

Equitable Access to the Internet

INTRODUCTION

The Board of the League of Women Voters of Lane County (LWVLC) recommended that LWVLC conduct a study on “Broadband access in Lane County for Elementary and Secondary Facilities” with the intent of updating our local League position statement, and the membership approved the proposed update at the 2021 annual meeting. The study committee has broadened the scope to include an understanding of the technology as well as what broadband access is currently available within the county for schools. The goal is to identify what is needed and where, as well as the funding issues involved.

LWVLC POSITIONS RELEVANT TO BROADBAND

There is no specific mention of broadband or internet access in the League’s positions at the local, state, or national level; however, there are several positions that can be used to support broadband access across school districts and communities.

Below are the relevant portions of current local League positions, identified by policy area. The relevant Oregon League position is included in the conclusion to this study, and the relevant national League position is available through a link provided in the appendix.

League of Women Voters of Lane County (LWVLC)

Governmental Structures and Process: Urban Services

The League also supports the provision of emergency and public safety services, libraries, parks, and other services in the urban areas. In evaluating the type of entity to provide these services, the criteria in the LWVLC Structure of Local Government position should be considered.

Governmental Services: Elementary and Secondary School Facilities

The League of Women Voters of Lane County believes the condition of elementary and secondary education school facilities is important to the efficiency and effectiveness of the educational program, the quality of the students’ experience, and the security of students, staff and teachers. Many issues need to be considered in the decision to close, renovate, or build a school. Proposals may be evaluated using criteria including (but not limited to) the following list: Public Process, Current Status, Alternatives, Function, Cost, Student/Community Impact, Long-term Needs, and Land Use. Public input is essential. The weight and significance of the other criteria will vary depending on the needs of each district.

TECHNICAL DESCRIPTION OF BROADBAND¹

Broadband in its most basic form is the ability to send and receive data fast. More technically, according to the Federal Communications Commission (FCC), the definition of broadband internet is a minimum of 25 Mbps (25 million bits of data per second) download and 3 Mbps upload speed.

The type of infrastructure used by internet service providers (ISP) such as Verizon, T-Mobile, etc. to connect to the internet determines the speed of transmission. For example, if fiber optic cables are used, they have blistering speeds of 940 Mbps download and 880 Mbps upload. Other types of infrastructure that operate at slower speeds are satellite, digital subscriber line (DSL), and cable. For streaming high definition (HD) videos, gaming and downloading large files, speeds over 100 Mbps are better. For streaming music, surfing the internet, and video conferencing, speeds above 25 Mbps are preferred; otherwise there will be lag time between downloads.

The most common technology used in homes and schools is wireless. The following diagram is a typical setup:

		Last Mile	Middle Mile	Back Haul	
Device:		Router →	Ethernet → Wall Jack	ISP→	Internet
IPad iPhone Computer (Have wireless antennae which send data via radio waves to a router)	(Data)	Its wireless antenna receives data and then transmits it via a cable to a wall jack aka Ethernet jack.	From here it goes to ISP	Provider infrastructure transmits to internet using different technologies (Fiber, cable, satellite, etc.)	

Certain key definitions:

Last Mile - The connection from the final ISP service location to the consumer.

Middle Mile - Connections across the state that tie together two or more provider nodes.

Back Haul - Connection to internet.

Another technology is cellular. It is not widely used in homes or schools. It requires devices that have cellular capability (antennae). ISP providers offer cellular plans which are more expensive.

Device:		Tower →	Tower →	Internet
IPad iPhone (Have cellular antennae which communicate data directly to a cellular tower.)	(Data)	Towers owned by ISP (eg. Verizon, T-Mobile)		

During the pandemic it became necessary to provide internet connectivity to homes where there was none and to also provide students with devices. In these cases the hotspot device became the technology most frequently used for connectivity to the internet. The hotspot device receives data via its wireless antennae and sends data via its cellular antennae to towers for transmission to internet.

Device:		Hotspot Device →	Tower →	Internet
IPad iPhone Computer (Have wireless antennae)	(Data)	Has two antennae: wireless to receive data from user and cellular to send data to tower.		

HOTSPOTS²

Millions of people every day connect to public hotspots for their data needs. By some estimates, there are over 200 million hotspots around the world. Hotspots are used to provide access to email or the internet from a mobile device in public. Hotspots are becoming an essential part of public infrastructure—and our internet experience. While some people use the terms “hotspot” and “mobile hotspot” interchangeably, they have distinct meanings.

A hotspot is a physical location where people can access the internet, typically using Wi-Fi, via a wireless local area network (WLAN) with a router connected to an internet service provider. Most

people refer to these locations as “Wi-Fi hotspots” or “Wi-Fi connections.” Simply put, hotspots are the physical places where users can wirelessly connect their mobile devices, such as smartphones and tablets, to the internet. A hotspot can be in a private location or a public one, such as in a coffee shop, a hotel, an airport, or even an airplane. While many public hotspots offer free wireless access on an open network, others require payment or a password.

A mobile hotspot (sometimes called a portable hotspot) is a hotspot that’s just that—mobile. While a “regular” Wi-Fi hotspot is tied to a physical location, a mobile hotspot can be created by using the smartphone’s data connection to connect a laptop to the internet. This process is called “tethering.”

One of the risks of being connected to the internet is that the very technologies that help us keep up with our work and personal lives can be vulnerable to hackers and identity thieves. When looking for a public Wi-Fi hotspot, it is important to connect your smartphone or laptop only to reputable providers—for example, the hotel’s or coffee shop’s wireless network. Connecting to hotspots that have misspellings such as Bongo instead of Boingo can be dangerous, as hackers sometimes use these seemingly innocent names to lure users who aren’t paying close attention.

THE DIGITAL DIVIDE

“The digital divide - the gap between the broadband haves and have nots – became glaringly obvious during the pandemic as school, work and healthcare shifted online. Tens of millions of people in this country either do not have internet access or, if they do have access to a local phone or cable company, cannot afford to pay for it.”³ Because connectivity touches every aspect of life - education, healthcare, agriculture, economic growth, not being connected minimizes opportunities and leaves a large segment of the population behind.

The digital divide referred to the ability to gain access to the internet; it has been broadened to encompass the gap in skills needed to use the internet effectively. In other words, after gaining access, the new “divide” is between those knowing how to use the tools the technology offers, which requires some degree of technical literacy, and those that do not have those skills nor access to learning those skills.

BROADBAND AVAILABILITY IN LANE COUNTY SCHOOL DISTRICTS AND LIBRARIES

When the COVID-19 pandemic necessitated “Distance Learning for All” in March of 2020, Colt Gill, Director of the Oregon Department of Education (ODE), acknowledged that the majority of Oregon teachers had not previously taught online, and access to necessary technology could be a challenge for some districts. The ODE planned to work with internet service providers and the relevant state agencies to identify connectivity issues for some school districts underserved by broadband or cell service. Schools would have to be flexible to meet the needs of every student.⁴

School districts throughout Lane County had to quickly assess the technology and connectivity needs of their student populations. Zoom licenses were purchased and hotspot devices were made available to students and families with no broadband connection. Across the county, thousands of devices were purchased and lent to students who would be learning remotely for the next 15 months.

District information technology (IT) managers helped with connectivity issues in addition to the repair and maintenance of devices and other hardware. A number of districts offered assistance to families needing help with internet costs by steering them to internet providers with free or discounted programs. It was soon discovered that hundreds of families who lived in more remote areas did not have connectivity because of Oregon’s unique topography and, as in the case with Lane Education Service

District (ESD), of the 300 hotspot devices which were contracted for two years, only 35 are able to be used on a regular basis.⁵

The entire phone and internet infrastructure for the McKenzie School District was destroyed in the Holiday Farm fire in late summer of 2020. With the help of substantial donations and internet and phone service vendors such as Spectrum and Noc-Tel, they were able to completely overhaul their network infrastructure.⁶

Eugene School District 4J had to purchase over 10,000 devices and invested in more computer storage. It also implemented two new learning platforms, Seesaw for lower grades, and Canvas for upper grades, with over 3,000 live Zoom-hosted sessions taking place across the district each day. Safe internet hubs were set up at school facilities for students with no internet access at home. The demands on the 4J technical infrastructure require that it be brought to scale as the district moves to improve security, connectivity and capacity.⁷

The following chart summarizes the availability of internet access for Lane County school districts and cities/towns:

School Districts	Urban	Hotspot	New	Zoom	Assistance	Service	Number
	Suburban	Devices	Devs				
	Rural	Contracted	for Loan		with ISP		Students
Crow Applegate Lorane	R	Lane ESD	250	30		Cell/internet coverage	250
McKenzie	R	200	200	5	Y	Built new network (fire)	168
Bethel	S	168	5560	400	Y	Internet security/tech staff	5560
Blachly	R	0	100	3		Adequate	100
Creswell	R	100	1150	District wide		Devices and staff	1150
Fern Ridge	S	Lane ESD	0	0		Fiber optics in school only	1483
Junction City	S	90	1500	5	Y	Funding/tech staff	1650
Lowell (No Response)	R						
Mapleton	S	15	150	30		Tech support staff	140
Marcola (No Response)	S						277
Oakridge (No Response)	R						530
Pleasant Hill	S	77	970	64		Equipment needs updating	960
Siuslaw	R	55	1230	110	Y	Security and speed	1230
South Lane Cottage Grove	U	350	1500	0		100+ families w/o internet	2500
Springfield	U	900	10000	0	Y	Infrastructure/funding	9914
Eugene 4J	U	900	10000	3000	Y	Scale infrastructure/speed	16500
Lane ESD	U	300	*			100+ families w/o internet	46000
							Population
Libraries							of City
Fern Ridge/Veneta	S	0	6	0		More devices to lend	4845
Oakridge	R	0	1	0		Cheaper broadband	3310
Springfield	U	20	0	0		More broadband	61535
Cottage Grove	U	0	4	0		More space/more staff	10155
Junction City	S	0	0	0		Funding/staffing	6200
Eugene	U	500	< 20	0		None mentioned	173620
Siuslaw/Florence	U	15	16	0		None mentioned	8925

* Lane ESD provides Chrome Books or specific adaptive devices for the students it serves.

The libraries in Lane County were equally challenged during the pandemic. County residents with no internet connectivity could use library grounds and parking lots to access WiFi. Springfield Library also provided two outdoor outlets for charging devices. Their curbside service delivered over 40,000 items including remote printing orders and Personalized Picks. Their Please Bother Me service offers help with technology and other issues and their computer stations are at capacity.⁸

Some libraries, such as Cottage Grove,⁹ Fern Ridge¹⁰ and Junction City,¹¹ currently have few to no hotspot devices or tablets to lend due to lack of staff and funding. The Eugene Public Library (EPL) procured 500 hotspot devices, 250 of which went to other organizations in the city such as White Bird and Community Supported Shelters. Because of the need for social distancing, EPL currently has 20 computer stations compared to 45 offered before the pandemic.¹²

BARRIERS AND SOLUTIONS

The above information reveals the problems which have confronted local school districts as they worked to deliver distance learning for all their students. It also describes the issues experienced by local libraries as they worked to provide both digital and limited personal access to their patrons. However, the impacts of the “digital divide” during the pandemic did not just impact schools and libraries - it was felt in all aspects of the economy and daily life.

It is appropriate to analyze the many barriers that have created the digital divide and consider some of the solutions to these issues in order to make the distribution of broadband access more equitable. The implementation of solutions will require many players, including private industry, government agencies, and various federal and state incentives, to improve the situation. Major challenges and potential solutions are described below.

Coordination and Information

Among the important barriers to providing adequate broadband service throughout the State of Oregon are the following: lack of statewide coordination, lack of information about existing gaps in broadband service, and lack of knowledge about the actual speeds of the service that is delivered. To address these and other challenges, the state created the Oregon Broadband Office (OBO) in 2018 and recently provided a budget of \$120 million to help establish broadband infrastructure around the state. At the request of the legislature, the Oregon Broadband Middle Mile Infrastructure Planning Group provided several recommendations for OBO’s workplan for spending this appropriation. Much of the discussion below is based on the report issued by this planning group.¹³

With regard to the need for statewide coordination, the recommendation was for Oregon to establish and adequately fund an Oregon broadband office to assess overall need, track federal programs and initiatives in other states, and review community proposals. It should assess statewide needs for broadband and map existing broadband networks so that gaps could be identified. On a regular basis, OBO should work with local county and city partners to identify areas with broadband challenges. Based on these partners’ recommendations, the OBO should prioritize removing barriers through public/private partnerships and/or funding contributions. OBO should consult with local governments about barriers created by local taxation and franchise agreements. Considering long-standing tribal broadband challenges and new federal funding channels to address them, the OBO should work closely with Oregon’s tribes to ensure coordination with other middle-mile and general improvements statewide.

Geography

Another significant barrier to broadband access is the geography of Oregon. In many areas of the state, the hilly and mountainous terrain or distances make it difficult to provide internet service wirelessly. Cellular service may be weak and fiber optic broadband may not be possible.

In such cases, OBO coordination with local communities through broadband action teams, including the Oregon Department of Transportation (ODOT) and other state entities, could lower the financial burden to placing towers in remote locations. Coordination with ongoing broadband projects could allow

development of a common plan to aid the effort to increase both broadband and cellular connectivity for these underserved areas. For those areas without cell service, perhaps satellite service and/or various terrestrial wireless services may be the only options. The use of these technologies, while not as familiar as fiber optic and cellular networks, may be the most appropriate solution for very high-cost areas.

Economics

There are economic challenges for both the internet service providers and the ultimate customers. The cost to install broadband infrastructure in rural areas is often prohibitive, and there are not enough customers for internet service providers to make a profit. The lack of profitability has caused the large ISPs to stay away from rural areas, leaving it to smaller providers to fill the gap. In addition, many potential customers cannot afford the monthly charges or the necessary equipment to access service.¹⁴

The end goal is affordable internet access in every community; however, the problem may have different solutions by different providers. The state should consider subsidies that support investment in long-term (ten years or longer) solutions that enhance availability and reliability. The state should also prioritize underserved areas by subsidizing service-provider investment. Federal grants should also be pursued for necessary capital costs.

Areas in Lane County have recently benefitted from such strategies. The state legislature allocated \$10 million to provide increased broadband capacity internet access for telework, telehealth and K-12 distance learning applications in unserved and underserved areas in response to the pandemic. As part of that allocation, the state gave Emerald Broadband, with customers in Eugene, Oakridge, Westfir, Cheshire, Blachly and surrounding areas, more than \$1.5 million to expand the reach of high-speed internet into rural parts of the county. In February 2021 Emerald Broadband began a fiber optic cable expansion in Cheshire, planning to eventually reach parts of west Lane County between Cheshire, Mapleton and Veneta. The company estimates that it will provide internet to at least 2,500 residential customers in Fern Ridge, Franklin, Cheshire, Goodson and Low Pass, as well as four Lane Fire Authority stations and Territorial Elementary School.¹⁵

A \$300,000 federal grant was awarded to Onward Eugene (a nonprofit) to build a better internet backbone for those communities affected by the Holiday Farm fire. The grant funded construction of a wireless tower at McKenzie High School near Blue River that was expected to be operational at the beginning of the 2021-22 school year. The second phase of the project, which is still seeking full funding, is to run underground fiber from the tower to the school and through the community of Blue River.¹⁶

On the consumer side, there is a new federal benefit to help families and households struggling to afford internet service. It provides a discount of up to \$50 per month towards broadband service. Eligible households include recipients of SNAP or Medicaid or those approved for free or reduced-price lunches or free breakfasts.

Resiliency and Redundancy

Existing broadband infrastructure is not robust, and back-up options are lacking. Multiple transmission pathways do not exist in many locations.

To address these issues the statewide broadband network should be designed for resiliency in the event of catastrophes such as wildfires and earthquakes. Such resiliency exists in multi-loop networks in which if one loop is damaged or made inactive, another loop would provide connectivity so that no service would be lost. The OBO should convene a broadband provider advisory forum to provide regular,

technically-based advice on the current state, emerging gaps, and future trends around broadband in Oregon.

Another strategy is the establishment of local non-profit internet exchanges to provide improved network performance and resilience as well as cost benefits to the participants by “keeping traffic local” to the service region. Such exchanges exist in Portland (NWAX), Eugene (WIX), and Bend (COIX). The state should encourage and potentially help fund the development of additional exchanges in southern and eastern Oregon.

Lack of Property Easements for Installation of Fiber Optic Cables

The fastest effective broadband speeds can be achieved through fiber networks. However, installing the fiber optic cable is expensive and requires access to the property where it will be installed either underground and/or on poles. Such access can be provided by means of property easements, also known as utility rights-of-way, which is land where access is granted by the property owner to a company to be used to build, maintain, repair or replace overhead and/or underground lines. The property owner can be an individual or a local or state agency, and the services delivered can include electricity, water, sewer, cable TV, telephone, etc. In underground utility installations, the lines are typically encased in conduit, which is pipe or other material to protect the lines.

The relationship of such right-of-way to broadband access can be seen in an example from Eugene. Previously referred to as the Downtown Fiber Project, EUGNet is an open access fiber optic network. The fiber strands run underground from a central exchange to individual buildings. Open access means that the fiber strands are owned by the Eugene Water and Electric Board, a public utility. Private internet service providers can use those fiber strands to serve individual businesses in the connected buildings. EUGNet’s increased speed and reduced cost is expanding in downtown Eugene.¹⁷

Recommendations for statewide solutions include the following: In order to encourage broadband expansion by internet service providers, ODOT should install conduit to accommodate fiber whenever road improvement projects occur in underserved areas. Under a “dig once” mantra, the OBO and ODOT should make local groups aware of fiber construction projects and encourage the installation of additional capacity for future growth and expansion. This will accelerate the deployment of broadband and could benefit areas limited by the lack of middle-mile infrastructure. The OBO should track other existing rights of way (e.g., railways, water and natural gas pipelines, electrical transmission corridors) in the state and should encourage their use for middle-mile builds wherever feasible. Permitting can be a major impediment to development; state and local offices involved in permitting should speed up the processes given the critical need. Permitting on federal lands may require advocacy by OBO and the Oregon Congressional delegation.

School Specific Barriers

School districts have their own subset of challenges in providing adequate broadband service to their students, students’ families, teachers and other staff. These include: No internet access in students’ homes due to lack of affordability and service availability; the need to purchase and provide equipment such as computers, tablets, and hotspot devices to students; the need for technical staff to maintain all this equipment; the need to purchase Zoom licenses for teachers and other staff; the cost of the above; the overall amount of broadband and fiber optic cable in the school buildings; frequent crashes of non-robust systems; and the lack of digital literacy in the local community.

A group that has recently proposed strategies for “Tackling the Homework Gap” is the National Association of Counties in its recently released Broadband Report.¹⁸ Tackling the Homework Gap is one

of nine specific themes in the report. Regarding this theme, it recommends the creation of partnerships between the private and public sectors, including school districts, to address permanent solutions. Communities should advocate and deploy broadband access solutions with a focus on affordability and the bandwidth of broadband services and the promotion of digital literacy skills training and programs. The report advocates for retaining permanent broadband benefit/affordability funding through government programs for qualified households. It also recommends that the standards for broadband speeds should be defined on a “per individual” basis rather than on a “per household” basis to recognize the needs of larger households with school children in addition to other users.

CONCLUSION

The committee prepared this research report at the direction of the LWVLC membership with the goal of determining whether the LWVLC's statements of position needed to be amended in recognition of the lack of adequate broadband service for many families and communities. As stated in the Introduction, there is no specific mention of broadband or internet access in any of League's positions, but there are several positions that provide guidance on the need for adequate, equitable public services. The committee suggests that adding language about broadband accessibility to two of the existing LWVLC positions could provide additional clarity for LWVLC advocacy efforts.

Within the LWVLC Urban Services position is the following subsection: The League also supports the provision of emergency and public safety services, libraries, parks, and other services in the urban areas. In evaluating the type of entity to provide these services, the criteria in the LWVLC Structure of Local Government position should be considered.

Our suggested change (underlined): The League also supports the provision of emergency and public safety services, libraries, parks, broadband infrastructure, and other services in urban areas. In evaluating the type of entity to provide these services, the criteria in the LWVLC Structure of Local Government position should be considered.

Within the LWVLC Elementary and Secondary School Facilities position it states: The League of Women Voters of Lane County believes the condition of elementary and secondary education school facilities is important to the efficiency and effectiveness of the educational program, the quality of the students' experience, and the security of students, staff and teachers. Many issues need to be considered in the decision to close, renovate, or build a school. Proposals may be evaluated using criteria including (but not limited to) the following list: Public Process, Current Status, Alternatives, Function, Cost, Student/Community Impact, Long-term Needs, and Land Use. Public input is essential. The weight and significance of the other criteria will vary depending on the needs of each district.

Our suggested change (underlined): The League of Women Voters of Lane County believes the condition of elementary and secondary education school facilities is important to the efficiency and effectiveness of the educational program, the quality of the students' experience, and the security of students, staff and teachers. Many issues need to be considered in the decision to close, renovate, or build a school. Another critical asset for schools is accessible broadband and other technology infrastructure as well as adequate computer equipment for teachers and students. Proposals for providing both physical plant improvements and digital resources may be evaluated using criteria including (but not limited to) the following list: Public Process, Current Status, Alternatives, Function, Cost, Student/Community Impact, Long-term Needs, and Land Use. Public input is essential. The weight and significance of the other criteria will vary depending on the needs of each district.

The committee considered the alternative of continuing to use existing local, state, or national League statements of position rather than adopting new wording for any local positions. The Children at Risk position of the League of Women Voters of Oregon (LWVOR) is relevant, but is too limited in scope. The LWVOR position states: The League of Women Voters of Oregon believes that governments, at all levels, have a responsibility to oversee and coordinate a comprehensive network of services to maximize children's readiness to be successful in school while optimizing available resources.

President Biden's signing into law of the Infrastructure Bill on November 15, 2021 will allocate approximately \$100 million for broadband internet in Oregon. This is a huge step toward a more equitable future for all Oregonians.

Discussion Questions

1. What organizations and agencies should have responsibility for making broadband and other technologies more accessible? For example, should school districts, and city and county governments seek out and engage in public/private partnerships to provide service and devices for public use?
2. What is the most significant barrier in Lane County to broadband accessibility and how should it be addressed?
3. If governmental subsidies were available, would the expansion of broadband access for rural families with no connectivity be a greater priority than upgrading for speed in the current urban infrastructure?
4. What are the costs to society of not ensuring that all citizens have access to broadband?
5. Do you support the proposed language update to the LWVLC Urban Services position? (See the proposed changes to local positions in the Conclusion.)
6. Do you support the proposed language update to the LWVLC Elementary and Secondary School facilities position?

Appendix

The League of Women Voters of the United States (LWVUS) position on equality of opportunity in education is part of the LWVUS position on social policy in "Impact on Issues" 2020-2022, p. 115, available at <https://www.lwv.org/sites/default/files/2020-12/LWV-impact-2020.pdf>

The full LWVLC position statements for Urban Services and Elementary and Secondary School Facilities are available in "Issues for Action" 2019, p.5 and 16 at <https://lwvlc.org/wp-content/uploads/Issues-for-Action-2019.pdf>

Footnotes

1. www.Verizon.com/info/definition/broadband, accessed 9/2021
2. What Is a Hotspot? - WiFi Hotspot Definitions and Details | Intel, <https://www.intel.com/content/www/us/en/tech-tips-and-tricks/what-is-a-hotspot.html>, accessed 9/30/2021
3. *The Register Guard*, 8/12/2021, page 5A
4. Bulletin from Oregon Department of Education, 3/30/2020, <https://content.govdelivery.com/accounts/ORED/bulletins/28411f7>
5. Phone interview 9/20/2021 with Brandon Webb, Chief Information Officer, Lane ESD
6. Email 9/10/2021 from Jason Davis, Technology Coordinator, McKenzie District
7. Phone interview 8/19/2021 with Steve Menachemson, Director of Technology, 4J School District
8. Email 10/18/2021 from Mark Riddle, Springfield Public Library, Adult Services
9. Phone interview 10/18/2021 with Natasha Chitow, Cottage Grove Library, Head Librarian

10. Interview 10/18/2021 with Colin Rea, Fern Ridge Library, Director
11. Phone interview 9/14/2021 with Michelle Schneider, Junction City Library Coordinator
12. Phone interview 10/16/2021 with Wendy Beck, EPL, Adult Service; email 9/3/2021 from Reed McGowan, EPL Foundation
13. Oregon Broadband Middle-Mile, Infrastructure Planning Group, Report and Recommendations, 7/20/ 2021 (version 1.0), <https://www.linkoregon.org/wp-content/uploads/2021/08/middle-mile-futures-report-v1-0-2021-07-20-distro2.pdf>, accessed 9/30/2021
14. *USA Today*, 7/12/2021
15. *The Register Guard*, 8/26/2020
16. *The Register Guard*, 8/31/2021
17. <http://www.connectingoregon.org/home/eugnet/>, downloaded 10/29/2021
18. National Association of Counties Broadband Report:
https://www.naco.org/sites/default/files/documents/NACo-Broadband-Task-Force_8-6.pdf,
accessed 9/15/ 2021

Interviews

Reed McGowan, Executive Director of the Eugene Public Library Foundation
Kevin Moore, Legislative Aide to Senator Prozanski
Heather Buch, Lane County Commissioner, 9/15/2021
Alexandra Corvello, staff person for Heather Buch
4J School District, 8/19/2021 phone interview with Steve Menachemson, Director of Technology
Bethel School District, 9/10/2021 email, Vincent Rose, Director of Technology
Blachly School District, 9/13/2021 phone interview with Annie Thiessen, Executive Secretary
Creswell School District, 9/14/2021 email, Joel Higdon, Director of Technology Services and Facilities via Julie Ward, Communications and Community Engagement Coordinator
Crow Applegate Lorane School District, 9/13/2021 email, Doug Osborne, Technology Coordinator
Fernridge School District, 9/17/2021 phone interview with Paul Lambert, IT Director
Junction City School District, 9/13/2021 phone interview with Erica Vaughn, Communications Facilitator
Mapleton School District, 9/10/2021 phone interview with Jeron Ricks, IT Director
Pleasant Hill School District, 9/24/2021 email Steve Traylor, Director of Technology Facilities
Siuslaw Library, 9/13/2021 phone interview with Meg Spencer, Librarian
Siuslaw School District, 9/15/2021 email Chris Rowbotham, Director of Technology
South Lane School District, 9/10/2021 phone interview with Brian McCasline, Ass't. Superintendent
Springfield School District, 9/27/2021 phone interview with Jen McCulley, Communications

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