Leave No Oregonian Offline
A Comprehensive Broadband Strategy for a More Resilient Oregon
Founded on Learning and Telehealth

June 2020

Introduction

Despite extensive efforts across Oregon by broadband service providers and municipal broadband initiatives, many Oregonians are still being left offline and are at risk of falling behind. Oregon's broadband infrastructure, while more robust in its urban centers, is still incomplete across much of the state's rural and remote locations. Combined with socioeconomic challenges and the lack of personal connectivity devices in some cases, these limitations threaten Oregon's productivity and resilience in the face of the coronavirus pandemic. This incomplete broadband infrastructure and services solution renders a significant number of Oregonians unable to work from home or access education, healthcare, and other services.

Even before the current pandemic crisis, broadband inequity was identified as a barrier to economic development and to maintaining economically healthy, sustainable communities in many regions across the state. These problems have been exacerbated by the pandemic and stand to deepen the economic damage and delay the recovery for communities hardest hit by COVID-19. This situation creates an enormous opportunity to develop and deploy a more comprehensive, equitable, statewide solution for broadband access, requiring significant public and private sector collaboration and partnership.

Short and Long-Term Strategies

This white paper suggests short and long-term approaches to improving statewide access to broadband services and fortifying Oregon's economic resilience. These recommendations follow lessons learned from telecom service provider partners as well as from successful models employed in other states, adapted for Oregon's unique profile, including its demographics and geography.

The short-term strategy would help mitigate the impact poor broadband access will have if a renewed wave of the pandemic forces extended distancing during the upcoming fall and winter seasons. These actions provide the foundation for the longer-term actions leading to deeper and more extensive improvements in the state's broadband infrastructure and to its sustainable economic recovery and resilience over the next several years.

Core Principles
We recommended five core principles that should guide short and long-term actions.

1. Partner with existing broadband providers
Local broadband infrastructures, anchored by public and non-profit organizations, are made

available through key last-mile broadband providers—a combination of private companies, rural utility districts and cooperatives, and municipal broadband initiatives. These providers have made significant investments in physical infrastructure—building antenna towers, burying miles of cable, and so on—and are in the business of selling connectivity services, maintaining equipment, and dispatching repair staff. They have established strong relationships with community information technology leads and have a keen interest in the viability of these communities. Working in concert with these providers will enable expanding public and non-profit organizations' access to broadband services and will strengthen the financial and operational outcomes for communities, and in turn, for the providers.

2. **Leverage anchor institutions**
   Anchor institutions play a key role in aligning the needs of communities. They are public and non-profit organizations—including P-12 (combined pre-kindergarten with primary/secondary education from kindergarten through 12th grade, as provided by many schools in Oregon), higher education, public libraries, and healthcare and government agencies—that are stable community pillars. They are at the center of life in their communities and, increasingly, influence decisions on online service acquisition as well as rely upon them to operate. The size and scale of these organizations translates into greater opportunities for extending infrastructure and services within and across communities, particularly in rural areas. Leveraging these anchor relationships increases the incentive for investment in high-speed broadband infrastructure resulting in increased regional recovery and resilience and greater long-term service delivery opportunities across all sectors.

3. **Use economies of scale to promote digital services**
   Small public and non-profit organizations often lack the knowledge and financial resources to effectively adopt new broadband technologies that they could, in turn, deliver to their communities. They can benefit exponentially by connecting and sharing requirements and pooling resources and expertise with other organizations that are addressing the same challenges and even reaching similar audiences.

4. **Partner broadly across Oregon's public and non-profit sectors**
   Oregon has historically provided resources and support for public and non-profit organizations including libraries, educational service districts, public health facilities, community colleges, and universities. Examples of organizations providing such support include the Oregon Broadband Office, OCHIN in community healthcare, Link Oregon in middle-mile broadband, and the educational service districts (ESDs) in P-12 education. Developing alignment across these domains is essential in addressing the statewide broadband challenges and crafting effective solutions to expand broadband access and promote the availability and delivery of digital services.

5. **Maximize the impact of federal funding**
   E-rate and federal grants and loans can help to offset the high cost of infrastructure development and broadband services deployment, particularly in remote and financially challenged areas of the state. To maximize the impact of these funds on successful infrastructure and service expansion, it is critical to coordinate and align efforts with our partners and with the communities we serve to put resources to work in the right locations and in the right ways. Particularly while the coronavirus response and economic stimulus activities are underway, federal funding opportunities are still emerging and continue to require rapid response to secure statewide support for current and future activities.

Immediate Actions for Impact and Success

Both long and short-term strategies require a foundational set of immediate actions:

Organize

- **The Pandemic Broadband Action Team (PBAT)**: The formation of a small group of leaders and supporting staff is required to coordinate strategy and develop statewide and regional grant proposals. The team should include representatives from the new Oregon Broadband Office, Link Oregon, the State of Oregon's Enterprise Information Services, the healthcare sector, and P-12 and higher education. Participants should have significant prior proposal experience and the ability to draw on their organizations' resources.

- **Leadership Consortium:** Representatives from key sectors involved with broadband and economic development will be called upon to lead engagements with organizations in their respective sectors. This consortium would include leaders from the Oregon Broadband Advisory Council (OBAC), Oregon Department of Education (ODE), Oregon State University (OSU) Extension, state government (through Enterprise Information Services), research universities, the State Library, and the telehealth community.

Analyze

- **Broadband data**: Deeper analysis of federal and state broadband data needs could help determine how and where to invest to extend broadband access. Of particular value is the State Broadband Office's recent involvement on the renewed federal broadband mapping effort jointly led by the Federal Communications Commission (FCC) and the National Telecommunications and Information Administration (NTIA).

- **Regional alignment**: Regional priorities for broadband grants and the promotion of digital services should be aligned with the previous work of Oregon's regional economic development teams—informed by the strategies and successful work of broadband networks in peer Western states (WA, CA, NV, CO, UT)—in identifying approaches for improving broadband access and adopting best-of-breed digital services to address education and healthcare needs as the pandemic landscape evolves.

Fund

- **Identify matching funds**: Sources of matching funds are needed to garner Federal broadband stimulus grants. As P-12 organizations have demonstrated, e-rate can be an effective funding source for network expansion. A sustainable source of in-state e-rate matching funds is essential to maximize this funding channel.

- **Provide operational and startup funds**: Funding is required to underwrite the next phase of Link Oregon network deployment in additional regions to serve P-12 schools, libraries, and other community anchor institutions.

Short-Term Strategies

These strategies offer short-term relief to COVID-19 problems now, anticipating possible future peaks as the pandemic evolves. They attempt to mitigate the impact of incomplete access for students and for those seeking online healthcare and other public services.

1. **Expand public WiFi access as critical lifeline connectivity**

   - Help to strengthen and expand effective partnerships with broadband providers and public entities to offer new public (safely distanced) WiFi access points to community organizations that act as hubs for their constituents, such as using the parking lots of public libraries, schools, community colleges, and OSU Extension facilities as potential locations for these deployments.

   - Engage ESDs and Link Oregon to provide critical middle-mile network access for these public services.

   - Identify existing access-point sources and procure additional devices where needed.

   - Deploy new access points, especially those with mobile capabilities, where possible.

2. **Help P-12 schools deliver online instruction more effectively**

   - Under the leadership of ODE, identify resources for curricula, and support P-12 districts and their teachers to draw on best practices to create compelling online learning environments for students.

3. **Assist public healthcare organizations in delivering remote online services**

   - Support telehealth services deployment for public healthcare facilities in communities where access to face-to-face treatment options are limited due to COVID concerns or the distance to facilities—particularly where high-bandwidth imaging / video is a requirement of treatment.

   - Support the needs of healthcare organizations to provide connectivity to their front-line workers to engage with family and with government, mental health or other services.

Long-Term Strategies

1. **Create a unifying statewide network for middle-mile broadband services**

   - Establish the Oregon Learning and Telehealth Network (OLTN) as a statewide platform for consolidating cost-effective connectivity options for schools and community healthcare services and a scaffold from which to launch innovative, mission-based programs.

   - Create effective, participatory governance through representation of experienced leaders in major metropolitan and rural ESDs and school districts (P-12 and higher education), healthcare (including OCHIN and OHSU Telehealth), and coordinating state agencies (ODE, Higher Education Coordinating Commission, Oregon Health Authority, and EIS)

   - Partner with telecom service providers and community leaders to magnify the impact of existing infrastructure and ensure relevant development goals.

   - Draw on similar long-term network initiatives leveraging those examples in comparable Western states where they have delivered significant benefits to residents, and especially to students in rural and frontier communities, through enhanced access to content, upper-level curricula, and telemedicine referrals and monitoring.

Map of the Link-Oregon-owned fiber optic network and the locations of Oregon P-12 school districts and public universities (as of May 2020). Phased approach: Phase 1—Rings supporting Portland, Hillsboro, Salem, Corvallis, Newport, Eugene, and Bend; Phase 2—Rings support southern and eastern Oregon; Phase 3—To be announced.

Ensure fiber-based broadband connectivity for anchor institutions to help provide a strong economic incentive and drive appropriate bandwidth for schools, libraries, healthcare centers, and other community anchor institutions.

- Partner collaboratively with local and regional broadband providers dedicated to investing in and improving broadband capabilities in (their) communities.

- Seek and coordinate grant funding from federal and foundation sources and explore new funding opportunities.

- Maximize e-rate subsidies to reduce operational costs and optimize the state's return on investment for matching funding—such as establishing an effective statewide e-rate consortium.

2. **Augment fiber broadband with expansion of wireless capabilities**

- Partner with broadband providers to add new access points at the periphery of the extended fiber infrastructure to augment existing reach.

- Identify options using fixed wireless, TV whitespace, low-earth-orbit satellite (LEOS) technologies (potentially), and other creative tactics.

3. **Leverage new network framework to interconnect anchor institutions through Link Oregon**

- Partner with broadband providers to leverage leased fiber allowing anchor institutions to connect (through Link Oregon facilities) to each other across the state ensuring they can reach their communities, that citizens can access public information and services through local broadband networks, and that government agencies can deliver state and national resources.

- Create a more equitable framework for distributing information and services to remote and disenfranchised regions and communities across the state.

- Identify opportunities for collaboration and economies of scale that reduce the costs for anchor institutions, particularly critical given decreases in local government revenue.

4. **Develop digital content programs through ODE and OLTN to allow anchor institutions to adopt digital methods for service delivery**

- Create support programs for anchor institutions that help them adopt and deliver digital services, whether at their sites or, working with service providers, to the individuals and businesses they serve.

- Recognize the need of support programs to adjust their offerings as needed, from shared approaches to cybersecurity, to access to P-12 instructional materials, to delivering government services online, among other capabilities critical to healthy and prosperous communities.

- Provide content that prepares teachers and students for new work opportunities to keep communities sustainable and boost economic development.

- Assist anchor institutions in coordinating needs for more efficient procurement and in adopting new approaches to digital operation processes and service delivery.

Budget

We have developed a detailed budget for short and long-term strategies that identifies activities in a phased approach. For more details on scope, cost estimates, funding sources, and opportunities for participation in a coordinated initiative, please reach out to us. We welcome the opportunity to work with service providers that may have already invested in Oregon communities or those looking for ways to do so.

Conclusion

In this white paper, we have presented a set of short and long-term recommendations to address the current gaps in access and to support Oregon's rural communities by enabling a more comprehensive, equitable statewide solution for broadband access. A key observation on the impact of this pandemic is that even with the investments made by broadband service providers to provide reliable, cost-effective high-speed broadband to all Oregonian, many rural and remote communities are still being left offline. Their residents are at risk of falling behind, missing out on education and healthcare resources, and lacking reliable, equitable access to other public services available online. With the COVID-19 pandemic causing significant isolation, these limitations further threaten Oregon's productivity, recovery, and long-term resilience.

This effort will require increased and sustainable collaboration across the public and private sectors—an unprecedented level of partnership. We recognize the dedicated work and investments made by broadband services providers and look forward to working closely with them to develop a comprehensive solution to Oregon's broadband challenges. We also know that funding—from federal, state, and other sources—is critical and time-sensitive. To achieve the best results for all Oregonians, we will always seek the latest data on education, healthcare, and other public-service delivery to gauge statewide effectiveness and ensure an optimal allocation strategy—including deploying equipment, services, applications, and staffing—to serve Oregon now and into the future.