



UTAH BROADBAND CENTER CONNECTING UTAH

DIGITAL CONNECTIVITY PLAN

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EXECUTIVE SUMMARY

The Utah State Legislature created the Utah Broadband Center (UBC) in 2021 to champion the broadband deployments across the state and to be an interface between broadband providers and state government. The UBC is an initiative of the Governor's Office of Economic Opportunity. The Utah Broadband Center Advisory Commission was created in 2022 and was tasked with developing and implementing a statewide strategic broadband plan. There is now a realization that broadband is an integral part of the state's infrastructure and a necessity for Utahns to fully participate in today's world.

The relationship between broadband and other priorities for Utahns — such as **employment**, **education**, **health**, civic engagement, **technology innovation**, and entrepreneurship — is and will become increasingly important. Broadband infrastructure deployment and adoption is a key component in accomplishing economic growth, increasing educational innovation, expanding access to health care, and increasing personal connection.

Access to broadband is dispersed unevenly throughout the state. Access to high-speed internet is as important for rural areas as it is for urban areas because it allows residents living in the less populated areas the same opportunities that exist along the more highly populated Wasatch Front, which includes the greater metropolitan areas such as Ogden, Salt Lake City, and Provo. The State of Utah wants to ensure every resident has access to reliable and affordable broadband internet to enhance their quality of life. This Digital Connectivity Plan is designed to serve as a roadmap for ensuring that all Utahns, whether urban or rural, have access to the digital world.

EMPLOYMENT



EDUCATION



HEALTH



CIVIC ENGAGEMENT



TECHNOLOGY INNOVATION



ENTREPRENEURSHIP

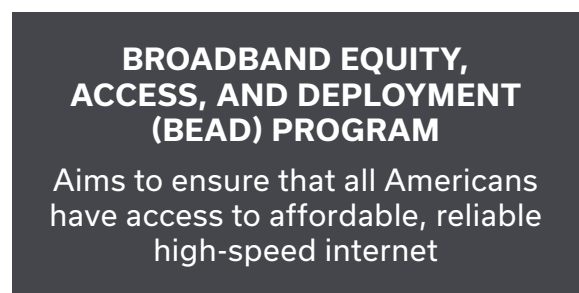
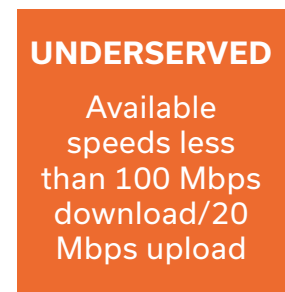
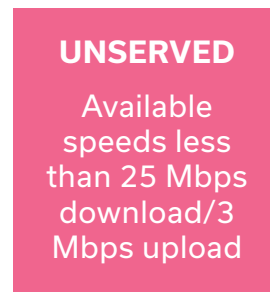


BROADBAND



Over the years, internet service providers (ISPs) in Utah as well as state agencies and municipalities have been very proactive at expanding broadband availability throughout the state through various programs and significant infrastructure investments. These investments have come from various federal- and state-funded projects, as well as investment from the private sector. However, according to the Federal Communications Commission (FCC) National Broadband Map, there are still approximately 41,541 unserved (available speeds less than 25 Mbps download/3 Mbps upload) locations and 28,108 underserved (available speeds less than 100 Mbps download/20 Mbps upload) locations throughout the state (as of July 20, 2023).¹

The federal [Bipartisan Infrastructure Investment and Jobs Act \(IIJA\)](#),² passed in July 2021, included a historic investment in broadband infrastructure through the Broadband Equity, Access, and Deployment (BEAD) Program. This federal program aims to ensure that all Americans have access to affordable, reliable high-speed internet. In order to achieve this goal, the National Telecommunications and Information Administration (NTIA) will provide BEAD funds to every state and territory to be used to support broadband infrastructure deployment and broadband adoption efforts. This Digital Connectivity Plan serves to meet the requirements of the BEAD Program and also outlines goals and priorities to provide a framework for statewide broadband expansion. It is an update to the previous plan released in 2020.



Note: Numbers generated from the FCC National Broadband Map are subject to change

1 FCC. National Broadband Map. <https://broadbandmap.fcc.gov/home> (accessed July 20, 2023)

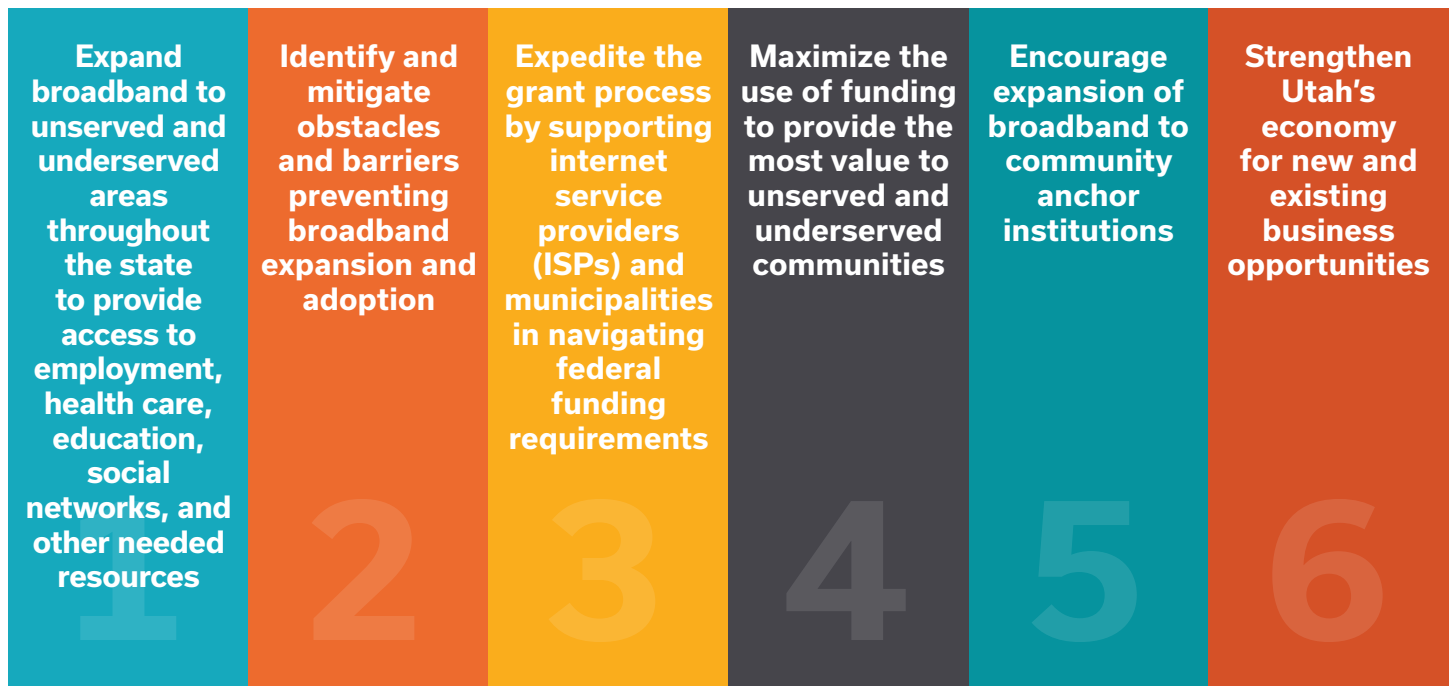
2 U.S. Congress. (2021). H.R.3684 – Infrastructure Investment and Jobs Act. 117th Congress (2021-2022). <https://www.congress.gov/bills/117/congress/house-bill/3684>

VISION OF THE DIGITAL CONNECTIVITY PLAN

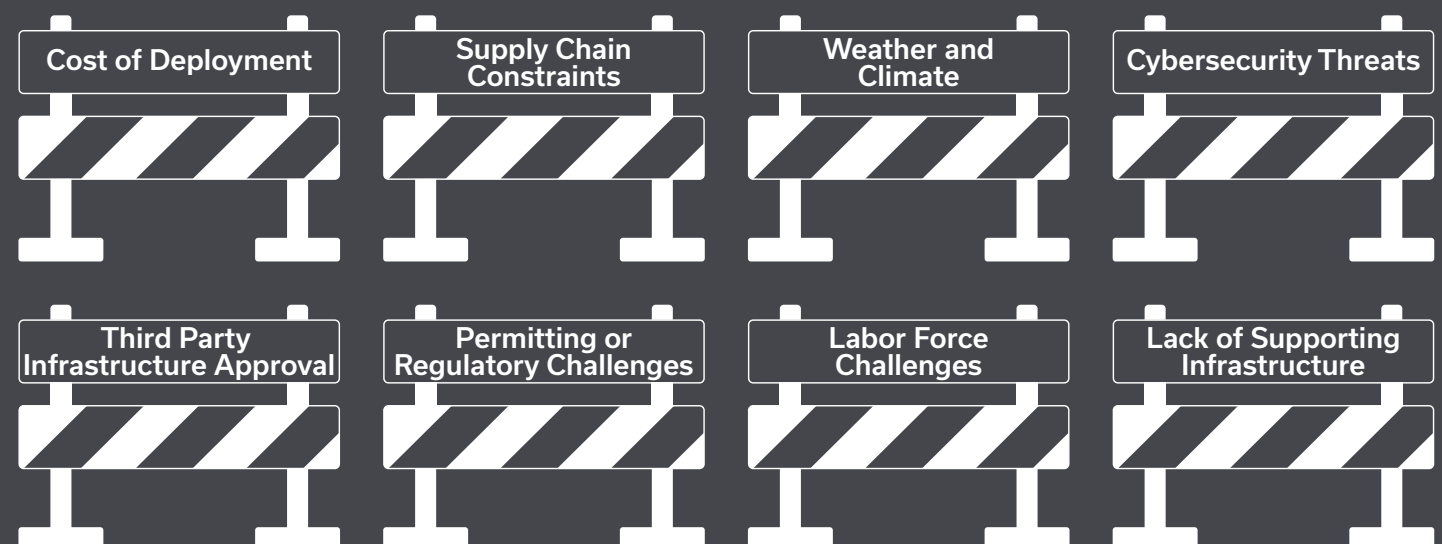
To guide the state in facilitating increased availability, accessibility, and affordability of high-speed internet for the benefit of all Utahns.

GOALS

This Digital Connectivity Plan serves as a guide in achieving the following goals:



KEY BARRIERS

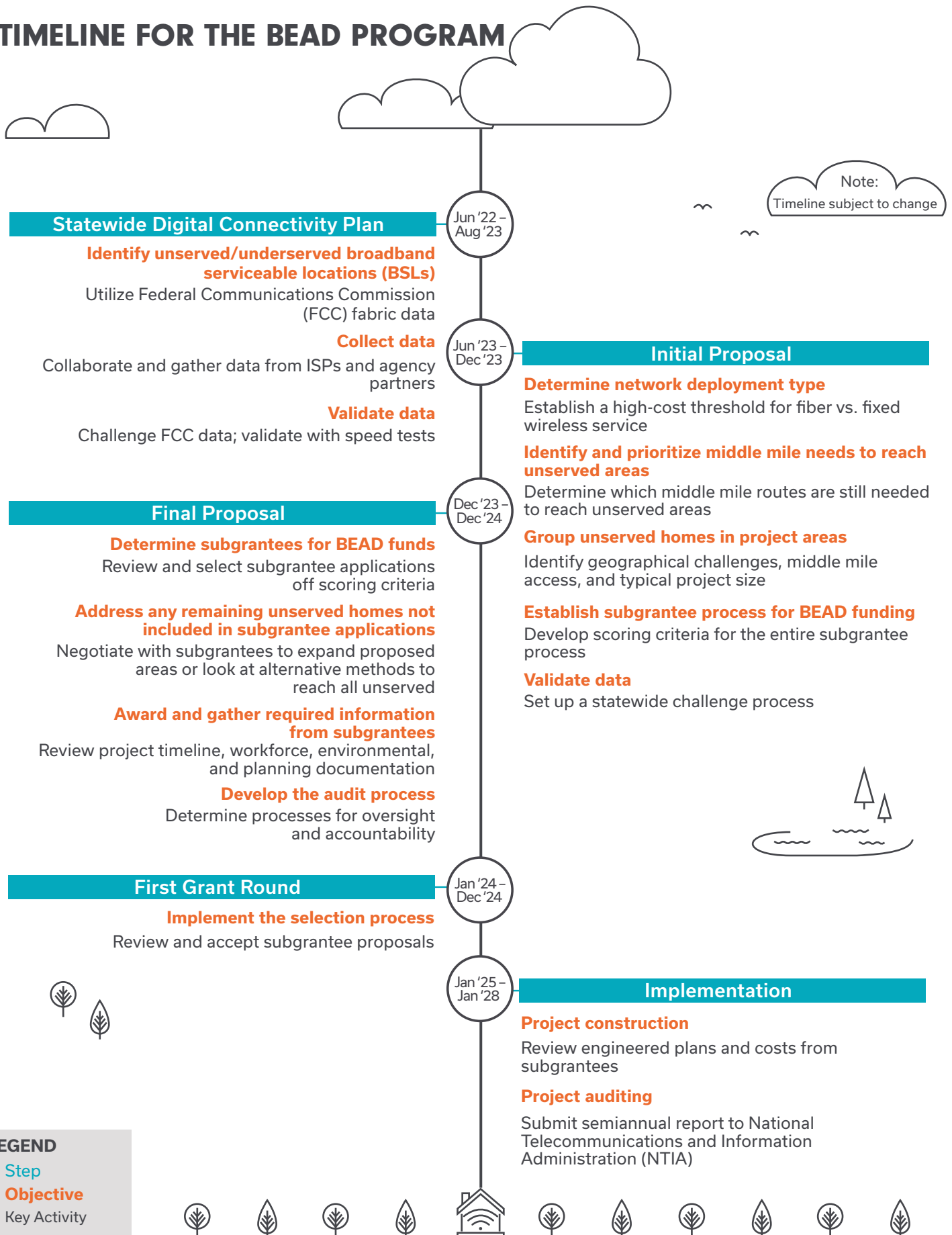




KEY STRATEGIES (IN NO PARTICULAR ORDER)

- 1 Establish priorities for statewide broadband grant program utilizing BEAD Program funds, while verifying/challenging the existing availability coverage maps
- 2 Prioritize deployment of fiber optics everywhere where costs are feasible, and in high-cost areas utilize wireless technologies in other areas where locations are more dispersed or challenging
- 3 Prioritize the establishment of public/private partnerships through resource sharing
- 4 Ensure no duplication of funding resources occurs in the same areas
- 5 Work with the Department of Transportation and ISPs to close middle mile gaps through program funds or infrastructure sharing
- 6 Coordinate closely with ISP leaders, organizations, and companies on deployment challenges
- 7 Collaborate with federal, state, and local agencies; Tribal Nations; and other entities regarding permitting challenges and create a recommendations and benefits guide
- 8 Create workforce recommendations for subgrantees to adopt as part of BEAD funding
- 9 Work with ISPs to implement cybersecurity measures
- 10 Analyze the threshold for ISPs to recoup construction costs and set a variable threshold for high-cost and extremely high-cost areas, based on location density
- 11 Collaborate with systems of higher education schools, applied technology centers, and private training programs to develop a highly skilled workforce.
- 12 Develop programs promoting digital literacy training and device availability.

TIMELINE FOR THE BEAD PROGRAM



BACKGROUND

Access to high-speed internet (broadband) is no longer a luxury, but an essential utility which is used to connect people to work, education, health care, commerce, social networks, and other important resources. In addition, the COVID-19 pandemic shed light on the need for a more robust broadband network.

Utah, one of the fastest-growing states in the United States, is home to a thriving technology sector and a highly educated population. However, despite its economic success, Utah faces a significant challenge in providing adequate broadband access to all of its residents. The state's rugged terrain and sparse population make it difficult and expensive to expand internet infrastructure, leading to disparities in access and speed between urban and rural areas.

While many areas of Utah have exceptional broadband access and high broadband adoption rates, there are still gaps where broadband is either unavailable or inaccessible. According to the Federal Communications Commission (FCC) National Broadband Map, there are 41,541 unserved and 28,108 underserved households in the state (as of July 20, 2023).³ Also, the American Community Survey finds that 26,058 Utah households do not have access to a smartphone, desktop, laptop, or tablet.⁴ These statistics demonstrate the gap between those with internet access, access to devices, and digital skills and those without. This gap is called the digital divide, and it leads to economic, social, and political disparities for underserved populations. Additionally, certain communities, such as low-income households and Tribal lands, are disproportionately affected by the digital divide. The State of Utah is focused on providing affordable access and resources to the digital world no matter a resident's age, location, cultural background, or financial situation.

APPROXIMATELY
41,541
UNSERVED

APPROXIMATELY
26,058
DO NOT HAVE ACCESS TO DEVICES

APPROXIMATELY
28,108
UNDERSERVED

The federal [Bipartisan Infrastructure Investment and Jobs Act \(IIJA\)](#),⁵ passed in July 2021, included a historic investment in broadband infrastructure through the Broadband Equity, Access, and Deployment (BEAD) Program. This federal program aims to ensure that all Americans have access to affordable and reliable high-speed internet. In order to achieve this goal, the National Telecommunications and Information Administration (NTIA) will provide BEAD funds to every state and territory to be used to support broadband infrastructure deployment and broadband adoption efforts.



3 FCC. National Broadband Map. <https://broadbandmap.fcc.gov/home> (accessed May 9, 2023)

4 U.S. Census Bureau. (2021). American Community Survey 5-Year Estimates. S2801 - Types of Computers and Internet Subscriptions. <https://data.census.gov/table?q=internet+utah&tid=ACSST5Y2021.S2801&moe=false>

5 U.S. Congress. (2021). H.R.3684 - Infrastructure Investment and Jobs Act. 117th Congress (2021-2022). <https://www.congress.gov/bill/117th-congress/house-bill/3684>

This Digital Connectivity Plan serves to meet the requirements of the BEAD Program and also outlines goals and priorities to provide a framework for statewide broadband expansion. It is an update to the [previous plan](#) that was released January 14, 2020 by the State of Utah and endorsed by Governor Gary R. Herbert on February 20, 2020.⁶ That plan set the course to maintain the availability of web maps and guide the efforts of the Utah Broadband Center (UBC) to enhance broadband availability and accessibility across the state.

When developing this broadband plan, the UBC engaged in a series of activities to gather information from stakeholders about the current state of broadband availability, service reliability, and broadband needs around Utah. This information has been analyzed and used to inform the strategic priorities outlined within this document. This plan will be made available for public review and comment. Following public review and comment, the plan will be revised and the final version will be submitted to the NTIA in addition to the state's strategic proposals for approval before Utah begins to receive its BEAD funding allocations.

WHAT IS BROADBAND?

DOWNLOAD AND UPLOAD SPEEDS

Broadband is a dedicated connection to high-speed internet. The FCC defines high-speed internet as download speeds of at least 25 megabits per second (Mbps) and upload speeds of at least 3 Mbps (25/3 Mbps).⁷

The NTIA defines a broadband serviceable location (BSL) as a business or residential location at which fixed broadband internet access service is or can be installed.⁸ Fixed broadband service includes broadband technologies that have a terrestrial origin, including wired connections or wireless (from a tower, pole, or other fixed-mounted antenna).

High-Speed Internet

Download speeds of at least
25 megabits per second (Mbps)
and upload speeds of at least 3
Mbps (25/3 Mbps)

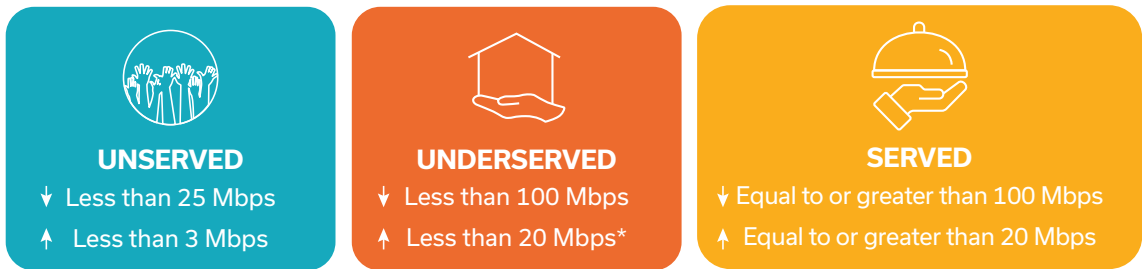
6 State of Utah. (2020). Utah Broadband Plan – January 14, 2020; Utah Broadband Advisory Council. <https://business.utah.gov/wp-content/uploads/2021/10/Utah-Broadband-Advisory-Council-Plan-2020.pdf>

7 FCC. (2015). Broadband Progress Report. <https://www.fcc.gov/reports-research/reports/broadband-progress-reports/2015-broadband-progress-report>

8 NTIA. (2021). Modernizing the FCC Form 477 Data Program, WC Docket Nos. 19-195, 11-10, Third Report and Order, 36 FCC Rcd 1126, 1175 para. 126.

Available speeds less than 100/20 Mbps are classified as “underserved.” Speeds greater than 100/20 Mbps are considered “served.”⁹ Community anchor institutions such as schools, libraries, healthcare institutions, and other public facilities, need adequate access to facilitate a greater capacity of broadband service for a larger population. These institutions provide resources for vulnerable populations, including but not limited to low-income individuals, unemployed individuals, children, the incarcerated, and aged individuals to have access to high-speed internet resources.¹⁰ Vulnerable populations face many challenges and it is important to remove barriers that may impact individuals’ ability to access and utilize broadband. Broadband is playing an increasingly important role in health care and employment, and individuals’ lives may be negatively impacted without access to broadband. Community anchor institutions that have speeds of less than 1 gigabits per second (Gbps) are also considered underserved, as defined by Section 60102 of the IJIA.¹¹ See Table 1 for an overview of these classifications.

TABLE 1. BROADBAND SPEED THRESHOLD DEFINITIONS



*Less than 1 Gbps symmetrical for Anchor Institutions

Figure 1 illustrates the internet speeds needed to engage in various online functions.

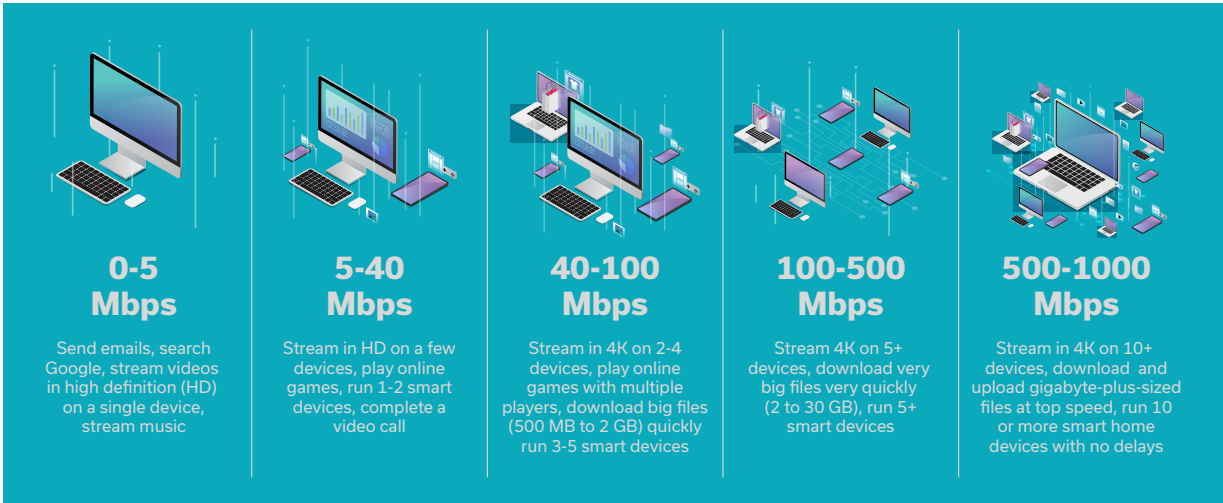


FIGURE 1. INTERNET SPEED REQUIREMENTS

9 NTIA. Notice of Funding Opportunity - Broadband Equity, Access, and Deployment (BEAD) Program. Section I. Program Definitions, C. Definitions. Pages 16-17. <https://broadbandusa.ntia.doc.gov/sites/default/files/2022-05/BEAD%20NOFO.pdf>

10 NTIA. (2021). Notice of Funding Opportunity - Broadband Equity, Access, and Deployment Program. Section I. Program Definitions, C. Definitions. Page 11. <https://broadbandusa.ntia.doc.gov/sites/default/files/2022-05/BEAD%20NOFO.pdf>

11 U.S. Congress. (2021). H.R.3684 – Infrastructure Investment and Jobs Act. 117th Congress (2021-2022). <https://www.congress.gov/bill/117th-congress/house-bill/3684>

BROADBAND NETWORK DISTRIBUTION

The infrastructure that data travels along is called a network. Network infrastructure, like public infrastructure such as roads and water pipes, is carefully planned and built according to present and projected future needs. Within the network, data is carried across fiber optic cables, wires, or radio signals in the air (wireless). These various means of carrying data have different capacities and speeds. The part of the network used to transport data between cities or across cities is known as middle mile infrastructure, which connects to hubs. The part of the network that connects from a hub to the end-user is called last mile infrastructure (see Figure 2). The end-users of the last mile infrastructure can include businesses, residential homes, or individuals connecting to cell service.

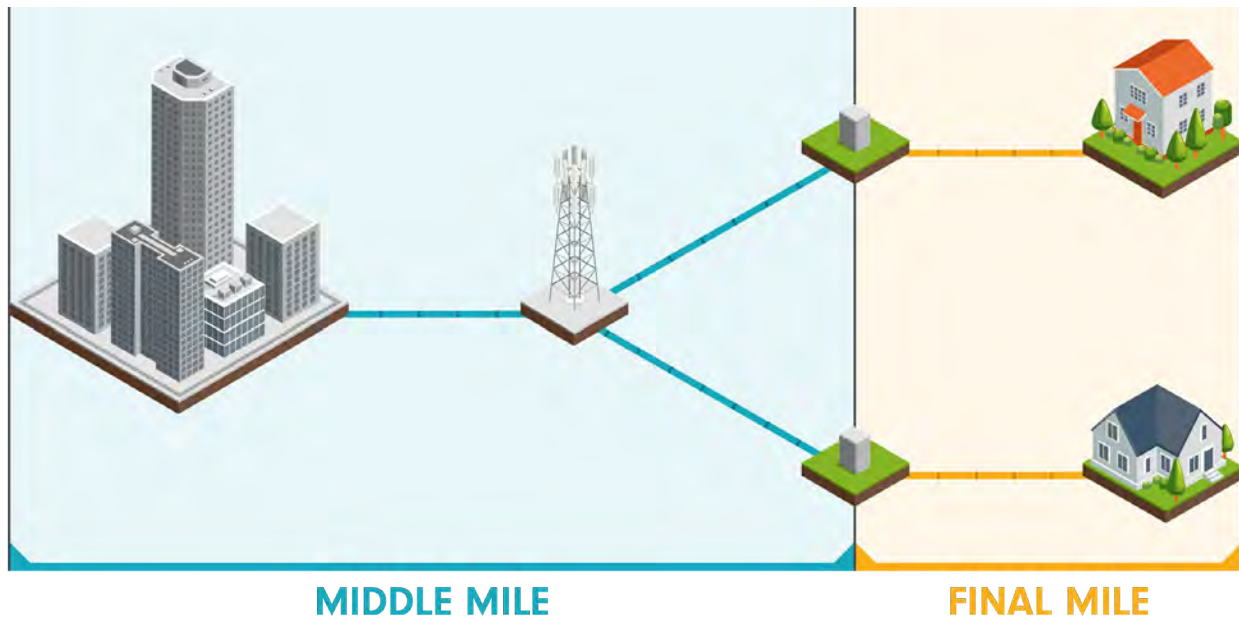


FIGURE 2. MIDDLE MILE AND LAST MILE BROADBAND INFRASTRUCTURE

BENEFITS OF BROADBAND

Broadband is an essential infrastructure and is crucial to the economic competitiveness of local businesses and the well-being of residents. Moreover, education, health care, business operations, workforce training and readiness, and smart community services all rely upon advanced broadband networks. In addition, another benefit to employees working from home rather than commuting, especially in rural Utah, is that it helps reduce air pollution. In Utah, our workforce and residents are strongly dependent on broadband to be able to conduct the many facets of their lives. Those areas of Utah that have limited broadband availability typically lag behind other areas that have sufficient broadband availability. Anecdotally, community anchor institutions with access to broadband enable residents, health care institutions, and students to have significant opportunities to improve their quality of life. This was substantiated through the outreach effort conducted by the UBC by talking to residents, businesses, and other anchor institution representatives in each of the 29 counties within the state.

The issues listed above concern social, wellbeing, and economic reasons Utah is committed to closing the digital divide and ensuring digital access for all residents.

ECONOMIC PROSPERITY

In terms of economic outcomes, broadband delivers benefits to both individuals and communities. Broadband makes it easier for job seekers to search and apply for jobs. In turn, businesses reap benefits from e-recruiting, which makes it less expensive to access a larger pool of candidates. Having a digitally fluent workforce also brings productivity gains to firms, who can then reward employees with higher wages. Taking a macro lens, researchers have found that higher levels of broadband adoption lead to economic growth, higher incomes, and lower unemployment.¹²

A study of job postings by Burning Glass Institute found that nearly eight in 10 middle-skill jobs require digital skills. Spreadsheets and word processing proficiencies have become a baseline requirement for the majority of middle-skill opportunities.¹³

According to the National Skills Coalition, workers who qualify for jobs that require even one digital skill can earn an average of 23% more than in a job requiring no digital skills. Moving from a job requiring no digital skills to one requiring at least three can increase pay by an average of 45%.¹⁴

HEALTH CARE

Telehealth breaks down the barriers low-income patients face accessing care and leads to fewer canceled medical appointments, according to BMC Health Services Research.¹⁵ Telehealth appointments bring great conveniences to patients and doctors offices for medical visits. These conveniences include patients not needing to leave home or work, eliminating travel burden to drive to a medical clinic (which may be located over 50 miles away in rural areas), and medical offices having fewer sick patients in-person (thereby reducing exposure to other patients or medical staff).

Without the necessary technology, accessing telehealth services is challenging, if not impossible. Even with access to a computer, patients may have questions or feel uncomfortable about managing their health over video when they are used to meeting in person. Literacy with electronic health care improves patient outcomes. Patients with access to their providers and medical records through online portals are more engaged in their care and have better treatment outcomes.¹⁶

Overall, 18% of Americans live more than 10 miles away from their nearest hospital, while 24% live between 5 and 10 miles away and 58% live less than 5 miles away, according to the analysis from the Pew Research Center.¹⁷ These figures reflect the fact that far more Americans live in suburban and urban areas than in rural ones. Utah residents living in rural areas will greatly benefit from high speed internet, as it opens the door for telehealth appointments, thus greatly saving time and money for all involved.

12 Tomer, A., Fishbane, L., Siefer, A., & Callahan, B. (2020). Digital Prosperity: How Broadband Can Deliver Health and Equity to All Communities. The Brookings Institution. <https://www.brookings.edu/research/digital-prosperity-how-broadband-can-deliver-health-and-equity-to-all-communities>

13 Burning Glass Institute. The Digital Edge: Middle-Skill Workers and Careers. try.burning-glass.com/digital-skills

14 Bergson-Shilcock, A., & Taylor, R. (2023). Closing the Digital Skill Divide. National Skills Coalition. [NSC-DigitalDivide_report_Feb2023.pdf](https://www.nationalskillscoalition.org/wp-content/uploads/2023/02/NSC-DigitalDivide_report_Feb2023.pdf)

15 Cao, Y., Chen, D., & Smith, M. (May 2023). Use Telehealth as Needed: Telehealth Substitutes In-Person Primary Care and Associates with the Changes in Unplanned Events and Follow-Up Visits. BMC Health Services Research. <https://bmchealthservres.biomedcentral.com/articles/10.1186/s12913-023-09445-0>

16 Health Resources and Services Administration. (2022). Improving Access to Telehealth. <https://telehealth.hhs.gov/providers/health-equity-in-telehealth/improving-access-to-telehealth#telehealth-for-patients-with-limited-access-to-internet-and-devices>

17 Lam, O., Broderick, B., & Toor, S. (2018). How Far Americans Live from the Closest Hospital Differs by Community Type. Pew Research Center. <https://www.pewresearch.org/short-reads/2018/12/12/how-far-americans-live-from-the-closest-hospital-differs-by-community-type>

EDUCATION

Roughly 6 in 10 students (58%) say they use the internet at their home to do homework every day or almost every day, according to a new Pew Research Center analysis of data from the 2018 National Assessment of Educational Progress (NAEP).¹⁸

For school districts across the country, 80% of people living with children doing distance learning reported the children were using online resources. About 20% were using paper materials sent home by the school.¹⁹

CIVIC AND SOCIAL ENGAGEMENT

A study by the Management Study Guide found that online social networks can have a positive impact on social capital.²⁰ Social capital is usually referred to as the resources built up through connections or relationships among people. The study found that people who use social media to connect with others and participate in online groups have higher levels of social capital.

A study by the Pew Research Center found that people who use social media to engage with politics and social issues are more likely to take action, such as contacting an elected official, signing a petition, or attending a public meeting.²¹

Many social services are increasingly being offered online, providing people with convenient ways to access benefits that support health care, education, employment, housing, and other essential needs.

18 Auxier, B., & Anderson, M. (2020). As Schools Close Due to the Coronavirus, Some U.S. Students Face a Digital 'Homework Gap.' Pew Research Center.

<https://www.pewresearch.org/short-reads/2020/03/16/as-schools-close-due-to-the-coronavirus-some-u-s-students-face-a-digital-homework-gap>

19 McElrath, Kevin. (2020). Nearly 93% of Households with School-Age Children Report Some Form of Distance Learning During COVID-19. U.S. Census Bureau. <https://www.census.gov/library/stories/2020/08/schooling-during-the-covid-19-pandemic.html>

20 Management Study Guide. Impact of Social Networking Sites on Social Capital. <https://www.managementstudyguide.com/social-networking-sites-and-social-capital.htm>

21 Smith, A., & Anderson, M. (2018). Social Media Use in 2018. Pew Research Center. <https://www.pewresearch.org/internet/2018/03/01/social-media-use-in-2018>

The issues listed above concern social, wellbeing, and economic reasons Utah is committed to closing the digital divide and ensuring digital access for all residents. There are several state agencies that have strategic plans with goals that align closely with UBC's goals outlined in this document. These plans include the Governor's Utah Home Plan 2023 (UHP)²² and One Utah Roadmap 2021-2022 (OUR)²³, the Governor's Office of Economic Opportunity Plan to Elevate Utah's Economic Success 2019 (GOEO)²⁴, the Unified Economic Opportunity Commission Utah Economic Vision 2030 (UEOC)²⁵, the Utah Education and Telehealth Network Strategic Plan 2020-2025 (UETN)²⁶, the Utah Department of Technology Services 2022-2025 Strategic Plan (DTS)²⁷, the Utah Department of Transportation Strategic Direction²⁸ (UDOT) and Statewide Transportation Improvement Plan (STIP)²⁹, and the Utah Department of Agriculture and Food 2021 Centennial Strategic Plan (DAF)³⁰. The following are specific outcome alignments between this Digital Connectivity Plan and these existing state plans:

Goal 1: Expand broadband to unserved and underserved areas throughout the state to provide access to employment, health care, education, social networks, and other needed resources.

- Many state agencies have prioritized expanding physical and digital infrastructure around the state to increase access to these needed resources. Plans which outline specific goals to increase access to government, health, or educational online resources include DTS, UETN, OUR, UHP, DAF, GOEO, and UEOC. The UDOT and STIP plans outline goals for connected communities and fiber optic projects across the state.

Goal 2: Identify and mitigate obstacles and barriers preventing broadband expansion and adoption.

- Cybersecurity concerns: The DTS plan includes strategies related to increased security, privacy, and compliance for digital government resources.
- Lack of education: The UETN and OUR plans contain goals to increase educational opportunity through increasing access to resources and learning experiences.

²² Utah Home | Governor Spencer J. Cox. (2023, February). Utah Governor's Office. Retrieved September 13, 2023, from <https://governor.utah.gov/utah-home/>

²³ One Utah Roadmap | Governor Spencer J. Cox. (2021, January). Utah Governor's Office. Retrieved September 13, 2023, <https://governor.utah.gov/2021/01/19/gov-spencer-cox-releases-one-utah-roadmap-a-plan-for-the-first-500-days-of-the-cox-henderson-administration/>

²⁴ Utah Governor's Office of Economic Opportunity. (2019, October). A Plan to Elevate Utah's Economic Success. Issuu. Retrieved September 13, 2023, from <https://issuu.com/go-utah/docs/utah-goed-2019-strategic-plan>

²⁵ Utah Unified Economic Opportunity Commission. (2022, May). Utah Economic Vision 2030. Issuu. Retrieved September 13, 2023, from <https://issuu.com/go-utah/docs/go-utah-economic-vision-2030>

²⁶ Utah Education and Telehealth Network. (2020, September). Strategic Plan 202-2025. UETN. Retrieved September 13, 2023, from https://www.uen.org/ueninfo/downloads/uetn_strategic_plan.pdf

²⁷ Utah Division of Technology Services. (2023, January 5). Strategic Plan 2022-2025. Google Drive. Retrieved September 13, 2023, from https://drive.google.com/file/d/124CkUL_RGxalxfw7iU321Hs4IQm5tXns/view?pli=1

²⁸ Utah Department of Transportation. (2023). 2023 UDOT Strategic Direction: Keeping Utah Moving. UDOT.utah.gov. Retrieved September 13, 2023, from <https://udot.utah.gov/strategic-direction/>

²⁹ Utah Department of Transportation. (2023). STIP Workshop Application: Statewide All Programs. UDOT. Retrieved September 13, 2023, from <https://maps.udot.utah.gov/wadocuments/Apps/STIPApplication2021/>

³⁰ Utah Department of Agriculture and Food. (2021). 2021 Centennial Strategic Plan. UDAF. Retrieved September 13, 2023, from <https://ag.utah.gov/wp-content/uploads/2022/03/UDAF-Centennial-Strategic-Plan-ver3122-1.pdf>

3: Expedite the grant process by supporting internet service providers (ISPs) and municipalities in navigating federal funding requirements.

- Collaboration between public and private sectors is important to the State, as demonstrated in the GOEO plan's emphasis on cooperation between state and local government and partner organizations

Goal 4: Maximize the use of funding to provide the most value to unserved and underserved communities.

- The UHP and GOEO plans both prioritize the effective use of public investment to advance economic development priorities, particularly in rural areas of the state.

Goal 5: Encourage expansion of broadband to community anchor institutions.

- UETN, which provides connectivity to a significant number of community anchor institutions in Utah, has identified administering a secure, advanced, and stable network as a priority.

Goal 6: Strengthen Utah's economy for new and existing businesses.

- Economic development is a high priority for the State of Utah. The OUR, UDOT, DAF, GOEO, and UEOC plans all focus on economic development through increased infrastructure, including broadband. The UHP, GOEO, OUR, and DAF plans highlight the importance of providing economic resources, including remote work, for rural Utah communities.
- Entrepreneurship and encouraging small businesses and startup businesses, which benefit greatly from broadband access, is a priority in the OUR and UEOC plans.

Many additional state agencies have goals that align closely with UBC's digital equity objectives, including the Department of Workforce Service Strategic Plan, the Temporary Assistance for Needy Families State Plan, the Child Care State Plan, the Refugee State Plan, the Supplemental Nutrition Assistance Program State Plan, the Veteran State Plan, the Workforce Innovation and Opportunity Act State Plan, the Utah State Board of Education Plan, the Utah Department of Health Plan, the Utah Department of Cultural and Community Engagement Strategic Plan, the Utah Intergenerational Poverty Initiative, the State of Utah Corrections Strategic Plan, and the Utah State Plan for Aging and Adult Services. The Utah Digital Equity Plan³¹ contains additional information about these plans and their alignment with the state's digital equity goals.

³¹ Utah Broadband Center (2023). Utah Digital Equity Plan. Retrieved September 15, 2023, from <https://www.connectingutah.com/digital-connectivity-plan#:~:text=The%20Utah%20Digital%20Connectivity%20Plan,succeed%20in%20the%20digital%20world>

TYPES OF INTERNET

There are two primary types of fixed internet: wired and wireless technologies. Depending on their capabilities and speed, they are either considered internet or high-speed internet, which is another term for broadband.

WIRED

Wired broadband are physically connected lines that transmit and receive internet data signals. The following are descriptions and capable delivery speeds of different types of networks:

TELEPHONE LINES



Telephone lines have been around well before the invention of the internet. The first connections to the internet were by modems and dial-up providers using standard telephone lines. The maximum speed was 56 Kbps, and it would have taken 16 days to fully download a 10 Gigabyte file. At 25 Mbps (or the minimum speed that meets the definition of "broadband"), it would take less than one hour (56 Kbps equals .056 Mbps).

DIGITAL SUBSCRIBER LINE (DSL) *(Copper pairs)*



DSL uses existing copper telephone cables to transmit data. Speeds vary widely based on local providers, the condition of cables, the distance between homes, and the equipment at the primary connection point. Because of this, DSL speeds can be less than 1 Mbps or up to 100 Mbps. With maximum DSL speeds at 100 Mbps, DSL does not meet the ever-growing needs of future technologies. It is therefore not a preferred option when building modern broadband infrastructure.

CABLE MODEM *(Coax)*



Cable modem delivers increased speeds over DSL and transmits broadband data over the same coaxial cables that are used for cable televisions. Like DSL, it is not a preferred option when building new broadband infrastructure (due to speed capacity limitations), but it can be used where existing infrastructure is in place. Cable modems use a protocol called Data Over Cable Service Interface Specification (DOCSIS). There are six versions of DOCSIS (1.0, 1.1, 2.0, 3.0, 3.1, and 4.0). The speeds range from between 40 Mbps download and 10 Mbps for upload for version 1.0 to 10 Gbps download and 6 Gbps upload for version 4.0.

FIBER OPTIC



Fiber optic technology sends data-carrying digital signals as light through cables made of glass fibers. It provides the fastest, most reliable networks. Because fiber is a newer technology, many areas do not have fiber networks developed. This type of network can require building new infrastructure. Fiber optic cables can be placed on existing power poles or they can be placed inside conduit buried in the ground. If the network is designed and installed correctly, symmetrical speeds can be 400 Gbps. Fiber optic is the gold standard for high-speed broadband internet as it provides the fastest speeds and can support emerging digital technologies into the future.

WIRELESS TECHNOLOGIES

Wireless broadband includes technologies that use radio spectrum to transmit broadband data. The NTIA defines a wireless broadband service as one that includes technologies that have a terrestrial origin (from a tower, pole, or other or fixed-mounted antenna).

SATELLITE BROADBAND



Satellite internet involves satellites that orbit the earth while transmitting long-range signals to individual subscriber locations anywhere on earth with a clear view of the sky. It is primarily a middle mile wireless solution, but many people use satellite internet directly to their homes as well. Satellite connection speeds vary based on location, and weather and tree foliage can affect the signal. Typical connection speeds are 12-100 Mbps. However, satellite internet has a higher latency (a delay of transmission also known as lag), making video calls extremely “glitchy” on this type of internet. An acceptable range of latency is between 50-100 ms. Satellite connection latency typically falls within 594-624 ms.³² For the BEAD program, the NTIA currently does not recognize satellite broadband technologies as a reliable wireless technology, making it an ineligible use of BEAD funds.

CELLULAR 4G, 5G, AND LTE



Cellular 4G, 5G, and LTE involve antennas mounted on cell towers transmitting radio signals, which are then received through the modems in cell phones, mobile routers, cellular antennas, or various signal boosters. Mobile carriers now offer residential fixed wireless broadband plans supported by their mobile towers.

A middle mile fiber network connected to a tower will increase the network capabilities and provide a better final connection to the cellular user. The download speeds can often reach 600 Mbps if specialized equipment is used to boost the signal. This is usually the fastest high-speed broadband internet available for users who do not have access to fiber optic technology. This technology supports broadband speeds for mobile devices as well as fixed wireless broadband service to residences.

MICROWAVE (Line of Sight)



Microwave technology uses point-to-point antennas to transmit and receive radio frequency (RF) and can allow information to be transmitted through extreme weather conditions such as rain, hail, snow, dust, or even smoke. The transmitting and receiving ranges are from 5 to 35 miles. Microwave technology can provide data speeds up to 5 Gbps (1 Gbps equals 1,000 MBps).

LICENSED MICROWAVE



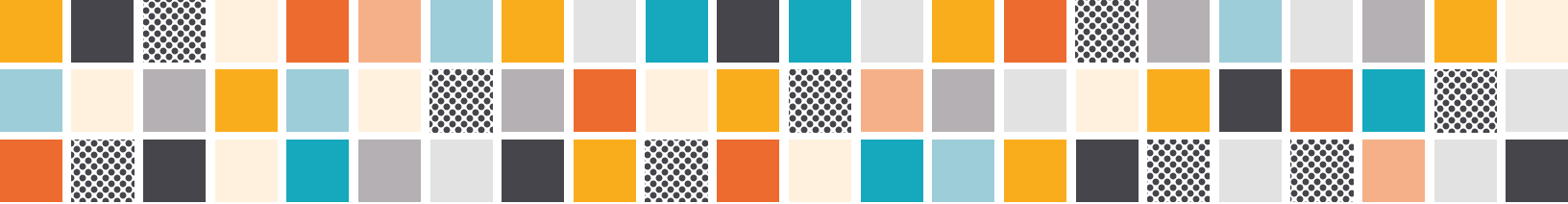
Licensed Fixed Wireless uses specific RF spectrum set by the FCC for regulatory approval before deployment. The goal is to promote efficient use of the RF spectrum by designating certain radio frequencies for specific uses. This technology has a predictability of 99.999% uptime (~ 5 minutes of downtime) annually. If interference is detected, the FCC will investigate and recommend corrective action. It is more expensive to deploy a licensed microwave than an unlicensed microwave.

UNLICENSED MICROWAVE



Unlicensed Fixed Wireless has no regulatory approval needed for deployment and is a quick and cost-effective solution for deployment. This technology requires the provider to install a microwave antenna and broadcast a signal over an area, covering up to 5 miles in range. Subscribers then install a receiver or dish to receive and transmit data back to the broadcast antenna. If interference is detected, system performance is degraded. Many common household and consumer devices utilize unlicensed microwave spectrum, which can cause interference with other broadband signals.

32 Cooke, K. (2023). Is Satellite Internet a Good Option? Pros and Cons of Satellite Internet Service. [SatelliteInternet.com](https://www.satelliteinternet.com/resources/satellite-internet-pros-and-cons).
<https://www.satelliteinternet.com/resources/satellite-internet-pros-and-cons>



TYPES OF NETWORKS

There are three primary types of network architecture that are used for fixed internet connectivity to an address. These are described below:

Local Area Network (LAN) is a collection of devices that are connected in one physical location, such as a building, office, or home.

Wide Area Network (WAN) is a large network of information that is not tied to a single location. The World Wide Web is an example of a WAN.

Wireless Local Area Network (WLAN) is the last mile network used at homes or businesses to distribute internet to phones, computers, and other devices through radio signals. Wi-Fi and hotspots are both examples of a WLAN. Connection speeds are dependent on the signal frequency and distance from the access point. Planning ranges for Wi-Fi are typically between 100 feet and 800 feet in distance.

While network architectures vary, accessing the internet is achieved by subscribing to an ISP. Over the last 20 years, however, open access networks are gaining in popularity. An open access network is one where wholesale internet access is provided to the same physical network infrastructure or services on terms that are reasonable, effective, transparent, and non-discriminatory and can be utilized by multiple providers delivering services to subscribers.

Utah has several deployments of open access networks in many areas in the state. This concept is increasing in popularity because it guarantees access to residents and it generates competition, thus lowering costs to subscribers.



1. OVERVIEW OF THE DIGITAL CONNECTIVITY PLAN

1.1 VISION

Vision for the Utah Digital Connectivity Plan

To guide the state in facilitating increased availability, accessibility, and affordability of high-speed internet for the benefit of all Utahns.

Digital connectivity is an integral part of everyday life. It has become a necessity for full community participation, employment, health care, essential services, civic engagement, business development, technology innovation, entrepreneurship, energy efficiency, and overall economic opportunity.

To inform the State of Utah's broadband planning efforts, the Utah Broadband Center (UBC) launched the Connecting Utah initiative in 2022. This initiative envisions a digitally-connected Utah where all are able to fully participate in modern society through access to high-speed internet, useful devices, and tools to achieve digital independence. Connecting Utah is based on three core focus areas:

Ensure that publicly-funded high-speed internet projects are accessible to the public.

Coordinate with internet service providers (ISPs); local, state, and federal policy makers; consumers; community institutions; and other stakeholders to support broadband initiatives, improve efficiencies, and expand statewide access and usage.

Develop and implement a statewide Digital Connectivity Plan and administer broadband access grants.

1.2 GOALS AND OBJECTIVES

The following are the core goals and supporting objectives for the implementation of the state's Digital Connectivity Plan:

1

Expand broadband to unserved and underserved areas throughout the state to provide access to employment, health care, education, social networks, and other needed resources.

- 1 Collaborate with potential subgrantees – ISPs and communities – to identify areas in need of increased broadband infrastructure.
- 2 Align new funding opportunities with existing projects to optimize broadband deployment objectives.
- 3 Develop broadband investment and deployment strategies for unserved and underserved areas.
- 4 Identify and utilize public/private partnership models, such as the Utah Department of Transportation (UDOT) fiber backbone and middle mile broadband infrastructure programs.
- 5 Develop a middle mile prioritization strategy to reach all unserved and underserved areas of the state.
- 6 Create a subgrantee selection process to distribute federal broadband funds transparently and efficiently.
- 7 Develop an Initial Proposal that outlines the specific prioritized project areas and proposed distribution of federal broadband funds.
- 8 Develop the Final Proposal.
- 9 Update and collaborate with key stakeholders and communities throughout the implementation process.
- 10 Increase awareness among policymakers and members of the public of important milestones and announcements for funding and deployment.

2

Identify and mitigate obstacles and barriers preventing broadband expansion and adoption.

- 1 Coordinate with ISPs and municipalities to understand current and potential challenges to deployment and develop proposed solutions to those challenges.
- 2 Identify any potential challenges for small businesses (ISPs, municipalities, and others) to apply for and utilize federal funding for broadband deployment.
- 3 Support entities by developing recommendations for streamlining permitting processes in order to reduce costs and delays.
- 4 Identify areas where fiber optic broadband networks are not feasible and utilize other technologies to bridge those deployment gaps.
- 5 Streamline permitting review processes for local agencies
- 6 Increase skilled workforce availability.
- 7 Ensure robust cybersecurity for users, ISPs, and subgrantees.

3

Expedite the grant process by supporting internet service providers (ISPs) in navigating federal funding requirements.

- 1 Develop checklists for ISPs and applicants to ensure contracts and plans are flexible, fair, and easily understood. This applies to all federal funding programs including BEAD, Community Connect, ReConnect, or others.

4

Maximize the use of funding to provide the most value to unserved and underserved communities.

- 1 Work with the ISPs to develop a low-cost and no-cost service plan thresholds for consumers.
- 2 The state will define the extremely high-cost thresholds to inform the use of BEAD funds. (NTIA will define threshold of high-cost areas.)
- 3 Explore ways to encourage competition amongst ISPs to lower costs for customers.
- 4 Future-proof broadband technology by prioritizing fiber optic technology up to the high-cost threshold wherever feasible.
- 5 Optimize project funds for broadband deployment by having a mix of fiber optic and wireless technologies in the high-cost threshold areas.

5

Encourage expansion of broadband to community anchor institutions.

- 1 Prioritize funding for community anchor institutions to receive 1GB symmetrical service availability.

6

Strengthen Utah's economy for new and existing business opportunities.

- 1 Inform Utahns of the highlights of the BEAD program investment and how it encourages business expansion and remote work opportunities.
- 2 Provide deployment details to economic development officials within the state to utilize in attracting businesses and promoting availability of workforce.
- 3 Expand capacity for rural communities to host new businesses through better broadband access.
- 4 Enhance opportunities for residents to have better access to education and training.

2. CURRENT STATE OF BROADBAND AND DIGITAL ACCESS

Utah has prioritized expanding high-speed internet infrastructure to not only the urban core of the state, but also to the far-reaching corners of rural Utah. This forward-thinking investment has positioned Utah as an economic leader, provided educational and workforce innovation, increased public health service access, and fostered the strengthening of social ties.

However, many unserved and underserved households remain in both rural and urban Utah, with access to broadband dispersed unevenly across the state. Utah is ready to make more investments to close the digital divide by addressing infrastructure gaps, promoting affordable broadband options, and increasing access to devices and digital literacy resources.

UBC is working to champion the broadband deployments across the state and interface between the providers, state government, and the federal government. UBC maintains a statewide map of current coverage areas of the ISPs. This data is submitted to the UBC on a regular basis.

The FCC developed a National Broadband Map in 2022 to share with the general public the current state of broadband deployment in the United States. The map consists of two parts: locations and broadband availability. The locations are on what is known as the “fabric” which is a dataset of all locations within the United States and Territories where fixed broadband internet access service is or could be installed. The fabric locations data is new and is anticipated to be updated twice annually. It is developed by the FCC’s contractor CostQuest in consultation with the FCC. The FCC National Broadband Map shows the availability of broadband services including the provider, the technology, and speeds. The availability is submitted to the FCC two times a year in March and September.

The National Broadband Map, first released in fall of 2022, allows individuals and entities to submit challenges to fabric locations and broadband availability on an ongoing basis. Once challenges are submitted, the FCC reviews and edits the map data accordingly and updates are shown on the next release. According to the FCC National Broadband Map in Utah approximately 41,541 BSLs, including residences and businesses, are unserved (as of July 20, 2023) and lack access to internet speeds above 25/3 Mbps.³³ Additionally, in Utah 28,108 BSLs, including residences and businesses, lack access to internet speeds of at least 100/20 Mbps and are underserved (as of July 20, 2023). These numbers, along with the number of unserved locations across the United States, will inform the funding allocation each state will receive through the BEAD program to improve broadband adoption within that state. States that have higher numbers of unserved BSLs will receive a higher proportion of the overall funding. Figure 3 shows the areas in Utah that are served.

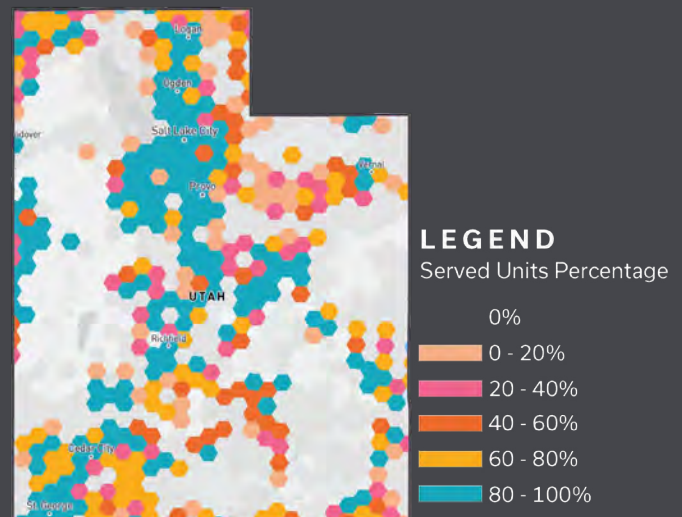
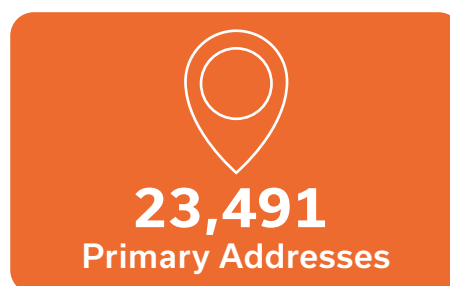


FIGURE 3. UTAH SERVED AREAS

³³ FCC. National Broadband Map.

<https://broadbandmap.fcc.gov/home> (accessed July 20, 2023)

Upon the release of the FCC National Broadband Map at the end of 2022, the UBC initiated an outreach and awareness campaign to encourage residents, municipalities, counties, and ISPs to challenge the initial map data. These challenges were aimed at validating the BSLs reported to the FCC by each provider and to ensure coverage to serviceable addresses. Some of the locations that were identified as BSLs on the FCC map were actually outbuildings or large objects that resembled buildings, and other locations that should have been identified as broadband-serviceable were not included on the map. The State's fabric location challenges were categorized as Type 1 challenges, a missing serviceable location, or Type 2 challenges, an incorrect primary address. During this challenge process, Utah was successful in challenging the map and adding an additional 24,598 BSLs and correcting 23,491 primary addresses.



The ISPs are also using their own resources to contribute to the fabric to help identify accurate locations.

The UBC will continue to encourage entities and individuals to review the National Broadband Map and submit location and availability challenges, where necessary.

2.1 EXISTING PROGRAMS

In 2010, Utah received a five-year grant through the NTIA to develop a statewide map of available broadband service. This grant also included a plan to increase broadband adoption and deployment in the state. From what was then called the Utah Governor's Office of Economic Development, the state formed a project team including staff members from the Utah Governor's Office of Economic Opportunity, the Utah Public Service Commission, and the Utah Geospatial Resource Center (UGRC) to accomplish this task. The Utah Broadband Advisory Council was formed to facilitate statewide broadband planning; bring stakeholders together; and improve infrastructure coordination throughout the state, including in urban and rural communities, on state lands, and on federal and Tribal lands. This council was composed of members of the broadband industry including federal, state, and local government agency representatives, ISPs, attorneys, contractors, and material providers.

The then-designated Utah Broadband Outreach Center oversaw the buildout of internet networks across the state and broadband infrastructure in many rural areas. Following this success, the Center, except for the broadband maps and the Broadband Advisory Council, was decommissioned in 2018. The global COVID-19 pandemic triggered the need to expand broadband and ensure connectivity to all households across the state.

The 2021 legislature established the Utah Broadband Center (UBC) and approved funding for a state-run broadband infrastructure grant.³⁴ The UBC was tasked to champion broadband deployments across the state, develop and implement a statewide digital connectivity plan, and administer broadband expansion grants.

The Legislature created the Utah Broadband Center Advisory Commission in 2022.³⁵ This Commission is tasked with making recommendations to the UBC regarding the state's broadband digital connectivity plan development and the application for and use of broadband infrastructure funds. Such funding sources may include:



The Commission solicits input from relevant stakeholders, including public and private entities, who may assist in developing and implementing the strategic plan. It also provides recommendations and changes based on a review of strategic plan drafts.

The Commission is comprised of various elected officials and representatives from the Governor's Office of Planning and Budget, Utah Division of Public Utilities, Utah Division of Indian Affairs, Utah Education and Telehealth Network (UETN), and Utah Department of Transportation (UDOT).

With the establishment of the Commission, the Utah Broadband Advisory Council was renamed to the Utah Broadband Alliance in 2022, to reduce confusion. Its membership and charter remained the same as the previously known Utah Broadband Advisory Council.

On September 15, 2021, the UBC announced an application process for the \$10 million Utah Broadband Access Grant program, with funds coming from the U.S. Treasury through the Capital Projects Fund. This grant was designed to offset the capital expenses in the deployment of last mile broadband in unserved rural and underserved economically distressed areas of the state. Program funds targeted specific geographic areas unlikely to receive broadband service without grant funding. Eligible expenses under this grant program included project planning, permitting, construction of facilities (middle mile or last mile), equipment, and installation and testing of the broadband service. Eligible recipients of these funds included ISPs, public/private partnerships (a local government entity and one or more private entities), or Tribal governments.

34 Utah State Legislature. (2021). Utah Code 36N-17 – Utah Broadband Center and Access Act. https://le.utah.gov/xcode/Title63N/Chapter17/63N-17.html?v=C63N-17_2021050520210701

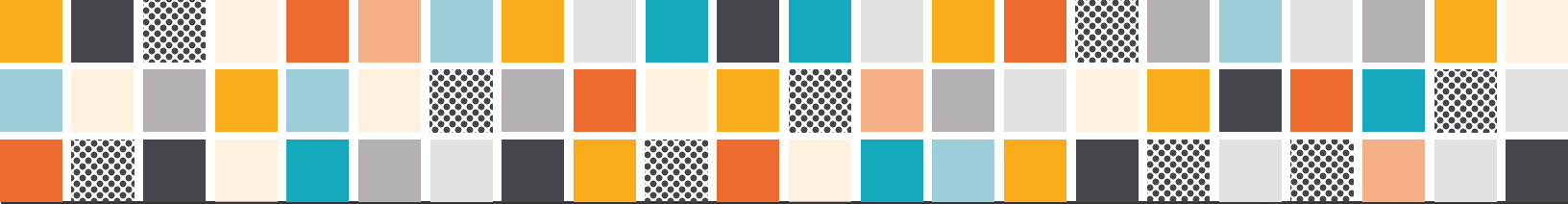
35 Utah State Legislature. (2022). Utah Code 36-29-109 – Utah Broadband Center Advisory Commission. https://le.utah.gov/xcode/Title36/Chapter29/36-29-S109.html?v=C36-29-S109_2022032420220324

On February 15, 2022, the UBC announced recipients of these grants to five different projects in various locations across the state, including in Morgan County, Box Elder County, Millard County, San Juan County, and Utah County.

Table 2 through Table 5 show the current activities and employees of the UBC as well as contractor support and funding sources.

TABLE 2. CURRENT ACTIVITIES THAT THE UBC CONDUCTS

ACTIVITY NAME	DESCRIPTION	INTENDED OUTCOMES
Broadband Access Grant	Utah State Code 34N-17-301 - State-administered broadband infrastructure grant program	To extend broadband service to individuals and businesses in an unserved area or an underserved area by providing last mile connections to end-users that would not otherwise obtain it due to economics, rurality, ROI, geography, or other obstacles.
Utah Broadband Alliance	Alliance of organizations, businesses, public and private, nonprofits, ISPs	Collaborative group of industry representatives working to bring high-speed access to households and businesses across the state by providing input, networking, and exploring best practices,
Utah Broadband Center Advisory Commission	Advisory board that consists of nine voting members (four legislators and five public servants) and the Utah Broadband Center Director - Utah State Code 36-29-109	The commission shall: (a) make recommendations to the center with respect to: (i) strategic plan development; and (ii) the application for and use of broadband infrastructure funds; (b) solicit input from relevant stakeholders, including: (i) public and private entities who may assist in developing and implementing the strategic plan; and (ii) public and private entities whom the strategic plan may impact; (c) provide recommendations for strategic plan development and implementation based on the input described in Subsection (9)(b); (d) review strategic plan drafts; and (e) recommend changes.



ACTIVITY NAME	DESCRIPTION	INTENDED OUTCOMES
Utah Residential Availability Map	State map showing ISP-submitted service coverage of residential broadband availability, technology, and speeds.	Resource of available broadband coverage to every household.
Utah Economic Development Map	Economic development resources of the state mapped including utilities, transportation, schools, hospitals, outdoor recreation, economic incentives, etc.	Businesses interested in relocating or expanding in Utah can use the map to identify areas with robust commercial broadband as well as other resources.
Connecting Utah Initiative	Connecting Utah Virtual Monthly Call	Provide updates, share resources, and get feedback from attendees regarding broadband and digital access.
Utah Internet Speed Test	Crowdsourced speed test hosted by the UBC	Collect and map all areas of the state with crowdsourced speed test data to help identify unserved locations.



TABLE 3. CURRENT AND PLANNED FULL-TIME AND PART-TIME EMPLOYEES

CURRENT OR PLANNED?	PART- OR FULL- TIME?	POSITION	DESCRIPTION OF ROLE
Current	Full	Broadband Center Director	Oversees the operations of the Utah Broadband Center found in Utah State Code 63N-17 which include, but are not limited to, developing a statewide digital connectivity plan, facilitating the Utah Broadband Center Advisory Commission, maintaining the statewide economic development and residential broadband map, administering the state Broadband Access Grant, and facilitating coordination between broadband providers and public and private entities across the state.
Current	Full	Broadband Center Program Manager	Manages broadband programs including grants for infrastructure and planning, applies for federal funding, and prepares reports. Analyzes data, participates in outreach to communities and organizations.
Current	Full	Program Support Specialist	Administratively supports the broadband center preparing agendas, setting up meetings, taking minutes, arranging travel, collecting biannual mapping data for the residential broadband availability map, and various administrative duties.
Current	Full	Digital Access Program Manager	Manages digital opportunity programs including grants for digital access and planning; applies for federal funding and prepares reports. Analyzes data, participates in outreach to communities and organizations.
Current	Full	Digital Access Outreach Specialist	Conducts outreach to organizations and communities regarding digital access. Collects surveys, data, and responses for the Digital Access Plan. Facilitates webinars and assists administering grants.
Current	Full	Broadband Technical Assistance Program Manager	Provide technical assistance to the broadband center regarding broadband deployment, funding of broadband grants, and facilitating coordination of broadband projects across the state. Analyze GIS data, reports, and speed test data to advise the deployment of funds for broadband infrastructure.

TABLE 4. CURRENT AND PLANNED CONTRACTOR SUPPORT

CURRENT OR PLANNED?	PART- OR FULL- TIME?	POSITION	DESCRIPTION OF ROLE
Current	Part	Contracted team	Consulting team consists of technical experts, media specialists, program managers, administrative assistance, and writers to develop the statewide Digital Connectivity Plan, Initial Proposal, and Final Proposal and provide ongoing BEAD program support throughout the duration of the program.

TABLE 5. BROADBAND FUNDING

SOURCE	PURPOSE	TOTAL	EXPENDED	OBLIGATED	AVAILABLE
Dept. of the Treasury	Capital Projects Fund - Build infrastructure to homes to connect unserved and underserved households to high-speed internet to provide access to health care, education opportunities, and employment	\$10,000,000	\$39,000	\$315,621	\$9,684,316
Dept. of Agriculture	RDOF - Emery Telecom and ATC Communications	\$10,422,648.70			\$0
Dept. of Commerce	BEAD planning funding	\$5,000,000		\$763,524	\$4,339,976
Dept. of Commerce	Digital Equity Planning funds	\$676,684.53	\$36,445.31		\$640,239.22

2.2 PARTNERSHIP

The “Utah way” of doing business is to collaborate and create partnerships between government and the private sector to create win-win solutions for each. Each side of the partnership invests a portion of their funds or other resources and establishes an understanding on how the end product will benefit both parties. This model creates winning solutions for all entities in the partnership. Typically, construction costs can be reduced, innovations can be realized, and long-lasting relationships forged through these partnerships. This model has been replicated countless times for decades in many industries across Utah.

This public-private partnership model is an important asset in Utah’s broadband deployment strategy. The model presents incredible opportunities for all parties involved, including state and local governments, broadband providers, businesses, and residents. Governments and communities benefit from improved connections for community anchor institutions and public locations, service providers can expand their footprint into more areas, and businesses and residents benefit from increased access and better broadband service options.

Public-private partnerships have facilitated the efficient use of federal funding in previous projects. One key agency for middle mile expansion is UDOT. Its involvement in managing/controlling state and federal highway rights-of-way makes its partnership critical for providers to close middle mile gaps. Without UDOT’s involvement, obtaining right-of-way clearances, permits, and environmental approvals can otherwise be very slow for broadband providers to obtain. Under state law, UDOT right-of-way and telecommunication infrastructure is telecom carrier-neutral.³⁶ This allows for providers to utilize UDOT-owned conduits for installation of provider-owned cables, enabling them to build out in communities at a much lower price. It also provides equal opportunities for any entity to partner with UDOT, which promotes competition and better pricing for subscribers.



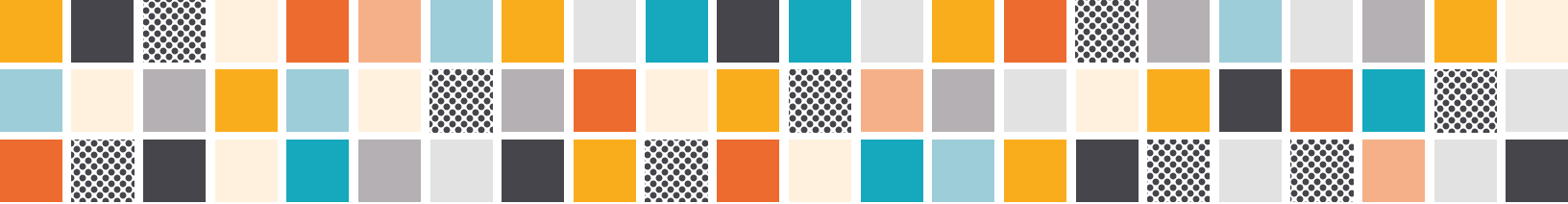
Another key partnership in broadband deployment is with ISPs. They are a critical piece in bringing broadband availability to the last mile/subscriber locations. They bring broadband connections to businesses, community anchor institutions, and residences. It is not uncommon for ISPs to connect to government buildings at very minimal cost to the agency. This is extremely valuable to the more rural communities of Utah that have very limited options for broadband connectivity. In addition, ISP familiarity in working in the more rural parts of the state helps the UBC understand challenges that ISPs face in these areas.

Utah has a number of broadband partners that are involved in various aspects of broadband adoption. [Table 6](#) details relevant current and statewide partners that may play a role in broadband deployment and adoption planning.

36 Utah State Legislature. (2018). Utah Code 72-7-108 – Longitudinal Telecommunication Access in the Interstate Highway System: Definitions, Agreements, Compensation, Restrictions, Rulemaking. <https://le.utah.gov/xcode/Title72/Chapter7/72-7-S108.html#:~:text='Longitudinal access' means access to,30 or more linear meters>

TABLE 6. POTENTIAL CURRENT AND STATEWIDE BROADBAND PARTNERS (IN NO PARTICULAR ORDER)

PARTNER	DESCRIPTION OF CURRENT OR PLANNED ROLE IN BROADBAND DEPLOYMENT AND ADOPTION
Utah Rural Telecom Association (URTA)	Members of URTA, ISPs, have existing networks to be utilized and expanded into rural, unserved areas. This includes fiber optic and wireless networks. URTA attorneys also provide guidance and counsel on shaping state broadband policy.
Internet Service Providers (ISPs)	As of 2023, there are 47 fixed broadband ISPs making broadband connectivity available across the state. This includes fiber optic and wireless networks.
Utah Education Telehealth Network (UETN)	The UETN connects community anchor institutions (such as schools and libraries) across the state, including public schools (primary and secondary education institutions). They regularly utilize ISP-provided services, as well as their own networks
Utah Department of Transportation (UDOT)	UDOT provides middle mile connectivity and pathways along State-owned highways. UDOT exchanges fiber optic pathways with third-party providers to utilize the pathways to reach the doorsteps of the communities that otherwise would have been cost-prohibitive.
Utah Department of Technology Services (DTS)	DTS is the information technology (IT) service provider for the State of Utah and connects state administrative facilities statewide.
Utah Transit Authority (UTA)	UTA provides public Wi-Fi on buses and trains for passengers.
Utah Broadband Alliance	Stakeholder group with representatives for all things broadband including government agencies, ISPs, material suppliers, contractors, and engineering firms.
Utah Communities Connect	Nonprofit to create a digital inclusion network that allows for cross-sector collaboration, coordination, and support for digital inclusion community programs.
Utah Division of Indian Affairs	Government-to-government coordination to assist with broadband deployment for Tribal communities in Utah.



PARTNER	DESCRIPTION OF CURRENT OR PLANNED ROLE IN BROADBAND DEPLOYMENT AND ADOPTION
Utah State Board of Education	State agency that assists with education and training programs as well as broadband deployment to anchor institutions.
Utah State Library Division	State agency that provides public internet access and terminals at libraries, as well as Wi-Fi hot-spot device loan programs.
State Nonprofit Organizations (Talent Ready Utah State, Utah Coalition on Aging, Healthcare Providers, Correctional Facilities, and Institutions etc.)	Various state organizations helping with digital literacy, digital access, education, and other collaborative efforts with UBC.
Utah System of Higher Education	State agency that provides internet access to students and public and training programs through universities and applied technology schools.



Meetings With Internet Service Providers (ISPs)

The ISPs within Utah will play an integral role in implementing this Digital Connectivity Plan, as they are the primary architects of broadband networks and provide direct services to community members.

While creating this Digital Connectivity Plan, collaborating one-on-one with every ISP in Utah was a high priority for the UBC. The purpose of these one-on-one meetings was to coordinate with the ISPs on a wide range of topics and issues (listed below). The UBC hosted 46 one-on-one meetings with ISPs.

The main topics of discussion in these meetings were:

- ▶▶ Inform ISPs about the BEAD funding opportunity
- ▶▶ Review existing coverage areas of the ISPs
- ▶▶ Review ISP service offerings and rates
- ▶▶ Discuss the ISPs' network expansion plans in the upcoming years
- ▶▶ Review the BEAD eligibility requirements for subgrantees
- ▶▶ Discuss the Affordable Connectivity Program (ACP) and the ISPs' participation in it
- ▶▶ Gauge the ISPs' level of interest in participating the BEAD Program
- ▶▶ Examine obstacles related to previous and current broadband deployments
- ▶▶ Discuss upcoming potential challenges regarding workforce, supply chain, etc.
- ▶▶ Describe the next steps for the BEAD process, project timelines, and feedback needed on planning

The key takeaways from these meetings include:

- ▶▶ ISPs' reservations in providing their exact infrastructure data
- ▶▶ ISPs' willingness to be a part of the funding opportunity
- ▶▶ Concerns over BEAD funding requirements
 - Workforce requirements
 - Challenge process design
 - Definition of unserved (unlicensed wireless, older copper systems)
 - Subgrantee process and criteria scoring
 - Geographic distribution of grant areas and whether or not ISPs will have ability to determine their own project areas
- ▶▶ Workforce availability, ability to deliver the projects with sufficient skilled labor in all aspects of project deployment
- ▶▶ Upcoming supply chain constraints concerns
- ▶▶ Permitting process in challenging areas, and how it may not be feasible to obtain permits and complete build-outs within the mandated project timeline
- ▶▶ Challenges with approvals to build on Tribal lands

The UBC had one-on-one meetings with the following ISPs:



2.3 EXTERNAL ENGAGEMENT AND STAKEHOLDER INPUT

To help create the Digital Connectivity Plan, the UBC planning team conducted extensive public outreach and engagement throughout the state over seven months through the Connecting Utah initiative. The purpose of this outreach was to learn about and understand broadband needs in the local communities and Tribal areas, and to identify gaps in broadband availability, accessibility, and affordability. The planning team developed an outreach strategy that focused on engaging with stakeholders such as Associations of Governments (AOGs), Tribal Nations, state agency partners, municipalities, and community-based organizations. The planning team conducted workshops in all 29 Utah counties and held consultations with all of the Tribal Nations in Utah to educate stakeholders about the Connecting Utah initiative and learn the specific needs of each community or group.

Additionally, the team conducted statewide outreach through email campaigns, social media, and press releases to notify the general public of the UBC's planning effort and to encourage participation in the Connecting Utah Survey and the Utah Internet Speed Test. Outreach materials can be found in the [Appendices](#).

The planning team developed a Connecting Utah website, including [English](#)³⁷ and [Spanish](#)³⁸ versions, as the central place for providing information about the planning effort for the public and stakeholders and for conducting surveys to gather input. As of August 3, 2023, the website has been viewed 9,133 times.

The team worked with Governor Spencer Cox to record an informational video and PSA in both [English](#)³⁹ and [Spanish](#)⁴⁰ to encourage Utahns to participate in the effort to help expand high-speed internet throughout the state. The video was posted on the Connecting Utah website, and the PSA was pushed to radio stations across the state.

At the beginning of the planning effort in October, the team distributed a press release to statewide media to notify the public of the newly-formed Connecting Utah initiative and planning effort. In March 2023, another press release was distributed to remind the public of the Connecting Utah initiative and ask for more participation with the survey and Utah Internet Speed Test. Between October 2022 and March 2023, there were 14 state and national publications that covered the planning efforts.



Public outreach and
engagement throughout
the state

7 months
in 29 Utah counties



As of August 3, 2023

9,133
website views

37 <https://www.connectingutah.com>

38 <https://www.connectingutah.com/es>

39 https://video.wixstatic.com/video/ceee1c_4ce86019d1064dc6a1500cc3f8b28f22/1080p/mp4/file.mp4

40 https://video.wixstatic.com/video/94874d_fabbbb932c924d53adfa5e27c11fa2b3/1080p/mp4/file.mp4

Prior to the launch of the planning effort, the planning team developed a comprehensive stakeholder list and reached out to each of those groups. The following is a list of stakeholders who were involved in the planning process. To view a complete list of stakeholders who participated in the planning process, see the [Local Coordination Partners Tracker](#).⁴¹

- ▶▶ Bear River Association of Governments (BRAG)
- ▶▶ Confederated Tribes of Goshute
- ▶▶ Five County Association of Governments
- ▶▶ The Governor's Office of Economic Opportunity
- ▶▶ International Brotherhood of Electrical Workers (IBEW)
- ▶▶ Local government employees and elected officials
- ▶▶ Mountainland Association of Governments (MAG)
- ▶▶ National Telecommunications and Information Administration (NTIA)
- ▶▶ Navajo Nation
 - Aneth Chapter
 - Dennehotso Chapter
 - Mexican Water Chapter
 - Navajo Mountain Chapter
 - Navajo Tribal Utility Authority
 - Navajo Utah Commission
 - Oljato Chapter
 - Red Mesa Chapter
 - Teec Nos Pos Chapter
- ▶▶ Northwestern Band of Shoshone Nation
- ▶▶ Paiute Indian Tribe of Utah
 - Shivwits Band of Paiutes
- ▶▶ San Juan Southern Paiute Tribe
- ▶▶ Six County Association of Governments
- ▶▶ Skull Valley Band of Goshute
- ▶▶ Southeastern Utah Association of Local Governments (SEUALG)
- ▶▶ Uintah Basin Association of Governments (UBAOG)
- ▶▶ United Way of Utah County
- ▶▶ Utah Association of Counties (UAC)
- ▶▶ Utah Communities Connect (UCC)
- ▶▶ Utah Department of Transportation (UDOT)
- ▶▶ Utah Division of Indian Affairs (UDIA)
- ▶▶ Utah Education and Telehealth Network (UETN)
- ▶▶ Utah Inland Port Authority
- ▶▶ Utah League of Cities and Towns (ULCT)
- ▶▶ Utah Rural Telecom Association (URTA)
- ▶▶ Utah State Library Division
- ▶▶ Utah State University Extension
- ▶▶ Ute Indian Tribe of the Uintah and Ouray Reservation
- ▶▶ Ute Mountain Ute Tribe
 - White Mesa Community
- ▶▶ Wasatch Front Regional Council (WFRC)

41 <https://docs.google.com/spreadsheets/d/14R2SNR8SuVTSB1A7SZRgBSayQQI76avk/edit?pli=1#gid=999742183>

2.3.1 COMMUNITY OUTREACH AND STAKEHOLDER WORKSHOPS

As a significant part of these outreach efforts, the UBC facilitated numerous stakeholder meetings with state agencies, AOGs, counties, cities, schools, colleges, universities, businesses, organizations, nonprofits, and tribal entities. The team held these stakeholder meetings, workshops, and presentations to inform individuals of the planning effort and deepen the team's understanding of local challenges and opportunities in expanding high-speed internet access. Input gathered from these localized workshops and meetings was critical in understanding local connectivity and is represented in this plan. Below is a comprehensive list of all the stakeholder meetings, tribal consultations, presentations, and workshops where the UBC facilitated and received input:

Stakeholder Meetings



Stakeholder Meetings (Cont.)



- 1/10 ○ Utah Broadband Center Advisory Commission Meeting
- 1/13 ○ Education Superhighway Meeting
- 1/20 ○ Utah Telecom Workforce Needs Meeting
- 2/15 ○ Utah Broadband Alliance Council Meeting
- 3/9 ○ Utah Rural Telecom Association (URTA) Board Meeting
- 3/27-29 ○ URTA Annual Meeting
- 4/17 ○ Wasatch Front Regional Council Consultation
- 4/18 ○ Connecting Utah Alliance Virtual Call
- 4/20 ○ Communication Workers of America 7704 Meeting



* Virtual

- 4/25 ○ IRC Coordination Meeting*
- 5/1 ○ Wasatch Front Regional Council Consultation
- 5/8 ○ Universal Service Fund Meeting
- 5/8 ○ West Valley City Outreach Meeting
- 5/9 ○ Chicanos por la Causa Meet and Greet Event
- 5/17 ○ Utah Broadband Alliance Meeting
- 5/18 ○ MAG Coordination Meeting
- 6/6 ○ Permitting Meeting with ISPs and NTIA
- 7/19 ○ Connecting Utah Alliance Virtual Call
- 7/31 ○ Broadband Advisory Commission Meeting



Tribal Consultations

2022

- 6/1 Navajo Nation Broadband Meeting (Phoenix, Arizona)
- 7/18 Navajo Nation Middle Mile Grant Meeting
- 7/28 Governor's Native American Summit
- 8/1 Navajo Nation Broadband and Middle Mile Grant Meeting (Crown Point, New Mexico)
- 10/21 NNBO/NNTRC Broadband Update Meeting
- 10/27 Broadband Meeting (Flagstaff, Arizona)
- 11/16 Utah Tribal Leaders Meeting
- 11/18 Tri-State/Navajo Nation Office Broadband Meeting

2023

- 1/31 Connecting Utah Tribal Consultation Meeting. In attendance: Northwestern Band of Shoshone Nation, Paiute Indian Tribe of Utah, San Juan Southern Paiute Tribe, Ute Indian Tribe, and Ute Mountain Ute Tribe
- 2/14 Navajo Utah Commission Meeting
- 3/2 Navajo Nation Broadband Meeting
- 3/10 Navajo Utah Commission Follow-up Consultation Meeting

2023

* Virtual

- 3/18 Navajo Northern Agency Council Meeting
- 3/20 - 3/23 National Tribal Telecommunications Conference
- 3/24 Tribal Broadband Leaders Network Summit
- 3/29 Paiute Indian Tribe of Utah Follow-up Consultation Meeting. Representing the Cedar Band, Indian Peaks Band, Kanosh Band, Koosharem Band, and Shivwits Band
- 3/31 Ute Mountain Ute for the White Mesa Community Follow-up Meeting*
- 4/7 Tri-State/Navajo Nation Office Broadband Meeting
- 4/13 Shivwits Band of Paiute Follow-up Meeting
- 4/18 Northwest Band of Shoshone Nation Follow-up Consultation
- 5/9 Navajo Utah Commission Follow-up Consultation Meeting
- 5/9 Navajo Nation Red Mesa Chapter Follow-up Consultation Meeting
- 5/10 Navajo Aneth Chapter Follow-up Consultation Meeting
- 5/10 Navajo Oljato Chapter Follow-up Consultation Meeting
- 5/11 Navajo Teec Nos Pos Chapter Follow-up Consultation Meeting
- 5/12 Tri-State/Navajo Nation Office Broadband Meeting
- 5/19 Ute Ouray Tribe Tribal Broadband Connectivity Program Meeting
- 6/2 Tri-State/Navajo Nation Broadband Office Meeting
- 6/2 Confederated Goshute Tribe Follow-up Consultation Meeting



Conferences/Presentations/Events

(as a speaker, exhibitor, and/or panelist)

2022

- 3/24-25 ○ APA Utah Conference
- 4/27 ○ UAC Legislative Conference
- 5/18-20 ○ Utah Library Association Annual Conference
- 6/3 ○ Summer Reading Kickoff Party (Tremonton City Library)
- 7/21 ○ Bicknell Bookmobile Ice Cream Party
- 7/22 ○ Panguitch Library/Bookmobile Stop Ice Cream Party
- 7/28 ○ Governor's Native American Summit
- 8/10 ○ Salt Lake City Library Tour and Broadband/Digital Equity Discussion
- 8/15 ○ Community Opportunity Center (CoOp), City of South Salt Lake Grand Opening Event/Back to School Night
- 9/29-30 ○ Silicon Slopes Annual Summit
- 10/12 ○ One Utah Summit
- 10/27 ○ Utah State University Eastern Economic Summit
- 11/15-17 ○ Utah Association of Counties (UAC) Conference
- 11/16 ○ Division of Indian Affairs Presentation
- 12/16 ○ USU Rural Online Initiative Open House



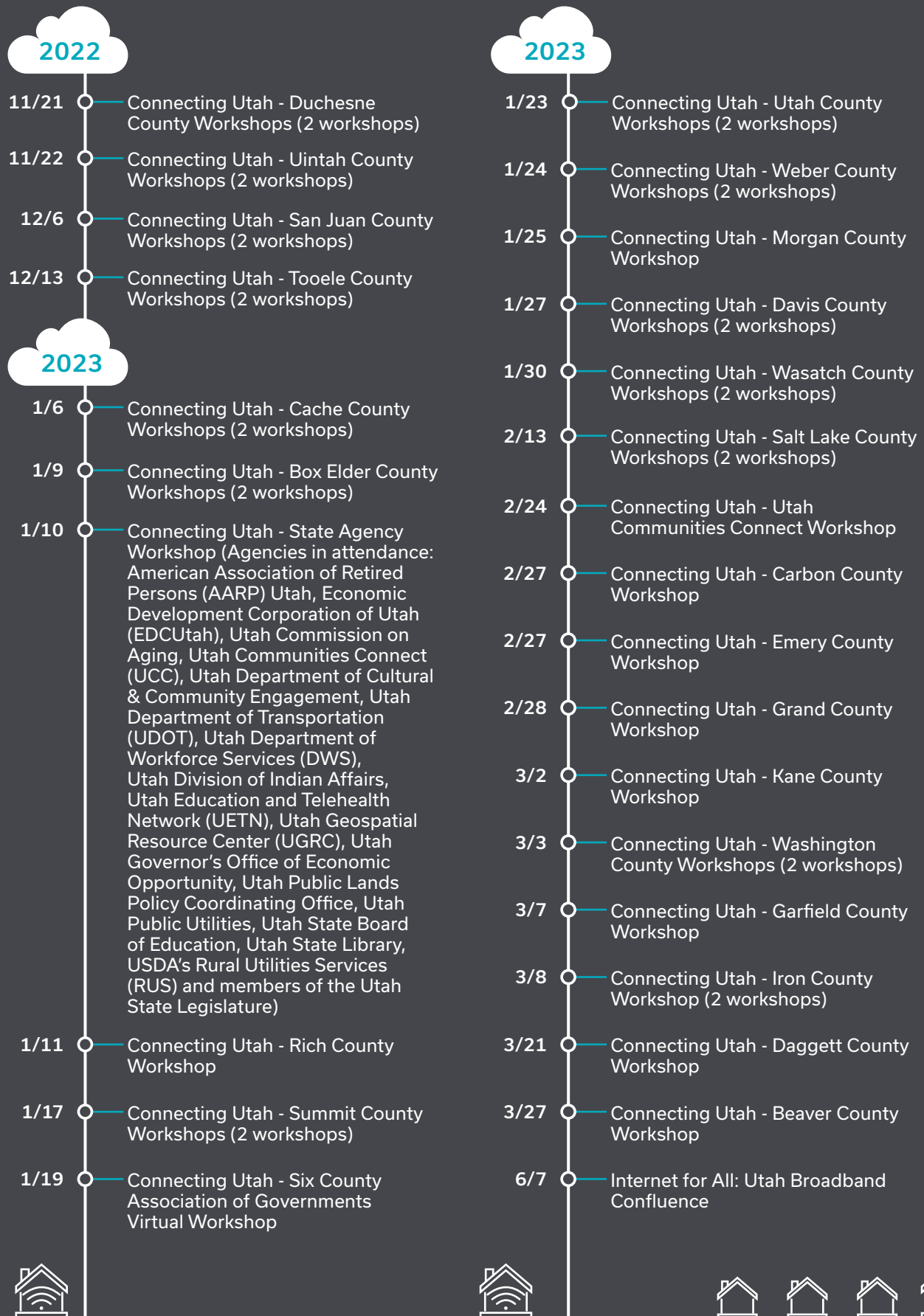
2023

* Virtual

- 1/18 ○ UAC Day on the Hill Breakfast
- 2/3 ○ Rural Caucus Breakfast and Presentation
- 3/20-23 ○ National Tribal Telecommunications Conference
- 3/24 ○ Tribal Broadband Leaders Network Summit
- 4/4-5 ○ UAC Building Utah Conference
- 4/19-21 ○ ULCT Midyear Conference
- 4/27 ○ UAC Management Conference



Workshops





The team conducted stakeholder workshops in or for every county, and these workshops were attended by local government and community leaders. The team split the workshops into two parts. The first part of these meetings was a presentation educating participants about the Connecting Utah initiative, BEAD funding, the Utah Internet Speed Test, the FCC maps and challenge process, the ACP, and the Digital Equity Act. During this presentation, the team shared data about the current state of broadband in each participant's area of influence.

The second portion of these stakeholder meetings and workshops was discussion-based. The team posed general discussion questions in each meeting about the current state of high-speed internet, broadband needs, access challenges, plans, deployment, affordability, and digital access. The planning team encouraged stakeholders to share their experiences with the group and documented the feedback.

Key takeaways about the current state of digital connectivity from these meetings included:

Infrastructure and Broadband Availability

Community members expressed a strong desire for multiple provider options. Areas with only one incumbent provider often result in higher costs for initial internet connection fees and monthly charges. Communities frequently mentioned lack of affordability as a barrier to internet access. To address these concerns, some metro cities are in the process of building out open access networks to encourage competitive provider offerings and pricing, thereby increasing the availability of broadband internet to their community.

Many areas need expanded broadband infrastructure, especially newer developments, rural areas, low-income communities, and locations with rough terrain. Some communities that appear to be served through an ISP are only nominally served and have households throughout the community that do not actually have services available due to a lack of infrastructure. Challenges to expanding infrastructure include homes being far apart, infrastructure not being laid when communities were constructed, and difficult geographical considerations. Deploying broadband infrastructure to these areas can be extremely costly for ISPs and may not result in a monetary benefit to their business.

Geography also plays a role in the quality of broadband service available in many areas. Mountains, trees, areas with low population density, challenging terrain, and other geographical considerations can result in poor service and speeds.

Devices and Digital Access

Cell phones are the most utilized device by which individuals connect to the internet. Individuals without access to other devices often use cell phones in place of computers to complete homework assignments or work duties. These individuals have difficulty navigating programs on a cell phone that are meant to be accessed on a laptop or tablet.

A lack of adequate devices is a barrier for some community members. The team noted that low-income households, individuals experiencing homelessness, aging individuals, individuals experiencing domestic violence, and new Americans are particularly at risk for having little or no access to devices. Individuals cited affordability as being the biggest barrier to device access. Additionally, even with assistance programs to access devices, these individuals may not have full access to digital participation. For example, affordable devices (whether purchased or donated through an assistance program) may be out of date and incompatible with newer technologies.

For students who do not have internet access at home, many school districts run a hotspot lending program. However, it was mentioned by school district staff that the hotspot devices may not possess the data capacity and speeds required for students to complete their homework, especially if additional household members are connecting to the device as well.

Various nonprofits and foundations exist which offer low-cost devices to consumers, sometimes with income restrictions. For example, Tech Charities is a Utah-based organization doing this work, and national organizations such as Human-IT and PCs for People also make their services available to Utah residents.

To ensure that students can complete digital homework assignments, most school districts have implemented a device program that provides a Chromebook laptop to each student. The majority of school districts allow these devices to be taken home by students; however, some students are only granted access to these devices during school hours.

Some municipalities within Utah have undertaken device refurbishment programs, where municipally owned devices are surplus, refurbished, and distributed for free to residents in need. This process can be difficult because of the need to protect sensitive government data and systems.

Community Resources

In many communities, libraries are an essential resource to help individuals connect. The various libraries within Utah, which include 140+ locations, provide device and hotspot loaning programs to community members in need. Working independently, every public library offers free computer access. Some libraries also offer digital literacy training, whether through official classes or through staff members assisting patrons when they are approached with questions on how to access a digital program, apply for assistance programs online, etc. Libraries also offer public Wi-Fi for those without internet connections. Some library branches will broadcast their free public Wi-Fi into the parking lot after hours so that individuals can connect at all hours. Unsheltered and low-income families often rely on these networks to connect.

Some communities have nonprofit organizations and groups that provide device donations, assistance with enrolling in internet discount and government assistance programs, and digital literacy instruction. The programs that currently exist are often understaffed and underfunded. There are also many communities that do not have existing programs but expressed a great need for these programs to be developed.

At many of these workshops, the UBC received requests to create a resource database for individuals to find affordable and reliable devices, routers, public Wi-Fi locations, hotspot programs, and digital literacy programs. Many community members are unsure of where to turn if they need tools or skills to connect to broadband, and a resource database for the entire state would be instrumental in spreading awareness of available resources.

2.3.2 INSTITUTIONAL REVIEW BOARD (IRB) APPROVAL

Institutional Review Board (IRB) standards are designed to protect the rights and welfare of human subjects in research studies. The IRB is responsible for reviewing and approving research proposals to ensure that they meet ethical guidelines and legal requirements.

Connecting Utah submitted the public surveys and community outreach strategy to the Utah State University (USU) IRB for review. The USU IRB determined on December 16, 2022, that this project did not qualify as human subject research and did not require IRB oversight. The Connecting Utah survey questions can be found in the [Appendices](#).

2.3.3 TRIBAL COORDINATION AND CONSULTATION

Utah is home to eight federally-recognized Tribal Nations, some of which expand across the borders of Colorado, Arizona, Idaho, and Nevada.



Tribal consultation for this planning effort began with UBC sending a Dear Tribal Leader Letter and invitation to attend a formal consultation with the Lieutenant Governor and State staff members. The purpose of this consultation was to understand current Tribal high-speed internet initiatives; what gaps and needs exist in relation to broadband in Tribal Nations; and how Utah and the Tribal Nations can work jointly to expand access to affordable, reliable, and accessible high-speed internet.

The Tribal consultation effort for this plan began with UBC sending a Dear Tribal Leader letter and invitation to attend a formal consultation with the Lieutenant Governor and State staff members to each of the eight Tribes. The purpose of this consultation was to understand current Tribal high-speed internet initiatives; understand the needs and gaps relative to broadband that exist in Tribal communities; and identify how the State of Utah and Tribal Nations can work jointly to expand access to affordable, reliable, and accessible high-speed internet.

The initial Tribal consultation was held on January 31, 2023 at the Governor's Office of Economic Opportunity. The majority of participants attended in-person, with a few attending virtually. Thirteen Tribal leaders attended this consultation, representing the Northwestern Band of Shoshone Nation, the Paiute Indian Tribe of Utah, the Ute Mountain Ute Tribe, the Ute Indian Tribe, and the San Juan Southern Paiute Tribe.

After extensive outreach, UBC conducted follow-up consultation meetings with the following Tribal entities:

- ▶▶ Navajo Nation
 - Aneth Chapter
 - Navajo Mountain Chapter
 - Oljato Chapter
 - Red Mesa Chapter
 - Teec Nos Pos Chapter
- ▶▶ Navajo Northern Agency Council
- ▶▶ Navajo Utah Commission
- ▶▶ Northwest Band of Shoshone Nation
- ▶▶ Paiute Indian Tribe of Utah. Representing the Cedar Band, Indian Peaks Band, Kanosh Band, and Koosharem Band
- ▶▶ San Juan Southern Paiute Tribe
- ▶▶ Shivwits Band of Paiutes
- ▶▶ Ute Mountain Ute Administration
 - Ute Mountain Ute Broadband Committee

At the follow-up meetings, UBC provided outreach and informational materials about the Connecting Utah initiative (fliers and surveys), as well as information on the ACP benefit for households on Tribal land. Tribal outreach materials and consultation summaries can be found in the [Appendices](#).

2.4 ASSET INVENTORY

The UBC developed an inventory of all broadband assets within the state to gauge where things are going well and also where gaps might exist. The broadband system is made up of various infrastructure elements, including everything from cables and underground conduit to towers and antennae. It is also made up of a myriad of soft assets such as programs, organizations, activities, skills training, and technical assistance. This section describes on a high level the assets that are owned by the State of Utah and the various state agencies and other public entities that comprise the publicly-owned broadband infrastructure.

2.4.1 BROADBAND DEPLOYMENT

The State of Utah owns and manages numerous assets related to broadband infrastructure, including fiber optic infrastructure (conduit, cable, equipment); towers; and antennas to support broadband connectivity. In addition to State-owned infrastructure, Utah has various programs and partners that assist with broadband deployment across the state. [Figure 4](#) shows the current coverage areas served by wired connections that meet the minimum “served” threshold speeds of 100/20 Mbps, reported by ISPs, and [Figure 5](#) shows the current coverage areas served by wireless connections that meet the minimum “served” threshold speeds of 100/20 Mbps.⁴²

⁴² UGRC. Utah Residential Broadband Map. <https://gis.utah.gov/data/utilities/broadband-internet> (accessed May 9, 2023)

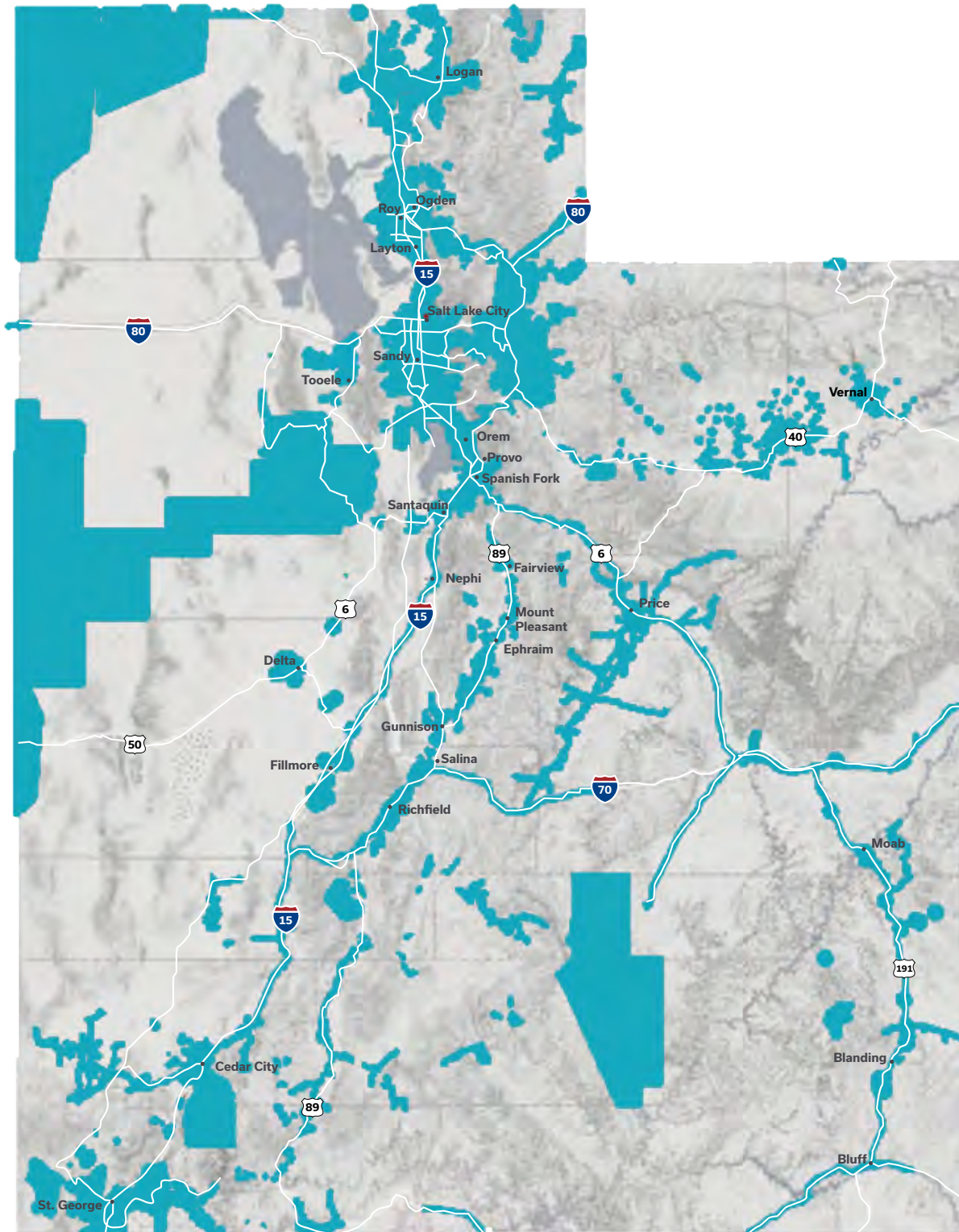


FIGURE 4. WIRED BROADBAND COVERAGE AREA (100/20 MBPS MINIMUM SPEEDS)

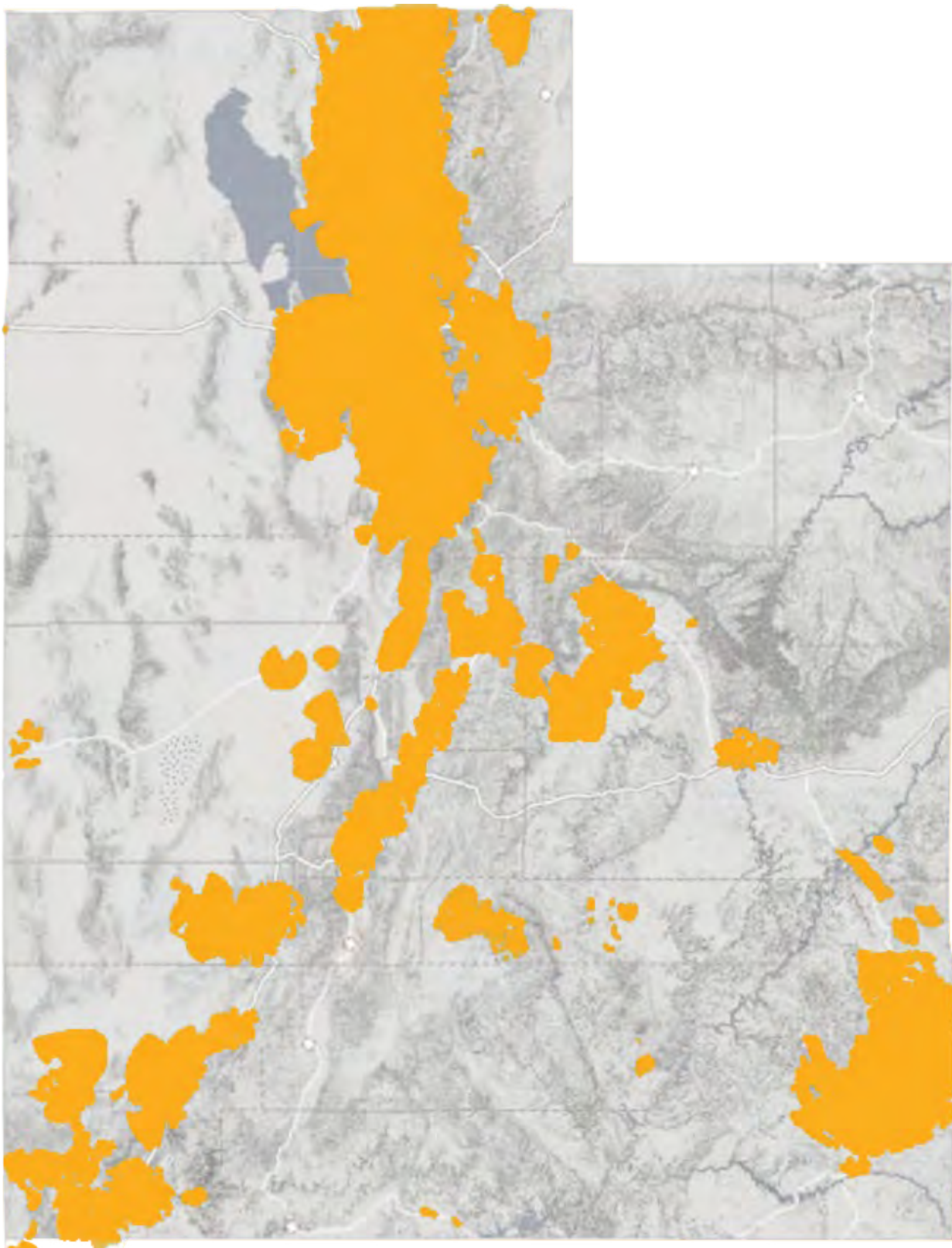


FIGURE 5. WIRELESS BROADBAND COVERAGE AREA (100/20 MBPS MINIMUM SPEEDS)

Utah Department of Transportation (UDOT)

UDOT utilizes fiber optics to connect traffic cameras, signs, and other technologies. Whenever UDOT builds or makes improvements to a highway, they evaluate whether fiber optic infrastructure is needed to monitor traffic and other transportation needs. As a result of this, UDOT owns and administers approximately 3,000 miles of middle mile fiber optic infrastructure along State-owned highways throughout Utah. This infrastructure includes conduit, fiber optic cabling, access points, distribution hubs, and communications equipment. This infrastructure is a publicly-owned asset that UDOT uses to facilitate broadband deployment across state highways. The cost of adding fiber optic infrastructure to a highway project is incremental compared to the cost of the overall roadway project.



The addition of fiber optic conduits allows for easier deployments of fiber optic cable. UDOT exchanges sections of their empty conduit to private ISPs to allow them to install their own cabling. This program has allowed many previously unserved communities to have robust access to high-speed broadband through fiber optics that otherwise would have taken years to complete. It will also be a key component to extending broadband to many more parts of the state. This program has also allowed UDOT to expand their footprint of fiber optics which has allowed them to monitor traffic and other transportation-related activities. See [Figure 6](#) for a map of the UDOT-owned fiber optic network.

FIGURE 6. UDOT FIBER OPTIC NETWORK

Utah Education and Telehealth Network

Utah Education and Telehealth Network (UETN) provides internet connectivity for more than 1,900 K-12 schools, in addition to providing connectivity to many of Utah's libraries, universities, and healthcare facilities.

UETN's success is due in large part to its public/private partnership approach. UETN works with Utah's telecommunications providers to build its fiber optic statewide network of leased circuits, irrefutable right-of-use (IRUs) secured fiber, and UETN-owned and -managed dark fiber. UETN utilizes a mixture of fiber optic infrastructure and associated technologies, but also leverages wireless where geography and cost currently limit fiber access.

UETN-owned fiber optic infrastructure is primarily located along the Wasatch Front, while leased circuits owned and operated by Utah's telecommunications service providers make up the majority of UETN's network. These assets will play an important part in future broadband deployment efforts in the state. See Figure 7 for a map of the UETN network.⁴³

In support of broadband gaps identified by Utah LEAs during the COVID-19 pandemic, UETN is currently evaluating Private LTE and 5G solutions to augment student access to SchoolNET and Digital Teaching and Learning (DTL) resources.

Connecting 1900+ locations throughout Utah

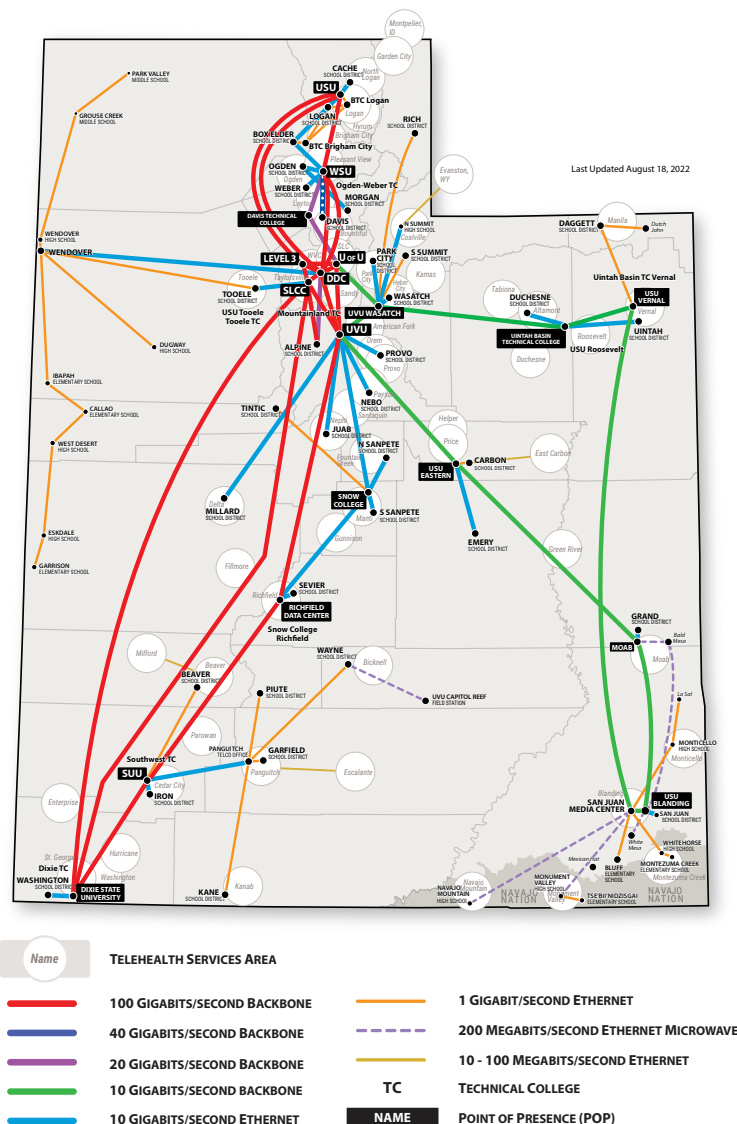


FIGURE 7. UETN INFRASTRUCTURE MAP

Utah Department of Technology Services

The Utah Department of Technology Services (DTS) connects State-owned community anchor institutions throughout the state. These institutions and facilities include *ports of entry, visitor centers, libraries, driver license divisions, workforce services, courts, departments of health and human services, military facilities, public safety and corrections facilities, and a host of other state administration buildings*. DTS provides fiber-optic connection to over 100 State-owned buildings to support the services offered by the State. Some of this fiber optic infrastructure is owned and operated by the State while other infrastructure is owned by private ISPs.

43 UETN. UETN Network Map. https://uetn.org/governance/downloads/UETN_network_map.pdf (accessed May 9, 2023)

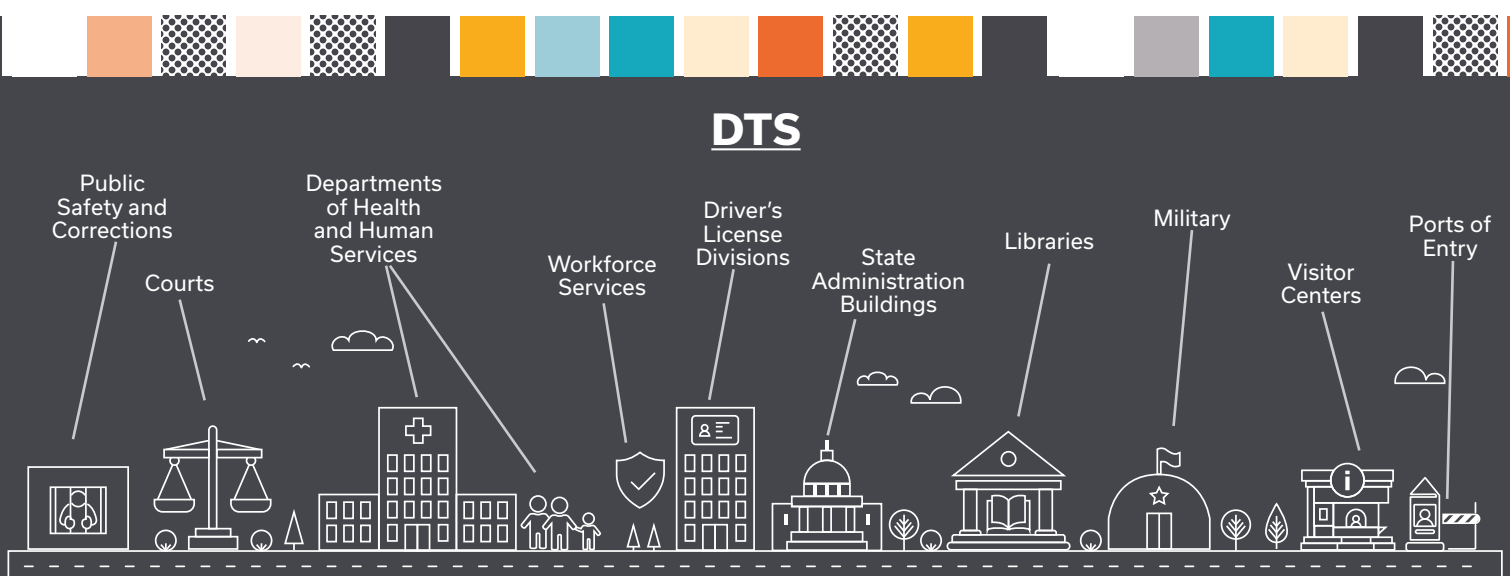
DTS has also been instrumental in creating systems for citizens to access government services through the internet. The State of Utah received several national recognitions for its commitment to e-government services, including driver's license renewals, motor vehicle registrations, professional licensing, and many others. Utah DTS received a grade A rating from the Center for Digital Government in the 2018 Digital States survey. In 2022 for the second year in a row, The Center for Digital Government named Utah.gov second in the overall state government experience category. Utah.gov services won an additional award for notary services and for using artificial intelligence (AI) to analyze resident feedback providing more efficient online services and saving the state money.⁴⁴

Internet Service Providers (ISPs)

There are currently 47 fixed broadband providers that provide service throughout the state. They utilize a variety of technologies to make broadband available to their customers. Broadband access has been expanding at a rapid rate over the past several years as the demand for access has skyrocketed. Fiber optic connections have been the main technology in this expansion, but fixed wireless technologies have also been deployed in various areas.

Municipal Open-Access Broadband Networks

Many Utah municipalities offer a municipally-owned or third-party-owned open-access fiber broadband network to all BSLs within their jurisdiction. One of these models is the Utah Telecommunication Open Infrastructure Agency (UTOPIA). UTOPIA is a broadband infrastructure entity that has been providing this service for over 20 years to various municipalities. In this model, the municipality bonds for the capital expenses of the fiber optic infrastructure deployment, and the residents and businesses of the municipality pay for the cost of the bond through subscription enrollments, utility bills, or municipality taxes. UTOPIA owns, operates, and maintains the network and offers the subscribers a choice of various ISPs for the internet service. The original municipalities of the UTOPIA initiative include Orem, Lindon, Murray, Midvale, Centerville, Layton, Perry, Payson, Brigham City, Tremonton, and West Valley City. Additional municipalities to later have UTOPIA provide this same model are Woodland Hills, Morgan, Pleasant Grove, West Point, Syracuse, Clearfield, West Haven, Cedar Hills, and Santa Clara.



44 Division of Technology Services. (2018). Utah Wins First Place in Government Experience Awards. <https://dts.utah.gov/news/utah-receives-grade-a-rating-in-digital-states-survey>

Residents are required to pay for the construction of the network through their utility bills or other taxes, regardless of if they are actually using the service. If a resident subscribes to broadband service from one of the ISPs, a second payment is paid to that ISP. Residents of these municipalities have indicated that their combined costs of construction and service are in line with what other broadband providers charge.

Through internal customer surveys, residents and businesses have expressed a high degree of satisfaction with UTOPIA service due to the fiber-rich architecture that UTOPIA installs (there is no fiber splitting or sharing).

Other municipalities have partnered with (non-UTOPIA) ISPs to build a municipal fiber broadband network to each BSL within their jurisdiction. This model is different from the UTOPIA model in that the ISPs provide the capital expenditures for the project build-out, thereby eliminating the need for the municipality to bond for the construction up front. The ISP owns, operates, and maintains the network for an initial start-up period and offers subscribers a choice of various ISPs for internet service. After the initial start-up period (typically five years), the ISP negotiates with the municipality to purchase the network. In this model, subscribers pay directly to the ISP for their service, which is in line with other broadband provider subscription rates. However, there is a risk with this model in that the ISP may not end up building to each BSL within the city jurisdiction as the construction costs are not guaranteed by the municipality.

Another open-access model is a hybrid of the previous two models described above. In this model, the municipality bonds and finances the ownership of the network. The municipality enters into an agreement with an ISP to design, construct, and operate the network for an initial period of time, using city financing to cover those costs. Similar to the UTOPIA model, residents are required to pay for the bond through taxes or utility bills. Those residents who want service choose from the various ISPs for their service, and pay them directly. At some point, the municipality might take over full operation of the network after the initial period expires. With this model, the municipality is willing to assume some risks by bonding for the ownership of the city-wide network, instead of relying on ISPs to finance and own the network. Subscription prices for this model are very similar to other broadband subscription rates.

These open-access networks provide broadband availability to every BSL within their jurisdiction, which guarantees broadband availability within the jurisdiction. This model of open access encourages competition (thereby reducing costs to subscribers) as well as increases broadband availability to BSLs.

There are over 25 municipalities within Utah that are currently offering an open-access fiber broadband network as well as dozens more that are in the process of development at the time of this writing.

Have access to broadband internet with speeds of at least 25 Mbps download and 3 Mbps upload:



96.08%
of households in Utah



92.76%
national average

2.4.2 BROADBAND ADOPTION

Utah boasts a high level of broadband adoption. According to data from the FCC,⁴⁵ in July 2023, 96.08% of households in Utah had access to broadband internet with speeds of at least 25 Mbps download and 3 Mbps upload. This is higher than the national average of 92.76%. This is despite Utah ranking 40th in the nation for population density.

One reason for Utah's high level of broadband adoption is the State's efforts to promote broadband infrastructure development. Utah also benefits from a strong technology industry, with many tech companies located in the state. This has led to a culture of innovation and a high demand for fast and reliable internet connections.

According to the American Community Survey,⁴⁶ 90.8% of Utah households subscribe to wireless broadband service using cable, fiber optic, or DSL. Another 13% subscribe to other technologies for their broadband service, including satellite, fixed wireless, and mobile wireless, for a total of 93% of Utah households.

To help promote broadband awareness, literacy, and education, there are a host of programs and resources already available within Utah. These programs include one-to-one devices for K-12 students, public computer terminals at libraries and other state buildings, ISP advertisements and awareness campaigns for the ACP, and senior digital skills training classes. Employers in every industry are also contributors towards digital independence when providing on-the-job training for digital skills employees can use in their current roles and throughout their careers. More information about assets Utahns rely on for training to achieve digital independence can be found in the State Digital Equity Plan (see Appendix A).

Students in Grades 7 or 8 throughout Utah are required to take part in a Digital Literacy course that encompasses 21st-century skills related to the effective and appropriate use of technology.

According to the Utah State Board of Education Administrative Rule R277-700-5,⁴⁷ digital literacy involves more than just exposure to technology. Digital literacy plays a vital role in defining students' ability to succeed both in school and throughout their lives. Students who are digitally literate develop important life skills that lead to a deeper understanding of the digital world and an ability to curate content in a useful way. They also improve the quality of their schoolwork by learning to access the internet for online resources including lecture videos, library databases, and teacher-student communication.

45 FCC. National Broadband Map. <https://broadbandmap.fcc.gov/home> (accessed July 20, 2023)

46 U.S. Census Bureau. (2021). American Community Survey 5-Year Estimates. S2801 - Types of Computers and Internet Subscriptions. <https://data.census.gov/table?q=internet+utah&tid=ACSST5Y2021.S2801&moe=false>

47 Utah State Board of Education. Administrative Rules. <https://www.schools.utah.gov/administrativerules>. Rule R277-700-5 <https://www.schools.utah.gov/file/62737f0a-dbfd-494a-88e0-ecd7a0b337f6>



Community Assets

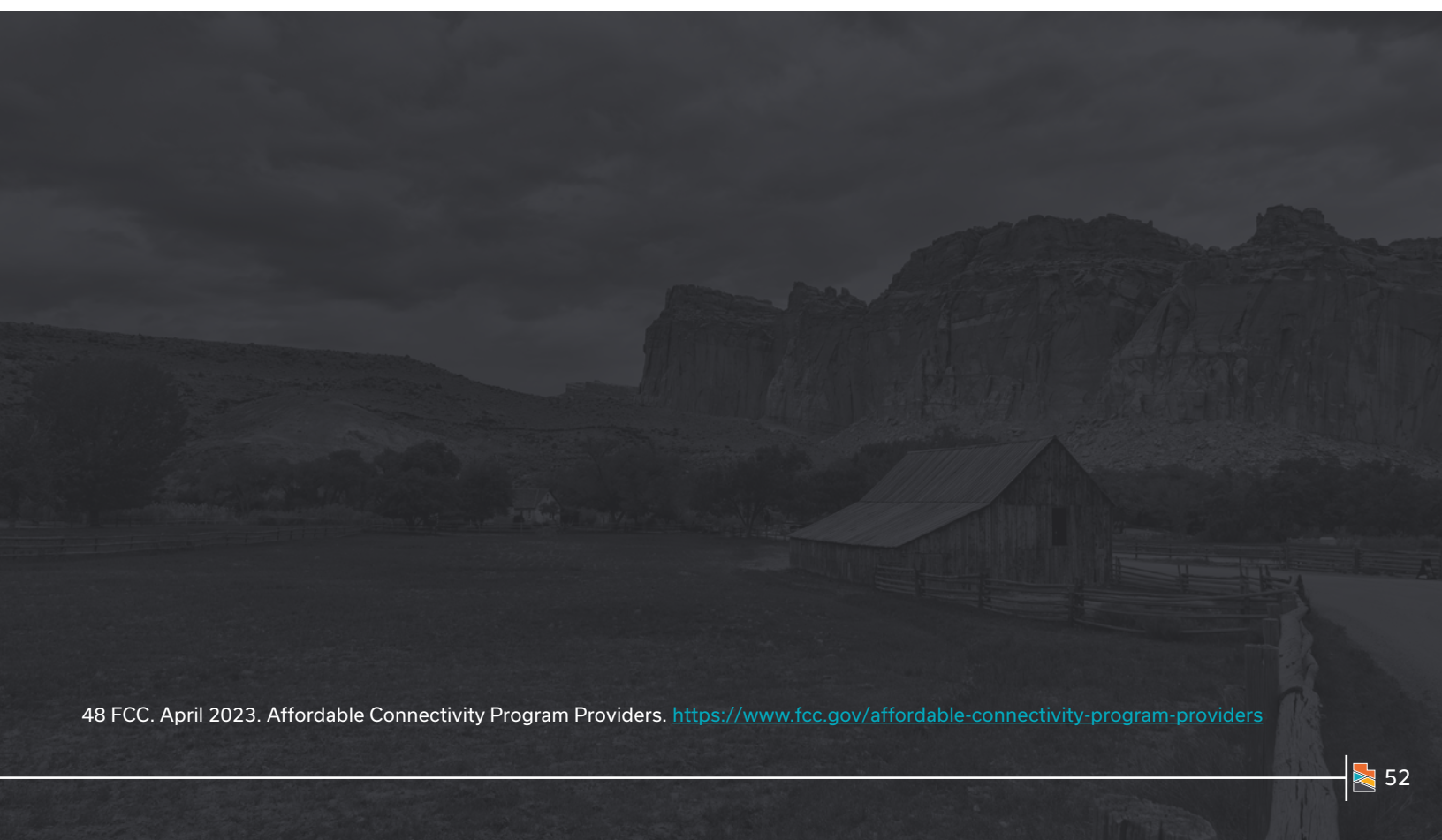
Many community organizations, nonprofits, government departments, and grassroots alliances already exist in Utah and are making headway on the digital divide. These **community assets** are the single largest factor in Utah's current state of digital access. A landscape survey of direct services inventoried these programs from 2021 to 2023, finding hundreds of motivated individuals and personal impact stories. Data sets were used to identify established organizations, and searches on social media and the internet turned up new, less established groups. Later, cold calls and surveys were used to solicit further information regarding specific services.

2.4.3 BROADBAND AFFORDABILITY

There are multiple assets in Utah to help make broadband connectivity more affordable throughout the state, and increasing broadband access to unserved and underserved areas will help strengthen these existing efforts.

Affordable Connectivity Program (ACP)

The single most impactful affordability asset currently available to Utahns is the ACP. This federal benefit provides a service discount of up to \$30 per month for a home internet plan. Households on Tribal lands are eligible for up to \$75 per month, to mitigate the higher cost of service in rural and remote areas. There is significant room for improvement in Utah's ACP enrollment rates. Current enrollment data can be found in the FCC's participation metrics for Utah ([see Table 7](#)).⁴⁸ Additional ACP subscriber data can be found in [Section 2.5.3 Broadband Affordability](#). Other ACP assets include efforts to increase the awareness and use of ACP, such as the FCC-funded ACP Outreach grants and pilot programs in addition to the state-led Act Now campaign.



48 FCC. April 2023. Affordable Connectivity Program Providers. <https://www.fcc.gov/affordable-connectivity-program-providers>

TABLE 7. PARTICIPATING ACP PROVIDERS IN UTAH

ACP PROVIDERS	NUMBER
Number of Mobile Broadband Service Providers Participating in the ACP	43
Number of Fixed Broadband Service Providers Participating in the ACP	37
Number of Providers offering both Fixed Broadband or Mobile Broadband Participating in the ACP	14
Number of Providers Offering a Connected Device Program Through the ACP	46

As UBC traveled through the state conducting community workshops, the ACP became a major part of the discussion. The team included information about the ACP on the slide decks used and the printed materials (English and Spanish) provided to workshop attendees. The team used discussion prompts to gauge workshop attendees' knowledge and awareness of the ACP. As the UBC attended additional workshops, conferences, and presentations, ACP information was always included and shared with partners.

Even with this campaign, ACP enrollments remain low in Utah and more awareness-building efforts are needed. Specific barriers to enrollment in the ACP and program expansion needs are discussed in [Section 2.5.3 – Broadband Affordability](#). The UBC encouraged many partner agencies to apply for the [ACP Outreach Grant program](#)⁴⁹ that was released in spring 2023. Six entities in Utah were awarded grant funding to perform outreach and increase enrollment in the ACP. Those organizations are:



ACP Navigator Pilot
Program funding recipient



Your Home, Your Internet
Pilot Program funding
recipient



also recipient of ACP
Tribal Competitive
Outreach Program

The UBC looks forward to partnering with and supporting these entities to bolster the impact of the ACP in Utah.

49 FCC. (2023). Affordable Connectivity Outreach Grant Program. <https://www.fcc.gov/acp-grants#:~:text=The%20ACP%20Outreach%20Grant%20Program%20provides%20eligible%20governmental,eligible%20households%20most%20in%20need%20of%20affordable%20connectivity.>

Lifeline

Lifeline is an FCC program that helps make communications services more affordable for low-income consumers. Lifeline provides a discount on qualifying monthly telephone service, broadband internet service, or bundled voice-broadband packages. The Lifeline program offers a \$9.25 discount per month to certain qualifying households and plans, and the State of Utah provides an additional \$3.25 per month. As of January 2023, the Universal Service Administrative Co. provides the following participation metrics for Utah (see Table 8).⁵⁰

TABLE 8. LIFELINE SUBSCRIBER DATA FOR UTAH

LIFELINE SUBSCRIBERS	NUMBER
Subscriber Count (January 2023)	25,774
Eligible Households	219,359
Estimated 2023 Lifeline Participation Rate	9%

E-Rate

The Schools and Libraries Universal Service Support Program, commonly known as the E-rate program, helps schools and libraries to obtain affordable broadband. The E-rate program is administered by the Universal Service Administrative Company (USAC) under the direction of the FCC. USAC is responsible for processing applications for support, confirming eligibility, and reimbursing service providers and eligible schools and libraries for the discounted services. USAC also ensures that the applicants and service providers comply with the E-rate rules and procedures established by the FCC. Four service categories are eligible for E-rate funding: telecommunications, internet access, internal connections, and basic maintenance of internal connections.⁵¹

The Utah Education Network (UEN) is the E-rate consortium lead in applying for and implementing E-rate funds received in Utah. UEN helps schools and libraries apply for discounts on broadband services through the E-rate program. This program utilizes Utah Universal Service Funds (UUSF), which are collected through fees on consumers’ phone bills.

Utah Universal Service Fund

The Utah Universal Service Fund (UUSF) enables rural customers to access the same quality of service as urban customers at a comparable price. Enacted in 1997 and governed by Utah Administrative Rule R746-8,⁵² funding from UUSF is used to support programs that advance and maintain telecommunication networks and services in rural areas. This program provides rural telecommunication providers a rate-of-return to advance the operation and maintenance of rural networks.

50 Universal Service Administrative Co. Jan. 2023. Lifeline Program Data. <https://www.usac.org/lifeline/resources/program-data/#Lifeline-Subscribership-by-County-by-Service-Type>

51 Universal Service Administrative Co. Eligible Services List. <https://www.usac.org/e-rate/applicant-process/before-you-begin/eligible-services-list>

52 Utah Office of Administrative Rules. (January 2022). Rule 8: Utah Universal Public Telecommunications Service Support Fund. <https://adminrules.utah.gov/public/rule/R746-8/Current%20Rules?>

2.4.4 BROADBAND ACCESS

Utah has a number of resources that are currently provided to businesses and residents to increase broadband access across the state. These include public Wi-Fi networks, Wi-Fi hotspot loan programs, library Wi-Fi, transit Wi-Fi, mobile wireless access, and middle mile open-access programs. These assets are discussed in greater detail below.

Public Wi-Fi Networks

Utah Communities Connect (UCC) is a volunteer-run alliance that operates through volunteer time from individual members and staff supported time from organizations in the alliance. UBC facilitated the creation of the public map by working with the Utah Geospatial & Resource Center (UGRC) and collaborating with other member organizations of the UCC including UETN, Utah Library Division and the Utah State Board of Education. The interactive map details public Wi-Fi locations in Utah including 62 libraries, 48 schools, one post office, eight UDOT locations, and two parks (see [Figure 8](#)).⁵³

As outreach was conducted in the development of this plan, additional public Wi-Fi access points were discovered which were not represented on the UCC map. These access points are dispersed throughout the state at locations such as rest areas, visitor centers, ports of entry, UDOT maintenance stations, national parks, recreation facilities, and other state and municipal buildings in rural areas. As these Wi-Fi networks are typically fed through fiber optics, the speeds are very high (at least 100/20 Mbps) and

the networks provide significant bandwidth and can serve multiple users. The UBC will work with UCC to update and reflect all identified hotspots on the Public Wi-Fi Access map.

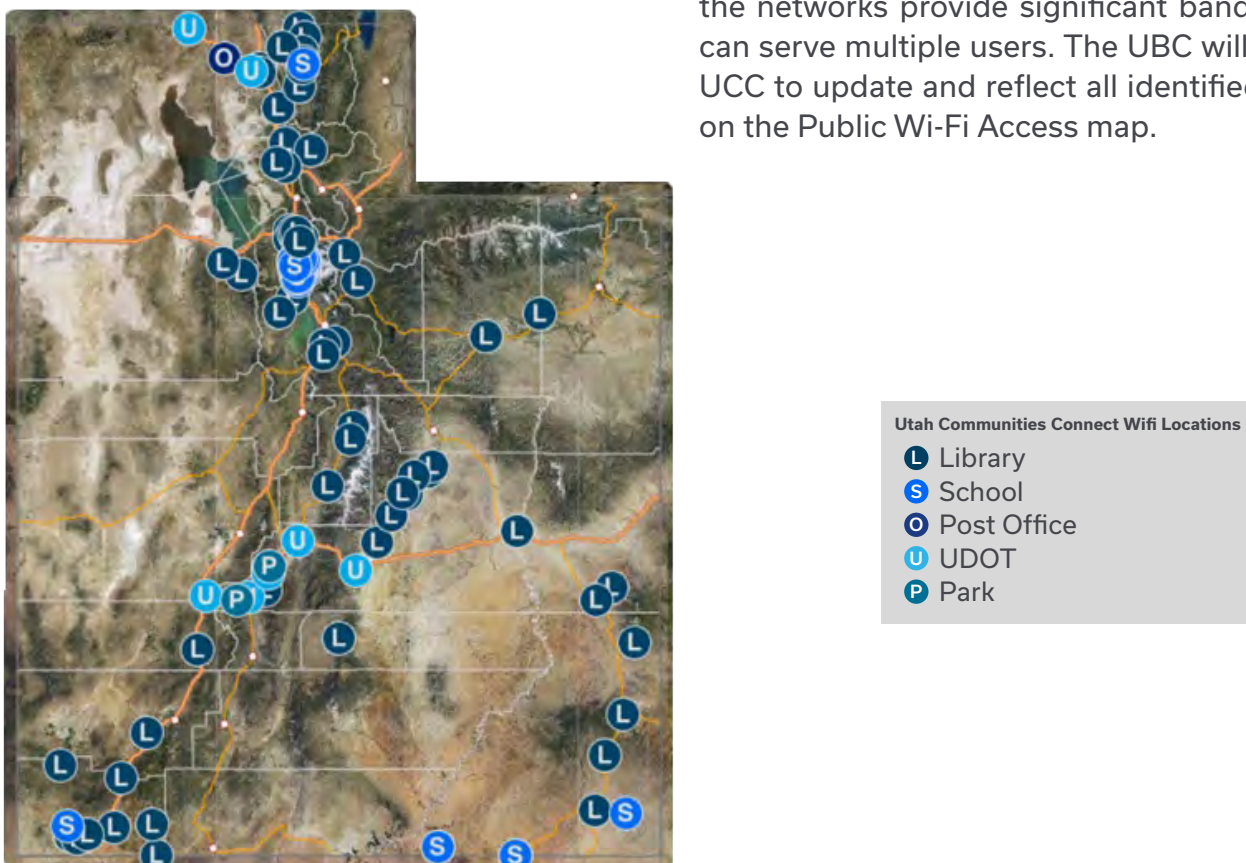


FIGURE 8. UTAH COMMUNITIES CONNECT WI-FI LOCATIONS

53 Utah Communities Connect. Public Wi-Fi Access Points. <https://utah.maps.arcgis.com/apps/webappviewer/index.html?id=e463ba10af034b6e90a8d01b5c13ec55> (accessed May 9, 2023)

Additionally, most State-owned buildings have a free, open public Wi-Fi network. This network is provided by Utah DTS and is an encrypted network that can be accessed by the general public. These buildings include any state administrative or department offices where State of Utah employees are working.



Wi-Fi Hotspot Loan Programs

The State Library Division has a program that provides free wireless hotspot devices to the public. Residents can check out a hotspot device to be able to connect online remotely at no cost. These devices are available at most state- or municipality-owned libraries across the state.



Library Wi-Fi

The Utah State Library Division oversees and works with all public libraries within the state to ensure Wi-Fi is available to the public. All State, County, and City libraries offer public Wi-Fi connectivity. The speed of each Wi-Fi network depends on the location, but most libraries are connected with fiber optics, meaning the Wi-Fi supports robust connection speeds.



Transit Wi-Fi

The Utah Transit Authority (UTA) is a public transit agency serving roughly 80% of Utah's population. It provides Wi-Fi connectivity through its buses and trains. This system is open to the public and supports moderate broadband speeds. Some hotspots are located at bus stations and transit centers as well. Many Utahns utilize the Wi-Fi on the transit systems to be more productive during their weekday commute times.

In addition to UTA, UETN, and DTS, local school districts have teamed up to provide Wi-Fi public hotspots on K-12 student school buses. The UBC learned during the workshop discussions that some K-12 students utilize the public Wi-Fi available on the buses. This has allowed students without a broadband connection at home to do their homework on the bus.



Mobile Wireless Access

Mobile wireless carriers provide strong coverage areas across the state of Utah. According to the data provided by the major mobile wireless carriers, there are only a few pockets where mobile wireless service is not available.⁵⁴ The areas that are not covered include locations that are extremely remote, or where the terrain impedes the wireless signal. The majority of services offered in locations covered by mobile wireless offered meet the "served" threshold of 100/20 Mbps broadband speeds. [See Figure 9](#) for a mobile wireless coverage map of at least 100/20 Mbps speeds (data provided to the UGRC).

54 UGRC. Utah Residential Broadband Map. <https://gis.utah.gov/data/utilities/broadband-internet> (accessed May 9, 2023)

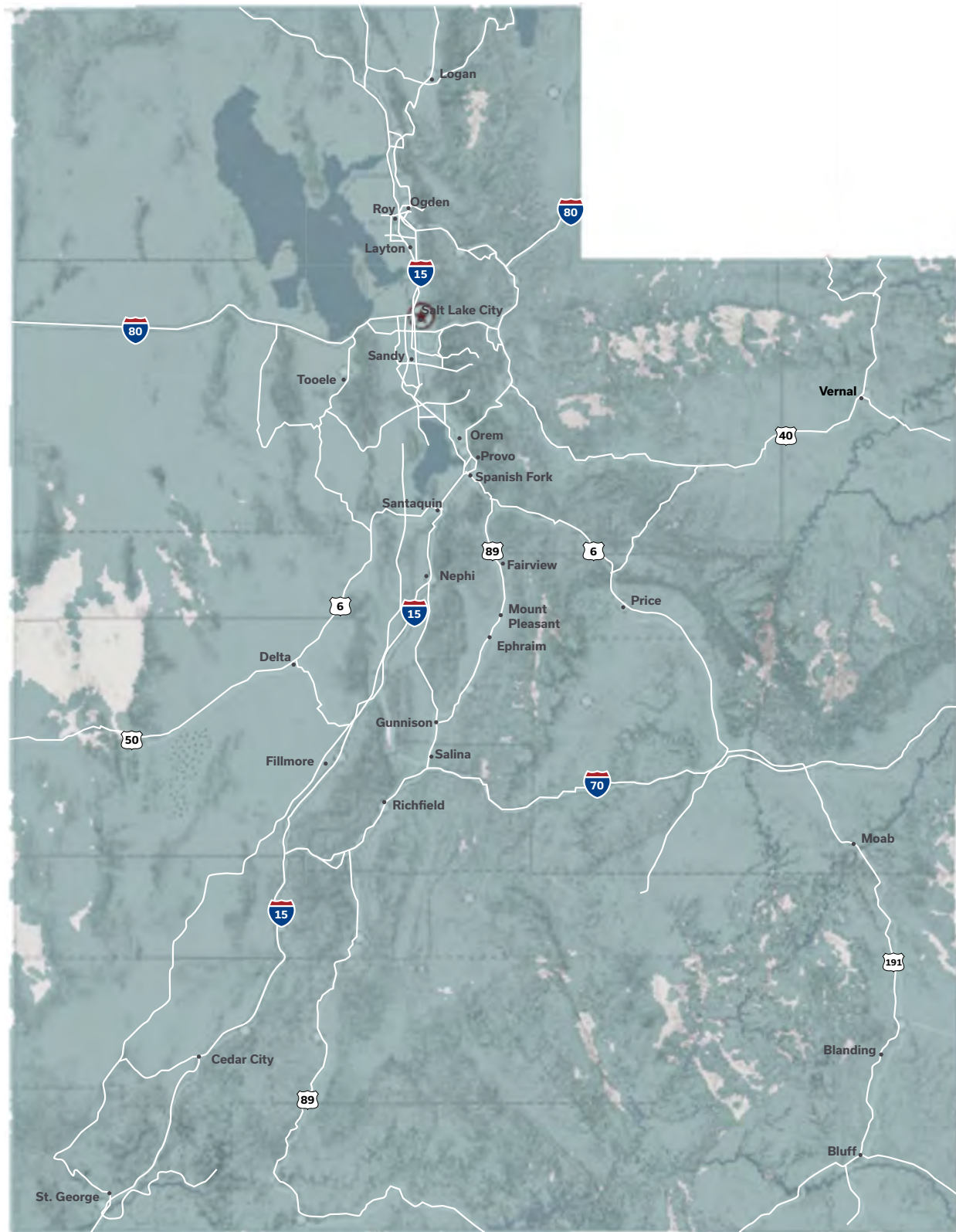


FIGURE 9. MOBILE WIRELESS COVERAGE AREA (100/20 MBPS MINIMUM SPEEDS)

Middle Mile Open-Access Programs

As mentioned in [Section 2.4.1 – Broadband Deployment](#), UDOT has developed a robust network of open access middle mile infrastructure across the state (see [Figure 6 in Section 2.4.1](#)). This program allows for multiple providers to access State-owned conduits to get to the doorsteps of communities at minimal cost to the provider.

2.5 NEEDS AND GAPS ASSESSMENT

The following section outlines statewide broadband needs and gaps that have been identified to date. The UBC will continue to identify local and regional broadband needs through evidence-based methods and gap analyses. To define the initial needs and gaps, the UBC performed the following activities:



Identification and Data Collection – Engaged stakeholders to solicit feedback and identify existing resources and tools. One of these tools is the FCC National Broadband Map, which shows broadband serviceable locations (BSLs) and broadband availability at those locations.

Analysis and Evaluation – In concert with stakeholder coordination, the UBC collected and analyzed data to develop strategies to address broadband gaps. This included:

**Coordinating FCC National
Broadband Map challenges**

**Securing additional speed test
data to validate advertised
available broadband speeds**

**Identifying middle mile routes
needed to reach unserved
communities**

**Communicating technical
assistance opportunities to
Tribes for broadband planning**

2.5.1 BROADBAND DEPLOYMENT

According to the FCC National Broadband Map,⁵⁵ there are 41,541 BSLs within the state that are unserved and 28,108 underserved (as of July 20, 2023). This data was corroborated through a statewide data analysis conducted by the UGRC. These locations are scattered throughout the state but are typically located in rural/remote areas. A sizable proportion of the unserved locations are located within Tribal areas (however, several tribal areas already have funding to build out networks to be entirely served). Over the course of the various workshops, stakeholder engagements, and other efforts, the notion that most unserved locations are in rural or remote areas was corroborated through conversations with local entities and residents. [Figure 10](#) and [Figure 11](#) show the mapping analysis that was conducted by the UGRC that show the unserved and underserved BSLs across the state of Utah, respectively.⁵⁶

Many community anchor institutions (CAI) in Utah have been well-served by broadband access for several years, thanks to Utah Education and Telehealth Network (UETN). UETN connects over 1900 locations in the state, including schools, libraries, and healthcare organizations, with a secure network that provides at least 1Gbps service to CAIs in every county but one. Most of the community anchor institutions in these categories are therefore already served. There are a few libraries that do not yet have access to sufficient broadband speeds because they have either not applied for or not been approved for E-Rate funding yet.

Other identified CAIs per NTIA requirements, including public safety and state government buildings, are served by the Utah Department of Technology Services with at least 1 Gbps service. The service availability for other anchor institutions, including senior centers, employment centers, and faith-based organizations, is less consistent since many of these organizations do not fall within the UETN or DTS networks.

Working with key stakeholders, the Utah Broadband Center is compiling a statewide list of these organizations and will utilize existing network maps to determine which lack the minimum required service. This list will be submitted in the BEAD Initial Proposal.

55 FCC. National Broadband Map. <https://broadbandmap.fcc.gov/home> (accessed July 20, 2023)

56 UGRC. Utah Residential Broadband Map. <https://gis.utah.gov/data/utilities/broadband-internet> (accessed May 9, 2023)

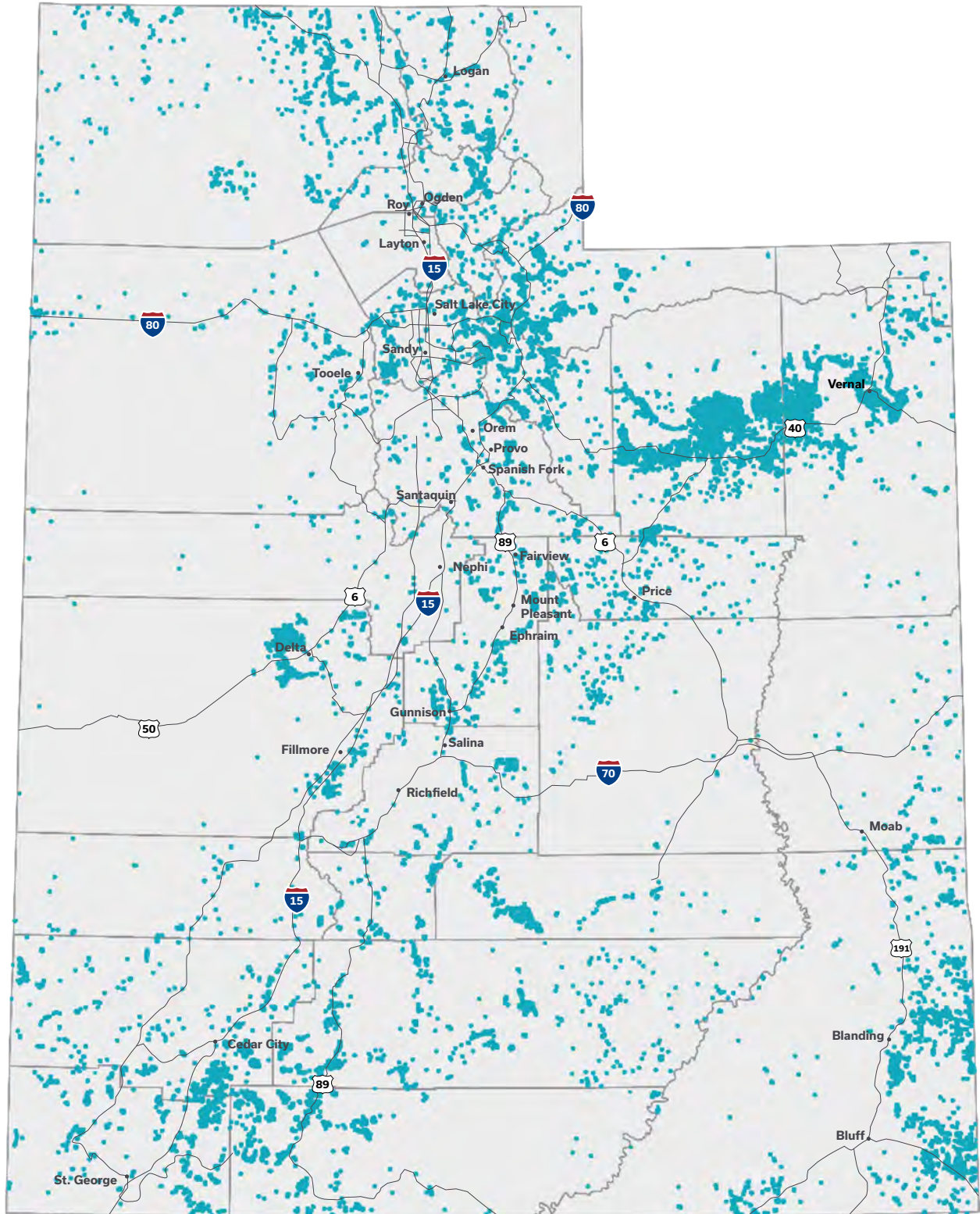


FIGURE 10. UNSERVED BROADBAND SERVICEABLE LOCATIONS

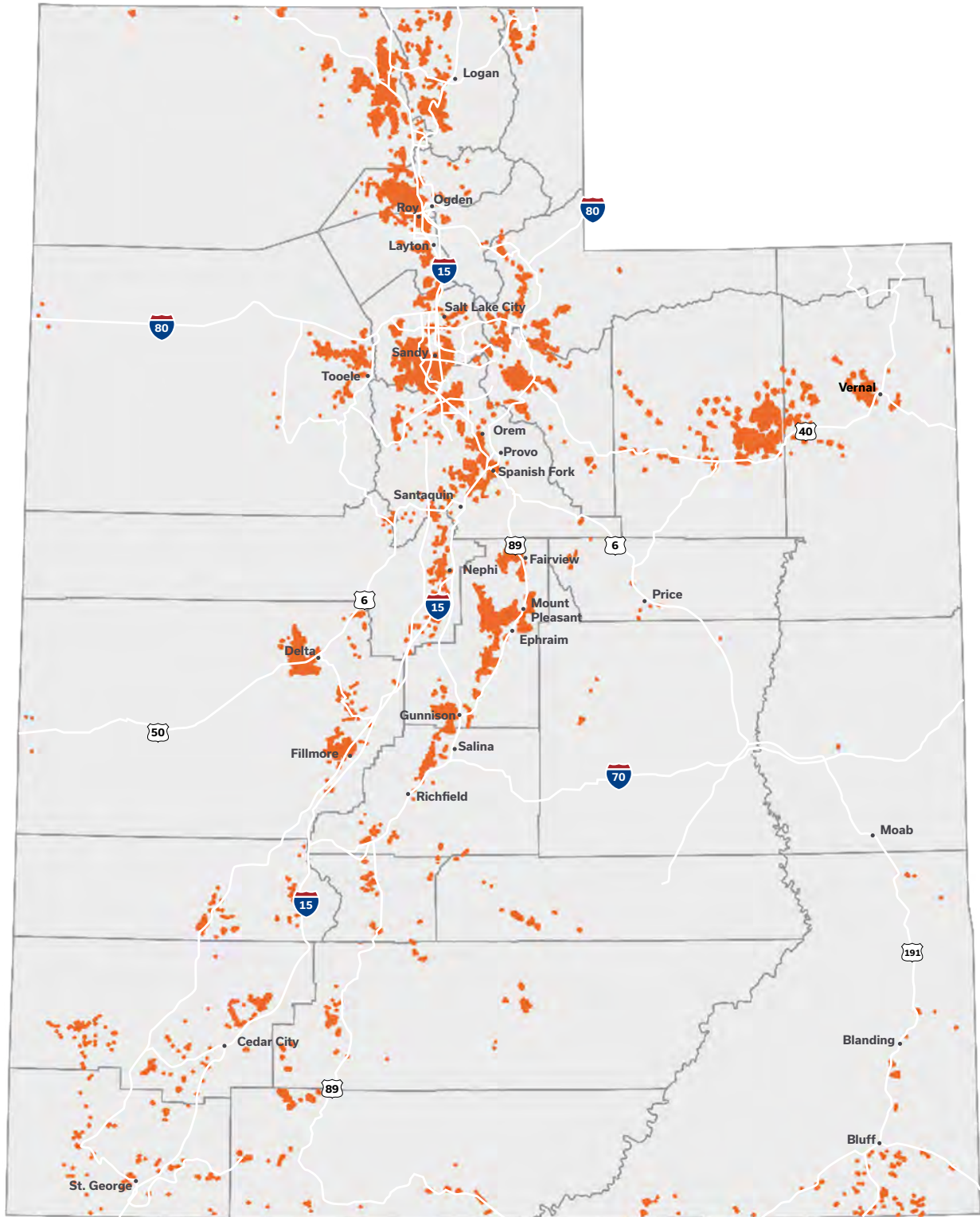
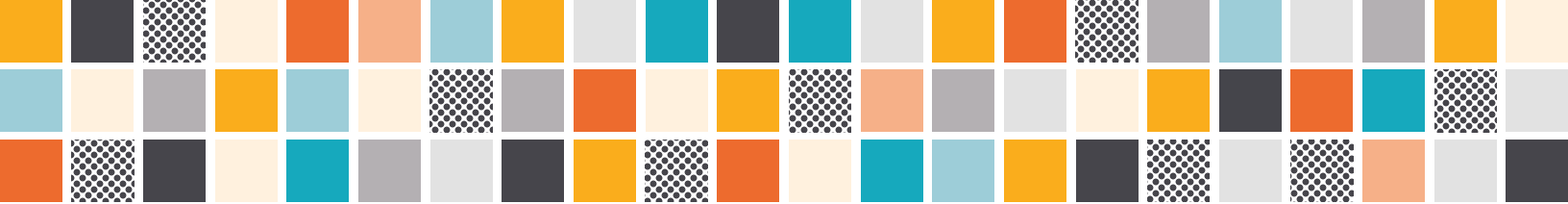


FIGURE 11. UNDERSERVED BROADBAND SERVICEABLE LOCATIONS



There are a variety of reasons why these areas of the state are still unserved or underserved, which include:



ISPs have been focusing on bringing service to areas with higher density BSLs because of cost constraints. BSLs that are significantly separated are not cost-feasible for wired connections under traditional funding mechanisms.

ISPs have not upgraded their networks in legacy areas, while the threshold definitions of "served and underserved" as defined by the FCC have been raised.

Terrain conditions are impeding fixed wireless technologies, rendering them infeasible in challenging terrain.

Significant investment is needed for middle mile fiber optic deployment.

Competition between ISPs for federal broadband deployment assistance programs.

Permitting challenges/delays.

Lack of skilled workers limiting the ability for increasing construction workforce.

The UBC will prioritize bringing broadband connectivity to unserved locations by implementing various tools and programs. [Section 4](#) outlines the items that will be performed to accomplish this effort.

2.5.2 BROADBAND ADOPTION

There are many barriers to broadband adoption which have made it difficult for many Utahns to access broadband services. These barriers include affordability, digital literacy, lack of devices, language barriers, and community anchor institutions with lack of access to broadband connectivity and/or devices.

Table 9 lists the rate of adoption within each Association of Governments (AOG) region in Utah. These totals were determined by collecting the number of households without an internet subscription in each county and combining the totals for each county within their respective AOG.⁵⁷ Additional details related to broadband affordability, availability, and access can be found in the [Appendices](#).

TABLE 9. INTERNET SUBSCRIPTION RATES

AOG	TOTAL HOUSEHOLDS	HOUSEHOLDS WITHOUT AN INTERNET SUBSCRIPTION	% WITHOUT AN INTERNET SUBSCRIPTION
Bear River Association of Governments (BRAG)	59,217	5,473	9.2%
Wasatch Front Regional Council (WFRC)	622,136	47,305	7.6%
Mountainland Association of Governments (MAG)	203,503	19,345	9.5%
Utah Basic Association of Governments (UBAOG)	17,647	2,291	13.0%
Six County Association of Governments	25,159	3,713	14.8%
Southeastern Utah Association of Local Governments (SEUALG)	19,921	4,192	21.0%
Five County Association of Governments	86,068	10,060	11.7%

As part of the UBC's public outreach campaign, a survey of residents was distributed to collect qualitative data about barriers to broadband adoption in Utah households (see also [Section 3.1 - Public Survey Findings](#)). Of the 1,283 residents who completed the survey, UBC found that 7% of respondents (92 total respondents) do not have an internet connection at their residence.

57 U.S. Census Bureau. (2021). American Community Survey 5-Year Estimates. S2801 - Types of Computers and Internet Subscriptions. <https://data.census.gov/table?q=internet+utah&tid=ACSST5Y2021.S2801&moe=false>

Of those who reported not having an internet connection, the most commonly reported reasons were affordability, which included both expensive monthly charges and initial connection fees (67% of respondents); not having an internet connection available in their area (34% of respondents); and not having a computer or tablet to use (10%) (see Table 10).

TABLE 10. CONNECTING UTAH RESIDENT SURVEY - CHALLENGES TO BROADBAND ADOPTION

WHY DON'T YOU HAVE INTERNET ACCESS AT YOUR RESIDENCE?	PERCENT OF RESPONDENTS
Monthly charges are too expensive	41%
An internet connection is not available in my area	34%
Initial connection fees are too expensive	26%
I do not have a computer or tablet to use	10%
I access the internet at a public internet source, such as a library or community center	9%
I do not know how to get internet service	8%
I don't need it/am not interested in it	5%
I have physical limitations	4%
I am worried about privacy and others getting my information	4%

2.5.3 BROADBAND AFFORDABILITY

One key reason for Utahns not subscribing to broadband service is affordability. While Utah is a state with many economic opportunities and well-paying jobs, there are still significant segments of the population that cannot afford broadband service. According to the U.S. Census Bureau, in 2021, 8.6% of Utahns were at or below the federal poverty level.⁵⁸

Affordability was a prominent point of discussion in the various workshops and stakeholder outreach events, particularly as it relates to why individuals are not subscribing to a separate residential fixed broadband service.

The UBC concludes the biggest gap to affordability is the lack of Utahns participating in the ACP. [Section 2.4.3 – Broadband Affordability](#) discusses in greater detail the Affordable Connectivity Program (ACP) and its benefits.

58 U.S. Census Bureau. QuickFacts Utah. <https://www.census.gov/quickfacts/fact/table/UT/IPE120221#IPE120221> (accessed May 9, 2023)

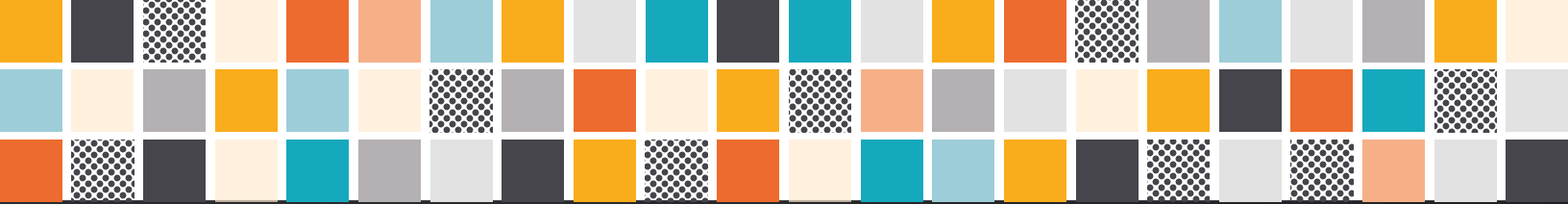
In the stakeholder outreach workshops conducted by the UBC, participants were asked to disclose barriers to accessing and utilizing the ACP. The most common barriers identified include: a lack of understanding/knowledge of the program, difficulty navigating the two-phase enrollment process, a lack of digital skills for enrollment, other state and federal broadband assistance programs are already in place, and the stigma attached to receiving government assistance. These reasons and others are presented in greater detail in the following paragraphs.

Utah currently has 50,979 subscribers and counting enrolled in the ACP, but Utah still ranks in the bottom five states as it relates to ACP utilization. [Table 11](#) lists a breakdown of each AOG within the state and the rate of eligible subscribers utilizing the ACP therein.⁵⁹ These totals were determined by collecting the number of ACP enrolled subscribers in each county and combining the totals for each county within their respective AOG.

TABLE 11. UTAH ACP ENROLLMENT - AS OF APRIL 1, 2023, BY AOG

AOG	SUBSCRIBERS ENROLLED	SUBSCRIBERS ELIGIBLE FOR ACP	ELIGIBLE SUBSCRIBERS UTILIZING THE ACP
Bear River Association of Governments (BRAG)	2,520	6,542	38.5%
Wasatch Front Regional Council (WFRC)	34,476	51,935	66.4%
Mountainland Association of Governments (MAG)	5,912	19,599	30.2%
Uintah Basic Association of Governments (UBAOG)	1,047	2,300	45.5%
Six County Association of Governments	1,110	2,704	41.1%
Southeastern Utah Association of Local Governments (SEUALG)	2,460	3,075	80.0%
Five County Association of Governments	3,454	9,198	37.6%
Total	50,979	95,353	

59 Universal Service Administrative Co. ACP Enrollment and Claims Tracker. <https://www.usac.org/about/affordable-connectivity-program/acp-enrollment-and-claims-tracker/#enrollment-and-claims-by-zipcode-and-county> (accessed May 9, 2023)



The ACP is a significant benefit for qualifying household and the UBC anticipates that this resource will continue to be an important element of increasing broadband affordability for Utahns. Efforts to increase awareness of and enrollment in the ACP include providing information to community outlets, utilizing social media channels, and working with ISPs. The goal is to have as many eligible subscribers as possible take advantage of the cost saving opportunities afforded to Utahns through this program. [Section 2.4.3 – Broadband Affordability](#) also contains a list of other entities that were awarded grant funds to help spread awareness of the ACP.

When asked about challenges and barriers to enrollment in the ACP during the Connecting Utah workshops, participants identified areas of concern with the enrollment process. These include:

The two-step enrollment process can be arduous and serve as a barrier to entry for many qualified households.

The documentation required to receive ACP benefits makes the program inaccessible for populations such as refugees or new Americans.

Lack of understanding/knowledge of the program.

Difficulty navigating the enrollment process.

Lack of digital skills for enrollment.

Other state and federal broadband assistance programs are already in place.

Individuals do not want government assistance.

Connecting Utah workshop participants also provided valuable insights on their experiences with promoting the program, assisting others through the enrollment process, and identifying gaps or shortcomings in the program:

Applying for the benefit is a complicated, multistep process. If qualifying individuals do not have a digital navigator (someone to assist with digital literacy) available to walk them through the process, they can become confused and discouraged and ultimately misunderstand the steps they need to complete in order to receive the benefit. Additionally, the two-step process can result in application expiration and cause individuals to repeat paperwork processes.

Some qualifying individuals are concerned about privacy when applying for the benefit

For some individuals, the cost of a low-cost option is still too high. They need a no-cost option to access to the internet. Some of the groups who expressed this include extremely low-income communities, households experiencing generational poverty, individuals on a fixed income, individuals/families fleeing domestic violence, refugees, and unsheltered individuals and families.

Language and interpretation barriers exist. The program information available online at affordableconnectivity.gov is primarily available in English, and it is difficult to find translated materials on the site.

\$100 toward a device is not enough money to help those who truly do not have the means to purchase a device. Additionally, providers participating in the device program are limited or nonexistent in rural communities.

This “benefit cliff” disincentivizes individuals from taking small pay raises, because if they earn just over the cut-off amount, they lose their benefit.

ACP-eligible plans often provide maximum speeds of 25/3 Mbps resulting in many participants receiving speeds that are considered unserved, which is insufficient, especially for families with multiple children. Many would like the FCC to determine minimum speed requirements for providers to participate in ACP.

Many of the internet packages that would be low-cost or no-cost with the addition of the ACP benefit have data caps or will throttle internet speeds if data limits are exceeded.

Several ISPs require customers to purchase telephone service in addition to internet service. This adds an additional cost of \$30-\$60 (depending on the ISP) to the monthly bill, which makes the service unaffordable to many subscribers.

Many of the rural county workshop participants expressed that lower-income or unserved households often use only a mobile wireless devices (such as a cellular phone) to connect to the internet for remote learning, remote work, and other essential tasks. This is primarily because they are already subscribing to a mobile wireless data plan and do not see a need for or cannot afford a home-based internet subscription. Residents who live in areas lacking broadband service availability also use mobile wireless devices to connect to the internet.

The Connecting Utah Survey also collected respondent data specific to ACP awareness, enrollment, and participation ([see also Section 3.1 - Public Survey Findings](#)). Respondents were asked to share their level of familiarity with the ACP program, and UBC found that only 3% of respondents (32 total respondents) were participating in the program ([see Table 12](#)).

TABLE 12. SURVEY RESPONDENTS' KNOWLEDGE OF AND PARTICIPATION IN THE ACP

LEVEL OF FAMILIARITY WITH THE ACP PROGRAM	NUMBER OF RESPONDENTS	PERCENT OF RESPONDENTS
I participate in the program.	32	3%
I am aware of the program, but do not participate or am not eligible.	381	34%
I am not aware of the program, but I would like to learn if my household qualifies.	283	25%
I am not aware of the program and not interested.	422	38%

Despite the low participation rate in ACP, 41% of survey respondents without an internet connection indicated that the cost of monthly internet services was a barrier to accessing the internet. Additionally, 26% of respondents indicated that the cost of initial connection fees is a barrier to internet access. [See Table 13 through Table 15](#) for additional survey response information regarding affordability.

For survey participants who indicated that they were unaware of the program but would like more information, an optional form was provided at the end of the survey to request more information on the ACP by mail or email. Survey respondents who indicated their interest in learning more were sent a digital or physical flier explaining the program, eligibility requirements, and where to find enrollment support.

TABLE 13. RESIDENT OR GENERAL PUBLIC RESPONSES

SURVEY QUESTION	RESPONSE DATA
What is the monthly charge for your internet service?	\$76 average (of 1,058 total responses)
Why don't you have internet access at your residence?	26% of respondents (24 respondents) answered that initial connection fees are too expensive. 41% of respondents (38 respondents) answered that monthly charges are too expensive.
How much would you pay for internet per month if it was accessible to you at your residence?	Answers ranged from \$0 to \$200 with an average of \$53 per month (of 74 total respondents).

TABLE 14. LOCAL GOVERNMENT OR TRIBAL EMPLOYEE RESPONSES

SURVEY QUESTION	RESPONSE
Tell us about internet access for the people in your community.	62% of respondents (of 67 total respondents) answered that some people can't afford the internet option(s) available to them.
What barriers make it difficult for individuals in your community to access the internet?	Affordability was mentioned by 48% of respondents.
What would make it easier for individuals in your community to access the internet?	Lower costs were mentioned by 47% of respondents.

TABLE 15. ELECTED OFFICIAL RESPONSES

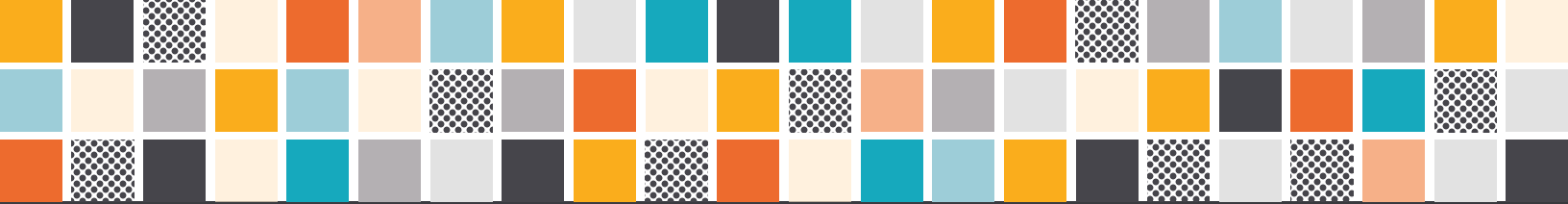
SURVEY QUESTION	RESPONSE
Tell us about internet access for the people you serve.	44% of respondents (of 25 total respondents) answered that some people can't afford the internet options available to them.
What barriers make it difficult for individuals in your community to access the internet?	Affordability was mentioned by 48% of respondents.
What would make it easier for individuals in your community to access the internet?	Lower costs were mentioned by 47% of elected official respondents as a way to make internet access easier.

Lifeline

Lifeline is a federal program that offers a monthly benefit of up to \$9.25 towards phone or internet services for eligible subscribers (up to \$34.25 for those living on Tribal lands).⁶⁰ As of 2021, there were 219,359 eligible subscribers for the Lifeline program in Utah and as of April 2023 there were 27,066 actual subscribers.⁶¹ The estimated participation rate of eligible households for the Lifeline program in 2023 is 12%.

60 FCC. Lifeline Support for Affordable Communications. <https://www.fcc.gov/lifeline-consumers>

61 Universal Services Administrative Co. Lifeline Program Data. <https://www.usac.org/lifeline/resources/program-data>



A community member's experience, as shared through the Connecting Utah Survey, highlights the importance of having affordable broadband connection options:



"Without internet access at home, I need to pack up my laptop and visit the library. This is inconvenient because it requires advance planning and requires extra time for preparation and travel. It is dependent on the weather and the hours that the library is open. It [is] also a public situation, meaning that noise levels can make it difficult to focus, and there is always the security concern of entering private information on a public network. Yes, if I need quick and brief access, I can use the hotspot on my cell phone, but this method is limited. Speed isn't great and my monthly data is limited. Having a connection at home would mean freedom, ease, and convenience. It would also allow me the opportunity to work from home, whether occasionally due to inclement weather or poor air quality days, or part-time in a hybrid schedule. This in turn would help me save money on gas, wear and tear on my vehicle, and lower vehicle emissions. Providers like to brag about their speeds, but that doesn't matter if it isn't affordable. It is frustrating that any affordable access is only a limited-time (12-month), initial price. After that, the price jumps, and sometimes the next level price isn't even specified. I can't (or won't) take a chance on that. Discount programs seem to require a child in the home for eligibility. I don't game or stream. I don't need super high-gig speeds. I just need a constant, reliable connection. Can't someone provide basic service at a lower cost?"

2.5.4 BROADBAND ACCESS

For the past decade, the UBC has maintained public maps showing broadband availability across the state. These maps, generated and maintained with the assistance of the Utah Geospatial Resource Center (UGRC), use data provided by ISPs to show service coverage footprints and available speed levels. The UBC has developed a map showing populated areas of the state that are currently unserved or underserved. See Figure 12 for the map of the unserved and underserved populated areas.⁶² The unserved areas are displayed in yellow, and the underserved areas are shown in blue.

Encouraging competition among broadband providers can help to improve access and drive down costs. This can be achieved by reducing barriers to entry for new providers, such as simplifying the permitting process or reducing fees for access to rights-of-way.

Leveraging existing infrastructure, such as utility poles or spare conduits, can be a cost-effective way to expand broadband access in Utah.

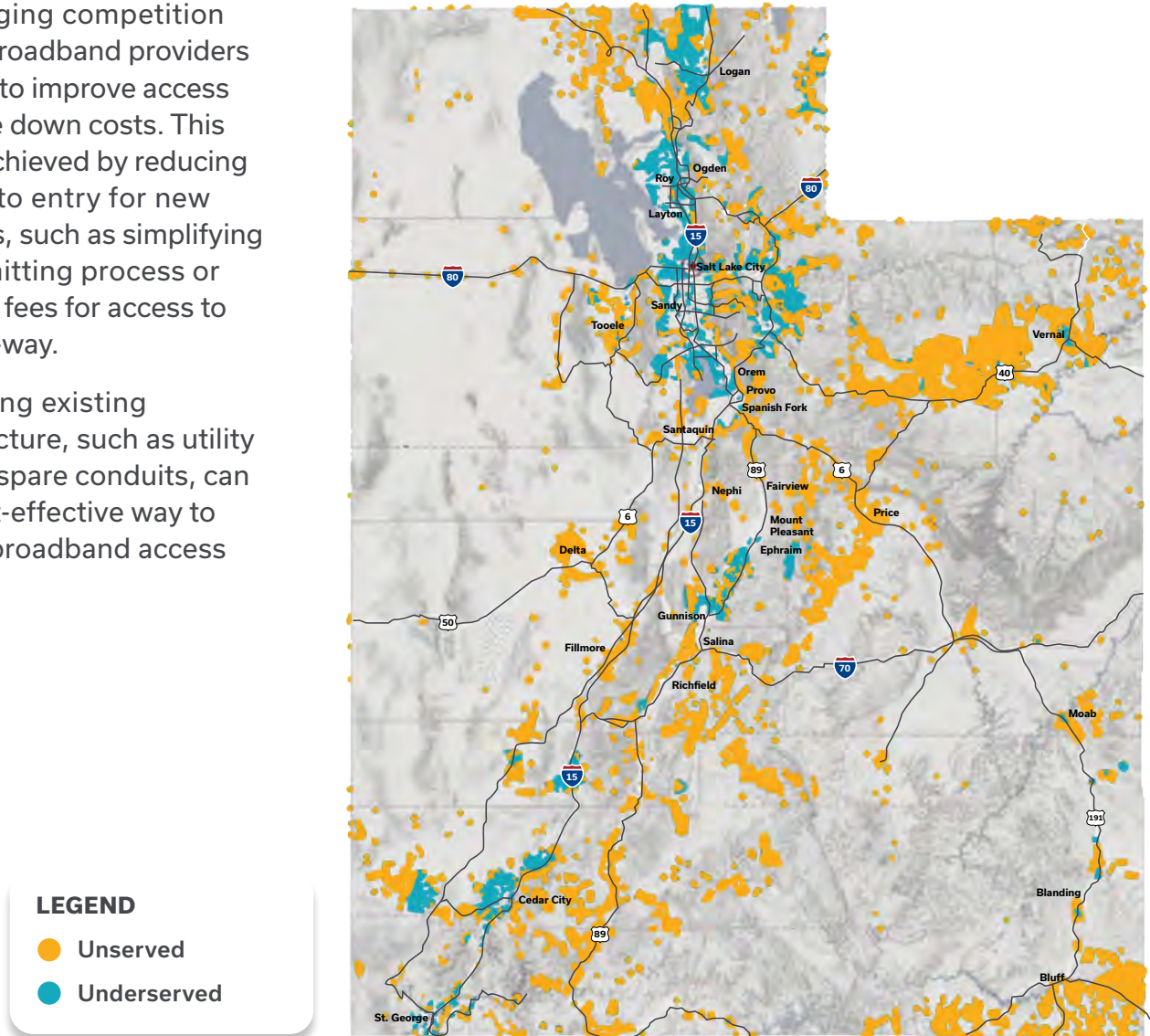


FIGURE 12. POPULATED AREAS THAT DO NOT HAVE ACCESS TO BROADBAND

62 UGRC. Utah Residential Broadband Map. <https://gis.utah.gov/data/utilities/broadband-internet> (accessed May 9, 2023)

3. OBSTACLES OR BARRIERS

There are various obstacles related to broadband deployment and adoption within Utah. These obstacles include the cost of deployment, permitting or regulatory challenges, third-party approval challenges, supply chain constraints, labor force challenges, weather/climate challenges, lack of other supporting infrastructure, and cybersecurity.

Cost of Deployment

Fiber optics is a priority for most service providers as it is the most resilient, reliable, and expandable broadband technology. There are two methods of fiber optic installation: buried and aerial attachment to utility poles. Buried fiber optics are much less susceptible to line breakages, cuts, and other damage from wildfires or other climate or weather events. However, buried fiber optics are more expensive to install due to trenching or boring costs and how much more time is required to install, compared to aerial installations.

While buried fiber optics are more resilient, they require significant capital outlay to install. These costs can add up quickly when factoring in the rurality of Utah. Some communities lack fiber optic connectivity because of the long distances between them (over 50 miles in some cases). This rural/urban gap and uneven access to broadband is directly tied to the cost of deploying high-speed internet to rural areas. For ISPs, the cost of a mile of infrastructure in rural Utah can be up to five times higher than a mile of infrastructure in urban Utah, due to the fact that most labor forces are based in urban areas.⁶³ While the cost for installation in rural areas is typically higher, the number of potential subscribers in rural Utah is far less. For an ISP, the number of potential customers reached and potential revenue gained in rural Utah is not equal to the cost of building infrastructure to these areas. In these areas, without incentives, high-speed infrastructure will never be constructed.

Wireless technologies are much less expensive to deploy than fiber optics, but are more susceptible to signal interference, equipment malfunction, line-of-sight obstructions, and other issues. This makes wireless technologies more expensive to maintain. For these reasons, buried fiber optics is the preferred broadband technology by ISPs.

Additionally, maintenance costs in rural areas are significantly higher than in suburban or urban areas, as troubleshooting technicians may spend a full day responding to a single troubleshooting call as opposed to being able to respond to multiple troubleshooting calls per day in urban areas.

Because of this, typical ISP companies target a window of five to seven years for a “return” on their investment for the installation costs. This model forces providers to prioritize broadband deployment into areas with higher address density or less competition, thus increasing the “take rate” of subscribers.

To reduce the capital costs of construction, ISPs rely on federal government grants or loans, partnering with Departments of Transportation, leasing existing fiber, and other solutions. The federal assistance programs have significant competition between companies, so it may take years before a federal grant or loan is secured.



63 U.S. Department of Agriculture Economic Research Service. (2022.) Rural Employment and Unemployment. <https://www.ers.usda.gov/topics/rural-economy-population/employment-education/rural-employment-and-unemployment>

Permitting or Regulatory Challenges

Obtaining permits for broadband deployment can be time-consuming as well as somewhat more expensive for navigating the process (increased management and application fees). Permit application fees vary greatly by jurisdiction but typically are less than \$1,000 per application. For deployment of buried fiber optics, providers must obtain permits from the regulating authority (local, state, or federal), depending on the jurisdiction. A typical timeline for permit approvals ranges from two weeks to two months. Some permitting agencies are understaffed or have a large backlog of permit reviews, which prevents them from responding in a timely manner, thus delaying the process. Additionally, some federal agencies (e.g., Bureau of Land Management, U.S. Forest Service) require environmental evaluations and clearances to ensure there are no significant impacts caused by the installation before permits are issued. Depending on the federal agency, it is not uncommon for a permitting process in these situations to need up to two years to obtain.

Obtaining permits through Tribal Nations can also be a very lengthy process. For reasons including limited staff availability, Tribal regulations, or processes, permitting for installation work on Tribal lands can require years to obtain, if at all in some cases.

Third-Party Approval Challenges

Other permitting challenges include obtaining approval from third-party entities for permission to deploy broadband. These third-party entities in Utah include roughly 40 different utility pole owners, over 1,300 canal companies, and eight railroad companies.

Utility pole owners allow ISPs to attach fiber optic infrastructure to their poles for a nominal fee, paid on a monthly basis. Before granting approval, the pole owner must verify that the new cabling will not overload the pole, that all utilities on the pole meet the separation requirements to other utilities on the pole, and that the utilities on the pole meet the minimum height requirements over the ground. If installing a cable violates any of these codes, the pole may need to be replaced with a taller or sturdier pole (paid for by the applicant), or the other utilities currently attached to the pole may need to be raised (paid for by each respective utility). This process can be lengthy and expensive, depending on the location. In rural areas, the utility poles typically have fewer utilities attached, so review and approvals typically require less time than in urban or suburban areas. Also, pole owners in urban or suburban areas have significant demand for pole attachments, so the approval process can be lengthy. For example, to attach to a "clean" pole in a rural area would require an approval time of two to three weeks. In an urban area with other utilities attached that need to be moved, a six-month approval time is not uncommon.

Third-Party Entities include:



40
different utility
pole owners



1,300+
canal companies

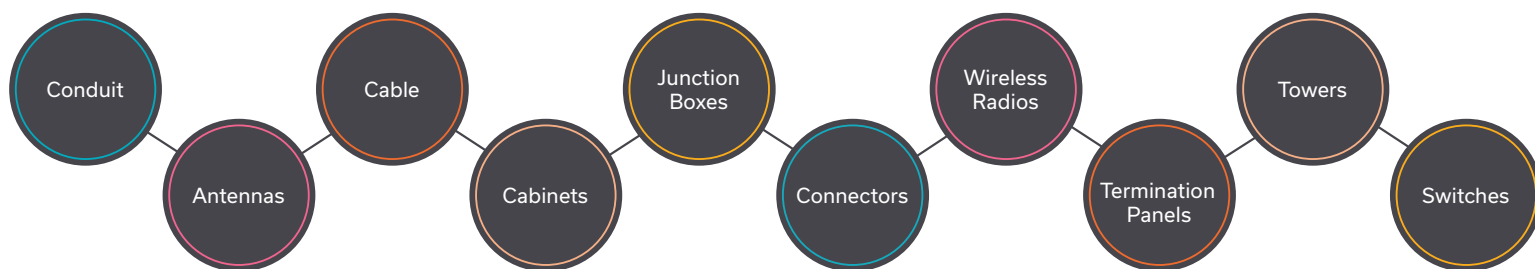


8
railroad companies

Historically, canal companies and railroad companies allow for fiber optics to cross their utilities for a nominal fee, submitted at the time of the permit application. However, due to increased demand for permit approvals, reviews and approvals from these entities can be lengthy and can require up to six months in some cases. Additionally, some of the fees charged by these entities have increased over 1,000% in the past two years, which forces the applicants to look for other ways to cross these facilities.

Supply Chain Constraints

Material supply chains for broadband deployment were stretched during the COVID pandemic and are just now starting to rebound. However, with the significant BEAD funding that is expected to come into the industry for broadband deployment within a relatively short period of time, it is expected that there will be a significant strain on the supply chain. This applies to all broadband technology materials: conduit, cable, junction boxes, wireless radios, towers, antennas, cabinets, connectors, termination panels, switches, and other communications equipment.

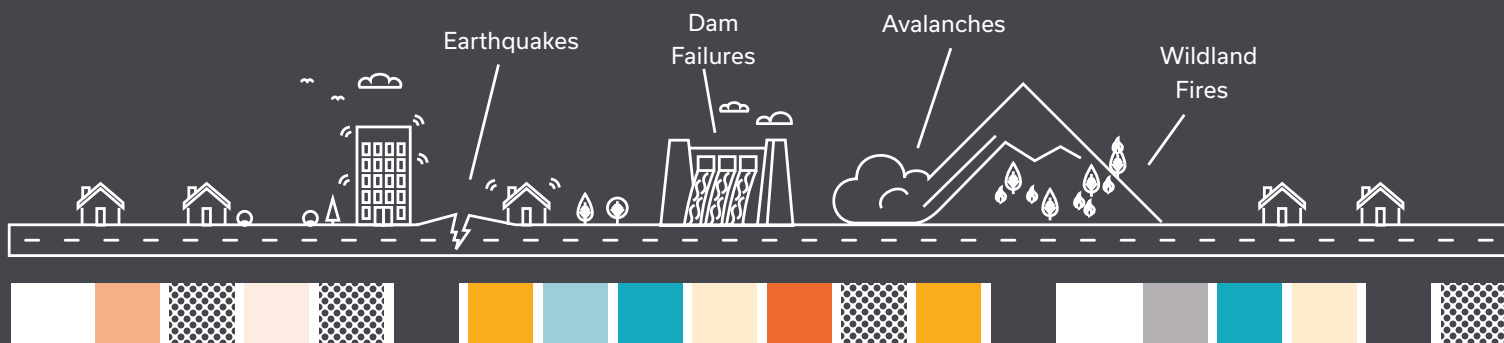


Labor Force Challenges

The size of the skilled labor force for broadband deployment has grown incrementally the last decade, while demand for skilled labor has increased significantly with recent and forthcoming broadband deployments. Utah's ISPs and contractors have all indicated that they cannot hire enough skilled labor to keep up with the current projects that they have scheduled. This shortage applies to any labor category in the industry (network engineers, designers, construction personnel, fiber splicers, maintenance personnel, and office staff). And with the significant BEAD funding that is expected to come into the industry for broadband deployment within a relatively short period of time, the demand for skilled labor will skyrocket. This will put an even greater strain on the skilled labor force.

Utah State University Extension offers the Rural Online Initiative (ROI) that provides education and training for remote work opportunities in rural areas. Paul Hill from Utah State University (USU) Extension provided the quote below during the Digital Connectivity Plan comment period, which relates directly to workforce development and connectivity.

"The Rural Online Initiative (ROI) program at USU Extension has had to, unfortunately, reject over 2,000 applicants to our Certified Remote Work Professional course because they lacked either reliable internet access or their own desktop/laptop computer or basic digital literacy skills. Most of the people who have been rejected were from San Juan and Wayne counties. The research we have conducted has documented the need for digital literacy skills training in southeastern Utah."



Weather/Climate Challenges

Utah's location and topography make it susceptible to a variety of natural disasters, including avalanches, wildland fires, droughts, floods, geologic hazards (earthquakes or slides), and severe weather events.⁶⁴

Utah has harsh winters that make it very difficult to install buried fiber optics or other broadband infrastructure (such as poles or towers) in the ground during certain seasons. This means that the construction season for deploying increased broadband access is not a year-round activity but is limited typically from March through November.

Winters in Utah typically bring significant snowpack to Utah's mountains, thereby creating a risk for avalanches. In the spring when the snow melts, this snow creates a risk for mudslides. These risks can both be mitigated by burying the infrastructure in the ground to reduce exposure.

A significant obstacle related to weather/climate is wildland fires. Utah is the second driest state in the nation and has seen a significant increase of wildland fires over the past 20 years. This is due to a variety of factors, including vegetation drying out, topography, weather, fuel sources, precipitation, and temperature changes.⁶⁵ Wildland fires are a significant risk for aerial/above-ground installation of poles and cables as the materials are combustible. To mitigate that risk, ISPs and other entities prefer to bury their infrastructure in the ground for greater protection.

Another obstacle for weather and climate is the risk of earthquakes. There are many earthquake faults that run through the state, and ISPs and other entities must take preventative measures to protect against damage by ensuring structures are adequately constructed to meet building earthquake codes and utilizing buried conduits for cabling.

Lack of Other Supporting Infrastructure

When deploying broadband, it is critical to have existing or planned backhaul or middle mile technologies in order to light the broadband service. These "links" are an essential part of deployment. Additionally, it is important to have auxiliary backhaul or middle mile pathways or routes into areas to safeguard against accidental outages if one of the backhaul/middle mile pathways is interrupted or damaged.

64 Utah Department of Public Safety. Utah Hazard Mitigation. <https://hazards.utah.gov>

65 Utah Department of Public Safety. Utah Wildfire Hazard Mitigation. <https://hazards.utah.gov/wildfire>

For broadband technologies, electrical power must be available to power the communications equipment for both wired and wireless technologies. Throughout much of the non-populated rural areas of Utah, commercial electric power infrastructure is sparse. In these areas, alternative sources of power (such as wind or solar) are the only option to power equipment. These power-generation technologies are not as reliable as commercial power infrastructure. They require more maintenance and can have disruptions in service. For these reasons, ISPs tend to avoid using alternative power sources wherever possible for their network equipment.

Cybersecurity Threats

With an ever-more interconnected world of mobile devices, computers, and internet-connected devices, cybercrime risks are increasing exponentially for individuals and businesses. According to the Utah Department of Public Safety, in Utah in 2020 there were 4,926 victims of cybercrime (50% increase from 2019) and \$47,113,946 in losses (1.4% increase).⁶⁶ Cybersecurity standards, guidelines, best practices, and training are factors that help defend against cyberattacks. This Digital Connectivity Plan will ensure the requirements for cybersecurity will be met for each funded infrastructure project and a cybersecurity risk management plan is in place.

3.1 PUBLIC SURVEY FINDINGS

The UBC created the Connecting Utah Survey to receive feedback from Utahns regarding the state of broadband connectivity in their community. Tailored versions of the survey were created to accommodate various stakeholder perspectives. Specific surveys were developed for each of the following stakeholder groups: residents, businesses, community leaders, local government or Tribal employees, and elected officials. The surveys were available in English and Spanish, and accessible online or in print form (upon request). A toll-free hotline number was provided for individuals who lacked digital connectivity to report no internet service at their location.

The surveys and the toll-free hotline number were widely distributed through stakeholder meetings, workshops, and events as well as targeted email and social media campaigns through local community channels throughout the state. Following the community workshops, local municipalities, counties, community organizations, educational organizations, and religious organizations were given content to promote the Connecting Utah initiative and were encouraged to distribute this information through their networks and communication channels. Connecting Utah Survey results can be found in the [Appendices](#).

66 Utah Department of Public Safety. (2021). Cybersecurity Awareness Month 2021 – Cyber Crime in Utah. <https://publicsafety.utah.gov/2021/10/28/cybersecurity-awareness-month-2021-cyber-crime-in-utah>

As of June 1, 2023, there were 1,409 Connecting Utah survey responses. Key takeaways from the survey responses included:

7%

of resident respondents reported no available broadband connection at their residence.

64%

of businesses respondents reported that the speed or reliability of their internet service has affected their business.

39%

of resident respondents experience download speeds up to 25 Mbps.

78%

of community leader respondents reported that some individuals in their community cannot afford the internet options available to them.

50%

of resident respondents are paying \$70 per month or more for internet.

22%

of community leader respondents cited that access to devices is a barrier for some members of their community.

15%

of businesses respondents reported no available broadband connection at their business.

24%

of elected official respondents reported that some people in their community want internet but have no providers available.

Businesses respondents are paying an average of

\$99

per month for internet service.

52%

of local government employee, tribal employee, or elected official respondents reported that their community does not have enough funding to expand broadband coverage to all homes.

4. IMPLEMENTATION PLAN

The UBC has outlined several key items for the implementation strategy to improve broadband access and adoption across the state.

4.1 STAKEHOLDER ENGAGEMENT PROCESS

Continued stakeholder engagement is vital to the success of Utah's broadband deployment strategies. The UBC will continue to build strong relationships with counties, municipalities, Tribes, community organizations, colleges, technical schools, ISPs, and other providers. Each of these stakeholders works closely with and are aware of the challenges and solutions unique to the communities they serve.

As the UBC continues to work towards implementing this plan in Utah, it will develop a thorough and holistic engagement plan as part of the Initial Proposal to ensure that the strategies are reaching and benefiting the stakeholders outlined in this plan. Should an adjustment or realignment of priorities be necessary, continued communication with stakeholders will allow the plan to remain adaptive and dynamic. Continued engagement will focus on a diversity of stakeholders throughout the state, especially focusing on the key covered populations. These populations include those living at or below 150% of the federal poverty level, aging individuals, incarcerated individuals, veterans, individuals with disabilities, individuals with a language barrier, individuals who are members of a racial or ethnic minority group, rural residents, and new Americans.

Through continued stakeholder engagement, the UBC seeks to utilize partner expertise in the following ways:





Government Entities

local governments, Tribal governments, special service districts, school districts, AOGs

- ▶▶ Aggregate community best practices for broadband-ready communities.
- ▶▶ Develop and advocate for policies and legislation that drive local broadband expansion.
- ▶▶ Provide a venue for local governments to coordinate with each other and share successes and lessons learned.
- ▶▶ Partner with private entities to maximize state and federal grant funding for broadband deployment.

Private Sector Stakeholders

technology companies, ISPs, financial institutions, economic development organizations, local businesses

- ▶▶ Partner with private entities to maximize state and federal grant funding for broadband deployment.
- ▶▶ Maintain awareness of and engagement in technological innovations and tactical considerations.
- ▶▶ Create workforce development programs to provide the necessary workforce to support broadband expansion.

Community Organizations

nonprofit organizations, housing organizations, faith-based organizations

- ▶▶ Assist in continual identification of barriers to adoption faced by Utahns.
- ▶▶ Develop and share tools to empower local organizations to expand broadband access, affordability, and availability at a grassroots level.
- ▶▶ Provide feedback and direction to best serve diverse stakeholder groups including unserved and underserved communities, especially historically underrepresented and marginalized groups.

General Public

- ▶▶ Notify members of the public of completed broadband buildouts and accelerated broadband deployment efforts led by the UBC.
- ▶▶ Empower members of the public to perform their own FCC data challenges.
- ▶▶ Develop local broadband coalitions focused on the access, affordability, and availability of high-speed internet.

4.2 PRIORITIES

The following priorities are based on the UBC’s overarching vision and goals for broadband deployment in Utah (see Table 16). They are listed in no particular order of priority or preference. These items will be defined more formally in the Initial Proposal to NTIA, which will establish a hierarchy for prioritization.

TABLE 16. PRIORITIES FOR BROADBAND DEPLOYMENT AND DIGITAL ACCESS

PRIORITY	RANKING	DESCRIPTION
Estimated timeline and cost of service	High	High-level plan for providing services
Planned utilization of funds	High	Maximized use of federal program funds
Prioritization of areas	High	Based on needs assessment and cost to build
Public-Private Partnership (PPP) considerations	High	Encourage financial and logistical partnerships with agencies and/or multiple companies
Strategies for increasing ACP enrollment	High	Increase awareness of program, utilizing multiple channels to educate
Strategies to ensure a highly skilled workforce	High	Increase access to training programs to higher education schools and applied technology institutions, including Custom Fit, TalentReady, Mountain States Line Constructors Apprenticeship and Training (MSLCAT), and Utah Electrical Joint Apprenticeship and Training Committee
Compliance with federal wage rates	High	Adherence to requirements for Federal-funded programs
Broadband technology type	High	Fiber optic technology prioritized over wireless

4.3 PLANNED ACTIVITIES

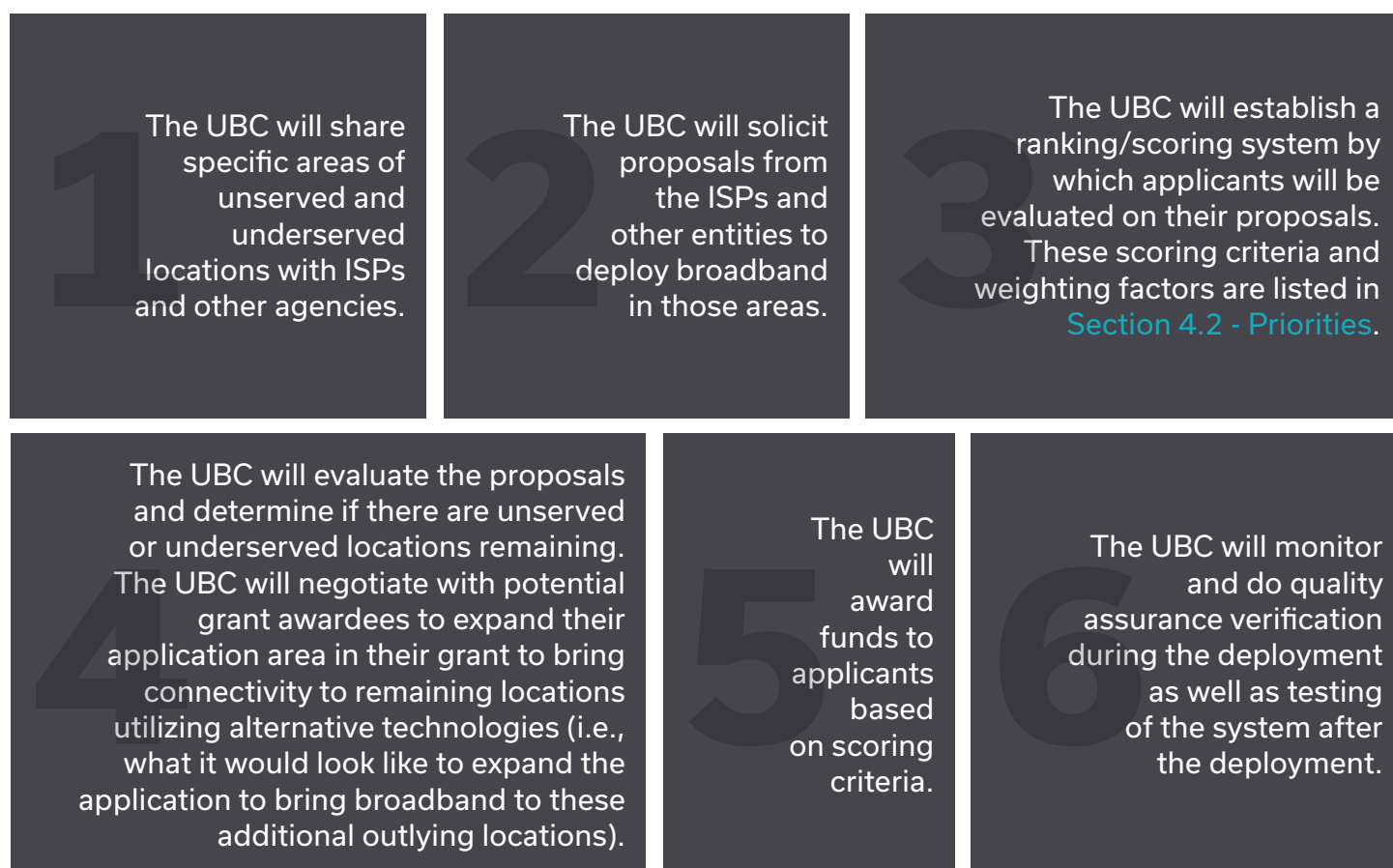
The UBC will increase broadband deployment and adoption throughout Utah by administering BEAD funds. The UBC will establish a formalized grant program administered by the UBC and the State of Utah to accomplish this effort. This program will establish a process whereby applicants may apply for the funds to deploy broadband service into unserved and underserved areas. Priority will be given for the unserved areas over the underserved. While fiber optic technology will be the priority wherever feasible, the UBC recognizes that there will be areas in the state where other broadband technologies will be better suited to connecting BSLs (for instance, areas where BSLs are more dispersed).



The UBC will distribute these funds to ISPs or public-private partnerships to build out these networks. Details of what this program will look like will be defined in the Initial Proposal to the NTIA. This will include specifics on what will be established as “high-cost areas” and “extremely high-cost areas.”

Once UBC has created a plan for extending broadband to unserved locations, UBC will create a plan to improve broadband in underserved BSLs and community anchor institutions. The plan will draw upon the same priorities for fiber optics and will utilize wireless technology where necessary. Underserved BSLs will be prioritized higher than community anchor institutions with less than 1/1 Gbps service.

The process by which these grant funds will be awarded will generally follow these steps:



The UBC may develop legislative and other regulatory solutions and policy recommendations to overcome barriers to accelerate infrastructure deployment. These solutions and recommendations will also help lower the cost of broadband deployment. Some of these solutions may include streamlining of permitting processes; accelerated reviews; encouraging public-private projects; encouraging open-access networks; projects with multiple stakeholders and interest groups; sharing infrastructure (buried conduit, towers, cables); innovative financing models; and early consultations with Tribal governments.

4.4 KEY STRATEGIES

Drawing on the vision and goals in [Section 1](#), this section explains strategies that the UBC will undertake to realize those goals.

GOAL 1: EXPAND BROADBAND TO UNSERVED AND UNDERSERVED AREAS THROUGHOUT THE STATE TO PROVIDE ACCESS TO EMPLOYMENT, HEALTH CARE, EDUCATION, SOCIAL NETWORKS, AND OTHER NEEDED RESOURCES

OBJECTIVE	STRATEGY
Develop the Initial Proposal that outlines the specific project areas and proposed distribution of federal broadband funds.	Define factors for scoring project applications and awarding BEAD funds to subgrantees.
Align new funding opportunities with existing projects to optimize broadband deployment objectives.	Ensure there are no overlaps of funding awarded to the same areas.
Develop broadband investment and deployment strategies for unserved and underserved areas.	Establish priorities for statewide broadband grant program utilizing BEAD funds. Explore opportunities for apartment Wi-Fi programs to serve multi-dwelling units in high poverty areas.
Develop the Final Proposal that reviews the final process for subgrantee selection and fund distribution.	Finalize subgrantee selection and award BEAD funds for deployment and access projects.
Develop a middle mile strategy to reach all unserved and underserved areas of the state.	Work with UDOT and ISPs to close middle mile gaps through program funds or sharing of existing or new infrastructure.
Create a subgrantee selection process to distribute federal broadband funds transparently and efficiently.	Work with providers and other agency partners to increase access and availability.
Collaborate with potential subgrantees – ISPs and communities – to identify areas in need of increased broadband infrastructure.	Challenge existing availability maps that overrepresent coverage levels.
Identify and utilize public/private partnership models, such as the Utah Department of Transportation (UDOT) fiber backbone and middle mile broadband infrastructure programs.	Prioritize the establishment of public/private partnerships through sharing of financial, logistical, and other resources.
Update and collaborate with key stakeholders and communities throughout the implementation process.	Create and distribute ongoing content for stakeholders to stay informed throughout the process.
Increase awareness among policymakers and members of the public of important milestones and announcements for funding and deployment.	Develop press announcements and stakeholder content regarding significant announcements and milestones and distribute to respective audiences.

GOAL 2: IDENTIFY AND MITIGATE OBSTACLES AND BARRIERS PREVENTING BROADBAND EXPANSION AND ADOPTION.

OBJECTIVE	STRATEGY
Coordinate with ISPs to understand current and potential challenges to deployment and develop proposed solutions to those challenges.	Hold one-on-one discussions with each ISP as well as ISP organizations.
Identify any potential challenges for small businesses to apply for and utilize federal funding for broadband deployment.	Engage with communities and chambers of commerce.
Support various entities by developing recommendations for streamlining permitting processes in order to reduce costs and delays.	Create a recommendations and benefits guide for streamlining the permitting process.
Identify areas where fiber optic broadband networks are not feasible and utilize other technologies to bridge those deployment gaps.	Evaluate all types of construction methods and hardware technologies
Streamline permitting review processes for local agencies.	Create best practices and checklists for cities and towns to ensure consistency, certainty, and adherence to a process for the review and approval of permits or other required documents, including timelines and deadlines.
Increase skilled workforce availability	Create workforce recommendations for potential subgrantees to adopt as part of deployment funding.
Ensure robust cybersecurity for users, ISPs, and subgrantees.	Work with ISPs to implement cybersecurity measures.

GOAL 3: EXPEDITE THE GRANT PROCESS BY SUPPORTING ISPs IN NAVIGATING FEDERAL FUNDING REQUIREMENTS.

OBJECTIVE	STRATEGY
Develop requirements for ISPs, municipalities, and other applicants to ensure contracts and plans are flexible, fair, and easily understood.	Develop BEAD-specific checklists and guidelines to distribute to all applicants.

GOAL 4: MAXIMIZE THE USE OF FUNDING TO PROVIDE THE MOST VALUE TO UNSERVED AND UNDERSERVED COMMUNITIES.

OBJECTIVE	STRATEGY
Develop a low-cost and no-cost framework for the broadband plans.	Collaborate with the providers and representatives from ISP organizations to develop metrics
Define both the high-cost and extremely high-cost thresholds to inform the use of BEAD funds.	Analyze the threshold for ISPs to recoup construction costs and possibly set a variable threshold for high-cost and extremely high-cost areas, based on address density.
Explore possibilities for ISPs to lower costs.	Collaborate with ISPs to understand challenges to lowering costs.
Future-proof broadband technology	Prioritize fiber-based networks, given their distinct advantages of being sustainable long-term, being “future-ready,” and having lower recurring expenses relative to other technologies.
Optimize project funds for broadband deployment.	Develop fiber alternatives for high-cost rural areas for broadband deployment.

GOAL 5: FACILITATE THE DEPLOYMENT OF BROADBAND TO COMMUNITY ANCHOR INSTITUTIONS.

OBJECTIVE	STRATEGY
Improve broadband availability for community anchor institutions.	Develop priorities for expansion to community anchor institutions, including a minimum speed of 1 Gbps symmetrical.

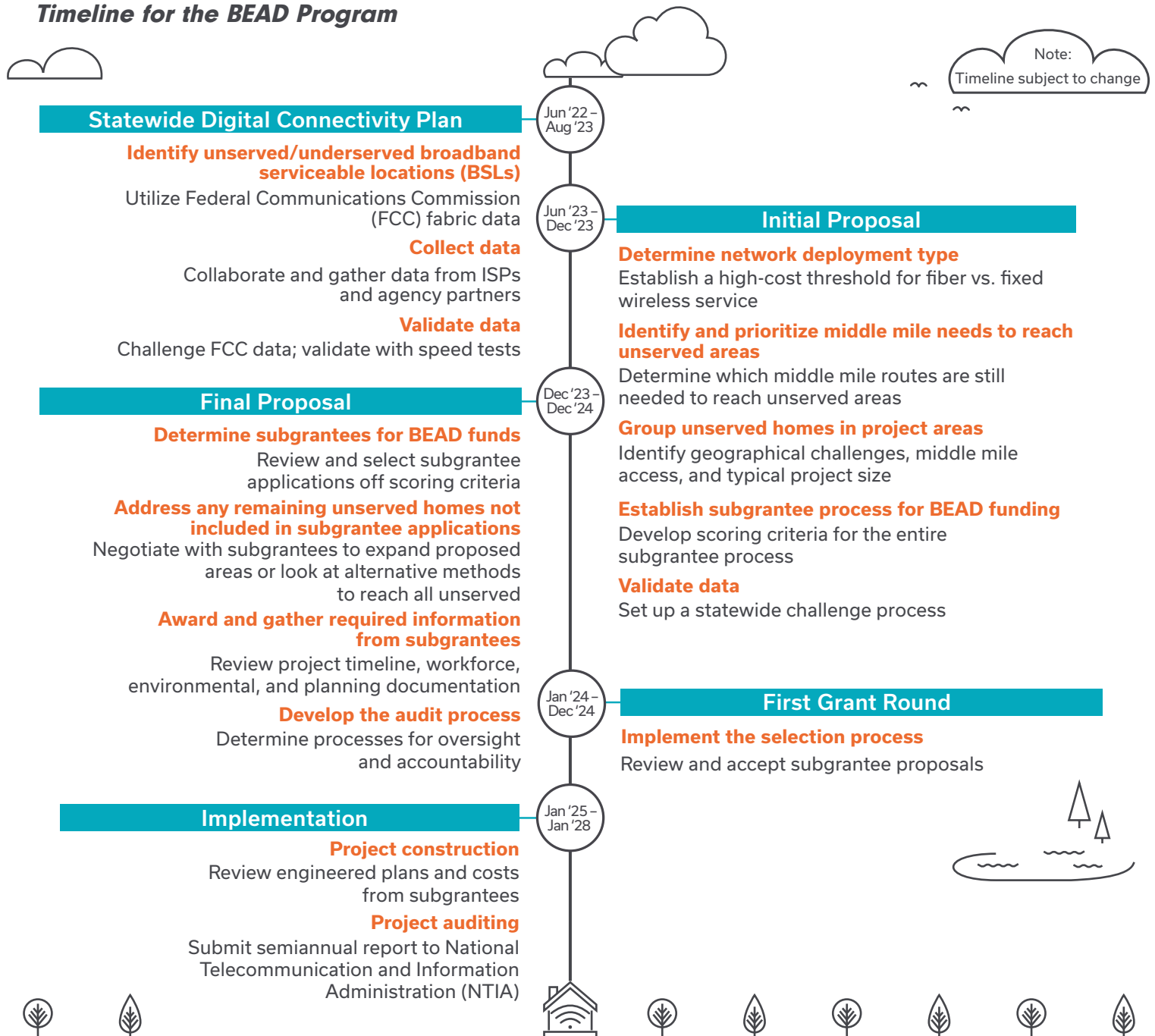
GOAL 6: STRENGTHEN UTAH'S ECONOMY FOR NEW AND EXISTING BUSINESS OPPORTUNITIES

OBJECTIVE	STRATEGY
Promote funding milestones and communicate the benefits of investment in Utah.	Work with state agencies and chambers of commerce to disseminate program specifics.
Provide deployment details to economic development officials within the state to utilize in attracting businesses and promoting availability of the workforce.	Disseminate information to the State Office of Economic Opportunity, chambers of commerce, EDCUtah, local economic development officials, and other public officials.

4.5 ESTIMATED TIMELINE FOR UNIVERSAL SERVICE

Universal service is defined as making broadband service available to all unserved locations in Utah. The timeline to achieve universal service requires a comprehensive approach that considers several key factors. First, it is important to identify the areas in the state that are currently unserved or underserved by broadband providers. Second, a cost analysis must be conducted to determine the funding required to build out broadband infrastructure to these areas. Third, community engagement and outreach are crucial to understanding the specific needs and preferences of different populations, and to ensure that universal broadband service is designed to meet these needs. Finally, ongoing monitoring and evaluation are needed to measure the impact of universal broadband service in Utah and to identify areas for improvement.

Timeline for the BEAD Program





The BEAD program will inject significant broadband deployment funds and access to the state and will put increased demand on supply chain, skilled labor, and other resources to execute the build-out plan. These increased demands may ultimately lead to months-long delays in materials, as well as constraining an already high-in-demand workforce industry. If additional material suppliers are not online to keep up with expected demand or if skilled workforce participation does not increase, the timeline will not be met.

To mitigate workforce risks, UBC has been engaging providers and unions to ensure that employees are properly trained and equipped to perform their tasks. Regular communication with employees can also help identify any potential issues before they become major problems. Addressing any concerns that employees may have, such as workload or safety issues, can also go a long way in maintaining a productive workforce.

As a strategy for mitigating supply chain risks, the UBC will look to establish clear communication channels between the providers and suppliers to monitor the inventory levels regularly. Having multiple suppliers for critical components can also help mitigate disruptions caused by supply chain issues. Additionally, developing contingency plans for potential supply chain disruptions can ensure that the organization is prepared to handle unexpected situations.

The UBC has determined that the expected funding from the BEAD program will make significant strides to close the digital gap by expanding broadband access, availability, and affordability across the state. This program, together with other federal broadband grant programs such as ReConnect, RDOF, and the Connect America Fund (Universal Service Fund), will ultimately make broadband access universal for all Utahns by December 31, 2028. This is based on the expected funding amounts from the BEAD program as well as an assumption that the other funding programs maintain their historical investment levels in Utah.

4.6 ESTIMATED COST FOR UNIVERSAL SERVICE

The state must consider several factors when estimating the costs of providing universal broadband service in Utah.

First, it must identify the areas of the state that are currently unserved or underserved by broadband providers. It can do this using data and mapping tools to identify geographic areas that lack sufficient broadband infrastructure.

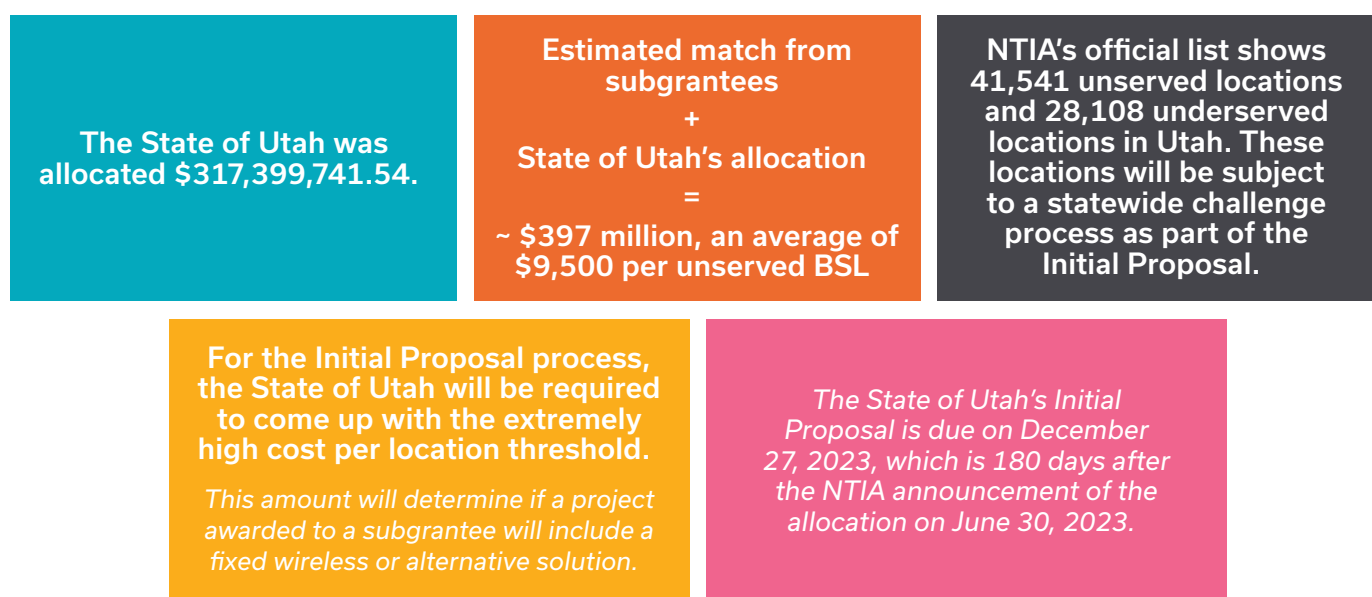
Second, it must conduct a detailed analysis of the costs of building broadband infrastructure in these areas. This involves estimating the costs of installing fiber optic cables, towers, and other equipment needed to expand internet access in these areas. Factors such as the terrain, population density, and existing infrastructure can all impact the cost of building out broadband networks in different areas of the state.

Third, partnerships with local governments and private sector entities may be necessary to secure funding and resources for these initiatives. This may involve leveraging public-private partnerships, grant programs, and other funding sources to support the expansion of broadband infrastructure.

Fourth, ongoing monitoring and evaluation is needed to measure the impact of universal broadband service in Utah and to identify areas for improvement. This can involve collecting data on internet usage, service quality, and user satisfaction to help guide future investments and policy decisions.

Overall, a comprehensive and data-driven approach is needed to estimate the costs of providing universal broadband service in Utah and to ensure that these investments are targeted effectively to areas of greatest need.

On June 30, 2023, the NTIA announced the state allocation for the \$42.5 billion High-Speed Internet Grant Program.⁶⁷ Along with the State of Utah's allocation, subgrantees will be required to provide a minimum of a 25% match to receive BEAD funding. This does not apply to areas that the NTIA has determined as high-cost areas, and the match requirement can be waived in those areas. Once those areas are identified and the amount of unserved BSLs are calculated, a more accurate estimate can be done. Key takeaways for Utah are included below.



The BEAD Notice of Funding Opportunity uses definitions of high-cost area and extremely high cost per location to help determine funding allocation.⁶⁸

A high-cost area means an unserved area in which the cost of building out broadband service is higher, as compared with the average cost of building out broadband service in unserved areas in the United States. Incorporating factors include the remote location of the area, lack of population density in the area, unique topography of the area, and a high rate of poverty in the area.

An extremely high cost per location is the minimum cost to serve per location, where, if the cost to serve a location with a Fiber-to-the-Premise (FTTP) solution exceeds the state or territories extremely high-cost threshold rate, alternative solutions that still meet BEAD requirements exclusive of fiber can be accepted.

67 NTIA. (2023). Biden-Harris Administration Announces State Allocations for \$42.45 Billion High-Speed Internet Grant Program as Part of Investing in America Agenda. <https://www.ntia.doc.gov/press-release/2023/biden-harris-administration-announces-state-allocations-4245-billion-high-speed>

68 NTIA. (2021). Notice of Funding Opportunity - Broadband Equity, Access, and Deployment Program. Section I. Program Definitions, C. Definitions. Page 13. <https://broadbandusa.ntia.doc.gov/sites/default/files/2022-05/BEAD%20NOFO.pdf>

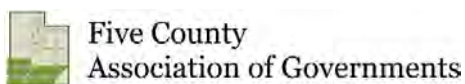
4.7 ALIGNMENT

The Utah Broadband Center (UBC), an initiative of the Governor's Office of Economic Opportunity, is the central broadband office for the state of Utah. It is tasked by the Utah Legislature with developing and implementing a statewide strategic plan for digital connectivity. It is the administrative entity for both BEAD and Digital Equity Act planning grants. By supporting broadband expansion efforts, Utah chooses to remain a national leader in broadband deployment and up-to-date technology and services for health, education, and economic development with access for all.

The UBC serves as an independent and trusted resource for state agencies, policymakers, local municipalities, and ISPs. The UBC acts as a facilitator to encourage coordination and communication among broadband providers, promote best practices for infrastructure deployment, and champion technological advances in high-speed internet. When all entities involved in broadband deployment work in tandem, infrastructure can be deployed efficiently and budgets are maximized.

The UBC and the Utah State Library initiated parallel planning efforts for the development of the statewide Digital Connectivity Plan and the State Digital Equity Plan. As part of the IJJA, the Digital Equity Act provided \$2.75 billion in funding to be allocated to states to create and implement Digital Equity Plans. Utah was awarded \$676,684 of this funding. Both initiatives have shared objectives and have overlapping aims. Close coordination occurred between the Digital Equity and BEAD planning teams. Members of the Digital Equity planning team were involved with BEAD coordination meetings, and the BEAD and Digital Equity teams held bi-weekly coordination meetings to discuss alignment and coordinate a united front. Both efforts utilized a shared project dashboard which made files, notes, and communication accessible and available to all. Stakeholder engagement was done as one collective effort with digital equity and infrastructure data-gathering built into all outreach materials. Data collection and note coding were captured in one location and available to both members of the BEAD and Digital Equity teams.

Utilizing BEAD planning funds awarded by NTIA, the UBC created the Local Broadband Planning Grant program. This program awarded \$680,000 in planning funds to 15 local entities to work at a grassroots level to develop strategic plans to increase local broadband access. The 15 grant recipients include:





These local plans will help identify priority areas for broadband infrastructure deployment and provide a framework for increasing community connectivity. These local broadband plans are incorporated into and reflected in this Digital Connectivity Plan ([see Appendices](#)).

In conjunction with the Local Broadband Planning Grant program, an additional grant program was developed using some of Utah's Digital Equity Act planning funds. This program, the Local Digital Access Planning grant program, mirrored the Local Broadband Planning Grant program in providing funds to local organizations to develop detailed plans. The focus of this funding was on increasing digital access, rather than infrastructure. More information about this grant program can be found in Utah's State Digital Equity Plan ([see Appendix A](#)).

Utah will continue to coordinate and support the broadband initiatives of the Tribal Nations in the state. The UBC is committed to respectfully engaging with Utah's eight Tribes to collaborate on broadband planning initiatives and implementation timelines and seeks to support and align deployment efforts to ensure that this once-in-a-lifetime funding opportunity has a maximum impact. The Ute Indian Tribe, Ute Mountain Ute Tribe, and Navajo Tribal Utility Authority each received federal Tribal Broadband Connectivity Program (TBCP) funds. The UBC will seek to communicate additional technical assistance and funding opportunities available through the State to these and other Tribal agencies.

4.8 TECHNICAL ASSISTANCE

The UBC will utilize state leaders, local officials, broadband providers, labor unions, consultants and NTIA as support for the BEAD Programs as it relates to the following:

Initial Proposal

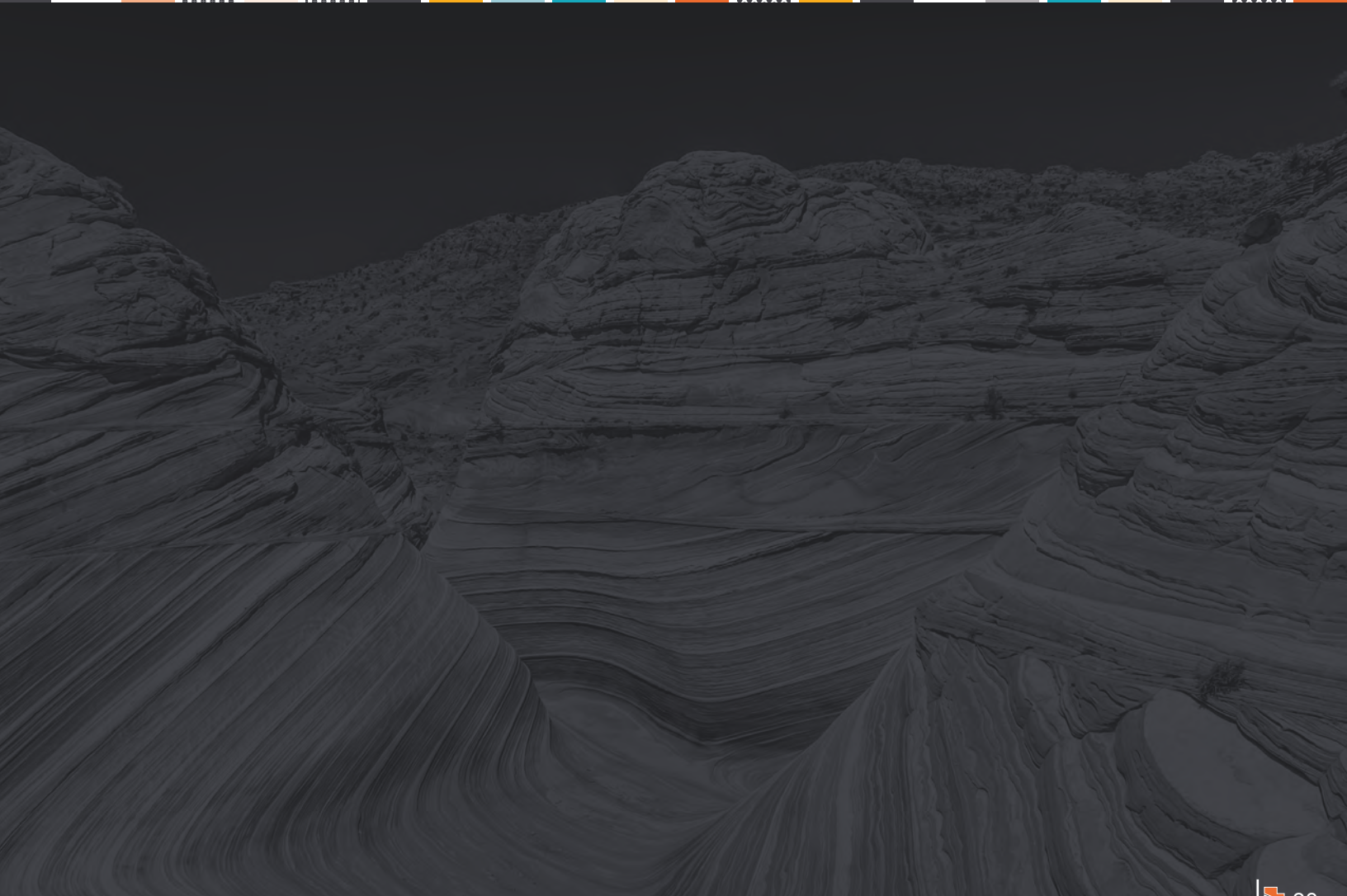
- ▶▶ Review of state statute and program goals
- ▶▶ Assistance in developing proposal that aligns with requirements and goals, specifically:
 - Wage rate requirements
 - Diverse workforce requirements
 - State challenge process
 - High-Cost / Extremely High-Cost determination amounts
- ▶▶ Technical assistance in developing high-cost threshold and project cost estimates
- ▶▶ Initiate Statewide Challenge process to verify broadband availability at locations across the state
- ▶▶ Guidance in selecting appropriate interventions and strategies for subgrantee process
- ▶▶ Assistance in developing state grant evaluation and scoring criteria

Final Proposal

- ▶▶ Review of Initial Proposal and progress during implementation
- ▶▶ Assistance in finalizing data analysis and evaluation plans
- ▶▶ Guidance in interpreting and reporting results
- ▶▶ Assistance in developing recommendations for future implementation

Technical Assistance during Implementation

- ▶▶ Guidance in implementing selected interventions and strategies
- ▶▶ Technical assistance in data collection and analysis
- ▶▶ Assistance in addressing any challenges or issues that arise during implementation
- ▶▶ Audit of project funds and field monitoring project progress



5. CONCLUSION

This Digital Connectivity Plan, coupled with the State's Digital Equity Plan ([see Appendix A](#)), constitutes the Utah State Broadband Connectivity Plan. It has been approved by the Utah Broadband Center (UBC) and endorsed by the Utah Governor's Office of Economic Opportunity and the Utah Broadband Center Advisory Commission.

The UBC did a comprehensive public outreach effort to understand the broadband needs across the state. This includes access, availability, and affordability challenges. The UBC participated in dozens of workshops, conferences, meetings, and phone calls and received thousands of survey responses and speed test results to help inform this plan. Additionally, the UBC worked individually with the broadband industry providers to understand the challenges that they have experienced in expanding broadband service.

Key Highlights of this Outreach Effort

The following is a question from the Connecting Utah Survey and a response:

IF YOU ARE WILLING, PLEASE SHARE HOW A HIGH-SPEED INTERNET CONNECTION WOULD IMPROVE YOUR QUALITY OF LIFE.

"It would give me a way to earn money to support myself while taking care of my 85-year-old father full-time at home. He isn't able to care for himself. He is on a fixed income, and Utah Medicare does not offer caretaker financial help of family or friends. But I have a car payment and bills and needs of my own, and so [it would be helpful] to have internet connection to be able to work from home, [get] doctors' appointments for my dad online for minor issues, and to be able to access better TV for a man that feels he has nothing in life after we lost my second brother two weeks ago within a year."

The Connecting Utah Survey asked respondents who did not have internet access if they would be willing to share how a high-speed internet connection would improve their quality of life. Community members detailed a variety of ways that broadband access would improve their wellbeing:

Provide the ability to work from home or run a business from home.

"Would allow me to work from home, take internet phone calls (extremely important since we have no service up there). I could do Zoom meetings, etc. It would be HUGELY important for me to have high-speed internet."

Create opportunities to easily connect with health care providers.

"Connecting with health care providers is essential in obtaining personal health programs and information."

Strengthen connections with loved ones and provide ways to stay informed of current events.

"Staying in contact with our families. We would like to upgrade our phone – it's almost 9 years old – but we can't get more than 3 g service out here."

"Keep me informed. Communicate with others."

Provide access to essential services online such as paying bills, accessing banking information and filing taxes, and shopping.

"Research and shopping."

"It would allow for better connectivity, remote work, and entertainment."

"Internet access, banking, health care, Amazon."

"Work communication, shopping, streaming, bill paying, tax paying."

"Accessing the grocery ads to take advantage of sales in planning our meals."



Increase feelings of security and safety by allowing for monitoring of homes.

"I could monitor my property."

Expand the ability to reach emergency services when needed and thereby increase community health and safety.

"I had to rely on a bad cell phone connection to call 911 for a friend who could not breathe. I had to keep physically moving to find a better signal instead of staying with my friend. Scary."

Provide increased educational opportunities.

"I'm rural, so it would definitely help being able to teach my 5-year-old different things."

Being able to work and connect from second properties (e.g., cabins) would allow for more family and recreational time spent in these locations.

"Would be able to use my cabin when on call for work. As it is now, when on call, I can't spend any time at my cabin in Big Cottonwood Canyon."



Implementation

Throughout the implementation phase of this plan, the UBC will continue to engage in planning efforts such as the following:

Assess the Current Infrastructure

The first step in implementing broadband in Utah is to assess the current infrastructure. This includes identifying areas where there is little or no broadband coverage and identifying existing infrastructure that can be leveraged.

Identify Funding Sources

There are several funding sources available for broadband projects, including federal and state grants, private investments, bonds, and public-private partnerships. It is important to identify and secure funding sources before proceeding with any broadband implementation plan.

Develop a Comprehensive Plan

A comprehensive plan is critical for implementing broadband in Utah. This plan should include details such as the timeline, budget, and scope of the project as well as strategies for addressing any potential obstacles.

Engage with Stakeholders

Engaging with stakeholders is essential for the success of any broadband implementation project. Stakeholders may include local government officials, community leaders, ISPs, and residents who will be impacted by the projects.

Consider Technology Options

There are several technology options available for implementing broadband, including fiber optic and wireless technologies. Each option has its own advantages and disadvantages, and it is important to choose the right technology for the specific needs of the community, balanced carefully with the program budget.

Develop a Sustainability Plan

It is important to develop a sustainability plan to ensure that the broadband infrastructure remains operational and viable over the long-term. This plan may include strategies for maintenance, upgrades, expansion, and climate resiliency.

