Nevada County Broadband Strategy

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1. EXECUTIVE SUMMARY

This strategy is tactically practical and visionary in that it focuses on local solutions where Nevada County can have direct impact on increasing broadband connectivity for the benefit of its residents. The broadband plan considers state and federal policy where appropriate for compliance or inclusion in Nevada County's General Plan, however it is largely focused on County specific policy recommendations that address the unique challenges of the county.

The broadband landscape in Nevada County can best be described as challenging. While there are areas of the county that have sufficient speeds for daily work and home life, there are still large swaths of the county with no coverage or coverage so slow, it has become prohibitive to perform daily, essential tasks. As the connected world moves on with access to high-speed, real-time information, unconnected and under-connected residents in Nevada County are left behind by the great digital divide. The same topography that brought Nevada County great wealth during the Gold Rush is now impeding the county's broadband connectivity. The hard rock beneath the towns is difficult and expensive to dig through; dense forests obstruct the line-of-site needed for wireless technology; and the rural nature of the county's landscape doesn't support the population density needed to show return on investment for most broadband projects.

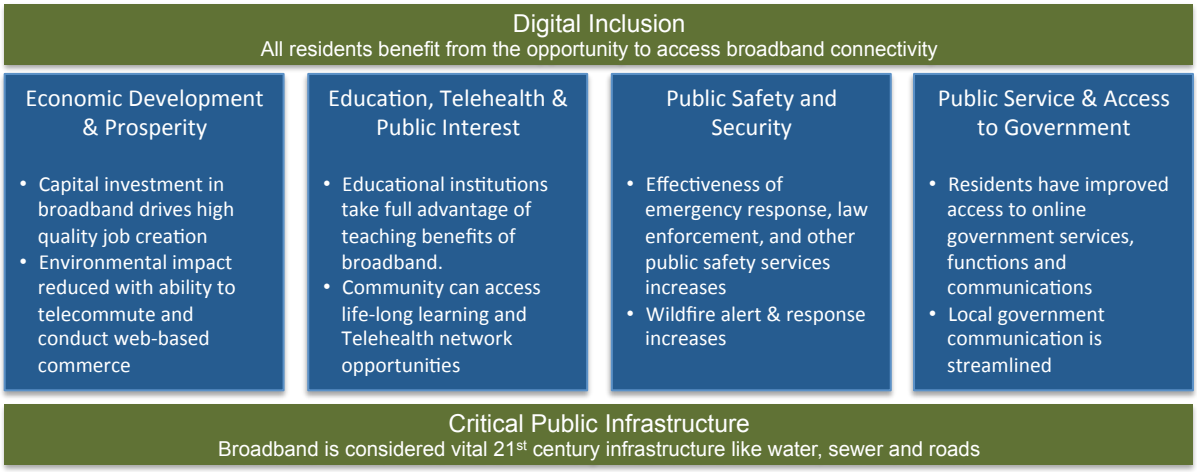
As Nevada County moves forward in overcoming these obstacles, there are best practices that can be incorporated to facilitate successful broadband projects. Supporting efforts to brand Nevada County as a digital leader and declaring broadband essential infrastructure for the lives of all county residents is essential. Adopting policies and procedures at a local level that support and ensure broadband deployment will be much more effective than relying solely on state or federal assistance. Municipalities sometimes dismiss the idea of open-access fiber networks as they do not want to play the part of the Internet Service Provider (ISP). That being said, there are models to be considered that place the municipality in the role of builder and owner while private providers lease the network and provide the service. Open-access networks in other areas have proven successful as competition and service in their areas went up as prices came down.

Ultimately, the right solution for Nevada County will likely combine multiple approaches that leverage existing fiber infrastructure, wireless opportunities and custom micro mesh networks. Broadband networks are not a one-size-fits-all product and this plan acknowledges this fact.

Nevada County has always been a place where difficult tasks are met with innovative ideas and good, old-fashioned grit. This region pulled gold out of granite and laid rails through mountains. Nevada County is now in a position to meet the 21st century by laying the groundwork for the new Silk Road: high-speed Internet. This plan focuses on bridging the digital divide and amplifying economic development to ensure that all residents have access to healthcare, education, safety networks, an elevated quality of life and the opportunity to compete in a workforce of 21st century jobs.

2. NEVADA CO BROADBAND GOALS AND IMPACT

This plan was developed with a focus on impactful strategies that prioritize actions within the County's control, specifically local policy and planning, local funding mechanisms and partnerships that will advance broadband coverage within Nevada County. High-speed Internet access is integral to the success of local businesses, advancing education opportunities, optimizing results from telehealth, ensuring public safety and improving access to government services. Rural communities have struggled to secure the benefits of broadband at the expense of these areas. Rather than rely primarily on support and funding from federal and state sources, this plan is designed to take a "county first" approach and considers actionable strategies that can be leveraged through outside agencies and partners. The overarching goal of this plan is to expand and improve coverage in the county to support economic development, public safety, education, telehealth and public services while amplifying general prosperity and equity through Digital Inclusion. This plan envisions creating impact in the following priority sectors:



This plan is tactically practical while being visionary for long-term success. It is heavily goal based and identifies the following goals in support of broadband expansion for the county:

1. **Codify Policy:**
2. **Prioritize Effort:**
3. **Elevate Economic Development Needs:**
4. **Connect Everyone and Ensure Public Safety:**
5. **Partner and Collaborate:**

These goals were developed from stakeholder interviews, review of best practices and a high-level analysis of practical application in comparable communities.

3. IMPLEMENTATION STRATEGY & PRIORITY ACTION STEPS

This plan focuses on implementation strategies that prioritize actions within the County's control, specifically local policy and planning, local funding mechanisms and partnerships. From a best practices implementation perspective, the most successful projects tend to be driven through local initiatives, rather than relying on state or federal incentives, policy or funding. To that end, the following priority action steps are focused on what Nevada County can do within its own control while leveraging state and federal resources where feasible.

1. Codify Policy

The County will have the most impact by codifying specific local planning and development policies that encourage the responsible expansion of broadband infrastructure. Adoption of effective local policies will immediately impact new development projects, ongoing infrastructure projects and the future prosperity of the County. Nevada County's General Plan includes vague language that could be built upon for more impactful results. Recommended policy language is appended to this plan. The current General Plan includes the following policy in the Land Use element:

Policy 1.7.18 *Encourage and support a sustainable and technologically current high-speed broadband transmission system that reliably connects Nevada County businesses and residences to national networks as a means to reduce transportation impacts, improve air quality, enhance citizens' quality of life, and promote economic development.*
Program 1.7.1 *The County will develop site standards requiring new residential and commercial development projects to include the broadband infrastructure components and adequate bandwidth speeds necessary to support current communication technologies.*

While this general plan language is a solid start and provides a base for more innovative policy, it lacks urgency. The following recommendations build upon the general plan intent with actionable steps:

Best Practice Example:
Dig Once Policies

The most impactful dig once policies are designed to maximize the conduit included in trenching projects while reducing the overall costs to participating entities. For example, under Boston's policy, the first company to request a trench must invite other entities to add additional shadow conduit and mandates that all telecoms install their conduit "in the same trench, at the same time, on a shared-cost basis." The conduit becomes the property of the municipality, and may be rented to private telecoms. The policy also obtains advance notice of private utility projects, and incorporates the specifications for conduit installation in the design phase as an efficient and cost-effective way to gradually build out a network of publicly owned broadband.

In addition, data centralization and tracking of scheduled underground projects is a key element of the policy that can circumvent the secrecy surrounding ISP fiber line extensions. Precise mapping of existing broadband projects identifies infrastructure that can be leveraged to expand access.

See section 4 and appendix for a more depth explanation of dig one policy implementation.

1. Codify Policy Action Steps

Facilitate integration of broadband planning into County plans and policies

Impact Strategy	Priority Actions
Adopt a broadband policy for Nevada County	○ Review, amend as appropriate, and adopt the attached suggestion for a county-wide policy
Ensure building and development codes include broadband	○ Require the provision of broadband infrastructure in all public buildings, major transportation and other infrastructure projects, commercial development projects, and residential neighborhoods ○ Require new or renovated residential and commercial development projects to provide broadband connectivity and include the infrastructure components necessary to support optimal broadband connectivity ○ Incorporate into conditional use permits the requirements to ensure continuity of broadband service and periodic upgrades to state-of-the-art broadband technologies
Ease access to county-owned right-of-ways (ROW), poles, and vertical assets	○ Adopt ordinances and develop procedures to facilitate and streamline the approval of permits to use ROW or public facilities ○ Create checklists and best practices for the review and approval of permits, including timelines and deadlines for application review, process, and access ○ Checklists should include which assets could be available and what to consider when negotiating access agreements ○ Create a database of public ROW and public facilities that can be used for broadband deployment and develop procedures to streamline the approval of easement encroachment permits
Create Dig Once and One Touch Make Ready policies to reduce the amount of times ROW are disturbed, reduce permitting costs, and better manage encroachments	○ Design and implement a Dig Once and a One Touch Make Ready (OTMR) Policy. Additional information on One Touch Make Ready in Appendix ○ Maximize the opportunity for broadband infrastructure installation by leveraging the opportunity to lay conduit and/or cables during road building or expansion projects ○ Allow better management of the ROW by reducing number of intrusions and determining appropriate pathways ○ Consider opportunities for cost-effective development of municipally-owned fiber networks and /or

2. PRIORITIZE EFFORT

Implementing this broadband plan will require dedicated leadership. Nevada County has already taken important steps to prioritize broadband, however for high-speed, future-proof broadband to take hold, best practices indicate that prioritizing the effort on the human scale with a true champion is one of the most important steps to take.

By identifying a point person to interact with county, region, state agencies and providers to broaden awareness of statewide broadband support, public safety initiatives and funding opportunities, Nevada County can ensure accountability to goals and adoption. A major hurdle for many small towns has been challenge by incumbents. It is a time-tested strategy that large telecoms simply wear smaller, rural communities down with their relentless protests and lawsuits. In many cases, the community and subscribers standing up for overall better service from local providers can overcome this type of challenge. A strong advocate at the county level who can organize the coalition has had success in communities like Wilson, North Carolina and Clear Lake, California.

Community Advocate Leads Effort for Community Owned ISP

Greenlight - *Wilson, North Carolina*

Wilson's city manager forged a path for Greenlight, a community-owned, symmetrical gigabit, Fiber-to-the-Home network. The City's fiber network passes every home and business in the city, and continues to spread deeper into Wilson County. The system includes hotspots in strategic locations to further expand wireless transmission. This community-owned and operated ISP represents the ultimate form of public-sector leverage in the broadband market but does require the municipality to operate an ISP as a business and compete directly with the private sector.

More information on Greenlight can be found at www.greenlightnc.com

2. Prioritize Effort Action Steps

Identify point person at Nevada County to implement plan

Impact Strategy	Priority Actions
Designate staff to implement the County's broadband plan and policies	○ Ensure County economic development plans, general plans, and area specific plans include broadband ○ Monitor broadband deployment in the local jurisdiction and update relevant plans to ensure infrastructure is adequate for future applications and consumer demand
Support efforts to brand Nevada County as a digital leader	Monitor communications regarding broadband as essential infrastructure for: ○ Economic development, job creation and prosperity ○ Public safety & Telehealth ○ Decreased environmental impacts ○ Bridging homework gap and access to educational opportunities
Support project implementation & manage communications	○ Act as liaison between developers and County for new broadband projects ○ Keep Board of Supervisors and key staff updated as to new broadband technologies, needs and developments

3. ELEVATE ECONOMIC DEVELOPMENT NEEDS

Advanced broadband utilization and a workforce with digital skills are crucial to the growth and retention of businesses in the 21st century. By acknowledging that broadband is a critical component of economic development and necessary to become a world class innovation ecosystem, the County will experience the systemic benefits of a more stable year-round economy, growing middle class and opportunities for youth to remain in the region.

One of the most promising best practice examples comes from Nevada County itself with the Beckville Network. The network is a 501(c)3 nonprofit corporation operating in the neighborhood along Newtown Road in western Nevada County. Critical to the success of the network is the close proximity to middle-mile fiber infrastructure from Vast Networks and willingness for the community to invest and participate. This is an excellent example of an innovative public / private solution that can be replicated in other areas of the county.

Local Success in Nevada Co

Beckville Network

The network serves 15 homes using 5 gigahertz wireless technology. It can supply downstream service at an average of 80 Mbps, and prices have never exceeded $70/ mo. When the network reaches its capacity of 20 homes, the price is expected to reduce to $40 per month.

The Beckville system runs off wireless transmitters strategically mounted for line of sight on houses and trees in the neighborhood. This network has no data or bandwidth caps, and rarely experiences service interruptions.

Elevate Economic Development Needs Action Steps

Prioritize actions that promote equitable economic development

Impact Strategy	Priority Actions
Design and implement a County broadband grant program	○ Nevada County currently in the process of implementing $225,000 last-mile broadband grant pilot ○ Reserve additional funds to expand pilot as appropriate
Support micro-mesh networks for incremental economic development	○ Support micro-enterprise neighborhood networks (such as the Beckville Network) which leverage proximity to middle mile fiber and community willingness to invest ○ Encourages and supports home-based businesses with high-speed broadband needs
Leverage and incentivize investment in future-proof infrastructure	○ Reduce barriers to broadband deployment by incentivizing expansion of existing fiber such as Vast Networks and Race Communications project ○ Maximize the number of fiber-optic strands deployed by laying additional dark fiber strands (or conduit) while the ground is open or while attaching to poles. Capacity will eventually be a concern and the cost of extra fiber is minimal compared to the cost of trenching or attaching to poles

4. CONNECT EVERYONE AND ENSURE PUBLIC SAFETY

Digital Inclusion and equity is the fastest way to build prosperity in a community. Public safety disasters are fastest way to destroy it. Nevada County must commit to an ongoing understanding and response to ensure underserved communities in the county are connected and every neighborhood has access to communications during natural disasters or man-made emergencies such as power shut-off.

Ideally, the goal of 100% served in Nevada County would be supported by the state's CASF and the federal CAFII funding opportunities. However, the reality is that incumbent telecom providers who have little incentive to connect low-density rural communities, dominate these programs. The experience with both programs has been one of delayed project timelines, litigation and frustration. While this plan still includes the CASF and CAFII programs (with priority areas identified in Appendix B) a long-term alternative to consider is an open access network such as that of Ammon. Idaho. Originally, an unlikely contender for best practice, Ammon, Idaho is considered the model for a financially responsible public works managed open-access network. The city realized it would be cheaper to build its own fiber infrastructure to connect city water department sites than hire a private contractor. The initial project expanded to other public agencies and then private sector businesses and wireless ISPs who needed fiber lines to serve their cell towers. Ultimately, the City was able to expand the network to residential communities who opted…and just about everyone did, making the project both successful and profitable for the community.

Open-Access Networks

City of Ammon, Idaho

The City financed the project through cost savings and local improvement district revenues. The City has experienced substantial economic growth, with businesses choosing to locate to Ammon, rather than neighboring communities, due to the availability of fiber-optic Internet connections. The City owns the fiber optic lines that serve homes, businesses, and public agencies, but does not offer Internet service over those lines. Instead, private-sector ISPs pay to use the fiber optic lines, and compete to offer service to customers over the same town-owned infrastructure. Municipal Open-Access Networks are the ideal for creating market competition and they remove the most serious barrier to entry into the market for new Internet service providers: the construction of infrastructure.

Connect Everyone Action Steps

Commit to connecting underserved communities and prioritizing public safety

Impact Strategy	Priority Actions
Prioritize Public Safety	○ Identify neighborhoods most at risk for losing communications during power shut off or natural disaster.
Work with ISPs to evaluate and leverage public funding opportunities	○ CASF eligible areas still exist in the county and may be attractive to certain ISPs for grant funded projects. ○ CAFII funds allotted to AT&T and Cal.net project areas are designed to reach underserved populations. Work with providers to ensure project success
Continue to work with Gold Country Broadband Consortium	○ Prioritize and track CASF underserved eligible areas for project viability (see Appendix B) ○ Coordinate with GCBC for communications with ISPs interested in pursuing other state or federal grant funding for projects ○ Explore emerging technology applications such as TV Whitespace and advanced satellite broadband access

5. PARTNER AND COLLABORATE

The most expedient way for any rural community to make progress is to collaborate with public and private partners to leverage funding, share resources, opportunities, best practices, and solutions. The recently submitted draft Sierra Comprehensive Economic Development Strategy (CEDS) identifies expanding broadband infrastructure as one of its core goals.

The finalized and approved CEDS will be helpful in implementing broadband strategies and potentially qualifying for broadband infrastructure financing that is consistent with the EDA's goals of creating jobs and facilitating economic development

Public Sector Funding Partners

The EDA Public Works program helps facilitate development of key public infrastructure, such as technology-based facilities that utilize distance learning networks, smart rooms and smart buildings; multi-tenant manufacturing and other facilities; business and industrial parks with fiber optic cable; and telecommunications and development facilities.

Past EDA funded projects include enabling OneCommunity and the City of Cleveland to construct a 100 Gbps fiber network through the city's Health-Tech Corridor and expanding high-speed broadband infrastructure at the Indiana Enterprise Center, which is expected to create 230 jobs and spur $710 million in private investment

Partner and Collaborate Action Steps

Identify key funding and implementation partners

Impact Strategy	Priority Actions
Work with EDA, USDA, RCRC and other partners to leverage funding opportunities	○ Consider EDA Public Works program funding
Support non-traditional methods of deployment	○ Open Access Fiber Networks ○ Consider funding and building open access models for municipal fiber as described in the appendix ○ Innovative Neighborhood Programs ○ Create a mechanism within the county to track and respond to community requests.

5. POLICY RECOMMENDATIONS

This strategy hinges on a progressive and contemporary broadband policy. The following is a recommended policy, prepared specifically for Nevada County based on the California Emerging Technologies Fund Directive.

Broadband Sample Policy

Findings and Declarations

Nevada County hereby finds and declares that high-speed Internet access—referred to as "broadband" (which includes both wireline and wireless technologies)—is essential 21st Century infrastructure in a digital world and global economy. It is vital to the economic prosperity and quality of life for residents in Nevada County and throughout California.

The ability to access broadband and be connected instantly to information, services and digital tools is critical for access to healthcare, education, jobs, and economic opportunities. The deployment and adoption of broadband is a major strategy to spur economic development because it improves productivity, which attracts more capital investment and generates jobs, while saving both time and money for consumers.

Broadband is a "green technology" that can significantly reduce impacts on the environment, shrink the carbon footprint, and decrease dependence on fossil fuels by offsetting vehicle trips, decreasing the use of resources, and saving energy in keeping in-line with Nevada County's Energy Action Plan.

Nevada County is committed to operating government functions as cost-efficiently as possible and recognizes that information technologies and broadband can greatly assist in achieving that goal. Additionally, Nevada County is committed to Digital Inclusion and increasing citizen participation in the public process and making services available online for the convenience and benefit of residents as well as to reduce impacts on the environment. Residents should be able to transact business with our local government agencies, such as obtaining and paying for building permits or business licenses or accessing official documents.

Nevada County is committed to helping residents be healthy, productive and self-sufficient. It is recognized that the use of broadband can save both time and money for residents while helping them bridge the economic divide. Therefore, it is important that all residents within Nevada County have high-speed Internet access, particularly those living in lower-income households and publicly-supported housing.

Nevada County is committed to helping students obtain the highest-quality education possible and understands that while area students have access to broadband in the classroom, there is a significant homework gap once they

leave campus. The availability of internet access and computing devices both at school and at home are critical teaching and learning tools for academic achievement.

Nevada County is committed to Digital Inclusion and increasing citizen participation in the public process through expanded engagement using broadband.

Therefore, it shall be the policy of Nevada County to facilitate the deployment and adoption of broadband to provide our residents with opportunities, quality of life, and convenience. Further, it is recognized that the speed of data and image transmission capability of the broadband infrastructure is vital to drive adoption: higher speeds enable more applications that are necessary for our residents' daily lives. Thus, it also shall be the policy of Nevada County to encourage and facilitate upgrades to existing broadband infrastructure to ensure that the public and private sectors have access to sufficient broadband speeds to support consumer demand for new and evolving applications that save time, money and resources.

SUGGESTED POLICY ELEMENTS

Nevada County shall incorporate these findings and declarations into the General Plan and all relevant elements, area specific plans, and community sustainability plans and shall adopt the following implementation strategies and actions:

Land Use and Broadband Infrastructure

- Ensure a level playing field for all broadband providers – private and public, wireline and wireless – making the use of public assets available to all providers on a competitive basis, commensurate with adopted policies regarding public benefits.
- Maintain consistency and comparability for protection of visual aesthetics as it pertains to broadband facilities with requirements for other infrastructure such as street lighting, traffic light control equipment, and power generation.
- Encourage broadband providers to size underground and overhead facilities to accommodate future expansion, changes in technology, and where possible the facilities of other telecommunications and utility providers.
- Allow for upgrades and expansions of existing broadband infrastructure and appurtenance facilities to the extent that it is adequately justified through radio frequency propagation (wireless service coverage area) maps and other means. And to the extent that the construction does not unduly impact nearby residential and historically significant areas. Consider "evergreen" permits that provide a right to providers to enter specified easements to upgrade their infrastructure for an indefinite or significant period of time to upgrade the broadband service consistent with the adopted policies.
- Locate and operate broadband infrastructure and appurtenant facilities to protect cultural and scenic resources. Site facilities at the lowest possible point along ridge lines in order to minimize visual and aesthetic impacts. Minimize the size and extent of appurtenant facilities,

such as antennas, dishes, and equipment buildings while still providing room for growth and co-location of future providers.
- Continue to require cohabitation on all new tower/pole builds
- Submit notification and information about all major infrastructure and construction projects, including transportation projects and new residential subdivisions, to a shared regional and/or statewide web-based data base so that broadband and other utility providers have the opportunity to coordinate infrastructure deployment in shared tranches, conduit, poles and towers, and other appurtenances to facilitate cost and time savings and minimize duplicative construction.
- Require as a condition of approval the timely removal of broadband towers and equipment when they are no longer needed.

Housing

- Require all new residential subdivisions to be served with state-of-the-art broadband infrastructure with sufficient transmission rates to support applications relevant to residential consumers and home-based businesses.
- Require all publicly-subsidized housing development projects to adopt policies to promote and support affordable housing with advanced communications networks whenever their public funds are used to subsidize the construction and provision of housing for lower-income residents.

Designation of Broadband Leader

- Direct the County Executive Officer to identify and designate an appropriate individual within management as a coordinator to be responsible for implementing policies related to broadband, information technologies, and Digital Inclusion. This designated leader shall implement the Nevada County Broadband Plan to increase and sustain the use of broadband and information technologies within the county. The coordinator shall prepare and submit a progress report annually to the Board of Supervisors.
- Direct the broadband coordinator to monitor broadband deployment and adoption within the jurisdiction of Nevada County and report rates and trends to the Board of Supervisors.

Interagency Cooperation

- Request that the County Executive Officer outline a process for ensuring inter-agency and inter-jurisdictional cooperation which shall include: sharing this policy with other jurisdictions in the region; meeting with them to explore common needs for infrastructure; exploring opportunities to collaborate on broadband applications such as telehealth, educational networks, and safety networks; and notifying neighboring jurisdictions about major infrastructure projects such as transportation improvements along shared corridors.
- Explore opportunities to work with other public and private entities such as schools, special districts, utilities, and health and medical providers to cooperate and joint-venture on broadband deployment projects and adoption programs.