

1st-Mile Institute

New Mexico Broadband Report

September 1, 2011

The State of the State

New Mexico is variably ranked about 46th among the 50 states, for rate of broadband provision, access and adoption. It would not be far-fetched to say that not just the rural, the poor and under-educated are underserved, but that State and local government, schools, libraries, small and large businesses, and most communities in New Mexico are on the wrong side of the ‘digital divide’.

It is increasingly understood that energy and telecommunications are fundamental drivers of our 21st Century economy. The State of New Mexico has many difficult challenges before it, but it has the resources, the social capital and the opportunity to help itself and its people, while setting needed example for the nation. Clear, phased, long-range commitments are now required.

NM Integrated Strategic Broadband Initiative

In Summer 2008, the Governor’s Office, through the NM Computing Applications Center (NM CAC), contracted with Design Nine, Inc. to rapidly prepare a ‘roadmap’ plan/report for a recommended New Mexico “Integrated Strategic Broadband Initiative” (NM-ISBI).

Soon after the report’s submission in Sept. 2008, implementation steps were taken by NM DoIT Cabinet Secretary Marlin Mackey, and by the Governor’s Science Advisor, Dr. Thomas Bowles (NMCAC CEO). The report made it clear that well coordinated public and private sector initiatives could result in substantial win-win economic cost savings as well as gains for both sectors, enabling significant upgrades to statewide broadband network infrastructure, spurring new services and business innovations, improving education and healthcare, and economically revitalizing communities. The NM-ISBI also provided a needed foundation upon which to build a coordinated and successful approach for statewide Broadband Stimulus proposals.

ARRA Broadband Stimulus in NM

From early March through the mid-August 2009 first round submission deadline, weekly Friday morning working meetings were held at the State Library in Santa Fe, with substantial (200+) in-person and statewide phone-conference participation. This process also resulted in the USDA-RUS, NTIA-BTOP and FCC holding their July 2009 regional public workshop in Albuquerque.

The RUS and NTIA subsequently provided two rounds of 2009-2010 funding for fiber and wireless infrastructure deployments, as well as ‘public computing centers’ and ‘sustainable broadband adoption’ programs. Competitive, equitable and affordable broadband provision in underserved rural areas was a federal funding priority.

ARRA Broadband Stimulus Awards

At the end of September 2010, the federal government concluded the awarding of broadband stimulus funds, a \$7.2 billion portion of the Obama Administration's \$787 billion total American Recovery and Reinvestment Act (ARRA) allocation.

New Mexico fared relatively well in this process that was programmed through the USDA RUS Broadband Infrastructure Program (BIP: grant/loan combinations), and Commerce Department's NTIA Broadband Technology Opportunity Program (BTOP: grants for infrastructure, public computing centers and sustainable broadband adoption).

In total, New Mexico entities (telecom providers, state government, institutions, libraries, tribes, public housing, energy coops and regional community initiatives) have been awarded a total of \$180.3 million (approx. \$12 million of which was rescinded). Some New Mexico communities will also benefit from local participation in the funded efforts of national or multi-state projects.

All grant and loan recipients will also invest substantial matching funds and loan repayments, resulting in at least \$400 million being spent for in-state broadband related projects over the next two to three years, with many ongoing and new jobs and economic opportunities being created.

The New Mexico Governor's Office expressed its recommended support for project applications which were participating in or were being developed in accord with the State's "Integrated Strategic Broadband Initiative"; its main objective being that coordination of all statewide local and regional, public and private sector projects, could lead to greatest bang-for-buck results and benefiting social outcomes.

Infrastructure

ARRA stimulus funds are going to support a number of broadband infrastructure projects in New Mexico. ENMR/Plateau, Baca Valley Telephone, Penasco Valley Telephone, Windstream Communications, US Cable, La Jicarita Electric Coop, Kit Carson Electric Coop, San Ildefonso Pueblo, Navajo Tribal Utility Authority (NTUA) and the NCNM REDI Net intend to upgrade systems and to extend middle-mile fiber infrastructure, as well as to reach customers with enhanced fiber, DSL and wireless deployments in their geographically dispersed service areas. Technical, geographic and social aspects of these projects vary widely, but should result in many jobs, while additionally stimulating the economies of the communities to be served.

For example, construction on ENMR/Plateau's fiber deployment is estimated to now be about 55% complete. The first phase core fiber network is currently being turned up for testing and service, and should be completed by the end of this year. Plateau is meeting with anchor institutions throughout the network's service area, to provide project updates and to discuss new services that can be offered. Phase two bids are now being reviewed, with construction expected to start in October. All work must be completed by July 31, 2013. In addition to ENMR/Plateau staff, its engineering and construction contractors are creating (25+) jobs, with more jobs to be created as connectivity and service to anchor institutions gets under way.

‘Open’ broadband networks as being deployed by the NTUA, Kit Carson Electric Coop and the REDI Net, involve public sector investment in and ownership of infrastructure, to be leased to competitive private sector services and content providers, generating private and public sector income, ideally offering subscribers greater choice of providers, services and reduced pricing.

Spotlight on North Central NM Interconnecting Broadband Projects

In north central New Mexico, an increasing number of government organizations, communities, pueblos, public institutions and companies are partnering on an integrated open fiber network extending from Taos, Colfax and Rio Arriba to Los Alamos and northern Santa Fe counties, led by broadband stimulus funded Kit Carson Electric Coop, Northern New Mexico Council of Governments’ REDI Net, and San Ildefonso’s Tewa Broadband (wireless).

REDI Net partners include the Pueblos of Ohkay Owingeh, Santa Clara, Tesuque, Pojoaque and San Ildefonso; the counties of Los Alamos, Rio Arriba and Santa Fe; and the City of Espanola. Initial active first-mile service-provider partners include Tewa Broadband, Agavue, Kit Carson Telecom and ENMR/Plateau, with more expected to join.

Area rural electric cooperatives will help operate and maintain the the REDI Net, with Jemez Mountains Electric Cooperative providing outside plant maintenance, and Kit Carson Electric Cooperative managing the network, which will offer wholesale bandwidth to ISPs.

Kit Carson Electric Cooperative (KCEC), with central facilities in Taos, is deploying fiber on poles to serve anchor institutions, homes and businesses in 29 communities, including Taos and Picuris Pueblos. KCEC is setting national example for its efforts to integrate broadband and ‘smart energy grid’ infrastructure, systems and business strategies.

Tewa Broadband, connecting to the open fiber network, is providing wireless Internet service to over 2400 households in the 1000 square mile upper Rio Grande Valley, including San Ildefonso Pueblo, El Rancho, Jaconita and Jacona, to the El Rito Highway.

Los Alamos County is currently contracting for local extension of its municipal fiber network, which will connect to the REDI Net. County and City of Santa Fe are planning to deploy a community extended southern section (e-Cequia) of the regional open fiber network, as well.

The State Department of Information Technology (NM DoIT) received a critically important and substantial NTIA infrastructure grant to upgrade deployment of the statewide public safety and emergency communications network.

These projects, while extending and enhancing broadband access and service capabilities, will also address pricing, affordability and competitive interconnectivity issues, while providing enhanced connectivity to numerous identified ‘community anchor institutions’, including government facilities, libraries, K-12 schools, colleges, tribal, healthcare and public safety sites.

Access, Adoption and Capacity Building

New Mexico applicants also received NTIA BTOP awards to help narrow the digital divide. The State Library and partners (UNM Extended Ed., Global Center for Cultural Entrepreneurship and 1st-Mile Institute) received a Sustainable Broadband Adoption (SBA) grant. Their “Fast Forward New Mexico” initiative will provide laptop training computers and a rich complement of education and public skills-development programs, at (16+) selected libraries throughout the state over a two year schedule.

Santa Fe Public Housing Authority received a Public Computing Centers (PCC) award to establish a computer lab with training programs for its residents and neighbors. Additional NTIA SBA and PCC awards to multi-state organizational initiatives, will benefit New Mexico partner sites, including the Boys and Girls Clubs of Santa Fe, public housing centers in Anthony, underserved Hispanic communities in Albuquerque, and will provide nationwide enhanced online services for the deaf.

If public access, education and adoption programs successfully lead to increased numbers of broadband subscribers, ongoing support by benefitting ISPs may be a means to for programs continuation. These programs can go a long way to help bridge the very difficult economically and socially undermining digital disparities still widening in our rural and urban communities.

According to the Akamai “State of the Internet” Report of Jan. 25, 2011, prior quarterly increases in high broadband adoption of 10% or more were seen in 23 states and the District of Columbia, with New Mexico topping the list at 60% growth. This refers to is the comparison of New Mexico's 3rd quarter rate (21%) to the second quarter (13%), at speeds over 5 Mbps. This included 578,764 unique IP addresses that were geo-located to New Mexico.

NM DoIT Broadband Mapping and Planning

In 2010, along with all other states and some territories, the NM DoIT was awarded \$1.4 million in NTIA States Broadband Data and Development Program (SBDDP) funding for a two year project to gather and analyze data, and map broadband in New Mexico, with an additional \$500,000 for five years of statewide broadband planning. Early in 2011 the NM DoIT received \$2.9 million in supplemental funds to extend ‘mapping and planning’ work through end of 2014, with additional support for specified capacity-building and technical assistance programs.

By integrating comprehensive broadband data gathering, analysis and verification, GIS mapping, web site development, regional planning efforts, technical assistance, capacity-building projects and public outreach (including workshops and conferences), this program can go far to improve coordination and decision-making with all broadband providers and stimulus awardees, state institutions, tribes, communities, as well as with the NTIA, RUS and FCC. Also included is funding to continue to regularly update and make the “NM-ISBI” an online ‘living document’.

** The table at the end of this report lists of all New Mexico broadband stimulus awards.*

FCC National Broadband Plan and NM

On March 16th, 2010, the FCC presented its “National Broadband Plan” to Congress. The Plan and following political processes will result in some near term actions, and many yet uncertain policy outcomes. The NBP will have implications for the State, and for telecommunications companies, communities, tribes and others. It will have bearing on pole-line attachment and right-of-way issues. It promotes more coordinated integration of smart energy grid and broadband deployments. It will open added spectrum for public and emergency wireless communications. It will restructure the Universal Service Fund to subsidize E-Rate plus broadband accessibility and affordability for those most in need. Changes in the national broadband environment will also need to be incorporated and leveraged in State initiatives.

New Mexico tribal communities will hopefully benefit from the FCC’s recent establishment of an Office of Tribal Affairs and Policy, and a Native Nations Broadband Task Force, which now includes representatives of the Pueblos and of Navajo Nation.

USDA RUS Awards

Above and beyond ‘stimulus’ funding, the Department of Agriculture’s Rural Utilities Service (RUS) programs make low-interest loans and grants throughout the year, as it has done since the mid -1990s. Recipients of RUS loans, and of their Community Connect, Distance Learning and Telemedicine awards in New Mexico since late 2009 include: Agavue, LLC; Tularosa Basin Telephone Coop; Leaco; Western NM University; Regional Education Coop #9; and Nizhoni Smiles, Inc., for a combined total of nearly \$70 million in loans and grant awards.

CenturyLink

The merger of Qwest Communications and CenturyLink was formalized this past Spring, with all Qwest service areas in 14 states, now doing business as CenturyLink. CenturyLink stated that it would make good on the commitments made by New Mexico Qwest in the Alternative Form of Regulation (AFOR) approved by the Public Regulation Commission (PRC) in late 2009, including expansion of broadband services to 75 percent of the rural areas in its service territory.

CenturyLink recently announced that it completed ahead of schedule the \$258 million capital investment, as ordered by the New Mexico PRC under the 2007 Second Amended Settlement Agreement (SASA), with \$3 million above the \$255 million investment required per the SASA. It also announced plans to invest at least \$20 million to improve and expand broadband communications and increase connectivity speeds to consumers in New Mexico.

There’s More

There are many more large and small carriers, cable companies, telcos, rural coops, ISPs, tribal and municipal networks throughout the state, working without stimulus funds or grants. It is

not any easy business for them in the currently evolving broadband economic environment, but there are ‘shining lights’. Sacred Wind Communications is a trusted provider and partner for Navajo communities, many without water or electricity. The City of Farmington is about to extend its fiber network and services within the city and east to Bloomfield and Aztec, and west to Kirtland. Los Alamos County is currently also extending its fiber network. There are many (wireless) WISPs providing the only service in some rural areas, and much needed competition in many other areas of the state. And in Albuquerque, CityLink Fiber, Inc. is setting national example with its affordable, open access, gigabit fiber to the premises deployment and services.

Another New Mexico initiative of note is the NMCAC’s “Encanto” supercomputer and statewide Gateway network, which now has 27 higher education institutions initially connected. A more effective and enhanced, collaborative education and research network is still required.

Content and Applications

It is unfortunate that our broadband enabled future is so caught up with the contentious issues of who owns and controls broadband networks and services, when what really matters is how we use these network capabilities to improve our lives and livelihoods. The Internet is a network of networks, which should be planned and deployed to augment and serve all sectors of society. Fiber and wireless broadband networks (copper is to be phased out over time) are the means of transport for a wealth of networked applications, developments and distribution, which will foster a next wave of innovation and of the broadband networked economy.

Though New Mexico was awarded FCC tele-health network funding four years ago, and there are some small current beginnings, little has yet been implemented. The State Legislature and IDEAL NM are supportive of broadband networked schools and distance learning, especially in our most rural communities, yet many schools remain under-served. The State of New Mexico has been ranked near last among all states for online e-government applications and usability.

Most critically, our broadband networks must be built in coordination with new ‘smart grid’ energy infrastructure, transportation, public works and water infrastructure improvements. We cannot afford separate and redundant construction projects. We should only ‘dig once’.

Economics and Jobs

While broadband and digital media growth opportunities are clearly a key to economic development and innovation, civic participation, science and technology R&D, and cultural entrepreneurship, there is need for state leadership and advocacy to make this a reality. Broadband development is not included in the State’s “Invest New Mexico” plan. A July 2011 Bureau of Labor Statistics report shows that New Mexico was a big loser of jobs, down 14,400 jobs in professional and business services in the last five years, a 13.4 percent drop.

“The Internet accounts for 21 percent of GDP growth over the last five years in mature countries and 2.6 new jobs for every one job lost.” (McKinsey Global Institute, May 2011)

New Mexico Broadband 2011-2015

Between now and 2013, most stimulus awardees will be actively creating jobs, deploying conduit and fiber infrastructure, erecting towers, providing public education and training, upgrading network equipment and offering new voice, video and Internet services to many more people. The State should be an active partner and coordinating body for these many disparate efforts, to assure greatest success in the outcomes for all, in a timely, transparent and least wasteful manner. State government can be a big winner, without need for any added spending.

State government is the largest single customer for broadband services in the state. In 2010, NM DoIT began working to aggregate services for its 2000+ circuits in over 138 New Mexico communities, in order to leverage greater bandwidth provision and reduced rates from incumbent and competitive telecom providers. However, rural market aggregation, increased bandwidth and reduced pricing strategies must be applied not just to State entities, but to all institutions, small businesses and residents across the state, in order to make the business model work for all.

An aggregated total of approximately \$4 billion is spent annually by New Mexico residents, businesses and institutions for telecom services (phone, cable, mobile, satellite and Internet), with much of that amount leaving the state. If one percent (1%) of that total were reallocated annually for broadband infrastructure, access and service upgrades, it would be possible to cost-effectively achieve stated objectives of ‘broadband for all’, within five years.

If New Mexico takes a dedicated course of advocacy and action to meet practical in-state needs, while setting on-the-ground example for the nation, it can easily rise from 46th place ranking, to be among the top ten broadband leading states. In so doing, it can significantly vitalize State and local economies and stimulate the creation of socially and culturally strengthening opportunities.

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1st-Mile Institute is a sub-grantee on the State Library’s NTIA Sustainable Broadband Adoption award, to host a “Fast Forward New Mexico” Broadband Conference in 2012. The 1st-Mile email list, with 300+ subscribers, is New Mexico’s only online broadband information resource.

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Design Nine was contracted by State of New Mexico from 2008-10, to prepare the New Mexico “Integrated Strategic Broadband Initiative” (NM-ISBI) plan, and to help steward a successfully coordinated statewide ‘broadband stimulus’ applications process. Design Nine works nationally.

Richard has directed rural, state and international Internetworking initiatives since the late 1970s. He served on the National Research Council committee making recommendations on next phase local broadband development, publishing “Broadband: Bringing Home the Bits” in 2002.

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New Mexico: USDA-RUS-BIP + USDoC-NTIA-BTOP 'Broadband Stimulus' Awards		
Round 1 Awards		
• State Of NM DoIT	\$ 1.9 million + \$ 2.9 m. Round 2	NTIA SBDDP
• NM State Library	\$ 1.5 million	NTIA SBA
• Santa Fe Civic Housing Auth.	\$.2 million	NTIA PCC
• ENMR/Plateau	\$11.3 million	NTIA Infrast.
• Baca Valley Telephone	\$ 3.3 million	RUS BIP
• Penasco Valley Telecom Co.	\$ 9.6 million	RUS BIP
• San Ildefonso Pueblo	\$ 1.2 million	RUS BIP
• <i>Western Telephone</i>	<i>\$11.5 million (rescinded)</i>	<i>RUS BIP</i>
• Navajo Tribal Utility Authority	\$32.2 million (UT-AZ-NM)	NTIA Infrast.
• Mission Econ. Dev't Agency (Anthony, NM)	\$ 3.7 m. (nationwide)	NTIA PCC
• One Economy Corp. (Albuquerque, NM)	\$28.5 m. (nationwide) (\$ 458,225 in NM)	NTIA SBA
• Communication Service for the Deaf	\$15.0 million (nationwide)	NTIA SBA
• University Corp. for Advanced Internet Dev't	\$62.5 million (nationwide)	NTIA Infrast.
Round 2 Awards		
• NM DoIT	\$38.7 million	NTIA CCI
• ENMR	\$16.5 million	NTIA CCI
• NCNMEDD - REDI Net	\$10.5 million	NTIA CCI
• Kit Carson Electric Coop	\$63.7 million	RUS BIP
• <i>Dell Telephone Coop</i>	<i>\$.4 million (rescinded)</i>	<i>RUS BIP</i>
• Windstream Communications	\$ 2.3 million	RUS BIP
• La Jicarita Electric Coop	\$11.8 million	RUS BIP
• US Cable	\$ 4.5 million	RUS BIP
• Zero Divide (Santa Fe Boys & Girls Clubs)	\$ 1.4 million (6 states)	NTIA SBA
• Hughes Network Systems	\$58.8 million (nationwide)	RUS BIP
• Wildblue Communications	\$19.5 million (west/mid-west)	RUS BIP
NM was awarded \$29.0 M. + part of \$141.9 M. in Round One, and \$151.3 M. + part of \$79.7 M. in Round Two.		
NM Total Broadband Stimulus loan and grant funds awarded to date: \$180.3 M. + a small portion of \$221.6 M.		
NM awardees provided over \$200 million in matching funds to augment total project investments.		



REDI Net fiber deployment near Tesuque Pueblo, Aug. 22, 2011