



**Report of Interview Findings:
Assessment for Broadband Development in Idaho**

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<http://linkidaho.org>

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Overview

The State of Idaho's Office of the Chief Information Officer (CIO) selected the LinkAMERICA Alliance¹ to apply for and administer a statewide Broadband Mapping and Planning Grant from the National Telecommunications and Information Agency (NTIA).² The Idaho grant was awarded on November 6, 2009 – please see Appendix A for a summary.³

This grant supports a comprehensive mapping and planning project and includes:

- An assessment of the current availability, adoption and use of broadband communications infrastructure throughout the state.
- The development of specific strategies to fill current gaps in broadband access.
- The development of a “business plan” to expand the adoption of deployed broadband and expedite the achievement of priority goals.

As an initial step in this process, a team of LinkAMERICA Alliance⁴ researchers designed and implemented a series of 26 individual interviews to support the “planning” aspect of this project. The planning aspect focuses on the areas of education, health care, economic opportunity, energy management, environmental quality, governmental effectiveness, civic engagement and public safety, as well as improving the quality of life.

This effort fits within a larger effort to improve broadband nationally. On March 16, 2010, the Federal Communications Commission (FCC) released "Connecting America: The National Broadband Plan."⁵ The plan was requested by Congress, who required the FCC to examine how broadband could be used to advance “consumer welfare, civic participation, public safety and homeland security, community development, health care delivery, energy independence and efficiency, education, employee training, private sector investment, entrepreneurial activity, job creation and economic growth, and other national purposes.”

The resulting plan, which can be found at www.broadband.gov, includes 6 goals and 220 recommendations to the FCC, Congress, the Executive Branch, and state and local governments.

¹ ----- The fiscal sponsor for the LinkAMERICA Alliance is the Puget Sound Center for Teaching, Learning and Technology.

² ----- <http://www.ntia.doc.gov/>

³ ----- Please visit the following site for a report on recent NTIA Broadband grants awarded to Idaho: <http://www2.ntia.doc.gov/idaho>

⁴ ----- <http://www.linkamericaalliance.com/>

⁵ ----- Please see Appendix F for an overview of the National Broadband Plan.

Purpose of Report

This report presents the findings from interviews with key stakeholders from around Idaho. These results lay the groundwork for a series of regional planning efforts designed to increase the availability and adoption of broadband throughout the state.⁶ This report is used to frame two subsequent data collection efforts: 1) a consumer survey investigating broadband usage, and 2) an interactive web survey designed to raise awareness and to identify region-specific priorities for broadband. Together, these research findings will be combined with the outcomes of the mapping process and applied into strategic actions by regional planning teams. Appendix C provides a definition of the term “broadband” as used in this report.

Context of Report

It important to emphasize that the findings presented in this summary report reflect the diverse perspectives of key Idaho stakeholders participating in the interview process. The findings are not intended to be statements of consensus. Rather, this report represents a broad perspective on what is considered by the 26 people interviewed as both possible and desirable for the future of broadband deployment and use in Idaho as it unfolds over the next five years.

Development of Findings

The group of 26 interviewees was chosen as representative stakeholders because they are knowledgeable of and engaged in various aspects of broadband development in Idaho. The process to select the group of interviewees was careful to include people living in all regions of the state. The interview process was designed to investigate the different stakeholder perspectives for Idaho’s broadband development and use. Additionally, each interviewee was asked to identify specific actions that would make her or his ideas for Idaho broadband development more likely to become a reality. Below is a list of these stakeholder perspectives:

- Education (3)
 - Early Childhood Education
 - Higher Education
 - Libraries
- Health Care (3)
 - Hospital Administrator

⁶ ----- Appendix B provides an overview of the planning steps.

- Statewide Association
- Data Network
- Economic Development (10)
 - Private Industry
 - Statewide Association
 - Government
 - Technology Commercialization
 - Training & Asset Building
- Telecommunications Providers (3)
 - Wireless
 - Wire-Line
- Public Safety (2)
 - Communications
 - Public Works
- State, Tribal and Local Governments (5)
 - Technology Leadership
 - Transportation
 - Policy and Regulation

Idaho's Broadband Readiness

Interviewees provided details on the current and future readiness of Idaho's broadband infrastructure and usage (adoption) of broadband services. Below, these two aspects of readiness are summarized. In short, this assessment discovered strong confidence from public and private stakeholders that local and state governments along with Idaho's telecommunications providers will innovate ways to expand the deployment and adoption of broadband. This confidence was buoyed by optimism that technological advances and reform of telecom policies will increase the opportunity to connect more Idahoans to higher capacity broadband. Both driving and benefiting from this anticipated broadband development will be specific applications, such as:

- Health Care
- Public Safety
- Distance Education
- Workforce Training
- Business Competitiveness
- Economic Development
- Accessible and Efficient Governments (local and state)
- Community Engagement/Participation/Collaboration across Distance

Broadband Infrastructure

While all of the urban areas and most of the suburban areas of the state have access to one or more broadband service providers, many rural communities do not have access to any broadband services (apart from VSAT options)⁷. Commonly described reasons for these gaps include the high cost of deployment and the low prospect of return on investment.

Assets

In addition to the private telecommunications providers⁸ serving residential and business customers of the state, several government-supported networks serve Idaho's public purposes. These include:

- Idaho Regional Optic Network (IRON),⁹ a cooperative effort between universities, the State of Idaho, the Idaho Hospital Association and the Idaho National Laboratory

⁷ ----- This assessment did not focus on satellite access to broadband.

⁸ ----- Please see Appendix D for a list of Idaho Telecommunications Providers.

(INL) to establish a high-performance regional optical network within the State of Idaho.

- Idaho Education Network (IEN),¹⁰ a high-speed education network for K-12 schools and libraries.
- IDANET,¹¹ a bidding strategy for the state to leverage its telecommunications buying power by serving as anchor tenant.
- Idaho's Public Safety Microwave Network.
- The Nez Perce Tribe in public/private sector partnerships is building significant bandwidth in the Central Idaho region.
- Local Infrastructure Projects.¹²

Transiting Idaho in the south and the west is the National LambdaRail, a coast-to-coast advanced optical network created to support federal research initiatives. Several states bordering Idaho have well established networks that can be extended into areas of Idaho – again, mostly to the south (Utah and Nevada) and the west (Oregon and Washington).

As broadband technology continues to evolve, it is expected that more broadband services will become available in Idaho. There is strong belief among those interviewed that the build-out of wireless broadband infrastructure (e.g., 4G and LTE) will play a major role in increasing service availability in currently underserved and un-served Idaho communities.

Barriers

Idaho is a mountainous state. The northern part of the state is separated from the southern regions by vast tracks of sparsely populated wilderness. This geographic separation of Idaho presents real challenges to private and public efforts to deploy broadband infrastructure. An often-cited gap between the north and south is the Riggins-Grangeville (White Bird Pass) area. Rugged terrain, narrow roadways and long distances between population centers hinder investment in infrastructure, both wire-line and wireless. Mirroring the geographic barrier of the north and south broadband loops is the restricted transportation links between the regions.

⁹ ----- <http://www.ironforidaho.net/>

¹⁰ ----- <http://adm.idaho.gov/ien/>

¹¹ ----- <http://www2.state.id.us/idanet/>

¹² ----- Please see Appendix E for a list of recent broadband grants benefiting Idaho.

Broadband Adoption

Where broadband services are available, users of all types have made use of broadband. However, there are many opportunities to increase adoption (usage) of broadband where it is currently available – and this report highlights several ideas in the “Action for Success” section.

Where no broadband services are available, adoption is understandably low, yet demand for the services appears to be growing as potential users become aware of the benefits broadband can make possible. Driving this new interest in broadband among non-users is a sense that the economy has transformed, and new approaches are needed; this trend is especially notable among stakeholder groups that have rural interests.

Assets

Private broadband service providers have increased efforts to raise the awareness of potential subscribers living in their service areas. Additionally, a growing number local and statewide organizations have identified broadband as an important tool for their members, and several are taking steps to increase adoption of, and where necessary increase access to, broadband. The Coeur d’Alene Tribe has committed to the deployment of fiber to the home. The Nez Perce Tribe has been proactive in facilitating private/public sector partnerships to work towards the vision of networking tribal facilities and members homes in the Nez Perce tribal territory with a 200MB connection. The Tribe and the surrounding area of Central Idaho have strong and successful experiences working collaboratively to conduct regional workshops for technology and economic development. The initiatives discovered by this assessment appear to be largely independent and lacking a statewide vision to tie them together. Overall, the trend in adoption seems to be on the upswing.

Barriers

There are many reasons Idahoans do not use broadband. Perhaps the most commonly cited barrier is access: broadband must be available in order to adopt it. Where broadband is available, barriers to adopting it include:

- High subscription costs.
- Lack of broadband-ready devices.
- Lack of skills and knowledge to use broadband devices.
- Low awareness of possible broadband uses.
- Concerns about privacy and security related to using broadband.

Priorities for Broadband Use

In March 2010, the Federal Communications Commission responded to Congress' request for the development of a National Broadband Plan, which emphasizes the importance of broadband access, adoption and use to achieve priorities in education, health care, economic opportunity, energy efficiency, environmental quality, government performance, civic participation and public safety. These thematic categories are used below to organize the priorities for Idaho, as described by the interviewees, for broadband adoption and use over the next five years. The thematic category of "quality of life" has been added to this report.

Education

During the recent economic recession, Idaho's state budget for public education was cut. These cuts, during a time of economic turbulence and national efforts to retool education, have put considerable pressure on students, their families, school administrators and teachers to innovate new ways to deliver educational services. From these 26 interviews, several key priorities for education emerged. These include:

- Developing an effective, well-supported and centrally-administered distance education system that serves primary, secondary and post-secondary institutions, tribes, as well as workforce development and adult education programs.
- Specifically, there are calls for vision, leadership and well-resourced action, potentially led by the universities, to ensure all learners (youth and adult) have access to education and training to be successful in the changing economy.
- Of the many technologies that comprise distance education, video conferencing and learning management systems (e.g., Blackboard, Moodle, etc.) are the most popular and require technical hosting expertise.
- As technology is leveraged to provide educational opportunities in tribal territory, the Tribes will be able to retain tribal members and re-attract those who have moved away.
- Focusing higher education institutions on key needs for the state, such as bridging the gap between high school and post-secondary opportunities.
- Training more health care professionals.
- Conducting research on and innovating solutions to pressing challenges for state and local governments, as well as regional economies.

- Ensuring all youth have access to up-to-date broadband-connected computers and devices and develop effective skills and judgment in using these technologies for learning, living and eventually work.
- Engaging parents of school-aged children in the education process, which research has shown can increase student performance, reduce behavioral problems and decrease the chances of drop-outs.
- Identify, assess and promote awareness of the many successful educational programs and approaches in Idaho – a sort of showcase of best practices at work in Idaho.

Health Care

Access to affordable, high-quality health care is a major priority for Idaho. The state faces mounting challenges regarding control of costs, health care workforce shortage and the ever-unfolding changes in the health care industry (i.e., emerging technologies, changing regulatory environment, etc.). These problems tend to be amplified in rural communities because there are fewer resources that can be used to address these challenges. The interview data reveals several key observations:

1. Health care is essential for a community's economic sustainability. Without it, communities will have a hard time attracting and retaining investors, employers, jobs and workforce.
2. The state's health care workforce is already behind the curve – there are too few qualified providers and specialists to respond to current need. Without major changes, the workforce shortage will exacerbate.
3. There are proven and readily available technology solutions Idaho's health care system can adopt that would provide much-needed efficiencies and improvements; however, there are many barriers impeding comprehensive adoption of these technologies (i.e., legacy investments, provider awareness, statewide leadership, funding, turbulent market, complex regulatory environment, etc.).
4. Idaho's changing demographic will continue to add pressure to all aspects of the state's health care system.

These observations set the context for the following priorities for Idaho's health care system.

- All of Idaho's hospitals and clinics need to adopt an electronic medical records (EMR) system, and these systems must be able to interconnect. The use of EMRs or Electronic Health Records (EHRs) enables information to be exchanged to promote better patient care. EMR adoption is costly and time-consuming; proactive

encouragement for EMR adoption will need to address the barriers of time and money.

- Idaho already has a network to support the exchange of health data (IHDE).¹³ Efforts are needed to expand membership of this network to connect with all of Idaho's hospitals and clinics.
- Telehealth and telemedicine are very important applications for expanding access to quality care. These services help address 1) the health care workforce shortage, 2) the costly inconvenience of rural patients having to travel long distances for care, and 3) the need to be prepared for local or widespread disasters and emergencies.
- Home-based health care systems show strong promise as a strategy to provide care to Idaho's aging population, especially those living in rural communities. These home-based technologies can deliver preventative care, which is much cheaper than responsive care, and it can help patients who need monitoring remain at home where they are more comfortable and less expensive to care for.
- Not all hospitals and clinics have adequate broadband connectivity. Without this access, they are not able to participate in health data exchanges, telehealth and telemedicine programs and home-based health systems. The more remote a hospital or clinic is, the less likely it has affordable access to adequate broadband services.
- The role of video conferencing systems is a key technology for all aspects of Idaho's health care system. The ability to talk and see at a distance, in real time with high-quality media, is essential for many telehealth and telemedicine applications, as well as for facilitating meetings among health care professionals and administrators, delivering much needed continuing medical education, and connecting patients and providers across distance.

Energy and Environment

A common value found across Idaho is a strong connection with the natural environment. Idaho has a large endowment of natural features that contribute to the state's agricultural sectors, the tourism industries, various types of manufacturing, energy production and education. Several of these natural features emerged as particularly important among the interviewees. They include: 1) ground and surface water, 2) timber resources, and 3) vast tracks of undeveloped land (usually public lands managed by the Federal Government). Below are key environmental and energy priorities described by interviewees:

- Economic development, community growth and government policies should find the right balance between leveraging and protecting Idaho's air, water and land assets.

¹³ ----- Idaho Health Date Exchange. <http://www.idahohde.org/>

- Idaho has many opportunities to innovate solutions to water quality and usage challenges. This area could be a lucrative niche market for the state's universities and create opportunities for entrepreneurial start-ups.
- The deep intellectual capital represented by the Idaho National Laboratory (INL) could be leveraged to help stimulate alternative energy research and business growth in the "green economy."
- The role of collaborative technologies, such as video conferencing and virtual workspaces, can significantly decrease the consumption of energy-dependent transportation and the resulting air-borne pollution.
- Idaho has digital spatial data resources (e.g., GIS maps and data stacks) that can be used to promote and support smart planning and growth, and these resources can be further developed.
- Broadband-enabled data collection and communication tools can facilitate environmental decision-making across many jurisdictions.
- Remote sensing technologies can add accuracy and efficiencies to the monitoring and management of many natural resources (e.g., streams, rivers, aquifers, forests, grazing lands, snow pack, wildlife, etc.).
- Smart-grid investments hold strong potential for better demand-side management of energy and increased cost savings through energy conservation and may create a new investment dynamic for extending the availability of broadband access, particularly to homes and businesses currently un-served.

Public Safety and Homeland Security

Reliable interoperable communication and data exchange among local, state and federal public safety agencies is a clear priority among the interviewees. Without it, coordinated responses to emergencies, disasters and other major events are severely hampered. As the availability of relevant data increases, it is highly desirable to have communication systems in place that can convey the right information to right users in real time. Below are several specific priorities related to public safety and homeland security:

- Public safety communication networks need to trend toward becoming completely interoperable, standardized, secure and redundant.
- Idaho has in place a sophisticated microwave network serving as the backbone to the state's public safety communications. This network could be used to support other public non-emergency purposes (e.g., education, health care, administrative), which could contribute toward the financial sustainability of the underlying infrastructure.

- By converting to IP-based communication systems, Idaho's public safety agencies will be able to support voice and data transmission, including privacy protections where and/or when needed.
- The fiber gap separating the north part of the state from the south is a public safety concern and should be addressed. Currently, 9-1-1 calls in one or more counties near the gap area are routed out-of-state.
- The state's GIS data stacks should be increasingly integrated into public safety tools.
- As the volume of data used and processed by public safety agencies is digital, there is a need to establish data encryption standards for data-in-transmission and data-at-rest.
- Idaho currently does not have the capability to support next generation 9-1-1 (beyond E-9-1-1).

Government Performance and Citizen Engagement

Broadband creates many opportunities for local and state governments to 1) increase efficiencies, 2) increase transparency, and 3) increase two-way engagement with citizens. Below are several priority uses of broadband by government that would increase performance and expand citizen engagement:

- Use of real-time communication tools to conduct the business of government over distances. For example, video conferencing can enable government workers and citizens to meet statewide without having to travel.
- Use of interconnected databases to inform decision-making processes. For example, the state's GIS system can be used to study problems, design and model solutions and monitor progress.
- Use of web-based applications to automate many government services. For example, business reports, tax forms, licenses and other types of permits can be accessed and processed online.
- Use of interactive technologies to conduct trainings. For example, a blend of face-to-face venues (such as a library or community college) and online learning management systems could be used to deliver workforce training to displaced workers.
- Adopt commercially available technologies to more efficiently serve constituents. For example, use of debit cards to distribute unemployment benefits; use of GPS to monitor and manage state lands; use of GIS to report and track road and infrastructure damage; and use of social media systems to communicate with younger (more digitally savvy) populations.

Economic Opportunity

Like most other U.S. states, Idaho's economy has undergone significant changes over the past several years. The national recession has brought about a near-universal need for public and private organizations to rethink how they do things. For many, the "same old way" is simply no longer economically sustainable. Those interviewed in this assessment overwhelmingly identified the expanded access to and adoption of broadband as a fundamental priority for Idaho's economic recovery and growth. Below are several ideas on economic opportunities provided by interviewees:

- To continue the state's diversification of economic activity beyond natural resource industries (farming, ranching, logging, mining, etc.), there must be sufficient broadband to support manufacturing and service sector businesses. Start-ups and relocating businesses tend to view broadband connectivity as a must-have utility, similar to electricity, water and sewer.
- The state's economic development districts can advocate for and facilitate strategies to increase access to and adoption of broadband. In many remote and rural communities, where geography is a barrier, innovative access solutions need to be developed.
- Broadband can attract and retain businesses, improve productivity, and enable employers to attract talented workforce through implementing telework opportunities and other work arrangements.
- A statewide video conferencing system that supports multiple uses, including public and commercial activities, would connect the state's economic players and increase access to government, resources (i.e., data, training and funding), and markets beyond Idaho.
- Idaho has a number of partnerships between public and private organizations that deliver an initiative aimed at some strategic change.¹⁴ These changes help lay the foundation for future economic opportunities, such as a smart grid city, a comprehensive health data network or redundant fiber connections throughout the state.
- Increasing broadband adoption among businesses and workers will require focused training and support. Organizations, such as Chambers of Commerce, business associations and economic development agencies, can help identify the need for and deliver targeted trainings in broadband utilization.
- Idaho universities could focus on emerging and high-need workforce areas to address economic opportunities and workforce shortages.

¹⁴ ----- Various examples: Avista & Moscow smart grid, IHDE, Idaho Optical Network, CEDA

- Global access via the internet can open opportunities for commercialization of local/indigenous knowledge based entrepreneurial focused economic development strategies revolving around skills and knowledge of fish management, water management and holistic health.
- A niche for economic development in Idaho is energy research and commercialization. The presence of the INL and the concentration of intellectual capital, its staff and supporting industries bring to the state can be connected with the state's entrepreneurial researchers and inventors of energy-related technologies.

Quality of Life

Interviewees often cite the state's rugged natural environment, isolated wilderness and low population as leading values in the appreciation of Idaho. Interestingly, these values are also barriers to increased deployment of broadband infrastructure. Additional notable values include:

1. Relaxed and practical pace of life.
2. Strong families and communities.
3. Access to world-class recreation.

As Idaho's public and private organizations move forward in expanding access to broadband, these values should be kept in mind. Mindful of unintended consequences, several interviewees stressed the need to carefully adapt broadband technologies in a way that augments and enhances the quality of life in Idaho and avoids diminishing those qualities. Broadband is becoming an essential need or right, like electricity. As information delivery shifts online, with it comes an expectation that people will be able to access broadband to gather and receive information. Below are examples of how expanding broadband access and adoption can benefit quality of life:

- Workforce trainings and employment directories can increase access to better job skills and opportunities.
- Distance education and online health networks can increase access to educational resources and health services.
- Telework, video conferencing and web-based applications can reduce the time, risk and expense of travel. Broadband can enable people to live where they choose.
- Broadband communications can help families remain connected. Technology might allow families to stay together because telework precludes the need to move; or, for those who have moved apart, technology can enable them to stay in touch.
- Local broadband networks can help stimulate community collaboration, as well as local economic growth.

Resources for Action

Idaho has many strong assets available to support efforts to increase the deployment and adoption of broadband. These assets are found in the state's government, local public agencies, higher education institutions and local and regional businesses, as well as civic and faith-based organizations.

Below are four general types of resources identified by this assessment that could be of value to broadband development actions in Idaho.

Effective Leadership

Leadership capacity for broadband development was observed at many levels throughout the state. An emerging theme on leadership for broadband development suggests that there should be a balance between 1) statewide vision, coordination and support, and 2) local implementation, responsibility and decision-making. Effective state leadership and vision is needed to build a foundation of trust for collaborative efforts. Some interviewees recommended looking to other successful state efforts as a model for moving forward.

- In state government, there are many departments, agencies and institutions that have interest, vision and motivation to take action; however, no overarching State Government vision for broadband development has been detected that would unify and coordinate the myriad of needs, interests and efforts at the department/agency/institutional levels.
- Among local and regional governments, there are a number of examples where leaders focus on a community infrastructure or economic development goal. These types of local champions could be replicated around the state to advance the deployment and adoption of broadband.
- Partnerships between public and private organizations appear to be an effective approach to harness and sustain leadership on common-cause issues.
- Many of the state's regional economic development agencies have already identified broadband development as a priority goal. Where appropriate, these groups could work with other development agencies that have not yet identified broadband as a priority.
- In addition to research and scholarship, Idaho's higher education organizations have capacity to provide leadership on a number of highly technical aspects related to broadband networking and training, community and economic development, and outreach and engagement.

- The Tribes have positioned themselves as leaders in improving connectivity in their tribal territories.
- For years, Idaho's public libraries have provided community leadership in helping residents locate and access information. In the transformative digital age, Idaho's public libraries have an even deeper role in helping residents access digital infrastructure and develop digital literacy.
- The leaders of Idaho's schools and hospitals, especially in smaller communities, are often key players for introducing and managing change locally.
- Throughout Idaho's communities, large and small, there are entrepreneurs from both the for-profit and the non-profit sectors that recognize the potential economic benefits of broadband and are taking actions to leverage broadband.
- Among the various broadband providers serving Idaho's communities, there are many that are willing to partner and collaborate with local governments and organizations to innovate connectivity solutions.

Technological Advances

In the planning stage of broadband development, there needs to be attention to the architecture and the usage of various technologies to reach the most people. A standard could be Ethernet. Several technological advances were noted as important resources that may be helpful to Idaho's effort to expand broadband development.

- Every day, progress is being made to expand the trunk capacity of broadband in Idaho – fiber is being laid, towers are being built, network infrastructure is being upgraded, etc. Combined over time, these gradual advances will constitute a significant resource for the state.
- Peering agreements between carriers, peering networks and points should be a part of a network design.
- As part of the capacity expansion described above, several state-supported networks (e.g., IRON, IEN and IDANET¹⁵) will likely continue to grow and evolve. IEN sites will have video conferencing equipment, which could potentially be used for other purposes.
- Wireless broadband services (e.g., 4G and LTE) will likely emerge and spread throughout Idaho. This could be a solution for those people not located near highways.

¹⁵ ----- IDANET is scheduled to be retired and replaced by a metro area network.

- Interconnection of Idaho's GIS data with similar data sets from neighboring states will create powerful planning and modeling resources that can help inform a successful strategy for broadband development in Idaho.
- Computers and smart phones will continue to merge into mobile multi-purpose broadband devices with a low price-point, which will help address issues of end-user access to technology and create new demand for broadband services.

Emerging Economy

As Idaho's economy undergoes a transformation, there are several important resources that can be leveraged to attain prosperous and sustained growth, including:

- The presence of a tech-driven entrepreneurial culture in many of Idaho's communities.
- Young people's preference for technology saturated, flexible work arrangements and ready access to quality of life aspects available in many Idaho communities (proximity to recreation and environment).
- Idaho's Workforce Development Training Fund supports businesses expanding operations in state and provides resources for training new employees.
- The presence of INL, the growing number of INL-related sub-industries that have emerged and the swelling economic importance of alternative energy technologies create an atmosphere of opportunity for Idaho and the surrounding region.
- The Center for Advanced Energy Studies (CAES) is a partnership between the INL and several state universities and focuses on research and innovation of energy technologies.
- Energy enterprise zones have been established to stimulate new energy sources to contribute to the state's economic health.
- The opportunity to implement smart grid technologies in the Columbia River Hydropower grid, facilitated by the enhanced broadband networks between partners such as the Nez Perce Tribe, the Bonneville Power Administration, AVISTA, and Clearwater Power Cooperative.
- Non-profit organizations around the state are developing asset building and financial literacy programs designed to assist low-income people.

Established Networks

Idaho's broadband development efforts should consider leveraging, where appropriate, some of the many existing networks already in place around the state.

- Idaho's public libraries have a presence in most communities around the state, including many rural communities. Local libraries are often described by hard-to-reach populations as trusted sources for information.
- The footprint of Idaho's public school system is one of the most comprehensive in the state; and at a local level, schools often reflect the local population, their values and culture.
- Around Idaho are many social service non-profit organizations providing education and training to low-income populations. These organizations are most often found in urban areas or in locations with large concentrations of ethnic minorities.
- Professional service non-profit organizations providing research, outreach and policy leadership often represent powerful economic players and sometimes wield effective advocacy influence.
- Idaho's economic development agencies form strong regional networks representing local government, businesses and key community stakeholders.
- Community colleges and vocational education organizations have valuable infrastructure and experience delivering workforce training and may be strong partners in expanding broadband awareness and digital literacy programs.
- Universities have expertise in research, education, facilitation and outreach, as well as managing technology systems that support these activities. These organizations may also be strong partners in awareness and training activities.
- The Department of Labor has a network of 25 regional offices throughout the state.
- There is a health data network (IHDE) that is engaged in recruiting more hospitals and clinics. There are also efforts including other states to expand the usage of telehealth and telemedicine services.¹⁶
- Idaho's geospatial data stacks represent an emerging data collection and stewardship network among several key state agencies. As this resource matures, it could be leveraged for health care, economic development, community planning and public safety.
- There is a presence of several kinds of broadband providers (wire-line, wireless, wholesale, retail). Some of these providers are state-supported, and many are private businesses.

¹⁶ ----- For example, the Northwest Telehealth Resource Center (<http://www.nrtrc.org/>)

Actions for Success

This assessment discovered a strong bias for action to increase the deployment and sustainable adoption of broadband services. Below, these actions are organized by theme and are intended to inform Idaho's broadband planning efforts.

Awareness and Outreach

There is a clear need to expand awareness of the availability, application and benefits of broadband. Outreach is needed across the board: policy makers, business leaders, educators and administrators, hospital staff, local government leaders, residents, etc. Depending on the target audience, the message and focus for broadband awareness and outreach should be customized.

- State government leaders could provide a vision for statewide broadband development, adequate support and coordination, and where possible, a willingness to give communities and regions ownership and responsibility for local development efforts. This would give some direction on technology issues for departments and agencies.
- Local Chambers of Commerce and regional economic development agencies could help train Idaho businesses to make stronger utilization of broadband services to increase efficiencies, find talented workers, tap new markets and participate in innovative partnerships and networks.
- Idaho has a number of member-supported professional associations (e.g., education, city and county governments, health care, business, agriculture, technology, etc.), and many could articulate to legislative, as well as broadband provider audiences, the need for increased capacity broadband so their members can better perform their work. Organizations who will advocate for the best interest of the people of Idaho should be involved.
- Higher education institutions, especially those with community outreach capacities, could champion the effort to promote broadband awareness through trainings, demonstrations and partnerships.
- Public schools and libraries have a local presence and engagement throughout the state and could be used to advance awareness among students, parents and community members at large.
- Idaho's hospitals and clinics are a resource for raising broadband awareness, as well as a target audience for outreach. As technology and policy evolve, home-based medical services (monitoring, communication, etc.) are likely to become more

common, and health care providers may find themselves promoting a broadband awareness campaign to get patients online and connected.

- Non-profit organizations that serve a social mission already have communication networks with specific audiences (e.g., low income, rural, Hispanic, tribal, etc.) that could be leveraged to promote broadband adoption and awareness. Broadband awareness programs should focus on applications relevant to the specific audience.
- Libraries, schools, non-profits, public television and faith-based organizations could be brought into a strategy to ensure that Idaho residents at risk of not being aware of broadband are reached by trusted sources and engaged with broadband information that is relevant to these residents' lives.
- Broadband providers could step-up efforts to inform current and potential customers of the basic aspects of newly emerging broadband technologies and devices. This will increase customer interest and ability to assess the value of broadband service. For providers looking for a progressive edge, there are opportunities to partner with other public and private organizations working in the community who share an interest in expanding broadband access and adoption.

Education

There are many specific actions possible within the area of education. A common thread tying these together is a need for broad partnerships and dedicated technological resources. For Idaho to achieve its education and workforce development goals, there will need to be innovative collaborations between public education institutions, state and local agencies, businesses, community organizations and libraries. The technological resources needed include highly accessible and relevant learning management systems and extended video conferencing capabilities. Below are specific ideas for action in education:

- A partnership between the IEN, the Idaho Childcare Development Program, Head Start and the Parents-as-Teachers Program could utilize video conferencing and distance education systems to train and educate stakeholders in early childhood education. This would help strengthen Idaho's families and communities.
- Libraries, schools and local organizations could organize low-cost education programs designed to improve technology literacy, especially among older adults and low-income residents.
- Public libraries and community colleges could use broadband connections to partner with the Adult Basic Education (ABE)¹⁷ program to expand the reach of

¹⁷ ----- <http://literacynet.org/idaho/home.html>

basic skills instruction. Distance education technologies should be integrated in programs like these.

- Idaho's colleges and universities could focus on building cooperative comprehensive distance education programs that 1) increase the rate of high school graduates going on to post-secondary programs, 2) allow students to attend from home, and 3) respond to in-state workforce shortages (e.g., Idaho's acute shortage of health care workers).
- Efforts to increase the number of high school students going on for post-secondary education could include: 1) raising awareness among students, parents and teachers that higher education is possible and affordable and will increase the likelihood of higher earnings, and 2) expanding access to distance education opportunities, specifically increasing institutional participation and expanding the offering of courses online (i.e., through the Idaho Digital Learning Academy).
- Universities with research, outreach and technology expertise could partner with appropriate public and private organizations to address areas of pressing regional and statewide importance. These partnerships can:
 - Contribute to innovative solutions to persistent community and economic development challenges.
 - Design and retool curriculums to meet the needs of Idaho's employers.
 - Provide students hands-on experience with potential employers on real projects.
 - Establish new funding streams.
 - Advance commercially viable inventions.
- Idaho's educational leaders could centralize the technology management and support for a statewide distance education system. This system should serve all students from kindergarten through higher education and include workforce development and adult education programs. This move would 1) decrease the barrier of cost for smaller educational institutions to build a distance education from the ground up, and 2) increase the usability and reliability of a standardized and interoperable distance education platform serving multiple learner types.
- The state could consider an educational technology deployment program designed to equip primary and secondary students with laptops for educational purposes. Content support for these computers could be provided by a statewide distance education system.

Health Care

The role of technology (especially broadband) in delivering the next generation of health care services will likely be very significant. Strategic use of broadband by hospitals and clinics will help expand access to quality health care services while controlling costs. Below are specific ideas for action in health care:

- Driven by advances in technology and changes in the health care industry, some services and care practices are likely to change (e.g., EMRs, home-based health systems, telehealth & telemedicine), and providers will serve patients in new ways in the future. Hospitals and clinics could take a proactive stance toward broadband adoption. High capacity bandwidth to their facilities will be essential, as will expanded connectivity to the homes of their patients.
- Issues of privacy must be proactively addressed in order to satisfy federal requirements (HIPAA), as well as patient/consumer confidence. Efforts to address privacy will likely require technological adoption by providers, as well as increasing awareness among patients/consumers.
- Adoption of EMRs is a well-known expense and disruption for any hospital or clinic, especially those moving from a paper system. Support and resources may be needed to help some facilities successfully choose and integrate an appropriate (interoperable) EMR system.
- Hospitals and clinics using health information technology systems must have access to adequate IT technical resources. Because there are too few IT professionals available, there is a need to pool resources and create partnerships that provide IT support to groups of hospitals and clinics.
- Peer-to-peer endorsement is important. Efforts to promote awareness of broadband (as well as other technologies) specifically for doctors and nurses should be conveyed by doctors and nurses.
- Hospitals and clinics serving communities that are undergoing a major demographic shift (e.g., more inward migration of retirees) are rethinking their services, resources and facilities. Broadband makes many health care services and specialties available and should be strongly considered as health care organizations envision and plan for their future.
- Patients need access to broadband for home health care monitoring and to access their patient health records.
- The IHDE could continue outreach and recruitment with non-participating hospitals and clinics. Participation requires an adequate broadband connection; and where

broadband is not currently available, participation in IHDE and other similar health service networks can add weight to efforts to make broadband available.

- By adopting efficient and effective health information technology systems, hospitals and clinics could increase their chances of attracting qualified health care professionals. Younger health care professionals entering the job market expect their workplace to have modern systems.
- Broadband enabled technologies will improve public safety by enabling greater monitoring of public health emergencies and disease incidence.

Workforce

The stronger Idaho's workforce is, the more prosperous and secure the state will be. A strong workforce helps Idaho's existing businesses and organizations and is a major asset businesses look for when considering locations for expansion and/or relocation. There are two ways to strengthen Idaho's workforce: 1) recruit and retain talented and skilled workers from outside Idaho, and 2) educate and train students and workers already living in Idaho. Both approaches are, and should continue to be, pursued by Idaho.

Communities and regions seeking to recruit and retain workforce talent could:

- Invest in and promote the services and amenities that people moving to Idaho need and expect, such as strong public education, quality health care, good governance, inclusive society, public safety, convenient transportation options and economic options.
- Ensure affordable high capacity broadband is available and well integrated into the amenities described above.

Communities and regions seeking to educate and train the homegrown workforce could:

- Harness the synergies among various state, regional and local organizations to achieve the effective, widespread and sustained delivery of training and education.

Examples of organizations include:

- Libraries
- The Adult Basic Education Program
- Two- and Four-year Colleges and Universities
- Department of Labor
- Public Schools
- Non-profit and Faith-based Organizations
- Businesses

Workforce development training programs could be integrated into and supported by a statewide distance education system that 1) delivers effective learning experiences regardless of location, and 2) promotes opportunities and motivation for on-going training and education.

Workforce training programs could be responsive to the current and anticipated needs of Idaho's employers. This assessment detected demand for workforce talent in the following sectors:

- Health care at all levels, especially among nurses, specialists, doctors and IT professionals.
- Technology professionals, such as network specialists, code developers and IT professionals for sectors (education, health care, business, etc.).
- Energy researchers and inventors.
- Government at all levels, which is driven by the observation that many government positions will be vacated by retirements over the next few years.

Government

State government leadership could define, promote and support a comprehensive vision for broadband development. This vision could include:

- Direction for administrative, legislative and regulatory agendas.
- Clarity on roles and resources for schools, libraries and post-secondary institutions
- Expectations for workforce, economic and community development.
- Encouragement of private sector involvement.

Specific ideas for governmental action to expand broadband access and adoption are detailed below.

- Idaho's legislative leaders could consider:
 - Giving the Idaho Public Utilities Commission (IPUC) a mandate and authority to 1) allocate a certain percentage of newly installed fiber in the ground for public use, 2) promote and encourage broader competition among broadband providers, and 3) promote for the development and maintenance of redundancy in networks.
 - Designing a funding tool (e.g., local taxing authority) for local governments to invest in their community's broadband access and adoption.

- Designing incentives and support mechanisms to encourage all hospitals and clinics to adopt an EMR system. This effort should be consistent with federal guidelines and promote interoperable EMRs.
- Policy changes that enable reimbursement for telehealth and telemedicine services and remove licensing barriers for cross-border medical services.
- Legislation that strengthens digital privacy and security, especially among public uses of broadband, such as education, health care, economic development and public safety.
- Leaders of Idaho’s public safety systems could consider:
 - Revenue producing arrangements that leverage excess broadband capacity, including allocation of spectrum, for public purposes (e.g., education, health care).
 - Establishing partnership arrangements with public school districts and hospitals around the state, as these facilities are likely critical access points in the case of a major emergency event.
- The Department of Commerce and Office of Energy Resources could consider creating incentives and supportive programs to increase investment in Idaho’s “green energy” industry, both in terms of research and manufacturing.
- The Department of Labor could consider designing communication tools and outreach strategies that engage younger workers – for example, texting, Twitter, Facebook and other social media.
- The Department of Transportation could consider:
 - Maximizing the build-out of fiber-ready conduit on all current and future road-building projects.
 - Extending its investment in smart transportation technologies to include cities and counties.
- Leaders of Idaho’s public education systems could consider migrating from publicly switched telephone networks to IP-phone networks as a way to save budget resources.
- Leaders and supporters of IRON could consider proactive efforts to expand utilization of network capacities that support and improve public purposes and economic development.
- Leaders of the IEN could consider:

- Expanding and sustaining its partnerships and collaboration with public school districts and public college and university locations to deliver more types and levels of distance education content and services.
- Extending engagement with the state's public libraries.
- Leaders of Idaho's public libraries could consider:
 - Expanding the role of libraries to include becoming an access point for digital literacy and workforce development training.
 - Partnering with other state agencies that have a major public-facing data processing service, such as the Idaho's Spatial Data Infrastructure, and serving as an interface host of these data sets for businesses, community organizations, schools and local agencies and interested residents.
- As a state government, Idaho could consider developing a replicable and transparent model that allows the state, from time to time, to operate as a private entity. This would enable the state to be more nimble in its response to emerging opportunities.

Infrastructure

One action that can have an overarching impact on the deployment of broadband infrastructure in rural Idaho is an overhaul of the Federal Universal Service Fund (USF). If this program was reformed to support broadband build-out in high cost areas, there would likely be much higher levels of broadband deployment by private sector providers in Idaho's rural communities. However, this action is beyond the control of the people, businesses and governments of Idaho. Below are several infrastructure-oriented actions Idahoans can control:

- The Idaho PUC could implement and facilitate regulatory and rule making changes that would facilitate a statewide overhaul of the use of federal rule modifications regarding USF and broadband infrastructure deployment.
- Broadband providers (new and incumbent) could be actively engaged by local and state governments to innovate infrastructure solutions in difficult-to-serve areas. Because of Idaho's geography, it is likely that broadband infrastructure build-out will require an innovative blend of technologies and partnerships.
- As more users adopt broadband, there will be continual demand for higher capacity. This demand will be driven by the growing availability of downloadable media, such as movies, music, books and other content. To stay ahead of this anticipated spike in usage, broadband providers could build practical business plans around anticipated demand rather than current demand.

- Where possible, local and state governments could push to connect all appropriate facilities to broadband. This will help “future-proof” government services and provide “anchor tenant” demand that may encourage additional infrastructure build-out by providers.
- Broadband providers serving Idaho markets should consider vertical partnerships (collaborating with companies offering value-added services) to round-out the quality and value of their products or services. For example, a WiMax provider might partner with a middle mile fiber provider and a local retailer to deliver wireless broadband services to a community.
- Public-private broadband network solutions, such as IRON, should be built out to provide low-cost, high-quality, redundant broadband connectivity for public purposes.
- As a stepping-stone towards ubiquitous broadband access around the state, efforts to fill in the cell phone networks gaps can later be extended to support higher capacity technologies (e.g., 4G and LTE).
- The state should continue efforts to connect Idaho’s public libraries to high capacity broadband through extensions of IRON and/or IEN.
- ILECs should invest in replacing copper with fiber in some areas.
- As part of Idaho Transportation Department projects in rural and remote areas, the ILECs could be incentivized to light up fiber along the route thereby cost effectively enhancing middle mile backbone connectivity. For example, the Highway 11 upgrades have included fiber conduit placement; the City of Pierce has also included fiber in recent waterworks main line replacement; and, the ILEC has delivered fiber to Weippe.

Appendix A: NTIA Grant Summary

Idaho Broadband Data and Development

LinkAMERICA/Puget Sound Center for Teaching, Learning and Technology (PSCTLT)¹⁸

Designated entity on behalf of the State of Idaho

Budget Summary

LinkAMERICA/PSCTLT's proposal called for a two-year total federal grant of \$1,832,357, of which \$1,339,773 is allocated for mapping and \$492,584 for broadband planning purposes. The State of Idaho and LinkAMERICA/PSCTLT have committed matching funds and in-kind services valued at more than \$366,471.

Mapping Summary

The LinkAMERICA/ PSCTLT team is the designated mapping entity representing the State of Idaho. This project is designed to provide targeted, timely and useful information that will enable local solutions to address local broadband priorities. Idaho is ultimately concerned with how the deployment of broadband infrastructure will advance economic opportunity, business development and improve quality of life throughout the state. The mapping and deployment of broadband infrastructure is an important step to achieve goals such as these; however, broadband is only a tool, not a solution in and of itself. The LinkAMERICA/PSCTLT team will implement a comprehensive, inclusive and transparent planning and collaboration approach to ensure that deployed broadband infrastructure and services will be adopted and utilized to advance economic opportunities.

This project seeks funding to solve four problem areas that inhibit Idaho from expanding broadband adoption and utilization. The four tasks presented in the table below comprise the scope of work in Idaho.

¹⁸ ----- The Puget Sound Center for Teaching, Learning and Technology is undergoing a renaming process. Its new name is The EdLab Group (<http://www.edlabgroup.org>).

<u>Problem Areas</u>	<u>Proposed Solution</u>	<u>Anticipated Outcomes</u>
1. Limited information exchange and lack of needed collaboration to expand broadband adoption and use to advance Idaho's priority social and economic development goals in all regions of the state	Task 1 – Assess and inventory key Idaho assets that can enable greater use of broadband to achieve social and economic objectives. Establish process to facilitate collaboration.	Inventory of data, studies, people and other assets to enhance the use of broadband to achieve priority objectives Formalized process of knowledge exchange and collaboration
2. Lack of valid and reliable data regarding Idaho broadband service needs and barriers preventing expanded adoption	Task 2 – Conduct personal interviews, surveys and public meetings to assess broadband services needs and identify barriers to adoption.	Accurate data to inform decisions on actions to address barriers to broadband adoption Clarity on desired business and household broadband service needs
3. Inability to accurately articulate levels of current and future demand for broadband services for businesses, households and community anchor institutions	Task 3 – Collect and analyze market data to profile demand for broadband by Idaho businesses, households and community anchor institutions.	County-specific information on broadband service demands Geographic analysis of broadband service demand relative to available infrastructure
4. Absence of coordinated regional leadership to plan and implement local sustainable adoption efforts	Task 4 – Facilitate regional technology planning teams to develop effective local action strategies.	Regional broadband development plans All Idaho counties will be better positioned to benefit from initiatives funded through BTOP and BIP.

Planning Summary

The planning work for Idaho includes the design and implementation of a statewide collection and analysis of relevant planning data, development and implementation of regional planning teams and on-going coordination with broadband mapping project components. Data collection activities include a series of structured site visits, regional forums and workgroup meetings. Planning activities will include 1) assessment and integration of available planning data, 2) development support of demand-side data for

anchor institutions, 3) facilitation of regional actions, and 4) on-going support of the Idaho broadband planning teams.

About LinkAMERICA/PSCTLT

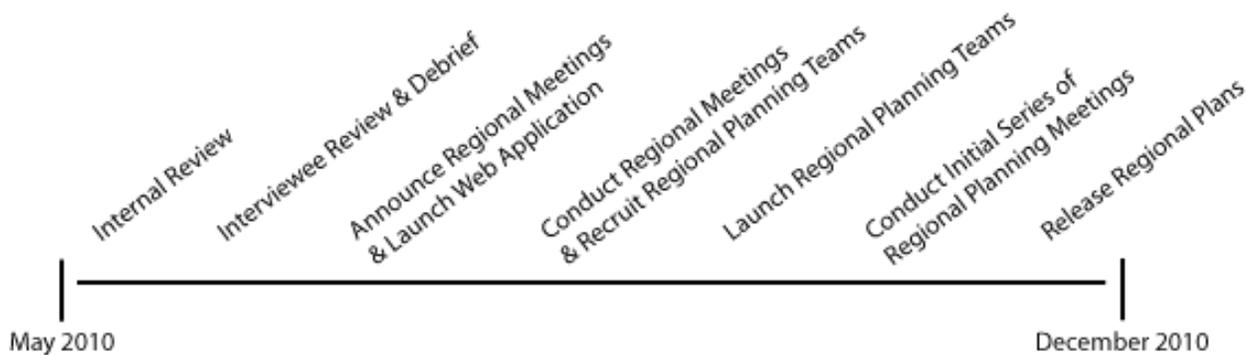
LinkAMERICA/PSCTLT was chosen to manage and execute this project because of their experience and technical expertise in broadband mapping and experience in managing federal and state contracts. The PSCTLT¹⁹ is a nationally recognized, private, non-profit organization supported by federal and state governments, private foundations, corporations and individuals. LinkAMERICA is a partnership of experts in geospatial, economic and network modeling; developing demand-side strategy formation in telecommunications and telehealth sectors; engineering and GIS mapping conversion; and business development strategies (<http://www.linkamericaalliance.com>). The PSCTLT serves as LinkAMERICA's fiscal sponsor and is a national leader in innovative technology adoption solutions for education, workforce and community development.

¹⁹ ----- The Puget Sound Center for Teaching, Learning and Technology is in the process of changing its name to the EdLab Group. <http://www.edlabgroup.org/>

Appendix B: Overview of Planning Process

The Planning Process is designed to develop a framework of regional plans for broadband development that are:

1. Well supported and endorsed by local champions.
2. Responsive to specific regional priorities.
3. Doable within a defined period of time.
4. Economically rationale.
5. Measurable.



The completion of this report signals the start of the planning process.

Internal Review – In early May 2010, this report will be reviewed by the LinkAMERICA Team and key stakeholders from the state (i.e., the Office of the CIO). This report may be edited during this review.

Interviewee Review & Debrief – By mid-June this report will be reviewed with the interviewees, culminating in a debriefing where specific feedback is collected and edits are considered. This report will likely change as a result of this review.

Announce Regional Meetings & Launch Web App – Once changes to the report are stabilized, an interactive web application designed to present the major points of this report will be created; this web application will also collect feedback data from viewers. This web application will be launched as part of the announcement of a series of regional meetings during which the report is presented through a facilitated work session. Target date for the announcement and launch is late July.

Conduct Regional Meeting & Recruit Regional Planning Teams – Convening mid-August, the purpose of these regional meetings will be to raise awareness about this

broadband development project, get feedback on priorities and recruit members for regional planning teams.

Launch Regional Planning Teams – These regional planning teams will be launched in late September.

Conduct Initial Series of Regional Planning Meetings – Each Regional Team will meet at least three times during the Fourth Quarter of 2010 with the goal of producing an initial draft of a regional broadband development plan.

Release Regional Plans – By mid-December, each regional planning team will release an initial draft of their broadband development plan. During the first half of 2011, these plans will be further developed into fundable and actionable business plans.

Appendix C: What is Broadband?

Broadband is an always-on, high-speed connection to the Internet. Broadband makes it possible to have instant two-way exchange of data, video, audio, voice and text communications. Broadband is delivered to consumers in a number of ways including over telephone lines, cable, fixed wireless, mobile wireless, over power lines and by satellite. The LinkIDAHO initiative will map the availability of broadband across the state.

All Internet services identified on the maps will meet the minimum Federal Communications Commission (FCC) definition for broadband service – 768 Kbps download speed. A number of engineering and usage variables impact the actual speeds required for applications, such as photo sharing, streaming audio/video, online gaming, distance education, telework, telehealth and other bandwidth intensive applications. However, the following provide general guidelines for broadband speed tiers and capabilities that are enabled within each tier:

- 768 Kbps – 1.5 Mbps: generally considered sufficient for basic Internet applications including email, light web surfing, sharing of lower resolution pictures, etc. The FCC definition of broadband ‘starts at’ 768 Kbps. Speeds below this level are not considered broadband in today’s marketplace.
- 1.5 Mbps – 3.0 Mbps: generally considered a quality broadband service speed range. Enables a more robust web surfing experience (few noticeable delays), the sharing of larger files (in a timely fashion), and reasonable quality Internet Protocol television (IPTV) and streaming audio/video.
- 3.0 Mbps – 6.0 Mbps: generally considered a strong broadband service speed range in today’s market. May only be available via technologies such as cable, fiber and the latest generation wireless services. Typically sufficient for good quality two-way video streaming and IPTV, large file transfers (in a timely manner), a high-quality web surfing experience, and online gaming.
- 6.0 Mbps – 10.0 Mbps: considered a very strong/fast service speed in today’s market. Enables commercial grade file transmission, a very robust web surfing experience, high-quality video/audio streaming for education and telehealth applications, and robust online gaming.
- 10.0 Mbps – 25.0 Mbps: a very high-end consumer or commercial grade service in today’s broadband market. Provides for very high-quality (high definition) streaming audio/video experience, very fast file transfer capability, multi-player gaming, and other high-bandwidth applications.

Appendix D: Idaho Telecommunications Providers

360 Networks USA, Inc.	FairPoint Communications, Inc. dba - Fretel Comm.
Air-Pipe	
Albion Telephone Company, Inc. (ATC Communications)	Farmers Mutual Telephone Company (ID)
American Fiber Systems, Inc.	Filer Mutual Telephone Company
AT&T Inc.	First Step Internet, LLC
BitSmart	GSC Wireless
Cable One, Inc.	Inland Cellular Telephone Company
Cactus International, Inc. / Cactus Computer	Integra Telecom Holdings, Inc.
Cambridge Telephone Company, Inc.	JAB Broadband - DIGIS
CenturyTel, Inc.	Last Mile Wireless
Cequel Communications, LLC (Suddenlink)	Leap Wireless International, Inc. / Cricket
Citizens Communications Company (Frontier)	Level 3 Communications, LLC
Clearwire Corporation	Level 3 Communications, LLC dba Broadwing Comm
Cox Communications, Inc.	Martell Enterprises, Inc. dba Rural Tel. Co. Megapath/DSL Net
Custer Telephone Cooperative Inc.	Midvale Telephone Exchange
Custer Telephone Cooperative Inc. dba - Custer Telephone Broadband Services	Mud Lake Telephone Cooperative Assn., Inc.
DigitalBridge Communications Corp.	New Edge Networks
Direct Communications Rockland, Inc. FairPoint Communications, Inc. dba - Fremont Tel.	Newmax, LLC / Intermax
	Northland Communications Corp.
	OneEighty Networks / Orbitcom

PaeTec Corporation (ID & WY)	Syringa Networks, LLC
Project Mutual Telephone Cooperative Association,	Telephone and Data Systems, Inc.
Qwest Corp.	Time Warner Cable LLC
Robinson Communications Corporation	Verizon Communications Inc. dba Cellco Partnership (wireless)
Rural Network Services (part of Midvale Telephone)	Verizon Communications Inc. dba Verizon NW INC.
Silver Star Telephone	WestCom LLC
Silver Star Telephone / Columbine Telephone	Western Elite Incorporated Services
Safelink Internet	Windjammer Communications LLC
Sprint Nextel Corporation	Wired or Wireless, Inc.
Stat Network Solutions	Zayo Group, LLC (FiberNet)

Appendix E: Recent Broadband Grants Benefiting Idaho

First Step Internet

Infrastructure: \$2,393,623

First Step Internet proposes to build a regional network of 10 microwave towers to extend high-capacity Internet service in the rural counties of Latah, Idaho, Clearwater, Lewis, and Nez Perce in north-central Idaho. The project intends to directly connect 42 anchor institutions, including healthcare facilities, emergency response agencies, libraries, and government offices, as well as institutions serving the Nez Perce Tribe. The 550-mile network plans to offer speeds of 50 Mbps to 100 Mbps for anchor institutions and facilitate more affordable broadband Internet service for local consumers, including as many as 21,000 households and 700 businesses, by enabling local Internet service providers to connect to the project's open network. In addition, the Nez Perce Tribe has already made plans to use the new network to provide enhanced last-mile services.

Digital Bridge Communications

Infrastructure: \$4,206,984 (awarded as three grants: \$1,862,197 for work in Cassia County, \$984,134 for work in Jerome County, and \$1,360,653 for work in Twin Falls County)

The Last Mile Broadband for Underserved Portions of Cassia, Jerome, and Twin Falls Counties projects plan to bring affordable wireless broadband service to rural, underserved communities in south-central Idaho. The projects intend to expand Digital Bridge Communications' existing network by adding a total of 16 towers, 64 miles of new fiber, and 12 microwave links. The project also proposes to offer speeds of up to 3 Mbps using both fixed and mobile wireless technology, as well as directly connect approximately 25 community anchor institutions at no charge in each county.

Mission Economic Development Agency

Public Computer Center Grant: \$3,724,128

(Serves Arizona, California, Colorado, **Idaho**, Maryland, Minnesota, Missouri, New Mexico, Pennsylvania, and Texas)

The Mission Economic Development Agency, in collaboration with the National Association for Latino Community Asset Builders and a national network of Latino-serving economic development organizations, plans to create 12 new public computer centers and expand five existing ones in 13 communities throughout the United States. Each center expects to operate on the project's centrally managed network and provide computer training and adult education to a low broadband adoption, high unemployment target population

through a standardized English-Spanish training curriculum. The project expects to add a total of 263 new workstations and replace 37 existing workstations, enabling the centers to serve an additional 2,500 users per week and train an estimated 3,000 users per year. Broadband capabilities at each center will be increased to speeds of 1.5 Mbps. Public computer centers funded through this grant will be located in Phoenix, AZ; Canoga Park, Los Angeles, and San Francisco, CA; Del Norte, CO; **Blackfoot, ID**; Wheaton, MD; Minneapolis, MN; Kansas City, MO; Anthony, NM; Philadelphia, PA; and San Antonio and Laredo, TX.

Appendix F: Summary of the National Broadband Plan

On March 16, 2010, the Federal Communications Commission (FCC) released "Connecting America: The National Broadband Plan." The plan was requested by Congress, who required the FCC to examine how broadband could be used to advance "*consumer welfare, civic participation, public safety and homeland security, community development, health care delivery, energy independence and efficiency, education, employee training, private sector investment, entrepreneurial activity, job creation and economic growth, and other national purposes.*"

In addition, the statute dictated that the National Broadband Plan should include "*an analysis of the most effective and efficient mechanisms for ensuring broadband access by all people of the United States; a detailed strategy for achieving affordability and maximum utilization of broadband infrastructure and service by the public; and an evaluation of the status of deployment of broadband service.*"

The resulting plan, which can be found at www.broadband.gov, includes 6 goals and 220 recommendations to the FCC, Congress, the Executive Branch, and state and local governments. The plan makes four main recommendations on how the government can influence broadband availability and use:

1. Design policies to ensure robust competition and, as a result maximize consumer welfare, innovation and investment.
2. Ensure efficient allocation and management of assets government controls or influences, such as spectrum, poles, and rights-of-way, to encourage network upgrades and competitive entry.
3. Reform current universal service mechanisms to support deployment of broadband and voice in high-cost areas; and ensure that low-income Americans can afford broadband; and in addition, support efforts to boost adoption and utilization.
4. Reform laws, policies, standards and incentives to maximize the benefits of broadband in sectors government influences significantly, such as public education, health care and government operations.

Long-Term Goals

The plan recommends the following six long-term goals to guide efforts over the next decade:

1. 100 million U.S. homes should have affordable access to actual download speeds of at least 100 megabits per second.
2. The United States should lead the world in mobile innovation.

3. Every American should have affordable access to robust broadband service, and the means and skills to subscribe.
4. Affordable access to at least 1 gigabit per second broadband service to anchor institutions.
5. Every first responder should have access to a nationwide, wireless, interoperable broadband public safety network.
6. Every American should be able to use broadband to track and manage their real-time energy consumption.

The Importance of Broadband

As broadband becomes more prevalent, so do the applications and services that are delivered via broadband and the number of devices that are broadband enabled.

Broadband is improving business productivity, access to health care and education, improving energy efficiency, and enabling greater communication and participation in the democratic process. As information delivery shifts to an online format, there is an expectation that people will be able to access broadband to gather and receive information. However, approximately 35% of Americans do not use broadband at home. Low-income households, racial and ethnic minorities, senior, rural residents and people with disabilities are less likely to have broadband at home (p.167). The FCC points to broadband as method to enable economic and social opportunity regardless of where people live.

The National Broadband Plan recommends some targeted investments and activities to encourage adoption of broadband, including addressing cost, digital literacy, and relevance barriers, improving accessibility, expanding support for regional broadband capacity building, program evaluation and sharing of best practices, and coordinating with Tribes on broadband issues (p.168).

The infrastructure access goals include improving utilization of the existing infrastructure to support broadband through actions such as rule-making on pole attachments, gathering information about location of conduits, ducts, poles and right-of-way, and developing guidelines for rates and conditions for public rights-of-way. The second major goal related to infrastructure improvement is to maximize the impact of federal resources through encouraging laying conduit as part of Department of Transportation projects, expediting placement of wireless towers on federal government property and buildings, and enacting “dig once” legislation for federally funded projects (p.109).

Some recommendations in Chapter 8: Availability, have sparked some controversy. Rural telecommunications companies contend that rural communities do not have the population base nor financial resources to support the initial target of 4 Mbps or higher broadband service by 2020 without a strong cost-recovery system. They also contend that broadband speeds of 4 Mbps are insufficient for many telemedicine, education, business and

entertainment applications and that the proposed goal structure would perpetuate and deepen existing disparities between urban and rural areas, hindering economic development in rural America.

The plan calls for shifting the Universal Service Fund, which provides subsidized phone service throughout the U.S., to also include broadband. Smaller telecoms fear that changes to the Universal Service Fund (USF) may negatively impact them and discourage their investment in rural connectivity. Rural telecom companies have depended on USF loans to expand and build their networks. The federal broadband speed definition also influences access to USF funding. One megabyte up and four megabytes down is the new standard, and if an area has that capacity, USF funds cannot be used to upgrade them beyond that standard. The National Broadband Plan may lead to the elimination of the rate of return legislation and a change to incentive-based regulation price caps. According to rural telecoms, this will limit companies' ability to make profit on their investments.

The plan also calls for reforms to spectrum policies to accommodate delivery of wireless services and making more of the spectrum available within 10 years for licensed and unlicensed use. In addition, much of the revenue for the National Broadband Plan would be raised by auctioning spectrum.

The FCC has announced more than 60 rulemaking and notice-and-comment proceedings for the National Broadband Plan. Additional information can be found at <http://www.broadband.gov/plan/broadband-action-agenda.html> and <http://www.broadband.gov>.