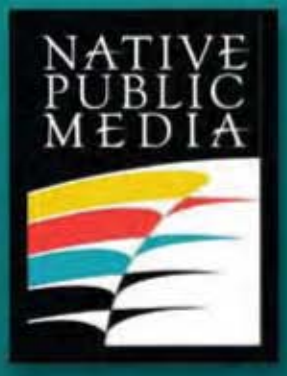
Attachment 1



New Media, Technology and Internet Use in Indian Country

Quantitative and Qualitative Analyses

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Native Public Media

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Native Public Media

Acknowledgements

Founded in 2004, Native Public Media (NPM) has established itself as the national leader in advocating for policies and regulations that will encourage the expansion and strengthening of Native voices through media and platforms that are community-based, local, and democratic. NPM's mission is *to promote healthy, engaged, independent Native communities by strengthening and expanding Native American media capacity and by empowering a strong, proud Native American voice*. With a proactive program of policy analysis, representation and advocacy, NPM works to secure a voice for Native America among policy-making bodies and within the media democracy movement. At the national level, NPM is aggressively advocating for ubiquitous open broadband and for the full consideration of Native America in FCC spectrum and resource allocation decisions. At the tribal level, Native Public Media provides vital training and assistance to established and emerging media outlets, advocates for new technology deployment and works to mobilize Native Nation involvement in the field of media democracy and reform. With the support and guidance of Native Public Media, Indian Country has a voice at a critical moment in the evolution of media in America**.**

Gathering this important data by far has been among the most rewarding tasks we have undertaken at Native Public Media. The data collection process involved extensive visits by the Native Public Media staff into several tribal communities, vetting and norming of the survey instrument, countless consultation with experts at the New America Foundation and others, and extensive interviews with individuals on the ground.

This groundbreaking endeavor could not have been done without the explicit assistance and involvement of the following team:

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Executive Summary

As digital communications and the Internet become increasingly pervasive, Native Americans continue to lack access to this digital revolution. Native Americans are among the last citizens to gain access to the Internet, with access to broadband often unavailable or overly expensive in Native communities. Beyond that challenge, there is a fundamental lack of qualitative or quantitative empirical research on Native American Internet use, adoption, and access, stifling the Native voice in broadband and media policy. As the Federal Communications Commission develops a data-focused and comprehensive National Broadband Plan, the Native voice, and supportive research, is more important than ever.

The *New Media, Technology and Internet Use in Indian Country: Quantitative and Qualitative Analyses* contains the first valid and credible data gathered from the ground up on technology use, access, and adoption in Native American lands. The report combines both a survey of Native American technology use, normed against other national surveys, and case studies of six successful projects exhibiting Digital Excellence in Native America.

The study finds the digital revolution is stirring in tribal communities. Native Americans are using technology when it is available to interact, communicate, share culture, and gain the skills needed in a digital world. Despite a lack of access, higher prices for broadband and often non-existent infrastructure, leaders in these communities have developed a vision and built self-sufficient networks and community technology centers to connect and strengthen their Native communities.

The survey respondents and success stories highlighted in the report are representative of a widespread desire in Native America to have access to 21st century communication technologies to affect the policies that will shape the future of the technological landscape. Towards this end, the report combines a best practices model for deploying similar projects and includes recommendations for the necessary interventions and policies for bridging the Native American digital divide. The report helps to propel Native voices into the national broadband discussion and lays the groundwork for Native deployment, access, and adoption of digital communication that is driven by and serving the needs of Native America.

Introduction

For decades, Native Americans have largely been ignored by federal telecommunications policy and underserved by telecommunications providers. As the Federal Communications Commission (FCC) noted in 2004, "By virtually any measure, communities on tribal lands have historically had less access to telecommunications services than any other segment of the population."[1] Tribal homelands have stood like barren deserts in pockets across the technology rich lands of the United States. Like the last frontier, Native Americans are among the last citizens to receive broadband and the last to access the

[1] Extending Wireless Telecommunications Services to Tribal Lands, WT Docket No. 99-266, Third Report and Order, 19 FCC Rcd. 17652 (2004) Federal Communications Commission, Tribal Lands Bidding Credit and Order.

Internet within their own communities. Broadband deployment in Indian Country is at less than a 10 percent penetration rate while analog telephone reaches only one in three families in many tribal communities.[2] This is the digital divide that disadvantages Native Americans.

The federal government's economic stimulus legislation, known as the American Recovery and Reinvestment act, mandates the creation of a National Broadband Plan and authorizes $7+ billion investment in broadband infrastructure and adoption in under and unserved areas. Together with an increasing recognition of the importance of universal access to digital communications and technology, these factors provide an enormous opportunity to bridge the historical and persistent Native American digital divide. In order to take advantage of these opportunities, local tribal communities need to devise ways to increase information opportunities that will complement the Nation building efforts of American Indian Nations and Alaska Native Villages in the United States. Such an ambitious vision requires the leveraging of quantitative and qualitative data. The *New Media, Technology and Internet Use in Indian Country: Quantitative and Qualitative Analyses* provides a window into the dramatic impact the Internet is already having among Native Americans who historically have not had access to the communications technology. While the findings from this report are exploratory, the *New Media, Technology and Internet Use in Indian Country: Quantitative and Qualitative Analyses* are provides a much needed and significant foundation of data on Native American Internet and technology use.

Increasingly, digital communications technologies are central to educational access, health care delivery, economic development, and civic participation especially in rural areas where upwards of thirty percent of all Native Americans live. For example, an August 2009 U.S. Department of Agriculture report found, "Rural communities that had greater broadband Internet access had greater economic growth."[3] Moreover, emerging media 2.0 patterns are tremendously impacting traditional media. While terrestrial radio remains the central transmitter of information in rural and remote Native communities and bridges across gender, economic and other social gaps, the Internet has become the hub of coordination among different media platforms. As the information eco-system continues evolving, the emerging patterns demonstrate that information is being distributed in new ways and that older models are no longer sufficient, or perhaps to certain audiences, no longer entirely relevant.

As traditional media becomes digitized, the Internet has become the common carriage for all media platforms. Terrestrial radio's constant companion is now the Internet and in the future this will become common fare. Native Public Media is keenly aware that broadband is radically transforming the media landscape directly and indirectly. While the Internet is changing and undergoing innovation, we know that in today's environment, information is now being produced locally, quickly, cheaply and with

[2] According to data from the 2000 decennial census, about 69 percent of Native American households on tribal lands in the lower 48 states had telephone service, which was about 29 percentage points less than the national rate of about 98 percent, January 2006 GAO Report, Telecommunications, Challenges to Assessing and Improving Telecommunications for Native Americans on Tribal Lands.

[3] USDA, *Broadband Internet's Value for Rural America*, August 2009.

abundance. This new digital ecology dictates that Native Americans be included within this dynamic and ever-changing landscape and help to direct the consequences of this transformational technology. As a result, NPM seeks to know how to improve the information health of Native Americans in a world where the Internet has made information global, socially driven, ubiquitous and relatively inexpensive.

Currently, the absence of both qualitative and quantitative data about the Native American telecommunications landscape has been a huge barrier to deployment, access, and adoption of the Internet in tribal communities. *New Media, Technology and Internet Use in Indian Country: Quantitative and Qualitative Analyses* contains critical and vital information allowing for a proactive, engaged role in shaping broadband policy. This report contains the first valid and credible data, gathered from the ground up from Native Nations, and has the potential to significantly influence national media and communications policymaking. It is a fresh opportunity for Native Americans to have a presence and a voice at the policy-making table and have the data to support key positions.

The developing global pattern is a symmetrical media and communications landscape where innovation is taking place anywhere. This includes an increase in the expressive capability and participation of Native Americans. Native societies once considered isolated and closed off from the rest of the world, are now among the fastest growing consumers of the Internet. As this report demonstrates, Native Americans do use technology for a diverse range of activities. *New Media, Technology and Internet Use in Indian Country: Quantitative and Qualitative Analyses* finds that Native Americans are not only tech savvy, but utilizing digital multi-media and communications technologies at rates much higher than national norms.

Native Americans are complimenting the physical and social networks they value, for example RezKast, the first Native American YouTube, is sweeping across Indian Country[4] sharing Native culture within and beyond the local community. Community technology centers provide a space for learning digital literacy skills, serving elders and youth and across economic and social barriers. In community centers, the emphasis is on the social well-being of the community, rather than on technology itself. Telehealth centers, like the five clinics in Leech Lake discussed in this report, allow individuals from rural and remote communities to access specialized health care, expanding the reach of the clinics' services directly to those in need. The services of a hospital or clinic are no longer exclusively based on entry to physical space, because the virtual highway enables service to anyone, anywhere.

However, the report also finds that there is a disparity between Internet availability in tribal communities and a very real digital divide between Native America and the nation as a whole in terms of access, coverage and affordability of service. The greater removed Native Americans are from broadband, the less involvement they are afforded for shaping how to best use new technologies. To benefit from the changing information ecologies, Native Americans need to be involved in the policy process to ensure technology developments meet tribal information needs. Native American

[4] Indian Country is a conceptual term, a geographical space and a legal designation.

communities need access to news and information, which are vital components to take advantage of life's opportunities and to participate fully in self-government.

New Media, Technology and Internet Use in Indian Country: Quantitative and Qualitative Analyses brings to the forefront real data on the use of and access of the Internet and technology in Native America, providing the foundation for Indian Country to be recognized in the discussion of ubiquitous broadband and have a voice and active role in broadband deployment in tribal communities. No matter how rural or remote, Native involvement and participation in the Internet and related technologies is critical to the digital health of Native Nations.

Asquali,
Loris Ann Taylor
Executive Director
Native Public Media
www.nativepublicmedia.org
November 19, 2009

Purpose of Study

This project is Phase One of a multi-phase project designed by Native Public Media to understand Native American use of broadband technologies in building sustained, healthy, engaged, and independent Native American Communities. This study was funded by the Corporation for Public Broadcasting and Benton Foundation, with assistance from the Ford Foundation and the Media Democracy Fund.

Native Public Media serves as an advocate for tribes and Native communities to help strengthen and expand Native voices. With that in mind, NPM works towards developing a plan that will encompass not only traditional land based terrestrial radio stations, but also encourage the building of new media structures including online digital media. The first phase of the plan, presented here, is the collection of data regarding technology use in Indian Country.

Until now, little empirical data was available regarding technology use in Indian Country. Information about the current role of technology in tribal communities, how Native Americans use computers, cell phones, social networking and other web 2.0 technologies, is nearly non-existent. Further, little data is collected about what types of broadband access already exists in Indian Country. In addition to addressing these concerns, NPM also sought to determine existing models that might be replicable and could be used to create a blueprint for emerging Native American broadband projects.

Goal of study

The goal of this study was to gather information and develop a plan for tribes with radio stations and those without access to radio transmission facilities to use broadband media technologies to serve their communities. Since no research or data existed regarding Internet usage in Indian Country, this study sought to fill in this data gap and explore best practices and replicable models for developing broadband projects in Indian Country.

Methodology

This landmark study utilized a twofold methodology: 1) *New Media, Technology and Internet Use in Indian Country: Quantitative Analysis Survey,* an assessment of existing Internet capacity in Indian country; and 2) *New Media, Technology and Internet Use in Indian Country: Qualitative Case Study Analysis,* a case study analysis of successful models on Native lands. This assessment of existing Internet capacity in Indian Country was initiated under the direction of NPM in collaboration with the New America Foundation. The 54-question survey administered via Survey Monkey and face-to-face interviews was designed to elicit answers to questions regarding Internet and new technology usage in Indian Country.

The survey asked respondents basic demographic information and questions about multimedia and internet technology use in order to understand tribal broadband usage. Subsequent questions ranged from use of the Internet for driving directions to political research to blogging. The survey also gathered information regarding access to and cost of services including telephone, computer and cell phone.

Additionally, respondents were asked about other internet technology and media use, including the posting of music, videos, digital photos, and text messaging. This data was compared with samples from the *Pew 2008 Spring Tracking Survey, the Pew Internet and American Life Project's Annual Gadgets Survey, Pew Internet and American Life Project's December 2006 Tracking Survey*, and *Pew Internet and American Life Projects Consumer Choice Survey.*

The second section of the *New Media, Technology and Internet Use in Indian Country: Quantitative and Qualitative Analyses* is a comparative analysis of case studies at six exemplar sites that have demonstrated successful use of broadband and recommends replicable models for other Native communities. The case studies comparatively map out existing resources, technology use and infrastructure, tribal involvement in development of technology resources, funding resources, Internet access, and community involvement.

The six sites in this study fall into three categories: 1) tribal communities that have a radio station and that are streaming; 2) sites that do not currently have a radio stations, but have received construction permits from the FCC to build new full power non-commercial educational radio stations, also known as NCE sites; and 3) sites that may not have future access to terrestrial radio.

Further, the selected sites held the highest promise of the following: broadband access within the community that included the local radio station or new station among its anchor tenants; Internet access via dial-up, digital subscriber line (DSL), cable, fiber optic, satellite, or wireless is dependable and provides consistent service; the tribe or community has a financial sustainability plan for their broadband system; the tribal broadband network has the necessary personnel in place; and the local broadband subscribers are actively engaging community members through the Internet.

Part I. New Media, Technology and Internet Use in Indian Country: Quantitative Analysis Survey

Survey Participant Demographics

Respondents from over 120 tribes living in 28 states completed the *New Media, Technology and Internet Use in Indian Country: Quantitative Analysis Survey* that began in October 2008 and continued through September 2009. NPM staff also surveyed random conference attendees at the National Congress of American Indians Annual Conference and at the National Indian Gaming Conference, both held in Phoenix, Arizona in 2009. In total, 196 surveys were completed, 182 of these 196 surveys (93%)[5] were fully completed. The survey encapsulated perspectives from young adult to elderly (born in years 1934 to 1989) with the median birth year being 1963. Respondents spanned a variety of educational backgrounds: 9% of survey respondents had a high school degree or less; 41% had technical/vocational or some college education; 23% had completed college; and 27% had an advanced degree or post-

[5] All numbers rounded to nearest percentage; as a result summary percentiles may not equal 100.

graduate training. 69% of respondents were employed full-time with an additional 7% employed part-time, self-employed (6%), retired (4%), or students (4%). The respondent sample was middle income, with a median yearly household income of $40,000-50,000; however, 1 in 3 respondents had a total family income of less than $40,000/year, and 1 in 5 respondents had a total family income of less than $30,000/year.

Overall, participants in the New Media, Technology and Internet Use in Indian Country: Quantitative and Analyses were extremely tech savvy, utilizing digital multimedia and communications technologies at rates that are much higher than national norms.

Only 6% of respondents reported that their tribe did not have a website while 88% said their tribe did have a web presence (7% were unsure). A majority of respondents reported that their tribe's website was used for posting events (88%), photos or videos (85%), health and safety advisories (77%), press releases (80%), and job announcements (84%). On the other hand, respondents reported that tribal websites are rarely used for streaming tribal radio stations (10%), podcasting (6%), or blogging (6%). Survey participants indicated the top two sources where they get most of their news about national and international issues as: the Internet (68%), followed by television (63%), newspapers (46%), radio (38%), and magazines (10%).

The Native Public Media staff focused on Native radio participants, thus the survey oversamples from those who may be more technologically and multimedia savvy than the norm. These initial results are exploratory in nature, but provide a snapshot of online and multimedia use within a vibrant sector of Native American society. As one of the first in-depth assessments of its kind, the *New Media, Technology and Internet Use in Indian Country: Quantitative and Qualitative Analyses* adds greatly to our understanding of contemporary uses of new media and technology within an often-overlooked constituency.

Multimedia and Online IT Use

The *New Media, Technology and Internet Use in Indian Country: Quantitative Analysis Survey* respondents were more connected than the national average. A vast majority of respondents used computers at work (96%) and home (91%), while schools and tribal/community centers were utilized by roughly one-third of the respondents for computer access:

13. Do you use a computer at your workplace, at school, at home, or anywhere else on at least an occasional basis?

	Yes	No	Don't know	Response Count
Work	**95.5% (170)**	3.9% (7)	0.6% (1)	178
School	**55.9% (57)**	40.2% (41)	3.9% (4)	102
Home	**90.9% (160)**	9.1% (16)	0.0% (0)	176
Tribal or Community Center	35.7% (35)	**56.1% (55)**	8.2% (8)	98
If you use a computer at a different location, please specify:				22
			answered question	188
			skipped question	8

All but one respondent (99%) reported using the Internet and to receive e-mail at least occasionally, compared with a national average of 73% (according to the Pew Internet and American Life Project Spring Tracking Survey 2008. In addition, a vast majority of the *New Media, Technology and Internet Use in Indian Country: Quantitative Analysis Survey* respondents had accessed the Internet on the day prior to the survey:

16. Did you happen to use the Internet YESTERDAY?

	Response Percent	Response Count
Yes, used Internet yesterday	**86.3%**	**158**
No, did not use Internet yesterday	13.7%	25
Don't know	0.0%	0
answered question		183
skipped question		13

4 out of every 5 survey respondents have been Internet users for over half a decade, while less than 7% had been online for less than 3 years.

17. About how many years have you been an Internet user?

	Response Percent	Response Count
Six Months or Less	1.6%	3
A year ago	2.1%	4
Two or three years ago	2.7%	5
More than three years ago	2.1%	4
More than four years ago	2.7%	5
More than five years ago	5.3%	10
Six or more years ago	**81.8%**	**153**
Don't know	1.6%	3
answered question		187
skipped question		9

These results parallel those found in the *Pew 2008 Spring Tracking Survey* where 10% of respondents had been online 3 years or less and 87% had been online for more than three years (with 73% stating they had been online for six or more years).

Survey respondents were also far heavier Internet users than the national average, with over 90% reporting at least daily use:

18. About how often do you use the internet or email – several times a day, about once a day, 3-5 days a week, 1-2 days a week, every few weeks, or less often?

	Response Percent	Response Count
Several times a day	**84.9%**	**157**
About once a day	7.0%	13
3-5 days a week	4.3%	8
1-2 days a week	2.7%	5
Every few weeks	0.5%	1
Less often	0.0%	0
Never	0.5%	1
Don't know	0.0%	0
answered question		185
skipped question		11

Pew 2008 Spring Tracking Survey respondents reported much lower rates of use of at least once daily from home (58%), work (44%) or someplace other than work or home (9%).

Self-reported Internet activities were collected from the *New Media, Technology and Internet Use in Indian Country: Quantitative Analysis Survey* respondents. Nationally normed samples from the Pew 2008 Spring Tracking Survey along with sample results from the *Pew Internet & American Life Project's Annual Gadgets (Gadgets) Survey*, *Pew Internet & American Life Project's December 2006 Tracking Survey*, and *Pew Internet & American Life Project's Consumer Choice Survey* document numerous similarities between their sample populations and the respondents to the *New Media, Technology and Internet Use in Indian Country: Quantitative Analysis*:

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Pew Survey Online Resource Use Responses:	Ever done this	Did this yesterday	Have not done this	Don't know
Search online for a map or driving directions	86%	10%	14%	0%
Buy a product online, such as books, music, toys or clothing	66%	6%	34%	0%
Buy or make a reservation online for a travel service, like an airline ticket, hotel room, or rental car	64%	4%	36%	0%
Get financial information online, such as stock quotes or mortgage interest rates	36%	10%	64%	0%
Go online for no particular reason, just for fun or to pass the time	62%	28%	37%	0%
Check weather reports and forecasts online	80%	30%	20%	0%
Look online for news or information about politics or the 2008 campaigns	55%	23%	44%	0%
Send “instant messages” to someone who’s online at the same time	40%	13%	59%	0%
Look online for information about a job	47%	6%	53%	0%
Visit a state, local or federal government website	66%	13%	33%	0%
Make a donation to a charity online	20%	1%	80%	0%
Use an online search engine to help you find information on the Web	89%	49%	10%	0%
Create or work on your own online journal or blog	12%	5%	87%	0%
Read someone else’s online journal or blog	33%	11%	67%	0%
Use a social networking site like MySpace, Facebook or LinkedIn.com	29%	13%	70%	0%
Download a podcast so you can listen to it or view it later	19%	3%	80%	1%
Watch a video on a video-sharing site like YouTube or GoogleVideo	52%	16%	48%	1%
Download or share files using peer-to- peer file-sharing networks, such as BitTorrent or LimeWire	15%	3%	84%	0%
Look for information online about a service or product you are thinking of buying	81%	20%	19%	0%
Send or read e-mail	91%	54%	8%	0%
Get news online	73%	39%	27%	0%
Buy or sell stocks, mutual funds, or bonds online	11%	1%	88%	0%
Do any banking online	53%	21%	47%	0%

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19. Please tell me if you ever use the Internet to do any of the following things (if you did this yesterday, please check only that column):

	Have done this at least once	Did this yesterday	Have not done this	Don't know	Response Count
Search online for a map or driving directions	**74.9% (137)**	21.3% (39)	3.8% (7)	0.0% (0)	183
Buy a product online, such as books, music, toys or clothing	**80.1% (145)**	7.7% (14)	12.2% (22)	0.0% (0)	181
Buy or make a reservation online for a travel service, like an airline ticket, hotel room, or rental car	**78.9% (142)**	5.0% (9)	16.1% (29)	0.0% (0)	180
Get financial information online, such as stock quotes or mortgage interest rates	**50.3% (90)**	5.6% (10)	44.1% (79)	0.0% (0)	179
Go online for no particular reason, just for fun or to pass the time	**59.7% (108)**	29.8% (54)	10.5% (19)	0.0% (0)	181
Get tribal, regional, national, or international news	**64.8% (116)**	29.6% (53)	5.6% (10)	0.0% (0)	179
Check weather reports and forcasts online	**64.1% (116)**	32.0% (58)	3.9% (7)	0.0% (0)	181
Look online for new or information about politics or the 2008 campaigns	**70.4% (126)**	10.1% (18)	19.0% (34)	0.6% (1)	179
Send instant messages to someone who's online at the same time	**59.3% (105)**	19.8% (35)	20.9% (37)	0.0% (0)	177
Look online for information about a job	**68.9% (122)**	10.2% (18)	20.9% (37)	0.0% (0)	177
Visit a state, local, or federal government website	**75.4% (135)**	16.2% (29)	8.4% (15)	0.0% (0)	179
Make a donation to charity online	44.4% (79)	2.2% (4)	**51.1% (91)**	2.2% (4)	178
Use an online search engine to help you find information on the web	**62.4% (113)**	31.5% (57)	6.1% (11)	0.0% (0)	181
Create or work on your own online journal or blog	33.3% (57)	7.0% (12)	**56.7% (97)**	2.9% (5)	171

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Read someone elses online journal or blog	**58.5% (100)**	11.7% (20)	28.1% (48)	1.8% (3)	171
Use a social networking site like Myspace, Facebook, or LinkedIn.com	**44.3% (78)**	27.3% (48)	26.7% (47)	1.7% (3)	176
Download a podcast so you can listen to it or view it later	36.4% (63)	6.4% (11)	**53.8% (93)**	3.5% (6)	173
Watch a video on a video-sharing site like YouTube or GoogleVideo	**67.2% (121)**	17.2% (31)	15.0% (27)	0.6% (1)	180
Download VIDEO files onto your computer so you can play them at any time you want	**47.1% (80)**	5.9% (10)	45.9% (78)	1.2% (2)	170
Download MUSIC files onto your computer so you can play them at any time you want	**60.9% (106)**	11.5% (20)	25.9% (45)	1.7% (3)	174
Download or share files using peer-to- peer file-sharing networks, such as BitTorrent or LimeWire	32.4% (56)	6.9% (12)	**56.1% (97)**	4.6% (8)	173
Pay to access or download digital content online, such as music, video, or newspaper articles	44.0% (77)	6.9% (12)	**46.9% (82)**	2.3% (4)	175
Listen to Native radio	**57.5% (100)**	9.8% (17)	31.0% (54)	1.7% (3)	174
Skype or other VoIP application	22.1% (36)	6.1% (10)	**64.4% (105)**	7.4% (12)	163
				Other (please specify)	4
				answered question	**185**
				skipped question	**11**

Pew's annual Gadgets Survey looks at how people across the country use multimedia electronics in their lives. Comparatively speaking, the *New Media, Technology and Internet Use in Indian Country: Quantitative Analysis Survey* respondents utilize more gadgets than national samples.

Pew Gadgets Survey Responses:	Yes	No	Don't Know
A desktop computer	68%	32%	0%
A laptop computer	30%	69%	0%
A cell phone	73%	27%	0%
A Blackberry, Palm or other personal digital assistant	11%	88%	1%
An iPod or other MP3 player	20%	79%	0%
A digital camera	55%	45%	0%
A video camera	43%	57%	0%
A webcam	13%	86%	1%

The *New Media, Technology and Internet Use in Indian Country: Quantitative Analysis Survey* Gadget Use:

20. As you read the following list of items, please tell us if you happen to have each one, or not. Do you have...?

	Yes	No	Don't know	Response Count
A desktop computer	**89.9% (160)**	10.1% (18)	0.0% (0)	178
A laptop computer	**73.9% (133)**	26.1% (47)	0.0% (0)	180
A cell phone	**92.7% (165)**	7.3% (13)	0.0% (0)	178
A Blackberry, Palm or other personal digital assistant	38.6% (64)	**60.8% (101)**	0.6% (1)	166
An iPod or other MP3 player	**62.9% (107)**	36.5% (62)	0.6% (1)	170
A digital camera	**84.7% (150)**	14.7% (26)	0.6% (1)	177
A video camera	**52.0% (89)**	47.4% (81)	0.6% (1)	171
A webcam	44.2% (73)	**55.2% (91)**	0.6% (1)	165
			answered question	**182**
			skipped question	**14**

Respondents to the *Pew Internet & American Life Project's Spring* (2008) Tracking Survey reported receiving Internet access via dial-up modem (15%) and high-speed connection (79%). Of those reporting high-speed connections, 36% used DSL-enabled phone lines, 31% had cable modems, 9% used wireless connections, and 2% had fiber optic lines (none reported having a T-1 line). By comparison, respondents to the *New Media, Technology and Internet Use in Indian Country: Quantitative Analysis Survey* relied far more heavily on wireless connections – possibly reflecting the rural location of many respondents:

22. Does the computer you use at HOME connect to the Internet through a dial-up telephone line, or do you have some other type of connection, such as a DSL-enabled phone line, a cable TV modem, a wireless connection, a fiber optic connection such as FIOS or a T-1?

	Response Percent	Response Count
Dial-up telephone line	7.4%	13
High speed	12.6%	22
DSL-enabled phone line	**25.7%**	**45**
Cable modem	17.7%	31
Wireless connection (either land-based or satellite)	19.4%	34
Fiber optic connection	0.6%	1
T-1 connection	0.0%	0
Don't know	2.9%	5
Other (please specify)	13.7%	24
	answered question	**175**
	skipped question	**21**

The *New Media, Technology and Internet Use in Indian Country: Quantitative Analysis Survey* respondents were also asked which providers served their communities. Several national providers served a small percentage of communities: Verizon (22%), AT&T (30%), Sprint (11%), Comcast (25%), and Qwest (28%). Over 50% of respondents reported receiving coverage from an "other" entity – usually an independent operator, satellite, or tribal provider – or no provider at all:

23. Who are the Internet Service Providers (ISPs) serving your community? (Please check all that apply.)

	Response Percent	Response Count
Verizon	21.7%	38
AT&T	30.3%	53
Sprint	11.4%	20
Comcast	25.1%	44
Quest	28.0%	49
Other (please specify)	**52.0%**	**91**
	answered question	175
	skipped question	21

Nationally, Pew respondents reported paying less than the *New Media, Technology and Internet Use in Indian Country: Quantitative Analysis Survey* participants. 18% of the nationally normed samples from the *Pew Internet & American Life Project Spring* (2008) Tracking Survey paid under $20/month for their Internet service while 40% paid $21-40/month, 14% paid $41-60/month, 1% paid over $61-80/month, and 0% paid over $80/month (3% stated that they paid nothing, did not pay, or got access through work or school). Comparatively, Native Americans reported paying substantially more for their Internet connectivity:

24. To the nearest dollar, about how much do you pay each month for Internet access at HOME? If your Internet access is combined with television or other services, I would like to know just the amount you pay for Internet service.

	Response Percent	Response Count
$20 or less	8.8%	16
$21-$40	**29.1%**	**53**
$41-$60	28.0%	51
$61-$80	11.0%	20
Over $80	3.3%	6
Nothing/Do not pay/Get access through work or school	14.3%	26
Don't know	5.5%	10
	answered question	182
	skipped question	14

Native Public Media

Sharing of media is an important benchmark of technological savvy among Internet users. 55% of the *New Media, Technology and Internet Use in Indian Country: Quantitative Analysis Survey* respondents reported creating their own digital videos, which is more than double the national average of 25%. In addition, 13% of participants in the *Pew Gadget Survey* shared videos through e-mail, 4% posted their videos on the Internet, and 33% copied their videos onto DVDs, while *New Media, Technology and Internet Use in Indian Country: Quantitative Analysis Survey* respondents reported higher than average video use:

28. Do you ever...?

	Yes	No	Don't know	Response Count
Share your videos through email	42.2% (76)	**57.8% (104)**	0.0% (0)	180
Post your videos on the internet	28.1% (50)	**71.9% (128)**	0.0% (0)	178
Copy your videos onto DVD	34.7% (61)	**65.3% (115)**	0.0% (0)	176
			answered question	180
			skipped question	16

In terms of mobile phone use, according to the *Pew Spring 2008 Tracking Survey*, 41% of respondents reported having cell phones and sending and receiving text messages, 37% had cell phones but did not send or receive text messages, and 22% did not have cell phones. By comparison, *New Media, Technology and Internet Use in Indian Country: Quantitative Analysis Survey* respondents were more likely to own cell phones and send and receive text messages:

30. Do you happen to have a cell phone? [IF YES: Do you ever use it to send or receive text messages?]

	Response Percent	Response Count
Have cell phone, send/receive text messages	73.5%	133
Have cell phone, do NOT send/receive text messages	19.9%	36
Do not have cell phone	6.1%	11
Don't know	0.6%	1
	answered question	181
	skipped question	15

Digital photography was an often-utilized technology for the *New Media, Technology and Internet Use in Indian Country: Quantitative Analysis Survey* respondents, with 86% reporting that they take their own digital photos, more than twice the national average (40%) reported on the Pew Gadgets Survey. Pew

Survey participants also shared their digital photos through e-mail (66%) and copied their digital photos onto CDs (62%) at similar rates to respondents to the *New Media, Technology and Internet Use in Indian Country: Quantitative Analysis Survey*, but posted their digital photos on the Internet at substantially lower rates (22%) compared with *New Media, Technology and Internet Use in Indian Country: Quantitative Analysis Survey* participants:

32. Do you ever...?

	Yes	No	Don't know	Response Count
Share your digital photos through email	**79.0% (139)**	20.5% (36)	0.6% (1)	176
Post your digital photos on the internet	**63.3% (107)**	36.1% (61)	0.6% (1)	169
Copy your digital photos onto CDs	**62.4% (108)**	37.0% (64)	0.6% (1)	173
			answered question	178
			skipped question	18

Music and radio were reported as important parts of daily life by Pew Gadget Survey respondents. 70% reported that they listened everyday or almost everyday, 16% listening a few times weekly, 4% listening a few times a month, 5% listening less often, and 5% never listening. By comparison, the *New Media, Technology and Internet Use in Indian Country: Quantitative Analysis Survey* respondents are even more avid music and radio listeners:

35. How often, if ever, do you listen to music or radio shows?

	Response Percent	Response Count
Everyday or almost everyday	**80.4%**	**144**
A few times a week	12.8%	23
A few times a month	2.8%	5
Less often	0.6%	1
Never	1.7%	3
Don't know	1.7%	3
answered question		179
skipped question		17

National samples in the Pew Gadgets Survey reported listening to music or radio for less than one hour (10%), one to two hours (49%), three to four hours (18%), or five or more hours (20%). *New Media, Technology and Internet Use in Indian Country: Quantitative Analysis Survey* respondents consistently listen to more music and radio than the national norm:

36. On a typical day, approximately how many hours do you spend listening to music or radio shows?

	Response Percent	Response Count
Less than one hour	21.0%	37
One to two hours	**34.7%**	**61**
Three to four hours	17.6%	31
Five hours or more	24.4%	43
Don't know	2.3%	4
answered question		176
skipped question		20

Even more interesting, whereas fewer than 1 in 4 respondents (24%) of the Pew Gadget Survey reported listening to music or radio shows on something other than a home or car radio – for instance on a desktop or laptop computer, a cell phone, iPod or PDA; nearly 3 in 4 respondents (72%) of the *New Media, Technology and Internet Use in Indian Country: Quantitative Analysis Survey* did so. To compare, of respondents who listened to radio on devices other than a home or car radio the *New Media, Technology and Internet Use in Indian Country: Quantitative Analysis Survey* participants were more likely to use multiple digital devices to listen to music and radio:

Gadget Usage	Pew Gadget Survey	Native Public Media Survey
Desktop computer	76%	72%
Laptop computer	30%	54%
iPod or other MP3 player	26%	57%
Cell phone	7%	20%
Television	5%	55%
CD player	3%	63%
PDA or personal digital assistant	2%	5%
Other	3%	6%

Other forms of new media entertainment were equally striking. 20% of Pew Gadget Survey respondents stated that they play video games a few times a month or less often, 60% stated that they never play

video games; while only 8% reported that they played everyday or almost everyday and 11% reported playing video games a few times a week. Interestingly, the *New Media, Technology and Internet Use in Indian Country: Quantitative Analysis Survey* respondents were both more likely to play video games and less likely to play video games often than the Pew Gadget Survey sample:

39. How often, if ever, do you play video games, whether on a computer or the Internet or on a game console like Xbox?

	Response Percent	Response Count
Everyday or almost everyday	7.3%	13
A few times a week	10.1%	18
A few times a month	11.7%	21
Less often	30.2%	54
Never	**39.7%**	**71**
Don't know	1.1%	2
	answered question	179
	skipped question	17

A vast majority of respondents in the Pew Gadget Survey sample reported playing video games by themselves (78%); however 62% also played with other individuals in the same location or with other people over the Internet (22%). The *New Media, Technology and Internet Use in Indian Country: Quantitative Analysis Survey* respondents were far less likely to play video games in any of these circumstances:

42. Do you ever play video games...?

	Yes	No	Don't know	Response Count
By yourself	**50.9% (87)**	49.1% (84)	0.0% (0)	171
With other people in the same location as you	35.1% (59)	**64.3% (108)**	0.6% (1)	168
With other people over the internet	10.2% (17)	**89.8% (149)**	0.0% (0)	166
			answered question	171
			skipped question	25

Another area where Pew Gadget Survey respondents differed dramatically from the *New Media, Technology and Internet Use in Indian Country: Quantitative Analysis Survey* participants was in their

uses of information alerts. Nationally, fewer than one third (31%) of Pew Gadget Survey participants receive alerts on their computer, cell phone, or PDA; however, nearly two-thirds (65%) of the *New Media, Technology and Internet Use in Indian Country: Quantitative Analysis Survey* respondents report doing so. For the Pew sample, 80% received alerts on their desktop computers, 27% on their laptop computers, 14% on their cell phones, and 3% on their personal digital assistants (PDAs). While the *New Media, Technology and Internet Use in Indian Country: Quantitative Analysis Survey* participants utilized their desktop computers less often to receive alerts, they used all other devices substantially more often:

44. Where do you receive these alerts – a desktop or laptop computer, a cell phone, a PDA, or some other device? (Please check all that apply.)

	Response Percent	Response Count
Desktop computer	**54.5%**	**79**
Laptop computer	38.6%	56
Cell phone	40.7%	59
PDA or personal digital assistant	6.2%	9
Don't know	13.8%	20
Other (please specify)	4.8%	7
	answered question	**145**
	skipped question	**51**

Measuring community engagement and Internet connectivity in a digital era requires looking beyond traditional modes of collaboration. The Pew Gadget Survey found that people kept in touch with group members and group activities through face-to-face meetings (83%), phone calls (75%), e-mail (60%), text messaging (8%), instant messaging (10%), listservs and group e-mails (45%), and group websites or blogs (31%). The *New Media, Technology and Internet Use in Indian Country: Quantitative Analysis Survey* participants were, as a whole, well-connected with the hobbies they took part in and utilized newer communications media more often than the national norm:

46. Thinking about the group in which you are MOST active, how do you keep in touch with group members or keep track of group activities? Do you ever keep in touch with this group through...?

	Yes	No	Don't know	Response Count
Face-to-face meetings	**81.0% (119)**	18.4% (27)	0.7% (1)	147
Phone calls	**82.9% (126)**	16.4% (25)	0.7% (1)	152
Email	**90.3% (139)**	9.1% (14)	0.6% (1)	154
Text messaging	**49.6% (65)**	**49.6% (65)**	0.8% (1)	131
Instant messaging	33.9% (38)	**65.2% (73)**	0.9% (1)	112
Listservs or group emails	**69.3% (95)**	29.9% (41)	0.7% (1)	137
A group website or blog	**57.8% (74)**	40.6% (52)	1.6% (2)	128
			answered question	**164**
			skipped question	**32**

One key issue that was raised during the construction of the *New Media, Technology and Internet Use in Indian Country: Quantitative Analysis Survey* was the problem faced by residents in many parts of Indian communities where cellular phone service may not be available. In particular, it is well known that cellular coverage on many tribes' lands is limited or non-existent. The *New Media, Technology and Internet Use in Indian Country: Quantitative Analysis Survey* documents this problem – by surveying people in over 120 tribes, the Survey clarifies how rare universal cellular coverage is, with less than 10% or respondents reporting universal cellular coverage in their community:

47. Please estimate what percent of your community has cell phone service?

	Response Percent	Response Count
0%	1.9%	3
10%	4.4%	7
20%	3.8%	6
30%	5.6%	9
40%	4.4%	7
50%	7.5%	12
60%	9.4%	15
70%	12.5%	20
80%	**21.3%**	**34**
90%	20.6%	33
100%	8.8%	14
answered question		160
skipped question		36

The five main cellular providers respondents reported in their communities are Verizon (55%), AT&T (48%), Sprint (32%), T-Mobile (24%), and US Cellular (16%). 20% of respondents chose Tribal Telco or "Other" as an available provider (and nearly half of those choosing this category – 8% of the total – stated that Alltel was available).

42% of the *New Media, Technology and Internet Use in Indian Country: Quantitative Analysis Survey* respondents stated that their tribes already had radio stations. Of respondents who stated their tribe already had a station, 29% stated that programming was available on the Internet and 46% that it was not (27% of respondents were not sure whether programming was available online, which points to a high degree of uncertainty about this potential resource). Finally, the *New Media, Technology and Internet Use in Indian Country: Quantitative Analysis Survey* also looked at whether respondents would want their tribe to become an Internet, telephone, and/or Information Technology (IT) service provider, or run a radio station:

49. Would your Tribe want to become an Internet, telephone, and/or Information Technology (IT) service provider? (Please check all that you would support.)

	Response Percent	Response Count
Internet Service Provider	**58.1%**	**72**
Telephone Provider	37.9%	47
IT Service Provider	33.9%	42
Other (please specify)	41.9%	52
answered question		**124**
skipped question		**72**

Conclusions and Limitations

The *Native Public Media New Media, Technology and Internet Use in Indian Country: Quantitative Analysis* provides one of the most comprehensive assessments of new media and Internet Technology use among Native American communities ever conducted. The survey draws poignant comparisons between survey participants and nationally normed samples and provides much needed insight into often-overlooked constituencies. Several of the Survey's results call out for further investigation. For example, survey responses indicate that residents on tribal land are being charged more for their Internet Services than the national average. This, in addition to the lack of an ISP in many locations, creates a substantial challenge for those working to close the digital divide in Indian Country.

This report provides a brief overview of the *New Media, Technology and Internet Use in Indian Country: Quantitative Analysis Survey* results. Because the survey sample was not randomized, its results are best utilized for exploratory purposes. While detractors may wish to dismiss the results outright, this would be ill-advised as the results highlight several key themes well worth paying attention to and exploring more fully. The Survey was specifically constructed to facilitate analyses both among respondents and to allow for comparisons to be drawn between this group of Native Americans and nationally normed results from similar broadband use surveys.

Overall, participants in the *New Media, Technology and Internet Use in Indian Country: Quantitative Analyses Survey* were extremely tech savvy, utilizing digital multimedia and communications technologies at rates that are much higher than national norms. The Survey's findings should, however, not be misconstrued to mean that broadband access is widely available on Indian lands, but rather that the selected participants have managed to find ways to access broadband resources and that there is a

great demand for these resources among these segments of the Native American community. Severe limitations in new media and IT infrastructure on Indian lands were identified by respondents and respondents were also quite interested in seeing tribal self-provision of these services.

The Survey results clearly demonstrate that there is a strong desire to see 21st Century communications infrastructures implemented throughout tribal lands and that when Native Americans have access to these resources, they utilize them in substantial numbers. Such an important finding should help catalyze interest in exploring solutions to the digital divide in Native American communities.

Part II. New Media, Technology and Internet Use in Indian Country: Qualitative Case Study Analysis

Introduction

These case studies are a comparative analysis of successful existing models of Digital Excellence in Indian Country. Each of the six chosen locales demonstrate successful use of technology and broadband and is an example of a potentially replicable model for other Native communities. The final group of six was narrowed down from a larger selection of sites, chosen only after numerous interviews and site visits.

The *Community Wireless Network Interview Guide* was used to interview representatives from each of the six chosen case study projects.[6] The questionnaire was designed by outside academics for the New America Foundation and used by Native Public Media (NPM). The questionnaire asks standardized questions, allowing NPM to compare and contrast the case studies presented in this document and to analyze the data across different networks.

In administering this study, NPM maintained consistency with the original format of the study, with the addition of one question at the end, which asked interviewees what it would take to replicate what they had done in their community in other communities. While the guide was followed closely, in some instances it was not relevant to the population interviewed. For example, questions on the network design and management were not relevant at the sites with radio stations using third party groups to stream the broadcast. In other cases, the interviewees did not have access to the requested information.

Case Study Project

Native Communities with terrestrial public radio stations: The Native communities studied represent a number of different approaches to deploying and utilizing media and digital communications. Among

[6] See Appendix I

these were several Native communities with a terrestrial radio station. The Lac Courte Oreilles Reservation in Wisconsin is home to WOJB, a 100,000 watt station providing radio service to Native and non-Native populations in northwestern Wisconsin, including service to the Bad River, St. Croix, Lac Du Flambeau, and Red Cliff Ojibwe bands. KGVA in Montana is operated out of Fort Belknap College and serves the Assiniboine and Gros Ventre Tribes that reside on the Fort Belknap Indian Reservation. Both stations are streaming radio broadcasts on the Internet.

Native communities with non-commercial educational radio construction permits: Coeur D'Alene in Idaho, the Confederated Tribes of Colville in Washington, and Leech Lake in Minnesota, have permits to start a non-commercial educational (NCE) station and are in the design and planning stage. Each of these groups was selected because the infrastructure they have in place is replicable and could serve as a model for other Native communities. For example, The Coeur D'Alene Tribe has an IT department with an established wireless Internet Service Provider (ISP) business, Red Spectrum, and a two-year-old community computer technology center. The Confederated Tribes of the Colville Reservation opened a computer center in June of 2009, hosting ten Windows workstations. Colville applied for an NCE license and they are awaiting their construction permit. They are currently in a competitive situation with a Spokane Public Radio station; both are applying for the same NCE radio licence.

The Leech Lake community in Minnesota has been granted a construction permit to build a full-power NCE station. They are one of four Ojibwe bands in Minnesota (the other three Ojibwe bands are Boise Forte, White Earth and Fond Du Lac) who have been approved to begin construction on their radio station. If all projects proceed as planned, there will be four Minnesota Tribes with a full-powered radio station. The Leech Lake tribe IT department is headed by Frank Reese, under whose direction the tribe submitted two Broadband stimulus proposals in 2009. Both include wider deployment of broadband and the local tribal community college as an anchor partner. At the time of publication, grant awardees have not been announced.

Native Communities without terrestrial radio stations: Southern California Tribal Digital Village (SCTDV), based in California is a unique project. It began in 2005 with funds from Hewlett Packard awarded to a Southern California consortium of nineteen tribal communities under the leadership of the Southern California Tribal Chairmen's Association (SCTCA). The system hosts email, web browsing, distance learning and other services, and links schools, tribal offices and community members. Since it is the first network of its kind in Indian Country, it is a natural fit for the *New Media, Technology and Internet Use in Indian Country: Qualitative Analysis.* SCTDV does not anticipate being able to include a terrestrial radio station.

Key Findings

Each of the six case studies, the respective interviewees and the networks they manage and/or developed represent a diverse Native group, not only tribally—California Indians, Plains groups, and Woodlands groups—but technologically with ISPs, traditional telecoms, and streaming video and radio.

The following section provides a summary of the key findings of the projects. In order to understand and appreciate the complexity of the environment in which these projects evolved, it is important to understand the role of the tribal government(s) and/or their tribal councils. Most tribes vest legislative authority in a tribal council, although the authoritative body is not always referred to by that name. The council members are normally elected for a specified number of years. In some tribes, they are elected by districts, in others at large, and still others are appointed by the traditional leadership of the tribe. The council is given general governmental powers over the internal affairs of the tribe through the passage of ordinances or resolutions. In general, the fiduciary interests of the tribe are entrusted to the council(s).[7]

Design and Management

The projects evolved when one or more individuals recognized a community need, saw an opportunity, and took action to bring service to the community, be it radio, streaming, broadband, or phone service. Often, the projects evolved quickly, catalyzed by an outside funding opportunity with limited formal input and involvement from the community, but with the necessary involvement from tribal leaders. Most of the projects were guided by leader(s) who recognized the value a successful project would bring to the community. With the exception of Leech Lake, where the Management and Information System (MIS) department designed the entire system under the direction of the tribal council, most projects evolved organically with involvement from tribal leaders focused specifically on tribal investment into the projects and the necessary approvals and clearances. The project design and development was left up to the local project management team.

In the case of Coeur D'Alene, Director of IT Valerie Fasthorse, and her colleague Tom Jones, a tribal contractor, received a United States Department of Agriculture (USDA) Rural Utilities Service (RUS) Grant. Once tribal leaders approved the development plan and funding, they were not directly involved in development of the project. Southern California Tribal Digital Village (SCTDV) was similarly spurred by funding opportunities. Jack Ward, of the Southern California Tribal Chairmen's Association and Ross Frank, a professor of Ethnic Studies at the University of California, San Diego, received a Hewlett-Packard Digital Village Grant. The network grew over the course of three years with limited involvement from the Southern California Tribal Chairmen's Association. The network on the Colville Reservation began as an email system attached to the Bureau of Indian Affairs (BIA). Under IT Director Larry Hall, the system grew and eventually split from the BIA. Now independent, the system encompasses over 1000 computers supporting tribal gaming, social services, and the tribal administration.

The two streaming radio stations, WOJB and KGVA grew through individual leadership, similar to the

[7] The tribal council, are the elected members who hold the legislative authority for the tribe. The council has general governmental power over internal affairs of the tribe. The Tribal Government's legislative branch is the tribal council. The tribal council is responsible for passing ordinances and resolutions that codify rules and regulations over matters within their jurisdiction including land, natural resources, education, law enforcement, etc. Canby Jr, William C. *American Indian Law in a Nutshell* . 4th ed. St. Paul: Thompson-West, 2004. pp 65.

networks. In 1999, Camille Lacapa, former station manager, had the idea that WOJB could stream a pow-wow over the Internet after recognizing a demand for more Native programs and online content. The station is still streaming after ten years. Will Gray Jr., KGVA Station Manager, and Radio Announcer Robert Bell set up streaming for KGVA in response to interest from listeners who no longer lived within range of the terrestrial station's broadcast signal. Originally streaming through Fort Belknap College servers in 2008, they now have grown to require a specialized streaming service.

In all cases, community input was solicited by the word-of-mouth network referred to by some groups as the "moccasin grapevine." The urgency under which many of these projects developed left limited opportunity for community involvement on a more formal basis for most of the projects. For example, WOJB began streaming as a result of collaboration between a community college and a local tribal newspaper. One exception is the Southern California Tribal Digital Village, which held bi-monthly and quarterly meetings with community representatives and shaped the network from their input.

Technology Use

The studied projects are evolving and growing every year, stimulated by new funding opportunities and relevant technological advances. Together the projects utilize a diverse set of technologies, especially in terms of network architectures.

All of the network projects are making use of hybrid wireless and wireline topologies for their last-mile and middle-mile networks, using a 2.4 GHz and/or 5 GHz spectrum to provide last-mile services. To avoid interference in the unlicensed spectrum, Southern California Tribal Digital Village uses licensed 5.3 GHz and 5.8 GHz spectrum for middle-mile connections. Although most of the wireless connections are point-to-point or point-to-multi-point, some projects have deployed modern wireless technologies. For example, SCTDV has deployed an open source wireless mesh network in one of its partner tribal communities.

The middle mile points connect to the Internet by a wireline connection from a local ISP. Leech Lake and Colville are connected by a T-1 (1.5Mbps/1.5Mbps upload/download) while KGVA is connected by a DSL line. SCTDV is connected by a fiber optic DS3 line (45Mbps/45Mbps upload/download) while Coeur D'Alene is connected by a bonded fiber optic DS3 line (100Mbps/100Mbps upload/download).

These hybrid middle and last-mile technologies allow the networks to provide service to very remote and rural areas. SCTDV provides service to eighty six community and tribal buildings, thirteen libraries, five Head Start facilities, two schools, and twenty two homes. Coleville is serving 100 tribal locations, 800 users, and maintains 6 wireless hot spots. Leech Lake is enabling five clinics to utilize tele-medicine applications. Coeur D'Alene provides service to five locations and access to its 45,000 acre reservation. In addition to access to the Internet, most projects have the potential for VOIP services, and have online local centric community portals and E-mail accounts.

Of all the projects, only WOJB is a completely open public network. While all of the projects generally support Network Neutrality and open network principles, all of them are filtering malicious content. Leech Lake is blocking access to all social networking sites. SCTDV is only filtering to the libraries they serve as required by the federal E-rate program.[8]

Financing Information

One strong commonality across the projects is the investment by tribes into the projects. Additionally, in four of the case studies, tribes financed significant portions, if not all, of the development of networks and infrastructure building. Further, all groups have a commitment to ongoing support through tribal telecommunications budgets. Financing, operational costs and budgets vary wildly across the projects, but what is clear is that tribes are investing into their own networks and are focused on sustainability. What is significant across all of the networks is that the tribes invested not only with financial capital, but with human resources into the projects either directly or indirectly. In the case of radio stations WOJB and KGVA, their streaming is self-supporting via underwriting and pledge drives, but they have backup tribal funding if needed.

Initial seed funding came from diverse sources. For example, the Colville and Leech Lake projects were initially funded by their local tribal governments. SCTDV and Coeur D'Alene were both funded by grants. SCTDV was initially funded by a $5 million grant from HP's Digital Village fund and received free bandwidth from its local provider and Coeur D'Alene received a grant from the USDA with a match from the tribal government for a total of $2.8 million.

Equally as diverse are the projects' sources of operational funds. Although Coeur D'Alene initially received matching grants from the tribe, they are now self-sufficient. Southern California Tribal Digital Village receives tribal support in terms of salary, time and significant in-kind donations. SCTDV also had support from other funding sources such as the National Science Foundation, CTFC Community Grant Seed Money, and ZeroDivide. Additionally, both of these groups see ongoing maintenance and replacement costs paid for from tribal budgets. The Colville, Coeur D'Alene, and Leech Lake projects are self-sustaining, providing competitive, low cost, and free internet services to the local tribe and communities. SCTDV also has plans to offer subscription services as an ISP, as do Colville and Leech Lake; all are dependent on grant funding. Those projects with radio stations cover their monthly streaming costs from underwriting programs and have tribal funds available if needed. Other sources of sustainability funding include grants and in-kind donations from community members, tribal and other local organizations such as community colleges.

[8] Note: SCTDV has a special exemption in order to qualify for E-Rate; they obtained community support and support from the library system of California and after presenting their case to the FCC and successfully supporting their case. They are the lone exception to this rule.

With growing support and awareness in the local communities and tribes, many of the projects are finding more and more funding from local partners in the community. Additionally, SCTDV, KGVA, and Leech Lake are also seeking federal assistance for larger capital expenses by applying for grants from the $7.2 billion allocated by Congress in the American Recovery and Reinvestment Act for the Broadband Infrastructure Program and Broadband Technology Opportunity Program (BIP/BTOP).

End Use

The projects offer a diverse array of services for end-users, depending upon network technologies, the availability of a community technology center, and specific community needs. Individuals are using the Internet for educational programs, for health research, to gain information on tribal programs and events, and to apply for tribal, federal and state programs such as Temporary Assistance for Needy Families (TANF). Tribal governments are using the Internet to conduct tribal government business, communicate with their other tribal communities and tribal members, and to apply for federal programs and grants. Tribal radio stations are using the Internet to keep members culturally connected through streaming, maintaining a website presence, and by applying multimedia applications including video, podcasts and blogs.

Coeur D'Alene provides wireless broadband to homes, with four tiers of service with downstream speeds ranging from 256 kbps to 1.5 Mbps. Coeur D'Alene also has a community technology center that serves a range of community members and is the most useful aspect of the network. Located near a school bus stop, students use the center after school and for college distance learning classes. Additionally, the tribe hosts classes that teach community members basic skills for using the Internet, such as researching health and wellness information.

SCTDV, the Leech Lake network, and Colville provide services through connected community centers or tribal institutions. SCTDV currently serves twenty-two homes, with a build-out plan to connect up to 2,700 homes. The network serves a variety of institutions, connecting tribal buildings including schools, libraries, as well as emergency services such as tribal police and fire stations. The Leech Lake network serves tribal operations including five medical clinics, community centers, and the casinos, offering traditional telephone, Internet and VoIP services. However, Leech Lake does not provide service to homes. Colville's network connects tribal institutions and casinos, facilitating communication between districts. Colville recently added a community technology center to their network, with ten machines as of July, 2009. A new addition, the center has not had an opportunity to reach its full potential.

WOJB and KGVA, the two streaming radio stations studied, do not track the location of their listeners but can identify their location when listeners contact them. KGVA reports listeners from across the nation and as far away as Australia, and WOJB has heard from listeners in the UK, Switzerland, and Japan. In addition to generating considerable exposure to Native culture and media, the streaming stations can also make listeners connect with the reservation. Some people have written to KGVA and said the station makes them "feel close to home" if they live outside of the tribal homelands.

Community Impact

The projects have significantly impacted the communities by strengthening community ties, through capacity building, providing direct cost savings and promoting digital inclusion and adoption. As a result, not only are communities seeing an increase in development of technical knowledge on the individual user level, but also a higher quality of life as tribal members gain access to needed services through tribal, state and federal governments. Tribal communities and districts are more connected to other tribal members from their own community, as well as to the larger Native community. Tribal governments are able to keep their constituents informed by sending emergency alerts through email and streaming tribal council meetings. Further, tribal communities are able to be more responsive to funding opportunities.

Serving as a supplement to traditional tribal forms of communication, building digital networks has reinforced community engagement and the ability for tribal communities to stay connected. Communities are able to keep informed about tribal news and events from new media, as well as listen to radio streams and share videos. Further, each of the streaming stations offers local content and can offer on-air announcements of local news and events, allowing a point of local connection for listeners. Access to the internet has also allowed for the creation of tribal centric social networks such as RezKast, described as a Native YouTube, offering local music and video content, which can be viewed by anyone with an Internet connection.

Some of the projects provide an opportunity to invest in the technical knowledge of community members. Both Coeur D'Alene and the Colville reservation cited digital capacity building as a major impact of the network. Coeur D'Alene explained that they are moving from a service-based community to a knowledge-based community. This shift is echoed by the Colville reservation, where a community service program trains youth on how to build computers, which are used in the community. They have plans to expand this program and hope to train a tribal workforce that can build all the computers for the community.

The networks have also been effective methods for saving costs and increasing network availability. Colville's network is less expensive than local telecoms and the network in Coeur D'Alene transfers x-rays, saving patients commute time and transportation costs. Leech Lake provides inexpensive long distance service at a few cents a minute, versus the twenty-five cents per minutes charged the local non-Native teleco. Additionally, Leech Lake network provides greater bandwidth than was previously available. In most cases, the tribal networks have not spurred incumbents or local commercial service providers to deploy, upgrade, or offer more affordable services. This is not surprising; many of the tribal networks were developed because the local service was either nonexistent or failed to meet the needs of the community.

By bringing new technology into the communities, the projects have spurred digital inclusion. Access to the Internet, particularly when combined with community technology centers, can help bridge the digital divide in Native America, allowing people to gain basic computer skills and better utilize new

forms of communication. Community technology centers have been extremely effective in all the projects studied. In Coleville, timers had to be installed to limit the amount of time spent on workstations and allow individuals waiting to rotate in. To help accommodate demand, Coleville plans to add ten more computers. Coleville also cites the center as an opportunity for youth to be productive. Coeur D'Alene has used the community technology centers as an opportunity to teach classes online. Additionally, the community technology centers allow a point of interaction and connection for the community. Coeur D'Alene uses their community technology center to teach classes and provide an opportunity for college students to study via distance learning. All the community technology centers provide access to the Internet, regardless if home service is offered in the area or not, a vital resource in these rural areas.

Keys to Success

The success of the projects often rested upon specific factors, including strong leadership, planning, commitment from tribal leaders, and active community participation. Although not all of these keys to success were prevalent in each of the project studies, strong leadership from someone within the community was necessary to get a project started and provide for its sustainability.

Commitment from tribal council

It is an extremely interesting commonality to note that the networks evolved organically from the ground up and with necessary input from the tribal council. All of the projects expressed the need for a commitment and endorsement from the tribal council, but sought limited or no involvement from the tribe in the implementation and the day-to-day operations of a project. However, Tribal Council approval is important to this process because it is an endorsement from the tribe that the projects were important and worthy of their consideration for approval. Further, without approval from the tribal council or local governing bodies, it is difficult if not impossible for projects that require massive towers and prominent hardware to secure the clearances and necessary right of way approvals.

The tribal governance process works for tribally approved broadband systems. Once the project managers or leader had this approval, they oversaw the management with little or no further input from the tribal council. Coeur D'Alene formed a separate entity to handle the operations. SCTDV obtained Memorandums of Understanding from each of the nineteen member tribes, allowing the implementation and operations to be run as a business without interference from the tribal council. Leech Lake and Colville created IT departments that operate like any other autonomous department in the tribal administration. All of the projects saw the need to build the infrastructure for tribal administration facilities first, and then slowly bring the community online.

Strong Leadership

In each of the projects, there was a strong leader(s) or project manager who piloted the project. The study reflected that the leader usually understood the community and its needs, understood the local challenges and players, knew the technology and infrastructure, and was capable of planning and

implementing the vision. In many of the cases, the leader had the technical expertise to make the project feasible. However, some of the communities hired consultants with technical expertise to work with community members. Often these experts, whether consultants or original visionaries, later migrated into positions within the tribal IT structure.

Planning

Although many of the projects developed organically with reactive development and little time for adequate due diligence, the current project leaders interviewed strongly recommended substantial early planning for new projects. Even so, each of these projects greatly benefited from a sudden opportunity and had to respond quickly. In some cases, this was aggressively seeking funding opportunities, working to quickly provide needed services, or to connect their communities in exciting ways for special events. However, the need for specific planning based on community need, expertise and funding opportunities is integral to the process of developing a successful network.

Investment in Human Capital:

In all of the communities and in various capacities, the community members are implementing the networks. The communities are investing in human capital, by investing in their own people. This is nation building at its finest. By investing in their community, often the youth, communities keep their money local, train members for jobs, and build physical and human infrastructure, a vibrant Native community and tribal capacity. This point goes hand-in-hand with the development of community technology centers. Tribes understand that building the technology highway is not enough; digital literacy training results in a trained workforce, leading to substantial community buy-in, support and the use of technology.

Community Technology Centers

In many of the communities, the establishment of a community technology center has been essential to bridging the digital divide by promoting community engagement and building local capacity. The community technology centers serve as the hub of project leadership, technical expertise, as well as a planning and meeting place for tribal citizens. The case studies demonstrate that at the community centers provide gateways to the rest of the world for community members. Everyone in the community uses the technology centers, young and old alike, providing ideal locales to teach digital literacy skills. Arguably, community technology centers are the most important component of implementing Internet access and driving use and adoption in Indian Country.

Conclusions, Policy Implications and Further Research

These case studies offer compelling picture of the potential for Native American broadband deployment and adoption of technology. The current successful networks are emblematic of a long history of Native self-sufficiency and pioneering creative solutions to fulfill the needs of their communities. Driven by

leaders with an understanding of these community needs the projects reviewed in this study where able to make a substantial impact towards digitizing Native America.

Faced with limited resources and means, motivated individuals have provided their communities with new ways to connect and communicate with each other. These networks have decreased tribal costs, and brought access in areas where community needs were largely ignored by non-tribal service providers. Community technology centers in the communities have helped significantly to address the digital divide by bringing computer access, digital literacy classes, and providing the base tools and information the Internet affords, such as research and applying for jobs. The centers have increased the technical knowledge base of the communities, and in one case allowed for a youth program based on building computers for the tribe.

The case studies undermine any ill-conceived assumption that Native communities are uninterested in technology and the Internet. The findings demonstrate that Native America wants access to the communication tools of the 21st Century and will take advantage of available technology in their community. The challenge will be duplicating the success stories highlighted in this report and adjusting them to fit the specific needs and unique characteristics of other Native communities in order to expand the digitization throughout Native America.

At the federal policy level, government financial assistance from programs, such as the Rural Utilities Service (RUS) for the Coeur D'Alene, were substantial elements to get these projects off the ground. As the nation looks to develop a National Broadband Plan and fulfill Congress's goal of ubiquitous broadband access, the Plan will need to define a strategy for spurring deployment and adoption of digital communications and broadband on Native Lands. The highlighted projects provide a useful primer from which to develop policies to encourage deployment and adoption.

Policy Recommendations

Regulations and legislation that affect Indian Country need to take into account the complexity and tensions around balancing tribal sovereignty and participating in the larger U.S. society. In the United States, the nation building approach to sustainable economic development in Indian Country is the practical application of tribal sovereignty. According to Stephen Cornell and Joseph P. Kalt,[9] *Two Approaches to the Development of Nation Nations: One Works, the Other Doesn't,* Native Nations take different approaches to economic development by both asserting their rights to self-governance while simultaneously building the foundation and institutional infrastructure to exercise those rights. The Native Nation building approach to sustainable economic development includes, (but is not limited to) strengthening governmental institutions in order to effectively assert sovereignty, diversifying tribal

[9] Cornell, Stephen and Joseph P. Kalt. Two Approaches to the Development of Nation Nations: One Works, the Other Doesn't. in Rebuilding Native Nations: Strategies for Governance and Development. Ed. Miriam Jorgenson. University of Arizona Press, Tucson 2008.

economic ventures, creating innovative social policies for the community, and developing cultural resources of all kinds.

Putting sovereignty in practice means that the Native Nations are best able assert their sovereign powers, when they are backed up by their respective tribal governmental institutions, and when Native governmental institutions are a cultural match with their respective indigenous political cultures. These cultural matches often center around making both immediate strategic decisions, as well as, long term sustainable planning. Within this context tribal leaders often lead the Nation building efforts and lead by mobilizing the community.

Tribal lands encompass economic conditions that necessitate distinctive economic regulatory approaches. On Tribal lands, critical infrastructures of any sort have not historically been deployed, or organically grown through market competition, as they have elsewhere in the nation. Rarely, has critical infrastructure has come to Tribal lands without significant federal involvement, investment, and regulatory oversight. Terrain, poverty, distance and historic periods of failed federal policies towards Native peoples and their lands have created a modern atmosphere that requires special economic regulatory creativity.

Given these priorities amongst tribal constituencies, "Tribal centric" business models have the greatest chance for sustainability, in terms of both adoption and ultimate profitability. Demand aggregation planning of a special and locally coordinated nature is required, regardless of who owns or deploys the networks. As historic and geo-political federal enclaves, Tribal lands are communities with their own unique institutions and operations. As sovereign local governments, Tribes are uniquely and intimately knowledgeable of their own communities and needs.

When the Tribe itself is thus engaged, and its institutions and families are central to the planning, chances increase for the success of robust broadband networks. The Federal Government should recognize this fundamental fact: placing Tribes at the center of the process on Tribal lands, and implementing actions that prioritize Tribes in planning, regulation and deployment is a necessary first step in achieving successful and enduring solutions to the deplorable and long standing lack of communications technologies in Tribal communities nationwide. Within this context, the following policy recommendations are made:

1. Implement a new and robust strategic initiative targeting Tribal communications development. The *New Media, Technology and Internet Use in Indian Country: Quantitative and Qualitative Analyses* Report demonstrates a genuine and urgent need for telecommunications and broadcast services in the communities of federally recognized American Indian Tribes and Alaska Native Villages to be the focus of a new federal strategic initiative included in the priorities of the Executive Branch, Legislative Branch and the Federal Communications Commission (FCC or Commission).

This new strategic initiative should be a joint Federal/Tribal effort to:

(1) determine whether the current federal regulatory framework operates successfully in actual market conditions on Tribal lands and is sufficient to bring about change to the deplorable lack of telecommunications and broadcast services

(2) create new methods of government-to-government consultation and coordination to identify barriers to entry and achievable responsive solutions; and,

(3) implement new meaningful policies and actions designed to remove those barriers and result in the deployment of robust sustainable communications services to the communities of Native Nations.

2. Create a Tribal Broadband Plan within the National Broadband Plan. Although the FCC will be developing a National Broadband Plan to develop and fulfill Congress's goal of ubiquitous broadband access, it is unclear the extent to which it will address the issue of Native communities. Critical infrastructures have come to Tribal lands only through significant federal involvement, investment, and regulatory oversight. As a federal partner, with the goal of working with Native Nations to jointly stimulate conditions that will address the significant market challenges and unique demand aggregation "Tribal centric" requirements of Tribal lands, the National Broadband Plan will need to define a strategy for spurring deployment and adoption of digital communications and broadband in Native communities.

As the nation looks to the Commission to provide for universal access, the Tribal Broadband Plan should address issues related to critical backbone, middle-mile and last-mile solutions. In a method that recognizes "one size fits none" and does not favor any one technology or business model, but places the priority focus on the Tribe and its anchor health, education and public safety institutions, the plan should recognize the Tribal government oversight and service obligations. The plan should address provider obligations, planning and deployment best practices, technical and strategic planning support, and methods of obtaining streamlined access to spectrum needs, increased bandwidth, and adoption growth techniques, among other goals.

A. Certification of Tribal Entities for broadband mapping and planning requirements. The *New Media, Technology and Internet Use in Indian Country: Quantitative and Qualitative Analyses* Report is the first real and hard data coming out of Indian Country about broadband use. Its exploratory and foundational nature requires that more data and mapping be done that will assist Tribes with meeting federal requirements for contracting, granting, subcontracting, and other viable methods of funding and thereby increase their access to critical funding that will help to deploy broadband technology into unserved Tribal communities. The government should require and enforce the certification of Tribal Entities for broadband mapping and planning requirements performed on the Tribal lands over which they exercise their sovereign rights as governmental entities to ensure both the expedient accuracy of the information and appropriate intergovernmental coordination.

3. Create new means of effectuating consultation and coordination with Tribal governments. Efforts should be renewed for structural changes at the Federal Communications Commission to ensure the effective operation of the Federal-Tribal Trust Relationship within the FCC's operations. These should include:

A. Creation of a formal joint Native Nations/FCC Broadband Taskforce. Native communities encompass unique and distinct challenges compared with other un-served or underserved areas, including special government-to-government opportunities for the FCC to work directly with knowledgeable Tribal leaders. A joint Tribal/FCC Broadband Taskforce would be essential to better understanding the particular obstacles, challenges and best practices to creating communications solutions throughout Native lands. To develop a comprehensive approach, the FCC should convene certain key elected and appointed Tribal leaders from throughout the nation. By utilizing the exception to the Federal Advisory Committee Act for intergovernmental purposes, this task force should act and operate much as a federal advisory committee would, only with increased and coordinated task force responsibilities.

The FCC should devote the time and efforts of several key senior decision makers to work directly with the Tribal leaders. The joint taskforce should draw upon and involve the formal input from Tribal community leaders/visionaries from successful projects, tribal governments, technical and communications industry experts, and relevant federal agencies. Together with these Tribal leaders and project and industry experts, the FCC can build joint taskforce priority actions aimed at addressing the multiple priorities shared by the FCC and Tribes in closing the infamous "digital divide."

B. Create a Tribal Office at the Federal Communications Commission, with an effective and high level impact. With 564 federally recognized tribes in the United States, the creation of a tribal office to work directly with Tribal entities renews federal focus on addressing the digital needs of Tribal communities by providing an effective operational and regulatory mission in structural framework within the FCC. The FCC Tribal Office should be created and infused with roles and responsibilities that are consistent with the federal trust obligations and government-to-government relationship shared between the FCC and Tribal entities. So that it may properly advise and assist throughout the Commission, the office should find itself elevated in the structural framework of the Commission so as to be able to coordinate effectively with all Bureaus and Offices of the Commission, responsive to all Commissioners and closely aligned in mission support with Office of the Chairman, as per the other high level planning and operational offices of the Commission.

The FCC Tribal Office should be supported by appropriate budget and staffing priorities. Staffing in the office should draw upon internal hiring positions and detailed staff posts to obtain critical legal, economic analysis, and engineering expertise from across the Commission. However, the Commission should utilize new and outside hiring authority to conduct a nationwide search for

the senior leadership of this office, particularly its Director. The FCC should conduct a search to hire and draw upon the talent of national subject matter experts for this effort, consistent with developing the FCC's expertise in federal Indian policy matters, its understanding of the multifaceted community development and communications related needs faced by Tribal communities, and its familiarity with the on-the ground real world situations faced by those throughout Indian Country.

C. Create seats upon the Federal State Joint Board on Universal Service for Tribal Government Representatives. Universal Service Fund (USF) support mechanisms have been critical to the deployment of telephone service and certain amounts of broadband connectivity on Tribal lands, such as the Schools and Libraries program. Enhanced Tribal Lands Lifeline and Link-Up support has made all the difference in certain Native communities for the deployment of basic telephone service. As the federal government engages in the review of the USF for sustainability and broadband deployment, seats on the Federal State Joint Board should be made available to Tribal representatives so that those living and working on Tribal lands nationwide have their voices represented in the maturation of the Joint Board's intergovernmental regulatory process.

4. Universal Service Fund Reform. In 2000, the FCC created changes to the USF programs aimed at Tribal lands, implementing a new federal method for Eligible Telecommunications Carrier designations and creating the Enhanced Tribal Lands Lifeline and Link-Up Support programs. Over the past decade these changes have been of great importance and value to those who have increasingly deployed telephone service on Tribal lands, including Tribal Entities themselves. In particular, the Tribal Lifeline and Link-Up programs have been critical to service in many areas of Indian Country. As the government enters an era of re-examination of the USF for broadband support, it should take necessary certain steps to again directly address Tribal lands.

A. Create a Universal Service Enhanced Tribal Lands Broadband Program. The *New Media, Technology and Internet Use in Indian Country: Quantitative and Qualitative Analyses* Report supports that the creation of a new USF program supporting low-income broadband services on Tribal lands would have direct positive results on the deployment and adoption of broadband in Tribal communities. In creating such a program it is important for the FCC to recognize and draw upon the important successful elements of the existing Enhanced Tribal Lands Lifeline and Link-Up programs for basic telephone service, but not eradicate the ongoing operations of that important program to address the ongoing challenge of deploying basic telephone service on Tribal Lands.

Related to this recommendation, on September 22, 2009, the FCC's Federal Advisory Committee on Diversity for Communications in the Digital Age adopted a recommendation that the "Government should consider modifying the Universal Service Fund's Lifeline and Linkup programs, which help eligible low-income consumers establish and maintain telephone service,

so that these programs include a subsidy for broadband hardware, connection and service." The Committee stated that, "in addition, as part of its consideration with respect to modifying the Universal Service Fund's Lifeline and Linkup programs, the Government should recognize the success of the Enhanced Tribal Lands programs and create similar programs for broadband services to Tribal Lands." In October, 2009, at its Annual Convention, the National Congress of American Indians adopted a resolution with a similar request of the government, calling upon the FCC " to create a Enhanced Tribal Lands Broadband Program within the Universal Service Fund programs," and "…set a initial eligibility requirement to those communities and areas lacking in basic telephone service as Tribal lands communities in critical need of communications services."

B. Revise the E-Rate, Rural Health Care Programs and USF: Currently, the Schools and Libraries or "E-Rate" program and the Rural Health Care program have been beneficial in providing broadband connectivity to public schools, libraries, healthcare and other institutions on Native lands as well as providing operational support to commercial or Native telephone companies. However, E-rate and the Rural Health Care Program prohibit the broadband connection to be leveraged to provide connectivity in the rest of the community. This is a counter intuitive restriction when the community technology centers in projects such as Coeur D'Alene are integrated into Native education system and the center provides vital supplemental technological education. Deploying broadband on Native lands can be prohibitively expensive; it is essential that available infrastructure be utilized to the maximum benefit of the community. The USF program should also recognize the demand aggregation needs on Tribal lands. Further, USF could also support broadband access, both in the last-mile components as well as extending critical middle-mile infrastructures to ensure Native networks have a high-capacity connection to and from the Internet backbone. However, any USF reform must make certain that analog safety remains in place until all Of Native America is connected to telephone service and broadband.

5. Increase access to spectrum and remove barriers to use of spectrum by Tribal Entities. The *New Media, Technology and Internet Use in Indian Country: Quantitative and Qualitative Analyses* Report finds that when given Internet access, Native American Internet usage is greater than national norms. Greater access to spectrum that improves the capacity and reach of wired and wireless broadband networks into Native Communities is therefore critical. Given the low population-density landscape of so much of Native America, many projects will rely on wireless connectivity. The most successful wireless networks are currently operating in unlicensed bands, and at times exhaust the available capacities on these bands. These projects would substantially benefit from access to lower-frequency bands, allowing providers to serve more residents at a lower cost. Without available spectrum bandwidth, connectivity to broadband will continue to remain elusive for many tribal communities. Spectrum on Native lands is likely to be severely underutilized, representing an enormous untapped resource for providing connectivity to Native residents.

A. Adoption of a Tribal Priority for Spectrum. At publication, the Commission is considering the adoption of a Tribal Priority in the broadcast spectrum licensing process. NPM and NCAI submitted comments in support of this important rulemaking. The FCC should adopt that Tribal broadcast spectrum priority, as an important first step to deploying broadcast services on Tribal lands. The FCC should look beyond the broadcast licensing rules, with the same constitutional and rational basis justification, to implement a Tribal Priority in all of its spectrum licensing policies, including its spectrum secondary markets rules, for the purposes of advanced wireless uses, commercial mobile radio services, and public safety communications.

B. Revising the Tribal Lands Bidding Credit. In 2000, the FCC created the Tribal Lands Bidding Credit (TLBC) for commercial mobile radio services spectrum auctions. The TLBC rules have seen limited success in Tribal communities, largely because they have not necessarily placed spectrum licenses in the hands of those most motivated to develop the type of projects and deployment plans that would effectively serve Tribal lands (i.e. Tribal-centric implementations). It has not resulted in the Tribal acquisition of spectrum rights. The Commission should undertake a new review of the TLBC with the goal of increasing Tribal access to spectrum and removing barriers to use of spectrum by Tribal Entities.

C. Resolve the White Spaces barrier to entry in International Exclusion Zones. In tribal communities where spectrum is available, the FCC must take action to remove barriers to entry and lift bans on the tribal utilization of white spaces devices in tribal communities located next to international borders, as indicated by the Case Study of the Southern California Tribal Digital Village.

6. The American Reinvestment and Recovery Act: make changes to meet immediate needs in the broadband funding application processes. The Recovery Act broadband programs represent unique historic opportunities for funding projects on Tribal lands through the Broadband Initiatives Program (BIP) and Broadband Technology Opportunities Program (BTOP). Unfortunately, the first round of applications in these federal grant and loan programs revealed several challenges faced by Tribal entities in the first round Notice of Funds Availability (NOFA) applications process. The federal government should take the following steps to remove those impediments to the operation of these broadband stimulus programs on Tribal lands.

A. Establish a Tribal Priority for the broadband funding of Tribal Entities providing services on their own Tribal lands: All six case studies demonstrate that Tribal entities, as sovereigns who recognized their own obligations to their communities, have become *de facto* broadband carriers of last resort due to market conditions have lead to the redlining of Tribal communities. The Rural Utility Service (RUS) and the National Telecommunications Information Administration (NTIA), in consultation with tribes, should create a Tribal Priority to position Tribes as "carriers of first choice" which is consistent with the federal government's trust responsibility, the political legal classification of federally recognized Tribal Entities, and the overwhelming

constitutional rational basis justification found in the myriad needs for broadband services in these most unserved of communities in the nation.

B. **Overcome barriers to entry presented by the BIP/BTOP NOFA**: Both the survey and case studies substantiate the broadband digital divide in Native America is wide. Methods of facilitating Tribal Entities to fully participate in Recovery Act broadband funding must address and overcome barriers that include (1) lack of access to capital and credit, due to Tribal budgets being federally based budgets with spending restrictions; (2) challenges in completing a dual application for the programs, when Tribes desire more direct access to the BTOP program; and (3) the deduction of points for not being existing USDA/RUS Title II borrowers, and for having smaller and remote population bases, as defined in the BIP/BTOP first round NOFA application.

C. Recognize Tribal approval of broadband projects on Tribal lands: Both the survey and case studies demonstrate the willingness and desire of Tribal governments, as a matter of sovereign self-determination and planning for the economic future, to invest in and provide critical broadband services to their citizens. Yet in the BIP/BTOP funding process, States are authorized to recommend preference of BIP/BTOP applications on Tribal lands. The federal government should require Tribal approval for project development on Tribal lands, consistent with the legal political classification of federally recognized Tribal entities. State review and prioritization of Tribal applications should not be required as States do not promote, support, or regulate Tribal lands. Clear concise directions should be given to States and Tribes in this regard.

D. RUS should implement Significantly Underserved Trust Areas (SUTA) regulations. As discussed in the 2008 Farm Bill, RUS should address the inherent barriers to entry faced by Tribes in their ongoing programs, as exemplified, by the preferences for incumbency. Through on coordination and consultations with Tribal Entities within the existing Recovery Act timeframes, RUS should utilize the SUTA provisions to address the NOFA application process challenges for Tribal applicants.

7. Greater federal funding and education, and the creation of a new federal program mechanism to meet the myriad planning and start up needs for deployment. At the federal policy level, government financial assistance from programs, such as the RUS for the Southern California Tribal Digital Village, were substantial elements to get these projects off the ground. The current Recovery Act broadband stimulus programs offer an important opportunity to expand existing Native networks and spur the deployment of new networks. The NTIA's funding for Public Computing Centers and Sustainable Adoption Programs could continue be useful tools for developing Community Technology Centers in Native communities. In addition, the administrators of NTIA and RUS could hold workshops to expand awareness of grant opportunities for Native communities and tribal governments.

Beyond the BTOP and BIP grant opportunities, and the existing programs at RUS and NTIA, additional programmatic support is needed to further connectivity and adoption within Native Nations. Their remains a need for federal funding that is tactical in its uses and applications to provide support for

necessary individual community feasibility studies, technical assistance, business implementation, and adoption programs. The Congress should consider creating a special program with specific statutory and programmatic authority directed specifically at American Indian and Alaska Native villages tailored to meet the myriad needs of these at risk communities and address their remote and unserved market conditions.

8. Future additional research and analysis. Integral to the above endeavors is substantial need for additional research in the following areas:

- **Identifying characteristics of successful Native digital leaders/visionaries.** The need for strong leader(s) to drive projects was a commonality among the case studies, and identifying such leaders in other communities will greatly improve the efficacy and development of additional projects.
- **Understanding how leaders or communities responded to "sudden opportunities" such as a government or NGO program.** Study how leaders discovered the information and what gaps may in exist in Native awareness of opportunities. Outlining what measures must be taken at the national level to raise the awareness of these programs and ensure that interested communities and individuals have the resources and understanding to leverage these opportunities for their communities will greatly increase not only the effectiveness of these programs, but also their reach in Native America.
- **A survey of different models for community technology centers.** While the networks deployed in these communities shared a community technology center as a vital component for increasing adoption and access in their communities, the programs and models of these centers differed. Surveying different models of community technology centers will create a knowledge base of project ideas as well as how the different projects best fit the needs of the communities they serve, effectively increasing the opportunity for new centers to be built in more communities.

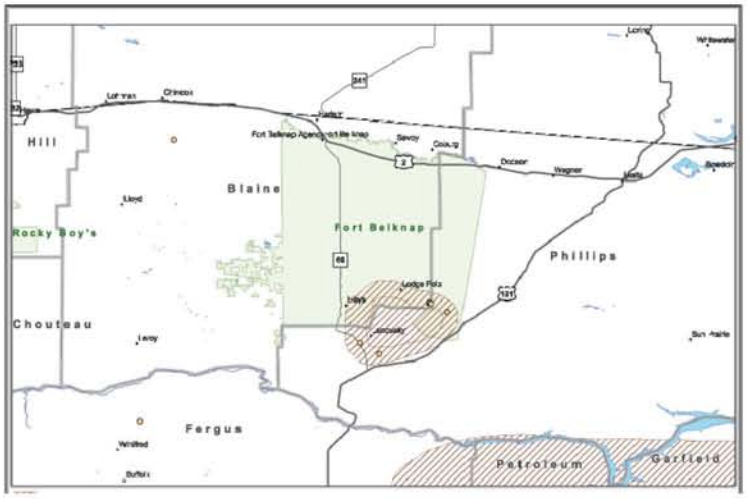
These are just a few of the additional research questions that would substantially benefit efforts to promote networks in Native communities. Although they are not exhaustive, they represent an important first step in further developing projects in Native America.

Despite the considerable Digital Divide between Native lands and the rest of the nation, the findings in this report demonstrate not only the intense demand for technology among Native Americans, but also the digital revolution that occurs at the community level when these communities have the resources and support to bring their visions to fruition. This report not only demonstrates the demand and need for the digitization of Native America, but also exhibits the viability of community projects and the potential for these best practices to be applied to more communities. It provides a base for further research and discussion on interventions and policies to spur widespread access across Native America to the fundamental communication tools and technologies of the 21st century.

Native Public Media

Case Studies

Assiniboine (Nakota) and Gros Ventre or Ah Ah Nee Nin



KGVA 90.1 FM Radio Station serves the Assiniboine (Nakota) and Gros Ventre or Ah Ah Nee Nin (White Clay People), both Tribes are located on the Fort Belknap Indian Reservation, forty miles south of the Canadian border. The reservation is 675,147 acres of plains. Tribal enrollment is approximately 5,426 enrolled members, with 4,921 living on or near the reservation.[10]

The Gros Ventre and Assiniboine tribes are recognized as one governing body on the reservation. The Fort Belknap reservation reorganized under a corporate charter in 1935 under the Indian Reorganization Act.

The tribal economy consists of agriculture, including small cattle ranches and dry farms. In addition, the tribe runs a meat-packing house, *Little Rockies Meat Packing Company*, and distributes meat products under the trade name *Pride of the Little Rockies Smoke House*.

Fort Belknap College, houses KGVA on their Tribal college campus in Harlem, Montana. The station was established on October 29th, 1996. The call letters for the station are an abbreviation for the Gros Ventre and Assiniboine tribes. The college home page states: "Come to Fort Belknap College where Native American Culture and Technology Meet."[11]

KGVA bills themselves as the "first Native radio station in Montana." KGVA broadcasts on a 90-kilowatt transmitter serving over 25,000 people in a coverage area of 9,491 square miles. They began streaming over the Internet in October 2008. The mission of the station is "to "Get the Message Out," by serving as a vital communications tool for the Native American and non-Native American communities within the station's service area. KGVA will be inclusive, serving all communities to create cohesion among people of different backgrounds. KGVA will provide programming that fulfills the cultural, educational and entertainment needs of the community. KGVA is an extended service of the Fort Belknap College."[12]

[10] http://www.ftbelknap-nsn.gov/index.php cited 10/08/09
[11] http://www.fbcc.edu/ cited 10/15/09
[12] http://www.kgvafm.org/ cited 10/15/09

It was the listeners who wanted the station to stream, especially those who had moved out of state or were in the armed forces serving in Iran and Afghanistan. Word about streaming spread quickly via email, on-air, local and surrounding newspapers. The station also cites word of mouth or the "moccasin grapevine" for getting the word out.

"Listeners of the online stream have emailed from the UK, Switzerland, Japan, Iraq and various parts of the U.S. including Alaska and Hawaii."

In setting up the station stream, they worked with one of the local ISP, Triangle Communications or Central Montana Communications. They use DSL for streaming and have access to a T1 line though Fort Belknap College. KGVA contracts with AudioVideoWeb[13] to distribute the stream. Although they originally intended to stream through the college, the station needed more bandwidth than the Fort Belknap College could allocate.

KGVA uses free software to push their stream and it is available to any computer with Internet access. Their audio is encoded through Microsoft Media Encoder. The stream has limited bandwidth; 20kpbs and 100 maximum listeners. The highest number of listeners, 132, was during a live broadcast of a local basketball game.

In setting up the streaming, the station did four months of research, learning where to get an encoder and looking for cost effective ways to implement streaming. Initially they thought they could do it free of charge by using Fort Belknap College servers, but the college could not support the required bandwidth. Will Gray Jr., KGVA Station Manager stated, "We threw it together on our own and didn't need to be tech savvy. We did the research and tried to be cost-effective, but it may not be, because we did not want to use a streaming provider that would lock us into a multi-year contract. We want to eventually go back to the college; do it for free. If the college had newer servers it might help with the bandwidth. The college IT department doesn't have the staff and the IT department is more involved with the institution, although the station is licensed to the college."[14]

Lac Courte Oreilles Band of Ojibwe

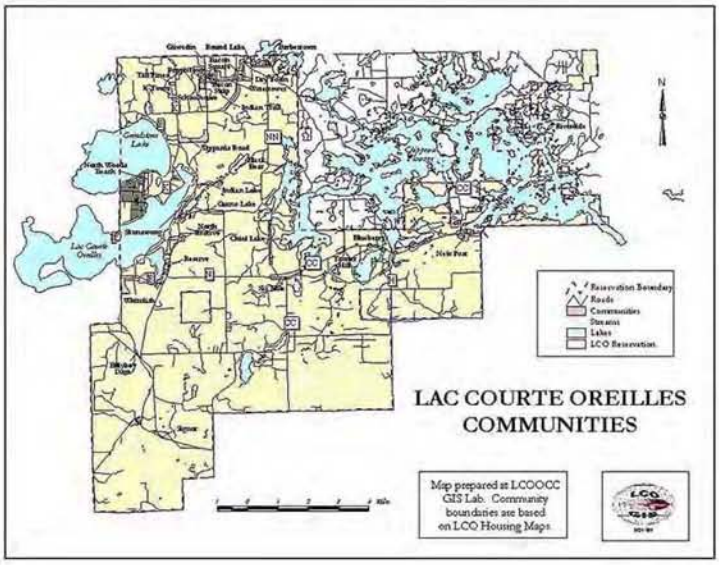
The Lac Courte Oreilles Band of Ojibwe, is one of the six bands of the Lake Superior Chippewa. Tribal members refer to themselves as Anishinaabe meaning original or first man. The name Ojibwe originates with French settlers and Chippewa is considered a mispronunciation of Ojibwe, but is used in American Treaties.

[13] AudioVideoweb is a worldwide communications company delivering streaming media hosting and management services for both Live and Archived content.

[14] Interview with Will Gray Jr., Station Manager KGVA 10/01/09

Native Public Media

The Ojibwe originated from the east near the St. Lawrence Riverway. The Lac Courte Oreilles Reservation was established in 1854 and is 60,000 acres, or approximately 107 square miles, in size. The Reservation is located in the northern lakes and woodlands region of Wisconsin approximately 150 miles northeast of Minneapolis and 80 miles southeast of Duluth. There are 2,900 citizens according to the 2000 census. The tribal economy is supported by casinos, tourism, and retail.



WOJB radio is located on the Lac Courte Oreilles reservation in northwestern Wisconsin and is licensed to the Lac Courte Oreilles Band of Ojibwe. The station has been in operation since April of 1982 and has been streaming since 2000. Originally WOJB collaborated with the University of Wisconsin-Madison's Journalism Department, the UW-Madison Technology Department, News from Indian Country, the Lac Courte Oreilles, and the Ojibwe Community College to broadcast the Annual Honor the Earth Traditional Homecoming Pow-Wow in July, 2009. A year later, the Lac Courte Oreilles Ojibwe Community College streamed WOJB's signal and now it is outsourced to StreamGuys[15]

According to Camille Lacapa former Station Manager of WOJB, the idea arose during a discussion about whether the University had streamed a live event, like a pow-wow.[16] By 2000, WOJB was streaming daily, but the service was inconsistent due to various problems, the Internet access was dial-up and if there was a power outage, the system could not easily be re-booted , or if the LCO College was closed in the evening or on the weekends.

The streaming process was not planned; rather it organically evolved from the idea to stream a pow-wow. The streaming came first and the website came second. The desire to get Native cultural events on the Internet was WOJB's goal because very few native programs or content existed online at that time.

Carol Taylor, WOJB's Underwriting Director states that the current capacity can handle 100 listeners at a time and has topped out at 500 hits per week. A recent listener survey revealed that of 150 responses, few listened online. The survey was sent to their membership renewal lists. However, the station is near a tourist area and the station believes that many tourists may access the station as part of the

[15] http://www.streamguys.com/ cited 10/15/09
[16] Camille Lacapa is now employed by Native Public Media

Northwood's experience. From demographic data supplied by StreamGuys, the station is able to document website hits from all over the world, but there is no specific data as to where they are from unless they email the station. Listeners have emailed from the UK, Switzerland, Japan, Iraq and various parts of the U.S. including Alaska and Hawaii.

There is no existing documentation as to the original costs to implement streaming, nor does anyone remember. Originally, they piggybacked onto the college's T-1 system so the streaming was free and supported by the College staff. The signal was sent from WOJB's studios to the LCO College via microwaves. There was the cost of the computer, but no other records exist. Today the cost to stream is $62.50 for a connection that allows 100 users per month. The DSL access cost is $16.95 per month. Currently, WOJB uses StreamGuys who provide their streaming service utilizing the board's output plugged directly into the computers

WOJB made the switch from using the college servers to StreamGuys for several reasons in including quality concerns, the need for backups during break and the college lack of available bandwidth. NFCB and CPB recommended the group StreamGuys and they made the switch between 2006 and 2007. While the station originally piggybacked on the college system for they now pay $62.50 per month to stream. They have recorded a maximum of 500 hits per week and have a capacity for up to 100 simultaneous listeners. The most listeners at any one time has been 62. This information is trackable on an administrative page that measures the users.

Carol Taylor states that "Streaming is driving public radio web traffic." Sidney Kellar, WOJB's Station Manager adds "reporting requirements for online streaming is affecting how we program**.** Plus our volunteers have to learn the new program Spinatron.[17] Is this worth it? We are really changing our programming because of these requirements. Volunteers think this gets in the way of radio, plus we cannot take calls while on the air because we're doing secretarial work."[18]

Coeur D'Alene

The Coeur D'Alene Community is a federally recognized tribe located in Northern Idaho and covers 345,000 acres, spanning the rich Palouse farm country and the western edge of the northern Rocky Mountains. Known as Schitsu'umsh, meaning The Discovered People or Those Who Are Found Here, the name Coeur D'Alene was given to them by French trappers and traders. Their aboriginal area covers roughly 5 million acres in Washington, Idaho and Montana. The tribal website cites tribal membership as 2190 members.[19] The

[17] http://spinitron.com/ cited on 10/15/09
[18] Interview with Carol Taylor and Sidney Keller on 9/24/09
[19] http://www.cdatribe-nsn.gov/ cited 10/15/09

Coeur D'Alene economy is based mostly on agriculture, supplemented by logging, tourism and gaming. The tribe produces wheat, barley, peas, lentils and canola.[20]

The Coeur D'Alene Tribe has invested heavily in technology. The system includes the Community Technology Center, the network Operations Center, and Tribal Government IT services, and community Internet service. Their IT Department boasts a staff of seventeen under the direction of Valerie Fasthorse, which supports government services and community broadband operations, including a Community Technology Center and Red Spectrum,[21] a tribally owned wireless broadband internet provider for the reservation and select surrounding communities. Red Spectrum reaches 25 miles into the surrounding communities and has significant bandwidth allowing tribe to sell to another local ISP provider.

"I call it the incubator. The kids that go into the lab and they're in the incubator, I think they are going to be the generation that moves us to the next level, and we become maybe a knowledge based society. We're paid not for the labor we provide, but for the things that we know."

For those in the community who cannot afford broadband in the home, the Community Technology Center, located in Plummer, Idaho is a state of the art computer lab with forty workstations, including all platforms, Windows, Mac and Linux to perform any tasks needed, including Audio & Visual editing. The technology center is free and used extensively by the community. During the day adults can take classes, check their email or work on their own projects and after school the bus drops off students who work or play until the center closes. College students complete distance learning courses and tribal members who are sick use the center to research medical issues. The center also offers courses; one recent course hosted by the tribe's Benewah Medical Center taught people how to use the internet to research cancer symptoms. Other courses have included computer literacy, introduction to computers, financial aid workshops, horticulture courses, and land resources workshops. Additionally, the tribe's Department of Education and Washington State University have collaborated on a Cyber Tutoring project for at risk high school juniors and seniors.

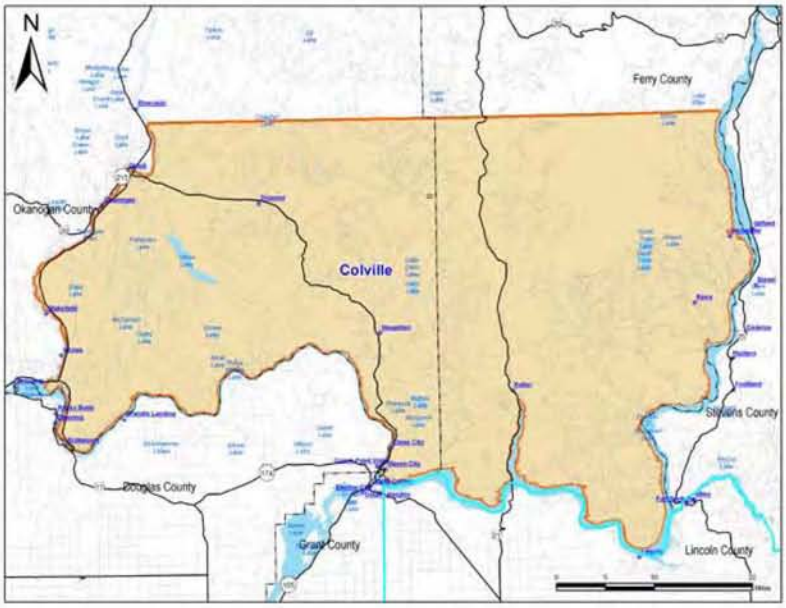
The Coeur D'Alene tribal ISP, designed by Valerie Fasthorse and Tom Jones, launched in March of 2006 with a USDA Rural Utilities Service Community Connect Broadband Grant and a tribal match. The goals of the funded project and resulting system are to offer basic broadband service to all residential and business customers; to deploy basic broadband services to critical community facilities; to operate the Community Technology Center free of charge; to improve community computer literacy and technology

[20] http://www.cdatribe-nsn.gov/ cited 10/15/09
[21] http://207.32.193.3/public/AboutUs.aspx cited 9/22/09

skills via training at the Community Technology Center; and to promote the use of technology for education. Currently, the system serves 600 households with a tiered system with download speeds ranging from 256 kbps to 1.5 Mbps. The tribal Network Operations Center (NOC) is the central transmission point of this system and provides broadband transmission services for the entire community. The NOC is located at the Community Technology Center. The NOC provides reliable communications not only to the community and the schools, but also the hospitals and emergency first responders. The system has an emergency backup computer grade electrical power and can serve as a vital emergency communication command post if required. The tribal wireless network employs fiber optic cable from the NOC to Plummer-Butte and a point-to-point microwave link from Plummer-Butte to Mica Washington utilizing a Vivato 802.11g microwave Base-Station.[22]

The Coeur D'Alene example is particularly exciting. Since their inception, Fasthorse believes that the community is building capacity and helping people build their technical knowledge. Further, she states: "…[we are] moving from a service based to knowledge based society. People are paid to use their heads now. That is exciting! Everyone lives an online life; we're no different than people in the cities we are connected. We can actively participate in media rather than being passive."[23] To this end, the tribe has created RezKast, a Native video and music sharing site—a Native YouTube—with a growing reputation in Indian Country.[24]

Confederated Tribes of the Colville Reservation



The Confederated Tribes of the Colville Reservation are a federally recognized Indian tribe. Tribal enrollment is at 9,065 members who are descendants of the following tribes: Colville, Nespelem, San Poil, Lake, Palus, Wenatchi, Chelan, Entiat, Methow, Southern Okanogan, Moses Columbia and Nez Perce of Chief Joseph's Band. The reservation is located in North Central Washington State on the East Missouri river and the Grand Coulee Dam border side. The

[22] http://www.cdatribe-nsn.gov/Departments/IT/InformationTechnology.aspx and Interview with Valerie Fasthorse on 9/22/09.
[23] Interview with Valerie Fasthorse, 9/22/09
[24] http://www.rezkast.com/ cited 9/22/09

tribe's acreage, 1.4 million acres or 2,100 square miles, is equivalent to the size of the state of Connecticut and has 12 towns separated by the hills and valleys. The Colville economy is supported by timber, gaming, retail, tourism, and construction.[25]

The Information Technology Department of the Confederated Tribes of the Colville Reservation operates Tribal Government IT services serving tribal critical and emergency response departments, gaming and a technology center. Additionally, the department is working towards deployment of broadband transmission services for residents and business in Nespelem. On a site visit in July of 2009, the computer center was brand new and contained 10 state of the art computer systems. Having only been open for three weeks, recorded usage was low during the day but after school attracted younger people from the local community.

The Colville system is an older system, which has been continually built upon since 1996 when the Bureau of Indian Affairs implemented an early email system for the tribe. The early network shared a dial-up modem line with the Bureau of Indian Affairs (BIA). Around 2000, under the direction of former director Larry Hall, the network, based on a T-1 line was started after splitting from the BIA system. With main hubs in each of the 4 districts, and the three casinos, the network currently serves 1,061 computers with roughly 100 nodes, serving the entire tribal government. The system is hybrid in nature on a routed network, versus switched. The 4 districts have a combination of wired and wireless setup with a T-1 backhaul stretching from Nespelem to Keller. Throughout the reservation there is point-to-point T-1 or wireless backhaul. Coverage varies throughout this large reservation. The government is point-to-point wired and wireless. There is broadband in Omak and Nespelem with wireless backhaul that is not yet deployed.[26]

Despite the fact that they have not yet deployed into the private sector, the department feels that the increased capacity makes communities more readily informed of the day-to-day happenings with the tribe. Not only do they have better and faster communications between the districts, they have broadcast email for emergencies such as road closures and fires. They are working towards digital signage for these purposes. A project in development is streaming tribal council meetings to the community centers. They are working towards implementing telemedicine and distance learning.

"We are looking to have tribal members build all our computers; that is our goal!"

Since the July site visit, usage of the technology center has grown. After school, there are now timers on the computers and there are always people waiting to use the computers. The IT department is, after 4

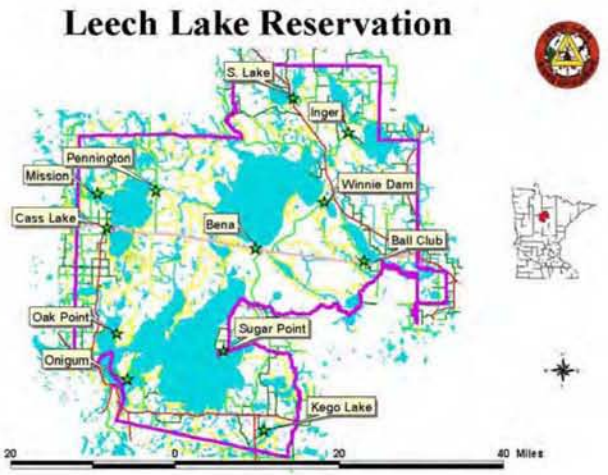
[25] www.colevilletribes.com cited 9/29/09

[26] Interview with Chad Aubertin, Network Administrator, and Damon Day, Network Engineer, and Larry Hernandez, IT at Confederated Tribes of the Coleville Reservation on 10/09/09.

months, looking to add more computers. Currently, there are 10 computers and they hope to add laptops. The department also hopes to invest in their own community members, "We are looking to have tribal members build all our computers; that is our goal!"[27]

Leech Lake

The Leech Lake Reservation is home to the Leech Lake Band of Ojibwe, one of the six bands of the Minnesota Chippewa Tribe. With 4,079 members, the reservation has 16 villages, spread along the lakes on 1,100 square miles or 854,158 acres over four counties, Beltrami, Cass, Hubbard and Itasca, in north Central Minnesota. Primarily, most members live in Cass Country where the tribal government is located. Tribal communities include Cass Lake, Ball Club, Bena, Inger, Onigum, Mission, Pennington, Smokey Point, Sugar Point, Ok Point and Squaw Lake.[28]



Tribal economic development includes gaming, eco-tourism, and retail. The tribe operates three gaming enterprises, a hotel, retail establishments, a marina and an Indian Run Archaeology firm. The Tribal government is the largest employer in Cass country. [29]

The Leech Lake Tribal Management and Information System (MIS) Department currently operates a T-1 throughout the reservation to all the local communities and to Minneapolis to their Leech LakeTtwin Cities office. Build out into the communities began approximately 11 years ago with the Minneapolis office connection completed in October of 2009. MIS serves only tribal operations and the casinos. Emergency and first responders are served through the State of Minnesota. The network does not provide service to any local households. There is currently wireless going to community centers. The MIS Department built and maintains the infrastructure. Departments maintain their

"Health and education have had the best benefits. We have telemedicine now at the 5 clinics. People visit from the surrounding areas now. This is saving people's lives."

27 Interview with Ann Marchand, Telecom & Interim IT Director, Confederated Tribes of Coleville Reservation, 10/09/09

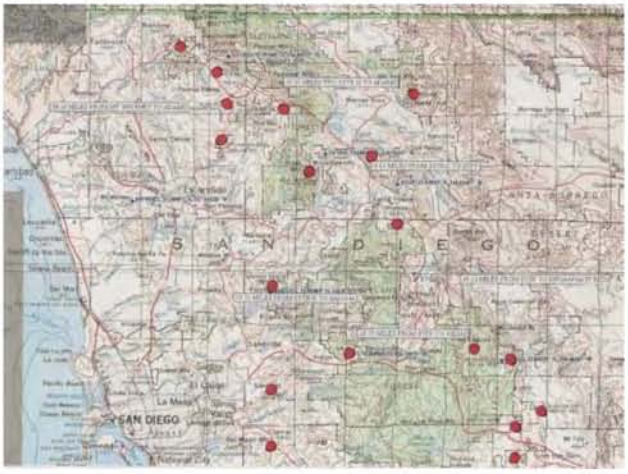
28 www.llojibwe.org/history.html cited on 10/08/09

29 ibid

own software and applications. The current network architecture is a 1 Gpbs fiber backhaul with a 54 Mbps half duplex connection to the Internet, serving 1400 extensions, which can be accessed by computers, telephones and VoIP.

Despite the connectivity, there are many dead spots in this forested reservation. When asked to elaborate, MIS Director Frank Reese explained: "One problem that sticks out is when we went to the school in Bena, and we were dealing with Qwest. They went about 5 miles from the school at the time there was a local teleco that went about 2 miles from the school we had difficulties at first getting them to come all the way. It was dead service for the phone. Still there are places that there is no phone service. In between Sugar Point and Bena there is a portion that is not served by any land lines. There are not cell phone services there either, but it is improving now."[30] Reese further elaborated explaining how the network has influenced the community, "Health and education have had the best benefits. We have telemedicine now at the 5 clinics. People visit from the surrounding areas now. This is saving people's lives."

Southern California Tribal Digital Village



The Southern California Tribal Chairman's Association (SCTCA) is a consortium of 19 federally recognized and unrecognized tribes. This non-profit service organization was established in 1972 and is made up of a board of directors comprised of the tribal chairs of the member tribes, Barona, Cahuilla, Campo, Chemehuevi, Ewiiaapaayp, Inaja, Jamul, La Jolla, La Posta, Los Coyotes, Manzanita, Mesa Grande, Pala, Pauma, Rincon, San Pasqual, Santa Ysabel, Sycuan, and Viejas tribes. The SCTCA is the administrative group that coordinates numerous grant programs for the member tribes. The organization increases the tribes' strength in working with the federal government and the local community.

Tribal demographics vary by tribe as do the local economies, but the San Diego region reservations have an approximate population of 7,675 living in geographically separated and often isolated areas ranging from the U.S.-Mexico Border to southern Riverside country; an area of about 150 miles.[31] Technologically, through the Tribal Digital Village, the tribes are connected. However, radio is not a likely possibility for this consortium of tribes, given their location in Southern California.

30 Interview with Frank Reese, Leech Lake MIS Director on 10/01/09

31 http://ucsdnews.ucsd.edu/newsrel/soc/dhpdigital.htm cited on 10/15/09

Native Public Media

The Tribal Digital Village has been operational since 2001, made possible by the work of Ross Frank, a professor of Ethnic Studies at University of California San Diego and Jack Ward, the Director of SCTCA, who together wrote and obtained a 3 year Digital Village grant From Hewlett-Packard. The grant initially provided for construction of broadband connections between the reservations and the donation of HP products, services, and support. Initially, the Rincon and La Jolla reservations were connected. Soon after that, the top half communities were connected. The grant was for five million spread over three years, with another four million for equipment. Most went for building and enhancing programs on the reservations. At least one million in cash went to enhancing or creating resource programs on each reservation, some went to set aside to do wireless connections.

In 2001, after Matthew Rantanen was hired to be the Director of Technology for SCTCA, the full network build out ensued. The rest of the reservations were brought online by 2004. Since 2004, they have brought the backbone up to a professional level and secured E-Rate status. Currently, 86 buildings, 13 libraries, 5 Head Start and 2 schools on 13 reservations are connected, in addition to fire stations, tribal administration buildings, tribal police, the EPA, and all resource programs. Additionally, there are 22 homes connected and there is a build out plan in place to connect an additional 2700 tribal homes and the surrounding community.

"Technology is one of the most important resources since the telephone! It is so different. I don't know how I would function in this world without it or how I did before. This is what we are trying to teach the people—the value."

The Digital Tribal Village has 250 plus miles of point-to-point and point-to-multipoint links, with 18 backbone nodes and relay sites. The network operates on 2.4, 5.3, and 5.8 gigahertz and they have one FCC licensed link to relieve usage on the areas unlicensed spectrum. They are pulling away from the 2.4 gigahertz spectrum and moving more towards the 5.3 and 5.8 gigahertz spectrum to open up more possibilities.[32] When Matthew Rantanen talks about his work it is evident just how much these communities have changed since the technology has been made available. In a recent interview, Rantanen stated, "Technology is one of the most important resources since the telephone! It is so different. I don't know how I would function in this world without it or how I did before. This is what we are trying to teach the people—the value. When the black canyon project [including] 22 homes were connected, they are a very removed community, and the people were amazed. After a couple of training sessions they realized the value almost immediately because of the resources. It was a big eye opening experience for these folks. They are much more self sufficient now." Rantanen says that since the network has been put in place, "We have tribal leaders that won't turn on the computer yet they will call and ask for more bandwidth for their after school program." There has been a total paradigm shift in language use according to Rantanen.

[32] Interview with Matthew Rantanen, SCTDV on 9/29/09

Appendix I

Community Wireless Networks Interview Guide

I. Basic information

1. What network have you been involved with?
2. How would you describe its mission statement?
3. How long has this network been operational?
4. When was it expected to launch?
5. When did it actually launch?
6. What is its current size? How many nodes does it have? How many locations or households does it serve?

II. Design and Management

1. Who created it? (who were the stakeholders and what was their involvement?) Could include: Social service organizations / NGOs; Social/political justice groups (including religious) Technology-oriented groups (ie Linux user groups); Community technology / community media groups ; Governmental/administrative organizations ; Hospitals; Public safety; Local business Education; Arts and culture;Others?
2. Who is responsible for managing it?
3. Who conducts the maintenance?
4. Can you describe how the project planners solicited public input from the various stakeholders when they were planning the project? Could include:
   Surveys; Public hearings; Focus groups; Advisory boards; Other methods?
5. How often has the project been reviewed with these stakeholders since its inception?
6. How are project details communicated to the public? Could include:
   Blog; newsletter; public events; open to phone call or e-mail; Other means of communication
7. Who was your primary contact for your involvement with this project?
8. Were you in contact with other organizations also involved in this project? Did this involvement help your organization to create relationships with these other organizations?

III. Technical specifications

1. What is the network architecture?
2. What devices can access it?
3. Is it an “open access” network?
4. Describe to me how the network’s backhaul operates?
5. Can you describe how the network is configured? For example, do you use bandwidth shaping or block IP addresses?
6. Is there any content filtering or discrimination based on applications being used?

IV. Financing information

1. How much did the network cost to build?
2. Where did the financing for the network construction come from?
   - what is the overall annual municipal budget
   - what is the portion of the budget allocated to telecommunications?
   - Was the municipality a main financial backer or anchor tenant?

- Other sources of financing: university/education, development grants, arts/community grants, hospitals/public safety.

3. Was a debt accrued building the network? How is this financed?
4. What are the ongoing maintenance costs?
5. How much are the end users of the network charged to use it?
6. When is the network planned to break even?
7. What is the estimated break-even date?
8. How long did it take to construct the network? How long did you expect it to take?

V. Coverage

1. What kinds of coverage was planned?
2. What problems were encountered?
3. Are there different levels of coverage across the community?
4. Does the completed network meet with the original plans?

VI. End Use

1. Do you have a privacy policy or acceptable use policy?
2. Do you promise a certain level of service?
3. What are the services offered on the network?
4. What is the take rate for each of these services?
5. What are the costs to users of these services?
6. Which of these are used most often (ask to rank the list of services provided)
7. What are the demographics of people using the network (ask if any descriptive statistics are kept)
8. Could you tell me what people find are the most useful aspects of the network?

VII. Inclusion

1. Are there free or low-cost services being offered? Trial accounts for free?
2. Is there a difference between this service/these services and the regular offering?
3. Are subsidized services provided to community organizations?
4. Is there a digital inclusion fund? How does it operate?
    - Initial infusion – how much?
    - Annual, monthly, regular infusion – how much?
    - Advertising revenue infusion – percentage of ad revenue
5. Is the network open access? Can other providers provide service using it?
6. Are there any network neutrality requirements?
7. Can you describe the network security?

    Possible aspects: Spam control; Virus detection
8. Is there a requirement for "content development" for the network?
9. Is there local content available on the network? Who creates this?
10. Describe the technical support that is made available. Who provides technical support?

    How are they compensated?

VII. Impacts

1. How has the community changed since the network has been put in place?
2. How were communities that weren't initially connected when the project began affected by the

rollout of the network?
3. What kind of cost savings has the network provided for its various stakeholders?
4. Has the incumbent telecommunications service changed since the network came online?
5. What else would you like to tell me about how the network has influenced the community?
6. What would it take to replicate what your organization has done, in other communities?

Appendix II

Native Public Media and New America Foundation Domestic and International Community Wireless Networks Interview Guide

CDA Valerie Fasthorse

Coleville Ann Marchand

SCTDV Matt Rantanen

Leech Lake Frank Reese and Brad Walhof,

KGVA Will Gray Jr. and Robert Bell

WOJB Carol Taylor and Sidney Kellar

I. Basic information

1. What network have you been involved with?

CDA No partners due to location; uplink provider is Northwest Microwave

Colville Colville Confederated tribes network

SCTDV Southern California Tribal Chairman's Association; actual project that started in 2001 the tribal digital village which is an initiative or set of goals working in concert with the community. 19 reservations (all in San Diego County, etc) plus some unrecognized. www.Sctca.net; been together 36 years as a nonprofit organization to increase the tribes strength in working with the fed and the local community. Spawned by HP's digital village grant and ethnic studies professor in 2001 wrote grant to get hp money for the technology grant. 5 mill over 3 years with 4 mill for equipment. Building and enhancing programs on the reservations. 1 million in cash went to construction or buildings, some went to (only a little) set aside to do wireless connections. Matt came on in 2001 of October (Michael in 2001 December). We used Hans Werner as a mentor and didn't know how much work we would need to do. Hans Werner created a tower on Adams Drive with Michael before the DTV opened. There was one tower and two buildings and then he mentored Michael after he came on in doing point to point. Then the rest of us built the network out to the rest of the reservations by the end of 2004 it was complete. Broke through and obtained E rate 2003 short of the library which didn't come until this last year. We had to go to dc and argue at the FCCand show that tribes were left out of e rate because that is subject to state regulation. We got community support including from the library system of California and we became the exception to the rule to e-rate. We've now been able to bring the backbone up to professional level everybody benefits. 86 buildings 13 library 5 head start and 2 schools are all connected. Connect fire stations, tribal admin, EPA, tribal police, all resource programs. Primarily we support our TANF program including San Diego and Santa Barbara counties urban and rural TAN.

LL T-1 all over rez and the hub is at the facilities center and this runs out to the casino's, tribal operations, not to houses. Building wireless going to community centers, but not to homes. Homes if they get stimulus funding, build towers by midsummer to go to homes. Two cell towers on east end

on reservation, in process in partnership to with AT&T to build towers and will incorporate into wireless plan to serve community. Getting rental from att. Possible partnership with AT&T could lead to lease out space to other cell providers. May do fiber network to communities, but not to home.

KGVA They contract with a business, a multimedia company (audiovideoweb) that distributes the stream. Originally they wanted to do it through the college but the college felt that the KGVA stream used up too much bandwidth. They are now pushing their stream to Audiovideoweb via a computer using a DSL line. KGVA has theirown T-1 line. KGVA's original webpage was linked through Ft. Belknap Community College and maintained by Fort Belknap College IT Dept. KGVA created their own webpage, purchased two domain names (kgvafm.org, kgvafm.com), and used Yahoo to host their webpage, which allows KGVA to maintain their own webpage. College has 3 T-1 lines and their own servers.

WOJB Originally the streaming was done at the college and had a radio plugged into the computer. Now we use streamguys who provide our service. The output of the board plugged directly into the computers. Maximum of 100 listeners at one time, the most at one time has been 62. We have an administrative page that measures the users. It also has a reporting structure because we have to do two consecutive days of web streaming to meet CPB requirements. This is put on an ftp server so that data can go to sound exchange. This is our first time this month.

Stats: last highest amount we had at one time 49; average listening time 3 hours 2 minutes and 27 seconds. 62 users doing a live broadcast a couple of years ago during an international broadcast with cross country skiing event.

We switched from the college to Streamguys for quality and for during breaks or doing summer we had no backup if it went down. Also the college needed the bandwidth. NFCB and CPB recommended stream guys and we made the switch in 2006 or 2007. With the college it was free to piggyback off the college system. Now we pay $72.50 per month to stream.

2. How would you describe its mission statement?

CDA "The mission of Information Technology is to provide innovative and accessible technical solutions in computing, media and communication services to enable the CDA Tribe to effectively meet their goals as a learning community and to preserve tribal culture."

Colville CCT Information Technology Division maintains the sole responsibility, by Resolution No. 2005-649, to oversee and manage all activity pertaining to Colville Tribal Telecommunications/Network infrastructure. CCT Information Technology Division is the authority for installation, implementation, maintenance, changes, and security of the Colville Tribal communications infrastructure and all aspects therein. This includes, but is not limited to, reservation wide voice/data networks, information transport systems (wireless, copper, fiber), servers, and all associated communications peripherals. Outsourcing of any IT Services to vendors other than CCT IT Division is prohibited unless requested in writing and authorized by the IT Director or designee. CCT IT Division reports to the CCT Executive Director and the Management and Budget Committee of the Colville Business Council.

SCTDV Website… community development and technology is a part of it. Based on tanf but a person needs to be connected and the community needs to be brought up so that everyone is bought up and technology is a huge part of this. The connectivity and access is exposing and teaching and training people of this new world. "Technology is one of the most important resources since the telephone!" it is so different. I don't know how I would function in this world or how I did before. This is what we are trying to teach these people—the value black canyon project 22 homes connected---very removed

community and we connected those 22 homes, these people were amazed. After a couple of training sessions they realized the value almost immediate because of the resources. It was a big eye opening experience for these folks. They are now much more self sufficient now.

LL No mission statement that they know of

KGVA KGVA's mission is to "Get the Message Out", by serving as a vital communications tool for the Native American and non-Native American communities within the station's service area. KGVA will be inclusive, serving all communities to create a cohesion among people of different backgrounds. KGVA will provide programming that fulfills the cultural, educational and entertainment needs of the community. KGVA is an extended service of the Fort Belknap College.

WOJB ...the mission of WOJB-FM is to promote understanding of the Anishinaabeg by infusing traditional values in all aspects of WOJB; offering culturally diverse information and entertainment to Indian and non-Indian listeners on behalf of the Lac Courte Oreilles Band of Lake Superior Chippewa.(from the website)

Sid: we're here to educate and inform the tribal and larger community. We are here to promote understanding of native people and Ojibwe people specifically. We are here to serve the native and non native community. We also have a strong environmental focus and sustainability focus in addition to educating the public. This shapes our programming. We are reworking the mission above, it is limited and we are revising to include changes and to bring credit to the tribe. To educate and inform the community and to stay on the air to carry out other mission.

3. How long has this network been operational?

CDA 2 years; launched March 2006

Colville N/A

SCTDV 2001; at the beginning of 2001 Rincon and La Jolla reservations were connected. This progress fast, the top half of the community was connected quickly. Werner gave us free bandwidth until we got E-rate.

LL N/A

KGVA Streaming, September 22 2008 using a separate computer for streaming that is connected to the DSL. Broadband DSL.December 2008. Before that had T-1 lines via the college. 4.

WOJB Streaming for 8 years. Camille thinks it was longer; began testing in 1999.

4. When was it expected to launch?

CDA November 1, 2003. Process was delayed because of 1) right of Way issues; 2) late release of funds; and 3) winter (shortened construction season).

Colville 1999

SCTDV N/A

LL Maybe midsummer if we get stimulus funding

KGVA Stream-October 2008

WOJB Camille: streaming idea came about during discussing streaming a pow wow in July of 1999. Then plans to launch it followed. By 2000 we were streaming. A collaboration with the University of Madison Wisconsin Journalism Dept, UW-Madison's Technology Department, the LCO Community

College, WOJB and News from Indian Country.

5. When did it actually launch?

CDA March 2006

Colville BIA started an early bird email program for the tribe, maybe 15 years ago. So the early network shared with the BIA on a modem dial up line. Larry Hall was allowed by the tribal council to hire 6 people around 1997 to grow the network. In 2000, the network started, still on the BIA system. We had to split from the BIA system; we got a T1 in about 1999 and created the network program. Colville got its own network.

SCTDV 2001

LL N/A

KGVA September 2008

WOJB 2000

6. What is its current size? How many nodes does it have? How many locations or households does it serve?

CDA Valarie: 600 households (every single device that connects is a node)/Tom: 8 network nodes (community or cluster is a node; each access point in a community is a node)

Colville 1061 computers on the network now; roughly 100 notes network now serves the entire tribal government. Main hubs in each of the 4 districts and support tech at each of the three casinos

SCTDV Ds3 with 45 Megs of fiber now. Expandable that scenario times 12 with ease and a lot of money. $9500 a month in 2003, dropped to $6000, now $3750 now. This can be an issue our 5 backbone nodes on several mountains are solar powered; 75x120 mile area. We follow the mountain range throughout San Diego Country. We have the second highest peak in the county; we have to helicopter in supplies to that locale. That is all tribal land and tribal owned and operated. So we have lots of redundant power to support the connection during the night time. 5-7 days battery backup if the sun never shines. White space, broadcast style internet, is wide open in this area; this will be a huge solution for areas with shadow pockets.

LL Currently have hotspots Onigum. Ball club using a water tower. Bena too. All communities will have a tower (195foot) and hotspot if we get stimulus funding.

KGVA Unknown

WOJB Capacity for 100 listeners at one time. 500 hits per week. Listener membership renewals has few internet users. But station is near tourist area and we think the tourists may access it as part of the Northwoods experience. Many of the listeners in our broadcast area are only here for vacation or long weekends. As many as half of the houses here are second homes or cabins. We hear from these tourists that when they are driving in from Minneapolis or Chicago that they know they're really on vacation when they can get WOJB on their car radios. Our unique/quirky shows are But station is near tourist area and we think the tourists may access it as part of the Northwoods experience. A few people have told us that they discovered WOJB while on vacation and now listen online, but only a few.

II. Design and Management

1. Who created it? (who were the stakeholders and what was their involvement?) Could include:

CDA Designed by Valarie Fast Horse and Tom Jones. Valarie was Director of IT for the tribe and Tom was a consultant with valuable experience from working at first ISP in Northern Idaho. There was no tribal leaders involved in the process, although they approved the process.

Colville Larry hall started and telecommunications technicians. Grew when Lisa arrived; the Network Program created by Coleville around 1999 with 8 people and 500 computers and about 50 on the network. Had a hard time getting people to convert from dial up to T1. Just Nespelum and natural resources were covered. After the split we supported the BIA system for a while. 1061 computers on the network now. BIA was the original stakeholder. Gaming, before they built up their own network. Social services, tribal council, administration, originally.

SCTDV Jack Ward and Ross Frank

LL MIS department that designed the system. The entire department has been involved. Infrastructure was presented to tribal council 4 years ago. No money, but since the stimulus money was announced we submitted for infrastructure for towers and wireless and fiber optics. The tribal council …we give them info ahead of time, then when we do go talk with them they approve it and tell us to keep going forward. The emergency responders are served through the state and part of the state plan. The I H S will be served through the system we have now and the one we hope to build. Each community is served; we have meetings in each community once in a while to tell them what's going on. Nature Lake, Inger, Winniedam, Ballclub, Deer River, Bena, Sugar Point, Kego Lake, Onigum, Oak Point, Cass lake, Mission, Pennington and the three casinos (Palace Casino in Cass Lake, White Oak in Deer River and Northern Lights Casino in Walker), plus gaming headquarters (we have both wireless and T1 going to casinos and gaming headquarters), plus achievement center community centers.

KGVA Will and Rob

WOJB Started as a collaboration, then the Lac Courte Oreilles Ojibwe Community college streamed it and now streamguys. The Lac Courte Oreilles tribe was not involved but they were supportive of the concept. Erin Staek from Catering to Computers assisted Rochelle Galloway in the development of WOJB's website in 2001. Catering to Computers provides technical support to WOJB staff and website management. It was looked at as an idea to tap into listener support; to generate funding, and to get Native content on the Internet. The stream came first, and then the website was developed. The streaming process was not planned; it organically evolved from an idea to stream the pow wow.

2. Who is responsible for managing it?

CDA Valarie and Tom

Colville IT division specifically the networking department.

SCTDV Director of Technology but runs the whole DTVIllage since 2001

LL MIS built infrastructure, but some departments maintain their own software and applications (i.e. health).

KGVA Will and Rob

WOJB Streaming is managed by Brent Christensen our engineer and Carol Taylor. StreamGuys provides extremely good service; very little downtime from there end.

3. Who conducts the maintenance?

CDA Valarie and Tom. There are two additional technicians and 4 if really needed. 1 full time, the others are part time and temporary.

Colville IT division, network and telecom is covered by IT; from network to desktop.

SCTDV We have a staff Michael Peralta is the network administrator with 2 persons. Matt has 2 ITstaff and he runs all these people plus one person from a grant that provides seed money to provide internet service to the home as a business. In 2006 we started a for profit LLC to manage a printing press and network business. BTOP 3.1 million to install to 2700 homes on the reservation trying to provide internet service to the tribal home for fee. $34.99 a month for 2 megabits up and down. Nothing like this anywhere our price and service beats anything around; pilot with Zero Divide for first 100 homes. First 5 are already connected that are testing and need to fill in by April. Always on service. Now we have to worry about night usage and traffic, which we never had to worry about this before. The usage has really changed. This can be an issue our 5 backbone nodes on the mountain are solar powered. So we have lots of redundant power to support the connection during the night time. 5-7 days battery backup if the sun never shines. We have plans to use the wind towers as our backup power when solar is down, because the wind blows at night. We have been doing studies and should have this up soon. Within a month or so. Off the grid on those 5 locations.

LL MIS does all the hardware maintenance

KGVA Will and Rob

WOJB StreamGuys does their own server maintenance. We do little other than local server maintenance.

4. Can you describe how the project planners solicited public input from the various stakeholders when they were planning the project? Could include:

CDA There was no input because of the short timeline associated with the NOFA

Colville It wasn't a project that was planned; it was a slow expansion by one person who advocated with the tribal business council. They approved the growth. It was hard to get the council on board and to approve things.

SCTDV The tribe already has the infrastructure set up and in place. So the team of planners went to meetings and requested a tribal representative from each community to come to the meeting. Easily half the community came on board really fast. We had quarterly and bi monthly meetings with the community representatives and they helped shape this network with their input. We got early grants RUS, along with others. We brought the people in from day one and then had an end of the year meeting in those early years. The tribal representatives on the key reservations are still involved. Use word of mouth. Specifically stated this infrastructure in the BTOP application.

MOUs with all the tribes, initiative of tribal digital village, deploying and delivering services to the communities. This is an initiative, telling them that they are on board with the outlined goals of building the economy, econ devel, education, governance. They all signed off on the MOU plus their membership in SCTCA and the tribal leader is the board of the SCTCA board membership. So if there is an issue, we go to the leaders directly at the meeting.

LL No input. We presented to the council and went from there

KGVA The KGVA listeners wanted a stream, especially those who moved out of state, or were in the armed services in Iran and Afghanistan. People found out about the stream by word of mouth and email

campaign to tribal residents.

WOJB Camille: We have 40 volunteers and 4 on-air staff that make it a point to mention we are streaming on the Internet. We encourage listeners to email us and tell us where you are listening from. This is how we raised public interest about our stream and to help fundraise during our membership drives. We didn't host public hearings or focus groups.

5. How often has the project been reviewed with these stakeholders since its inception?

CDA The public are users, we provide the service. The tribe is not involved and there is no real stakeholder involvement. This is a business; the tribe does not get involved in the business interests of Red Spectrum.

Colville Yearly; every budget season every fiscal year.

SCTDV Annual update that Matt gives to chairman on the status of the network, the for profit southern California tribal technologies every 3 months (7 reservation leader). Monthly update to superiors. Also report out with new projects in development and implementation.

LL On a quarterly basis and when needed by special meeting (Tribal Council)

KGVA Unknown

WOJB There has been no other review since inception. Our service is based on the price from stream guys. We know we have people all over the world, but no specific data as to where unless they email us. Switzerland, UK, Iraq.

6. How are project details communicated to the public?

CDA The business info is dispersed through the tribal newsletter (council fires) that is published monthly; direct mailings with specials or with info about events like planned outages. Email/Call. In the launch there was a huge grand opening with the media and the public. "We went all out to launch the project." "we should probably do an open house again." Tribal council does not require any updates, they stay out of our business, even through change of leadership. Valarie offered to give updates but the council didn't want it. They have a technology center is open every day to the public. Session tracking logs 2000 sessions a month (Cafeeassy session logger). Community people come and use it every day.

Colville Broadcast emails out regarding system upgrades and outages. No newsletters, no blogs. Special sessions council sessions sometimes. We haven't communicated much with the public until recently. The arra monies and broadband monies have changed that. We are going to upgrade our broadband coverage across the reservation. We applied to put in 255 miles of fiber over the main routes for middle mile open access network through BTOP .

SCTDV The tribe already has the infrastructure set up and in place. So the team of planners went to meetings and requested a tribal representative from each community to come to the meeting. Easily half the community came on board really fast. We had quarterly and bi monthly meetings with the community representatives and they helped shape this network with their input. We got early grants RUS, along with others. We brought the people in from day one and then had an end of the year meeting in those early years. The tribal representatives on the key reservations are still involved. Used existing mechanism to get word out in community. Specifically stated this infrastructure in the BTOP application.

LL No newsletters, we tell them what's going on at tribal meetings.

KGVA Could include: Word of mouth and email campaign, on-air and in the local newspaper, surrounding local newspapers. Email to tribal members living off rez. Word of mouth the "moccasin grapevine." Also contacted different media and web sites that were linked back to KGVA.

WOJB We try to post events on the home page. Upcoming is the membership drive. We use PayPal and urge people to join on the web. No newsletter, blog is not active, no phone calls.

7. Who was your primary contact for your involvement with this project?

CDA Valarie

Colville Larry Hall and Scott Gregg got everything started.

SCTDV Jack Ward and Ross Frank

LL Richard Schulman, former head of MIS Division who carried the message to the tribal council of what we were doing

KGVA There is no other ISP

WOJB Unknown

8. Were you in contact with other organizations also involved in this project? Did this involvement help your organization to create relationships with these other organizations?

CDA USDA

Colville BIA and Gaming and the Tribe

SCTDV N/A

LL We used to have 5 telcos we dealt with and now we're down to 4. When we did the t-1 and had to go around the reservation north to go to one of the casinos, we did that with Paul Bunyan Telephone. Then we were able to pick up the other communities at a better price and now we can dial these communities locally, when before this it was long distance. Now with the t-1 lines it is local to all the communities and we are building out to Minneapolis so that it's local dialing to our twin cities office. This will be in place by next week.

KGVA No other organizations involved. Yes, different Native web sites, native media.

WOJB UW (in the beginning but not currently), News from Indian Country (in the beginning but not Currently), Rick Rooney, CPB, NFCB , DEI (Development Exchange for fundraising aspect of public radio).

III. Technical specifications

1. What is the network architecture?

CDA 802.11b based on 2.4ghtz unlicensed spectrum

Colville hybrid and unique in nature. On a routed network, versus switched. 1.4 million acres, 4 districts wired and wireless.

SCTDV 2.4 gtz 5.3, 5.8, and have one ffc license link because we have used all unlicenced spectrum in our area. Our main hop on the backbone we have a licensed link allowing us to hit 5 reservations. When we went licensed to that location we freed up 4 different radios. Plus we're pulling away from 2.4 GHz from mountaintop down anymore. Now 5.3 and 5.8 have opened up possibilities.

LL 1 gigabyte fiber backhaul and 54 megabytes half duplex

KGVA We used free software to push their stream so it is closed on our end

WOJB The people who set it up are all gone now. The station just maintains the internet connections as they are. We just fix or replace items as needed. All internet is set up through Century Tel, the local phone / interview provider. Wireless router providing DSL $16.95. It is a wired DSL stet up within the station; we do not have computers with wireless access. If someone came in with a laptop they could access it. It is completely open at this point.

2. What devices can access it?

CDA All wire to wireless devices can access it. Wire at tech center and wireless at home

Colville Pc/cell phones/ switches routers wireless communications

SCTDV Set up point to point to end point like a library (which may have access points for wireless hotspots) or point to multi point paired with the mountain.

LL Computers, telephones and VoIP

KGVA Any computer with an internet access and an audio player

WOJB Any wireless computer.

3. Is it an "open access" network?

CDA Not open access because we are trying to make money to operate. No hot spots. No others can access for free. Closed access unless you pay. Except for the two towns for government usage (fire, police etc.) no citizen usage.

Colville Managed, no open

SCTDV Not but at the end points it is but not the larger network

LL No

KGVA Audiovideoweb is an open access server

WOJB Yes, no password protection, although they think they should do that.

4. Describe to me how the network's backhaul operates?

CDA Valarie link between off and on the rez—100 megabit internet feed two bonded ds3's (link between plumber butte and mica and Spokane);Tom point to point 802.11Q pegged blans and redundant links.

Colville We run T1 in Nespelum to Keller backhaul. Throughout the reservation; point to point T1 or over wireless backhaul. Wireless or t1 architecture.

SCTDV 45 Meg down and back on the backbone. The backhaul comes to data center and goes out fiber to the rest of the world. We want to implement a redundant system in the southeast areas due to weather considerations. Our concern is snow and we need a redundant system as a backup or another way out in case the network gets severed.

LL N/A

KGVA Our audio is encoded through Microsoft Media encoder.

WOJB N/A

5. Can you describe how the network is configured? For example, do you use bandwidth shaping or block IP addresses?

CDA Yes we have a quality of service (qos) setting on each cpe.(customer premise equipment)

Colville Blocked IP address.

SCTDV We only have filtering on library because of e-rate requirement; we have had specific questions and requests posed by tribal offices they block MySpace and face book, but on a tribal leader request only. We support net neutrality and open network.

LL Open within our closed network

KGVA We set it up with a limitation on bandwidth, 20kpbs and 100 max listeners. We can check on AVW site for statistics. The highest broadcast occurred during a live basketball broadcast with 132 listeners at in one day.

WOJB N/A

6. Is there any content filtering or discrimination based on applications being used?

CDA Not anymore. We were discriminating against certain traffic such as music and movies. We changed it because of the Comcast ruling.

Colville Comcabe filtering. Web and email filtered.

SCTDV No

LL Blocking social networking like facebook, but we unblocked everything. Some places may locally block at an office

KVGA N/A

WOJB We don't filter anything coming in (though if I find something inappropriate on a computer I have the password changed -Sid).

We keep an eye on our blog and photo galleries and have had to delete some advertising and foul language.

IV. Financing information

1. How much did the network cost to build?

CDA Grant and tribal match=2.8 million USDA 1/2 million from the tribe

Colville Unknown

SCTDV SCTCA put in salary time, donations in kind is significant. Hard cost 600,000 not including installation and employment (doubles it) back to 2001 and now everything has been replaced at least once.

LL $9.7 million if the grant came through. Originally the T1s were costly, (10 years ago 20 t1s and now we are at 18). The pricing has gone down some.

KGVA Steaming- Audiovideoweb @$155 month w/5% discount, $147 per month, purchased a computer $1400, Yahoo small business for station website @ $12.00 per month, The DSL package per month, $55.00 monthly. Monthly total @ $214. 00. Two domain names $10.00 each name @ $20.00 per year.

WOJB No one remembers. No specific documentation. Originally piggybacking, there was the cost of the computer, and this information might be located in WOJB's financials between 2000-2001.

2. Where did the financing for the network construction come from? What is the overall annual municipal budget?

CDA We operate base on revenue and is not based on the tribe. The tribe does not give us any money. The tribe only gave us the upfront costs. We are self sufficient. 430000(fy09) for this fiscal year, but varies from year to year. 100 percent revenue based! How many tribal members are subscribers? (peggy) Valarie: we don't know.

Colville Current: voice and data is not broken out, but monthly annual recurring is $300,000 per year

SCTDV HP 125,000 for the initial, the for profit does a lot of the e-rate work now. Construction money for build outs. For profit manages the network, not profit gets the grant.

LL N/A

KGVA Sponsors, underwriting, college pays for a portion, if KGVA cannot make its bills the college will cover the costs but that has not happened thus far.

WOJB N/A

- What is the portion of the budget allocated to telecommunications?

CDA $102888. Fy10

Colville N/A

SCTDV N/A

LL N/A

KGVA N/A

WOJB N/A

- Was the municipality a main financial backer or anchor tenant?

CDA The tribe is the anchor tenant and the USDA

Colville The tribe financed both voice and data.

SCTDV N/A

LL N/A

KGVA N/A

WOJB N/A

- Other sources of financing: university/education, development grants, arts/community grants, hospitals/public safety.

CDA No other sources of financing

Colville the tribe financed initially and the BIA helped, but the tribe is still the main backer on both the voice/ data

SCTDV university/education, development grants, arts/community grants, hospitals/public safety. Bandwidth from NSF grant from Hans donated; CTFC community grant seed money. Zero Divide now for the fiber to home project. In 2007 we lost our main tower in the fire and worked with the ANA program to cover the costs that insurance didn't cover.

LL N/A

KGVA Clinic provides some sponsorship, a local pharmacy, and Montana Dept of Transportation are underwriters.

WOJB N/A

3. Was a debt accrued building the network? How is this financed?

CDA No debt was accrued

Colville None

SCTDV N/A

LL No paid as we went using gaming money

KGVA No Debt Yet

WOJB N/A

4. What are the ongoing maintenance costs?

CDA NONE in Fy10. FY09 35,000. You don't have to do it every year. Things have a 3-5 year shelf life and then you replace/rebuild.

Colville N/A

SCTDV Fairly small, a radio here a router there. A couple of thousand a month. If you put it up good, it lasts a few years.

LL We do all the maintenance now. A lot of resellers have driven the price down. We just do ongoing maintenance and equipment has really come down. Everything has come down in cost.

KGVA Staff Time

WOJB Streaming costs: 62.50 for connection for 100 users per month and report; DSL access cost: $16.95 per month.

5. How much are the end users of the network charged to use it?

CDA 4 tiered packages. Customized to businesses and we sell to 2 wireless isp's on the other side of the lake. We charge them a couple thousand a month. We have another community off the res now who wants to buy our service and resell to the public. We don't compete with isps we work with them and then they deal with the customers.

Colville 800 users, 20 bucks per network port, 5 per. Tribal infrastructure, and tribal housing. But the consumer isn't charged. We provide services to elders at homes; we charge 20 bucks a month. Hot spots in a few areas, tech center, admin building; closed hotspot in each district that the tribal police can use. 6 total hotspots (5 closed hotspots, 1 open hotspot).

SCTDV Not implemented will be up by December. Running fully by April; SCDTV site is getting revamped

LL $20 per month to end users (only for Tribal Divisions and Tribal Businesses).No cost for internet or voice mail, we provide that. We service about 1400 extensions within our system total.

KGVA NA

WOJB N/A

6. When is the network planned to break even?

CDA Done

Colville N/A

SCTDV N/A

LL N/A

KGVA N/A

WOJB N/A

7. What is the estimated break-even date?

CDA Done

Colville N/A

SCTDV N/A

LL N/A

KGVA N/A

WOJB N/A

8. How long did it take to construct the network? How long did you expect it to take?

CDA See above

Colville N/A

SCTDV N/A

LL T1 telecommunications, some was in place but when we rebuilt it took about a year and a half to get things running smoothly. The very first equipment, phone systems, was bought at the time that ma bell broke up.

KGVA Did a lot of research, 2-3 months. Where to get an encoder. (got one for free). Initially thought that they could do it free of charge using the colleges servers. College IT Dept. felt servers couldn't handle the bandwidth through their own servers. Looking for cost effective ways to do it. 4 months of planning.

WOJB N/A

V. Coverage

1. What kinds of coverage was planned?

CDA Planned on using what we are using the 2.4ghz unlicensed spectrum

Colville Originally it was just to get basic internet access and computer usage. It just sort of happened.

SCTDV The goal is to connect tribal homes (2700) and will get that in place as the funding becomes available; the goal is to have 2000 homes by the end of the 2 year process (BTOP). We are in a professional level our network and anticipate no problems.

LL Voice and 56k data for faxes and modems. Originally we didn't go into each community. About 11 years ago we went into each community.

KGVA N/A

WOJB N/A

2. What problems were encountered?

CDA Now we have problems with noise, but didn't when we started. There is lots of interference on the wireless network side. When we first built no one had wireless, but their devices in their own homes are competent with the devices we put in their homes. Power over Ethernet device would solve problem (wireless bridge dlink).

Colville Not having technically qualified staff on the reservation, but don't know about other problems because it was so long ago.

SCTDV N/A

LL One problem that sticks out is when we went to the school in Bena, and we were dealing with Qwest. They went about 5 miles from the school. At the time there was a local teleco that went about 2 miles in from the school. We had difficulties at first getting them to come all the way. It was dead service for phone.

Still places that there is no phone service. In between Sugar Point and Bena there is a portion that is not served by any by land lines. There is a dead spot for landline. There is not cell phone services there either. But it is improving now.

KGVA N/A

WOJB N/A

3. Are there different levels of coverage across the community?

CDA 4 packages from 256k to 1.5 megs, when we get this fiber optic grant were going to "kick ass."

Colville Government is point to point wired and wireless; communities only broadband areas in Omac and Nespelum with wireless backhaul, but not deployed yet.

SCTDV N/A

LL Still places that there is no phone service. In between sugar point and bina there is a portion that is not served by any by land lines. There is a dead spot for landline. There is not cell phone services there either. But it is improving now.

KGVA N/A

WOJB N/A

4. Does the completed network meet with the original plans?

CDA It exceeds our original plans in terms of size despite the noise problems. Original plan was to serve

plumber only but now we serve plumber, Worley, Fairfield (WA), off res sites, De Smets (reservation is 45,000 acres)

Colville Far exceeds the original plans.

SCTDV Yes and exceeds

LL They just improved on what was in place and keep building on it as they receive money from gaming

KGVA N/A

WOJB N/A

VI. End Use

1. Do you have a privacy policy or acceptable use policy?

CDA Yes we do and we use it.

Colville We would like to, working towards that. It would have to be approved by tribal council then distribute to people who we provide services to.

SCTDV We have in the past and do for e-rate but needs revamping with roll out.

LL No

KGVA N/A

WOJB N/A

2. Do you promise a certain level of service?

CDA No, other than the package deal. We don't guarantee

Colville N/A

SCTDV 2 meg up and down

LL No

KGVA N/A

WOJB N/A

3. What are the services offered on the network?

CDA See Red Spectrum Website

Colville N/A

SCTDV Access at this point with no restrictions; community email addresses; focused on the education and community based stuff, we do not support websites right now; maybe in the future, but won't be a big focus. It is not a tribal focus. Wireless to the home in the Zero Divide Project

LL Voice and 56k data

KGVA N/A

WOJB N/A

4. What is the take rate for each of these services?

CDA Red Spectrum Website

Colville N/A

SCTDV N/A

LL N/A

KGVA N/A

WOJB N/A

5. What are the costs to users of these services?

CDA Red Spectrum Website

Colville N/A

SCTDV $34.95

LL N/A

KGVA N/A

WOJB N/A

6. Which of these are used most often (ask to rank the list of services provided)

CDA No Specifics

Colville N/A

SCTDV N/A

LL All are used; voice and data and internet and voice mail and email

KGVA N/A

WOJB N/A

7. What are the demographics of people using the network (ask if any descriptive statistics are kept)

CDA No Demographics kept

Colville N/A

SCTDV This will be part of the build out. We'll have a dashboard to watch statistics and is in construction right now.

LL 1400 people/ end users / no statistics kept /

KGVA Majority would be tribal although KGVA has gotten calls from different areas, including Australia.

WOJB N/A

8. Could you tell me what people find are the most useful aspects of the network?

CDA Using the lab/center, the kid's bus stop is right in front of the center and the kids use it. The college students like taking college courses on the res. People who are sick like using the site to research their

illness; taught a class teaching people how to use the internet in the lab to research their cancer symptoms.

Colville N/A

SCTDV N/A

LL All are necessities and they use them all

KGVA On KGVA webpage there is a guest book and there is a lot of positive feedback about what they like about the stream, for example, Native music, live basketball broadcasts, some people wrote that it makes them "feel close to home" if they live off reservation.

WOJB N/A

VII. Inclusion

1. Are there free or low-cost services being offered? Trial accounts for free?

CDA Tech center with 40 workstations half lynix and half windows, 3 Mac. No trial accounts, software is not compatible.

Colville N/A

SCTDV N/A

LL No

KGVA N/A

WOJB N/A

2. Is there a difference between this service/these services and the regular offering?

CDA N/A

Colville N/A

SCTDV N/A

LL More bandwidths offered from us rather than quest

KGVA N/A

WOJB N/A

3. Are subsidized services provided to community organizations?

CDA N/A

Colville N/A

SCDTV E-Rate; subsidizing first 100 homes with the Zero divide grant; BTOP goal is to subsidies to home---we'll give them superior performance to lure them away from their aol and other accounts; we need to entice them and give them a reason to switch. We will pick up the upfront costs to get buy in.

LL The schools get e-rate from USF

KGVA N/A

WOJB N/A

4. Is there a digital inclusion fund? How does it operate? N/A

CDA N/A

Colville N/A

SCTDV N/A

LL No

KGVA N/A

WOJB N/A

5. Is the network open access? Can other providers provide service using it?

CDA Other providers are using the network, but we are reselling it to them. No open access.

Colville N/A

SCTDV N/A

LL No

KGVA N/A

WOJB N/A

6. Are there any network neutrality requirements?

CDA Just the ones the FCC imposes

Colville Filterization system that allows us to control and are actively shaping what is appropriate for the governmental tribal network. We have to restrict for the government, but when we offer to the public in the future it will be different. The one open hotspot has no restrictions.

SCTDV Yes

LL Don't know

KGVA N/A

WOJB N/A

7. Can you describe the network security?

CDA Encryption, automated network monitoring and intrusion detection

Colville Spam filters, virus detections

SCTDV Barracuda, but does not filter general customer support; still looking at options

LL No spam ever! The system is tight

KGVA N/A

WOJB N/A

8. Is there a requirement for "content development" for the network?

CDA No. Whenever people buy service, whatever they do on their side is their business

Colville N/A

SCTDV N/A

LL N/A

KGVA N/A

WOJB N/A

9. Is there local content available on the network? Who creates this?

CDA Who creates this? RezKast.com…check it out; two Rezkasters in training are providing content Bill Weams (CDA) and Leslie Louie (Blackfeet) (RezKast news).

Colville N/A

SCTDV N/A

LL N/A

KGVA N/A

WOJB N/A

10. Describe the technical support that is made available. Who provides technical support? How are they compensated?

CDA How are they compensated? 1-4 technicians and we all provide support. Tribal temporary employment, salary, wage based. No volunteers, we pay everyone.

Colville N/A

SCTDV 1-800 number and deferred to another company…

LL N/A

KGVA N/A

WOJB N/A

VII. Impacts

1. How has the community changed since the network has been put in place?

CDA Capacity building we're helping people build their technical knowledge. Moving from service based to knowledge based society. People are paid to use their heads now! We even have 2 hackers in the community! That is exciting!

Colville Although we don't hit private sector, but the increased capacity makes the communities more readily informed of day to day happenings with the tribe. We can reach all the communities. We are leaning towards digital signage. We have a broadcast email for emergencies and events and road closures, fires and we can keep the public informed. Current project also, streaming tribal council meetings to the community centers (in the planning process for this, getting proposals together). We'll stream them with audio and video.

SCTDV "We have tribal leaders that won't turn on the computer, yet they will call and ask for more bandwidth for my afterschool program." Total paradigm shift even in language use. Online grant submission and the tribe have been able to take advantage of short deadlines example EPA grants. We apply online and know if we'll get it and we often get them. Tanf program benefits greatly; training center they get certified in basic level computer use. Once we get the homes connected, everyone will be able to benefit even more.

LL Cell phones, less dead spots, better phone coverage,

KGVA Don't have an answer. Refer to positive feedback on guest book.

WOJB Many more second homeowners here, you have part time people in the area who are not here all year round and they may use the service outside the area more. Technology is more readily available. Internet use has increased dramatically. Are there more tribal people/listeners using the internet—no most of the tribal members use the radio only. Tribal members who have left the area use the streaming or at work use the streaming. When the college is closed internet listening goes down. Pledging is all on line. We use PayPal in pledge drives. There was a big bump when we changed to PayPal. But we have not really analyzed the dollars in yet. But we have started a new reporting structure so have begun to track the data for our reporting requirements.

2. How were communities that weren't initially connected when the project began affected by the rollout of the network?

CDA Everybody lives an online life; we're no different than people in the cities we are connected; "we can actively participate in media rather than being passive"

Colville In a very positive manner. Better and faster communications between districts. We do telecommuting, we are beginning to imp lament telemedicine. Distance learning.

SCTDV N/A

LL Sugar point and Federal Dam Area service from Johnson telephone was limited and they didn't inform tribal members about tribal linkup and Lifeline. We had to call Washington and tell them that Johnson Telephone was receiving money to offer these services; this forced them to start informing residents of these services.

KGVA N/A

WOJB People listen across the nation and overseas

3. What kind of cost savings has the network provided for its various stakeholders?

CDA A matter of perspective. Medical center example, transmitting xrays—commute to Spokane 3 hours each way or mail it to the provider. Now with bb we have the reading in minutes because we can attach to email.

Colville We have a cost savings over local telecos plus we employ locals to help us. Local provider is Century Tel and Qwest. Quest is only in Omec and Century Tel is the other 3 communities.

SCTDV N/A

LL Tremendous cost savings. Before this network in place, communities were paying differing rates for long distance. Now we get long distance from quest for a couple of cents per minute. Before it was upwards of 25 cents a minute.

KGVA N/A

WOJB To end user there is no cost. All the software is free. Their own internet cost.

4. Has the incumbent telecommunications service changed since the network came online?

CDA No. It is Verizon and they don't care.

Colville No, they are still antiquated and unwilling to increase their capacities so therefore we cannot increase our capability. We have 4 t1s to quest that is where we get our internet. Omec we use two Qwest ISPs to get out. We are limited by their infrastructure.

SCTDV N/A

LL The service has really improved a lot. Now 6 new telecos, in addition to quest. Our rates have really come down.

KGVA N/A

WOJB N/A

5. What else would you like to tell me about how the network has influenced the community?

CDA The very cool thing is that since we build the tech center the various technology terms roll off people's mouths and now it is in use like they were born with this language. Even my mom got a laptop.

When we started this we used unlicensed spectrum which seemed good at the time, but licensed spectrum might be better and not susceptible to noise interference. Fiber is better but expensive.

Colville With the tech center up, we have more Unger kids using the facilities and this keeps them productive and not causing trouble.

One story about the tech center, some kids who have to do community service and they ask if they can work at the community center and we put them to work building computers for the tribes. The youth are really expressing interest in the computing.

Coleville employs of many of their members, and the infrastructure adds so much to this. It is an integral part of the productivity and employment.

SCTDV N/A

LL Health and education have had the best benefits. We have telemedicine now at the clinics. People visit from the surrounding areas now. 5 clinics that are connected to telemedicine. This is saving people's lives. One example with mayo clinic being involved like they were right there.

KGVA Expanding KGVA's services outside their coverage area. Provide service to those that moved away was the real reason for doing the streaming.

WOJB N/A

6. What would it take to replicate what you have done in other communities?

CDA The perfect funding source was USDA RUS grant with the 80/20 match giving community buy in. with private investors you wouldn't have enough money. Technical expertise: technical expertise with strong leadership and persistence. Persistence might be more important than technical knowledge; you can hire the technical experts.

Colville Plan, plan, plan! Because of our expansion and how it was so rapid there was not enough planning so we have to so much restructuring. Keeping it local and brining on trained tribal members to work on

the infrastructure. Actively training tribal folks to become network technician's and cross training people and training them in areas of expertise keeping certifications up. We are one of the few tribes who have all of our techs with certifications. Ever since we started investing in that our guys are so knowledgeable and our voice system is 5/9s since that. We are just now starting to reap the benefits of this training and some of our guys are getting solicited by outside groups like BIA. We've made leaps and bounds in the last 4 years by investing in our people and our equipment.

Tech center usage: afterschool, we have to put timers on the computers; there are people waiting to use the computers. We are looking at adding more computers. We have 10 computers and want to add laptops soon. The computers that the kids are building will be used. We are looking to have tribal members build all our computers, that is our goal!

SCTDV NA

LL Commitment from tribal council and leadership and the personal to build it out. Hire people that keep up on all the new stuff going on and coming out. ITI's from the FCC.

KOJB--No exact date. Want to be up and on the air by April 1st 2010, but there are a lot of unknowns that could change that date. Studios and offices for KOJB need to be found. Part of the tower system will service the radio station. Antenna and transmitter will be in Bena. KOJB FM will use the current wireless tower distribution system from Cass Lake to the transmitter site in Bena by turning the audio into digital and then back to audio at the tower site. After fiber is implemented KOJB will use the same equipment to send digital audio through the fiber network to the transmitter site. We will have equipment to stream but are waiting for grant application from RUS, we'll see if we get it. NTIA was not approved.

KGVA Yes [REPLICABLE] very easily, the entire thing. We threw it together on our own, didn't need to be tech savvy. Did the research and did it. We tried to be cost-effective but it may not be because we did not want to use a streaming provider who would lock them into a multi year contract. We wanted to be able to pull out of things did not work out and we couldn't do that if we were locked into contract. Some internet streaming providers offered lower prices but we didn't want the contract. We are paying a little more than some of the distributors. Audio Video Web really worked for us. We felt better dealing with them. They have a representative in Cutbank. We want to eventually go back to the college and stream it for free. If the college had newer servers it might help with the bandwidth. The college IT department doesn't have the staff and the IT department is more involved with the institution although the station is licensed to the radio station.

WOJB Simultaneously build the website and the streaming at the same time. Streaming is driving public radio web traffic. Some phone calls have come from stations about setting up stations, but no one has questioned us about streaming.

CAROL: There are various services you can use, both CPB and NFCB and DEI, ask them about their service. Individually based on service providers what will they charge.

Sid: I hope people are aware of (syd) or realize that design and update websites it is their profession, it is a cost that is ongoing if you want to update it. You need a volunteer or staff person who will update the twitter and social media. It is better with a dedicated staff person.

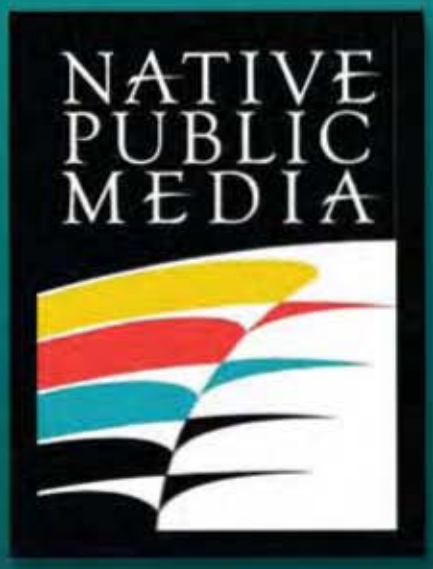
Camille: IF You didn't have CPB money would you be able to steam? Not right now.

Sid: the reporting requirements for online streaming is affecting how we program. We can no longer play local music. Plus our volunteers have to learn the new program spinatron. Is this work it? We are really changing our programming because of the new requirements. Volunteers think this gets in the

way of radio; we cannot take calls while on air because we're doing secretarial work.

I am hearing from our newest staff woman, who is younger and media savvy and other volunteers who have said that our website does not reflect how good the station is. Ours is not up to par and it reflects on us and it may affect our pledge drives.

Our county is the poorest country in the state. Tribal member's per capita income is something like 10,000 a year. I estimate that less than half of tribal members have internet access at home. There are a few people who tend to hang out at the station, especially those who know a staff member and can get onto the internet on his or her computer. This is something to consider when adding internet access in general. I am also concerned about the loss of staff productivity. If I had it to do over I would carefully plan the location of computers and what staff (especially interns) have access to.



NATIVE PUBLIC MEDIA (NPM)

promotes healthy, engaged, independent Native communities by strengthening and expanding Native American media capacity and by empowering a strong, proud Native American voice.

OPEN TECHNOLOGY INITIATIVE (OTI)

formulates policy and regulatory reforms to support open architectures and open source innovations and facilitates the development and implementation of open technologies and communications networks.

Attachment 2

EXECUTIVE COMMITTEE

PRESIDENT
Jefferson Keel
Chickasaw Nation

FIRST VICE-PRESIDENT
Juana Majel Dixon
Pauma Band – Mission Indians

RECORDING SECRETARY
Theresa Two Bulls
Oglala Sioux Tribe

TREASURER
W. Ron Allen
Jamestown S'Klallam Tribe

REGIONAL VICE-PRESIDENTS

ALASKA
William Martin
Central Council Tlingit & Haida

EASTERN OKLAHOMA
Cara Cowan Watts
Cherokee Nation

GREAT PLAINS
Marcus D. Levings
Mandan, Arikara and Hidatsa Nation

MIDWEST
Matthew Wesaw
Pokagon Band of Potawatomie

NORTHEAST
Lance Gumbs
Shinnecock Indian Nation

NORTHWEST
Brian Cladoosby
Swinomish Tribal Community

PACIFIC
Don Arnold
Scotts Valley Band of Pomo Indians

ROCKY MOUNTAIN
Scott Russell
Crow Tribe

SOUTHEAST
Archie Lynch
Haliwa-Saponi Indian Tribe

SOUTHERN PLAINS
Darrell Flyingman
Cheyenne & Arapaho Tribes

SOUTHWEST
Joe Garcia
Ohkay Owingeh

WESTERN
Irene Cuch
Ute Indian Tribe

EXECUTIVE DIRECTOR
Jacqueline Johnson Pata
Tlingit

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The National Congress of American Indians
Resolution #PSP-09-087c

TITLE: Advancing Consultation Regarding Tribal Section 106 Concerns in the ARRA Broadband Programs

WHEREAS, we, the members of the National Congress of American Indians of the United States, invoking the divine blessing of the Creator upon our efforts and purposes, in order to preserve for ourselves and our descendants the inherent sovereign rights of our Indian nations, rights secured under Indian treaties and agreements with the United States, and all other rights and benefits to which we are entitled under the laws and Constitution of the United States, to enlighten the public toward a better understanding of the Indian people, to preserve Indian cultural values, and otherwise promote the health, safety and welfare of the Indian people, do hereby establish and submit the following resolution; and

WHEREAS, the National Congress of American Indians (NCAI) was established in 1944 and is the oldest and largest national organization of American Indian and Alaska Native tribal governments; and

WHEREAS, the American Recovery and Reinvestment Act of 2009 (ARRA) provides $7.2 billion to the U.S. Department of Commerce's National Telecommunications and Information Administration (NTIA) and the U.S. Department of Agriculture's Rural Utilities Service (RUS) to expand access to broadband services throughout the nation, including on Tribal lands nationwide; and

WHEREAS, NTIA in implementing its ARRA responsibility through the Broadband Technology Opportunities Program (BTOP) will award $4.7 billion in grants to expand public computer capacity, encourage sustainable adoption of broadband service and deploy broadband infrastructure to unserved and underserved areas; and

WHEREAS, RUS in implementing its ARRA responsibility through the Broadband Initiatives Program (BIP) will invest $2.5 billion in loans and loan/grant combinations to support broadband deployment in rural communities; and

WHEREAS, NTIA may approve applications for the installation of broadband infrastructure projects submitted under BTOP, thereby making those proposals "undertakings", as defined in 36 CFR Part 800, subject to review under Section 106 of the National Historic Preservation Act, 16 U.S.C. §470f (NHPA), and its implementing regulations ("Protection of Historic Properties, (36 CFR Part 800) (hereinafter referred to as Section 106); and

WHEREAS, RUS may approve applications for the installation of broadband infrastructure projects submitted under BIP, thereby making those proposals "undertakings" subject to review under 36 CFR Part 800; and

WHEREAS, RUS and NTIA have received almost 2200 applications requesting almost $28 billion in funding for the first round of funding, the announcement of round one awards is scheduled to begin in early November, subsequent rounds of funding have not yet been announced, and the rapid disbursement of funds is critical because all ARRA awards must be made prior to September 30, 2010; and

WHEREAS, Section 106 requires federal agencies to take into account the effects of their undertakings on historic properties, included in or eligible for inclusion in the National Register of Historic Places, which may include properties of "traditional religious and cultural importance to an Indian Tribe or Native Hawaiian organization"(16 U.S.C. section 470a(d)(6)(A)); and

WHEREAS, NTIA and RUS have certain trust responsibilities when dealing with federally recognized Tribes (those Tribal Entities listed by the Secretary of the Department of Interior pursuant to the Federally Recognized Indian Tribe List Act of 1994, 25 U.S.C. Section 479a et seq.)(Tribes) that devolve from the unique government to government trust relationship they share with Tribal Entities and the inherent sovereign status of Tribes; and

WHEREAS, Section 101 of the NHPA also requires federal agencies to consult with Indian Tribes with regard to historic properties to which an Indian Tribe or Native Hawaiian organization attaches religious and cultural significance (16 U.S.C. Section 470a(d)(6)(B); and

WHEREAS, several Senior Federal Officials of RUS and NTIA attended the NCAI 66th Annual Convention and Tradeshow, and addressed, and participated in both a panel session and a NCAI Telecommunications Subcommittee Listening Session, consulting directly from Tribal leaders and addressing their many and significant concerns about the ability of Indian Country to meaningfully participate in the BIP/BTOP processes, including the Section 106 consultation process; and

WHEREAS, RUS and NTIA have articulated to NCAI the need to execute certain efficiencies so that the volume of undertakings does not overwhelm Section 106 consulting parties, including federally recognized American Indian and Alaska Native Tribal Entities; and

WHEREAS, to support their early involvement, RUS and NTIA intend to notify Tribal Entities about those ARRA broadband applications qualified for environmental review using a version of the Federal Communications Commission (FCC) Tower Construction Notification System (TCNS) specially modified for the BIP/BTOP program for the timeframe of the ARRA funding cycle; and

WHEREAS, RUS, for its BIP, and NTIA, for BTOP, have determined that some of the identified undertakings which propose broadband infrastructure projects could have potential adverse effects on historic properties; and

WHEREAS, in addition to using a modified version of TCNS, RUS and NTIA propose to develop a Nationwide Programmatic Agreement (Nationwide PA), in accordance with 36 CFR § 800.14(b), that would establish reasonable, efficient and consistent procedures for the expedited review of undertakings that include a variety of broadband infrastructure projects funded under the ARRA; and

WHEREAS, RUS and NTIA will oversee the implementation of the Nationwide PA and ensure that appropriate conditions and mitigation, i.e. discovery provisions, no adverse effect conditions, construction monitoring, are included in the assistance approval; and

WHEREAS, RUS and NTIA have indicated to NCAI that they recognize the critical importance of consultation with Tribes to developing and implementing this Nationwide PA and have indicated that they will take into account all comments provided on the draft conceptual plan in developing the Nationwide PA, to be made available for comment in late October, 2009; and

WHEREAS, RUS and NTIA initiated government-to-government consultation with Tribes for their ARRA broadband programs and development of this Nationwide PA, by letter dated September 23, 2009, including a draft conceptual plan; and

WHEREAS, the NCAI Telecommunications Subcommittee was informed at the NCAI 66th Annual Convention and Tradeshow that the United South and Eastern Tribes, Inc., on behalf of their member tribes, and the Nez Perce Tribe, Confederated Tribes of the Umatilla Indian Reservation, and the Agua Caliente Band of Cahuilla Indians, have formally responded the September 23, 2009 letter of RUS and NTIA, indicating the many and serious concerns of Tribes in this matter; and

WHEREAS, the United South and Eastern Tribes is a recognized leading inter-Tribal government organization on Section 106 matters and the protection of Tribal sacred sites--having worked directly with the Federal Communications Commission in 2003 and 2004 on many similar issues related to Section 106 and commercial mobile radio and broadcast communications tower siting, including the negotiation and promulgation of a FCC-USET Best Practices Agreement, (Voluntary Best Practices for Expediting the Process of Communications Tower and Antenna Siting Review pursuant to Section 106 of the National Historic Preservation Act); and

WHEREAS, NCAI has coordinated often in the past with USET on matters involving Section 106; and

WHEREAS, Tribes and Tribal organizations have expressed concern to NCAI about several elements of the draft conceptual plan including the short time frames in which a Nationwide Programmatic Agreement is to be finalized and the short time frames within the plan for tribal consultation.

NOW THEREFORE BE IT RESOLVED, that the NCAI expresses support for government-to-government consultation on the development of this Nationwide PA; and

BE IT FURTHER RESOVED, that the NCAI does hereby support that the NTIA and RUS establish a streamlined, efficient and consistent approach to the deployment of broadband infrastructure undertakings, both on and off Indian lands and lands of Native Hawaiians and Alaskan Native Villages; and

BE IT FURTHER RESOVED, that the NCAI does hereby support the efforts of the USET and Tribes, in their efforts to address the concerns of Tribes raised with respect to NTIA's and RUS's draft conceptual plan; and

BE IT FURTHER RESOLVED, that the NCAI calls upon RUS and NTIA to address fully the concerns raised by Tribes, NCAI, USET, and other Tribal entities that work on Section 106 issues in the fashioning of a Nationwide PA, as soon as possible, that protects vital Tribal interests while also establishing an efficient and consistent approach to the deployment of ARRA broadband infrastructure undertakings; and

BE IT FINALLY RESOLVED, that this resolution shall be the policy of NCAI until it is withdrawn or modified by subsequent resolution.

CERTIFICATION

The foregoing resolution was adopted by the General Assembly at the 2009 Annual Session of the National Congress of American Indians, held at the Palm Springs Convention Center in Palm Springs, California on October 11-16, 2009, with a quorum present.

President

ATTEST:

Recording Secretary