine how much power the Port maintains at the negotiating table with potential partners and how much of the Port's “ask” is agreed to by the partner. In a single provider PPP, the provider will generally be incentivized by the opportunity to capture a large market through use of the Port's broadband assets and do so with no competition from other providers for those assets. In a multi-provider PPP, multiple providers will have access to those assets, reducing the incentives a single provider would enjoy. However, a multi-provider PPP would protect the Port from a lack of performance or a default of a single provider, which may render the PPP ineffective.

2. What is the range of potential partners available to the Port?

The Port should consider making an RFI open and non-discriminatory, allowing all qualified providers the opportunity to submit their proposal. This will be somewhat determined by the Port's legal ability to negotiate with one provider without a public procurement. In many public-private partnerships, a public procurement has been used to ensure the municipality enforces non-discrimination requirements as a public organization. The RFI may be inclusive of Walla Walla's current broadband providers, including incumbents, cable companies, and other competitive providers. The Port may also consider the geographic scope of potential partners. Limiting the scope of qualified applicants to only those serving Walla Walla today could limit the Port's range of proposals. The Port should consider expanding this scope to cover the greater US telecom/broadband market to include potential partners that may deliver other new and innovative broadband solutions to the region.

3. What incentives can the Port offer potential partners?

The Port can make its broadband assets available to one or more partners on a cost basis (with minimal markup over cost) to incentivize providers to accelerate broadband deployments in Walla Walla. These incentives may also help providers reduce costs to citizens, businesses, and community anchors. The Port should clearly identify the assets that it will employ in the partnership, the value of these assets and the consideration given to partners for incentivized use of the assets. Doing so will ensure the Port and partner(s) clearly document the exchange of value between the partners. Many municipalities have used economic development agreements to memorialize these exchanges.

4. What conditions could the Port ask of broadband providers?

The Port should clearly define its expectations in the partnership(s). These expectations may include offering specific types of services in target areas, guaranteeing performance and quality of services and offering low-cost “lifeline” packages for economically disadvantaged residents and businesses. The Port should identify which components are required and non-negotiable in the partnership versus those components that may be negotiated. For Walla Walla, some of the critical “ask” terms for the Port should include:

- Providing free or low-cost Internet service to public organizations
- Establishing a non-compete agreement for connectivity services to public organizations, the Port desires to expand its services to schools, healthcare and other public organizations directly;
- Meeting price targets for specific tiers of service to residential and commercial customers;
- Providing Gigabit services to businesses and potentially residents;
- Co-Marketing programs that the region’s economic development organizations can utilize to recruit new business and promote Walla Walla as a connected region;
- Enabling low-cost “lifeline” broadband services for economically disadvantaged residents;
- Equipping business parks, community redevelopment areas, and other designated places with broadband services;
- Guaranteeing performance, availability, and reliability of services provided under the PPP; and
- Inclusion of an equity/penalty clause should the provider fail to meet the agreed upon terms.

5. How could the partnership be managed?

The Port should anticipate the need for ongoing management of a Broadband PPP. This will require the Port to establish resources such as administrative, management, and operational personnel or arrange for these tasks to be outsourced to a third party. The primary management functions include measuring the progress and performance of the partner(s), overseeing the broadband assets employed in the partnership, and managing ongoing operational functions such as new broadband build outs.

How can the Most Favorable Outcomes be Achieved?

Outcomes are highly dependent on the Port's goals in the project, value of the broadband assets, and desire to maintain control over how the broadband provider utilizes the assets. To achieve the most favorable outcomes, the Port should strive to accomplish several key items in negotiating a PPP with the potential partner (or others):

1. Treat broadband providers as stakeholders in the community
 - a. Consider their capital requirements
 - b. Remember that providers are for-profit, and their decision-making will be based on achieving internally required returns
 - c. Understand that their payback requirements are shorter than in the municipal world
2. Identify the target areas for broadband expansion in the PPP
 - a. Identify the boundaries
 - b. Pinpoint the Port's broadband assets for use in these target areas
 - c. Define the services that are expected to be provided by the broadband provider
 - d. Enable the provider to deploy services as quickly as possible by minimizing the following obstacles:
 - e. Permitting timeframes
 - f. Requiring single versus bulk/blanket permits for their projects
 - g. Strict construction requirements for placement of conduit, fiber and facilities
3. Minimize one-time ongoing fees to keep prices for broadband services low in the local market
 - a. Normalize, reduce or waive permitting fees for construction projects
 - b. Minimize leasing fees for the Port's broadband assets such as fiber and conduit
 - c. Allow for lower cost construction methods where possible (in conjunction with item 1c)
4. Clearly define the consideration given and received in the project with the broadband provider
 - a. Determine the value given by the Port to the provider in the PPP
 - b. Determine the value generated by the provider to the community as a result of the PPP
 - c. Define the timeframe for the community to receive the benefits of the PPP
5. Define how the PPP will be managed and governed
 - a. How will the parties conduct business with one another and maintain alignment
 - b. How do the parties deal with shortfalls if either party isn't able to meet the requirements in the timeframe desired
 - c. How is performance of the PPP and the partners measured?

Example: Google Fiber in Kansas City, Provo, and Austin

These projects utilize a form of public-private partnership whereby each municipality developed agreements for the use of municipal broadband infrastructure and/or policy incentives to attract the provider to the City.

Example: Access Ontario, NY

Access Ontario builds the fiber infrastructure to supply/lease telecom technology, which enables carriers to provide service to their customers. Access Ontario collaborates with broadband providers such as Verizon Wireless and Time Warner Telecom to leverage its fiber-optic network to bring more broadband services to the community.

F. What are the Risks?

Broadband PPPs are relatively new to local governments but their popularity is growing because they align public organizations and private providers, leveraging each other's core strengths. In most cases, PPPs alleviate municipalities from the requirements to provide retail or wholesale broadband services and allow them to employ their broadband infrastructure and policies with providers who take on these responsibilities.

Fundamental alignment between the public and private partner(s) is important for successful PPPs. Municipal goals must be balanced with private sector goals and strategies. These goals and strategies must fulfill each party's critical needs and must be forged early in the process. The identification and selection of the right partner(s) is paramount to success in the project. Execution risks can be high for municipalities that do not have a clear understanding of the true needs of their communities or those of broadband providers.

6. Investment in Broadband Infrastructure

A. What infrastructure would the Port build?

The Port would make key strategic investments in underground conduit and fiber optics throughout the key business corridors and areas of Walla Walla. In addition to this build out, the Port could develop an agreement with the Cities of College Place and Walla Walla to take over the management of any existing fiber that may be owned by the municipal organizations. In this new role, the Port would manage all governmental owned conduit and fiber optic assets, while investing in further development of these networks. The Port in turn would offer these assets to providers to use to deliver high-speed broadband services to the businesses, community anchors and potentially residents throughout the service area. These directed investments would allow retail providers to use the infrastructure “immediately” to reach more customers without the need to advance an internal business case to obtain capital allocation to build costly fiber infrastructure to subscribers; the Port maintains responsibility for this function.

B. Why Would the Port Build this Network?

Many municipalities find the investment in infrastructure to be a compelling option for them as it allows local input and oversight into the deployment of broadband services as well as the ownership of these key community assets. The Port’s involvement can also be used to keep prices low for potential users, while at the same time providing for the advanced capabilities enabled by fiber optic cable. It also allows them to continue the buildout of their fiber-optic networks for municipal and community purposes by owning the underlying physical fiber network. These investments in infrastructure are long-lived assets, and will continue to bring value to the region for decades to come.

By making key investments in fiber infrastructure throughout Walla Walla, the Port can consider these areas as “fiber ready.” This can be a game changer for economic development, as potential businesses would have the ability to know it can locate its business within a “fiber zone”, and that scalable fiber services are readily available – no questions asked. Through investment in a network, the Port could potentially provide a new source of next-generation broadband access to service providers while maintaining neutrality and non-discrimination while “staying out of the business” of providing retail services. The Port’s only customers are the service providers that utilize the municipal network to reach businesses, anchors and potentially residents in Walla Walla.

C. How Would the Port Build this Network?

Becoming an infrastructure provider would require the Port to create an appropriate organizational and operational structure to manage the broadband infrastructure assets. Some considerations for the Port to evaluate in implementing this network include the additional operations and management responsibilities required to maintain the network, recruitment, negotiation and financing requirements to build the network. The Port would apply for and negotiate franchise agreements with each of the Cities and the County (if required), just as typical infrastructure owners do today in each of those service areas.