Greater Arizona Educational Leadership

AZBSN Arizona Broadband Stakeholder Network

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COVID-19 Digital Access Task Force Recommendations

In 2019 the Arizona Telecommunications and Information Council (ATIC) and Greater Arizona Educational Leadership (GAZEL) created the Arizona Broadband Stakeholder Network (AZBSN) to facilitate collaboration, coordination, information sharing and communication among key public, private and nonprofit stakeholders committed to promoting the expansion of broadband deployment in Arizona.

In March 2020, with the advent of the COVID-19 crisis, AZBSN recognized the urgent need to assist schools, libraries, telehealth organizations, and communities in providing **digital access** for those in tribal, rural and other underserved communities and low-income neighborhoods in Arizona.

AZBSN established this COVID-19 Digital Access Task Force to respond to this crisis by bringing together over 40 knowledgeable experts representing state and local government, public policy makers, rural community leaders, economic development, education, health services, public safety, libraries, non-profit organizations, telecommunications and technology companies, and more, to share information and collaborate on critical digital access solutions for the state. The Task Force, and our Teams, have been meeting weekly. Task Force meetings include regular Federal and State updates from the State Broadband Manager; Arizona State Library, Archives and Public Records; Arizona Public Safety Program Manager, Arizona Telemedicine Program and the Arizona Telemedicine Broadband Action Team, the Office of the Superintendent of Public Instruction with Arizona Department of Education and; the Arizona Corporation Commission.

The Task Force was created to:

- Facilitate collaboration, coordination, information sharing and communication among key public, private and nonprofit stakeholders
- Collaborate on priority initiatives for schools, libraries, telemedicine, communities, and more
- Develop a statewide COVID-19 digital access strategy to support, schools, universities, community colleges, students, homes, libraries, health care facilities, businesses and communities
- Identify and advocate for funding to enable implementation of COVID-19 Digital Access Projects

We have created four Teams to identify needs and issues and prepare recommendations. The Teams include: Schools and Libraries, Communities, Technology and Funding. See more information about the Teams below. This report identifies needs and issues and provides the recommendations that have emerged from this process. **While we are submitting this report to key individuals and organizations in Arizona, our work has just begun. We have already begun work on implementation of some of these recommendations.**

Why This Is Important - COVID-19 and Unprecedented Demand for Digital Access

Due to the COVID-19 global pandemic the world is creating the largest telecommunity of all time. Social and physical distancing is becoming the new normal requiring unprecedented demand for digital access. Schools are working hard to convert to online and digital learning! Businesses are closed or transitioning to online engagement with their customers, while millions of employees are working from home and participating in online meetings with colleagues! Libraries are closed and often unable to provide Internet access to their patrons! Overwhelmed healthcare facilities committed to meeting demand and protecting patients and staff, are providing interaction with patients through telemedicine! Government services are transitioning to online citizen access!
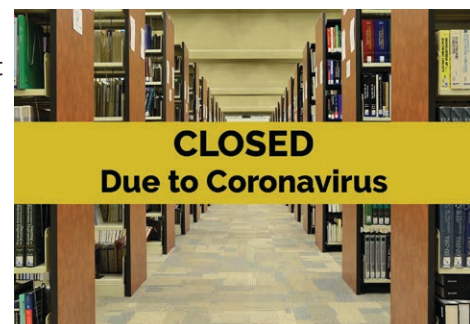
*None of this is possible without fast, reliable and **affordable** broadband Internet access. Unfortunately, those services are not available to many tribal, rural and other underserved communities and low-income neighborhoods in Arizona.*

Many students can't participate in online learning, and the populations most in need of telemedicine such as the elderly and those with existing serious health conditions, often cannot access telemedicine services. Many small businesses are unable to provide telework opportunities for their employees. Without broadband, many people are isolated and unable to communicate with their friends, family, colleagues, and, perhaps most importantly, their healthcare providers. These individuals are being left behind because they don't have access to **affordable** broadband.

Change The Dialog - Digital Access Is More Than Internet Access

When we created the Task Force we were initially focused on Internet access, but it soon became clear that it was time to change the dialog from Internet Access to Digital Access. Digital access is more than just broadband infrastructure. All people, including students, parents, teachers, businesses, seniors, etc. require access to:

1. *Affordable* and reliable broadband Internet
2. Free or ***affordable*** devices such as computers, laptops, and smartphones, as well as other digital equipment such as routers, hotspots, and web cameras
3. Technical support to enable them to use the devices and Internet effectively,
4. Digital literacy and web literacy skills
5. Access to digital content, applications, and resources

The Task Force Teams

The Task Force created four Teams:

1. Education and Libraries
2. Communities
3. Funding and resources
4. Technology

The Task Force teams were charged with the following:

♦ **Education and Libraries:** What are the Digital Access/Digital Inclusion needs such as Internet access and devices, as well as training, funding and technical support that are required for libraries and library patrons, public and private K-12 schools, community colleges, universities, students, families, faculty, community? What are the barriers? What specific strategies, initiatives, resources, partnerships, technologies or opportunities can we recommend/initiate to help address these needs?

- ♦ **Communities:** What are the Digital Access/Digital Inclusion needs such as Internet access and devices, as well as training and funding to support community entities such as small business owners and employees, economic development, government services, public safety, nonprofit organizations, etc. What are the barriers? What specific strategies, initiatives, resources, partnerships, technologies or opportunities can we recommend/initiate to help address these needs?
- ♦ **Technology:** What Digital Access/Digital Inclusion technologies should be considered to provide Internet access to schools, libraries, families and communities such as wire line, satellite, mesh networks, cellular microwave, WiFi on buses, open schools and libraries E-Rate networks. What kinds of devices are needed and should be considered such as computers and tablets, cell phones, hot spots, web cams, software, conferencing services?
- ♦ **Funding/Resources:** What funding and resources opportunities are there such as federal, state and local funding, foundations, donation campaigns, volunteer support, refurbished equipment, donations and support from Internet providers and technology companies, etc?

Note: Telemedicine and Public Safety: While the Task Force also has interest in Telemedicine and Public Safety, the Arizona Telemedicine Program/Southwest Telehealth Resource Center and The Arizona Broadband Manager are leading an Arizona Telehealth Broadband Action Team. The Arizona Public Safety Broadband Network and State 9-1-1 Program Manager with the Arizona Department of Administration is also leading a Public Safety initiative so we are coordinating with, but not duplicating those efforts.

This report includes:

- A quick overview of some of the key Internet Infrastructure and Digital Access initiatives and resources available, planned and underway in Arizona. **This is just a sampling of the many exciting initiatives happening in Arizona. We could go on and on about the great work going on by many organizations in Arizona, but there is still much more to be done. There are many other national, state and local groups and organizations working on solutions.**
- An overview of new and innovative technologies such as satellite, mesh networks and 5G that, with collaboration, and effective and innovative community planning, can be deployed relatively rapidly and inexpensively to provide free or affordable Internet access. **See our matrix at the end of this report**.
- **Recommendations that address:**
  - Providing **affordable and equitable** Internet access to all tribal, rural and other underserved communities and low-income neighborhoods in Arizona for schools, libraries, businesses, and community organizations, **and to the home** for students, parents, teachers, seniors, library patrons, community, etc. to support student education, telehealth, community and economic development, etc.
  - Providing access to free or affordable devices such as computers, laptops, and smartphones, as well as other digital equipment such as routers, hotspots, and web cameras for all students, parents, teachers, businesses, seniors, etc.
  - Providing technical support for schools, libraries, and all Arizonans, including students, parents, seniors, library patrons, and community, who may have Internet access and devices, but are not able to effectively use those devices and the Internet.
  - Providing support for communities, educational institutions and telemedicine programs in applying for federal, state and local funding and accessing and applying for **non-governmental funding and resources** such as foundations, donation campaigns, volunteer support, refurbished equipment donations, corporate funding and equipment donations, etc.
  - Providing support for schools in expanding professional development opportunities for educators transitioning from in person to online and hybrid learning.
  - Creating a marketing campaign and a simple, easy-to-navigate, public-facing

The populations most in need of telemedicine, such as the elderly and those with existing serious health conditions, often cannot access telemedicine services.

resources portal for access to Digital Equity resources such as a statewide map of free or low-cost WiFi in the communities, digital access resources and tech support organizations

▫ Coordinating and providing access to Arizona Digital Access organizations and resources providing technical assistance, professional development, or free or affordable devices or Internet

▫ Providing access to Digital Resources and Digital Literacy services and resources such as digital curriculum, instructional videos, and informational resources

▫ Supporting Arizona communities, education institutions, telemedicine and nonprofit organizations in developing **Broadband or Community Digital Access Action Teams (CDAAT)** in local communities to coordinate efforts and support community needs assessments, broadband infrastructure planning, and grant writing to enable them to access federal or state funds to connect their communities, schools and libraries.

▫ Privacy and Security (to be added)

▫ Safe Operations of Schools and Libraries in the COVID-19 environment
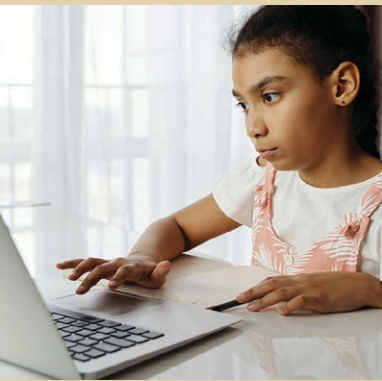
Needs and Issues

Affordable Internet Access

Due to lack of funding and technical challenges, **affordable and equitable** Internet access is still not available to many tribal, rural and other underserved communities and low-income neighborhoods in Arizona for schools, libraries, businesses, and community organizations, and to the home for students, parents, teachers, seniors, library patrons, community, etc. Lack of middle-mile connectivity has been a major barrier to deployment of broadband throughout Arizona.

In many neighborhoods and communities infrastructure is available, and there may be one or more providers available, but the services are not affordable for many in the community.

Accessing Internet service from home is the most convenient way for students and families to spend long periods of time under any weather conditions to perform their Internet activities. Students, community and families without Internet access at home are even more disadvantaged by the closure of public libraries due to the pandemic. Students and adults use libraries for multiple purposes including education, job searches, telehealth, and various other activities. Libraries are a central resource for many small rural communities. However, many households do not have the broadband Internet service to access their libraries during the COVID-19 library closures or may be limited to access the library WiFi network from the parking lot.

Need for Internet for students in Arizona: While there are multiple sources of data about the need for Internet access, available data is far from conclusive. **Several research reports** show that the "homework gap" of students who lack broadband Internet access is substantial across the USA. According to the **Pew Research Center** about 209,000 students or about 20% of Arizona K-12 students do not have Internet service at home. These students are either in low-income households that cannot afford the Internet service or in rural areas that lack broadband service. The Arizona Department of Education (ADE) has recently conducted its own survey of Arizona schools and school districts that preliminarily appears to support this estimate of unconnected Arizona students. The International Society for Technology in Education (ISTE) will be conducting a national survey this fall that will provide additional information on this. **Local school districts in Arizona are now tasked with collecting this data for their districts and communities**. There appears to be no data available on the number of Arizona university and community college students that lack home Internet access.

According to the **US Census American Community Survey 2018**, about 14% of Arizona households have no broadband Internet service of any type (wired or wireless), and according to **Broadband Now**, 755,000 people in Arizona do not have access to a wired

connection capable of 25 Mbps download speed (the FCC definition of broadband). According to the **FCC 2018 Broadband Deployment Report**, only 34% of rural Arizonans have access to fixed broadband service meeting the minimum 25 Mbps downstream/3 Mbps upstream definition. The report also determined that an estimated 36% of all Tribal lands lacked access to both terrestrial and mobile broadband services compared to 8% of the U.S. overall, with 59% of rural Tribal lands and about 11% of urban Tribal lands lacking access to terrestrial and mobile services. In 2019, the American Indian Policy Institute published the **Tribal Technology Assessment: The State of Internet Service on Tribal Lands**, finding that 18% of tribal reservation residents have no Internet access at home, wireless or land-based and 33% rely on Internet service from a smartphone at home.

Understanding Broadband - Issues and Challenges

There are two primary telecom services required to deploy broadband into a community – Last Mile and Middle Mile.

- The **Middle Mile** is the high capacity trunk lines and associated infrastructure that connect communities to the Internet backbone points-of-presence generally in Phoenix and Tucson, and, in some cases, Albuquerque or Los Angeles.
- The **Last Mile** is the Internet connections networks of wired (copper, coaxial cables) and wireless access points between the Internet service provider (ISP) and businesses, homes, schools

Barriers to Resolving Broadband Deployment.

There are a number of barriers to resolving the broadband deployment issues:

1. **Return on Investment:** Broadband deployment requires a balance between deployment costs, "affordable" monthly end user rates, and the length of time for the provider's ROI, or Return on Investment. Today telecom providers are looking at an ROI requirement of 18 months - two years. Considering the cost of middle investment, this is often not a feasible model in rural and under served areas. Public and private organizations need some form of long term, low cost financing. Due to recent advancements in wireless, and other technologies, last mile deployment of broadband is becoming more cost-effective, even in rural and underserved areas of the state with distributed populations. **A number of companies have expressed interest in providing last mile service in these areas. In order to deploy their networks, and charge reasonable rates, they must have access to sufficient and reasonably priced middle-mile connections.** If a common middle mile infrastructure is not available, at reasonable rates, communities, or last mile providers, must construct their own middle mile infrastructure. This increases the last mile costs that can significantly increase the end users monthly rates.

2. **Terrain**

3. **Access to Rights-of-Way:** Federal, tribal, state and local Rights-of-Way issues such as multiple jurisdiction permitting, delayed application approvals, and unequal and prohibitive fees have been significant barriers and disincentives for deployment of services. Some last mile providers have reported that legal fees for permitting are as much as 50% of the cost of the project.

4. **Funding:** There is a lack of funding mechanisms such as a Broadband Universal Service Fund, earmarked for broadband development in Arizona, etc.

5. **Redundancy:** An additional problem is the **lack of redundancy** (more than one path for telecommunications transport) to/from a community in order to maintain connectivity in the event of network casualties. Many of Arizona's rural communities are "fed" by a single route of fiber or microwave radio systems. Repeatedly, communities and even regions of the State have been "cut off" from the rest of the world due to damage inflicted on these single-point-of-failure routes. In the event of an emergency or disaster, most communities would have no backup system, unless cell/wireless phone companies had built their own parallel

network into the community.

See the recommendation section for recommended actions.

Community Options For Broadband

- Full Municipal Broadband
- Publicly owned, Privately Serviced
- Hybrid Ownership
- Private Developer, Open Access[1]
- Full Private Broadband

See appendix for further explanation of these options

New and Innovative Last Mile Technologies/Solutions

While lack of infrastructure is still an issue for many communities, today there are many new technologies such as satellite, mesh networks and 5G, that with collaboration, and effective and innovative community planning, can be deployed, individually, or in combination relatively rapidly and inexpensively to provide free or inexpensive access. For example satellites combined with a mesh network, or WiFi on school buses, can provide solutions to homes, communities or neighborhoods previously not accessible. Yet many schools and communities are not aware of the opportunities provided by these new technologies. See our Technology Team Technology Matrix at the end of this document.

Access to Free or Affordable Devices

Digital access is more than just Internet access. While people may have Internet access, many students, teachers and households need access to free or affordable devices such as laptops/iPads and smartphones, as well as other digital equipment such as routers, hotspots, and web cameras. Data: Tom Mehlert, Executive Director of **AZ StRUT**, estimates, from his work with the Arizona Department of Education, that about 100,000 K-12 students in Arizona do not have computers at home. **US Census American Community Survey 2018** estimated about 20% of households in Arizona do not have a desktop or laptop computer (some of these may have tablets).

Technical Support

While many schools, libraries, and individuals, including students, parents, seniors, library patrons, and community, may have Internet access and devices, they are not able to effectively use those devices and the Internet, they need easy and free access to technical support. While there are a number of organizations ramping up to address the technical support issue, there is still lots of work to be done to identify, coordinate and provide easy access to these resources. We need to expand funding, identify gaps, explore creative solutions and provide a portal, marketing campaign and more to promote and provide access to these resources.

Government and Other Funding and Support Resources

While there will be millions of federal dollars coming available many of the grant programs require very complex applications as well as management and reporting requirements. Many schools, libraries and telemedicine programs and communities do not have the personnel and expertise to prepare and manage these applications. As a result, Arizona misses out on millions of dollars in federal funding.

In addition to government funding, there are other untapped sources of funds and resources such as foundations, donation campaigns, volunteer support, refurbished equipment donations, corporate funding and equipment donations, etc. but these funds are often difficult to find.

Digital Content and Digital Literacy Services and Resources

Students, teachers, parents, seniors, and library patrons need access to digital literacy training, services and resources to be able to use the digital devices and Internet services

Az StRUT has donated over 56,000 computers to schools and nonprofits.

effectively. Digital content of various kinds such as digital curriculum, instructional videos, and informational resources offer opportunities to substantially enhance and improve student education.

Digital Resources Access Portal

While there are many organizations, resources and initiatives in the state, information about these resources is difficult to find. We need a simple, easy to navigate, public-facing Digital Access Resources Portal to provide easy access to resources such as locating free or low-cost WiFi hotspots, professional development and tech support organizations, digital resources, PPE resources, etc.

Arizona Infrastructure Initiatives - Maybe an appendix?

The following is a quick overview of some major Arizona Broadband infrastructure initiatives in Arizona. This is just a sampling of the many exciting initiatives happening in Arizona.

1. **Arizona Commerce Authority State Broadband Manager:** In 2018 the Arizona Commerce Authority hired the State Broadband Director to coordinate and accelerate rural broadband development—focusing on middle-mile and last-mile strategies for rural Arizona. The Broadband Director is responsible for strategically managing relationships with state government agencies, local leaders, telecommunications carriers, federal communications policymakers, and nonprofits to advance the expansion of Broadband statewide. The Broadband Manger is coordinating broadband development activities in partnership with local communities, state and local government stakeholders, and the private sector to streamline regulatory hurdles and maximizes strategic broadband funding for Arizona.

2. **Smart Highway Corridors:** Lack of backhaul and middle-mile connectivity has been a major barrier to deployment of broadband to all tribal, rural and other underserved communities and low-income neighborhoods in Arizona. In June 2020, Governor Ducey dedicated $40 million from his AZCares: Flexibility and Funding for Schools and Families plan for the Arizona Department of Transportation to install broadband conduit along 514 miles of interstate highway that would be available for transportation purposes, as well as for partnerships with telecommunications companies to utilize the conduit to improve rural connectivity. The proposed "Smart Highway Corridors" would result in broadband conduit along the lengths of Interstate 17 ("I-17"), I-19, and I-40. In June 2020, Governor Ducey dedicated $40 million from his AZCares: Flexibility and Funding for Schools and Families plan to install broadband conduit along I-17 and I-19 by January 2022. This conduit will be available for Public Private Partnerships ("P3s") that result in connectivity improvements for K-12 education, higher education, and rural connectivity more generally. In addition to the routes where ADOT is planning to install conduit (I-17 and I-19), the highest priority interstate routes for backhaul and middle-mile connectivity are the I-40 from the California border to the New Mexico Border, U.S. Route 89 from the Utah border to Flagstaff, and I-8 from Yuma to the intersection with I-10.

3. **State Land Department Rights-Of-Way Access:** The State land Department has approved a change to allow Broadband rights of way (ROW) for third party use on State Land. This rule change for example allows APS to sublease dark fiber optic infrastructure to Broadband carriers such as CenturyLink and Cox. APS currently has a new build underway between Phoenix and Flagstaff that increases the fiber optic capacity from 24 to 432 fibers for this purpose.

4. **Broadband Action Teams:** BATs or Broadband Action Teams, often with leadership and assistance from the ACA Broadband Manager, have been created in a number of communities in the state to coordinate efforts and support community needs assessments, broadband infrastructure planning, and grant writing. These BATS have been extremely successful **securing millions of dollars of federal and state grants** to connect their communities, schools and libraries. Teams have included schools, libraries, economic development officials, telehealth, and other relevant

local organizations. For example Payson is focusing on a fiber ring for high-capacity and reliable middle-mile connectivity to support economic development. Yuma is focused on agriculture economic development, and Page is focused on the tourism business. Telemedicine Springerville, Verde Valley?

5. **Arizona Rural Broadband Development Grants (RBDG):** In 2019 Arizona allocated $3 million to expand broadband services in underserved rural areas across the state. The Arizona RBDG will be used to support planning and deployment, enabling Arizona communities to more easily access broadband services at speeds and prices equal to national averages in rural areas, and provide consistent and reliable service. Grants were awarded in 2 categories: RBDG-A Shovel-ready projects to immediately improve broadband infrastructure, with a maximum award of $1,000,000 per project and: RBDG-B Broadband planning activities for projects that are not shovel ready, with a maximum award of $50,000 per project.

   RBDG-A recipients included: Sparklight, formerly known as Cable One, will provide fiber to approximately 400 business customers in Payson, Star Valley and Tonto Apache Tribe that has symmetrical service up to 2 Gbps; Mohave Electric Coop will provide high-speed broadband service at speeds up to 10 Gbps symmetrical to its 35,000 members. The project will serve Bullhead City, Fort Mohave and Mohave Valley; Commnet Wireless will create a new fiber-optic middle mile to Page to serve 310 small businesses and 1,066 households within the area. RBDG-B recipients included Coconino County, Gila County, Town of Springerville, City of St. Johns.

6. **Arizona Broadband for Education Initiative:** The Federal Communications Commission administers the E-Rate program. With funding from USAC, the Universal Service Fund, E-Rate provides discounts for telecommunications, Internet access, and internal connections to eligible schools and libraries. Three years ago, in an attempt to get infrastructure build-out, the FCC announced that if the State would provide a match for fiber buildout they would match it, up to an additional 10%. This presented school districts and public libraries with an unprecedented opportunity to get broadband connectivity and to dramatically increase its infrastructure. In March 2017, the Arizona Corporation Commission updated the Arizona Universal Service Fund (AUSF) rules to provide $8M in funding for "Special Construction" projects in Arizona. In April 2017 the Arizona State Legislature approved an additional $3M for "Special Construction" projects. Used in combination with the E-Rate program, this funding resulted in approximately **$130 M in new Broadband infrastructure projects** within the state. Schools and Libraries in several counties have benefited from this including Apache County, Cochise County, LaPaz, Pinal, Santa Cruz, Yavapai County and Yuma County.

7. **Sun Corridor Network:** The Sun Corridor Network, Arizona's Research & Education Network currently serves the three state universities along with several community colleges and K12 districts, including the Maricopa Community Colleges and Yuma Schools. Led by the Chief Information Officers from the state universities, the Sun Corridor Network's (SCN) mission is to connect and enable every school, library, community anchor, healthcare organization, and public service in the State of Arizona with a high-capacity, responsive and available network. Their network includes access to educational and research assets within the state along with direct access to the Internet2, the nation's Research & Education network, as well as fast-lanes to access the broader Internet.

8. The Legislature recently passed legislation to enable electric cooperatives to deploy fiber and serve residential and enterprise broadband customers.

9. During the pandemic, many providers such as Cox, Comcast and AT&T have been offering discounted services and free access to their WiFi hotspots, and helping schools and libraries connect their communities.

10. Schools and libraries, as well as businesses are looking at creative ways to address the need for Internet access, such as schools providing WiFi access on parked school buses in neighborhoods, or libraries extending access to their networks into their communities. Thanks to the Arizona State Library, for example, five

E-Rate: Eligible schools and libraries may receive discounts on telecommunications, telecommunications services, and Internet access, as well as internal connections, managed internal broadband services and basic maintenance of internal connections.

public libraries have participated in a pilot project with Cisco to install WiFi boosters enabling access to the users from the parking lots while the libraries are closed. Such WiFi extensions could be provided at all schools and public libraries if funding and appropriate security is provided.

11. APS and utilities network access (maybe need to add)
12. Utility Coop initiatives (maybe need to add)

Some Other Things Happening in Arizona

There are numerous other state and federal short and long term initiatives and strategies planned, proposed or underway to address Digital Access for example, there are a number of public, corporate and nonprofit organizations nationally and in Arizona launching donation initiatives to deliver new or refurbished devices to students and families, schools, libraries and community organizations. The following are some Digital Access initiatives in Arizona:

- The Governor's Office, the State Department of Education, the Helios Foundation and ASU announced a new, $7.5 million partnership to help the state's K-12 teachers deliver quality instruction and support for online and blended learning environments. Provide training and professional development for every teacher in Arizona. ASU Prep Digital's Arizona Virtual Teacher Institute will provide both group and personal training to help Arizona teachers succeed in delivering online instruction.

- Arizona Libraries Free Tech Access Phoneline: AZ LibTAP is a team of librarians from 5 different libraries that provides **free** one-on-one phone support services. Learning to use technology is often intimidating. Everyone can benefit from patient, trusted guides who understand digital literacy as well as local contexts. These librarians will provide: help with: computers and devices; finding free WiFi hotspots and Internet offers in local areas; getting things done online such as where to go for unemployment forms or online banking; using the Internet to stay connected to family and friends; accessing library e-resources; and more. AZ LibTAP is supported by the Arizona State Library, Archives and Public Records.

- AZ StRUT, (Arizona Students Recycling Used Technology) is a nonprofit organization in Arizona, operating for 22 years, that refurbishes donated computers for use by K-12 students and libraries. During 2018 and 2019 they refurbished and gave away about 100,000 computers. Many of their donations come from surpluses from the corporate world. The State Library has been using AZ StRUT for the last two years and has distributed approximately 600 computers to Public Libraries and through them, loans to the community. AZ StRUT is more than a refurbishment organization. They also support applied learning in our educational systems through scholarships and donated electronics & technology, and technical education and work experience.

- There are several other similar organizations such as Computers 2 Kids Technology Assistance Program that recycles and refurbishes used computers and delivers them directly to families in need. C2K also provides education, training and technical support. **RefurbIT** in Yuma is an initiative of the ACHIEVE Enterprise Services, a full service electronic recycling center that is converting obsolete computer electronics into reusable and refurbished products, provides refurbished IT equipment at discounted prices. They serve Yuma, San Luis, Somerton, Wellton, Gadsden, Parker, Quartzsite, Kingman, Lake Havasu City, Bullhead City, Casa Grande, and Maricopa. They offer low cost refurbished computers and iOS devices (iPads, iPhones) to individuals.

- The Task Force has developed and maintains an extensive directory of Arizona-based entities that can provide consulting services on digital access community needs assessments, broadband infrastructure planning, and grant writing for schools, libraries, and telemedicine programs and communities that do not have the personnel and expertise to prepare and manage these applications, state support may not be available, or they cannot even afford to hire a consultant. This directory is posted on the task force website (**https://www.arizonatele.org/covid-resources.html**). This directory is available for use by communities and institutions

AZ StRUT and Computers 2 Kids Technology Assistance Program refurbishes used computers and donates them to families in need.

The CARES (Coronavirus Aid, Relief, and Economic Security) Act was signed into law on March 27, 2020.

such as school districts, libraries, and telemedicine organizations

- The Arizona Commerce Authority and Arizona Department of Education launched a Hotspot Donation Drive to encourage private and public partners to donate their unused or surplus hotspot devices for students in need. Once a public or private sector partner has donated devices, ADE will match the devices to the students and families who need them.
- The Arizona Technology Council is partnering with AZ StRUT to Launch a Community Laptop Drive Initiative for Students in Greater Phoenix
- The State Library has allocated part of the CARES Act funds received from IMLS (Institute of Museum and Library Services) for purchase of devices like tablets, chrome books for the use of the public libraries/distribution through the public libraries. The State Library through the public libraries, is also distributing hot spots with paid LTE contracts.
- The state library is also providing WiFi extenders in parking lots of libraries and schools so people can safely practice social distancing and access the Internet. Five public libraries have participated in a pilot project with Cisco to install WiFi boosters enabling access to the users from the parking lots while the libraries are closed. Such WiFi extensions could be provided at all schools and public libraries if funding and appropriate security is provided
- The COVID-19 Digital Access Task Force, in cooperation with the Arizona State Library, Schools Connect, and Common Sense has just launched a Connect Arizona website and map for user friendly access to free WiFi hotspots and technical support resources in Arizona. The locations on this map include free public WiFi hotspots at public libraries, schools, businesses, and other sites. The site also provides information on free and discounted resources to get connected.

This is just a sampling of initiatives happening in Arizona. We could go on and on about the great work going on in Arizona, but there is still much more to be done. There are also many national, state and local groups and organizations working on solutions.

Task Force Initiatives Being Implemented

Summary

Unfortunately, the public is either unaware of, or does not know how to access these resources. So to reiterate, with innovative technology solutions, collaboration, and effective and innovative community planning such as the Broadband Action Teams and Broadband Grants that the Arizona Broadband Manager at the Arizona Commerce Authority has been supporting, funds can be raised and solutions deployed, often rapidly, to provide free or affordable access. See our recommendations below on how Arizona can help support community assessments, planning and funding strategies. Again, our primary goal is to bring free or affordable Internet to the home.

Recommendations

Technology and Infrastructure

1. **Adopt an Arizona definition of Broadband to be ?.** Although the FCC defines broadband as an Internet connection at a speed of 25 Mbps download and 3 Mbps upload (25 Mbps/3 Mbps). This is already inadequate for applications such as telemedicine and eLearning that have ever increasing bandwidth requirements. Some believe the best definition to be: The speed necessary to deliver content without testing the attention span of a 10-year old! Today many believe the definition should be ?.

2. Develop a short and long-term strategy to leverage the Sun Corridor Network – Arizona's Research & Education network which currently serves the three state universities along with several community colleges and K12 districts, including the Maricopa Community Colleges and Yuma Schools. Led by the Chief Information Officers from the state universities the Sun Corridor Network's (SCN) mission

is to connect and enable every school, library, community anchor, healthcare organization, and public service in the State of Arizona with a high-capacity, responsive and available network. Their network includes access to educational and research assets within the state along with direct access to the Internet2, the nation's Research & Education network, as well as fast-lanes to access the broader Internet.

3. Support the Governor's 2020-2021 budget request for $10 million for the Arizona Commerce Authority Rural Broadband Development Grants.

4. Arizona needs to remove barriers and develop public policies and market-driven strategies that will encourage competition, private-sector investment in, and rapid deployment of advanced telecommunications services and affordable broadband Internet access throughout the State.

   Federal, tribal, state and local Rights-of-Way issues such as multiple jurisdiction permitting, delayed application approvals, and unequal and prohibitive fees have been significant barriers and disincentives for private broadband investment and deployment. The State should provide leadership in coordinating all levels of government in developing policies to enable one-stop-shopping, consistent fees, and expedited right-of-way permitting processes for last mile and middle mile services.

5. **(For discussion -recommended by ATIC in 2005).** Establish a Broadband Authority to provide incentives and low-cost, long term financing to encourage private sector development of **redundant, middle mile and last mile telecom solutions** in the state, as done in other states. The Authority should be empowered to: issue bonds and notes; make loans and provide joint venture and partnership arrangements to broadband developers and broadband operators for financing or refinancing; enter into contracts for the lease or management of the infrastructure; and enter into joint venture and partnership arrangements with persons that will acquire, construct, develop, create, maintain, own, and operate the infrastructure. Owners of the network may be private, public or public/private partnerships. Funding may come from sources such as the Arizona Universal Service Fund, tax incentives, bonding, tribal gambling, E-Rate, and other Federal programs including homeland security.

6. Support the State in implementation of the $40 million to build new fiber infrastructure along state highways to support state broadband applications and deployment of middle mile infrastructure to communities throughout the state.

7. Create a public and private **Student Connectivity Fund**. In many neighborhoods and communities, especially in urban communities, infrastructure is available, and there may be one or more providers available, but the services are not affordable for many in the community. Arizona should launch a fundraising campaign to provide free or subsidized connections for students and families in those area where connections are available but not affordable.

8. Provide state and other funding to expand AZ StRUT **or other device refurbishment and donations programs** to all schools, libraries and communities in Arizona. Set-up guides, processes and procedures, provide funding, publicize these programs, request donations of surplus computers from the companies, state government and universities, and school districts for refurbishment, and assist AZ StRUT in expansion of their volunteer team to meet the need during this pandemic and to work in a safe environment.

9. Promote Tech Soup to libraries and non-profit 501(c)(3) organizations in the state. Tech Soup is a national nonprofit organization that provides access to free or discounted technology and services from companies such as Microsoft and Zoom for libraries and 501(c)(3) non-profit organizations.

10. Increase state funding for support of local school districts and libraries for connectivity, devices, applications, and professional development.

11. Advocate for more support from future Governor's Emergency Education Relief (GEER) fund created from federal CARES Act funding to support the needs of communities, education and libraries for broadband Internet services, end-user
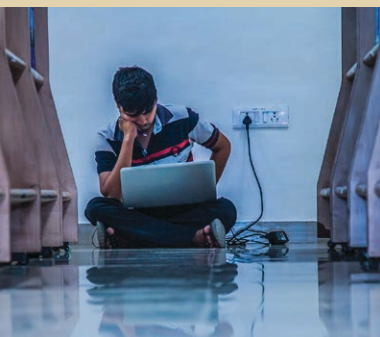
devices, technical support, professional development, digital content, and safe operations during the COVID-19 environment.

12. **Expand the role of the Arizona Corporation Commission in broadband deployment** including modifying the current Arizona Universal Service Fund or creating a new fund to support broadband deployment. The Arizona Corporation Commission should consider modifying the current Arizona Universal Service Fund (AUSF) or creating a new fund to support broadband to support deployment of broadband infrastructure in rural areas. The AUSF currently only supports subsidies for telephone lines in high-cost rural areas. In 2018, the ACC provided $8 million AUSF funds to match federal E-Rate funding to connect schools and libraries in Arizona. The $8 million AUSF funds, plus $3 million from the Governor's Office provided the match for $100 million in E-Rate funding. # of schools and libraries connected? ACC Commissioner Lea Marquez Peterson is participating in a National Association of Regulatory Commissioners Broadband Expansion Task Force that is looking at the role and strategies for Regulatory organizations such as the ACC to support broadband deployment to underserved areas.

Tech Support

1. Identify, coordinate and develop locally relevant collaborative strategies for all organizations including school districts, libraries, universities, community colleges, nonprofit organizations currently or planning to provide local and statewide tech support to schools, libraries, and all individuals in the state, including students, parents, seniors, library patrons, and community. Will include the State Library's AZ LibTAP program, school districts, community colleges, universities, Gen YES program, Insight Help Desk, ADOE, and nonprofit organizations.

2. Provide information and technical support to assist schools and communities in exploring and adopting new and innovative Internet access solutions and technologies available today that individually, or in combination, can provide unique and affordable solutions from wire line, satellite combined with mesh networks, cellular and 5G, microwave, WiFi on school buses, open school and libraries networks, and open provider WiFi networks.

3. Provide information and technical support to assist schools and communities in exploring and adopting new and innovative strategies for provisioning devices.

4. Explore the use of **The Generation YES (Gen YES)** national non-profit organization that trains students and provides them opportunities to be information technology leaders in their schools and communities. Gen YES students provide IT professional development and technical support for the teachers and other students in their schools, which is particularly critical during the COVID-19 crisis where teachers are stretched to perform online instruction. Dennis Harper, CEO of Gen YES, explains on their website how this program could be scaled up for multiple school districts across the state. Also explore the SciTech Institute's STEM program of student Chief Science Officers in schools could be involved with establishing the Gen YES program in various school districts.

5. Explore how technical support could be provided through the Sun Corridor Network.

6. Explore use of commercial organizations such as **Insight** that has been providing service desk support services for school districts nationally for 20 years. Their service desk support model provides 24/7/365 technical support for teachers, students, and parents. Insight Service Desk Support can be purchased by an individual school district or could be contracted for at the state level at a discounted cost.

7. Develop an initiative to use university and community college students to provide tech support.
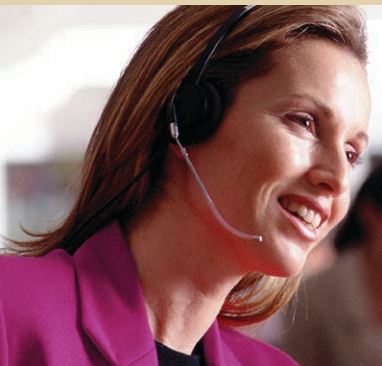
Insight's remote help desk services provides a flexible, scalable solution with the look and feel of an internal desk.

Professional Development

Identify, coordinate and develop collaborative locally relevant strategies for all organizations including school districts, libraries, universities, community colleges, nonprofits currently or planning to provide professional development and training for educators on remote/hybrid instruction

Privacy and Security

Future Ready

State and Community Digital Access Planning

- Provide state support for the creation of **Community Broadband** or Community Digital Access Action Teams (CDAAT) in neighborhoods and communities that include schools, libraries, economic development officials, telehealth, and other relevant local organizations to support community needs assessments, broadband infrastructure planning, and grant writing. Some Arizona counties have established "Broadband Actions Teams" in communities such as Payson (focusing on a fiber ring for high-capacity and reliable middle-mile connectivity to support economic development), Yuma (focused on agriculture economic development), and Page (focused on the tourism business) that have enabled them to access federal or state funds to connect their communities, schools and libraries. Telemedicine Springerville, Verde Valley

- Support the Governor's 2020-2021 budget request for $10 million for the ACA Rural Broadband Development Grants program

- Provide state funding for additional staff to support the ACA, the Arizona State Library, the Arizona Department of Education, and Arizona telemedicine organizations to assist Arizona communities, education institutions, libraries, telemedicine organizations, and non-profit organizations in community assessments, planning and grant applications development. **Currently, there is the Arizona Broadband Manager under the Arizona Commerce Authority (add Mala and Milan)**, Such staff could also provide updates on federal broadband infrastructure and other digital access grants.

- State government, or other sources of funding, should be provided to enable Arizona communities and institutions to contract with consultants for community assessments, planning and grant applications development. In many cases schools, libraries, and telemedicine programs and communities do not have the personnel and expertise to prepare and manage these applications, state support may not be available, or they cannot even afford to hire a consultant.

  - The Task Force has developed and maintains an extensive directory of Arizona-based entities that can provide consulting services on digital access community needs assessments, broadband infrastructure planning, and grant writing. This directory is posted on the task force website (**https://www.arizonatele.org/covid-resources.html**). This directory is available for use by communities and institutions such as school districts, libraries, and telemedicine organizations.

- State government should develop a State Broadband Office, expanding on the role of the existing State Broadband Director at the ACA, to enable state coordination, support for community assessments, grant application development, planning assistance, coordination with broadband providers, and reducing or removing barriers to broadband deployment.

Digital Resources Access Portal *This info repeats from page 7*

Develop a simple, easy to navigate, public-facing Digital Access Resources Portal to provide easy access to resource such as locating free or low-cost WiFi hotspots, professional development and tech support organizations, digital resources, PPE resources.

Digital Content and Resource Sharing

Digital content of various kinds such as digital curriculum, instructional videos, and informational resources offer opportunities to substantially enhance and improve student education. The fall semester this year is particularly challenging as the community tries to come to terms with the schooling situation – a mix of in-person, hybrid and online only models take shape. As is the case in all situations, the first semester is always a huge learning curve. In addition to providing general instruction online, the higher-education sector is facing challenges of reducing costs for students and instruction for science courses with limited access to physical labs. Virtual lab simulations are being considered to offer remote science instruction effectively with a quick transition at lower cost than physical labs.

Recommendations:

Virtual Labs technologies such as **Labster**, have been proven highly effective in providing online STEM education. Explore statewide Virtual Labs Consortium to provide virtual laboratories for science courses, this is a new area and there are not many options available.

Labster provides virtual laboratory simulations for a variety of science courses in biology, chemistry, and physics.

- Establish a Consortium to purchase virtual simulations that may enable us to obtain volume discounts and leverage tech support for all Arizona educational institutions. For example, ATIC and GAZEL have been exploring a Consortium with Labster, a Danish company with its US office in Boston, provides virtual laboratory simulations for a variety of science courses in biology, chemistry, and physics. Over 500 community colleges and universities in the U.S. currently use Labster virtual labs, including ASU which has a major program with Labster. Labster simulations are also used in high school advanced placement courses.

Funding & Resources Support

- **Provide state support to research funding sources and write grant proposals** to help fund telecom infrastructure projects.
- State government should provide funding to the Arizona Commerce Authority (ACA), the State Grants Office under the Governor's Budget Office, the Arizona State Library, or a **nonprofit organization**, for a private sector/foundations research assistant to set up, research, and maintain a technology funding portal/ web site to provide easy access to non-government funding and resources such as foundations and corporate donations.
- The state government should provide funding for a research consultant to provide digital access grants information on federal government, state government, and foundation grants contained in the **eCivis** state grants management system. This consultant would provide regular overviews to Arizona stakeholders on relevant digital access grants of interest to a broad variety of stakeholders as well as respond to customized search requests of the eCivis system from specific stakeholders.
- Launch a major foundations/corporate fundraising/donations campaign to complement other fundraising activities to access Arizona and national foundations that support digital access needs of communities, education, library, and telehealth organizations.
- Develop an ongoing Communications Strategy/Campaign to inform the public about funding and resource opportunities.
- Develop a statewide strategy to support communities and nonprofit 501(c)(3) organizations in applying for Community Reinvestment Act (CRA) funding.

  The federal 1977 Community Reinvestment Act (CRA) requires all banking institutions that receive Federal Deposit Insurance Corporation Insurance (FDIC) to provide equitable access for those living in "low and moderate income" (LMI) communities to banking services as well as investments for community development (i.e., enhancing economic opportunity) in LMI communities. Banks must meet their CRA obligations through a mix of volunteerism, grantmaking and investments. **In 2016 the Federal Reserve, in collaboration with the National Collaborative for Digital Equity (NCDE), issued guidance encouraging the nation's banks to invest CRA resources in digital equity. NCDE has launched a "One Percent for**

The Community Reinvestment Act (CRA), requires the Federal Reserve and other federal banking regulators to encourage financial institutions to help meet the credit needs of the communities in which they do business, including low- and moderate-income (LMI) neighborhoods.

Digital Equity" campaign, advocating that banks and their community partners nationwide strive to reach a target of one percent of CRA funding to close the digital divide, as this would unleash fully $1 billion annually. The challenge now is to educate banks about how to work with local communities, education, and other organizations to provide digital equity funding. The task force has held preliminary discussions with the CRA policy-point person for Arizona to explore CRA funding opportunities in Arizona and how communities or organizations can apply for support.

Safe Operations of Schools and Libraries in COVID-19 Environment

- The ADE has published a **guidelines document on safe re-opening of schools** during the COVID-19 pandemic. **The Arizona State Library has a COVID-19 Response page** with best practices for safe functioning of libraries during the pandemic.

- The Task Force has considered some additional issues related to this particularly relating to the use of publicly-accessed (shared) computers at schools and libraries. Discussions were held with **AZBio** – a membership organization of Biotech industries, on safe re-opening practices including the use of public access computers including sanitation, antimicrobial keyboards, and gesture interfaces. Mohave County Education Service Cooperative has provided master contracts for purchase of PPE. The Task Force recommends consideration of cost-effective options to minimize Coronavirus transmission.

Funding for AZBSN to Continue Statewide Digital Access Task Force Activities

The Arizona Broadband Stakeholder Network (AZBSN) was established by the Arizona Telecommunications and Information Council (ATIC) and Greater Arizona Educational Leadership (GAZEL) in 2019 to facilitate collaboration, coordination, information sharing and communication among key public, private and nonprofit stakeholders committed to promoting the expansion of broadband deployment in Arizona.

In March 2020 with the advent of the COVID-19 crisis, AZBSN recognized the urgent need to assist schools, libraries, telehealth organizations, and communities to provide digital access for those in low-income and rural communities lacking this to be able to function effectively during this crisis. AZBSN established this COVID-19 Digital Access Task Force to respond to this crisis by bringing together knowledgeable experts from state government, education, libraries, telehealth, economic development, broadband service providers and technology companies, and non-profit organizations to discuss and collaborate on addressing the critical digital access issues of the state. Weekly meetings of the task force have been held since March 23rd, and subcommittees were formed to develop recommendations.

The AZBSN has performed these functions mostly on a volunteer basis. To continue this collaboration and expanded activities as discussed in this report, the AZBSN requires funding to coordinate and manage these operations as well as publish regular newsletters on important information for stakeholders. These activities should continue during the COVID-19 crisis and are important for the future development of the state beyond the crisis. Therefore, the task force requests funding from the state government, corporations, and foundations to continue with these efforts.

Some Technology Suggestions

- Subscription to discounted (for COVID-19) broadband Internet services from wireline or wireless service providers where available. Note: The State Library is researching and putting a list together for distribution
- Providing mobile Internet hotspot devices and enabling an individual's smart

WiFi on parked school buses can provide Internet access for schools and communities.

phone as a personal WiFi hotspot.

- Providing WiFi extenders in parking lots of libraries and schools so people can safely practice social distancing and access the Internet. Five public libraries have participated in a pilot project with Cisco to install WiFi boosters enabling access to the users from the parking lots while the libraries are closed. Such WiFi extensions could be provided at all schools and public libraries if funding and appropriate security is provided.
- Establishing wireless community and neighborhood mesh networks.
- Using Book-mobiles, school buses or other WiFi enabled vehicles parked in communities.
- New fiber-to-the home community networks, or new fixed or mobile wireless for homes.