

Asotin County Broadband Planning Study (Including Needs Assessment & Business Case)

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Executive Summary

High speed internet connections (broadband) have gone from being a luxury to a necessity for full participation in our economy and society for all Americans.

The Web is an increasingly essential resource for many aspects of life: education, employment, government, commerce, health care, recreation, social interaction, and more. Companies and communities with access to broadband increase employment and increase their bottom line (profit). To name just a few benefits, broadband can: a) save time, b) lead to well-informed purchase decisions for businesses and other consumers, c) reduce travel by pre-locating products for purchase, and d) facilitate cost comparisons between vendors before a purchase decision is made.

Live videoconferencing utilized by health care facilities can reduce the cost of follow-up care, and videoconferencing can reduce travel for business and governmental entities.

Distance learning is facilitated by reliable, high speed internet connections. People can work remotely from the business site, saving time on travel which can contribute to overall quality-of-life.

Public service agencies, particularly first responders, with access to broadband can use staff time more efficiently and provide better service to constituents. Remote monitoring of public facilities can also result. Governmental services can be more efficient with electronic transfers for payments.

Because the benefits are clear, it is important that all populations in the United States have access to reliable, high-speed internet.

Study Purpose:

The Port of Clarkston was awarded a broadband planning grant through the Washington Department of Commerce, Broadband Office¹. The initial goals for this award were, for the residents of Asotin County, Washington, to examine technical factors, primarily infrastructure and “Last Mile” connectivity, to achieve higher speed access to the internet. Because adoption was recognized as a potential issue, though, identifying educational opportunities and implementing the highest priority goal were included with the technical needs assessment and development of an infrastructure business case for high priority projects.

The results of this project are summarized in this report. The deliverables include a needs assessment and business case for top priority infrastructure build-out.

Connectivity Goals:

The overriding goal to be achieved, if this plan is implemented, is to: *Make High Speed Connectivity More Accessible and Available to Residents of Asotin County*. By including the terms “accessible” and “available,” the planning team captures awareness and capability on the part of business and individual users and their general ability to afford such services, as well as the physical constraints to connectivity such as infrastructure and hardware.

¹ The Washington Department of Commerce Broadband office encouraged communities to shape their own future by matching and passing through American Recovery and Reinvestment Act funding, administered by the National Telecommunications and Information Administration (NTIA) through the Broadband Technology Opportunities Program (BTOP).

The definition of “high speed connectivity” has deliberately been defined as a moving target.² The following table identifies connectivity goals, not in terms of advertised speeds³, but for actual speeds from reliable testing⁴:

<u>Timeline</u>	<u>% of Users</u>	<u>Connectivity⁵</u>	
		<u>Download</u>	<u>Upload</u>
by 6-30-2014	75	3 Mbps	768 Kbps ⁶
by 6-30-2015	66	6 Mbps	2 Mbps
by 6-30-2016	75	10 Mbps	3 Mbps
by 6-30-2017	66	10 - 25 Mbps	5+ Mbps ⁷
by 6-30-2018	50	>100 Mbps	10 Mbps ⁸
by 6-30-2019	25	1 Gbps	>100 Mbps

These goals may be more modest than they appear. More than half of survey respondents⁹ who reported the results of speed tests received greater than 3 Mbps in download speeds. However, not many respondents had even 500 Kbps in upload speeds. The 2018 goal is also modest. When research firms and universities regularly transfer data in gigabits, or 1,000 Mbps, 100 Mbps is slow. Some internet service providers in Chelan County are today offering 100 Mbps download and 100 Mbps upload for \$69.95/month. That’s roughly the same cost Asotin County users are paying (but not truly receiving) for 5 Mbps in download and 1 Mbps in upload speeds.¹⁰

Fiber cable is the one broadband delivery system that can achieve the 2018 and 2019 goals. Fiber can deliver extremely high bandwidths (See Appendix A). Fiber-to-the-home (and businesses) is very expensive to build. That’s why the percentages of users targeted in the table above will likely never achieve 100%. This strategy proposes to build speed from the population core and roll-out for rural and frontier¹¹ using creative, collaborative approaches (such as public/private partnership via options such as FirstNet) and emerging wireless technology to serve the truly unserved residents of Asotin County. Even so, it is not anticipated that frontier populations will achieve the highest speed goals listed above, due to cost versus benefit realities, no matter what entities undertake infrastructure service delivery.

Not quantified in the table above, but identified as an equally important goal, is to increase the number of regular users of the internet among residents and businesses within Asotin County. According to NTIA's 2011 Digital Nation report, income, education, race and ethnicity, and disability status can all affect whether an American is more or less likely to have high-speed Internet access at home. Unfortunately, Asotin County has a higher

² This is consistent with the actions of the Federal Communications Commission (FCC) which previously defined “broadband” as 200 Kbps downstream and upstream, and now defines “broadband” as 4 Mbps downstream and 1 Mbps upstream.

³ Information reported by users in Asotin County and data from the state’s broadband speed test website demonstrate that there is a significant difference between advertised and actual rates—in some cases a 50% reduction.

⁴ Data rates are usually defined and advertised in terms of the maximum or peak download rate. In practice, these maximum data rates are not always reliably available to the customer. Actual end-to-end data rates can be lower due to a number of factors. Physical link quality can vary with distance and for wireless access with terrain, weather, building construction, antenna placement, and interference from other radio sources. Network bottlenecks may exist at points anywhere on the path from the end-user to the remote server or service being used and not just on the first or last link providing Internet access to the end user. (Wikipedia)

⁵ Kbps=Kilobits per second; Mbps=Megabits per second; Gbps=Gigabits per second (see Appendix B -- Glossary for more information)

⁶ Lowest acceptable “always on” connection that does not “hog” phone lines like dial-up does; this speed is defined by the FCC as “broadband.”

⁷ Highest speeds generally achievable by “current generation” (copper-based) networks.

⁸ Referred to as “next generation broadband,” typically using fiber optics to transmit data.

⁹ A cautionary note: It is believed that survey respondents were not fully representative of the population of Asotin County and that there was an economically disadvantaged group of people that did not respond to the survey—the group least likely to have computers and internet connections.

¹⁰ Complicating the cost analysis is the fact that most residents and many businesses bundle services. To assign a value to the internet connection component separate from television, hardline telephones, and even cell phones is difficult.

¹¹ Populations that are unserved, considered to be the most rural part of the county.

proportion of low income and elderly individuals than many other parts of the state as well as lower overall educational attainment. Thus, the stage is set for Asotin County users to have a lower degree of connectivity than users on average across the nation. This is in contrast to Washington state in general.¹² Per the 2012 Annual Report on Broadband in Washington, the 2010 Census showed that 83.6% of the state's population live in households with internet access.¹³

Findings in Asotin County:

With the exception of the more rural and mountainous southern parts of the county, some broadband availability exists in Asotin County. Barriers do exist to high speed internet adoption, however, in the form of affordability, capacity, and lack of options between internet service providers.

Even though the two incorporated cities within Asotin County are within a Metropolitan Statistical Area (MSA)¹⁴, the county is not unlike other rural areas that have been economically dependent upon resource extraction and agriculture for the past century. Residents here have greater connectivity at lower costs than their neighbors to the immediate west, but lower connectivity and higher costs than their neighbors to the north.

Theoretically, Asotin County residents should have the same connectivity options as others on the Lewiston, Idaho, side of the MSA, i.e., to the east. The same internet service providers are offering the same level of service for the same prices as are being offered on the Lewiston side. However, the larger population, and particularly, the greater demands for high speed connectivity by the business sector¹⁵ on the Lewiston side would presently provide Lewiston residents with a slight edge over users in Asotin County, even though the Clarkston population is closer to the points-of-presence¹⁶ coming into the community at the Red Wolf Bridge. For instance, Asotin County residents paying one internet service provider for "up to 7 Mbps" are mostly too far from the server located in Lewiston to be able to get much more than 2 Mbps, while many Lewiston residents don't have that distance issue.

When comparisons are made outside the immediate area, for instance, such as the Chelan County comparison above, the disparity between speeds and costs become much more apparent.

Key Recommendations:

A philosophy across several cultures in Africa has been summarized in a well-known phrase: "It takes a village to raise the child." To dig further behind that philosophy is to embrace the concept that it takes a collective effort to nurture an entity into being, to help it mature, and to assist it in reaching sustainability. This concept could also apply to a telecommunications network in Asotin County. This study finds that there is no single solution, and that no one single entity that can help residents of Asotin County achieve the end goal of making high speed connectivity more accessible. Achieving this goal will take a collective effort involving the individuals themselves, local governmental entities working together, an on-going, active telecom planning team, state and federal funding partners, and an active business sector to either provide internet services or demand a higher level of connectivity or both.

The following items represent general recommendations that are developed more fully elsewhere in this report.

¹² Washington state is unusual in that a large percentage of its population live in higher concentrated areas, in the western I-5 corridor from Everett through Seattle to Vancouver, WA, and in locations like Yakima, Tri-Cities, Walla Walla and Spokane.

¹³ National average is 66% per Home Broadband 2010 Report, Pew Internet and American Life Project, <http://www.pewinternet.org/Reports/2010/Home-Broadband-2010.aspx>

¹⁴ The Lewiston, ID-WA Metropolitan Statistical Area was recognized as a result of the 2000 Census.

¹⁵ Asotin County has more people, as a percentage of the population, commuting outside Asotin County. It also has a higher population of retirees (see "Demographics" section of this report).

¹⁶ There are three: AT&T's point-of-presence, 360Networks' point-of-presence, and the one installed in 2013 that is owned by the Port of Whitman but serves additional collaborative partners including Northwest Open Access Network (NOANet) and the Port of Clarkston. This last one created redundancy.

Recommendation #1 - Stakeholder Engagement: With assistance from an active, on-going telecommunications planning team, convene regular community stakeholder meetings to discuss infrastructure and educational needs and opportunities within the community. Stakeholders should include technical and business leaders from the private and public sectors and should include representation from urban, rural and frontier areas.

Subgoal A: Include the first responder/public safety strategists in on-going discussions.

Subgoal B: Use this forum to encourage streamlining by local governments of franchise agreements and for permitting new projects in rights-of-way.

Subgoal C: Seek input from this stakeholder group to identify where and what to build from an infrastructure perspective.

Recommendation #2a – General Educational Programs: Create a public education and information campaign to make high speed internet more “relevant” for Asotin County businesses and residents and to increase adoption.

Subgoal A: Develop a clearinghouse for information that will assist users in understanding what training resources exist and what hotspots are available for access.

Subgoal B: Use the community stakeholder group and other forums to identify businesses (champions) who have used broadband to improve their bottom line and encourage them to talk about it.

Subgoal C: Identify those individuals and entities that are falling through the cracks and develop avenues to assist in adoption of technology, including finding creative ways to provide free and low-cost broadband as well as computer equipment in public housing projects.

Subgoal D: Student interns: Work with School Districts to publicly discuss how they are harnessing technology to increase educational opportunities for students.

Subgoal D: Seek additional partnerships through the library, Walla Walla Community College and other avenues to provide education opportunities.

Subgoal F: Use this forum to increase the understanding of community members and businesses with regard to broadband terminology, available resources in our area, challenges with middle and last mile provision of service, and keep them up to date on service changes.

Recommendation #2b – Deeper Analysis of a Specific Population: Develop a pilot project, in cooperation with Grantham and Highland Elementary Schools, Asotin County library, and social service entities relating Census Tract 9604¹⁷ to gather more detailed information relating to computer hardware and affordability barriers to adoption.

Recommendation #3 – More Competition: Encourage greater competition among internet service providers to assist in addressing the “affordability” barrier. Seek infrastructure solutions that may involve local, regional, and state governmental entities already involved with development of infrastructure to grow options for extending broadband service in Asotin County.

Recommendation #4 – New Public Investment: Plan infrastructure build-out in ways to assure that new investments are capable of handling higher speeds that will be needed in the future.

Recommendation #5 – Seek Funding: Identify infrastructure funding sources and avenues for appropriate parties to make new investments to meet infrastructure build-out goals, with the goals of lower costs for access.

Recommendation #6 – Leverage First Response Resources: Seek ways to leverage existing first response tower sites for greater connectivity. By combining the needs of broadband, cellular and first response users, a case may be made to justify building additional tower sites where gaps exist (FirstNet initiative).

¹⁷ Of the census tracts in Asotin County, #9604 has been consistently identified as a Historically Underutilized Business zone (HUB zone). While Grantham and Highland Schools are technically located just outside the census tract, they have the two highest percentages of students qualifying for free or reduced lunches within the county. These factors pinpointed this population as one of the most economically disadvantaged in Asotin County.

Part I: Background

I-A. Need for this Project

IA.1. Overview:

Asotin County, one of the smallest, least populated counties in the state, is located in southeast Washington. Residents of Asotin County are the beneficiaries of this planning study.



The need was great. Residents of Asotin County are a disadvantaged population. As such, they are less likely to have affordable, high speed telecommunications options. Recognized disadvantages are these:

- Demographics create the expectation that there will be a lower broadband adoption rate (population is older, less affluent and less well educated—see IIA1.i “Demographics” for more details);
- Clarkston and Asotin have historically been bedroom communities, with the work force traveling primarily to Lewiston, ID, and even Moscow, ID, and Pullman, WA¹⁸ so business and governmental drivers for high speed services in other rural communities are fewer here; and,
- The rural character, with the lack of concentrated populations, makes private investment in infrastructure less likely because the return on investment is lower than more populated areas.

The timing for this planning project, however, was excellent. Factors that pointed to successful implementation if a community-wide plan could be created are these:

- Investment of federal grant money would result in backbone or “Middle Mile” redundancy (see ARRA discussion in IA.2 below);
- The Port of Clarkston was seriously considering emulating the Port of Whitman County’s model of fiber build-out (see IA.3 POW Role in Middle Mile ARRA Investments on next page);
- The collaborative manufacturing sector in the nine-county region of North Central Idaho and Southeast Washington had created several initiatives that required high speed connections to be truly successful (workforce training, an export initiative, and bidding on—and winning—federal contracts);
- Infrastructure limitations in North Central Idaho had been well-studied and steps to resolve LATA line and other issues were underway;
- Solid collaborative efforts and investments were at last beginning to result in gains for North Central Idaho (see Appendix C); and
- Last but not least, the Nez Perce Tribe in North Central Idaho, through its Department of Technology Services, had obtained grants and other resources to improve connectivity (Appendix D). (Their efforts have resulted in the first fiber-to-the-home project in this nine-county region.) The Tribe’s commitment to high speed connectivity was not restricted to existing reservation boundaries. The Tribe has expressed interest in providing improved broadband to its original entitlement area, which includes Asotin County.

IA.2. Impact of ARRA and NoaNet’s NTIA Award on Asotin County (new opportunities):

Expanding telecommunication access is a federal public policy. The American Recovery and Reinvestment Act of 2009 (ARRA) provided two federal agencies with \$7.2 billion to expand access to broadband services in the United States. Of those funds, the Act provided \$4.7 billion to the Department of Commerce’s National

¹⁸ Clarkston, Lewiston, Moscow, and Pullman are frequently referred to as the “Quad Cities.” See later reference in this report to economic data for the “Quad Counties” of Asotin, Nez Perce, Latah and Whitman.

Telecommunications and Information Administration (NTIA) to support the deployment of broadband infrastructure, enhance and expand public computer centers, encourage sustainable adoption of broadband service, and develop and maintain a nationwide public map of broadband service capability and availability.

The Northwest Open Access Network (NoaNet)¹⁹ successfully submitted applications to NTIA on behalf of a consortium of partners planning investments in Washington state.²⁰ The NoaNet award that had the most impact on Asotin County was its \$84.3M BTOPT Round One grant (which did require some match). This project resulted in the construction of 830 miles of fiber-optics in southeastern and southwestern Washington, effectively closing a loop and creating redundancy to Clarkston. The goal was to deliver enhanced, affordable broadband capabilities to community anchor institutions and local Internet service providers across 25 of Washington's 39 counties by augmenting NoaNet's existing fiber-optic network. Anchor institutions connected as a result of the project included the Asotin County Library (3 locations), Asotin County Health District and Tri-State Hospital.

The ARRA investment provided an alternate route to Asotin County (i.e., redundancy), solving one of the issues with Middle Mile infrastructure. A map of the new routes of NoaNet and other members of the consortium as a result of ARRA investments can be found at <http://www.washingtonbroadband.org/broadband-expansion.aspx>.

IA.3. POW Role in Middle Mile ARRA Investments and Its Telecommunications Model:

The Port of Whitman County (POW) was a member of NoaNet's consortium when it submitted the Round One grant request to NTIA. With the resources POW received, it continued making investments in fiber infrastructure in Whitman County and made new connections to Spokane, WA. At the conclusion of its \$14 million investment in additional fiber optic cable, POW had ownership of over 200 miles of fiber.

In Washington State, the Revised Code of Washington, Sections 53.08.005, 53.08.370 and 53.08.380 allow ports and public utility districts to build telecommunications infrastructure and offer it wholesale to service providers²¹. Under this authority, POW has worked to develop a telecommunications plan and infrastructure to facilitate enhanced telecommunications services countywide. Basically, POW leases dark fiber to Internet Service Providers who then provide services to businesses and other entities.

When it comes to investment decisions, POW is like the private sector in that it considers return on investment (ROI) to its constituents. POW's expectations on ROI, however, are perhaps more modest than the private sector. In addition, since middle and last mile broadband service delivery is a national priority, local governments like POW can compete for federal grant fund, which reduces the cost of their investment. POW's model is a public/private partnership in an open access system.

This quote from the Lewiston Morning Tribune on Tuesday, June 25, 2013, sums up the telecommunications model that has been successful in Whitman County:

[Joe] Poire [Executive Director for POW] likened the network to an information highway, with the telecommunications firms acting as shippers. They might not be willing to build the highway themselves, given the relatively low demand in Whitman County compared to other markets—but now that it's built, he said, they're certainly interested in leasing a lane to offer their services to customers here.

IA.4. Open Access versus Closed Networks:

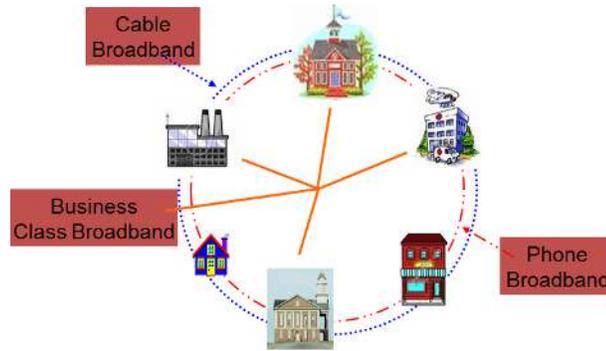
Private sector services delivery (e.g., telephone exchanges, cable companies, fiber optic providers) result in each company providing services over their own network infrastructure. If there are three broadband providers, there

¹⁹ NoaNet is a non-profit corporation owned by 12 not-for-profit public utility districts and one joint operating agency providing broadband and wholesale network services to last mile providers.

²⁰ Other entities in Washington were successful in being awarded grants and loans as a result of awards from ARRA, but none were of the size of the two awards to NoaNet and its partners.

²¹ This authority, for ports, to own and lease dark fiber is similar to owning and leasing improved ground or buildings.

are three networks to deliver the services. Demand for connectivity in rural communities typically does not support multiple networks.

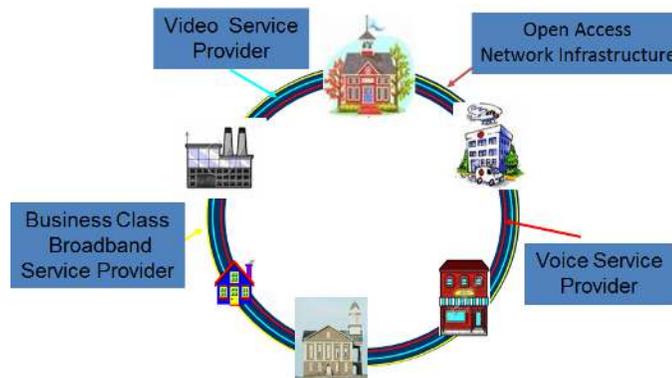


It is more cost effective to build infrastructure in more densely populated urban and suburban areas. The lower return on investment per customer in less densely populated rural areas and lower take rates in poor urban areas usually results in higher costs because there are fewer users to absorb costs. Typically, there are also fewer providers and less competition, again, with the result of higher costs.

Open access v. closed network: In closed network, the owner determines:

- the bandwidth offerings
- what services will be offered (ISP, VOIP, Video)
- connection cost based on the amount of the bandwidth (the higher the bandwidth, the higher the cost)

In open access systems, the network infrastructure is owned by the public or by a cooperative, and services are delivered by private providers. One network can connect all users in a community. Open access networks are operator independent. The network is owned and managed separate from delivery of services. Multiple providers deliver services using the open access network.



The public/private partnership model employed by POW has public sector ownership of the “dark” fiber, but it is an open network, with fiber strands available for lease by competing telecom providers.

IA.5. Linking Broadband to Economic Development:

Business use of high speed internet has been linked to economic development. According to Washington State University’s Division of Governmental Studies and Services, telework can contribute to Washington’s competitiveness (<http://dgss.wsu.edu/di/projects/telenetwork.html>). Benefits to employers of teleworking are these:

- Expands the talent pool
- Increases productivity—improves work processes
- Boosts technology skills and use

- Reduces facility expenses
- Decreases human capital expenses
- Insures business continuity
- Provides compliance for clean air regulations
- Demonstrates good corporate citizenship
- Expands business offerings and innovation opportunities to support remote workers.

The Internet Innovation Alliance has drawn connections between broadband and jobs creation in the 10 facts depicted below:

10 FACTS ABOUT BROADBAND AND JOBS

- 1 Jobs that depend on broadband availability are projected to increase 25% by 2018
- 2 A \$10 billion investment in broadband would produce nearly 500,000 new jobs
- 3 Nearly 18% of new jobs in North Carolina are created as a direct result of broadband
- 4 In Minnesota, 60% of unemployed adults, 30% of homemakers, and 17% of retirees say they would likely join the workforce if empowered by teleworking
- 5 Local economic growth and secondary investment enabled by broadband expansion is 10 times the initial investment
- 6 More than 62% of American workers rely on the Internet to do their jobs
- 7 37% of employees say the ability to telecommute would cause them to choose one job over another
- 8 Among U.S. workers, 14% telecommute or work from home at least one day a week
- 9 Nearly 75% of public libraries offer computer resources for job seekers
- 10 Job seekers had a 27% increase in success by using social networks to generate referrals

To Learn More
http://internetinnovation.org/broadband_and_jobs
 © 2011 Internet Innovation Alliance

Information on additional benefits related to broadband connectivity can be requested from the Port of Clarkston.

IA.6. Asotin County's Readiness:

Since 2007, the Port of Clarkston (POC) had been looking into the feasibility of developing a new business park.²² When business parks are planned, they require typical infrastructure (roads, water, sewer, telephone, 3-phase power, etc). Emerging infrastructure requirements now include high speed internet connections. As POC identified site options, distance from high speed internet connections was a consideration. In the end, though, POC purchased 130 acres from the county that is outside the Metropolitan Statistical Area, but still in the western-most impact area. The ground, while held in ownership by governmental entities since the Oregon Treaty of 1846, was leased for agricultural purposes and is essentially rural.

Internet connections presently available at this new business park location do not meet the definition of broadband. While internet service providers indicated a willingness to bring faster speed service there, they wanted a dedicated customer base. This put POC in a Catch 22 because businesses in today's world are unlikely to locate where they are not guaranteed immediate and affordable access to high speed internet.

There is growing recognition that broadband connectivity is as essential a component of infrastructure as roads, water, sewer, etc.

I-B. Process Used to Address Project Objectives

With assistance from various economic development entities and others in the community, a dialogue began relating to opportunities from the Middle Mile ARRA investment. Those entities assisted the Port of Clarkston in formulating an approach, and themselves became stakeholders in the roll-out of the project.²³ The formulation of a stakeholders group was a key to overseeing progress on the planning; those individuals contributed in different ways throughout the project (see list in Acknowledgements).

IB.1. Stakeholder Assistance:

A number of representatives from the community, representing economic development entities, educational institutions, health care facilities, and the private sector provided assistance throughout the project (see Acknowledgements).

IB.2. Initial Plan:

The project initially had the greatest focus on *physical* connections. Is existing infrastructure and services adequate for the present and potentially capable of reaching future goals for high speed connectivity? Presuming some users would be found to be less internet-savvy than the majority of the population, a small amount of the planning resource was to be used for gathering information relating to introductory training needs and implementing the priority action item.

Thus, the project was launched with this action plan and with the Port of Clarkston (POC) Port Manager in the Project Manager role:

1. Create a website and launch a public relations campaign to draw in the public and also specific stakeholders;

²² The Port's property for lease to businesses has been located in the historic "port" district, where the word "port" predates the Port of Clarkston and actually refers to the old airport which was developed near Clarkston's waterfront in the 1930s. For two decades, the need for additional improved property to encourage business growth has been anticipated, but riverfront master planning completed in 2010 provided extra impetus. Maximizing the benefits of the riverfront supported the concept was that businesses need to be served, but it also opened the door for keeping those industrial type of businesses that require waterfront on the riverfront and encouraging other businesses to develop at another location.

²³ Sixteen "stakeholders" wrote letters of support to the Port of Clarkston's application for broadband planning assistance.

2. Hire consultant to assist in all phases of project, but particularly the engineering design and cost estimates of short-term alternatives;
3. Encourage users of all types to take speeds tests so results could roll into the Washington State Broadband Office's mapping system;
4. Perform review of literature/best practices/community toolkits for effective outreach and for baseline for comparisons;
5. Create household and business surveys,²⁴ distribute, and analyze results;
6. Confirm/supplement survey findings with follow-up phone calls and other types of outreach;
7. Narrow options, obtain feedback from stakeholders, and focus on key priority solutions to meet short-term, intermediate, and long-term connectivity goals;
8. Identify entity or entities to assist with implementation, designing organization (if new one created) and network operations;
9. Identify funding strategies;
10. Finalize business case for infrastructure implementation; and,
11. For the education/training component, conduct education needs assessment, identify options and entities for delivery, implement highest priority goal during the grant period, and line up partners for subsequent training.

IB.3. Evolved Understanding of Barriers to Internet Adoption:

During the course of the project, as household and business surveys and unsolicited comments began to roll in, planners started to gain a broader understanding of barriers within the community. While infrastructure and existing capacities were clearly a problem, other barriers were more complicated and significant than anticipated. It is now recognized that there were social factors, financial factors, and security fears relating to stolen identities or resources that were significant barriers to adoption. Details relating to each are defined below:

- Social factors: Digital divide issues exist, particularly with
 - older people,
 - people with low literacy,
 - people unwilling or unable to pay for higher bandwidth connections to the internet because it wasn't relevant to them,
 - people using older technologies, and
 - people with disabilities.

While it is likely that people not fluent in the language also experience barriers, findings from this study were unable to confirm that barrier in Asotin County.

- Technical factor—infrastructure: There are infrastructure capacity limits within the community that keep users from moving data at high speeds.
- Technical factor—decision-making by pool of providers of internet services: Speeds, quality of connectivity, expansion development, delivery mechanism and more resides with the actual internet service providers and this goes beyond merely infrastructure. Future investment and returns on investment can be enhanced, if demand can be aggregated.
- Financial factors: Financial implications exist at all user levels, as individuals and businesses weigh the costs versus the benefits of committing to on-going monthly fees for access. Financial factors also come into play for service providers looking to expand their capacity to serve existing customers at higher speeds and be able to expand to a broader customer base.
- Security fears: While users generally did not express reluctance using the internet for email communications,²⁵ social media, and gathering information, when it came to inputting credit card data,

²⁴ The surveys themselves were intended to be educational in that they provided, planners hoped, a broader understanding of the range of internet uses, including more advanced activities such voice-over-internet-protocol, health management and communication with medical providers, and cloud computing.

²⁵ Recent news reports of monitoring of transmissions by the federal government have increased the sense of unease relating to privacy.

entering into on-line banking transactions, or even e-filing tax forms, users expressed general concern about the security of the information they transmit.

IB.4. Revisions to Approach:

As a result of increased understanding of barriers, the level of literature review increased, more interviews were conducted, more consultation with the consultant occurred, and research on alternatives was expanded. The net result is that the conclusions and recommended action steps relating to non-infrastructure issues are a more significant part of the planning effort than originally anticipated.

IB.5. Surveys:

IB.5a Survey Process

Surveys were mailed to households via Asotin County Public Utility District (PUD) billings. In addition, residents and businesses were urged to participate in the surveys via news articles (newspaper and television), local Chamber weekly newsletters, ads in the Moneysaver (a weekly free publication consisting primarily of advertisements), and through the Port website with a page dedicated to the broadband planning study. In addition, business surveys were distributed by hand, and follow-up contacts were made. Reminders to participate in the surveys were included on POC tenant invoices as well.

A total of 472 household surveys were returned, which represents 5.3% of the households in Asotin County. Thirty-five responses from businesses were received. Of the household responses received, 30% of respondents elected to submit their responses on line. The remaining 70% submitted responses by returning hard-copy surveys in their envelopes to pay PUD bills. Because the number of business respondents was low, results were compared to responses from a recent north central Idaho business survey to identify any anomalies.

Because a good number of residential respondents elected to respond on-line, analysts were able to draw conclusions between two specific types of respondents, the savvy on-line respondents with a high comfort level to and frequent access to the internet, and less frequent adopters.

Copies of the business and residential surveys, survey responses, and comments are included in Appendix E.

IIB.5b Conclusion That Surveys Did Not Provide a Complete Picture

Comparison of demographics to census data from two survey questions provided concerns that a certain part of the population was not represented through survey data:

1. Survey respondents reported very infrequent use of the public library for computers and/or internet (while usage data provided by Asotin County Library indicates the contrary); and,
2. While the census data indicate that 21.3% of the population of Asotin County is under age 18, an extrapolation of the question relating to children in the household under age 18 resulted in the equivalent of 14-18%²⁶ through survey responses.

When these results were combined with the known risk that some households where landlords pay the water bill²⁷ or households with their own wells may not have received surveys, concerns relating the extent to which surveys could be relied upon increased. Field interviews showed that lower income households where computers do not exist or were outdated had seen the survey but thrown it away, rather than respond because they “didn’t have internet.”

²⁶ The range results from minor adjustments to persons per household in recognition that households with children will be higher than the average for the whole county per the census, which was 2.38.

²⁷ According to census data, nearly 30% of the households are in a non-homeownership situation. Data doesn’t tell us how many of those would-be respondents did not receive the mailed survey because they don’t ordinarily receive or process water bills.

As a result, it is concluded that sheer numbers from analyzed survey responses likely overstate the percentage of persons in Asotin County with connectivity. While meaningful information can be gathered from survey responses, the surveys do not tell the full story. A critical next step is to identify ways to reach individuals who did not respond to the surveys, to identify needs and develop strategies for removing barriers to internet access.

IB.6. Identified Subgroups within Asotin County for Whom Solutions Are Needed:

After analysis of both survey respondents and non-respondents, it was concluded that solutions should be developed for the following subgroups:

Households:

- Economically disadvantaged non-adopters
- Low use adopters
- Higher use adopters

Businesses:

- Businesses with low bandwidth requirements
- Businesses with higher bandwidth requirements
- Businesses with telecommuting employees

Please see Appendix F for a discussion of differences between residential survey respondents who chose to respond online rather than through hard copy surveys. It discusses “higher use adopters.”

Part II: Needs Assessment

II-A. Existing Conditions

IIA.1. Overview:

Asotin County has low population density,²⁸ lower than state average median household incomes, slightly higher than average unemployment rates, higher than state average ages, and lower than state average education levels. These factors put Asotin County residents into a category of being less likely to have broadband connectivity.

The basis for this conclusion was the Home Broadband 2010 study by the Pew Internet & American Life Project (found at <http://www.pewinternet.org/Reports/2010/Home-Broadband-2010.aspx>).

Broadband adoption trends within demographic groups, 2009-2010

% of all adults with broadband at home, 2009-2010

	2009	2010	Percentage point change, 2009-2010	Percent change, 2009-2010
All adults	63%	66%	3	5%
Education				
Less than high school	30	33	3	10%
High school grad	52	54	2	4%
Some college	71	76	5	7%
College graduate	83	86	3	4%
Household income				
Less than \$30,000	42	45	3	7%
\$30,000-\$49,999	62	67	5	8%
\$50,000-\$74,999	80	79	-1	-1%
\$75,000+	85	87	2	2%
Geography				
Rural	46	50	4	9%
Non-rural	67	70	3	4%

Source: Pew Research Center's Internet & American Life Project, April 29-May 30, 2010 Tracking Survey. N=2,252 adults 18 and older.

Further, the geological conditions of some of the more rural residents are not well-suited to wireless and satellite broadband delivery mechanisms.

²⁸ The lower population density provides a lower return on investments for broadband.

The following contains a detailed discussion of existing conditions in Asotin County.

IIA.2. Community Demographics:

IIA.2a Socio-Economic Factors

The county is bordered on two sides by the Snake River, which provides substantial recreation and tourism to the community. The Snake River is America's deepest gorge. The county seat is at the town of Asotin. The county has approximately 635.3 square miles, ranking 34th in Washington State. Population density was 34 persons per square mile in 2010. The community of Clarkston (Asotin County's largest community) historically has been a bedroom community of Lewiston. Clarkston is the home of the Port of Clarkston, Walla Walla Community College, and Tri-State Memorial Hospital. Clarkston has two golf courses and is rapidly becoming a retirement community. Clarkston, Washington, like Lewiston, Idaho, has relatively mild weather year round and is known as the banana belt.

Many workers live in Asotin County but work in Nez Perce County. *Workers* are one of Asotin County's biggest exports. In 2009, approximately 52 percent of the wages earned by residents were from outside the county (primarily from Nez Perce County).

The largest sectors of the economy in 2010 were:

- services, which employed 37 percent of the workforce,
- retail trade, which comprised 15 percent of the workforce, and
- state/local government which made up 13 percent of the workforce.

Retail trade has grown strongly during the past decade with the building of a new shopping mall on Bridge Street, a new Super Walmart, and the construction of a Costco wholesale outlet near the Port of Clarkston. The region's largest employers include the Clarkston School District, Walmart, Tri-State Memorial Hospital, the federal government, Costco, Asotin County, Albertsons, DeAtley Company, Walla Walla Community College, Asotin School District, Renaissance Marine Group, and Mills Manufacturing.

An economic base assessment from the *Timbersheds Study* identified the economy's export industries, which can be seen for Asotin County in the top three industries. Residents' outside income from out-commuters created 43.3 percent of the jobs in the county and 37.7 percent of the income. The second largest sector of the economy is state and local employment which represents 17.4 percent of the workforce and 22.1 percent of the earnings. These numbers include both the direct effects and the indirect (secondary) multiplier effects.

For Asotin County, federal government employment was ranked first in terms of earnings per worker (\$75,189). Second ranked was wholesale trade (\$60,180) and third ranked was other services (\$50,406). The lowest industrial category was educational services (\$12,113).

Asotin County's wages and earnings constitute 51 percent of all income. Dividends, interest, and rents constitute 21 percent of all income and transfer payments constitute 28 percent of all income. That is a lower percent than the wages and earnings across the United States, which constitutes 65 percent of all income. In the U.S., dividends, interest, and rents constitute 17 percent of all income, and transfer payments constitute 18 percent of all income.

Asotin County's total aggregate wages and earnings are proportionally less than those of neighboring Whitman (WA), Nez Perce (ID), and Latah (ID) counties, representing 56 percent of total income. Transfer payments are considerably higher, representing 23 percent of total income. Asotin County has a sizable retirement population as well as a large number of people on public assistance.

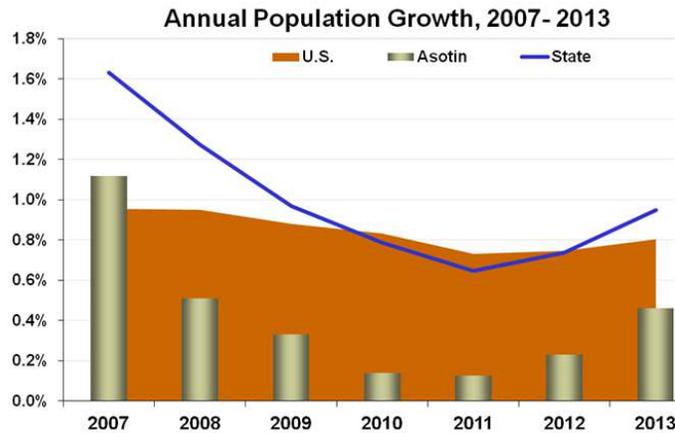
Nearly 3,582 Nez Perce County, Idaho workers live in Asotin County, Washington. In contrast, only 1,431 Asotin County workers live in Nez Perce County, leaving a deficit of 3,109 workers between the two counties.

Population

Source: www.census.gov; Rev. 12-10

	2005	2010	2011	2012*	2015*	2020*	2025*
County	20,939	21,623	21,650	21,840	23,569	24,650	25,671
Asotin	1,133	1,251	1,255	1,255	1,321	1,382	1,439
Clarkston	7,270	7,229	7,331	7,205	8,964	9,375	9,763

* estimated



Asotin County's population increased by 0.96% from 2009 to 2013. While the growth curve paralleled the pattern of the state's growth, the percentages of increase were consistently lower.

Educational attainment

	< 9th Grade		Some high school, no diploma		High school graduate only		College graduate	
	2000	2010	2000	2010	2000	2010	2000	2010
Asotin County	3.0%	2.4%	11.0%	36.7%	33.0%	36.7%	25.0%	15.9%
WA State	4.0%	4.1%	9.0%	6.2%	25.0%	23.9%	36.0%	31.4%

Source: www.census.gov, Rev. 12-10

Asotin County's Median Hourly Rate

Asotin County's median hourly wage rate in 2011 was \$16.22 compared to the state of Washington, less King County at \$19.20, and the state rate (including King County) of \$21.59.

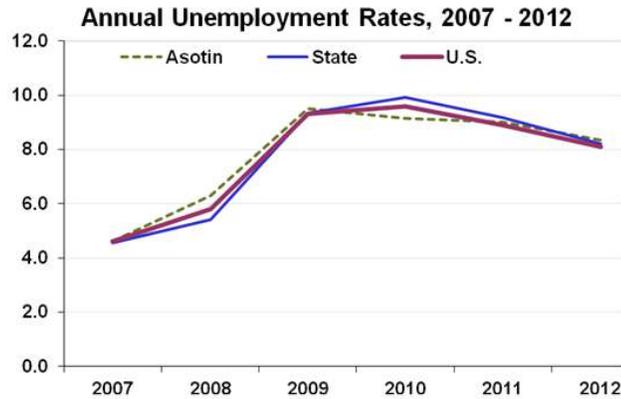
Median Age

	2005	2010	2011*
Asotin County	40.6	43.5	43.9
WA State	36.5	37.2	37.4
USA	36.2	36.8	37.1

* Estimate

Source: www.ofm.wa.gov, www.census.gov
Rev. 10-11

Annual unemployment rates, compared to Washington and United States



Asotin County has had a pattern of higher unemployment than the state of Washington. The pattern was upset with the recent economic downturn. In 2012, however, Asotin County's unemployment rate climbed back into the traditional position of being higher than the state rate.

Racial composition

	Asotin County	
	2006	2010
White	20,286	20,049
Black	55	90
American Indian, Eskimo & Aleut	283	273
Asian & Pacific Islanders	137	150
*Hispanic	471	643
2 or More	339	418
Population Total	21,100	21,623
Total % Minority	3.88%	7.28%

* Hispanic category not in minority total

Source: www.ofm.wa.gov Rev. 1-10

Asotin County has a higher population of retirees than the state of Washington. Per Appendix G (last census report using QuickFacts), in 2011, 19.4% of Asotin County's population was 65 and older, compared to the state of Washington population as a whole at 12.7%.

Poverty status 2010, 2011

	2010 - # of families below Federal poverty level	2010 - # of individuals 65+ below Federal poverty level	2010 - # of individuals below Federal poverty level	2011* - # of individuals below Federal poverty level
Asotin County		392	3,384	3,732
	15.8%	9.4%	15.8%	17.2%
WA State	179,829	47,967	890,251	931,605
	16%	7.5%	13.5%	13.9%

Source: www.census.gov Rev. 12-10

IIA.2b Other Relevant Information

Urban versus rural populations: Asotin County has a couple of designations related to population. While there are only two incorporated cities within the county, both of those (Clarkston and Asotin) are within the Lewiston, ID-WA Metropolitan Statistical Area (MSA). Immediately outside the MSA is the “impact area,” which is examined for transportation planning. Some of the impact area receives benefit of telecommunications services, same as within the MSA; other areas within the impact area are underserved.

A number of Asotin County residents and businesses fall outside the MSA and its impact area. For the purpose of this report, they will be categorized as “rural” and “frontier.” Some of the more populated rural areas have wireline telephone services, including DSL as an internet option. The population falling into the frontier category is on the leading edge of the population fringe and are considered unserved from a telecommunications standpoint. Homes or businesses in those areas, primarily in southern Asotin County may not even have wireline telephone services.

Geologic constraints: Land conditions are rugged with deep, narrow winding valleys. Wireless transmissions, unless towers are carefully placed, have difficulty transmitting down into the Snake River and other steep canyons. Satellite transmissions work best on south-facing slopes when the sky is clear. Because the canyons twist and turn, only a few locations are well-suited to receive satellite transmissions.

IIA.3. Existing Telecommunications Infrastructure/Internet Service Providers:

IIA.3a - On The Surface

Clearly, from the inventory of internet service providers in Asotin County, there are some parts of the county that have no options at all. (Source: www.broadband.wa.gov) These populations, for the most part, are considered rural frontier. (See more discussion in FN18, p. 4 on rural frontier.)



On the surface, the state broadband map indicates that both wireline and wireless options are available north of the red lines on the county map shown immediately above. Wireline options include cable modem and xDSL; fiber, according to the maps, is not a technology for delivery²⁹. Wireline options are primarily limited to the MSA (urbanized area) and, in some cases, the MSA impact area. Wireless options include satellite, terrestrial mobile wireless, and terrestrial fixed wireless (both licensed and unlicensed). The wireless options are offered in variable locations.

One of the wireless ISPs are not accepting new customers and are phasing out service offering in the county. While most of the offerings provide high enough speeds to meet the current definition of broadband, several are borderline—at their advertised rates. As the discussion below will show, there is a difference in advertised and actual speeds provided, and across the board, the differences resulted in lower actual speeds.

IIA.3b - ISP Distribution, Capacity, Service Delivery and Implied Future Sustainability

SUMMARY

Analysis was performed to fully understand existing telecommunications availability within Asotin County. The following findings resulted from detailed examination:

²⁹ This may be because the timing of the NoaNet completion of the Middle Mile project described earlier coincided with the conclusion of the report. Thus, ISPs providing service to the library, hospital, and other anchor institutions may not have been in place.

- Provider technologies have speed constraints that will prevent future connectivity goals from being achieved (see discussion relating to Appendix A in Part I above);
- Some businesses are relying on wireless options that are being phased out;
- Where some types of technologies are shown in urbanized areas on the broadband map as if they were available at all locations, there are gaps, particularly for businesses;
- The provider group is in a state of flux, with some wireline ISPs making new investments and some wireless ISPs easing out of the marketplace;
- ISPs that were borderline as to advertised speeds do not meet today’s definition of broadband in actual tests;
- In general, ISPs are not consistently delivering the speeds for which users are paying;
- The gap between current and desired future broadband speeds is noticeable both in download and upload speeds, but the upload speeds—where differences between current and desired delivery is the most significant--do not appear to properly on the community’s radar screen; and,
- Lack of choice among ISPs, followed by speeds and costs are of significant concern to survey respondents.

DISCUSSION

Technologies available: Cable internet access is the most commonly used access to internet used by survey respondents³⁰. Roughly, one-third of business and 57% of household survey respondents use cable. Dial-up internet connections have not gone away, however; 2.3% of residential respondents and 7.2% of businesses still rely on dial-up.

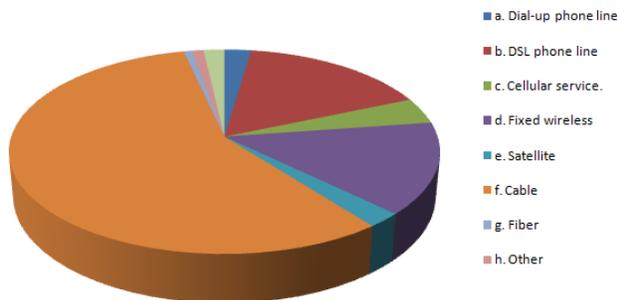
The following comparison between Appendix A and connectivity goals supports the conclusion that the broadband technologies available in Asotin County are not well situated to meet future broadband needs.

Timeline	% of Users	Download	Upload	Technologies
by 6-30-2014	75	3 Mbps	768 Kbps	DSL, cable modem, fiber optics, satellite, cellular, fixed wireless
by 6-30-2015	66	6 Mbps	2 Mbps	DSL, cable modem, fiber optics
by 6-30-2016	75	10 Mbps	3 Mbps	DSL, cable modem, fiber optics
by 6-30-2017	66	10 - 25 Mbps	5+ Mbps	cable modem, fiber optics
by 6-30-2018	50	>100 Mbps	10 Mbps	fiber optics

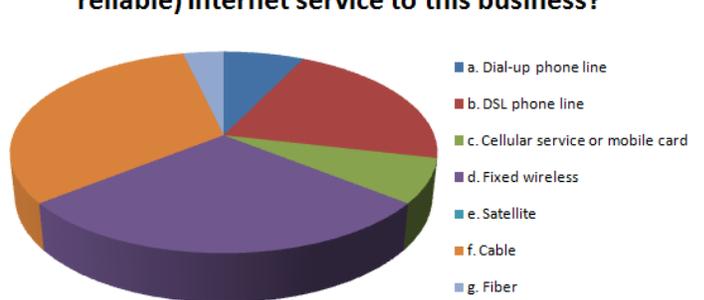
Note: New generation connectivity (G4) is evolving and could change the technologies conclusion of this schedule.

Technology serving residential and business users is illustrated in the following graphics. To the left are the household responses. To the right are the business responses.

Q2. What is the primary (fastest or most reliable) Internet service to this home?



Q5a. What is the primary (fastest or most reliable) Internet service to this business?



³⁰ Cable modem is available in some of the urbanized areas and in some of the MSA impact areas.

Clearly, a higher proportion of business owners utilize wireless for their services than do residential users. What is unfortunate is that many of those businesses rely on one of the wireless ISPs that is not taking on new customers and has no plan to upgrade a system too slow to meet today's definition of broadband.³¹

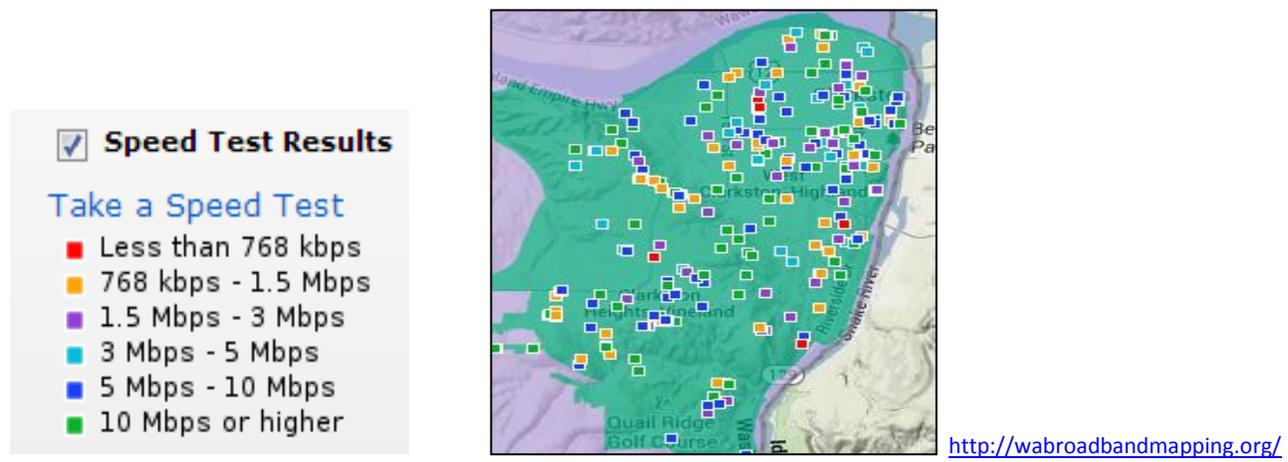
Of necessity, the state broadband map paints geographical areas with a broad brush. In Asotin County, the map showed locations where technologies such as cable modem were expected to be 100% available. Interviews and surveys indicated that such was not the case. This constraint may be related to historic uses for coax cable services—for television. Television is not needed in most businesses. Cable traditionally provided services to households. Full city blocks within the city limits of Clarkston—a higher population density than elsewhere in the county--did not have cable as an ISP option in mid-2013; these blocks did not have residential housing.

ISP provider group: The broadband map for Asotin County makes it appear that users have choices—at least in the urbanized areas. Even if cost was not a factor in selecting an ISP, there are other challenges. Two ISPs advertised low speeds, are not accepting new customers, and are removing themselves from the market. Three additional service providers have borderline advertised speeds making it questionable whether their services meet the current definition of broadband. Given that actual speeds are lower across the board (see discussion below), even fewer providers actually achieve broadband service delivery.

Analysis of actual speeds: The state broadband map (extraction below) shows both advertised speeds and actual results from download speed tests. Many Asotin County users had used the state broadband mapping website (at the urging of this project) to evaluate their speeds.

The results of speed tests through the state broadband mapping website overlay the more populated area of Asotin County on the map above. The green background represents advertised wireline service areas of 6 Mbps or more (the second goal in the tier of goals identified through this study), and the lavender represents wireless service delivery options of the same speed. A reasonable expectation is that the actual results might mirror the advertised rates. However, a significant number of tests fall below the 6 Mbps advertised rate.

A number of results are tagged in the colors red and yellow. The download test sites with those colors show services at speeds too low to be considered “broadband.” Further, the next category of results depicted by a deeper lavender are, at their highest level, just barely within the definition of broadband for download speeds. Likely, when upload speeds are also considered (see discussion immediately below), these locations are also not receiving service that meets the definition of “broadband.”



To confirm these results, responses to the survey were analyzed. It is recognized that different times of a day can result in different speeds. The demand by other customers can drive results. Thus, speeds reported in a single test may not be representative of typical speeds. It should be noted, however, that providers generally say, “up

³¹ Two wireless service providers are being phased out. Neither is accepting new customers nor planning system upgrades.

to” in their internet speed advertisements. While some respondents were not sure of the speed that they contracted for, the survey results found that those respondents who thought they were paying for download speeds of 50 Mbps generally reported actual speeds of 24 – 25 Mbps, but their upload speeds were 1/10th or less than their download speeds. For those who believed they were contracting for 10 Mbps in download speeds, they were generally a bit closer than 50%, at between 6 and 8 Mbps. Those who reported contracting for 5 Mbps reported download speeds of between 2.8 and 4.67 Mbps. Patterns did emerge relating to common providers.

As many as 61.5% of respondents (combining business and residential respondents) who reported results of their speed tests met the definition of 3 Mbps download, and likely view that they have “broadband.” More than half of those, however, were not able to get as high as 768 Kbps in upload speeds. The most optimistic extrapolation of survey results puts 25%³² of households in Asotin County in the category of “broadband,” which means that 75% of households in Asotin County are falling through the cracks today.

Residential survey responses not only reinforce the conclusion that there is a strong difference between advertised speeds and actual results. They also, as shown below, demonstrate the distance from the lowest tier goals in both download and upload speeds in Asotin County. Uploads speeds are of particular concern.

Goal--Download Speeds	Timeline	% of Survey responses	% per Goals
3 mbps or higher	6/30/2014	62	75
6 mbps or higher	6/30/2015	30	66
10 mbps or higher	6/30/2016	25	75

Goal--Upload Speeds	Timeline	% of Survey responses	% per Goals
768 kbps or higher	6/30/2014	36	75
2 mbps or higher	6/30/2015	25	66
3 mbps or higher	6/30/2016	2	75

The reasons for differences between advertised and actual results may be as a result of users not choosing optimal service providers. Therefore, two tests were performed which compared known purchased rates to actual results³³--one residential and one business.

Download speed, for which the business was paying, is 50 mbps. Actual speeds per the speed test, with one exception, were in the range of 25 mbps download (median24.99). Upload was around 2 mbps, which is the same speed for which the business was paying.

The other series of tests were shared by a stakeholder. Under a residential wireline plan, she subscribed at a rate of 7 mbps download and 1 mbps upload. On 1-12-2013, a service technician dialed back service to the 2.3 mbps range, so it wouldn't have the variable result shown below. No adjustment was made in billing.

³²Fifty-one households, of 170 survey respondents providing full data, reported download speeds of 3 Mbps or more, AND upload speeds of 768 Kbps or more. This calculates to 30% of respondents providing speed test results. However, if only 83.4% of households have internet connections (a higher number than believed to be accurate), this percentage needs to be applied against the 30% in order to reflect all households in the county. The resulting estimate is 25%.

³³ Actual results can vary from purchased rates, depending on the time of day that services are accessed and what kind of load might be on the system. Thus, in both examples, the tests were repeated at various times of the day.

You are at: **Home**
 Street Address:
 Zip Code: **99403**
 Internet Provider:

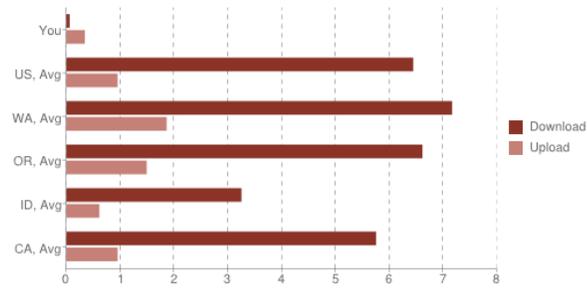
Your download speed: 0.06 Mbps
Your upload speed: 0.34 Mbps

Previous Results:

Date	Download	Upload
1/26/2013 12:42 PM	2.24 Mbps	0.47 Mbps
1/26/2013 12:25 PM	0.09 Mbps	0.48 Mbps
1/26/2013 11:52 AM	0.08 Mbps	0.42 Mbps
1/22/2013 7:24 PM	2.18 Mbps	0.48 Mbps
1/22/2013 6:29 PM	2.14 Mbps	0.48 Mbps
1/21/2013 8:32 PM	2.21 Mbps	0.48 Mbps
1/21/2013 8:30 PM	2.12 Mbps	0.47 Mbps
1/17/2013 9:08 PM	0.09 Mbps	0.49 Mbps
1/17/2013 9:01 PM	0.08 Mbps	0.49 Mbps
1/12/2013 11:41 AM	3.63 Mbps	0.66 Mbps
1/12/2013 11:38 AM	3.59 Mbps	0.67 Mbps
1/12/2013 11:30 AM	2.31 Mbps	0.66 Mbps
1/12/2013 11:29 AM	2.20 Mbps	0.67 Mbps
1/12/2013 11:24 AM	3.68 Mbps	0.70 Mbps
1/12/2013 11:23 AM	3.57 Mbps	0.72 Mbps
1/12/2013 11:09 AM	3.54 Mbps	0.67 Mbps
1/12/2013 11:02 AM	3.11 Mbps	0.74 Mbps
1/12/2013 10:48 AM	3.17 Mbps	0.75 Mbps
1/11/2013 5:46 PM	0.59 Mbps	0.74 Mbps
1/11/2013 5:43 PM	0.57 Mbps	0.74 Mbps
1/8/2013 8:21 PM	1.84 Mbps	0.52 Mbps
1/7/2013 8:44 PM	1.48 Mbps	0.71 Mbps
1/6/2013 9:38 PM	1.44 Mbps	0.50 Mbps
1/6/2013 9:31 PM	1.00 Mbps	0.49 Mbps
1/5/2013 7:39 PM	1.45 Mbps	0.50 Mbps

Speed test results are provided for illustrative purposes only and no warranty or guarantee about

Speed Test Comparison



	Download	Upload
You	0.06 Mbps	0.34 Mbps
US Average	6.44 Mbps	0.95 Mbps
Washington Average	7.16 Mbps	1.86 Mbps
Oregon Average	6.61 Mbps	1.49 Mbps
Idaho Average	3.25 Mbps	0.61 Mbps
California Average	5.75 Mbps	0.95 Mbps

Speed test comparison data provided by <http://www.broadbandmap.gov>.
 Results are based on users accessing from "Home".

The results from these tests seem to parallel experiences reported through the survey (at least with regard to these two common internet service providers). A residential survey respondent evaluating the same ISP as the second series of tests discussed above reported no higher than 7 mbps, the respondent included this comment: "We are paying for 20 mbps. It would be nice if the companies were required to deliver what is paid for."

Concerns of users—lack of choice: Both business and residential survey respondents ranked "Choice of Provider" from the categories below as the greatest concern, and both types of respondents ranked "Reliability" as of the least level of concern. Residential respondents were more likely to rank "Cost" of higher concern than business respondents. Business respondents had as their second greatest concern "Speed."

Ranking Components of Service Delivery

	Residential Surveys	Business Surveys
Choice of Providers	1	1
Cost	2	3
Customer Service	3	4
Speed	4	2
Reliability	5	5

1 = lowest level of satisfaction; 5 = of least concern

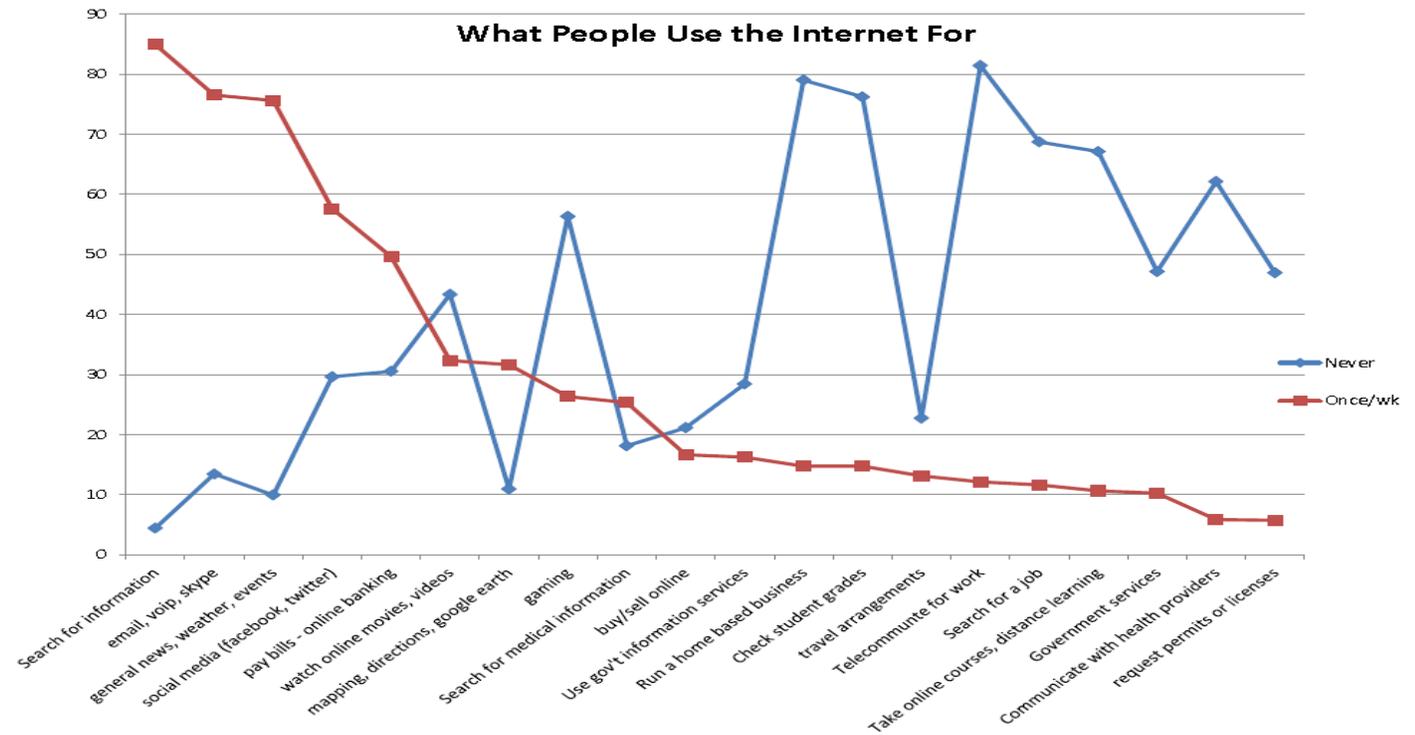
Cost of service: A question relating to cost for connectivity was included in the business survey. Fifty percent of business respondents pay between \$50 - \$99 per month. Nearly 27% of business respondents pay between \$100 – \$199 per month. One respondent pays more than \$1,000 per month for internet connectivity. Many of the comments from residential surveys related to the high costs (see Appendix E).

Comparison to connectivity goals: The community does not have a solid foundation for reaching the highest goal for service, on the Gigabit end, for speeds. At the time of this report, the fastest speeds being advertised do not exceed 25 Mbps. Moreover, the technology available with the most common delivery system is not capable of achieving Gigabits per second. Only fiber optic cable has that possibility. And fiber, as gleaned from broadband mapping, is not a service option for the ISPs presently providing services, with the exception of anchor institutions being served by NoaNet’s Middle Mile project.

IIA.3c – Internet Dependent Application Needs

The schedule that follows shows an inverse relationship between various activities by residential survey respondents. In the far left are the activities performed once a week—per the red line. The blue line shows the percentage of respondents who “never” engage in that activity. Frequent activities are to the left, with less frequent on the right.

This comparison shows, for instance, that while not a high percentage of the population does gaming over the internet, those that do are generally engaged in that activity once a week. Only about 17% of the respondents “telework” but more than half of those that do, do it once a week.³⁴ People use the internet for making travel arrangements, but the need to do so is less frequent than weekly.



Business survey respondents were asked the question in a different way—they were requested to address the quality of email, e-commerce, VOIP, Skype, GoTo meetings, etc. Seven respondents indicated they do cloud computing; three said their connection handled it “Very well,” three said “Somewhat well,” and one said “Somewhat poorly.” The rest either responded “Do not use,” or left the question blank. (NOTE: What’s important with cloud computing is the need for redundancy. If employee’s productivity is tied to having access to the internet, when one access option goes down, an alternate needs to be in place.)

Gleaning from infrequent “Do not use” indications, the most common business applications were: email, searching for information, downloading software, managing finances/online banking, and governmental services/reporting/permitting. File sharing, participating in webinars, and e-commerce had more respondents in the “Do not use” category than anticipated.

³⁴ Roughly half of the business respondents indicated that their type of business does not require telework.

IIA.3d – Affordability/Benefits not Perceived to Exceed Costs

The average broadband subscriber, according to the Home Broadband 2010 report, pays \$41.18/month for “premium” broadband promising higher speeds. The median cost for connectivity provided by business survey respondents was \$50 - \$99/month. Half of those paying in that range reported speeds that failed to meet the 3 Mbps download and 768 Kbps upload speeds. From this, the conclusion is that Asotin County users pay higher prices for less speed, measured in actual terms (not advertised speeds).

Because product service delivery was frequently bundled with telephone or television (or both), it was difficult to pinpoint an average or median rate for residential respondents.

IIA.3e – Non-Adopter Needs/Interests Not Addressed above

The foregoing analysis, of necessity, reflects data collected in survey responses and voluntary on-line tests. It is believed that there is a population in Asotin County that is not reflected in this analysis—the “Non-Adopter” sector of the population. Therefore, conclusions drawn above are limited in that they are not reflective of 100% of the constituents of Asotin County. See further discussions and recommendations for that user group elsewhere in this report.

II-B. Trends

II-B.1. Trends Relating to Technology Investments and ISP Offerings:

II-B-1a – Unserved area

Comparing state broadband maps from 2010 to 2013 shows that there was no significant progress in the unserved southern part of the county. Areas of Asotin County that did not have any broadband connection options in 2010 still do not have options today.

II-B-1b—Trends relating to rural offerings

ISP options in the served areas in rural Asotin County are diminishing. Capacity limits on the technology was reached not long after it was introduced. Needed investments by those companies were made elsewhere first. Entities offering one satellite option will not continue even after upgrades are achieved that could benefit this geographic area.

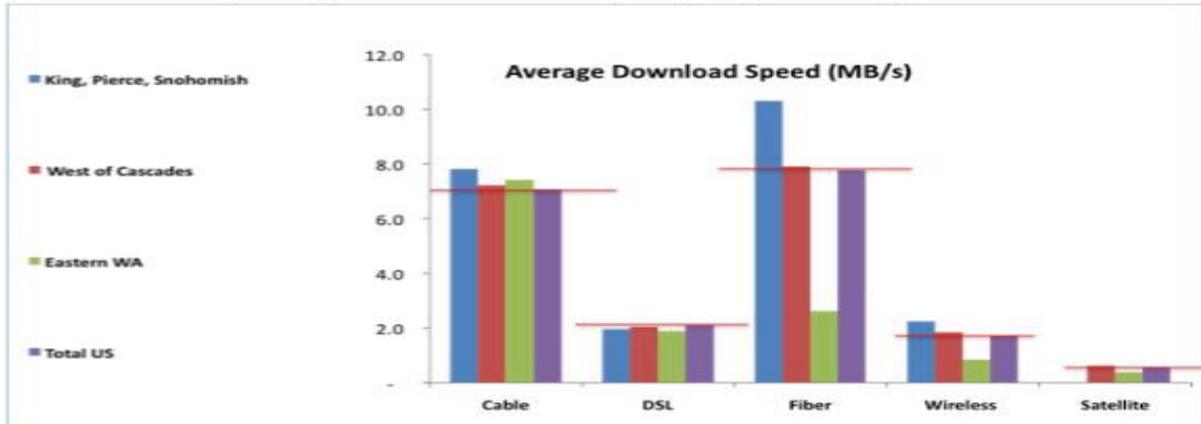
Given no change with regard to service in the southern part of county in last three years, there is not a high expectation that that private sector, closed network solutions will occur on their own

II-B-1c—Trends relating to technologies available

Data was collected in 2010 relating to Eastern Washington, compared to elsewhere in the state which showed both speeds and types of technology available (see table below). (NOTE: Fiber technology shown on the schedule below, pertains to other parts of Eastern Washington. Fiber was not available in Asotin County in 2010, and it was still not available as a primary delivery mechanism in mid-2013.)

DATA FROM 2010 **Technology Used by Region**

King, Pierce and Snohomish Counties Have the Fastest Speeds;
Eastern Washington region had the slowest speed (except for cable)



The Washington Broadband analysis in 2010 did not address dial-up connections (which don't meet the definition of broadband), so there is no data for comparison. According to survey data from 2013, some Asotin County residents are still relying on dial-up for internet access. In addition to dial-up in 2013, both wired³⁵ and wireless³⁶ broadband technologies are available in Asotin County, but the type of access (and whether there are competing providers) is dependent upon where people live and work. The same is true with cable modem.

IIB-1d—Speed trends

In 2010, according to the chart above, Eastern Washington had the lowest speeds across the state, except for cable technology, and those speeds were not significantly different from other locations within the state.

The comparison of Washington broadband maps from 2010 to 2013 shows that ISPs were not providing 100 Mbps in download speeds in 2010, and that download speed is not available in Asotin County now. On the other hand, while no connectivity at 25-50 Mbps was available in Asotin County in 2010, there is some limited availability in that download speed range in 2013. This change may have something to do with the increased attention to download speeds that has been generated nationwide.

Speeds of 6 Mbps or faster are becoming more common in the more populated areas of Asotin County. In 2010, this availability was primarily within the one-mile square city limits of Clarkston. There are improved download speeds in the urbanized area.

Unfortunately, the pattern for improvement is only in the download speeds, and not also in upload speeds. In some instances, as stated earlier, its lack of upload speed that keeps some services in Asotin County from meeting today's broadband definition.

IIB.1e ISP investments

While analysts were unable to confirm this at the publication date of this report, it appeared that some investment in telecommunications fiber was being made in the Clarkston and Clarkston Heights area, beyond the investment being made by NoaNet under ARRA funds (see discussion in IA.2 above). This investment did not appear to cover the full area of the MSA, and may have been limited to getting fiber to cell towers to improve mobile wireless capacity.

³⁵ Users listed digital subscriber lines (DSL), cable modem, leased lines (T1), and fiber optic cable in the hard wired category. Some of those, of course, are copper based, and fiber is glass with virtually limitless capacity.

³⁶ Users listed satellite, fixed wireless and cellular service in the wireless category. Wireless broadband uses radio waves to deliver the service.

Even so, the possibility is encouraging. Perhaps at least some of Asotin County--the most populated areas--will have access to higher download speeds.

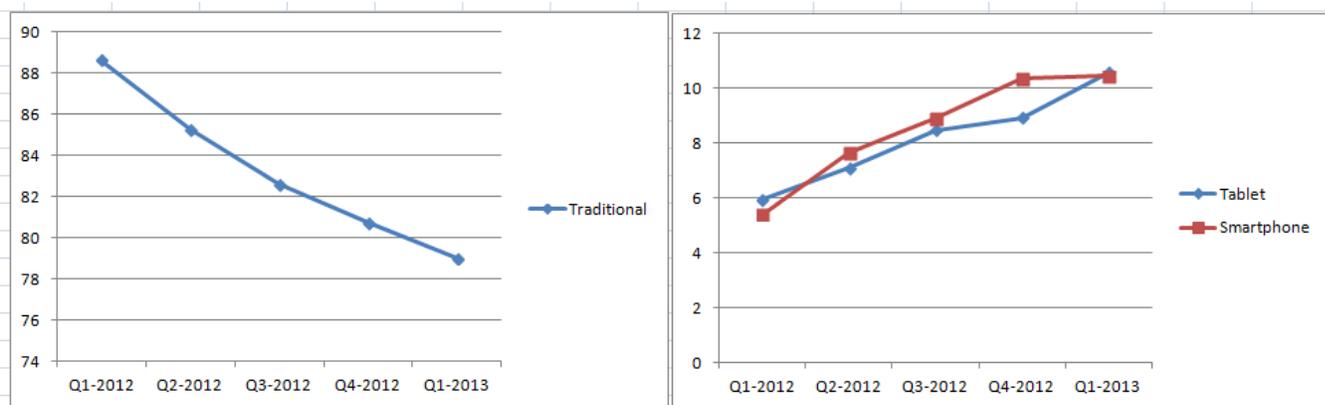
IIB.1f Affordability

As discussed earlier, cost or affordability is a key consideration in getting higher numbers of Asotin County users connected. If people with low incomes or low profit margins cannot justify an adequate return on their investment in internet connectivity, they will not make that investment. Comments in Appendix E illustrate concerns with regard to cost of service.

Field testing, consisting of phone interviews plus interviews of individuals as they filed past the booth at June's Alive After Five³⁷, confirmed that people who used to have internet decided it wasn't worth the cost. Those quizzed did not indicate use of public connections at the library. See additional discussion of affordability and relevant in Section VI.

IIB.2. User Trends:

While there is more interest in using cloud computing,³⁸ business relying on either the private or the public cloud will require redundancy. Internet access will be essential for productivity. Also, there is a trend toward increasing reliance on mobile technology. According to [Monetate Q1 2013 Ecommerce Quarterly](#), users are moving away from traditional desktop or laptop devices to access websites, in favor of tablet³⁹ and smartphone⁴⁰ solutions:



In the recent five quarters ending 3-31-2013, tablet and smartphone use nearly doubled. These devices typically harness wireless technology.

Mobile marketing advisers recognize that conversion rates (purchases) on smartphones are approximately one-third of those using other devices, which suggests that smartphones are used to browse and/or research, rather than make purchasing decisions. Increasing reliance on smartphone applications, combined with improved connectivity through "4G" service (see Appendix B - Glossary) translate to a need to assure that there is adequate connectivity to cell towers. Connecting cell towers could be a Last Mile project in some cases, but will likely be a Middle Mile project for many locations.

³⁷ This community event is free and is frequented by economically disadvantaged community members because it has amusements for children, a live camel, and a general carnival atmosphere.

³⁸ An industry transformation away from mainframe (in-house) solution where information technology services are provided via internet based software solutions.

³⁹ Examples: ipad, Kindle Fire, Android

⁴⁰ Examples: iphone, Android, Windows, other

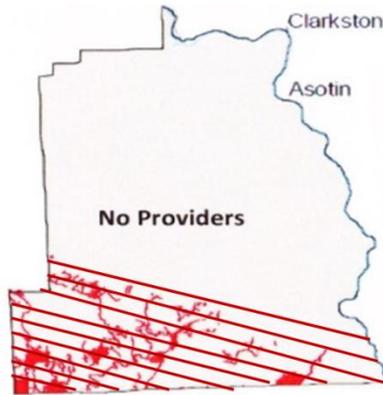
II-C. Educational Needs Assessment and Gap Analysis

The educational needs assessment, gap analysis and recommended solutions have been combined in Part VI: Internet Adoption/Education Needs Assessment and Gap Analysis.

Part III: Gap Analysis—Infrastructure

III-A. Overview

As a result of the foregoing analysis, the following needs have been identified:



UNSERVED GEOGRAPHICAL AREAS

Southern Asotin County: The southern part of Asotin County has no broadband service providers. It is considered unserved. The map to the left shows the area of Asotin County which needs Middle Mile solutions. See discussion below of “Middle Mile Considerations.”

New Business Park area: The impact area west of the MSA where the Port of Clarkston is constructing other infrastructure to benefit businesses is unserved by broadband. Locational maps for this project are included in Appendix N.

In these identified areas, infrastructure (and perhaps services) is inadequate. When inadequate infrastructure is identified, logical activities include working with existing providers to upgrade the network; attracting competitive providers, and developing a public solution.

UNDERSERVED GEOGRAPHICAL AREAS

Underserved areas exist throughout Asotin County. Wireless technology at speeds fast enough to meet the definition of broadband exist in some locations and not others. Cable modem exists only in more urbanized areas, but not everywhere in those locations.

Rural Canyon Areas: Rural parts of the county are underserved, including the businesses located along the Snake River and Asotin Creek/Cloverland canyons (see map in Appendix H). These areas have some connectivity, but whether those connections meet the definition of broadband is questionable. This location is particularly challenged by the steep canyons, limiting wireless solutions. Users in canyons that curve or are in shadows not visible from towers or nodes find that service is spotty or non-existent.

Business Sector throughout County, including MSA: Services to businesses in Asotin County are spotty, even within the MSA, and not likely to improve much, with existing ISPs phasing out of this service area (see discussion in IIA.3a).

Inadequate Attention to Upload Speeds: File sharing and software data exchanges require adequate upload speeds for businesses. Unless the situation changes, connectivity goals cannot be achieved. This study shows that there is inadequate attention to upload speeds throughout areas being served, including locations with higher population density. Without the community becoming vocal regarding improvements, it is unlikely the situation will change.

OTHER

Cost of service and lack of redundancy create additional challenges for residents and businesses of Asotin County.

III-B: Middle Mile Considerations

Identified needs outside the scope of this study: Some needs identified require Middle Mile, rather than Last Mile solutions. The focus of this planning effort, however, was in the Last Mile, not the Middle Mile. If service delivery in remoter parts of Asotin County is shrinking, though, considering only Last Mile solutions in this report does a disservice to some of the population. Therefore, this study has developed one recommendation relating to Middle Mile needs.

Middle Mile versus Last Mile: Several points-of-presence (POP) create local access points from the Middle Mile backbone to provide opportunity for Last Mile connections in Asotin County. These POPs are, for the most part, located near Red Wolf Bridge in Asotin County. They are also of sufficient distance from the unserved portions in southern Asotin County as to not be considered local access points for final service delivery. Additional backbone (Middle Mile) will be needed to solve the following connectivity challenges:

- The southern part of the county designated “unserved;” and,
- Cell towers south of Asotin.

One Middle Mile approach: A potential solution is to leverage FirstNet. Through the Middle Class Tax Relief and Job Creation Act of 2012, Congress created a nationwide interoperable wireless broadband network that will enable police, firefighters, emergency medical service professionals, and other public safety officials to more effectively communicate and do their jobs. This law created the First Responder Network Authority (FirstNet), an independent authority within the Department of Commerce which will take action necessary to build, deploy, and operate the network, in consultation with Federal, state, tribal and local public policy entities.

Under this concept, by growing FirstNet into Asotin County, the telecommunications needs of those unserved (or even underserved) in remote parts of Asotin County should have access to telecommunications service at speeds fast enough to meet the definition of broadband.

Therefore, this study recommends that the stakeholder group follow closely opportunities emerging from the national dialogue on FirstNet to harness new (or existing) first response tower sites to provide connectivity not just to first responders but to businesses and residents in the more remote unserved or underserved areas of Asotin County. By combining the needs of broadband, cellular and first response users, a case may be made to justify building additional tower sites where gaps exist. Given the terrain in Asotin County, with twisting steep river gorges, gaps are known to exist.

This recommendation, if deemed to have merit, will require a commitment of time. The national FirstNet initiative is in initial stages only.⁴¹ Its progression will need to be followed, to such an extent that should the U.S. Department of Commerce issue a call for comments through Federal Register notice(s), the community stakeholder group should respond to help shape a program that would be responsive to all the needs of Asotin County residents.

III-C: Last Mile Connectivity Solutions

Goals: The goals used to develop short and long-term connectivity solutions to meet Last Mile infrastructure needs were:

- Achieving efficiency in layout of infrastructure resources, which relates to support for open access and for public sector involvement if that is the only avenue to obtain grant resources;
- Supporting technology investments that will meet long-term connectivity goals; and,
- Encouraging competition among IPSs to lower prices.⁴²

⁴¹ Local first responders who were interviewed were unaware of this potential program at the time of the interviews.

⁴² “For the better part of a decade, we’ve been arguing that the main problem with broadband in the US, and the main reason we remain so far behind many other countries, is the stunning lack of competition. The broadband field is dominated by just a few players, and they always seem to be consolidating, rather than leading to new competition. In fact, we’ve seen that

Assigning Roles and Responsibilities: Public/private sector involvement appears to be the best way to achieve the goals stated above. Closed networks will not encourage either efficiency investments or open access. Open access networks will encourage competition, and if one service provider leaves, another could step in with new offerings without a lot of investment in infrastructure.

Dark Fiber Model: Fiber optic cable is the type of technology best suited to meet the long term needs of the community. The Port of Clarkston (POC) has already begun constructing fiber infrastructure using the Port of Whitman model (see IA.3). By investing and leasing the fiber alone, and not providing internet services, POC will encourage ISPs to offer services at competing rates.

Funding Resources: The Washington State Broadband Office, courtesy of WSU Extension, Mid-Columbia Economic Development District (MCEDD), Community Enrichment for Klickitat County (CEKC), and Tri-county Economic Development, has posted on its website a number of funding alternatives (<http://www.commerce.wa.gov/Programs/Infrastructure/Broadband/Pages/Broadband-Funding-Sources.aspx>) that can assist in building infrastructure. Additional opportunity may exist when objectives involving public safety are combined with general telecommunications infrastructure roll-out. Therefore, FEMA Homeland Security funding opportunities might also be worth investigating.

Recommendations: Recommendations resulting from examination of Last Mile connectivity solutions were these:

Recommendation – More Competition: Encourage greater competition among internet service providers to assist in addressing the “affordability” barrier. Seek infrastructure solutions that may involve local, regional, and state governmental entities already involved with development of infrastructure to grow options for extending broadband service in Asotin County.

Recommendation – New Public Investment: Plan infrastructure build-out in ways to assure that new investments are capable of handling higher speeds that will be needed in the future.

Recommendation – Seek Funding: Identify infrastructure funding sources and avenues for appropriate parties to make new investments to meet infrastructure build-out goals, with the goals of lower costs for access.

when competition decreases, the efforts to expand broadband suddenly seem to go away. Competition drives better broadband. It really is that simple.” (From *What Has the FCC Done to Actually Encourage Competition?* at <http://www.techdirt.com/articles/20111013/16595616344/what-has-fcc-done-to-actually-encourage-competition.shtml>)

IIIC.1. Short and Long Term Projects

The following schedule has been developed to not only show short and longer-term projects but to show a timeline for development.

Category	Within 1 year	Within 2 years	Within 3 years	On-going
<u>Short Term</u>				
1				
Encourage non-infrastructure intensive solutions (such as wireless)				
2	X	X		
2	X	X	X	X
Increase capacity at cell towers				
3	X	X	X	X
Encourage public sector to place or allow placement of conduits during water and sewer projects				
<u>Long Term</u>				
1				
Develop public/private partnerships to roll out fiber optic cable				
2	X	X	X	X
Explore FirstNet and other multi-purpose approaches to providing connectivity				

Part IV: Priority Infrastructure Projects

IV-A. Criteria for Examining Last Mile Infrastructure Alternatives

Last Mile Projects--definition: To be considered “last mile” projects, the project needed to be within five miles of the point-of-presence at Red Wolf Bridge. Anything further out than five miles is considered a “middle mile” project.

Developing criteria: A number of discussion points were weighed to identifying criteria for selecting the highest priority infrastructure projects meeting the definition of “last mile.”

Does this option help grow open access? Does this option encourage competition among ISPs? Does this option meet multiple goals, such as improving telecommunications for businesses and residents as well as enhance public safety goals? Does the project reach disadvantaged populations? Is there better connectivity via mobile devices as well as fixed location internet and/or access for first responders? Will the technology within this option have the capability serve future needs that exceed 100 Mbps upload as well as download? Is there an adequate return on investment to assure sustainability? Is there an opportunity for a public/private partnership? How will limited resources be used as effectively as possible?

Discussion relating to Return-on-Investment (ROI): It was noted in the discussions that businesses were underserved in Lewiston, near the airport and Southport. It was suggested that a new fiber run be considered from the point-of-presence to and over the Southway Bridge to serve the Lewiston airport area. While there were advocates for this, the majority of stakeholders believed that the benefits of this planning study needed to more directly benefit residents and businesses within Asotin County.

Closed access: While fiber optic upgrades by closed networks is likely to increase capacity (and may even lower prices), those upgrades would not increase competition.

Disadvantaged populations: It was discussed whether to give preference to projects that might serve disadvantaged populations. Because barriers were not clear until the recommendation under VIA.2 is implemented, there is inadequate information. Therefore, this was not used as a criteria for prioritization.

Redundancy: The concept of redundancy was weighed to determine if it was appropriate for use as a criteria to weigh options. If a route created redundancy, should it be given a lower weight than a route serving unserved or underserved businesses/residents? The decision was made that where routes created redundancy, they should not be discounted. Some users would not go into a geographical location if they were not assured of redundancy; for others, that was less of a requirement.

Selected criteria: At the conclusion of the discussions, the following criteria were selected and given equal weight: factoring in potential growth of open access for areas that currently are only closed access (depicted in the matrix below as “encouraging open access”), assisting business sector growth, serving multiple objectives such as general connectivity and/or public safety and/or schools, and whether the project serves unserved areas or significantly underserved areas. As to the open access question, technically, if the POC moves forward on its project, it will only be investing in open access, so that should be a plus for every option. However, some open access via NoaNet is currently available in the community. See more discussion on POC involvement in IIIC above and the business case below.

IV-B. Ranking Last Mile Infrastructure Alternatives

Stakeholders began drawing lines on a map, connecting businesses and areas without high speed connections. The following five last mile infrastructure alternatives evolved from that exercise.

Location	Encouraging Open Access	Assists Business Sector	Serves Many Goals: general connectivity, public safety, schools, etc.	Serves Unserved or Significantly Underserved Area
13th Street south of Fleshman Way	3	4	5	3
Along Highway 129 to Asotin	4	5	4	5
Downtown Clarkston	5	2	3	4
Clarkston Heights/Appleside	2	3	1	2
POC new business park	1	1	2	1

On this schedule, 1 ranked as the highest benefits relating to that criteria, 5 ranked the lowest. Each ranking was assigned only 1 time.

Based on the application of criteria to the alternatives, serving the POC's new business park ranked the highest. Discussion further evolved, however, in exploring routing options to reach the new business park. It was determined that selection of a hybrid between the two top ranking alternatives would achieve the greatest number of objectives and also provide a better cost/benefit to the construction. If serving the POC's new business park is routed via Appleside, users in Clarkston Heights along 4th Avenue to Appleside and then along Appleside to Valley View Drive could be served. There is a fire station on 3rd and Appleside that is the designed Emergency Operations Center in the event of an emergency.

IV-C. Public Sector Involvement in Fiber Build

As a result of that discussion, the high priority project selected was to take fiber to and through Phase 1 of the Port of Clarkston new business park by routing it through Clarkston Heights in a way to achieve greater connectivity for several types of entities (including public safety and schools). Further, it was determined that POC would be the owner of the project, with the starting point being the manhole on 13th Street and Port Drive. No other local public entity has the desire to embark upon telecommunications infrastructure ownership. Also, the non-profit with some open access fiber has interest in growing its infrastructure in other parts of the state, rather than focusing on gaps in Asotin County.

Fiber construction where the public owns the fiber and private or non-profit entities deliver broadband services will:

- Encourage competition through open access
- Direct resources effectively
- Allow for investment in technologies well suited for future broadband delivery.

The Port of Clarkston has indicated a willingness to take a leadership role in the public sector to move forward on public/private partnership solutions.

Part V: Business Case for Last Mile Deployment

V-A: Concept

This business case addresses the following concept: The Port of Clarkston build on its existing fiber optic cable network to reach un- and under-served areas of Asotin County. Of necessity, this business case will involve just the activities to be engaged in by the Port of Clarkston.

Appendix I -- Project Map shows where fiber optic cable will be attached to existing power poles or buried.

- The aerial run will begin at a manhole presently located at the intersection of 13th Street and Port Drive in Clarkston, and will continue south on 13th, all the way to 16th Avenue, which is outside the city limits. A minor exception is that at Fair Street, some fiber will branch off for the distance of one large city lot, via a power pole and then will be buried to connect with an existing cell tower. There may be a conduit already in existence, removing the need for digging, plowing or core drilling on the private property to reach the cell tower (Appendix I, p. 1);
- At 13th Street and 16th Avenue, the fiber will travel on power poles in the existing roadway right-of-way along 16th Avenue to a point just north of Shelley Lane (also served by power poles). From that point, fiber will continue south via power poles to 4th Avenue (Appendix I, p. 2);
- Fiber attached to poles will go west on 4th Avenue to Appleside, and then travel north on Appleside;
- One branch off to the cell tower on 3rd will occur at 3rd Avenue and Appleside. The route will continue on power poles north on Appleside to Valley View and then west on Ben Johnson Road (Appendix I, p. 2);
- The route will switch to buried conduit approximately mid-point between Pitchstone Drive and Evans Road (Appendix I, p. 2); and,
- The remainder of the route along Ben Johnson road, then turning south on Evans Road, and into the new business park on a new road to be constructed will be buried conduit with the fiber blown through. Conduit within the new business park (Appendix I, p. 3) will be laid in conjunction with buried electrical service, performed by Avista Utilities.

V-B: Public Sector Involvement--POC

Infrastructure is at the heart of every great civilization, whether it be a complex maze of waterways, subway systems, roadways, or telecommunications networks. Without robust, scalable, and sustainable infrastructure, civilizations do not thrive, but rather decline. From this simple core truth, Washington State port districts are empowered to provide infrastructure in support of economic development and quality of life. Telecommunications are the backbone of our Nation's economy, government, social networking, and security.

Regional fiber projects, supported by federal funding, have recently been completed for Middle Mile projects such as the connection between Clarkston and Spokane, Washington, and several rural communities in between, as well as the connection between Clarkston and the Tri-Cities, Washington.

The fiber network will be available to small and large Communications Licensed Exchange Carriers (CLEC) and Internet Service Providers (ISPs) along the network path as well as to institution of higher learning. The main goal is to create infrastructure that helps local providers enhance telecommunications services offered to rural communities.

There is a history of CLEC and ISPs partnering with Ports to improve broadband connectivity. Since May of 2000, the Port of Whitman (POW) has partnered with multiple telecommunications carriers that are providing at least two broadband choices to citizens, county wide and is communicating its willingness to partner with and provide

infrastructure for all local telecommunications providers. POW has run fiber at the Port of Wilma and the Pullman Industrial Park, facilitating competitive pricing and services to tenants.

POW's model has been to invest in the dark fiber with CLEC's and ISPs lighting that fiber and providing services. Under authority granted through RCWs 53-08.005, 53.08.370, and 53.380, Ports can build telecommunication infrastructure and offer it wholesale to service providers.

Public entity involvement in building telecommunications infrastructure has benefits as discussed in IV-C. Connectivity has a clear connection to economic development and jobs creation (see Appendix J).

In addition, POC, in embarking on its previous fiber construction project has built capacity within its operational structure to manage a network system. It has become an 811 member, with buried line information available through a phone call and has determined lease rates and terms. It has a presence within the point-of-presence. Further, leasing fiber has similarity to leasing land and buildings which is something POC has been doing for several decades.

V-C: Market demand

An informal market survey was taken of internet service providers, both in the community and some of those not serving Asotin County, but leasing fiber from the Port of Whitman, as well as businesses considering going into that line of business. There was an indication of interest in collaborating to provide services, more so from independent and emerging ISPs than from teleco exchanges.⁴³ POW's experience was that the broader their fiber delivery system, the higher the level of interest by ISPs. POC's fiber network is in its infancy, but this project has the potential to reach areas not well covered, so a reserved level of interest was expressed.

One of the known ways to generate interest in service providers is to consolidate demand. The benefit of the priority project that has a focus on greenfield development in the form of a business park is that there will be a consolidation of demand once the business park is completed and land begins to be leased or sold. The fact that the business park is a project in the final stages of design and bid rather than with completed construction is likely a factor in the response by ISPs as they discussed their interest in lighting fiber in that location. The challenge is in marketing land to businesses without that connectivity.

As part of its marketing strategy (see below), POC will address consolidation of demand, not just at the business park, but nearby.

V-D: Cost Analysis and Feasibility

VD-1. Engineering Study on Construction Costs:

The following schedule shows summarizes costs for construction of the described project. Detailed costs are included in Appendix K.

Construction	270,466
Construction contingency (18%)	48,684
Permitting/Legal	3,100
Engineering (design & oversight)	17,000
Project management	4,500
Grant administration	6,250
Total Project	350,000

⁴³ An interesting exception is that the telco exchange currently a tenant of POC is interested in a fiber drop to the building they lease from the Port.

VD-2. Other Build-Out Considerations:

Right-of-way: Based on the intended path in Appendix I, the conclusion is there are no concerns over perfecting the right-of-way for the POC fiber project. All aerial and buried runs will be within the utility rights-of-way of existing roadways, or within the roadways planned within POC's business park.

Construction feasibility and timeline: The path that is reflected in Appendix I and reflected in the costs above was examined for suitability of aerial and/or buried fiber. Land conditions, or attributes, not suitable for installation were avoided. The avoided attributes included rock outcroppings, culverts, bridges, and public and private crossings. The results of this on-site examination were then used to generate a rough construction cost estimate based on attribute type and linear installation cost based on construction method. The route is slightly longer to take advantage of aerial options. Aerial attachments to power poles are both less expensive and more flexible for being able to drop a fiber line to a building for service. The various installation methods are briefly described below:

- **Aerial Construction:** The majority of the urban area construction will be aerial. This is the most cost effective type of construction when the existing pole runs are in place. Make ready or moving other utility company's lines on the existing poles can be a financial obstacle to aerial construction.
- **Plowing:** Plowing ranks as the least expensive of the various standard construction methods for installing fiber. Making use of large plows, such as Caterpillar, to dig up the earth and replace it after fiber installation is very cost effective. Plowing is a construction method that can only be carried out in open, rural, sparsely populated areas that allow the use of such heavy equipment.
- **Trenching:** Trenching, which contractors can carry out either by hand or machine, uses machinery such as a backhoe or excavator. Unlike plowing, trenching can be conducted in smaller, denser, more contained areas. Trenches may be as big as several feet wide and deep.
- **Boring:** A third standard construction installation method is known as directional drilling or boring. Unlike plowing and trenching, directional boring is a method that is less intrusive. So, unlike those methods, it doesn't create site disruption and can be used to bore underneath public and private crossings to avoid the need to resurface after installation.

This is a straightforward construction project that should not take more than three months to complete. A number of local and regional firms would likely compete for the opportunity.

Permitting: The buried runs will coincide with areas where cultural resource permits have already been obtained, making this project straightforward from a permitting perspective. None of the construction will take place in wetlands or near bodies of water. The construction firm will need to obtain a stormwater construction permit from the county and implement a Stormwater Pollution Prevention Plan to minimize run-off from the construction site.

VD-3. On-going Operations and Maintenance Costs:

In addition to the capital costs of this investment, there will be on-going maintenance and operations costs. In the category of operations costs is the pole contact fees. These are an annual fee charged by Avista or other utilities when fiber is attached to power or other utility poles, running presently about \$25-\$30 per year per pole.

Maintenance costs are not anticipated to be significant in the first three-five years of the construction project. Therefore, a low amount for maintenance is included in the cash flow analysis below.

Recovery of return on investment: POC typically seeks some return on investment in projects that it makes investment in, in order to be able to invest in future projects. The \$5,833 per quarter in the cash flow analysis in Appendix L represents a 15-year payback period. It is strongly recommended that POC leverage its investment with grants in order to have a more solid recovery of costs for future investments.

VD-4. Revenue:

Anticipated incoming revenues come primarily from fiber leases. While there is a possibility if multiple goals can be achieved, that small payments could come from public sector (primarily public safety) use of Port assets, the analysis under cash flow reflects revenue from fiber leases. The Port's charge for leased fiber is \$0.025 per foot per month with a one-mile minimum (plus leasehold tax) for one strand of fiber. If the lessee has more than one strand, the rate for all strands is \$0.02/foot/month (plus leasehold tax).

It is anticipated that connectivity will be slow initially, because land at the business park will need to be sold or leased before construction can occur. It's only as a business gets to be fully operational that they will enter into service agreements with ISPs. That means ISPs will not lease fiber until they have revenue flow.

VD-5. Cash Flow Analysis:

Appendix L represents the best estimate at the time of this report of the results of the potential cash flow for the project described above.

Note: The cash flow analysis, for 12 quarters or 3 years, provided is to assure preparation for adequate upfront investment. Once more of the fiber becomes leased, additional revenues will flow and the schedule would not show a deficit. Even so, it will take a number of years to recoup from the deficit that is shown. Therefore, POC will want to assure that this project is a priority for Port investments.

VD-6. Feasibility, Benefits and Risks:

VD-6a: Feasibility: This project has been determined to be feasible from a long-term point of view.

VD-6b: Benefits: The benefits of this project are:

- Business park will be more attractive to potential tenants;
- New businesses will locate there and/or existing businesses in Asotin County will be able to expand because all the infrastructure is in place.
- Additional public benefit may be achieved if the public safety sector can also use this infrastructure.

VD-6c: Risks: Two risks need to be weighed in this decisions making, potential for lack of capital recovery and opportunity cost.

- Lack of capital recovery cost is that POC will make the investment in fiber, but ISPs will not lease the fiber and provide the benefit. This risk is low, provided the slow cost recovery model is acceptable. If there is a need to recoup the capital investment in less than 10 years, this risk would be assessed at a higher level. The reason for assumptions that demand for fiber will increase over time is the trending demand for higher speeds. Fiber is the one mechanism for delivery
- Opportunity cost is the benefit foregone, that could have been made in other investments, because capital is tied up in telecommunications infrastructure.

V-E: Competition

Competition is weighed from two perspectives: 1) technology (who else is in investing in fiber that might make this project obsolete, and 2) provision of other open access service that might serve the same ISPs who will light POC fiber.

What is not weighed as competition is Internet Service Providers. This is because under the model to be used by POC, fiber will not be lit and services will not be provided. It is an interesting situation because some wireline ISPs may look at POC fiber as competition and be slow to lease it, but those parties fit the role of customers more than competitors. It will take a little time for them to shift their perspectives—based on the pattern in Whitman County—but when it does shift, POC's investment will immediately shift to cost recovery and the connectivity that is the desired goal will be achieved.

Who else is investing in fiber for service delivery: At the time of this study, there were no serious upgrades to fiber being made beyond those planned or under construction by POW and NoaNet. POC had already coordinated to affirm where those routes would go, to avoid duplication and to further the “open access” delivery system embraced by both entities. In fact, POC has made many referrals to both entities because the needs of those businesses or individuals could be met, potentially, immediately, which is important.

Open access competition: Prior to the planning study/business case, POC met numerous times with both POW and NoaNet to define a course for all three that complemented and encouraged additional investments. At one time, the dialogue addressed the question whether NoaNet’s community investment requirements—reaching anchor tenants—could be achieved by POC and reimbursed. The terms of NoaNet’s award prohibited that, so that non-profit does have some open access lines with the potential for overlap, particularly where it makes a run to the City of Asotin. That’s why the criteria for establishing priorities examined whether some open access was already available. The conclusion with regard to “open access” that is currently in the community is that much of it was publicly funded, and it is essential that all public funding be coordinated for efficiency. Therefore, those who have made open access investments are considered partners, not competitors.

V-F: Customers

ISPs are the customers for this fiber. It is reasonable to assume that POC will be able to attract existing ISPs to lease fiber and provide services where there are few options, or where redundancy is lacking. These potential customers are known, as they have already satisfied licensing requirements in this jurisdiction.

It is even more likely, however, that new ISPs will come to Asotin County—perhaps even ISPs familiar with the leasing model and providing service just north in Whitman County. POW’s agreements with their customers are essentially confidential, so there should not be an expectation of provision of a list of potential ISPs for Asotin County. However, one ISP leasing fiber in Whitman County and who is already serving the Lewis-Clark valley has been proactive in outreach to POC, expressing a desire to put this fiber to good use. One ISP will not make the project, but given the high degree of cooperation within all “open access” entities in the State of Washington, the ground is fertile for new ISPs to come to the valley.

V-G: Marketing strategy

The recommended marketing strategy for POC is not costly or elaborate. It will consist of outreach—a lot of it. A very specific customer group will be the target of outreach. The internet itself will provide the best source of potential customers for POC fiber. It is recommended that POC contact existing service providers to educate them on this opportunity. Expecting that it will take a little time to see the potential of a public/private relationship, POC should anticipate the need for several follow-up contacts, spread out.

In addition, research will be needed, and then the follow-up contact to see if new ISPs would like to serve this area. At the publication of this report, the actual ISP delivering service to NoaNet’s anchor tenants was rumored to not be NoaNet. This new ISP, if the fact can be confirmed, might be a good starting point for leasing fiber.

Additionally, the Nez Perce Tribe may have interest in serving Asotin County. The Tribe has expressed a desire to be a telecommunications solution not just with regard to areas within the reservation, one border of which is less than five miles from Asotin County, but to its original reservation boundaries which included Asotin County. The Tribe has a unique role in the U.S. that could be quite beneficial to any public/private partnership.

Part VI: Internet Adoption/Education Needs Assessment and Gap Analysis

VI-A. Overview

Two examples set the stage for a strong need for residents and businesses to have the same internet access options.

- An interview with two landlords indicated that people without connectivity are not even aware of housing options being listed on Craigslist. Craigslist is free to landlords and allows more information to flow to potential tenants (specifically, photographs). According to the landlord interviews, lower priced, quality housing is in short supply in Asotin County. To demonstrate, recent listings of houses and apartments for rent received as many as 23 - 31 unique hits within a few hours of posting, and the leasing decision was completed within six hours of the original posting. People seeking housing who rely on print information will find good opportunities snapped up long before the print copy hits the streets.
- The Washington State Department of Social and Health Services employs 20 FTEs to process hard-copy/check submissions of child support payments, which can be subject to input error. The volume of hard-copy/check submissions is 40% of payments. In contrast, the remaining 60%, which are electronic submissions, are processed by a single FTE.⁴⁴ If the cost of processing should be passed on to employers—a more common practice with state dollars in short supply—those not interested in or not comfortable with electronic submission will be paying significantly more costs.

ADOPTERS

Active users were the primary respondents to surveys. The survey results showed variable levels of sophistication—evaluated both through comments and via the uses they reported when they were on line—among the various users. The differences in sophistication were most noticeable in business survey responses. Education could enhance the benefits to active users of the internet.

NON-ADOPTERS

While a true picture of non-adopters could not be measured from surveys, there is an indication from interviews and other data collection that there is a need to expand the understanding of many users relating to the technology itself and how it can be relevant to their day-to-day activities. Whether this is as a result of the needs of individual businesses, or a lack of understanding regarding the full range of options is less clear. For the purpose of the following discussion, we will presume that both circumstances exist.

WHY PEOPLE ARE NOT ON LINE

- A. Access and Availability: While not the most prevalent factor, lack of access and availability still remain a key barrier to adoption. Access is a barrier for households in areas where high-speed Internet is not available, especially in rural areas of the country. According to NTIA's 2011 Digital Nation report, 40 percent of rural Americans did not subscribe to broadband at home, with 9.4 percent (compared to 1 percent in urban areas) noting a lack of broadband availability as the primary barrier to adoption.
- B. Cost: Rural and urban populations alike cite the high cost of broadband subscriptions as a reason for non-adoption. Non-adopters also may have concerns about the confusing and unpredictable nature of broadband subscription costs, or find that the cost of purchasing and maintaining a computer is a barrier to connecting to broadband service.

⁴⁴“What’s New with New Hire Reporting and Child Support Webinar,” 6-6-2013, Doug Cheney

- C. Perception: Many non-adopters have not experienced the benefits of being online and are apprehensive about the Internet. They perceive the Internet as unknown and dangerous, potentially compromising privacy, the safety of their children, and their financial security. They may not be aware of opportunities to learn how to protect themselves on the Internet or to be part of a social network that includes people with the expertise to help them.
- D. Relevance: Non-adopters often do not believe that broadband Internet is relevant to their lives. These Americans are used to performing tasks and accessing services without using the Internet, and they do not think that there is anything on the Internet that would improve or enhance their lives.
- E. Skills: Many non-adopters, especially older, less-educated, and lower-income Americans, do not have the digital literacy skills needed to use online tools and services effectively. They may own computers and/or have broadband available to them, but they are not comfortable, confident users. The fact that technology is changing is also a detriment. The need to learn is a continuum; why should they bother to learn something if it's just going to change?

VI-B. Two-Pronged Recommended Approach

Because there are some unknowns relating to barriers by non-adopters or infrequent adopters, this study developed two avenues for outreach. The first avenue assumes all the barriers listed above are relevant and identifies educational options and alternatives to address those barriers. The second avenue is essentially a recommendation for additional study with respect to a very specific population—residents and businesses with Census Tract 9604. This way, barriers can be truly understood and effective solutions can be implemented.

VIB.1 Implementing Educational Alternatives:

There is a need to create a public information campaign to make high speed internet more meaningful, accessible, relevant, and accessible, in order to a) increase adoption and/or b) increase the level of sophistication of access by Asotin County users.

Basic skills training is available, although it's availability may not be well known. The Asotin County Library offers:

- 2-hour single sessions on basic computing; basic internet; email; online greeting cards; evaluating internet sources; using the library's electronic resources; and using overdrive.
- 3-session course (2 hours each session) on computer skills
- Custom courses (Examples: training on e-readers (one-on-one AND open houses); tech support – by appointment only, and other training as needed

Lewis-Clark State College's (LCSC) Community Programs offers many of the same Ed2Go online courses that individuals could access on their own for \$149/course. Through LCSC, the same course can cost \$89. These courses are lengthier and more structured. Individuals and/or entities would need to have a computer and be able to commit specific times of the day/week to take advantage of these learning opportunities.

Promoting these opportunities should broaden the comfort level of many users and help move toward a greater understanding of the benefits of connectivity. For businesses, though, there also needs to be a broadened understanding of the connection to the visibility of a business and to assist them in keeping up with rapidly changing technology. Specific courses might be offered relating to e-commerce, building a stronger online presence, conducting meaningful market research, effectively utilizing social media to assist marketing efforts, helping the benefits of telework become better known, and identifying specific courses related increased understanding of software tools either downloaded to desktops and laptops or on the web. Enhanced understanding of telecommunications options such as voice-over-internet-protocol, Skype, and GoToMeeting may assist them in being more efficient.

Recommendation: Create a public education and information campaign to make high speed internet more “relevant” for Asotin County businesses and residents and to increase adoption.

One of the most important steps in making progress on this recommendation is to develop a clearinghouse for information to assist users in understanding what training resources exist. This same clearinghouse can assist in knocking down other barriers to access, such as promoting community “hotspots” for alternative access to the internet.

Part of the educational campaign could consist of identification of champions of internet use from the business community. A discussion from them relating to how they’ve improved their bottom line may encourage other businesses to take the plunge.

As either part of this recommendation or in combination with the one immediately below, there would be benefit to identifying individuals and entities that are falling through the cracks and develop avenues to assist in adoption of technology. This could possibly, with the right funding sources, include finding creative ways to provide free and low-cost broadband as well as computer equipment in public housing projects.

By virtue of their educational role, School Districts increase the understanding of students as it relates to technology. This instruction for students could be reinforced in the work setting, if the broader business community was engaged as a partner in increasing understanding. There may also be some benefit by having students interact with business, in that they can share new, emerging technologies with businesses.

A number of entities provide educational opportunities (the library, school districts, Walla Walla Community College, Lewis-Clark State College Community programs, and others). There is an opportunity for them compare notes on offerings, coordinate options, identify gaps and develop more advanced alternatives.

A report of forward progress on available resources and updated infrastructure will keep users aware of new and emerging options. Therefore, some communication of outcomes should be part of the general educational process.

The objectives for education and outreach can be conducted through an active marketing effort, encouraging more training by entities already providing training, growing awareness through articles in the newspaper and Chamber newsletters, and holding tech fair. It is recommended that the stakeholder group work together to identify forums and avenues and assign responsibilities to various entities to assure follow-through.

One of the immediate needs, one that can set the stage for other initiatives, is to create greater awareness. Have people thought about what broadband is? What benefits do broadband bring? How happy with their existing provider are they? What are other people using?

VIB.2. Examining a Subset of Asotin County’s Population—Residents and Businesses within Census Tract #9604:

VIB.2a Description

HUBZones (Historically Underutilized Business Zones) are recognized disadvantaged areas based on low income and high unemployment. HUBZones are recognized through a U.S. Small Business Administration program that encourages small companies to operate businesses and employ people in disadvantage areas. Businesses that are HUBZone certified can receive preference points when they seek federal contracts. Census tract #9604 is the one continuously “qualified” census tract in Asotin County designated as a HUBZone.

There are two school districts within Asotin County: Clarkston School District and the Asotin-Anatone School District. Fifty-eight and 7/10s percent of Clarkston School District’s students are eligible for free and reduced lunches; the Asotin-Anatone School District has 35.1% of its population eligible. Within Clarkston School District,

there are several elementary and alternative schools, one middle school, and one high school. Each of those schools has a free and reduced lunch calculation for its attendees.



The two elementary schools shown with stars on the map below (along with their location compared to census tract #9604) are the ones that serve the census tract discussed above and have the highest free and reduce lunch percentages of all schools in Asotin County. Grantham Elementary’s percentage was 89.6% and Highland Elementary had 80.6% in May 2013.

Based on this data, it was concluded that residents in census tract #9604 are a good target population for exploring the extent to which residents of Asotin County are not connected and what the barriers are.

Recommendation: In order to develop a better understanding to barriers for disadvantaged populations, develop a pilot project, in cooperation with Grantham and Highland Elementary Schools, Asotin County library, and social services entities relating Census Tract 9604⁴⁵ to gather more detailed information relating to access (both infrastructure and computer hardware) as well as affordability and other barriers to adoption. If possible seek funding to address those barriers.

VIB.2b Funding Options

Potential funding sources for this planning effort include the Washington State Broadband Office under their planning programs (www.broadband.wa.gov), Connect to Compete (<http://www.connect2compete.org>), and various foundations such as the Bill and Melinda Gates Foundation (www.gatesfoundation.org). While the USDA Rural Business Opportunity Grant (RBOG) can be used for this type of planning, competition is fierce at the national level. Before effort in submitting an application to RBOG is initiated, the applicant should visit with appropriate USDA staff (http://www.rurdev.usda.gov/bcp_rbog.html).

VI-C. Prioritizing Educational Options

The second alternative in the two-pronged approach—drilling down on the needs of a specific, likely disadvantaged population--of necessity, will need to wait until funding can be acquired. A key question might be which community partner would seek funding and manage the project of gathering information. This question is referred to the stakeholder group for consideration.

The immediate goal to create awareness (discussed in the first of the two pronged approach above) was identified as a priority. The greatest opportunity for change by ISPs is to have users express their opinions—both positive and negative. The process for implementing this priority educational goal is discussed further below.

The other educational options were weighed. Prioritization in this study was deemed to not have benefit. The stakeholders, particularly those comparing notes on educational offerings, are in the best position to coordinate these various suggestions, and improve and expand them. If the responsibility is shared, rather than falling into the purview of just one party, a lot can be achieved.

⁴⁵ Of the census tracts in Asotin County, #9604 has been consistently identified as a Historically Underutilized Business zone (HUB zone). While Hawthorn School is technically located just outside the census tract, it has one of the highest percentages of students qualifying for free or reduced lunches. These factors pinpointed this population as one of the most economically disadvantaged in Asotin County.

VI-D. Implementing the Highest Priority Educational Opportunity

Based on feedback from stakeholders, it was determined that doing educational outreach during the June 2013 Alive After Five offering (June 6) would be beneficial from two perspectives. It could result in sharing and field testing the results that were emerging from the work that had been done, and it could increase awareness by users and non-users alike.

Alive After Five is a community event that is sponsored by the Chamber of Commerce. There is no charge to attendees (although vendors pay a fee). Because it is free, it is attended by economically disadvantaged community members. Amusements such as free balloons from a clown, a jumping castle, face-painting and interacting with a live camel draw the children (and their parents or grandparents). The Library foundation already regularly has a booth to promote library projects, so it seemed like a good opportunity to piggy-back on what the library was doing and accomplish goals of this study.

Copies of handouts and display items are included in Appendix M. Not included as part of this Appendix but available for review upon request are notes and other data collected from those who dropped by the booth to chat.

Objectives achieved: The concept of “broadband” was explained—growing a general sense of awareness in the community regarding connectivity and what the overall satisfaction was for various options of delivery technology. Many people expressed that they had already taken speeds tests. Some of those expressed disappointment in their lack speeds compared to elsewhere (which actually reinforced that they had taken the speed tests using the state broadband website.) Others had not taken speeds tests and had not thought of it previously. These took with them copies of Appendix M.1 naming the locations to take speed tests and were encouraged to share the results with study analysts.

People were quite interested in how the United States compares to other countries, a display item in Appendix M.2.

It is anticipated that by growing awareness through this educational forum, users will formulate expectations higher than those they started with, and those expectations can result in pressure on ISPs for future upgrades. Informal feedback also flowed into the strategy for future educational sessions.

No evaluation forms were distributed because this educational opportunity was not formal. An unanticipated benefit from setting up this educational forum was the opportunity to field test the results of the surveys. Feedback confirmed that a certain population in the county, mostly non-users, had not provided responses to the surveys.

Part VII: Summary of Conclusions: Bringing Infrastructure and Adoption Goals Together

Meeting infrastructure needs in a vacuum without addressing non-adopters or infrequent adopters would help achieve only part of the connectivity goals. Likewise, addressing only educational goals to encourage greater adoption, when users are experiencing frustration with quality of service, choice of providers and overall cost would not move Asotin County much closer to connectivity goals. These initiatives need to work in tandem to assure that there is a fertile environment for broadband use.

VII-A. Importance of Engagement

It is not by accident that the recommendation of an on-going stakeholders group continues to meet. This will be essential for confirming and guiding progress on all other recommendations. The feedback loop generated through this forum will keep initiatives nimble; if adaptation of a recommended initiative is necessary during the implementation stage, such adaptation can be approved through this group. Creating a clearinghouse for information and marketing various educational opportunities will be more effective as a result of involvement by the stakeholder group.

Recommendation: Develop an active on-going telecommunications planning or stakeholder group. Regularly convene community stakeholder meetings to discuss infrastructure and educational needs and opportunities within the community. The stakeholder group even has a significant role in areas where new public investment might be made to improve open access to infrastructure capable of meet long-term connectivity goals. If, for instance, the Port of Clarkston accepts the suggestion that it take a significant role in extending its fiber optic system to areas in need, feedback from stakeholders will help identify emerging areas of need. Stakeholders can assist with public funding by a show of support. Stakeholders can also impact emerging policy decisions on a national level that can have positive impacts within Asotin County.

Stakeholders should include technical and business leaders from the private and public sectors and should include representation from urban, rural and frontier areas. Organizations for potential involvement in the stakeholder group include:

- Local government, including first responders and fire districts
- Healthcare providers
- Social service providers
- Senior centers
- Businesses
- Community leaders
- Internet service providers

To goal in involving these individuals/representatives is the opportunity to understand their needs and preferences. Engaging them to help shape the direction of strategies and/or initiatives will ensure a higher degree of success. Feedback from stakeholders will keep alive forward progress.

Involvement by first responder/public safety sector representatives ensures that forward moving discussions, such as those toward FirstNet engage the parties most relevant to the discussion.

Convening regular stakeholder meetings can lead to streamlining by local governments of franchise agreements for permitting new projects in rights-of-way.

Demand for improved services exists, but is not consolidated. Therefore, each voice is a lone voice in the wilderness. The forum for discussions will allow residential and business users to identify commonalities; it will also set the stage for aggregating demand, which typically results in improved services.

All of the goals identified under this planning study have importance for achieving the identified goals. If none are to be achieved except the first one, that will continue to assure forward progress (albeit at a slower pace than if all recommendations could be implemented concurrently). All indications are that Asotin County has engaged, dedicated businesses, governmental representatives, and individuals who are willing to commit their time and efforts to forward progress and improvement in Asotin County's connectivity.

VII-B. Summary of Recommendations from Various Sections of This Report

Recommendation #1 - Stakeholder Engagement: With assistance from an active, on-going telecommunications planning team, convene regular community stakeholder meetings to discuss infrastructure and educational needs and opportunities within the community. Stakeholders should include technical and business leaders from the private and public sectors and should include representation from urban, rural and frontier areas.

Recommendation #2a – General Educational Programs: Create a public education and information campaign to make high speed internet more “relevant” for Asotin County businesses and residents and to increase adoption.

Recommendation #2b – Deeper Analysis of a Specific Population: Develop a pilot project, in cooperation with Hawthorn School, Asotin County library, and social services entities relating Census Tract 9604 to gather more detailed information relating to computer hardware and affordability barriers to adoption.

Recommendation #3 – More Competition: Encourage greater competition among internet service providers to assist in addressing the “affordability” barrier. Seek infrastructure solutions that may involve local, regional, and state governmental entities already involved with development of infrastructure to grow options for extending broadband service in Asotin County.

Recommendation #4 – New Public Investment: Plan infrastructure build-out in ways to assure that new investments are capable of handling higher speeds that will be needed in the future.

Recommendation #5 – Seek Funding: Identify infrastructure funding sources and avenues for appropriate parties to make new investments to meet infrastructure build-out goals, with the goals of lower costs for access.

Recommendation #6 – Leverage First Response Resources to Address Middle Mile Needs: Seek ways to leverage existing first response tower sites for greater connectivity. By combining the needs of broadband, cellular and first response users, a case may be made to justify building additional tower sites where gaps exist (FirstNet initiative).

Broadband speeds and applications used at each speed

Download Speeds	Upload Speeds	Service Type Examples	Typical Applications
768 Kbps - 1.5 Mbps	256 Kbps - 896 Kbps	DSL Cable Modem Fiber Optics Satellite Cellular Fixed Wireless	Basic Email Voice Over Internet Protocol (VOIP) Web Browsing You Tube Video
1.5 Mbps - 3 Mbps	356 Kbps to 1 Mbps	DSL Cable Modem Fiber Optics Satellite Cellular Fixed Wireless	Remote Surveillance Telecommuting Streaming Music Standard Definition Video
3 Mbps - 6 Mbps	356 Kbps to 1 Mbps	DSL Cable Modem Fiber Optics	Enhanced Definition Digital Video File Sharing (small/medium)
6 Mbps - 10 Mbps	768 Kbps to 2 Mbps	DSL Cable Modem Fiber Optics	Video On-Demand Remote Diagnosis (basic) Gaming
10 Mbps - 25 Mbps	2 Mbps to 5 Mbps	DSL Cable Modem Fiber Optics	Telemedicine Remote Education
25 Mbps - 100 Mbps	5 Mbps to <100 Mbps	Cable Modem Fiber Optics	HD Surveillance Smart/Intelligent Bldg. Control Educational Services
More than 100 Mbps	≥ 100 Mbps	Fiber Optics	Multiple Educational Services Research Applications Remote Supercomputing

GLOSSARY of Common IT Terms

3G, 4G:	Mobile broadband access is increasingly available at the consumer level using “3G” and “4G” technologies. 3G, short for third Generation, support services that provide an information transfer rate of at least 200 Kbps. 4G, fourth generation and successor to 3G, provides mobile ultra-broadband internet access to users. The intent for 4G was 1 gigabit per second (Gbps) for low mobility communication (such as pedestrians and stationary users), and 100 Mbps for high mobility communication (such as from trains and cars).
ATM - Asynchronous Transfer Mode:	ATM is a dedicated-connection switching technology that organizes digital data into 53-byte cell units and transmits them over a physical medium using digital signal technology. Individually, a cell is processed asynchronously relative to other related cells and is queued before being multiplexed over the transmission path.
Analog Mobile Wireless:	Voice and data services that are transmitted over networks using analog protocols to people using wireless devices that do not require staying at a fixed location.
Backbone:	Ties various networks together, such as across a university campus or across geographical areas.
Backhaul:	The telecommunications link used to transport traffic from a geographically distant point, such as a wireless base station, to a significant aggregation point in the network such as a mobile telephone switching office.
Bandwidth:	The capacity of a telecommunications line to carry signals. The necessary bandwidth is the amount of spectrum required to transmit the signal without distortion or loss of information. Bandwidth is usually measured in kilobits (Kbps), megabits (Mbps) or gigabits (Gbps) per second.
Bit:	Smallest unit of digital information utilized by electronic or optical information processing, storage and transmission systems. Bit is shorthand for binary digit. Binary technology is based on the representation of data using 1’s and 0’s in combinations to create a protocol medium for data transmission.
Bps - Bits per Second:	How many binary digits (pieces of data) are transmitted per second? Common speeds include: <ul style="list-style-type: none"> • 2,400 Bps amounts to two average sentences sent per second • 28.8 Kbps seven minutes for a 300 page book 64 kbps about 1½ pages per second (also known as ISDN speed) • 1.544 Mbps (Megabits per second) sends a 300 page book in about 1¾ minutes – gives VCR quality video and is also approximate speed for DSL, T-1 or DS-1 lines • 30 Mbps Speed of most cable modem • 45 Mbps Speed of T-3 or DS-3 connections • 155 Mbps OC-3 line speed – transmits 14 books (300 pages each) per second • 80 Gbps (Gigabits per second) Speed of most fiber optic backbones – capable of transmitting 7,000 books (300 pages each) in one second. (That’s 3.1 million books in an hour or 75 million books in a single day!)
Broadband:	Comes from “Broad Bandwidth” and is used to describe a high-speed connection to the internet. Speeds are many times faster than dial-up. The speeds defining minimums to achieve broadband are evolving, and in 2010, the FCC defined “Basic Broadband” as data transmission speeds of at least 4 Mbps downstream and 1 Mbps upstream.
Byte:	Smallest unit of information that a computer system can locate within its data

	storage or memory. A byte consists of eight (8) bits and represents an amount of information roughly equivalent to a single printed or typewritten character.
Cable:	Cable TV network comprised of fiber and/or coaxial cable. Modern cable networks can use cable modems to enable two-way high-speed internet access.
Cable Modem:	Type of broadband connection that brings information to homes and businesses over the same coaxial cables that deliver pictures and sound to television sets.
Cloud computing:	Using multiple server computers via a digital network, as though they were one computer.
Co-location Facility:	A room or building of an organization where network equipment owned by a customer or competitor can be placed.
Competitive Local Exchange Carrier (CLEC):	A telecommunications provider company that competes with other, already established carriers, generally ILECs.
Dark Fiber:	Dark fiber refers to unused fiber-optic cable. Often, companies lay more lines than what's needed in order to curb costs of having to do it again and again.
Data Compression:	Technique used to decrease the amount of computer memory space or transmission resources required to handle a given amount of data. Usually achieved through the applications of mathematic algorithms to the data transformation process.
Dial-up Internet access:	Obtaining connectivity to the Internet by using a modem and standard telephone line to connect to an Internet Service Provider or other provider of Internet service. Maximum access speed is 56kbps.
DSL - Digital Subscriber Line:	Service provides high speed Internet access over traditional copper telephone infrastructure and is usually available only to locations within 18,000 wire feet of a local exchange carrier's central office.
DSL rings:	Ring topology that uses DSL technology over existing copper telephone wires to provide rates of up to 400 Mbps.
Download or downstream speed:	Speed at which data flows from the information server to your computer.
E-Commerce:	Marketing and selling of products online.
Ethernet:	Local area data communications network, originally devised by Xerox Corp. The network accepts transmission from computers and terminals.
FCC:	Federal Communications Commission. Federal agency that enacts rules that affect broadcasting, including telecommunications
Fiber:	Refers to communications transmission lines made of ultra-pure transparent glass fibers about the diameter of a human hair. It carries a digital signal made of modulated light. It is capable of carrying more data, at much faster speeds, than traditional copper phone lines. (See optical fiber)
Fiber to the Home (FTTH):	Comprehensive roll-out of optical fiber to meeting household connectivity goals.
Fiber-optic Cable:	See "Fiber"
Firewalls:	A software process for protecting undesired access to a network or access device.
Fixed Wireless:	Service that is provided wirelessly to a device that is located in a single place and not mobile.
Gbps - Gigabits per second:	The data transmission rate of 1,000,000,000 bits of binary information per second, or 1,000 Mbps. Some of the applications at this bandwidths include video instant messaging and video presence, HD television and real time data back-ups
High-speed Access:	Access to the Internet at transmission speeds greater than 128kbps.
ISDN - Integrated Services Digital Network:	A switched network that provides end-to-end digital connectivity for simultaneous transmission of voice and/or data over multiple, multiplexed communications channels. ISDN uses transmission and out-of-band signaling protocols that conform to internationally defined standards (set by the CCITT).
ISP - Internet Service Provider:	A company or organization that provides a user with a connection for their computer

	to the Internet.
IP - Internet Protocol:	The standard by which internet packets are composed and addressed.
Incumbent local exchange carrier (ILEC):	Shortened as ILEC, this is a local telephone company in the United States that was in existence at the time of the breakup of AT&T into the Regional Bell Operating Companies. The ILEC is the telephone company responsible for providing local telephone exchange services in a specific geographic area. ILECs compete with competitive local exchange carriers (CLECs).
Informational Websites:	Websites that only present information - do not allow for any interactivity or transactions.
Internet:	The public information network which transmits packets of data across the world allowing networks of computers to communicate with one another.
Interactive Websites:	Websites that enable real-time communication and/or transactions between the user and the website.
Kbps - Kilobits per second:	A measurement of the rate of speed that data is being transferred. 1 Kbps equals 1,000 bits per second.
LAN - Local Area Network:	A geographically localized network that consists of both hardware (computers) and software (programs). A LAN links peripheral devices (computers, workstations, printers). LANs are usually limited to an individual building or group of buildings and is under some sort of formal control.
Last Mile:	Term referring to the challenges of delivering service (local phone, long distance, cable or broadband) to the final destination, i.e., e.g., from ISP to home or business. 
Leased Fiber:	Under the Port of Whitman County telecommunications model, dark fibers are leased to internet service providers, who then attach the electronics to light the fiber.
Local Loop:	Usually a physical line (often copper), it is the communication channel between a customer's location and the service provider's central office. It is also called a subscriber loop, especially by the cable industry.
Mbps – Megabits per second:	Measurement of how much data can be transmitted through a connection. The data transmission rate of 1,000,000 bits of binary information per second or 1,000 Kbps.
Microwave:	A transmission method that employs use of electromagnetic waves in radio frequencies above 890 MHz and below 20 GHz. Electromagnetic waves travel only in straight lines and are used for communications between satellites and towers. Use may be limited in mountainous terrain and under certain climactic conditions.
“Middle Mile,” aka “backhaul” or “transport”	Segment of a telecommunications network between backbone network operator's core network to the local access point. Large capacity connections, these can range from a few miles to a few hundred miles. 
Mobile Digital Wireless:	Voice and data services that are transmitted over networks using digital protocols to wireless devices that do not require staying at a fixed location. Commonly referred to as mobile phone service.
Modem:	Stands for MODulator-DEModulator – electronic device that allows computers to communicate over standard telephone lines. The device transforms a digital signal into an analog signal and transmits the signal to another modem which then reconstructs the digital signal from the analog signal.

Multiplexing:	Process of transmitting several different signals via a single carrier. Different types of multiplexing are frequency-based multiplexing (FDM) which divides bandwidth into subchannels to accommodate transmissions and time-division multiplexing (TDM) which allows signals to be transmitted in a series of alternative time slots.
Network:	System designed to provide access path(s) for communications between users at different geographic locations. Usually includes elements for voice, data, facsimile images and/or video images.
Network Infrastructure:	The physical plant of wires, switches, routers, hubs, satellites, broadcast towers, dishes, and other hardware that allow communications signals to be delivered across networks.
OC-1 - Optical Carrier level 1:	A set of signal rate multiples for transmitting digital signals on optical fiber. The base rate (OC-1) is 51.84 Mbps. Asynchronous transfer mode (ATM) makes use of some of the Optical Carrier levels.
OC-3 - Optical Carrier level 3:	Transmission rate is 155.52 Mbps.
Open Access Network:	A broadband telecommunications network that allows for wholesale access to multiple service providers. Open access initiatives such as duct sharing, utility pole sharing, and fiber unbundling are being tried by regulators as mechanisms to ease the middle mile cost problem.
Optical Fiber:	Optical fiber (or "fiber optic") refers to the medium and the technology associated with the transmission of information as light pulses along a glass or plastic wire or fiber. Optical fiber carries much more information than conventional copper wire and is in general not subject to electromagnetic interference and the need to retransmit signals. Most telephone company long distance lines are now of optical fiber. Transmission on optical fiber wire requires repeaters at distance intervals. The glass fiber requires more protection within an outer cable than copper. For these reasons and because the installation of any new wiring is labor-intensive, few communities yet have optical fiber wires or cables from the phone company's branch office to local customers (see Local Loop). A type of fiber known as single mode fiber is used for longer distances; multimode fiber is used for shorter distances.
PANS - Pretty Amazing New Stuff :	(Services) – Often referred to as ISDN or broadband capacity.
POTS - Plain Old Telephone Service:	Refers to simple voice telephone communications without any added features like call waiting, voice mail or caller ID.
Point-to-Multipoint:	A distinctive type of multipoint connection, composed of a central connection endpoint (central CE) and other, peripheral, CEs, and in which data originating from the central CE are received by all other CEs, and data originating from peripheral CEs are received only by the central CE. Peripheral CEs cannot communicate directly with each other.
POP - Point-to-Point:	The point at which a line from a long distance carrier connects to the line of the local telephone company or to the user if the local company is not involved. For online services and Internet providers, the POP is the local exchange users dial into via a modem.
Power-line Internet:	Broadband over power lines (BPL) carry internet data on a conductor that is also used for electric power transmission. Because of the extensive power line infrastructure already in place, this technology can provide people in rural and low population areas access to the internet with little cost in terms of new transmission equipment, cables, or wires. However, speeds are low.
Real Time:	Transmission or data processing mode in which the data is entered in an interactive (two-way communicating) session.
Redundancy:	Refers to a network that has a back-up system to ensure uninterrupted service in the event of failure of the main (primary) system. Usually a ring configuration, so that if

	one way out is blocked or impaired, there is an alternate route to carry the signal.
Remote Access:	Ability to send, receive and retrieve data to and from a computer through communications lines such as phone or cable lines. May also use wireless access.
Ring:	Fiber-optic networks are often composed of large rings of fiber. The ring formation creates redundancy so that if the ring is broken at one point, all subscribers will still have service.
Satellite:	Type of wireless broadband connection where information is set from and arrives at a computer through satellite dishes. This microwave receiver, repeater or regenerator is in orbit around the Earth. May be in a stable and fixed location or may be in a low earth orbit (called LEOS).
T-1 - Trunk Level 1:	A digital transmission using a dedicated connection that provides transmission capacity at up to 1.544 Mbps. This is the North American digital transmission standard. A T-1 line is capable of transmitting 24 voice conversations at the same time. Also known as DS-1 line.
T-2 - Trunk Level 2:	Operates at 6.312 Mbps and is equivalent to 4 times the capacity of a T-1 line. Typically used only by carrier networks, a T-2 line can transmit 96 voice conversations at one time. Also called a DS-2 line.
T-3 - Trunk Level 3:	Digital transmission speed of 44.736 Mbps (same as 28 T-1s) and can carry 672 voice conversations at once. Also referred to as a DS-3 line.
Telecommunications:	Process of converting sound and data into electrical impulses that can be transmitted.
Telecommunications Act of 1996:	This act was created to increase competition in the telecommunication industry and increase the availability of advanced (broadband) telecommunication services.
Telecommuting:	Using networked technologies to perform work-related activities away from the office or business using information and communication technologies.
Twisted Pair:	Two copper wires twisted around each other. Twists may vary in length and reduce induction. This is the 'copper lines' referred to in POTS and the average local exchange service product.
Universal Service:	The federal program that establishes a 'surcharge' or fee on telephone service to create a fund which purpose is to reduce the cost of providing basic telephone service to every household in the nation. This has been the reason that business service is priced higher, even though the service delivered is the same.
Upload or upstream speed:	Speed at which data flows from your computer to the information server.
Videoconferencing:	A means of communication in clear audio and video with individual dispersed throughout the globe.
VoIP - Voice-over-IP:	The process of converting traditional phone conversations into digital data that can be transmitted via the Internet. VoIP allows phone calls to be routed over the Internet rather than the traditional phone system.
VPN - Virtual Private Network:	A virtual private network (VPN) is a way to use a public telecommunication infrastructure, such as the Internet, to provide remote offices or individual users with secure access to their organization's network. A virtual private network can be contrasted with an expensive system of owned or leased lines that can only be used by one organization. The goal of a VPN is to provide the organization with the same capabilities, but at a much lower cost. May also be called point-to-point network.
Wi-fi – Wireless Fidelity:	A local wireless application that operates in 2.4 GHz frequency band using low power (less than 100 mW) in a limited geographic range (less than 100 M). Data transmission rates can reach up to 11Mbps. This is a technology growing in popularity in high density/high traffic areas like airports. Also known as 802.11b technology with newer applications in the 802.11g category (IEEE standards).
Wi-Max – WiMAX:	Allows ISPs and carriers to offer last mile connectivity to homes and businesses without having to route wires. In addition, mobile WiMAX provides high-speed data

	for users on the go, even in fast trains. Whereas Wi-Fi hotspot coverage is measured in feet, WiMAX cells are measured in miles similar to the cellular system.
Wireless:	Can be mobile or fixed. Mobile wireless services such as “3G” and “4G” offering from major providers use nationally licensed radio frequencies to offer broadband speeds for mobile devices. Fixed wireless services use a combination of licensed and unlicensed radio frequencies to deliver broadband to homes, businesses and other fixed locations.



High speed Internet access improving throughout region
First Step Internet adds 550 new miles of wireless broadband network

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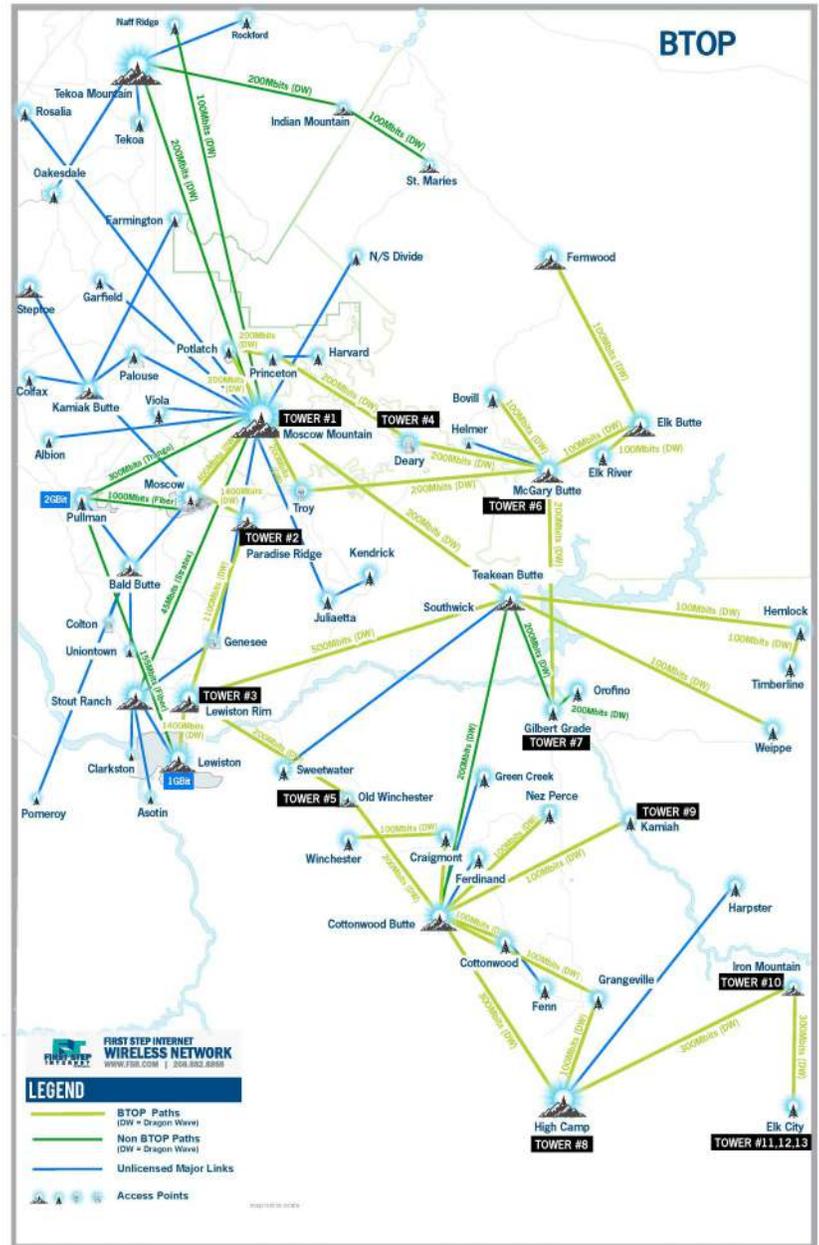
Thank you to all our members!

In the world of broadband Internet, data moves from large data center pipes in the United States to middle mile paths, which then connect to last mile infrastructure. Last mile technology links the consumer to the data.

Just three years ago, many of us in North Central Idaho had no hope of broadband access because middle mile infrastructure was not yet in place to connect to those large data channels. However, access to high speed Internet is now rapidly improving in North Central Idaho thanks to the work First Step Internet has completed under its Central North Idaho Regional Broadband Network Expansion.

“The project vastly improved the middle mile network in our region to move information around,” said Kevin Owen, owner and president of First Step Internet.

The company received about \$2.4 million from the Broadband Technologies Opportunity Program, part of the American Recovery and Reinvestment Act, and has completed 550 miles of wireless broadband network, which includes 13 new tower distribution sites and 72 new data paths.



This map illustrates the 13 new tower distribution sites and data paths of the First Step Internet Central North Idaho Regional Broadband Network Expansion. Map courtesy of First Step Internet

"The intent of the \$7 billion federal BTOP was to improve broadband connectivity across the United States and to create broadband paths where they did not yet exist," explained Owen. "That was the case in many of our communities."

The need for broadband access in our region was first identified in 2003 at a regional economic summit hosted by CEDA and other partners and was documented in two subsequent action plans, explained CEDA Executive Director Christine Frei.

CEDA received a USDA Rural Development Rural Business Opportunity grant in 2004 and worked with 16 rural communities to complete the *2006 North Central Idaho Telecom Assessment and Implementation Plan*. In 2007, CEDA received a USDA Rural Development Rural Business Enterprise Grant to complete the *North Central Idaho Schematic Wide Area Network Design*.

"These two documents were critical to the application submitted by First Step Internet," said Frei. "The Schematic Design provided an initial conceptual plan for the placement of towers to serve the non-served and underserved communities in North Central Idaho."

Owen and Frei say the use of fixed wireless microwave technology to create our broadband network makes sense for our region.



First Step Internet employees work on distribution towers on Spud Hill outside of Deary and McGary Butte outside of Bovill for the wireless broadband network. The diverse landscape in our region, while majestic, makes it more difficult to create broadband networks. The fixed wireless microwave technology First Step Internet specializes in makes the most sense for moving data throughout our region. Photos courtesy of First Step Internet

"We get more bang for our buck this way," said Owen.

It would have cost approximately \$30 million to build a broadband network like the one we have now in fiber optic cable, he said. Those costs would have translated to higher costs for consumers. Also, the price is usually higher to make new last mile connections to fiber optic cable because of the cost to extend the cable to specific sites, said Owen.

Frei said that most of us choose to live in North Central Idaho because of the diverse landscape and rural charm, but those same qualities make it harder to create broadband access.

"Our goal is to create a telecommunication backbone that could provide a conduit for last mile connectivity," she said. "The First Step project, along with a similar BTOP project of the Nez Perce Tribe, goes a long way in completing the necessary backbone the region needed.

"Wireless backbone is a very good and cost effective way to get telecommunication capability to our rural communities," she added. "Our small population and terrain makes serving the region with fiber only very difficult."

In addition to the new middle mile data paths, the BTOP grant funded last mile connections for 45 community anchor institutions throughout our region, such as schools, government buildings and hospitals. Nearly half of those institutions did not previously have broadband access.

As part of the grant the equipment and installation are provided to community anchor institutions at no

cost. Those institutions then work with First Step Internet to pay monthly for service. Owen said First Step Internet wireless broadband service offers speeds up to 100 Mbps (the average number of bits/ data transferred per second).

Community anchor institutions will find that wireless broadband service is flexible in terms of the scalability and affordability. First Step Internet can work with large and small businesses to provide customized solutions that are more affordable than the cost of T-1 (copper) lines, said Owen.

Another benefit of the new wireless broadband network is that it offers redundancy throughout the region, meaning that when one broadband connection fails, another can be tapped into to ensure continuation of service. Last mile institutions and providers may choose to purchase broadband access from First Step's new network in addition to an existing service to improve redundancy to their site, explained Owen.

Also, the new network has redundancy built into itself. There are multiple wireless data paths that can be followed. In most instances, if one path is down in the network, information can be rerouted, said Owen.

The grant money stopped short of funding last mile connections for residential and business consumers. Whether or not such individuals can connect through a provider depends on what is available in their community and also their location, said Owen.

He said First Step Internet is a last mile provider in some communities. The company is now working to upgrade and increase access points so that more people throughout the region can tap into the new network for high speed Internet. First Step Internet also sells bandwidth to other providers. Depending on your provider, you may be benefiting from the new broadband network without even knowing it.

Anyone who does not yet have broadband service is encouraged to contact the First Step Internet office. Owen is ready to explore the creation of individual last mile connections, as well as new last mile connections to serve multiple consumers.

For example, First Step Internet is creating a last mile connection for the new Idaho Youth Challenge Academy opening in Pierce. This could not have been accomplished before the Central North Idaho Regional Broadband Network Expansion project, however the work that has been done on the middle mile infrastructure throughout the Region made it possible to extend service to the school's location .

"The important thing for me is, if somebody has a need, we have the structure and the framework in place to be able to address that need," said Owen. "Is it built to everyone? No. Can it be extended? Yes. But, I need to talk to you to get it built to you. We can absolutely offer solutions."



First Step Internet opened in Moscow in 1989 as a software research and development company. It has evolved into a broadband Internet provider using mainly wireless microwave technology. First Step Internet offers numerous services, such as web design and hosting and computer sales.

For more about First Step Internet services and this project, visit the website: www.fsr.com or call (208) 882-8869.



A First Step Internet truck parked on Iron Mountain while a crew works on service into Elk City. Photo courtesy of First Step Internet



News Release

Idaho Regional Optical Network, Inc.

PO Box 1278, Boise, ID 83701

877-221-1733

www.ironforidaho.net

For immediate release: June 14, 2013

More information: Victor E. Braud, General Manager, (208) 350-6543

Nez Perce tribe expands broadband access on the Nez Perce Reservation!

The Idaho Regional Optical Network (IRON) and the Nez Perce Tribe announce a partnership to expand the Tribe's broadband access and collaboration within the reservation and across the region.

Lapwai, ID, June 14th, 2013 - The Nez Perce Tribe recently completed expansion of its broadband communications infrastructure for enhanced administrative, education public safety, and health care opportunities to better serve residents throughout the five-county Clearwater region in northern Idaho that make up the Nez Perce Reservation. Expanded access to IRON's ultra-high-speed fiber optic network will also expand the effectiveness of the Tribe's business, education, health care and public safety operations. When the Tribe first joined IRON in 2010, it became the first Native American tribe in the nation to actively participate in the broadband network opportunities provided by a Regional Optical Network such as IRON. Initial access was accomplished by leasing a 20 Mbps, digital microwave circuit to create a connection between the Tribe's tribal headquarters in Lapwai, ID, and the IRON network access point in Pullman, WA. In June of this year, the Tribe completed construction of its own digital wireless network connecting Tribal Headquarters in Lapwai, at speeds up to 300 Megabits/ second, with IRON's new point-of-presence (POP) currently being installed in Moscow, ID.

"The Nez Perce Tribe is excited about being able to utilize the backbone service from the Idaho Regional Optical Network (IRON) in our digital wireless network," stated Chris St. Germaine. "The connection to IRON provides high bandwidth back bone connection, a redundant access to the internet and offers significant cost savings for the Tribe. The IRON connection will benefit both tribal government operations and the subscribers to the Tribe's wireless internet service. Until recently such broadband connection has not been available due to the general lack of carrier grade access throughout the reservation and the region," continued St. Germaine.

Chartered in late 2007, "IRON" (www.ironforidaho.net) is a cooperative effort between five universities located in the Northwest region of the United States, the State of Idaho, the Idaho Hospital Association, and the Idaho National Laboratory (INL), to establish a high-performance Regional Optical Network (RON) within the State of Idaho. IRON is owned, operated and managed by its **Charter Associates**. Today, only five years after its inception, IRON provides low-cost, high-speed bandwidth to more than 175,000 students, teachers, administrators, researchers, and health care professionals across the state of Idaho.

Lighting Idaho, Connecting Communities



News Release

Idaho Regional Optical Network, Inc.

PO Box 1278, Boise, ID 83701

877-221-1733

Organizations eligible to participate in the Idaho Regional Optical Network, Inc. (IRON), a not-for-profit Idaho corporation, include those engaged in research, public and private education, health care, and economic development; as well as libraries, museums, and local, state, and federal government agencies. IRON, like 40 similar organizations operating in other states across the country, provides access and connectivity, at speeds of up to 10 billion characters per second, to both of the nation's advanced research and education broadband networks, Internet2 (www.internet2.org), and the National Lambda Rail (www.nlr.net).

###



Your assistance is needed. Please complete this survey and the speed test described on the last page. Electronic options for completing both can be found at: <http://portofclarkston.com/broadband/>. The purpose of the survey is to assess high-speed Internet availability and use in Asotin County.

Home Internet Service:

- Q1.** Is there a working Internet connection at the home where this survey was mailed? (*circle one response*)
- a. Yes → *Go to Question 2 directly below*
 - b. No → *Skip ahead to Question 4*
 - c. I do not know if this home has a connection → *Thank you, please ask another household member to complete the survey*
- Q2.** What is the primary (fastest or most reliable) Internet service to this home? (*circle the response that shows how the Internet comes into your home, rather than how it is connected to your computer*)
- a. Dial-up phone line - a slower 'landline' connection often provided by a telephone company.
 - b. DSL phone line - Digital Subscriber Line, a higher speed landline connection often provided by a telephone company.
 - c. Cellular service or mobile card - a higher speed connection provided by your cell phone service.
 - d. Fixed wireless - higher speed through an external receiver on your premises or an antenna connected to your computer.
 - e. Satellite - Higher speed connection from a satellite dish.
 - f. Cable - Higher speed connection often provided by a cable TV company.
 - g. Fiber - High speed fiber-optic connection. This is a dedicated circuit, typically used in businesses.
 - h. Other (*specify*) _____
 - i. Do not know the type of Internet connection at this home.
- Q3.** What is the name of the company that provides this home's primary Internet service? (*write in name or circle "DK" (Don't Know)*)
- _____

Or DK: I don't know the home Internet service provider company name.



Home Internet Connection Survey for Asotin County p. 2

Q4. Which of the following statements best describes the current primary Internet service at this home: *(circle the best response and explain)*

- a. This home does not have an Internet connection and I am not interested in getting one. → *Skip to Q6*
- b. This home does not have an Internet connection but I would like one. *(explain why you do not have an Internet connection)*
_____ → *Skip to Q6*
- c. There is a slow-speed Internet connection at this home that I am satisfied with.
- d. I would like a high speed broadband Internet connection, but it is not available at this home.
- e. There is an Internet connection at this home that is too slow and I would like to upgrade to high speed broadband. *(explain why you have not upgraded)*

- f. There is a high speed broadband Internet connection at this home that I am satisfied with.
- g. There is a high speed broadband Internet connection at this home that I am not happy with. *(explain why you are not satisfied)*

Home Internet Performance:

Q5. How would you rate the overall performance of each of the following aspects of your current household Internet service? *(circle one rating for each aspect)*

	Very Poor	Poor	Good	Very Good	No Opinion
a. Speed	-2	-1	1	2	X
b. Reliability	-2	-1	1	2	X
c. Cost	-2	-1	1	2	X
d. Customer service	-2	-1	1	2	X
e. Choice of providers	-2	-1	1	2	X
f. Overall satisfaction	-2	-1	1	2	X

Q6. Address:

- a. My Zip Code is: _____ 99402 _____ 99403 _____ Other_____
- b. I live in: _____Clarkston city limits _____Asotin city limits _____Clarkston Heights
_____Clemens Addition _____Asotin County along Snake River Rd/Grand Ronde
_____Anatone Flats _____ Elsewhere in county_____



Home Internet Use:

Q7. How often does anyone in this household use the home Internet for the following tasks? (circle one for each)

Several times a day	About once a day	At least once a week	Less often	Never
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General:

a. Read current news, weather, events	4	3	2	1	0
b. Pay bills, online banking	4	3	2	1	0
c. Buy/sell online	4	3	2	1	0
d. Mapping, directions, Google Earth	4	3	2	1	0
e. Search for information	4	3	2	1	0
f. Watch online movies, videos, programs	4	3	2	1	0
g. Travel arrangements	4	3	2	1	0
h. Gaming	4	3	2	1	0

Educational:

h. Taking online courses/distance learning	4	3	2	1	0
i. Check student grades, homework	4	3	2	1	0

Professional, Work-related:

j. Search for a job	4	3	2	1	0
k. Home-based business	4	3	2	1	0
l. Telecommute to work	4	3	2	1	0

Communications, Keeping in Touch:

m. Email/voice calls over internet (e.g. Skype)	4	3	2	1	0
n. Social media networking (Facebook, Twitter)	4	3	2	1	0

Government Services:

o. Tax related research, filing, payment	4	3	2	1	0
p. Request permits and licenses	4	3	2	1	0
q. Use government information services	4	3	2	1	0

Health Care:

r. Search for medical information	4	3	2	1	0
s. Communicate with health provider	4	3	2	1	0

Other:

_____	4	3	2	1	0
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Use of Other Connection Options:

Q8. Does anyone in this household use the Internet at a public library? (circle one)

a. Yes (go to Q9) or b. No (go to Q10)

Q9. If someone in this household uses the Internet at a public library, please explain why that service is used rather than a home Internet computer connection.



Household Cellular Telephone Use:

- Q10. Does anyone in this household use a cellular telephone? (circle one response)
 - a. Yes → Go to Question 11 directly below
 - b. No → Skip ahead to Question 15

- Q11. Do you get usable cellular telephone reception at this home? (circle one)
 - a. Yes, there is cell phone reception
 - b. No, there is little or no cell reception at this home location

- Q12. How would you rate the cellular telephone reception at this home location and while you travel in Asotin County? (circle one for each type of reception)

	Very Poor	Poor	Good	Very Good	No Opinion
Cell phone reception at home	-2	-1	1	2	X
Cell phone reception while traveling	-2	-1	1	2	X

- Q13. What was the primary reason you first purchased a cellular telephone? (circle one response)

- a. Emergency assistance
- b. Primary home phone, rather than a landline telephone
- c. Travel
- d. Other (specify) _____

- Q14. Does anyone in this household use a smart phone with a data plan for email and other applications? (circle one response)

- a. Yes, household member(s) use a smart phone and data plan
- b. No, this household only uses basic cellular telephone service

Household Characteristics:

- Q15. How would you describe this household? (circle one response)

- a. Single person
- b. Couple, family
- c. Friends, unrelated roommates

- Q16. Are there children living in this household? (circle 'yes' or 'no' for each age group)

- a. Younger than 13 years old: 1. Yes or 2. No
- b. Between 13 and 17 years old: 1. Yes or 2. No

Home Internet Speed Test: If you have Internet service in the home where this survey was mailed, you are encouraged to take the internet connection speed test at the following web site: <http://wabroadbandmapping.org/SpeedTest.aspx>

The test takes a couple of minutes. You will be shown the results of the speed test so that you know your internet speed. Please write the results here:

Any General Comments? _____

Thank you - please mail the completed form in the payment envelope or you may complete the survey online at <http://portofclarkston.com/broadband/>.



Business Internet Connection Survey for Asotin County

Your assistance is needed to help us understand the telecommunications needs of the business community. The purpose of the survey is to assess high-speed Internet availability and use by businesses and other organizations in Asotin County. Please complete both this survey and the speed test. Electronic options for completing both can be found at: <http://portofclarkston.com/broadband/>.

Location:

Q1a. How many locations does your business have? ___ 1 ___ 2-4 ___ 5 or more

Q1b: The main office zip code is: ___ 99402 ___ 99403 ___ Other _____

For the remainder of the questions, please answer with respect to the business locations in Asotin County. Please note: your home counts as a business location if you telecommute.

Q1c: The business is in (circle one): a: Clarkston City limits b: Asotin City limits c: Clarkston Heights d: Clemens Addition e. Asotin County along Snake River/Grand Ronde f: Anatone flats g: Elsewhere in County (please describe): _____

Number of Employees:

Q2a. How many full-time employees do you have on staff (counting yourself)?
___ 1-3 ___ 4-7 ___ 8-12 ___ more than 12

Q2b. How many part-time employees do you have? ___ 0 ___ 1-3 ___ 4-6
___ more than 6

Telecommuting:

Q3a. How many employees, both part-time and full-time, telecommute or work remotely? (This can be in addition to working on site.) ___ 1-4 ___ 5-9
___ 10-15 ___ more than 15

Q3b. If there is no telework or working remotely, why not?

___ The business does not require that level of activity.

___ Employees cannot connect efficiently from where they live.

___ Other (Please explain) _____

Connectivity:

Q4. How many computers and/or devices connect to the Internet at this location?
___ 1 ___ 2-4 ___ 5-7 ___ 8-12 ___ more than 12



Business Internet Connection Survey for Asotin County

Q5a. What is the primary (fastest or most reliable) Internet service to this business? (circle the response that shows how the Internet comes into your business, rather than how it is connected to your computer)

- a. Dial-up phone line - a slower 'landline' connection often provided by a telephone company.
- b. DSL phone line - Digital Subscriber Line, a higher speed landline connection often provided by a telephone company.
- c. Cellular service or mobile card - a higher speed connection provided by your cell phone service.
- d. Fixed wireless - higher speed through an external receiver on your premises or an antenna connected to your computer.
- e. Satellite - Higher speed connection from a satellite dish.
- f. Cable - Higher speed connection often provided by a cable TV company.
- g. Fiber - High speed fiber-optic connection. This is a dedicated circuit, typically used in businesses.
- h. Other (*specify*) _____
- i. Do not know the type of Internet connection at this business.

Q5b. What is the name of the company that provides this business's primary Internet service? (*write in name or circle "DK" (Don't Know)*)

Or DK: I don't know the home Internet service provider company name.

Q6. How much do you pay per month for your internet connection?

___ <\$50/month ___ \$50 - \$99/month ___ \$100 – 199/month
___ \$200 - \$499/month ___ \$500 - \$999/month ___ >\$1,000/month

Speed:

Q7a. Your business subscribes to what download speed of internet service?

___ 384 kbps ___ 788 kbps ___ 1.5mbs ___ 3.0 mps ___ 5.0 mbs
___ 10 mbs ___ Don't know ___ Other _____

Q7. What actual **internet** speed does your business have? (Please go to <http://wabroadbandmapping.org/SpeedTest.aspx> and click on "Speed Test." Then record the download and upload results to complete the survey.)

7b. Download speed: _____

7c. Upload speed: _____



Business Internet Connection Survey for Asotin County

Q7d. Are you purchasing the maximum amount of speed available from your provider? Yes No Don't know

Q8. Compared to your current bandwidth, do you need more, less, or the same? More Less The same Don't know

Online Presence:

Q9a. Does your business have an online presence (please circle all that apply)?
Website Facebook Google+ LinkedIn Industry organization website listing
Twitter Other (please explain) _____

Q9b. If your business has a website, what if the URL? _____

Q9c. If you have a website, is it hosted:
 a. Internally b. Externally C. A combination

Q9d. Do you have an enhanced website (are you streaming media, etc)?
 Yes No

Q9e. Are you constrained by your current bandwidth on your website?
 Yes No

Q9f. Does your company require a dedicated (guaranteed) Internet connection speed?
 Yes No

Business Internet Performance:

Q10. How would you rate the overall performance of each of the following aspects of your business' Internet service? (*circle one rating for each aspect*)

	Very Poor	Poor	Good	Very Good	No Opinion
a. Speed	-2	-1	1	2	X
b. Reliability	-2	-1	1	2	X
c. Cost	-2	-1	1	2	X
d. Customer service	-2	-1	1	2	X
e. Choice of providers	-2	-1	1	2	X
f. Overall satisfaction	-2	-1	1	2	X



Business Internet Connection Survey for Asotin County

Internet Use:

Q11.For the following section, please indicate your satisfaction with your ability to conduct the following activities over the Internet, given your connectivity.

(circle one for each)

	Very well	Some-what well	Some-what poorly	Very poorly	Do not use
a. Email	4	3	2	1	0
b. Voice over internet protocol (VOIP)	4	3	2	1	0
c. Business class internet videoconfer.	4	3	2	1	0
d. Skype/GoTo Meeting/online collabor.	4	3	2	1	0
e. Website searches	4	3	2	1	0
f. E-commerce (buy/sell products online)	4	3	2	1	0
g. File sharing (particularly uploading)	4	3	2	1	0
h. Downloading software	4	3	2	1	0
i. Connect with off-site workforce	4	3	2	1	0
j. Online learning/training/webinars	4	3	2	1	0
k. Manage finances/online banking	4	3	2	1	0
l. Online appointments/scheduling	4	3	2	1	0
m. Online customer support	4	3	2	1	0
n. Multiple site network?	4	3	2	1	0
o. Cloud computing	4	3	2	1	0
p. Video streaming	4	3	2	1	0

Government Services:

q. Tax related research, filing, payment	4	3	2	1	0
--	---	---	---	---	---

<u>Other:</u>	4	3	2	1	0
---------------	---	---	---	---	---

<u>Other:</u>	4	3	2	1	0
---------------	---	---	---	---	---

Do you have anything else you'd like to add regarding your internet use and/or service? _____

Do you have any comments with regard to general improvements to telecommunications connections? _____

Please mail the completed form to Port of Clarkston, 849 Port Way, Clarkston, WA or you may complete the business survey online at <http://portofclarkston.com/broadband/>.

Thank you!

Home Internet Connection Survey for Asotin County

1. Q1. Is there a working Internet connection at the location of where this survey is being completed

Answer Options	Response Percent	Response Count
Yes --> Go to Question 2 directly below	83.4%	392
No --> Skip ahead to Question 4	16.6%	78
I do not know if this home has a connection (Thank you,	0.0%	0
<i>answered question</i>		470
<i>skipped question</i>		2

2. Q2. What is the primary (fastest or most reliable) Internet service to this home? (select the response that shows how the Internet comes into your home, rather than how

Answer Options	Response Percent	Response Count
a. Dial-up phone line - a slower 'landline' connection	2.3%	9
b. DSL phone line - Digital Subscriber Line, a higher	16.3%	64
c. Cellular service or mobile card - a higher speed	4.1%	16
d. Fixed wireless - higher speed through an external	14.5%	57
e. Satellite - Higher speed connection from a satellite	2.3%	9
f. Cable - Higher speed connection often provided by a	57.0%	224
g. Fiber - High speed fiber-optic connection. This is a	0.7%	3
h. Other (specify below)	1.0%	4
i. Do not know the type of Internet connection at this	1.8%	7
Explanation if you choose "h"		15
<i>answered question</i>		393
<i>skipped question</i>		82

3. Q3. What is the name of the company that provides this home's primary Internet service? (write in name or select DK for Don't Know)

Answer Options	Response Percent	Response Count
Name of Internet provider (fill in below)	96.6%	339
DK" (Don't Know)	3.4%	12
Provider		366
<i>answered question</i>		351
<i>skipped question</i>		121

4. Q4. Which of the following statements best describes the current primary Internet service at this home: (select the best response and explain in the comments box)

Answer Options	Response Percent	Response Count
a. This home does not have an Internet connection and I	11.8%	51
b. This home does not have an Internet connection but I	4.8%	21
c. There is a slow-speed Internet connection at this	5.3%	23
d. I would like a high speed broadband Internet	4.2%	18
e. There is an Internet connection at this home that is	6.0%	26

f. There is a high speed broadband Internet connection	55.7%	241
g. There is a high speed broadband Internet connection	12.2%	53
Explanation for responses to "b" or "e" or "g"		97
<i>answered question</i>		433
<i>skipped question</i>		39

5. Q5. Home Internet Performance: How would you rate the overall performance of each of the following aspects of your current household Internet service? Please click on box

Answer Options	Response Percent	Response Count
Very Poor	3.4%	13
Poor	9.9%	38
Good	47.5%	183
Very Good	38.2%	147
No Opinion	1.0%	4
<i>answered question</i>		385
<i>skipped question</i>		87

6. 5b. Reliability

Answer Options	Response Percent	Response Count
Very Poor	2.9%	11
Poor	6.8%	26
Good	41.8%	159
Very Good	41.1%	179
No Opinion	1.3%	5
<i>answered question</i>		380
<i>skipped question</i>		92

7. 5c. Cost

Answer Options	Response Percent	Response Count
Very Poor	5.5%	21
Poor	27.5%	106
Good	47.8%	184
Very Good	16.6%	64
No Opinion	2.6%	10
<i>answered question</i>		385
<i>skipped question</i>		80

8. 5d. Customer Service

Answer Options	Response Percent	Response Count
Very Poor	2.9%	11

Poor	10.0%	38
Good	38.6%	147
Very Good	39.9%	152
No Opinion	8.6%	33
<i>answered question</i>		381
<i>skipped question</i>		91

9. 5e. Choice of Providers

Answer Options	Response Percent	Response Count
Very Poor	10.7%	40
Poor	27.5%	103
Good	30.9%	116
Very Good	17.8%	67
No Opinion	13.1%	49
<i>answered question</i>		375
<i>skipped question</i>		97

10. 5f. Overall Satisfaction

Answer Options	Response Percent	Response Count
Very Poor	3.7%	14
Poor	11.7%	44
Good	53.1%	200
Very Good	28.9%	109
No Opinion	2.6%	10
<i>answered question</i>		377
<i>skipped question</i>		95

11. Q6. Location Q6a. My zip code is:

Answer Options	Response Percent	Response Count
99402	7.3%	33
99403	92.2%	419
Other (please specify below)	0.4%	2
Other zip code		2
<i>answered question</i>		454
<i>skipped question</i>		18

12. Q6b. I live in

Answer Options	Response Percent	Response Count
Clarkston City Limits	31.4%	137

Asotin City Limits	4.2%	18
Clarkston Heights	37.6%	164
Clemens Addition	3.0%	13
Cloverland area	0.0%	0
Asotin County along Snake River/Grand Ronde	4.1%	18
Anatone Flats	0.2%	1
Elsewhere in the County (Please describe below)	19.5%	85
Description of "elsewhere"		80
	<i>answered question</i>	436
	<i>skipped question</i>	36

13. Q7. How often does anyone in this household use the home Internet for the following tasks? GENERAL USES: 7a. Read current news, weather, events

Answer Options	Response Percent	Response Count
Several times/day	32.3%	124
Once a day	31.8%	122
Once a week	11.5%	44
Less often	14.6%	56
Never	9.9%	38
	<i>answered question</i>	384
	<i>skipped question</i>	88

14. 7b. Pay bills - online banking

Answer Options	Response Percent	Response Count
Several times/day	5.2%	20
Once a day	12.1%	47
Once a week	32.3%	125
Less often	19.9%	77
Never	30.5%	118
	<i>answered question</i>	387
	<i>skipped question</i>	85

15. 7c. Buy/sell online

Answer Options	Response Percent	Response Count
Several times/day	2.6%	10
Once a day	3.9%	15
Once a week	10.1%	74
Less often	53.4%	207
Never	21.1%	82
	<i>answered question</i>	388
	<i>skipped question</i>	84

16. 7d. Mapping, directions, GoogleEarth

Answer Options	Response Percent	Response Count
Several times/day	4.7%	18
Once a day	5.4%	21
Once a week	21.5%	83
Less often	57.5%	222
Never	10.9%	42
<i>answered question</i>		386
<i>skipped question</i>		86

17. 7e. Search for information

Answer Options	Response Percent	Response Count
Several times/day	35.6%	139
Once a day	23.0%	90
Once a week	26.3%	103
Less often	10.7%	42
Never	4.4%	17
<i>answered question</i>		391
<i>skipped question</i>		83

18. 7f. Watch online movies, videos, online programs

Answer Options	Response Percent	Response Count
Several times/day	11.2%	43
Once a day	8.9%	34
Once a week	12.2%	47
Less often	24.3%	93
Never	43.3%	166
<i>answered question</i>		383
<i>skipped question</i>		89

19. 7g. Travel arrangements

Answer Options	Response Percent	Response Count
Several times/day	1.2%	5
Once a day	2.3%	9
Once a week	9.6%	37
Less often	64.1%	248
Never	22.7%	88
<i>answered question</i>		387
<i>skipped question</i>		85

20. 7h. Gaming		
Answer Options	Response Percent	Response Count
Several times/day	10.6%	41
Once a day	8.8%	34
Once a week	6.9%	27
Less often	17.3%	67
Never	56.3%	218
<i>answered question</i>		387
<i>skipped question</i>		85

21. EDUCATIONAL USES: 7i. Taking online courses - distance learning		
Answer Options	Response Percent	Response Count
Several times/day	4.1%	16
Once a day	2.6%	10
Once a week	3.9%	15
Less often	22.3%	86
Never	67.1%	259
<i>answered question</i>		386
<i>skipped question</i>		86

22. 7j. Check student grades or obtain homework assistance		
Answer Options	Response Percent	Response Count
Several times/day	3.4%	13
Once a day	5.5%	21
Once a week	5.8%	22
Less often	9.1%	35
Never	76.2%	291
<i>answered question</i>		382
<i>skipped question</i>		90

23. PROFESSIONAL WORK RELATED: 7k. Search for a job		
Answer Options	Response Percent	Response Count
Several times/day	3.1%	12
Once a day	2.3%	9
Once a week	6.2%	24
Less often	19.7%	76
Never	68.7%	265
<i>answered question</i>		386
<i>skipped question</i>		86

24. 7l. Run a home based business

Answer Options	Response Percent	Response Count
Several times/day	4.4%	19
Once a day	4.0%	15
Once a week	6.3%	18
Less often	6.3%	30
Never	79.0%	302
<i>answered question</i>		384
<i>skipped question</i>		88

25. 7m. Telecommute for work

Answer Options	Response Percent	Response Count
Several times/day	5.0%	19
Once a day	2.9%	11
Once a week	4.2%	16
Less often	6.5%	25
Never	81.4%	312
<i>answered question</i>		383
<i>skipped question</i>		89

26. COMMUNICATIONS - KEEPING IN TOUCH: 7n. Email, voice over internet (VOIP), Skype

Answer Options	Response Percent	Response Count
Several times/day	34.3%	133
Once a day	29.3%	113
Once a week	12.9%	50
Less often	10.1%	39
Never	13.4%	52
<i>answered question</i>		387
<i>skipped question</i>		85

27. 7o. Social media networking (Facebook, Twitter)

Answer Options	Response Percent	Response Count
Several times/day	27.2%	104
Once a day	20.2%	77
Once a week	10.2%	39
Less often	12.8%	49
Never	29.6%	113
<i>answered question</i>		382

28. GOVERNMENT SERVICES: 7p. Tax related research, filing, payment

Answer Options	Response Percent	Response Count
Several times/day	2.4%	7
Once a day	3.1%	11
Once a week	4.7%	24
Less often	42.7%	194
Never	47.1%	150
<i>answered question</i>		386
<i>skipped question</i>		86

29. 7q. Request permits or licenses

Answer Options	Response Percent	Response Count
Several times/day	1.0%	4
Once a day	1.3%	5
Once a week	3.4%	13
Less often	47.4%	184
Never	46.9%	182
<i>answered question</i>		388
<i>skipped question</i>		84

30. 7r. Use government information services

Answer Options	Response Percent	Response Count
Several times/day	2.3%	9
Once a day	3.1%	12
Once a week	10.8%	42
Less often	55.3%	214
Never	28.4%	110
<i>answered question</i>		387
<i>skipped question</i>		85

31. HEALTH CARE: 7s. Search for medical information

Answer Options	Response Percent	Response Count
Several times/day	2.3%	9
Once a day	2.6%	10
Once a week	20.4%	79
Less often	56.6%	219
Never	18.1%	70

<i>answered question</i>	387
<i>skipped question</i>	85

32. 7t. Communicate with health provider

Answer Options	Response Percent	Response Count
Several times/day	1.1%	4
Once a day	0.8%	3
Once a week	3.9%	15
Less often	32.1%	123
Never	62.1%	238
<i>answered question</i>		383
<i>skipped question</i>		89

33. 7u. Other uses:

Answer Options	Response Percent	Response Count
Several times/day	15.9%	24
Once a day	11.3%	17
Once a week	3.3%	5
Less often	11.9%	18
Never	57.6%	87
Please describe "Other use":		36
<i>answered question</i>		151
<i>skipped question</i>		321

34. Use of Other Connections Options: Q8. Does anyone in this household use the Internet at a public library? (Choose one)

Answer Options	Response Percent	Response Count
a. Yes (go to Q9)	6.1%	27
b. No (go to Q10)	93.9%	413
<i>answered question</i>		440
<i>skipped question</i>		32

35. Q9. If someone in this household uses the Internet at a public library, please explain why that service is used rather than a home

Answer Options	Response Count
	17
<i>answered question</i>	17
<i>skipped question</i>	314

36. Household Cellular Telephone Use: Q10. Does anyone in this household use a cellular telephone?

Answer Options	Response Percent	Response Count
Yes (Go to Question 11)	87.3%	407
No (Skip ahead to Question 15)	12.7%	45
<i>answered question</i>		447
<i>skipped question</i>		25

37. Q11. Do you get usable cellular telephone reception at this home?

Answer Options	Response Percent	Response Count
Yes, there is cell phone reception	97.8%	408
No, there is little or no cell reception at this home	2.2%	9
<i>answered question</i>		417
<i>skipped question</i>		55

38. Q12. Quality of service (cell phone) Q12a. How would you rate the cellular telephone reception at this home location?

Answer Options	Response Percent	Response Count
Very Poor	1.7%	7
Poor	4.6%	19
Good	33.2%	136
Very Good	59.2%	242
No Opinion	1.2%	5
<i>answered question</i>		409
<i>skipped question</i>		63

39. Q12b. How would you rate the cellular telephone reception while traveling around Asotin County?

Answer Options	Response Percent	Response Count
Very poor	3.3%	13
Poor	12.5%	49
Good	42.0%	165
Very good	36.1%	142
No opinion	6.1%	24
<i>answered question</i>		393
<i>skipped question</i>		79

40. Q13. What was the primary reason you first purchased a cellular telephone?

Answer Options	Response Percent	Response Count
Emergency assistance	23.4%	94

Primary home phone, rather than a landline telephone	25.1%	101
Travel	22.2%	89
Other (please describe below)	29.3%	118
Description of "other"		90
<i>answered question</i>		402
<i>skipped question</i>		70

41. Q14. Does anyone in this household use a smart phone with a data plan for email and other applications?

Answer Options	Response Percent	Response Count
Yes, household member(s) use a smart phone and data	43.9%	167
No, this household only uses basic cellular telephone	56.1%	213
<i>answered question</i>		380
<i>skipped question</i>		92

42. Household Characteristics: Q15. How would you describe this household?

Answer Options	Response Percent	Response Count
Single person	24.5%	111
Couple, family	73.7%	334
Friends, unrelated roommates	1.8%	8
<i>answered question</i>		453
<i>skipped question</i>		19

43. Q16a. Are there children younger than 13 years old living in this household?

Answer Options	Response Percent	Response Count
Yes	10.6%	47
No	89.3%	396
<i>answered question</i>		443
<i>skipped question</i>		29

44. Q16b. Are there children living in the household between the ages of 13 and 17 years old

Answer Options	Response Percent	Response Count
Yes	6.9%	30
No	93.1%	402
<i>answered question</i>		432
<i>skipped question</i>		40

45. Upload Speed

Answer Options	Response Count
	83
<i>answered question</i>	83
<i>skipped question</i>	248

46. Download speed

Answer Options	Response Count
	87
<i>answered question</i>	87
<i>skipped question</i>	244

47. Do you have any general comments you wish to share relating to improving telecommunications connections?

Answer Options	Response Count
	39
<i>answered question</i>	39
<i>skipped question</i>	292

Business Internet Connection Survey for Asotin County

1. Location 1a. How many locations does your business have?		
Answer Options	Response Percent	Response Count
1	78.1%	25
2-4	18.8%	6
5 or more	3.1%	1
	<i>answered question</i>	32
	<i>skipped question</i>	0

Q1b. The zip code of the main office is:		
Answer Options	Response Percent	Response Count
99402	6.3%	2
99403	93.7%	30
Other (please specify below)	0.0%	0
Other zip code		1
	<i>answered question</i>	32
	<i>skipped question</i>	0

For the remainder of the questions, please answer with respect to the business locations in Asotin County. Please note: your home counts as a business location if you telecommute.

Q1c. This business is located in:		
Answer Options	Response Percent	Response Count
Clarkston City Limits	68.8%	22
Asotin City Limits	9.4%	3
Clarkston Heights	12.5%	4
Clemens Addition	0.0%	0
Cloverland area	0.0%	0
Asotin County along Snake River/Grand Ronde	3.1%	1
Anatone Flats	0.0%	0
Elsewhere in the County (Please describe below)	6.2%	2
Description of "elsewhere"		2
	<i>answered question</i>	32
	<i>skipped question</i>	0

Number of employees: Q2a. How many full-time employees do you have on staff (counting yourself)?		
Answer Options	Response Percent	Response Count
1-3	44.8%	13
4-7	20.7%	6
8-12	6.9%	2
more than 12	27.6%	8
	<i>answered question</i>	29
	<i>skipped question</i>	3

Q2b. How many part-time employees do you have?		
--	--	--

Answer Options	Response Percent	Response Count
0	41.4%	12
1-3	41.4%	12
4-6	3.4%	1
more than 6	13.8%	4
	<i>answered question</i>	29
	<i>skipped question</i>	3

Q3. Telecommuting Q3a. How many employees, both part-time and full-time, telecommute or work remotely? (This can be in addition to working on site.)

Answer Options	Response Percent	Response Count
1-4	93.8%	15
5-9	0.0%	0
10-15	0.0%	0
more than 15	6.3%	1
	<i>answered question</i>	16
	<i>skipped question</i>	16

Q3b. If there is no telework or working remotely, why not?

Answer Options	Response Percent	Response Count
activity.	93.7%	15
live.	0.0%	0
Other (please explain below)	6.3%	1
Other (please specify)		0
	<i>answered question</i>	16
	<i>skipped question</i>	16

Q4. How many computers and/or devices connect to the Internet at this location?

Answer Options	Response Percent	Response Count
1	6.9%	2
2-4	48.3%	14
5-7	17.2%	5
8-12	13.8%	4
more than 12	13.8%	4
	<i>answered question</i>	29
	<i>skipped question</i>	3

Q5a. What is the primary (fastest or most reliable) Internet service to this business?

Answer Options	Response Percent	Response Count
a. Dial-up phone line	7.2%	2
b. DSL phone line	21.4%	6
c. Cellular service or mobile card	7.1%	2
d. Fixed wireless	28.6%	8

e. Satellite	0.0%	0	
f. Cable	32.1%	9	
g. Fiber	3.6%	1	
Explanation if you choose "h"		1	
	<i>answered question</i>		28
	<i>skipped question</i>		4

Q5b. What is the name of the company that provides this business' primary Internet service? (write in name or select DK for Don't Know)

Answer Options	Response Percent	Response Count	
Name of Internet provider (fill in below)	92.0%	23	
DK" (Don't Know)	8.0%	2	
Provider		24	
	<i>answered question</i>		25
	<i>skipped question</i>		7

Q6. How much do you pay per month for your internet connection?

Answer Options	Response Percent	Response Count	
< \$50/month	19.3%	5	
\$50 - \$99/month	50.0%	13	
\$100 - 199/month	26.9%	7	
\$200 - \$499/month	0.0%	0	
\$500 - \$999/month	0.0%	0	
> \$1,000/month	3.8%	1	
	<i>answered question</i>		26
	<i>skipped question</i>		6

Q7. Speed Q7a. What speed of internet do you subscribe to?

Answer Options	Response Percent	Response Count	
384 kbps	0.0%	0	
788 kbps	0.0%	0	
1.5 mbs	7.4%	2	
3.0 mbs	3.7%	1	
5.0 mbs	11.1%	3	
10 mbs	11.1%	3	
Don't know	55.6%	15	
Other (please describe below)	11.1%	3	
Description of "other"		3	
	<i>answered question</i>		27
	<i>skipped question</i>		5

Q7b. What actual download speed does your business have? (Please go to <http://wabroadbandmapping.org/SpeedTest.aspx> using another tab of your web browser and click on "Speed Test." Then return to this tab with the results to complete the survey.)

Answer Options	Response Count
	22
<i>answered question</i>	22
<i>skipped question</i>	10

Q7c. What actual upload speed does your business have?

Answer Options	Response Count
	22
<i>answered question</i>	22
<i>skipped question</i>	10

Q7d. Are you buying the maximum amount of speed available from your provider?

Answer Options	Response Percent	Response Count
Yes	25.9%	7
No	29.6%	8
Don't know	44.4%	12
	<i>answered question</i>	27
	<i>skipped question</i>	5

Q8. Compared to your current bandwidth, do you need more, less, or the same?

Answer Options	Response Percent	Response Count
More	37.0%	10
Less	0.0%	0
The same	44.5%	12
Don't know	18.5%	5
	<i>answered question</i>	27
	<i>skipped question</i>	5

Online Presence Q9a. Does your business have an online presence (please click on all that apply)?

Answer Options	Response Percent	Response Count
Q7b-e; if not, go to Q8)	78.3%	18
Facebook	43.5%	10
Google+	21.7%	5
Industry organization website listing	34.8%	8
Twitter	8.7%	2
Other (please explain below)	4.3%	1
Explanation of "other"		0
	<i>answered question</i>	23
	<i>skipped question</i>	9

Q9b. If your business has a website, what is the URL?

Answer Options	Response Count
	13
<i>answered question</i>	13

Q9c. If you have a website, is it hosted?

Answer Options	Response Percent	Response Count	
a. Internally	22.2%	4	
b. Externally	72.2%	13	
c. A combination	5.6%	1	
	<i>answered question</i>		18
	<i>skipped question</i>		14

Q9d. Do you have an enhanced website (are you streaming media, etc)?

Answer Options	Response Percent	Response Count	
Yes	25.0%	5	
No	75.0%	15	
	<i>answered question</i>		20
	<i>skipped question</i>		12

Q9e. Are you constrained by your current bandwidth on your website?

Answer Options	Response Percent	Response Count	
Yes	19.0%	4	
No	81.0%	17	
	<i>answered question</i>		21
	<i>skipped question</i>		11

Q9f. Does your company require a dedicated (guaranteed) Internet connection speed?

Answer Options	Response Percent	Response Count	
Yes	50.0%	11	
No	50.0%	11	
	<i>answered question</i>		20
	<i>skipped question</i>		10

Q10. Business Internet Performance: How would you rate the overall performance of each of the following aspects of your current business Internet service? Please click on box for drop down menu and select one response.**Q10a. Speed**

Answer Options	Response Percent	Response Count	
Very Poor	3.8%	1	
Poor	19.2%	5	
Good	53.9%	14	
Very Good	23.1%	6	
No Opinion	0.0%	0	
	<i>answered question</i>		26
	<i>skipped question</i>		6

Q10b. Reliability		
Answer Options	Response Percent	Response Count
Very Poor	0.0%	0
Poor	7.7%	2
Good	53.8%	14
Very Good	38.5%	10
No Opinion	0.0%	0
	<i>answered question</i>	26
	<i>skipped question</i>	6

Q10c. Cost		
Answer Options	Response Percent	Response Count
Very Poor	7.4%	2
Poor	11.1%	3
Good	55.6%	15
Very Good	18.5%	5
No Opinion	7.4%	2
	<i>answered question</i>	27
	<i>skipped question</i>	6

Q10d. Customer Service		
Answer Options	Response Percent	Response Count
Very Poor	0.0%	0
Poor	20.0%	5
Good	48.0%	12
Very Good	32.0%	8
No Opinion	0.0%	0
	<i>answered question</i>	25
	<i>skipped question</i>	7

Q10e. Choice of Providers		
Answer Options	Response Percent	Response Count
Very Poor	19.2%	5
Poor	34.6%	9
Good	30.8%	8
Very Good	7.7%	2
No Opinion	7.7%	2
	<i>answered question</i>	26
	<i>skipped question</i>	6

Q10f. Overall Satisfaction		
Answer Options	Response Percent	Response Count
Very Poor	3.9%	1
Poor	15.4%	4
Good	69.2%	18

Very Good	11.5%	3	
No Opinion	0.0%	0	
	<i>answered question</i>		26
	<i>skipped question</i>		6

Q11. For the following section, please indicate your satisfaction with your ability to conduct the following activities over the Internet given your connectivity. Q11a. Email

Answer Options	Response Percent	Response Count	
Very well	65.4%	17	
Somewhat well	26.9%	7	
Somewhat poorly	7.7%	2	
Very poorly	0.0%	0	
Do not use	0.0%	0	
	<i>answered question</i>		26
	<i>skipped question</i>		6

Q11b. Voice over internet protocol (VOIP) (e.g. Vonage)

Answer Options	Response Percent	Response Count	
Very well	7.7%	2	
Somewhat well	11.5%	3	
Somewhat poorly	0.0%	0	
Very poorly	3.9%	1	
Do not use	76.9%	20	
	<i>answered question</i>		26
	<i>skipped question</i>		6

Q11c. Business class internet videoconferencing

Answer Options	Response Percent	Response Count	
Very well	0.0%	0	
Somewhat well	7.7%	2	
Somewhat poorly	3.9%	1	
Very poorly	3.8%	1	
Do not use	84.6%	22	
	<i>answered question</i>		26
	<i>skipped question</i>		6

Q11d. Skype/GoTo Meeting or other online collaboration

Answer Options	Response Percent	Response Count	
Very well	3.9%	1	
Somewhat well	19.2%	5	
Somewhat poorly	0.0%	0	
Very poorly	0.0%	0	
Do not use	76.9%	20	
	<i>answered question</i>		26
	<i>skipped question</i>		6

Q11e. Website searches		
Answer Options	Response Percent	Response Count
Very well	57.7%	15
Somewhat well	26.9%	7
Somewhat poorly	15.4%	4
Very poorly	0.0%	0
Do not use	0.0%	0
	<i>answered question</i>	26
	<i>skipped question</i>	6

Q11f. E-commerce (buying or selling products online)		
Answer Options	Response Percent	Response Count
Very well	30.8%	8
Somewhat well	23.1%	6
Somewhat poorly	3.8%	1
Very poorly	0.0%	0
Do not use	42.3%	11
	<i>answered question</i>	26
	<i>skipped question</i>	6

Q11g. File sharing (particularly uploading), including design drawings		
Answer Options	Response Percent	Response Count
Very well	11.5%	3
Somewhat well	19.2%	5
Somewhat poorly	3.9%	1
Very poorly	0.0%	0
Do not use	65.4%	17
	<i>answered question</i>	26
	<i>skipped question</i>	6

Q11h. Downloading software		
Answer Options	Response Percent	Response Count
Very well	11.5%	3
Somewhat well	65.4%	17
Somewhat poorly	7.7%	2
Very poorly	3.9%	1
Do not use	11.5%	3
	<i>answered question</i>	26
	<i>skipped question</i>	6

Q11i. Connect with off-site workforce		
Answer Options	Response Percent	Response Count
Very well	11.5%	3
Somewhat well	30.8%	8

Somewhat poorly	0.0%	0	
Very poorly	7.7%	2	
Do not use	50.0%	13	
	<i>answered question</i>		26
	<i>skipped question</i>		6

Q11j. Online learning/training			
Answer Options	Response Percent	Response Count	
Very well	19.2%	5	
Somewhat well	38.5%	10	
Somewhat poorly	11.5%	3	
Very poorly	0.0%	0	
Do not use	30.8%	8	
	<i>answered question</i>		26
	<i>skipped question</i>		6

Q11k. Manage finances/online banking			
Answer Options	Response Percent	Response Count	
Very well	30.8%	8	
Somewhat well	42.3%	11	
Somewhat poorly	11.5%	3	
Very poorly	3.9%	1	
Do not use	11.5%	3	
	<i>answered question</i>		26
	<i>skipped question</i>		6

Q11l. Online appointments/scheduling			
Answer Options	Response Percent	Response Count	
Very well	19.2%	5	
Somewhat well	26.9%	7	
Somewhat poorly	7.7%	2	
Very poorly	0.0%	0	
Do not use	46.2%	12	
	<i>answered question</i>		26
	<i>skipped question</i>		6

Q11m. Online customer support			
Answer Options	Response Percent	Response Count	
Very well	15.4%	4	
Somewhat well	26.9%	7	
Somewhat poorly	7.7%	2	
Very poorly	3.8%	1	
Do not use	46.2%	12	
	<i>answered question</i>		26
	<i>skipped question</i>		6

Q11n. Multiple site network?

Answer Options	Response Percent	Response Count
Very well	15.4%	4
Somewhat well	30.8%	8
Somewhat poorly	0.0%	0
Very poorly	0.0%	0
Do not use	53.8%	14
	<i>answered question</i>	26
	<i>skipped question</i>	6

Q11o. Cloud computing

Answer Options	Response Percent	Response Count
Very well	15.4%	4
Somewhat well	11.5%	3
Somewhat poorly	3.9%	1
Very poorly	0.0%	0
Do not use	69.2%	18
	<i>answered question</i>	26
	<i>skipped question</i>	6

Q11p. Video streaming

Answer Options	Response Percent	Response Count
Very well	11.5%	3
Somewhat well	11.5%	3
Somewhat poorly	23.1%	6
Very poorly	3.9%	1
Do not use	50.0%	13
	<i>answered question</i>	26
	<i>skipped question</i>	6

GOVERNMENT SERVICES: Q11q. Tax related research, filing, payment

Answer Options	Response Percent	Response Count
Very well	29.2%	7
Somewhat well	45.8%	11
Somewhat poorly	4.2%	1
Very poorly	0.0%	0
Do not use	20.8%	5
	<i>answered question</i>	24
	<i>skipped question</i>	8

Q11r. Other (please list)

Answer Options	Response Percent	Response Count
Very well	0.0%	0
Somewhat well	11.1%	1
Somewhat poorly	0.0%	0

Residential survey comments

Website seemed to be only for broadband
had complications running speed test
Please upgraded this community
Tired of being told have to bundle to get a decent price. Not satisfied with my internet or the cost.
Tried several times but unable to get results
They, Century Link, promises to raise power up on internet by March 6th, 2013
We look forward to quallity high speed broadband internet. Thank You
We use both internet and cell phones for many uses. The best speed for the money was clearwire but our signal is blocked by Swallows Nest rock. Cable is only cost effective if you use their tv service and we don't want that many channels. So we use centurylink through dish network because we only want family programming which is \$20 a month with all fees though our tv/internet is still \$80/ month. with a super slow connection. We have no home phone because the wiring to our house is terrible and the home phone line you can't even be heard on nor hear the other party. We can't keep connection on cell phone Critchfield gulch or going towards Asotin on highway. Most times trying to connect with our kids in Asotin for after school activities they can recieve a text that may take a while to go thru but many times voice calls will not ring through.
I live in Asotin City Limits, the cable company does not offer any cable to the neighborhood and TDS has faster DSL service but their equipment doesn't support our neighborhood. I would expect both to offer equivalent service to all residents of the city.
I would like more options for truly high speed internet.
Please provide another choice. Our service is very expensive and unreliable.
I wish I had dependable service!
we do need more service providers in the valley.. we don't have cell phones so we are stuck with qwest or cable one
Would like it faster
I use high speed internet service at wor. Would love it at home but the "bundled" services options don't work for non-tv, non-cell phone users like us!
Can't do test not at home at this time
for my usage what we have is adequit.
All this is none of your business!!
Now I'm really dissatisfied with Century Link!!
Pretty darn slow!
waited five minutes no answer for speeds this was a waste of my time!
Not always that fast
I have tried to get faster boradband, only sattelite is available, but then you are limited in usage, at a higher cost. I also tried to stream movies or watch TV shows online, but at 2mbps there is to much buffering - to slow! My daughter also took college courses online and many times lost connections and service, was to slow!
I would love higher speeds but don't feel I can afford it.
After taking the Internet Speed test I found I am very disappointed in the server I have and the slow speed. We have internet and phone service thru Clearwire and it appears they are very slow. I will be looking for another server as I am now not satisfied with what we have.
I'm not clear as to why the port of Clarkston should be involved with this. Actually, I would like to know why we need the Port of Clarkston at all. There might be a very good reason, but I sure can't think of it. Just "thinking out loud"... No reply necessary.
Please, please provide additional internet service choices. Thank you.
We're looking for other options as cable is not a good option for us and Clearwire could go away.
it apparently doesn't take into account a home network setup
Community would benefit with fast internet, informational and financial medias are there, we just can't get decent connectivity with current 1990's technology.
full-time employment outside of home; would use internet more often if home.
There is no service provider that will provide service to my home. The cable, phone and dish companies informed me that they are unable to provide service to my home. Clear wire is not supported in the area by the company but it does provide some limited service that is very slow.

would like something faster without the hassel of cable or phone lines
We are paying for 20 mbps. It would be nice if the companies were required to deliver what is paid for.
Don't know if this is fast or slow?
I am satisfied
I rest my case! The speed reported above was measured with your program at 6:15 pm tonight. It is typical of my speed until around 10 pm at night. I don't do a lot of the internet activities you asked about (Skype, movies, games, etc.) because my current broadband service is so slow--all I can say is that it's better than dial-up. I hope that your project can help residents in western Asotin County that companies like CableOne, First-Step, and CenturyLink do not serve.
test done on a wireless laptop
wifi companies work up the block bot not at my house. I can only use cable
What does this have to do with my water bill??
With Cable One you have to take a package deal - very expensive
I moved here from Seattle, WA. So use to much faster speeds thru fiber optics
Cable One High Speed works perfect.
It is really fast!
What will this survey be used for?
HELP!!!
The speed is fine, the cost is too high @58.60 a month
Thanks
If we could get online we would take the test
The Port of Clarkston should stay out of it.
Compared to Europe my internet connections rates are very high.
Cable One is not a reliable provider and I have previously experienced failure of service when internet needs were critical in attempting to obtain information for work related events
The test did not work.
Would love to have fiber and a different provider choice.
we need more providers
Anything that can be done to lower the cost of high speed internet would be good. I only subscribe to internet through Cableone and pay \$63. per month for it.
I would love to have faster connections as I work from home and it is very important. There is also no other provider to compete with cable one in our area for the speed we have so price tends to be high I feel.
I really need a faster internet speed to work from home as I am on production and it impacts my performance. I was unaware that there maybe a broadband service in our area.
Expanded home wireless capabilities (whole house coverage) would be great (without having to purchase multiple home routers). I don't even know if that's possible.
No
you might suggest pasting the url for the test....when I typed it out it didn't work..pasting is best...
Cable internet, while very fast, is getting too expensive.
Fiber optic for everyone would be ideal and the providers need to be more fair in pricing. Not enough competition and we in the US are being taken advantage of and paying more than we should for what is provided.
Couldn't take the speed test as we are away from home at the present time. Assume you know the speed Cable One produces when the advertise 5 Meg.
Cable is reliable but very expensive and not as fast as I would like to have. Need choices. Cable One is my ONLY choice.
Goes out often. No notice of loss of connectivity and loss of phone service. I want Comcast!
The cost of broadband service is critical to most users. The local cable company provides a good service but at a price that appears greater than in more competitive areas.
Verizon cell service is OK, but very marginal at this location, one or two bars. Some dropped calls.
Current services terrible. Need help fixing them to get closer to national average for upload and download speeds in this area (Clemmans)

upload sucks for the slower speed the price sucks too
I was needing to have a upload speed and a download speed of 5.0 Mbps to be able to work at home.
Surprised our stats seem much lower than average.
go for it; we need to be in the 21st Century
no
just changed to high speed
Have done it (speed test) rated slow
dont have a computer - its too complicated and I like our easy simple lifestyle!
I had internet (dial up) I did not care for the "unwanted" ads in my email
Someday I may learn to use the internet but for now, I'm B.C. (Before Computers)
I have no internet service and have no need for one.
Port of Clarkston: Please, please stay out of competition with private enterprise! Your track record is deplorable.
Dont have a computer and dont plan to
I have no computer and wouldn't know how to turn one on, or operate it.

Comments to Business Surveys

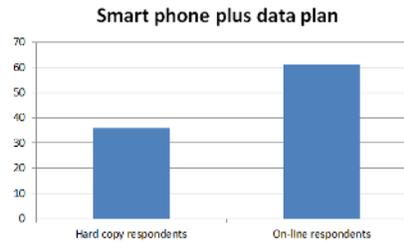
I pay Verizon \$100 per month for 10 gigs and I think that is too much. I need to budget my usage so as to not exceed the 10 gigs. (Or I pay extra).
Cable One doubled our service speed last summer but did not charge more. In fact our bill went down \$20 a month after the upgrade.
Apparently Clearwire is no longer recruiting customers in this area
We would like to see cable internet in our area.
We currently have an agreement with Cable One to get new services installed - however are stuck in a contract with XO
All internet service is arranged from our corporate headquarters in New York.

Appendix F -- Differences in residential survey respondents, depending on method used to respond

An interesting pattern evolved when analysis of those responding online was compared with respondents responding to hard copy surveys. Online respondents were much more likely to have a smart phone and a data plan. It's clear that online respondents could be considered higher use adopters.

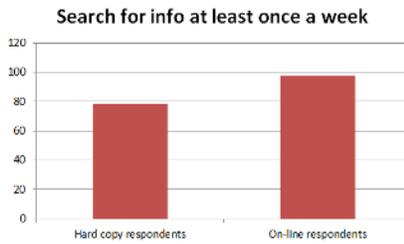
Smart phone and data plan

Hard copy respondents 35.8
On-line respondents 61.0



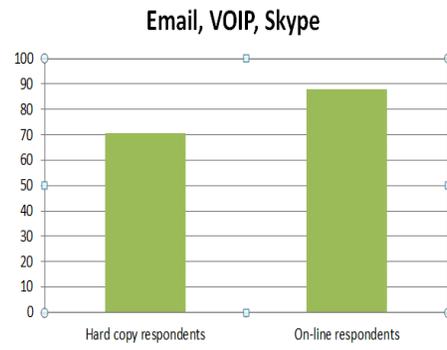
Search for info at least once a week

Hard copy respondents 78.3
On-line respondents 97.7



Email, VOIP, Skype

Hard copy respondents 70.6
On-line respondents 87.9



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quickfacts.census.gov/qfd/states/53/53003.html

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Asotin County, Washington

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People QuickFacts	Asotin County	Washington
Population, 2012 estimate	21,888	6,897,012
Population, 2010 (April 1) estimates base	21,623	6,724,543
Population, percent change, April 1, 2010 to July 1, 2012	1.2%	2.6%
Population, 2010	21,623	6,724,540
Persons under 5 years, percent, 2011	5.8%	6.5%
Persons under 18 years, percent, 2011	21.3%	23.2%
Persons 65 years and over, percent, 2011	19.4%	12.7%
Female persons, percent, 2011	52.0%	50.1%
White persons, percent, 2011 (a)	94.8%	82.0%
Black persons, percent, 2011 (a)	0.5%	3.8%
American Indian and Alaska Native persons, percent, 2011 (a)	1.5%	1.8%
Asian persons, percent, 2011 (a)	0.7%	7.5%
Native Hawaiian and Other Pacific Islander persons, percent, 2011 (a)	0.2%	0.7%
Persons reporting two or more races, percent, 2011	2.3%	4.3%
Persons of Hispanic or Latino Origin, percent, 2011 (b)	3.1%	11.6%
White persons not Hispanic, percent, 2011	92.2%	72.1%
Living in same house 1 year & over, percent, 2007-2011	84.9%	82.3%
Foreign born persons, percent, 2007-2011	1.5%	12.8%
Language other than English spoken at home, percent age 5+, 2007-2011	3.8%	17.8%
High school graduate or higher, percent of persons age 25+, 2007-2011	88.7%	89.8%
Bachelor's degree or higher, percent of persons age 25+, 2007-2011	15.9%	31.4%
Veterans, 2007-2011	2,302	601,507
Mean travel time to work (minutes), workers age 16+, 2007-2011	17.0	25.5
Housing units, 2011	9,919	2,907,490
Homeownership rate, 2007-2011	71.3%	64.4%
Housing units in multi-unit structures, percent, 2007-2011	14.0%	25.7%
Median value of owner-occupied housing units, 2007-2011	\$170,100	\$283,200
Households, 2007-2011	8,880	2,602,568
Persons per household, 2007-2011	2.38	2.50
Per capita money income in the past 12 months (2011 dollars), 2007-2011	\$23,875	\$30,481
Median household income, 2007-2011	\$41,993	\$58,890
Persons below poverty level, percent, 2007-2011	14.6%	12.5%
Business QuickFacts	Asotin County	Washington
Private nonfarm establishments, 2011	432	173,5112
Private nonfarm employment, 2011	4,374	2,355,1232
Private nonfarm employment, percent change, 2010-2011	-3.4%	1.2%2
Nonemployer establishments, 2010	1,082	405,256
Total number of firms, 2007	1,456	551,340
Black-owned firms, percent, 2007	F	S
American Indian- and Alaska Native-owned firms, percent, 2007	F	1.2%
Asian-owned firms, percent, 2007	F	6.8%
Native Hawaiian and Other Pacific Islander-owned firms, percent, 2007	F	0.2%
Hispanic-owned firms, percent, 2007	F	3.2%
Women-owned firms, percent, 2007	17.0%	28.7%
Manufacturers shipments, 2007 (\$1000)	0 ¹	112,053,283
Merchant wholesaler sales, 2007 (\$1000)	D	76,790,966
Retail sales, 2007 (\$1000)	208,856	92,968,519
Retail sales per capita, 2007	\$9,867	\$14,380
Accommodation and food services sales, 2007 (\$1000)	22,983	12,389,422
Building permits, 2012	19	28,118
Geography QuickFacts	Asotin County	Washington
Land area in square miles, 2010	636.21	66,455.52
Persons per square mile, 2010	34.0	101.2
FIPS Code	003	53
Metropolitan or Micropolitan Statistical Area	Lewiston, ID-WA Metro Area	

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quickfacts.census.gov/qfd/states/53/53003.html

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Housing units in multi-unit structures, percent, 2007-2011	14.0%	25.7%
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FIPS Code	003	53
Metropolitan or Micropolitan Statistical Area	Lewiston, ID-WA Metro Area	

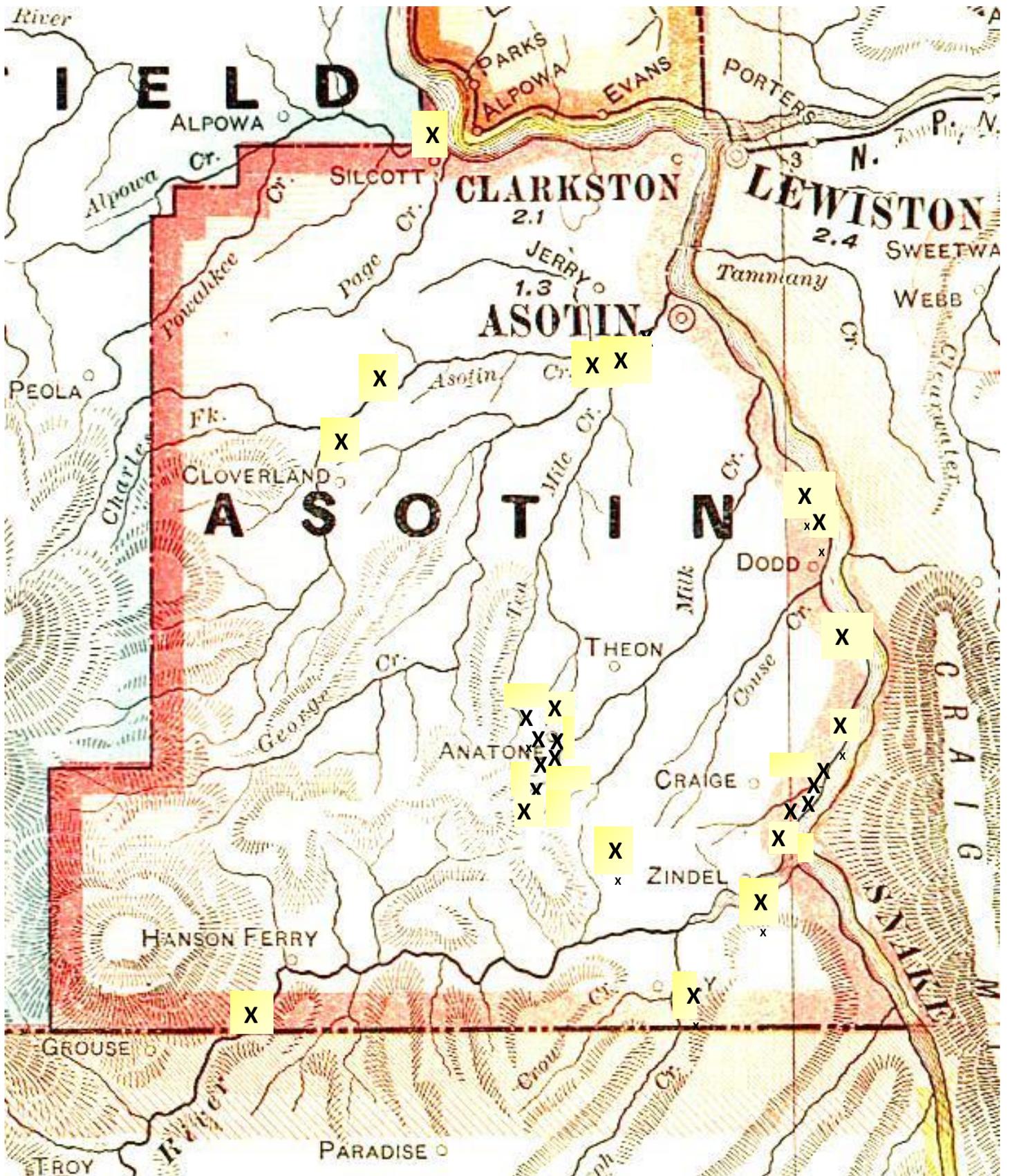
1: Counties with 500 employees or less are excluded.
2: Includes data not distributed by county.

[Download these tables - delimited](#) | [Download these tables - Excel](#) | [Download the full data set](#)

(a) Includes persons reporting only one race.

HP Total Care... Asotin County... McAfee Secur... Document1 - ... Document1 - ... AZ telecom as... Yahoo! Search 5:39 PM

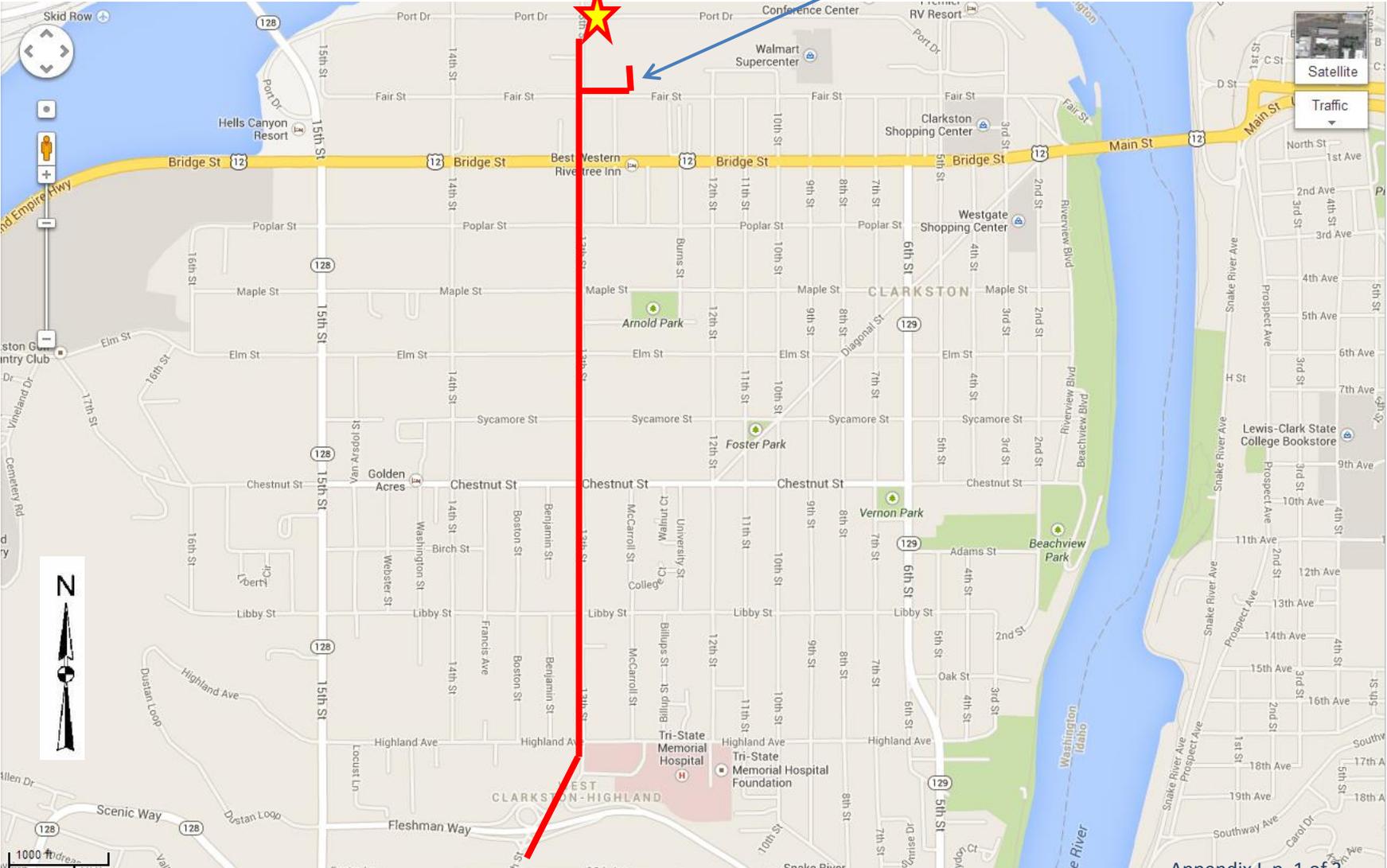
Business Locations outside urbanized area marked with "X"



High Priority Fiber Build – Map 1 of 3

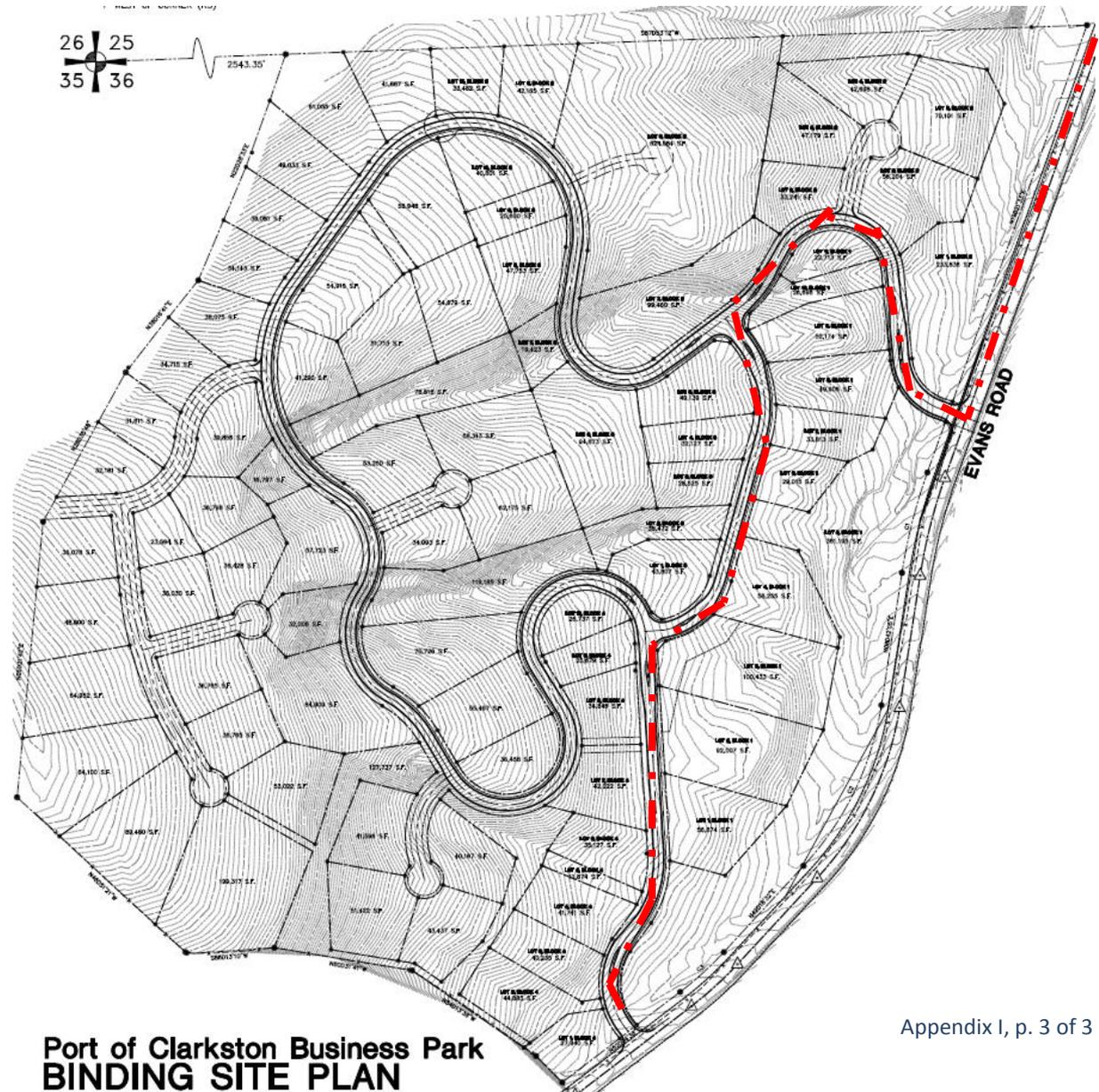
All distances on this map aerial (attached to power poles) except here (short leg to cell tower)

Start here on 13th



Match with map 2 here on 13th

High Priority Fiber Build – Map 3 of 3 -- Through Business Park – all buried



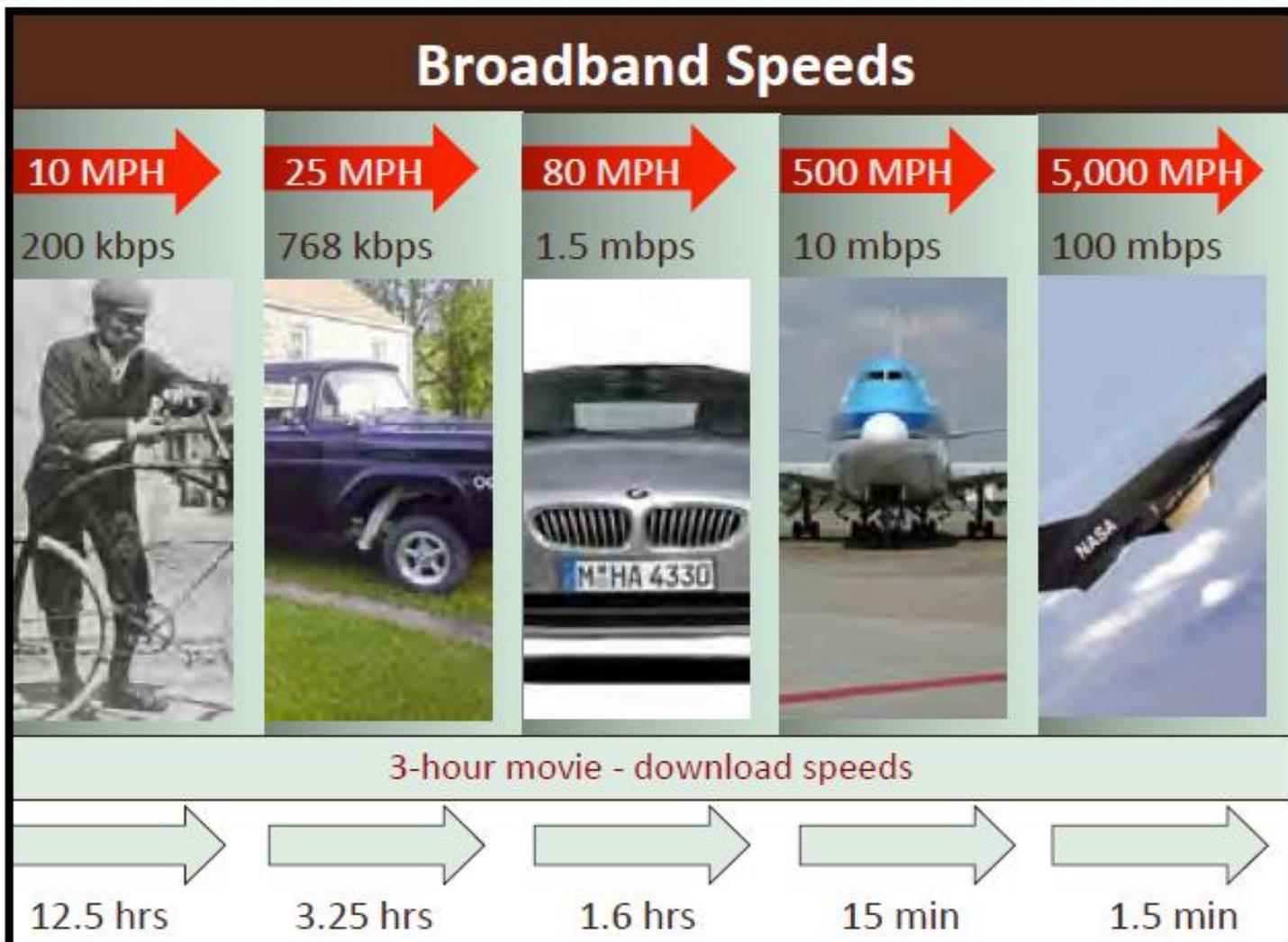
Port of Clarkston Business Park
BINDING SITE PLAN
JANUARY 25, 2013

Fiber Optic Infrastructure Cost Estimate for Fiber Run from 13th & Port Drive to Business Park

Item	Part Number	Quantity	Price	Extended
144-strand OSP Singlemode Fiber Optic Cable	144EU4-T4101D20	30,800	\$ 2.72	\$ 83,776.00
4-strand OSP Singlemode Fiber Optic Cable	004EU4-T4101D20	2,000	\$ 0.32	\$ 640.00
Corning 4U Rack Mount Fiber Patch Panel	CCH-04U	5	\$ 300.26	\$ 1,501.30
Corning LC UPC Snap in Adapter Plate 24 Fibers	CCH-CP24-A9	13	\$ 182.30	\$ 2,369.90
Corning Duplex LC Pigtail	000402R5120001M	148	\$ 25.38	\$ 3,756.24
5/16" Messenger Wire		25,800	\$ 0.75	\$ 19,350.00
Road Boring		2,030	\$ 25.00	\$ 50,750.00
Trenching		4,500	\$ 2.00	\$ 9,000.00
Raychem Underground Splice Enclosure	FOSC-400	9	\$ 572.00	\$ 5,148.00
Raychem Splice Trays	FOSC-TRAY	41	\$ 22.89	\$ 938.49
Maintenance Holes		35	\$ 500.00	\$ 17,500.00
Fiber Optic Splicing		148	\$ 55.00	\$ 8,140.00
Fiber Optic Pulling Labor		30,800	\$ 2.00	\$ 61,600.00
Avista Make Ready Costs		3	\$ 2,000.00	\$ 6,000.00
	SUBTOTAL			\$ 270,469.93
Contingency		18%		\$ 48,684.59
Permitting/Legal			\$ 3,100.00	\$ 3,100.00
Engineering (Design & Oversight)			\$ 17,000.00	\$ 17,000.00
Project Management			\$ 4,500.00	\$ 4,500.00
Grant Administration			\$ 6,245.48	\$ 6,245.48
Project Total				\$ 350,000.00

Cash Flow Forecast - 12 Quarters

Quarter	Apr- June 14	Jul - Sep 14	Oct - Dec 14	Jan - Mar 15	Apr- June 14	Jul - Sep 14	Oct - Dec 14	Jan - Mar 15	Apr- June 14	Jul - Sep 14	Oct - Dec 14	Jan - Mar 15	Totals
Receipts													
Lease Revenues	0	0	415	415	830	2,695	4,560	4,560	4,560	6,425	8,289	8,289	41,038
Other	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Receipts	0	0	415	415	830	2,695	4,560	4,560	4,560	6,425	8,289	8,289	41,038
Payments													
Pole contact fees	900	900	900	900	900	900	900	900	900	900	900	900	10,800
Maintenance costs	500	500	500	500	1,000	1,000	1,000	1,000	1,200	1,200	1,200	1,200	10,800
Recapture of capital for future investment	5,833	5,833	5,833	5,833	5,833	5,833	5,833	5,833	5,833	5,833	5,833	5,833	69,996
Other	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Payments	7,233	7,233	7,233	7,233	7,733	7,733	7,733	7,733	7,933	7,933	7,933	7,933	91,596
Cashflow Surplus/Deficit (-)	(7,233)	(7,233)	(6,818)	(6,818)	(6,903)	(5,038)	(3,173)	(3,173)	(3,373)	(1,508)	356	356	(50,558)
Opening Cash Balance	0	(7,233)	(14,466)	(21,284)	(28,102)	(35,005)	(40,043)	(43,216)	(46,389)	(49,762)	(51,270)	(50,914)	(387,684)
Closing Cash Balance	(7,233)	(14,466)	(21,284)	(28,102)	(35,005)	(40,043)	(43,216)	(46,389)	(49,762)	(51,270)	(50,914)	(50,558)	(438,242)



Find out how your internet speed stacks up!

Try out your internet speed at either of these web addresses:

<http://wabroadbandmapping.org/SpeedTest.aspx>

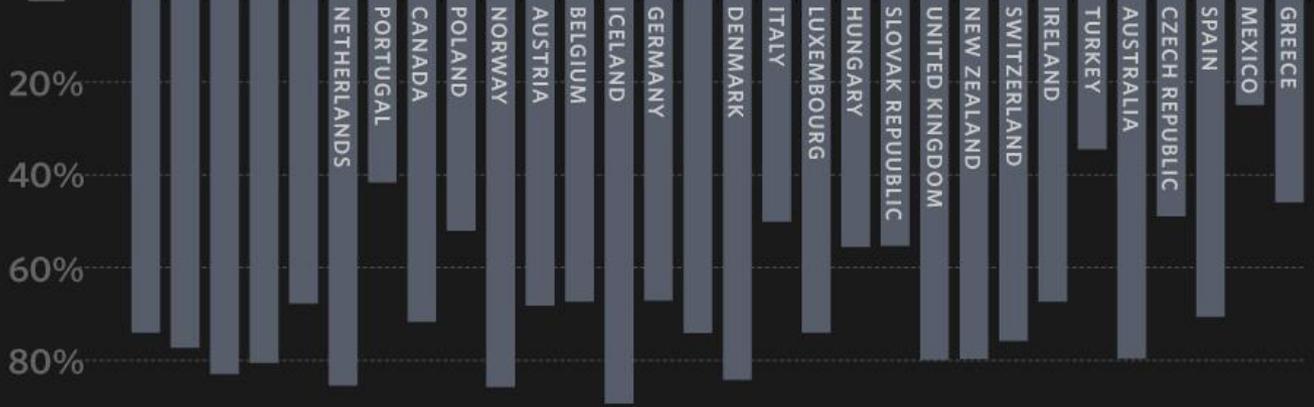
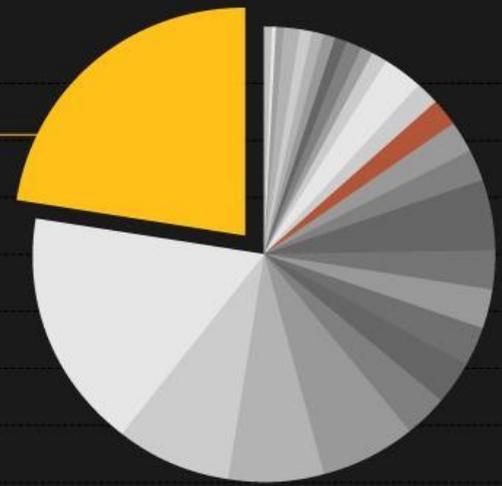
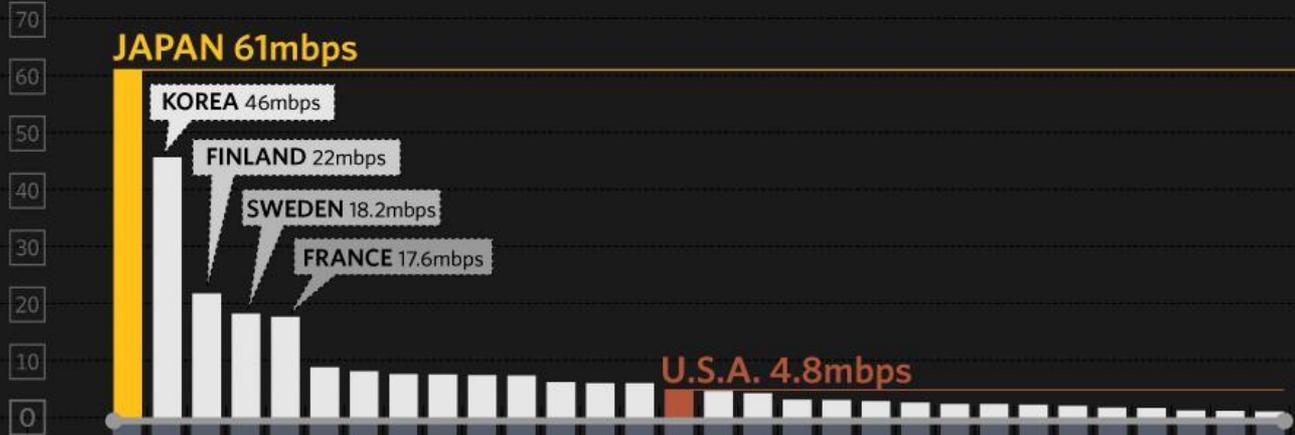
www.internetfrog.com/mypc/speedtest/

In addition to these sites, your internet service provider likely has speed tests available to you as a customer through its website. If you get different results each time you try, it's not surprising. Your speed can depend on the number of other users on the system at the same time, distance from a central server and more.

What do “kbps” and “mbps” on the reverse side and in the speed tests mean?

- The data transfer rate of a computer's network connection is measured in “bits per second” or “bps.”
- “**kbps**” is abbreviated for “kilobits per second.” “Kilo” means 1,000; therefore “kbps” means 1,000 bits per second.
- “**mbps**” is abbreviated for “megabits per second.” One megabit per second (mbps) equals 1,000 kbps or one million bps.

AVERAGE BROADBAND SPEED IN MBPS



BROADBAND PENETRATION PERCENTAGE

SOURCE: Internet World Stats Broadband Penetration

Connectivity Goals: Make High Speed Connectivity More Accessible and Available to Residents of Asotin County

		Connectivity	
<u>Timeline</u>	<u>% of Users</u>	<u>Download Speed</u>	<u>Upload Speed</u>
by 6-30-2014	75	3 Mbps	768 Kbps
by 6-30-2015	66	6 Mbps	2 Mbps
by 6-30-2016	75	10 Mbps	3 Mbps
by 6-30-2017	66	10 - 25 Mbps	5+ Mbps
by 6-30-2018	50	>100 Mbps	10 Mbps
by 6-30-2019	25	1 Gbps	>100 Mbps

Port of Clarkston's Sustainable Business Park

Location at edge of MSA, on Dry Gulch (which is west of Evans Rd)



Location in Asotin County



Location in Washington



Economic Benefits of Broadband – Quick Facts

- Communities that gain access to broadband service experience an employment increase of 1-1.4 percentage points and increases in rental value of up to 6 percentage points. [U.S. Department of Commerce, 2006]
- For every \$1 U.S. consumers spend online, information available on the Internet influences a further \$3.45 spent in stores. Broadband leads to well-informed purchase decisions, travel reduction by pre-locating the product, and facilitating cost comparisons between vendors. [eMarketer, 2008]
- From 1998 to 2002 communities with mass-market broadband service experienced greater growth in overall employment, an increase in the total number of businesses and more IT-intensive businesses than communities without broadband service. [33rd Research Conference on Communication, Information and Internet Policy, 2006]
- Broadband contributed 198,000 jobs and \$11.6 billion to the California economy 2002-2005. Over the next decade, it is estimated that broadband if aggressively deployed and adopted could generate 1.8 million jobs and contribute \$132 million payroll above the baseline. [Sacramento Regional Research Institute, 2008]
- Live videoconferencing at 115 health facilities reduced the cost of follow-up care by 42% and reduced overall costs by 6 % [California HealthCare Foundation, 2008]

For more information on economic and other benefits from broadband see:

- the FCC National Broadband Plan (www.broadband.gov/)
- the USDA report "Broadband Internet's Value for Rural America" (<http://www.ers.usda.gov/publications/err78/>)
- ICF International's White Paper "Closing the Digital Divide: Promoting Broadband Adoption Among Underserved Populations" (<http://portofclarkston.com/uploads/Benefits%20of%20Broadband.pdf>)