Utah Broadband Advisory Council Report

A report on the discussions, findings, and accomplishments of the Council during its inaugural year: June 2011-May 2012

Compiled by the Utah Broadband Project and approved by the Utah Broadband Advisory Council

THE STATE OF UTAH
BROADBAND PROJECT
BROADBAND.UTAH.GOV

Scan on your smartphone to view the report online

Utah Governor's Office of Economic Development
BUSINESS • TOURISM • FILM

Disclaimer

This Report has been prepared through a collaboration of Utah Broadband Advisory Council members and staff from the Utah Governor's Office of Economic Development who are employed by the Utah Broadband Project pursuant to the requirements of award 49-50-M09054 from the National Telecommunications and Information Administration, U.S. Department of Commerce under the American Recovery and Reinvestment Act of 2009. The Utah Broadband Advisory Council is not a statutory body of the State of Utah, rather it is a voluntary group of stakeholders brought together under the auspices of the Utah Broadband Project's planning process. The representations, conclusions, and recommendations contained herein are provided for informational purposes only; they are not binding on any policy making body of the State. This document does not reflect the intent or official position of any governmental agency or entity, including but not limited to, the Utah Governor's Office of Economic Development, the Automated Geographic Reference Center, the Utah Public Service Commission, individual members of the Utah Broadband Advisory Council, the U.S. Department of Commerce's National Telecommunications and Information Administration, or the Federal Communications Commission.

Authors

Tara N. Thue
Manager
Utah Broadband Project
Utah Governor's Office of Economic Development
Salt Lake City, Utah
tthue@utah.gov

Kelleigh W. Cole
Coordinator
Utah Broadband Project
Utah Governor's Office of Economic Development
Salt Lake City, Utah
kcole@utah.gov

Table of Contents

Report Contributors i

Map: Broadband Availability by Speed iii

Introduction 1

Mission and Objectives 2

Areas of Focus 3

Education 3

Libraries 7

Economic Development 8

Public Safety 11

Health Care 13

Transportation 15

Rural Broadband Access 17

Tribal Broadband Access 20

Conclusion **23**

Report Contributors

Don Albrecht
Director
Western Rural Development Center

Charles Baldwin
CEO/Technical Advisor
BitStream Communications/Confederated Tribes of the Goshute Reservation

Sharon M. Bertelsen
Attorney
Ballard Spahr LLP

Diane Bradshaw
Office Administrator
Direct Communications

Christopher M. Conabee
Managing Director of Corporate Recruitment and Incentives
Utah Governor's Office of Economic Development

Eric Denna
CIO/Interim Executive Director
University of Utah/Utah Education Network

Spencer P. Eccles
Executive Director
Utah Governor's Office of Economic Development

Jeff Edwards
President/CEO
Economic Development Corporation of Utah

Jeff Egly
Associate Director of Technical Services
Utah Education Network

Bert Granberg
Manager, State Geographic Information Database Group
Utah Automated Geographic Reference Center

William E. Harry, ENP
Executive Director
Salt Lake Valley Emergency Communications Center

John S. Harvey, PhD
Economist/Technical Advisor
Utah Public Service Commission

Christy Heaton
GIS Analyst
Utah Automated Geographic Reference Center

Linda T. Hull
Director of Policy and Legislative Services
Utah Department of Transportation

Spencer Jenkins
Director
Utah Automated Geographic Reference Center

Lisa Kuhn
Chief Financial Officer
University of Utah Department of Technology/
Utah Education Network

Deb LaMarche
Associate Director
Utah Telehealth Network

Brigham Mellor
Economic Research Manager
Economic Development Corporation of Utah

Report Contributors (continued)

Donna Jones Morris
State Librarian/Division Director
Utah State Library

Craig Neilson
Program Manager
Utah State Library

Jessie Pechmann
GIS Analyst
Utah Automated Geographic Reference Center

Ken Petersen
Chief Operating Officer
Utah Department of Technology Services

Steve Proctor
Executive Director
Utah Communications Agency Network

Carol Revelt
Utility Technical Consultant
Utah Public Service Commission

Gary Ricks
Legislative Fiscal Analyst
Utah Department of Technology Services

Dennis Sampson
Associate Director, Administration
Utah Education Network

Sabrina Scott
Utah State E-Rate Coordinator
Utah Education Network

Lincoln Shurtz
Director of Government Affairs
Utah League of Cities and Towns

Shirlee Silversmith
Director
Utah Division of Indian Affairs

Jim Stewart
Director of Technical Services
Utah Education Network

Justin Stewart
Policy Analyst
Utah League of Cities and Towns

Stan Stoll
Executive Director
Utah Rural Telecom Association

Roger Timmerman
Director of Engineering
UTOPIA

Joseph Wavra
CEO/IT Consultant
Enterprise Technologies/Confederated Tribes of the Goshute Reservation

Kip Wilson
General Manager
Direct Communications

Lynne Yocom
Fiber Optics Manager
Utah Department of Transportation

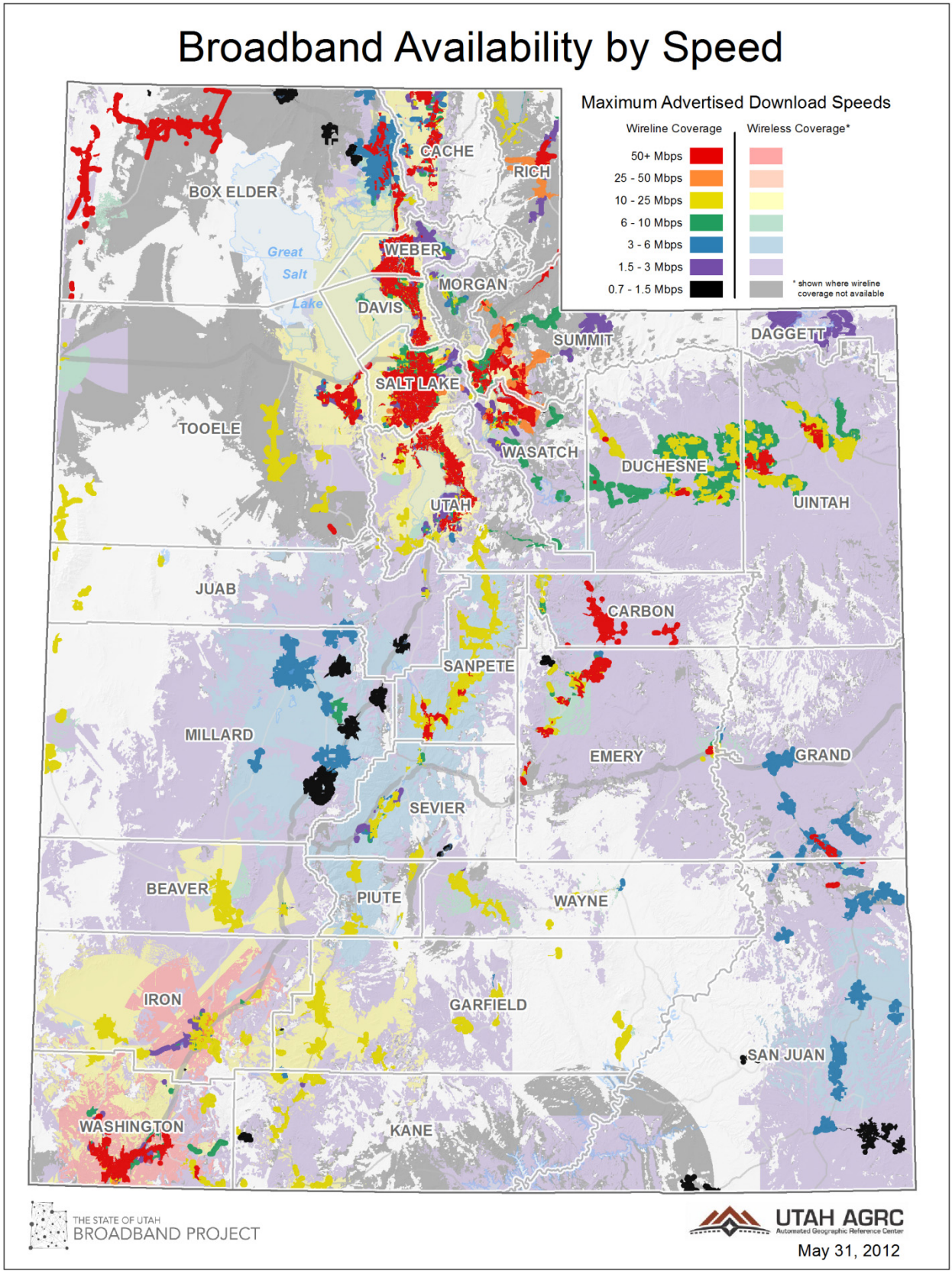

FIGURE 1: Broadband availability by speed. Most of Utah's populated areas are covered by some type of broadband service.

Introduction

The Utah Broadband Advisory Council (the "Council") was formed in June 2011 and convenes on a monthly basis to discuss the status of broadband adoption and deployment in the State of Utah. This Report summarizes the deliberations and findings of the Council as of May 2012 and is intended to provide Governor Gary R. Herbert, the Utah State Legislature, and other interested parties an overview of the Council's recommendations and policy guidance.

Utah has received national recognition for its extensive broadband infrastructure and high broadband adoption rate. According to a 2011 report published by the U.S. Department of Commerce entitled *Exploring the Digital Nation: Computer and Internet Use at Home,* Utah ranked #1 of all states in average home broadband adoption. The following report, compiled by the Utah Broadband Project, details the programs and organizations that have contributed to these accomplishments and highlights the recommendations made by the Council to continue coordinating efforts to expand broadband access and use throughout Utah.

The Council was formed as an initiative of the Utah Broadband Project ("Broadband Project"). The Project is a collaboration between the Governor's Office of Economic Development (GOED), the Utah Public Service Commission (PSC), and the Department of Technology Services' (DTS) Automated Geographic Reference Center (AGRC). It currently operates through a national grant program known as the "State Broadband Initiative" which is administered by the U.S. Department of Commerce's National Telecommunications and Information Administration (NTIA).

Current members of the Council represent a diverse group of interests including economic development, State and local government, broadband providers, legislators, technology-related businesses, health care, education, libraries, public safety, and tribal entities. Initially, private sector broadband service providers were not officially invited to participate in the Council. However, the Council quickly found that to effectively address issues related to broadband deployment and adoption in Utah, industry and stakeholder representatives from both the public and private sectors would need to participate to be able to form a consensus and have effective discussions regarding broadband issues.

In accordance with Utah's open meeting regulations, all meetings are open to public attendance and are documented with meeting minutes and available presentation materials on the Broadband Project's website, broadband.utah.gov.

Mission and Objectives

The **mission** of the Utah Broadband Advisory Council is to examine the condition of broadband adoption and deployment in the State of Utah and to provide the Governor and Legislature with recommendations and policy guidance related to the findings of the Advisory Council.

The **objectives** of the Council, as originally laid out and agreed upon, are as follows:

- Identify current barriers to broadband access, adoption, and deployment and develop an action plan to address those barriers.
- Identify unserved areas and develop strategic guidance for deployment efforts in these areas.
- Encourage and enable coordination on the State and local levels related to broadband deployment and adoption efforts.
- Identify and address specific local or regional needs related to deployment or adoption.
- Examine existing laws regarding tax- or fee-based incentives for broadband infrastructure in Utah and recommend updates or additions, if necessary.
- Examine census data to determine potential correlations between deployment or adoption deficiencies and demographic or location correlations.
- Examine regulatory and legislative changes being made at the federal level and their potential impact on Utah's broadband landscape.
- Identify and promote public/private partnerships to foster broadband adoption and digital literacy.
- Identify components of the National Broadband Plan that may be incorporated into Utah's broadband plan.
- Review the results of the Broadband Project's demand survey and based on those results, develop recommendations for target broadband speeds or other outstanding needs related to the demand for high-speed Internet access in Utah.
- Review regional and local needs for redundancy.
- Recommend actions to be taken to appropriate public or private entities.
- Consider whether the Utah Universal Service Fund (USF) should be transitioned from supporting traditional landline voice service to supporting more modern data services.
- Develop recommendations for sustainable funding sources for incentivizing broadband adoption and/or deployment efforts.
- Present recommendations to the Broadband Project, Governor Herbert and the Utah State Legislature for inclusion in a comprehensive broadband plan for Utah.

Areas of Focus

This Report was compiled based on the presentations and discussions held during the Utah Broadband Advisory Council meetings from June 2011 through May 2012. It organizes information from the presentations and discussions of the Advisory Council into subject areas and issues for specific focus. Each subject area includes a summary of the issues and relevant background information, along with a list of recommendations from the Council for specific parties, including the Governor and the Utah State Legislature, to consider.

During the past year, the Council's discussions have focused heavily on the impacts of broadband availability and access on education, libraries, economic development, public safety, health care, transportation, and in rural and tribal areas. These subjects represent the most pressing issues in the State of Utah and support the overall goal of the National Broadband Plan to "ensure every American has access to broadband capability." This document provides a framework for each of these issues as they relate to Utah's current infrastructure, policies, and practices. In many cases, Utah has developed a successful and unique State solution and the recommendations should be used to expand and continue these efforts.

Education

Unlike many other states with similar population densities and geography, Utah's remote and rural communities are largely served with at least some broadband services. The main reason for this achievement has been the level of public/private partnerships formed and maintained between the Utah Education Network (UEN) and Utah's broadband service providers. UEN works with local telecommunications service providers to connect over one thousand Utah public schools and districts, charter schools, colleges, universities, and libraries,

PHOTO 1: Earlier this year, the Utah Office of Education visited Centennial Junior High School in Kaysville to mark the first annual Digital Learning Day.

most with gigabit-speed connections. These UEN-connected facilities serve as community anchor institutions or anchor-tenants, allowing the surrounding communities to benefit from broadband connectivity that may not otherwise be available.

At the October 2011 Advisory Council meeting, Michael Peterson, the then-Executive Director of UEN, gave the Council an overview of UEN's efforts to partner with broadband service providers to provide connections to community anchor institutions (*see a schematic view of UEN's network in Figure 2*).

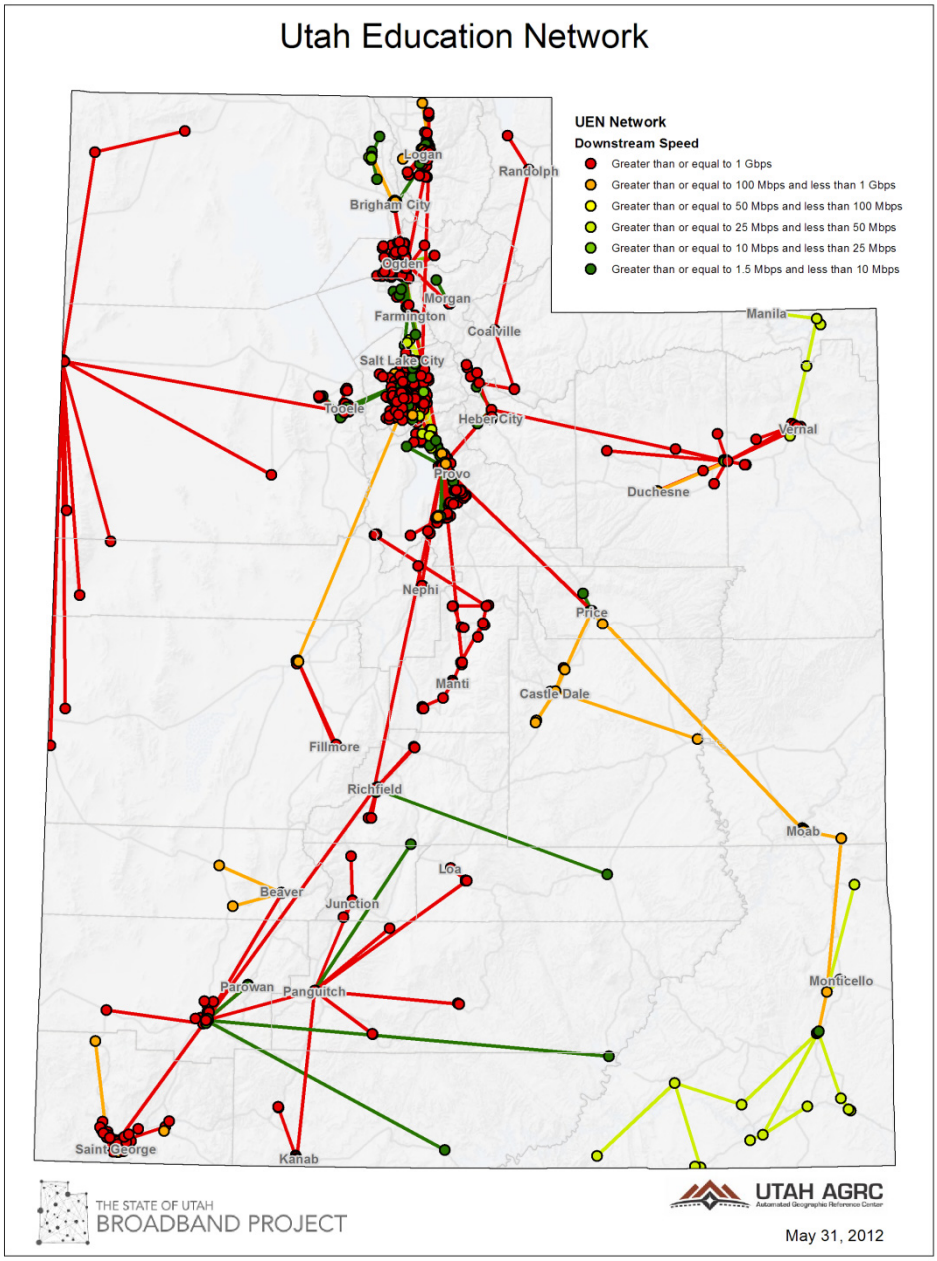

FIGURE 2: A schematic view of UEN's network illustrates the speeds provided to schools, colleges, universities, and libraries.

UEN hosts 45,000 live events each year and Governor Herbert recently demonstrated the network's capabilities by holding a live interactive broadcast from the College of Eastern Utah in Blanding that was broadcast to every Utah high school. The Governor also used UEN to broadcast a live press conference from Grouse Creek High School, a one-room schoolhouse in rural Box Elder County, via a gigabit fiber connection to the Eccles Broadcast Center in downtown Salt Lake City.

Interactive video conferencing (IVC) and distance education have also played an important role in the growth and expansion of UEN's footprint in Utah and the deployment of optical broadband infrastructure. The growth of UEN's IVC system has led to increased educational opportunities for students in all areas of the State. It has also provided an impetus for the high-speed, high-performance broadband network currently enjoyed in Utah. UEN's IVC program currently handles more than 250 events each day and provides high-definition video conferencing services for public education, State government and non-profit organizations (*images of these classes can be seen in Photo 1 and Photo 2*). Thousands of students, educators, and administrators use the UEN IVC system every day for live, instructor-led curriculum, collaborative meetings, and special educational events. Hundreds of thousands of students, educators, and library patrons use the aggregate Internet access and the myriad applications that the Internet makes available through UEN. UEN IVC service results in cost-savings for taxpayers and contributes to Utah's efforts to be green and reduce carbon emissions.

PHOTO 2: UEN trains library media specialists at Weber State University.

Technology adoption in education is now driving one-to-one initiatives across the State which may also be responsible for the current technology trends, the consolidation of public services within multi-use community centers, and BYOD (Bring Your Own Device) initiatives for public and higher education students, suggesting that broadband availability must be ubiquitous wherever people live and work.

E-Rate/Universal Service

The Schools and Libraries Universal Service Support Program, also known as the "E-Rate program," has been critical to the development and deployment of UEN. As one of the federal Universal Service Fund (USF) programs, E-Rate is dependent upon universal service contributions from interstate ratepayers for the annually capped $2.27 billion dedicated to discounts for schools and libraries. As interstate revenues have decreased, the USF contribution factor has increased. As USF as a whole undergoes substantial

reform by the Federal Communications Commission (FCC), it is expected that the E-Rate program will eventually face significant reform as well.

The United States Unified Community Anchor Network (USUCAN) is a national program connecting community anchor institutions across the country. In February 2012, USUCAN named UEN as one of the first affiliate program participants in the nation to help deliver advanced broadband networks to help community anchor institutions. An outgrowth from the Internet2 research network, USUCAN may provide a means for Utah to direct universal service funds toward broadband infrastructure without the limitations and administrative burdens that the E-Rate program brings. Given the restrictions imposed by the E-rate program, combined with the trends toward non-traditional education and consolidation of public services, E-Rate will likely become increasingly burdensome to manage for all parties.

The recent Connect America Fund (CAF) order is the FCC's first attempt at federal USF reform. The order and subsequent orders on reconsideration suggest that the State may need to consider acting on behalf of current rural broadband service providers to ensure that their services remain competitive, affordable, and equitable throughout the State. For example, Voice over IP (VoIP) technology and services effectively render current voice service pricing and subsidy models obsolete. Competitive VoIP providers are now able to offer voice services in the protected rural service areas. To address the tax and fee disparity that may arise due to changes in federal regulation and pervasive technologies, the State may wish to consider adopting a communications tax and fee structure that is technology neutral.

Recommendations

- Promote the continuation of the UEN model for the aggregated utilization of E-Rate funding for schools, libraries and State offices, which has been vital for connectivity in rural and low-income communities.
- Continue informing the Governor and Utah Legislators on the role State appropriations have in leveraging federal funds to connect and maintain facilities supported by UEN. Specifically, informing the Utah Legislature on the distinct funding vehicles and sustainability of each of these models. For example, under the E-Rate program, every State dollar allocated to UEN is matched with approximately two dollars of federal funding.
- Encourage the completion of broadband service to all K-12 public and charter schools statewide.
- Working with Utah's telecommunications providers, continue to meet the communication and information technology needs of UEN stakeholders with cost-effective services and solutions.

Libraries

Libraries are important community anchor institutions which not only help to expand broadband infrastructure into communities, but also provide Internet access to individuals who do not have service available, who cannot afford it, or who need professional assistance. At the October 2011 meeting, Donna Jones Morris, the Utah State Librarian, and Craig Neilson, a Program Manager for the State Library, discussed libraries' role as community anchor institutions and as providers of public broadband access through traditional and mobile library (bookmobile) sites. Libraries also offer online materials such as audio and e-books, as well as extensive services for individuals with disabilities.

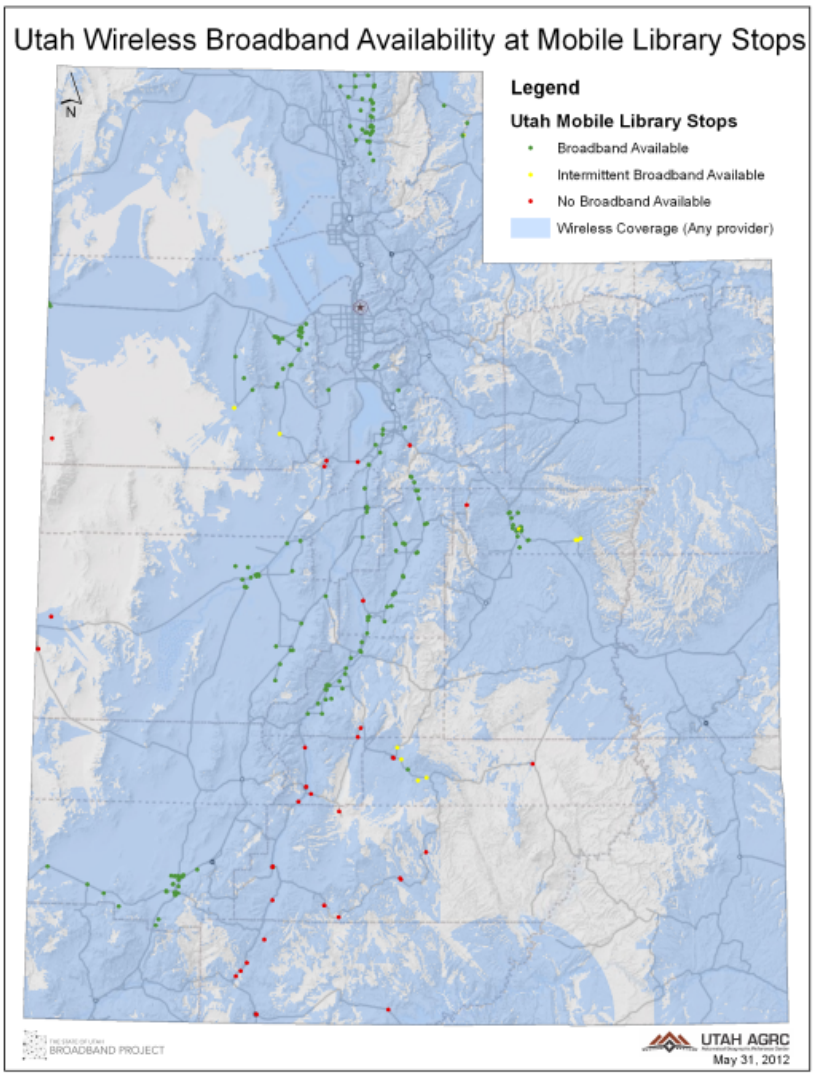

FIGURE 3: Wireless broadband coverage at mobile library stops in Utah. This is an example of data helping to facilitate broadband planning, in this case for the State Library.

Mobile libraries are becoming an important community resource to access the Internet. Mobile libraries are equipped with laptops and iPads for patrons to use, but some stops lack the wireless broadband capability required to access the Internet. At the April 2012 meeting, the Broadband Project presented data gathered from mobile libraries detailing wireless broadband access. Overall, 80 percent of mobile library stops have access to some form of wireless broadband access, 5 percent have intermittent access and 15 percent reported no access at all. The Broadband Project is currently working with the State Library to find a way to get connected at more mobile library stops. This data is provided in *Figure 3*.

The Utah State Library System recently lost 20 percent of its library budget, due to cuts in State funding, resulting in the elimination of five full-time positions and selected services. The State Library is working with UEN to assist local libraries in qualifying for E-Rate funding but knows that many librarians need to be educated on the importance of broadband access, online services, and their potential. Additionally, libraries are part of the trend toward community center-based provisioning of public services. As stated previously in the Education E-Rate section of this Report, the trend toward more efficient multi-use community facilities will likely further complicate the process of obtaining E-Rate discounted services.

Recommendations

- Promote continued education and communication efforts that will inform librarians about the benefits of using broadband and broadband-enabled technologies cooperatively with the State Library.
- The State Library should work with libraries to address local or individual needs for broadband access, technology planning, and computer usage.
- Continue informing the Governor and Utah Legislators on the important role that State appropriations have in supporting local libraries and State Library services.
- Inform libraries of funding opportunities to expand broadband access, including E-Rate funding.

Economic Development

Economic development is a major priority for the State of Utah and broadband access is critical to the State's ability to attract and retain businesses of all sizes. Utah is known as a strategic location for national connectivity and has attracted high tech companies such as Adobe Systems Inc., Oracle America Inc., IM Flash Technologies LLC, Overstock.com Inc., and eBay Inc.

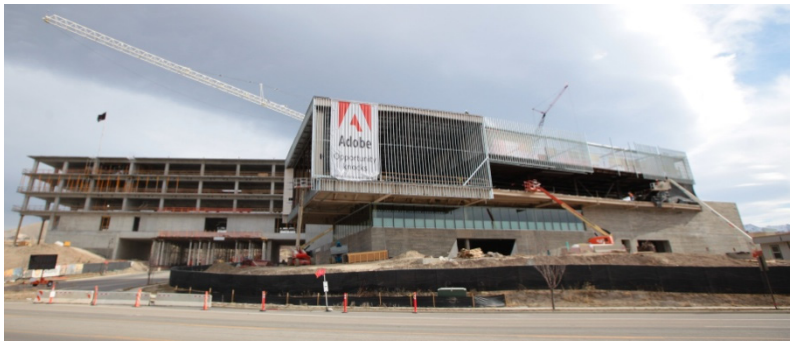

PHOTO 3: Construction of Adobe's new campus in Utah County.

Jeff Edwards, President and CEO of the Economic Development Corporation of Utah (EDCUtah), spoke to the Advisory Council in July 2011 and sited several examples of companies who located facilities in Utah using the robust network that exists. Economic developers across the State have expressed interest in

working with the Utah Broadband Project and the Advisory Council to obtain information on high-speed broadband availability for site selection purposes.

PHOTO 4: Small businesses got websites and learned more about managing their online presence at a recent "Utah: Get Your Business Online" event hosted by Google.

The Utah Broadband Project Team and Advisory Council have discussed developing a strategy to map and promote the availability of high-speed broadband for economic development purposes. The Project is currently working on collecting and mapping data on existing backbone infrastructure that would include mapping community anchor institutions, along with service provider data on high-capacity network capabilities. This map would prove useful for State and local economic developers to use for attracting businesses and addressing technology planning issues in their communities.

The Advisory Council has also discussed the need to improve redundancy statewide, which is an important factor in attracting high tech businesses. The Council has heard several presentations on the need for redundancy. At the July 2011 meeting, Steve Corbató, the Director of Cyberinfrastructure at the University of Utah, reported on the June 17 fiber cut in Sardine Canyon, which disrupted 9-1-1 services, mobile phone networks, and interrupted credit and debit card service for Cache County.

Southern Utah had similar redundancy issues in the 1990s. Scott Hirschi, the Director of the Washington County Economic Development Council, discussed the issue of redundancy in the region at the March 2012 Advisory Council meeting. After the first fiber line was installed in 1994, broadband service was frequently interrupted by fiber cuts caused mostly by farmers and construction workers. The existing microwave system could only support 25-30 percent of the existing load during these outages making it very difficult to recruit and retain businesses.

The Washington County Economic Development Council spent three years working with various service providers but was not offered a diverse and redundant option until a local group, headed by Kay Traveller, proposed a route that would follow the Kern River Pipeline (which was previously owned by Williams

Companies and is now owned by MidAmerican Energy Holdings Company). Now known as Interlinx Communications LLC, the newly formed company was able to provide redundancy to Washington County without using public funding. Iron County later used Interlinx Communications to provide redundancy into the Cedar City area.

The Advisory Council also plans to increase efforts in Utah to improve broadband adoption among individuals and small business as part of State-led economic development efforts. Google recently sponsored several events aimed at helping small business create websites (*an image of one of these classes can be seen in Photo 4*). The Advisory Council, along with the Utah Broadband Project, may develop a targeted program that would assist both individuals and small businesses in locating resources in their areas to help them utilize broadband more efficiently. These topics will be discussed in future meetings.

Recommendations

- Form a subgroup to work with the Utah Broadband Project and collect data on existing backbone infrastructure in Utah that would include networks operated by the Utah Department of Transportation (UDOT), UEN, and DTS. Broadband service providers will also be invited to participate in this effort. The resulting data will be used to more effectively promote broadband availability for economic development purposes.
- Continue meeting with local economic development groups and service providers to collaborate on strategies to improve high-capacity access and redundancy.
- Improve efforts to assist small businesses, particularly in rural areas, to use broadband more effectively.
- Improve efforts to assist individuals in locating digital literacy programs and resources in their areas.
- Increase broadband adoption by providing information on reduced-cost Internet services for low-income households. Comcast Cable Communications LLC and CenturyLink currently offer programs to assist low-income households; however, similar programs are needed outside of these service areas, particularly in rural Utah.

Public Safety

Broadband infrastructure is becoming increasingly important to public safety. Transitioning the current voice-based emergency services system to a standardized IP-based system will facilitate interoperability between agencies to allow effective public safety communications and coordination on statewide and national levels. An IP-based system will also allow emergency information to be transmitted to first responders via video and data, in addition to traditional 9-1-1 voice capabilities.

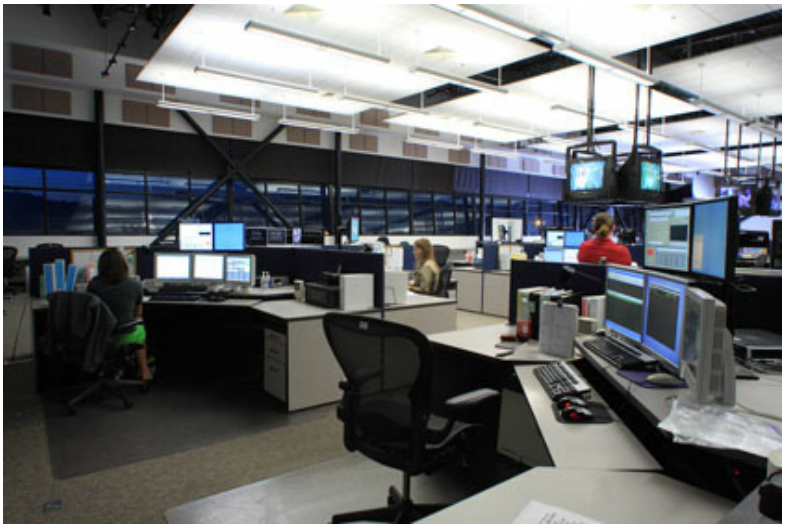

PHOTO 5: VECC is a 9-1-1 public safety answering point and emergency services dispatch center in Salt Lake County that attends to more than 53,000 fire and medical calls annually.

The December 2011 Advisory Council meeting was held at the Salt Lake Valley Emergency Communications Center (VECC) facility in West Valley City and focused on public safety communications *(an image of VECC can be seen in Photo 5).* Bill Harry, the Executive Director of VECC, reported that VECC is the largest of all Public Safety Answering Points (PSAPs) in Utah. PSAP operators answer 9-1-1 calls and other requests for emergency service and route these calls to police and fire dispatchers who dispatch the appropriate police, fire, or medical first responders. VECC responds to 1,200 to 4,000 emergency calls per day and supports nine fire and emergency medical services agencies and eight police agencies within Salt Lake County.

The Utah Communications Agency Network (UCAN) provides public safety mobile radio communications services and facilities on a regional or statewide basis for the benefit and use of public safety agencies *(an image of a UCAN radio tower can be seen in Photo 6)*. Steve Proctor, the Executive Director of UCAN, gave the Council an overview of the network, which services 147 public safety networks in 25 counties in the State and is the only network of its kind in the nation. DTS also serves public safety radio providing very high frequency (VHF) communications to agencies that do not utilize UCAN.

At the April 2012 Advisory Council meeting, Mr. Proctor also reported that he was called to serve on the FCC's Technical Advisory Board for First Responder Interoperability. The Interoperability Board will make recommendations for "minimum technical requirements" for implementation into the Nationwide Public Safety Broadband Network (NPSBN) to ensure a nationwide level of interoperability.

The NPSBN, recently established with the passage of the Middle Class Tax Relief and Job Creation Act of 2012, will soon be under construction. The Act established the First Responder Network Authority (FirstNet) to plan, construct, operate, and manage the NPSBN. The Department of Homeland Security recently concluded that Utah is ahead of most states in terms of interoperability because the State interoperates on a regular basis across the State's VHF networks and UCAN.

PHOTO 6: A UCAN radio tower in Delle provides radio service to the Tooele-Grantsville area.

VECC and UCAN have recommended that the Advisory Council support the development and expansion of public safety broadband systems, including recommendations to address funding issues associated with the transition to an IP-based system. These issues will continue to be discussed in future Advisory Council meetings.

Recommendations

- Identify and evaluate current public safety agencies' broadband facilities and services to determine future needs.
- Make recommendations to address State and local funding for transitioning the current voice-based 9-1-1 system to a standardized IP-based system to enable public safety communication networks to more effectively communicate and coordinate (this will be an issue of connectivity and standardizing software and will require sustainable funding).
- Inform State leadership on the details of the legislation which established the Nationwide Public Safety Broadband Network and support State and local coordination with FirstNet.
- Coordinate with Utah's FirstNet designee (to be appointed) on opt-in or opt-out plans for the NPSBN and State and/or Local grant efforts.

Health Care

Broadband infrastructure is becoming increasingly important to health care and to the delivery of health care services in both urban and rural areas. In Utah, the Utah Telehealth Network (UTN) has created an extensive State network that uses electronic information and telecommunications technologies to support distant clinical health care, patient and professional health-related education, public health, and health administration.

PHOTO 7: Doctors in rural areas of the State can attend training seminars using the Utah Telehealth Network.

Deb LaMarche, UTN Associate Director, presented the Advisory Council with an overview of UTN at the February 2012 meeting. UTN is managed by the University of Utah, governed by the UTN Advisory Board, and is open to all health care providers who wish to participate.

The network offers health care providers access to video conferencing, media services such as live streaming and video-on-demand, telemedicine application development, electronic transmission of digital images, networking services, security management, and 24-hour technical support *(an example of health care professionals using the Utah Telehealth Network can be seen in Photo 7).* These services are particularly important to rural health care providers who often lack access to radiology services and other specialties. The network enables prison telemedicine, which reduces the need for expensive inmate transports. UTN also extends care to people in their homes, facilitating home monitoring for elderly patients and care for patients with chronic conditions.

Telehealth in Utah has traditionally received support from the Rural Health Care Program, which provides reduced rates to rural health care providers for telecommunications services and Internet access charges related to the use of telemedicine and telehealth.

In 2006, the FCC established the Rural Health Care Pilot Program ("Pilot Program") to encourage the development and use of broadband networking services by health care providers to connect rural facilities to urban facilities, creating statewide networks.

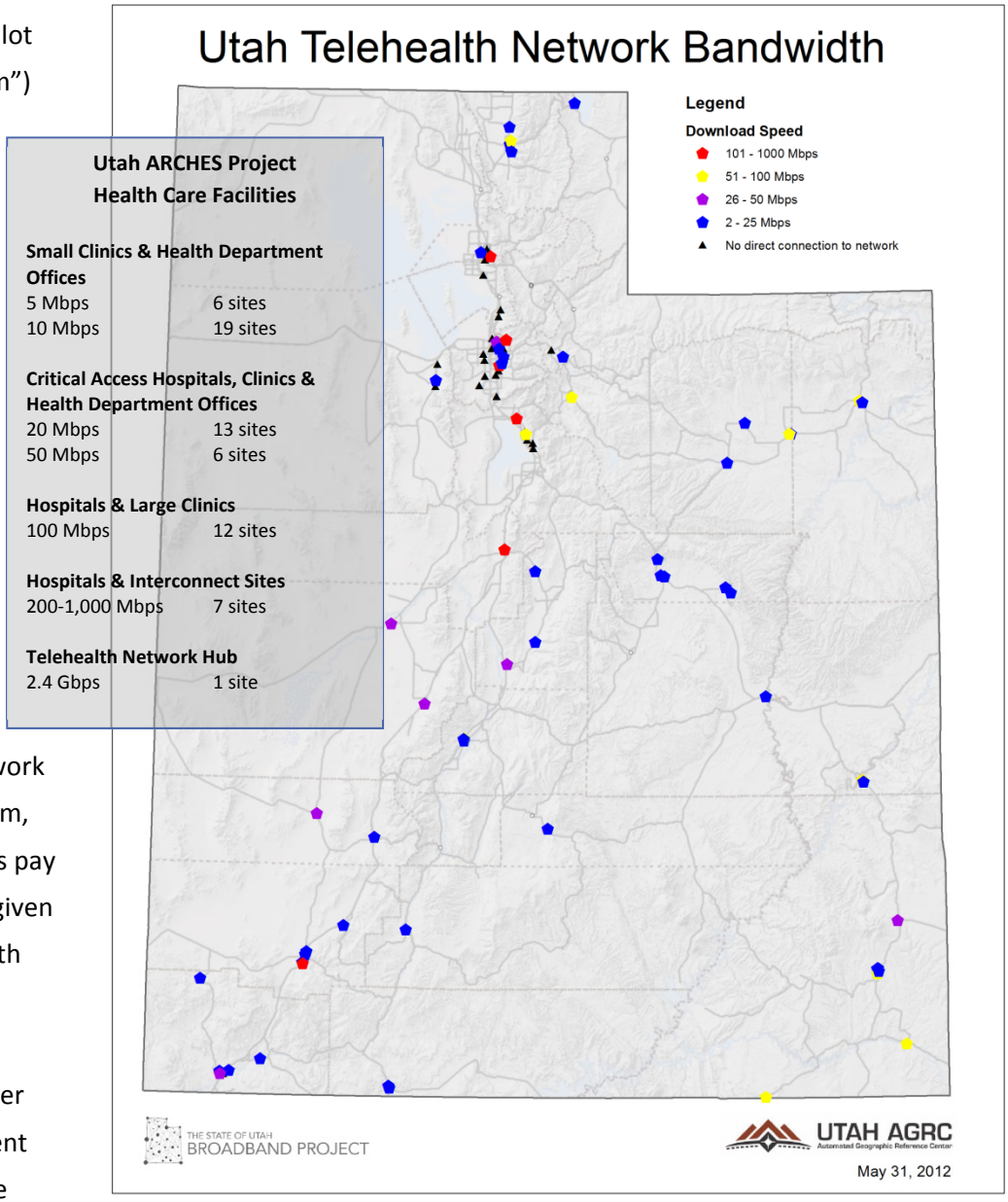

FIGURE 4: High-speed broadband connections provided to health care facilities by the Utah Telehealth Network.

This program currently funds 85 percent of the one-time and recurring network costs. Under the program, urban and rural facilities pay the same price for any given connection speed. Health care facilities pay their portion directly to the provider and the provider receives a reimbursement for the remainder of the cost from the Universal Service Administration Company (USAC). For-profit facilities are not eligible for the discount but are allowed to connect into the network if they pay the full price. This creates a financial burden for some facilities, particularly independent doctors' offices because they are considered for-profit sites.

In 2007, Utah was awarded $9,045,959 through the FCC's Pilot Program to implement the Utah ARCHES (Advancing Rural Connections for Healthcare and E-health Services) Project. This project is led by the University of Utah and co-managed by Intermountain Healthcare. Intermountain Healthcare has

connected 26 locations and the University of Utah is connecting 40 locations under the program (*see Figure 4 for details)*, with the possibility of adding 10 more if funding is available.

Some challenges encountered in implementing the Pilot Program include the administrative burden on UTN and the challenge of determining "fair" pricing for non-eligible sites, in accordance with the grant. Another challenge is that the FCC has not announced an ongoing program to sustain and build upon the Pilot Project. There are also some areas of UTN which lack redundancy.

Recommendations

- Support FCC adoption of permanent rules and funding based upon the success of the Pilot Program.
- Provide letters of support, if needed, from Advisory Council members and use the Council as an example of collaboration if UTN responds to the FCC's Further Notice of Proposed Rulemaking regarding telehealth.
- Foster opportunities for broadband collaboration as health care delivery expands to non-traditional settings such as homes, schools, and the workplace.

Transportation

As transportation systems modernize, they are increasingly planning for communications infrastructure to improve the safety and efficiency of traffic operations through the adoption of "smart roads" *(an example of variable display road signs connected by UDOT can be seen in Photo 8).* UDOT has been instrumental in facilitating the expansion of broadband infrastructure into remote areas of the State, through their own efforts to expand their agency's fiber

PHOTO 8: Variable display road signs are connected through UDOT's fiber network and help to eliminate traffic congestion.

footprint and through installing and trading access to fiber conduit. For the past five years, UDOT has been facilitating cooperative fiber and conduit trades with broadband service providers and has a best practice of laying fiber conduit during road construction projects, where it makes sense.

These practices have extensively expanded the State's communications infrastructure without major capital investment, resulting in real cost-savings for Utah taxpayers (*see details in Figure 5*). The UDOT model is unique to Utah and has given the State a competitive advantage by enabling the development of next-generation broadband services available in both urban and rural areas. In its most recent *State of the Internet* report, Akamai Technologies ranked Utah as having the fourth fastest Internet speeds in the nation, leading all western states.

At the August 2011 Advisory Council meeting, the Council met at the UDOT Traffic Operations Center to discuss how UDOT utilizes its fiber network as the backbone for cameras and traffic/weather sensors to monitor traffic, detect accidents and problems, and take actions necessary to return traffic flow to normal. This network has both increased public safety and extended broadband infrastructure throughout the State.

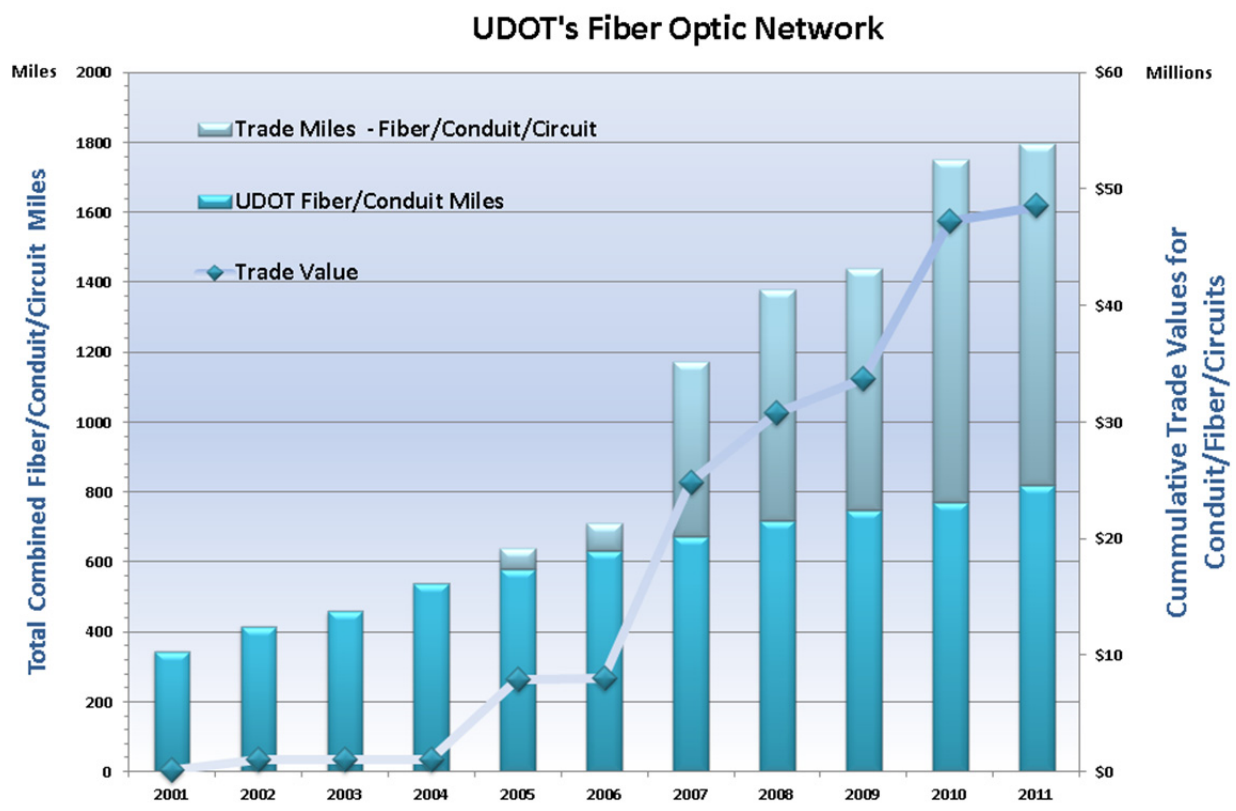

FIGURE 5: Graph illustrating the growth from 2001 to 2011 in both miles and trade values of conduit, circuit, and fiber through UDOT's trade program.

On October 18, 2011, the Utah Broadband Project, along with members of the Advisory Council, testified before the Utah State Legislature's Public Utilities and Technology Interim Committee regarding UDOT's trade model and its successes in expanding the State's network. The Council plans to continue informing policy makers on the importance of the conduit deployment and trade model, especially on the local level.

Recommendations

- Support and promote the continuation of the UDOT fiber partnership and trade model and the successes Utah has made with public/private partnerships.
- Develop a strategy to improve coordination with cities and counties and encourage them to follow UDOT's model of laying conduit during road construction projects where feasible.

Rural Broadband Access

The Utah Broadband Advisory Council has actively discussed the implications that recent changes to the federal USF program will have on broadband expansion and funding in rural Utah. On October 27, 2011, the FCC announced the creation of the Connect America Fund (CAF), which will transition funding traditionally allocated to support the buildout of traditional telephone service to support broadband expansion.

At the December 2011 Advisory Council meeting, Douglas Meredith, the Director of Economics and Policy at John Staurulakis Inc., gave the Council an overview of the FCC's decision to transition the existing USF and intercarrier compensation (ICC) systems into the CAF. The CAF will combine the current ICC and USF funds and will have an annual cap of $4.5 billion. It will be divided into five areas which include $2 billion for rate-of-return carriers, $1.8 billion for price-cap carriers, $500 million to create a "Mobility Fund" for mobile broadband providers (*see a geographic analysis of Mobility Fund eligibility for Utah in Figure 6*), $100 million for satellite broadband providers, and $100 million for administrative support.

Under this ruling, the FCC has also defined broadband as data transmission speeds of at least 4 Mbps for download speeds and 1 Mbps for upload speeds. In five years, this definition will be upgraded to a minimum download speed of 6 Mbps and a minimum upload speed of 1 Mbps. It is not yet clear how the FCC will allocate CAF funds using data gathered by states for the National Broadband Map.

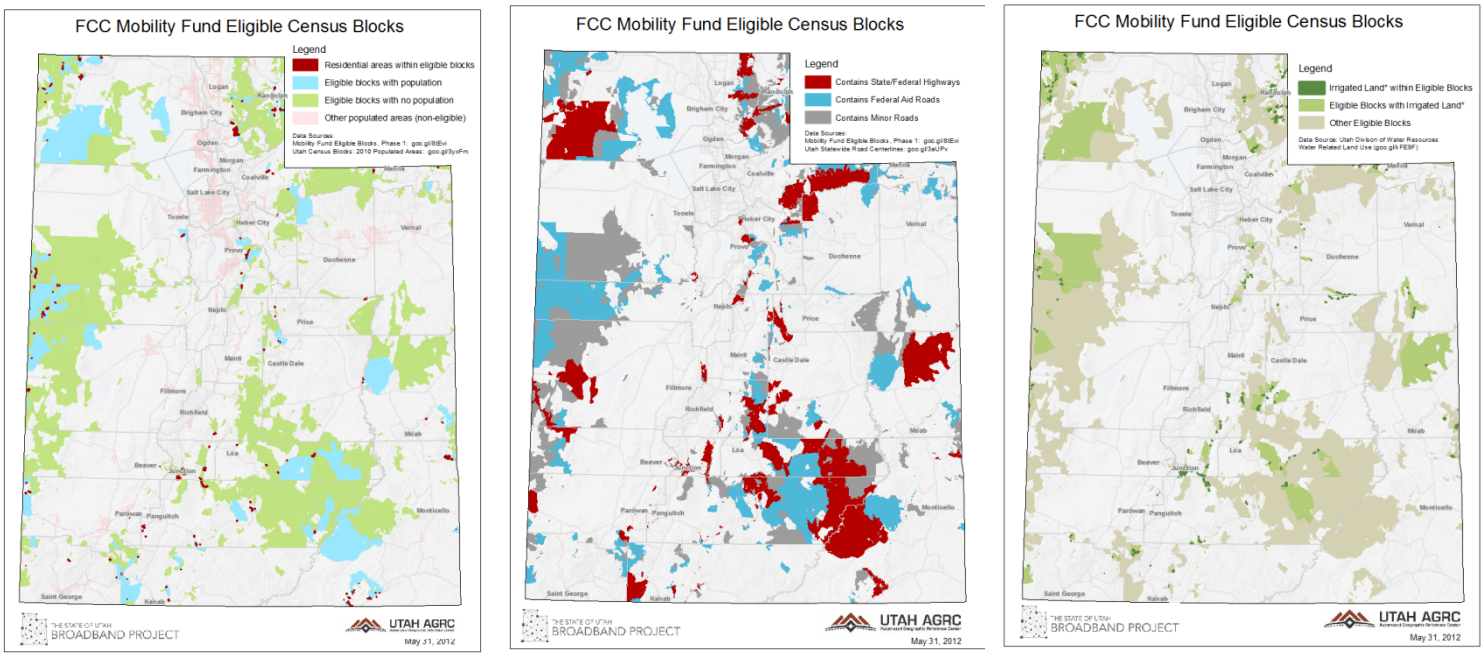

FIGURE 6: Maps illustrating areas eligible for the FCC's Mobility Fund, along with their proximity to population, roads, and irrigated agriculture.

The FCC's changes to the federal USF program were also discussed at the March 2012 meeting. Stan Stoll, Executive Director of the Utah Rural Telecom Association (URTA), an association of Utah's rural incumbent local exchange carriers, discussed the possible implications that the FCC's changes will have on Utah's rural service providers. Rural providers have four streams of revenue, which include subscriber rates, ICC, federal USF, and State USF. Where funding is being reduced in certain areas, recovery mechanisms are being implemented in other areas, which may or may not impact rural providers in Utah.

In some rural areas, the actual cost of providing monthly residential telephone service could be as high as $200 per month; however, the current monthly base affordable rates established by the PSC for rural residential and business telephone service are $16.50 and $26.00, respectively. The rural service providers are able to provide service at such rates as a result of federal and State support, which it receives from their respective USFs and ICC.

Due to the FCC's changes, Utah's rural providers will face substantial decreases in revenue over time which could be several million dollars per year depending on the specific circumstances of each of the rural telecommunications companies. Since current State law requires State USF to make up the shortfall created by reductions in ICC and the federal USF it may become necessary to increase the State USF tax rate.

Under the current funding structure, rural service providers have used business profits, State USF funds, and borrowing power to invest in broadband infrastructure. Under the proposed changes to the federal USF, URTA members are concerned that Utah companies could be penalized for being early adopters of the fiber deployment model.

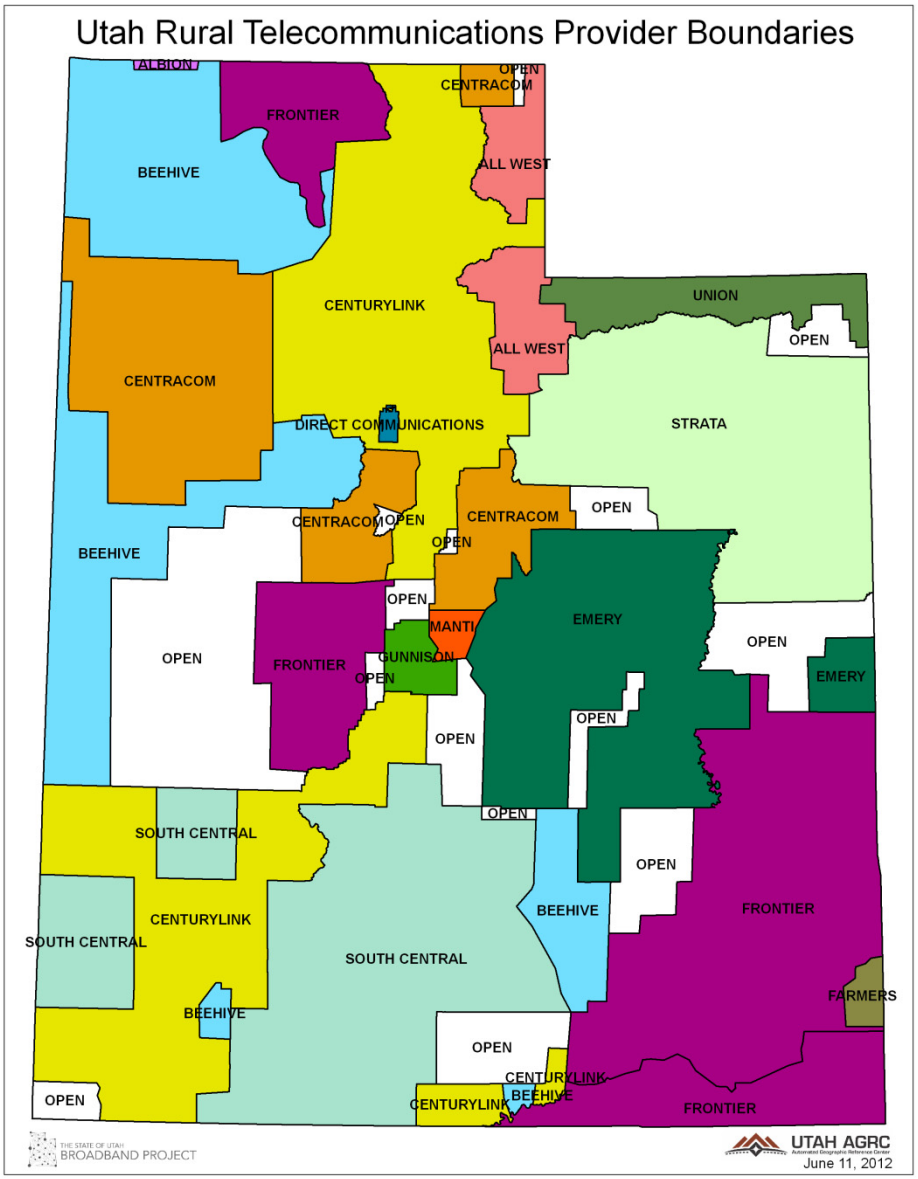

FIGURE 7: Map illustrating the service territory districts for Utah's Rural Telecommunications Providers.

Current industry uncertainty may affect their ability to secure loans and rural service providers may begin seeing impacts as early as July 2012. URTA will be actively working with Utah State Legislators during the upcoming Interim Session and during the 2013 General Session to help them understand the current climate and to make policy recommendations on how to maintain and develop broadband infrastructure in Utah. This would include formulating a definition for broadband and recommending speed goals for the State, which would also include a goal for upload speeds.

Recommendations

- Develop uniform urban and rural broadband speed goals for the State, which would include a goal for download and upload speeds. The Council has discussed establishing a benchmark used for distribution of available State funds for broadband deployment at no less than 10 Mbps for download speeds and 3 Mbps upload speeds.
- Inform Utah Legislators on basic broadband issues/technologies and encourage a technology-neutral approach to telecommunications legislation.
- Inform policy makers on the impact that the FCC's recent changes to USF and intercarrier compensation will have on telecommunications service providers and make recommendations for changes to the State USF fund to support broadband deployment in Utah.

Tribal Broadband Access

PHOTO 9: The seven Tribal Nations in Utah present their flags at the 2011 Native American Summit.

Native American populations have some of the lowest access and adoption rates for broadband service both in Utah and nationwide. This low usage rate can be attributed to many obstacles including high build-out costs, lower education rates, and limited ability to pay for service. The Navajo Tribal Utility Authority (NTUA), the Ute Indian Tribe, and the Confederated Tribes of the Goshute Reservation have all received federal grants to assist with broadband planning and access issues on tribal lands.

- NTUA received a grant for $32,190,067 for the Navajo National Middle Mile/Last Mile Project which will deploy 550 miles of new aerial fiber-optic cable and 59 new or modified microwave towers. The vast majority of this infrastructure will be constructed in Arizona and New Mexico and there are many areas of the Utah Navajo tribal area that still lack basic broadband access.

- The Ute Indian Tribe received a grant for $1,418,266 for the Ute Indian Tribe of the Uintah and Ouray Reservation Fiber Optic Infrastructure Project. Many of the community anchor institutions on the Uintah and Ouray Reservation, home to the Ute Indian Tribe, lack sufficient broadband infrastructure to interconnect the tribal government, the Bureau of Indian Affairs (BIA), and other federal agencies. Many residents in the area, such as the Fort Duchesne Tribal Community, are also severely underserved by current broadband providers. The Ute Indian Tribe is proposing to install new fiber optic cable to enhance distance learning, telehealth, and public safety applications in the region. The Project would also help spur economic opportunities and social services in an area that, according to BIA, has an unemployment rate of up to 77 percent. The network would bring speeds of up to 10 Mbps to police, courts, emergency, and social services facilities, and enable rapid information sharing between local, inter-tribal, State, and federal agencies.

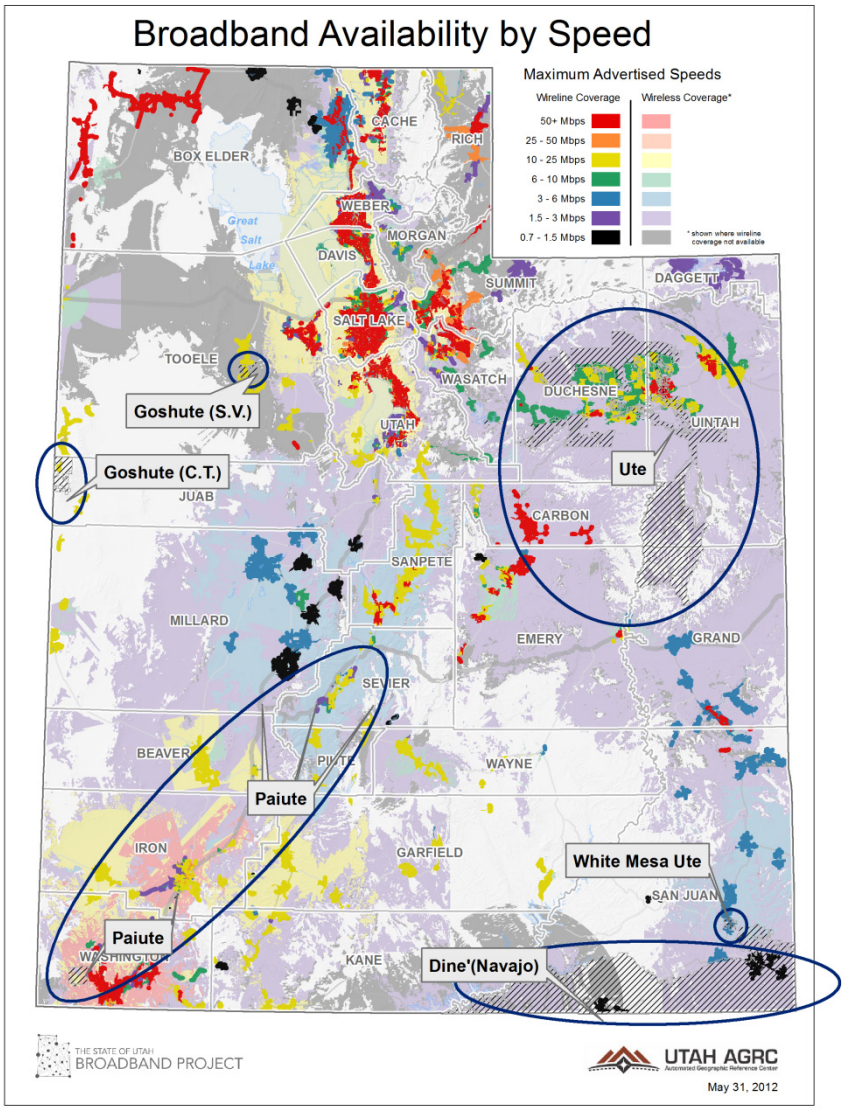

FIGURE 8: Map giving a general overview of Utah tribal areas and broadband availability.

- The Confederated Tribes of the Goshute Reservation received a grant for $200,000 to implement the Regional Broadband Planning for Western Utah and Eastern Nevada Goshute Tribal Lands Project. The Project seeks to advance cooperation and coordination in creating a regional

broadband development plan resulting in development strategies for implementing sustainable broadband infrastructure. The Project intends to advance the use of broadband and other critical infrastructure as a strategy to facilitate local entrepreneurship and expansion of market opportunities for small businesses.

The Utah Broadband Project Team has met with tribal representatives on several occasions and Tara Thue, Manager of the Utah Broadband Project, recently presented an overview of broadband access on tribal lands to Utah tribal leaders. The presentation featured maps of each tribal area, along with an overview of broadband availability. Representatives from the Utah Division of Indian Affairs, Navajo Nation, Northwestern Band of Shoshone Nation, Paiute Indian Tribe of Utah, Confederated Tribes of the Goshute Reservation, and Skull Valley Goshute Tribe attended the meeting.

Recommendations

- Continue to encourage tribal representatives to participate in Utah Broadband Advisory Council meetings to improve coordination and communication.
- Work with tribal representatives to develop strategies to improve broadband access and availability on tribal lands.

Conclusion

This Report has summarized the discussions, findings, and accomplishments of the Utah Broadband Advisory Council from June 2011 to May 2012. By examining the state of broadband in Utah across various sectors, the Council will continue to seek innovative ways to aggregate the deployment of broadband infrastructure. Members of the Council have contributed expertise regarding broadband planning issues and their influence on education, libraries, economic development, public safety, health care, transportation, and rural and tribal access. The work of the Council has encouraged unprecedented partnerships and has resulted in increased coordination and collaboration between both public and private entities to further broadband adoption and deployment in Utah.

In upcoming years, broadband access will become increasingly more important. Economic development, career training, and advances in education and health care rely not only on broadband infrastructure, but on the knowledge and tools to leverage that infrastructure. To continue this effort, the Council will begin to engage in a more targeted approach to coordinate with local and regional planning groups to develop strategies to increase availability and adoption in both rural and urban communities. While much work has been done, there is still much work to do as the Council continues to meet and ensure that Utah remains a leader in extending affordable, reliable broadband services to every citizen of the state.

Comments/Questions

If you would like to submit your questions or comments regarding this Report of the work of the Utah Broadband Advisory Council, please contact our Utah Broadband Project Team.

Contact Information

Address:

Utah Broadband Project
Governor's Office of Economic Development
60 East South Temple, 3rd Floor
Salt Lake City, UT 84111

Phone Number:

(801) 538-8680

Website:

broadband.utah.gov

Blog:

blog.broadband.utah.gov

Email:

broadband@utah.gov

Twitter:

@utahbroadband

THE STATE OF UTAH
BROADBAND PROJECT
BROADBAND.UTAH.GOV