

January 2006

TELECOMMUNICATIONS

Challenges to
Assessing and
Improving
Telecommunications
For Native Americans
on Tribal Lands





Highlights of [GAO-06-189](#), a report to congressional requesters

Why GAO Did This Study

An important goal of the Communications Act of 1934, as amended, is to ensure access to telecommunications services for all Americans. The Federal Communications Commission has made efforts to improve the historically low subscriber rates of Native Americans on tribal lands. In addition, Congress is considering legislation to establish a grant program to help tribes improve telecommunications services on their lands. This report discusses 1) the status of telecommunications subscriber rates for Native Americans living on tribal lands; 2) federal programs available for improving telecommunications on these lands; 3) barriers to improvements; and 4) how some tribes are addressing these barriers.

What GAO Recommends

In a draft of this report provided for agency comment, GAO recommended that FCC determine what data is needed to assess progress toward the goal of providing access to telecommunications services to Native Americans living on tribal lands and how this data should be collected, and report to Congress on its findings. FCC agreed more data is needed but maintained that it is not the organization best positioned to determine what that data should be. Given FCC's response, Congress should consider directing FCC to carry out our recommended action. In addition, Congress should consider amending the Communications Act to facilitate and clarify tribal libraries' eligibility for universal service funds.

www.gao.gov/cgi-bin/getrpt?GAO-06-189.

To view the full product, including the scope and methodology, click on the link above. For more information, contact Mark L. Goldstein at (202) 512-2834 or goldsteinm@gao.gov.

TELECOMMUNICATIONS

Challenges to Assessing and Improving Telecommunications for Native Americans on Tribal Lands

What GAO Found

Based on the 2000 decennial census, the telephone subscriber rate for Native American households on tribal lands was substantially below the national level of about 98 percent. Specifically, about 69 percent of Native American households on tribal lands in the lower 48 states and about 87 percent in Alaska Native villages had telephone service. While this data indicates some progress since 1990, changes since 2000 are not known. The U.S. Census Bureau is implementing a new survey that will provide annual telephone subscriber rates, though the results for all tribal lands will not be available until 2010. The status of Internet subscriber on tribal lands is unknown because no one collects this data at the tribal level. Without current subscriber data, it is difficult to assess progress or the impact of federal programs to improve telecommunications on tribal lands.

The Rural Utilities Service and the FCC have several general programs to improve telecommunications in rural areas and make service affordable for low-income groups, which would include tribal lands. In addition, FCC created some programs targeted to tribal lands, including programs to provide discounts on the cost of telephone service to residents of tribal lands and financial incentives to encourage wireless providers to serve tribal lands. However, one of FCC's universal service fund programs that supports telecommunications services at libraries has legislatively based eligibility rules that preclude tribal libraries in at least two states from being eligible for this funding. FCC officials told GAO that it is unable to modify these eligibility rules because they are contained in statute and thus modifications would require legislative action by Congress.

The barriers to improving telecommunications on tribal lands most often cited by tribal officials, service providers, and others GAO spoke with were the rural, rugged terrain of tribal lands and tribes' limited financial resources. These barriers increase the costs of deploying infrastructure and limit the ability of service providers to recover their costs, which can reduce providers' interest in investing in providing or improving service. Other barriers include the shortage of technically trained tribal members and providers' difficulty in obtaining rights of way to deploy their infrastructure on tribal lands.

GAO found that to address the barriers of rural, rugged terrain and limited financial resources that can reduce providers' interest in investing on tribal lands, several tribes are moving toward owning or developing their own telecommunications systems, using federal grants, loans, or other assistance, and private-sector partnerships. Some are also focusing on wireless technologies, which can be less expensive to deploy over rural, rugged terrain. Two tribes are bringing in wireless carriers to compete with the wireline carrier on price and service. In addition, some tribes have developed ways to address the need for technical training, and one has worked to expedite the tribal decision-making process regarding rights-of-way approvals.

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Abbreviations

ACS	American Community Survey
BIA	Bureau of Indian Affairs
CPS	Current Population Survey
ETC	eligible telecommunications carrier
FCC	Federal Communications Commission
ITI	Indian Telecommunications Initiative
LSTA	Library Services and Technology Act
OTSA	Oklahoma Tribal Statistical Area
NTIA	National Telecommunications and Information Administration
RUS	Rural Utilities Service
USAC	Universal Service Administrative Company

Contents

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United States Government Accountability Office
Washington, D.C. 20548

January 11, 2006

The Honorable John McCain
Chairman
The Honorable Byron Dorgan
Vice Chairman
Committee on Indian Affairs
United States Senate

The Honorable Daniel K. Inouye
Co-Chairman
Committee on Commerce, Science and Transportation
United States Senate

The telephone subscribership rate for Native Americans living on tribal lands has historically lagged behind the overall national rate. This is part of a broader infrastructure problem on tribal lands, where conditions can make economic development difficult and residents may lack such basics as water and sewer systems. Data from the 2000 decennial census show that the approximately 588,000 Native Americans living on federal tribal lands were among the most economically distressed groups in the United States, with about 37 percent of Native Americans living below the federal poverty level.¹

An important goal of the Communications Act of 1934, as amended (Communications Act) is to preserve and advance universal service. In the Communications Act, Congress directs the Federal Communications Commission (FCC) to base policies for the preservation and advancement of universal service on principles that include, among other things, making quality services available at reasonable rates and providing access to advanced services throughout the nation. Specifically mentioned in this regard are low-income consumers and those in rural, insular, and high-cost areas—categories that include many Native Americans living on tribal lands in rural or remote locations.² To help develop and improve telecommunications service on tribal lands, Congress is considering authorizing a grant program specifically for federally recognized tribes.³ To

¹ The national poverty level in 2000 was 12.4 percent.

² 47 U.S.C. § 254.

³ S. 535, 109th Congress (2005).

assist Congress, you requested that we examine several aspects of telecommunications on tribal lands. Accordingly, we reviewed 1) the status of telecommunications subscribership (telephone and Internet) for Native Americans on tribal lands in the lower 48 states and Alaska; 2) federal programs available for improving telecommunications on tribal lands; 3) the barriers that exist to improving telecommunications on tribal lands; and 4) how some tribes are addressing these barriers.

To determine the status of telecommunications subscribership for Native Americans on tribal lands in the lower 48 states and Alaska (there are no federally recognized tribal lands in Hawaii), we analyzed 2000 decennial census data for federally recognized reservations and trust lands. We did not include Oklahoma Tribal Statistical Areas (OTSAs) in our analysis.⁴ We also interviewed officials representing individual tribes, tribal organizations, telecommunications providers, industry organizations, and federal agencies. To determine the availability of federal programs that provide financial and technical assistance to improve telecommunications services on tribal lands, we interviewed officials from several federal agencies and obtained information on federal programs. To determine the barriers that exist to improving telecommunications services on tribal lands and how some tribes have addressed these barriers, we interviewed tribal officials, tribal organizations, service providers, equipment manufacturers, federal agencies, and others. We reviewed previous studies that discussed telecommunications services on tribal lands. Additionally, we conducted interviews with officials of 26 tribes and 12 Alaska regional native nonprofit organizations, chosen on the basis of demographic and other information, such as actions being taken to improve telecommunications on their land. For our site visits, we then selected 6 tribes that had taken some action to overcome one or more of the most frequently cited barriers to improving telecommunications. During the visits, we interviewed tribal officials and observed the tribes' telecommunications systems, ongoing improvement efforts, and challenges. While the interviews and site visits cannot be projected to all tribes, the information gathered allows us to describe a range of barriers and how tribes are addressing these barriers. For more detailed information on how tribes were chosen for both the interviews and the site visits, and other aspects of our review, see appendix I.

⁴ OTSAs are statistical entities identified and delineated by the U.S. Census Bureau in consultation with federally recognized tribes in Oklahoma that do not currently have a reservation, but once had a reservation in that state.

We conducted our audit work from August 2004 through December 2005 in Washington, D.C., and at the Coeur D'Alene Tribe of the Coeur D'Alene Reservation, Idaho; Confederated Tribes and Bands of the Yakama Nation, Washington; Eastern Band of Cherokee Indians of North Carolina; Oglala Sioux Tribe of the Pine Ridge Reservation, South Dakota; Mescalero Apache Tribe of the Mescalero Reservation, New Mexico; and Navajo Nation in Arizona, New Mexico, and Utah. We assessed the reliability of Census 2000 data and found the data sufficiently reliable for the types of analyses that we conducted in this report. Our work was conducted in accordance with generally accepted government auditing standards.

Results in Brief

As of 2000, the telephone subscribership rate for Native American households on tribal lands was substantially below the national rate, while the rate for Internet subscribership on tribal lands was unknown due to a lack of data. According to data from the 2000 decennial census, about 69 percent of Native American households⁵ 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. About 87 percent of Native American households in Alaska native villages had telephone service, also considerably below the national rate. Telephone subscribership rates for Native American households on individual tribal lands in 2000 varied widely. A few tribal lands had rates above the national level, but the majority of them had rates below the national rate. For example, the Kalispel tribal land in Washington had a telephone subscribership rate of 100 percent, while the tribal lands of the Kickapoo Traditional Tribe of Texas had a rate of 34 percent. While this data indicates some progress since 1990, changes in telephone subscribership rates since the 2000 decennial census are not known. In order to provide more current data, the U.S. Census Bureau (Census Bureau) has begun to gather telephone subscribership data through a new, more frequent survey that will provide demographic and socioeconomic data on communities of all sizes, including tribal lands. However, because it will take time to accumulate a large enough sample to produce data for small communities, annual reports will not be available for all small communities, including tribal

⁵ The Census 2000 data in this report are for the American Indian and Alaska Native alone or in combination with one or more other races. Households are classified by the race of the householder. When the term Native American households is used, it refers to the total number of occupied housing units where the race of the householder is American Indian and/or Alaska Native alone or in combination with one or more other races.

lands, until 2010. The rate of Internet subscribership for Native American households on tribal lands is unknown because neither the Census Bureau nor FCC collects this data at the tribal level. For example, one survey performed by the Census Bureau that collects data on Internet subscribership can provide estimates for the nation as a whole, but the survey's sample cannot provide reliable estimates of Internet subscribership on tribal lands. In addition, the Census Bureau's new survey does not include a question on Internet subscribership. Without current subscribership data, it is difficult to assess progress or the impact of federal programs to improve telecommunications on tribal lands. FCC has asked the Census Bureau to collect data on Internet subscribership, using this new survey. Census Bureau officials told us, however, that the bureau's internal policy is to not include questions on its new survey unless the collection of that data by the Census Bureau is mandated by law. They do not believe that such a mandate exists for the collection of data on Internet subscribership by the Census Bureau.

The Department of Agriculture's Rural Utilities Service (RUS) and FCC are responsible for several general programs designed to improve the nation's telecommunications infrastructure and make services affordable for all consumers, which can benefit tribes and tribal lands. RUS has grant, loan, and loan guarantee programs for improving telecommunications in rural areas. FCC has several programs (known as "universal service" programs) to make telephone service more affordable for low-income consumers and consumers living in areas, such as rural areas, where the cost to provide service is high. FCC also has a program that ensures that health care providers serving rural communities pay no more than their urban counterparts for telecommunications services necessary for the provision of health care. An additional universal service program, known as E-rate , provides discounts on telecommunications services for schools and libraries nationwide. In our interviews with tribal and state officials, we learned that some tribal libraries are not eligible to receive E-rate funds because of an issue involving federal eligibility criteria. The Communications Act stipulates that a library's eligibility for E-rate support is dependent on whether the library is eligible for certain state library funds. Yet the tribal libraries in at least two states are precluded under state law from being eligible for such funds, which has the effect of making these libraries ineligible to apply for E-rate funds. FCC officials told us that modifying the federal eligibility criteria to resolve this situation would require legislative action by the Congress. In addition to these general programs, FCC established four programs specifically targeted to improving telecommunications for residents of tribal lands. Enhanced

Link-Up provides a one-time discount on the cost of connecting a subscriber to the telephone network and Enhanced Lifeline provides ongoing discounts on the cost of monthly service. The third program, the Tribal Land Bidding Credit program, provides financial incentives to wireless service providers to serve tribal lands. The fourth program, the Indian Telecommunications Initiative, disseminates information to tribes and tribal organizations on telecommunications services on tribal lands, including universal service programs and other areas of interest.

Tribal and government officials, Native American groups, service providers, and others with whom we spoke cited several barriers to improving telecommunications service on tribal lands. The barriers most often cited were the rural, rugged terrain of tribal lands, and tribes' limited financial resources. Many tribal officials and service providers told us that the rural, rugged terrain of tribal lands can increase the cost of installing telecommunications infrastructure to provide or improve service. The costs of addressing this barrier, combined with tribes' limited financial resources, can deter service providers from investing in telecommunications infrastructure on tribal lands because such investments are not viewed as cost effective. The third barrier most often cited by tribal officials is a shortage of technically trained tribal members to plan and implement improvements on tribal lands. A fourth barrier mentioned by both tribes and service providers is the difficulty of obtaining rights-of-way to deploy telecommunications equipment across some tribal lands, a process that involves individual landholders, tribal governments, service providers, and the Bureau of Indian Affairs, which has fiduciary responsibility for tribal lands.

Tribes are addressing these barriers in different ways, according to our interviews with 26 tribes and 12 Alaska regional native nonprofit organizations, and our visits to 6 of these tribes that have taken or are taking action to improve their telecommunications. Specifically, to address the barriers of rural, rugged terrain and limited financial resources that have deterred investment in telecommunications on tribal lands, several tribes are moving toward owning or developing their own telecommunications systems. These tribes are using federal grants, loans, or other assistance; long-range planning; and private-sector partnerships to help improve service on their lands. Additionally, at 2 of the sites we visited, the tribally owned companies are focusing on extending and improving service rather than on maximizing profit. Some tribes have focused primarily on developing wireless technologies, which can be less expensive to deploy over long distances and rugged terrain, to address

these same barriers. In addition, 2 tribes we visited are addressing their need for improved telecommunications services by encouraging wireless companies to compete with wireline providers on their lands. One wireless company on each of the reservations obtained status as an eligible telecommunications carrier and so is able to access universal service funds and profitably provide service in these areas. To address their need for more technically-trained tribal members, 2 tribes we visited are developing their own training centers as well as establishing training relationships with educational institutions. To address the difficulty of obtaining rights-of-way to deploy telecommunications equipment across some tribal lands, one tribe is developing a right-of-way policy to make the tribal approval process more timely and efficient.

This report includes two matters for congressional consideration. First, Congress should consider directing FCC to determine what additional data is needed to help assess progress toward the goal of providing access to telecommunications services, including high-speed Internet, to Native Americans living on tribal lands; determine how this data should regularly be collected; and report to Congress on its findings. Second, Congress should consider amending the Communications Act of 1934 to facilitate and clarify the eligibility of tribal libraries for funding under the E-rate program.

A draft of this report was sent to the following agencies for comment: the Bureau of Indian Affairs (BIA), the Census Bureau, National Telecommunications and Information Administration (NTIA), FCC, General Services Administration, Institute of Museum and Library Services, and RUS. RUS and the General Services Administration offered no comments. BIA provided written comments, presented in appendix IV, stating that BIA recognized the need to update its rights-of-way regulations to include advanced telecommunications infrastructure and is working to include this in its trust related regulations. BIA will issue a Rights-of-Way Handbook in March, 2006, to ensure consistent application of existing regulations. The Institute of Museum and Library Services provided written comments, presented in appendix V, stating that the report accurately reflected its understanding of the relevant issues and concerns. NTIA offered technical comments, as did the Census Bureau and FCC, which we have incorporated where appropriate. In the draft, we recommended that FCC determine what additional data is needed to help assess progress toward the goal of providing access to telecommunications services, including high-speed Internet, to Native Americans living on tribal lands; determine how this data should regularly be collected; and report to

Congress on its findings. In oral comments responding to this recommendation, FCC agreed that additional data is needed, but did not agree that it is the organization best positioned to determine what that data should be. FCC maintains that other federal agencies and departments possess expertise and more direct authorization to carry out this task. We continue to believe that FCC, as the agency responsible under the Communications Act for the goal of making available, as far as possible, telecommunications at reasonable charges to all Americans, is the appropriate agency to determine what data is needed to advance the goal of universal service and support related policy decisions—especially for Native Americans on tribal lands who continue to be disadvantaged in this regard.

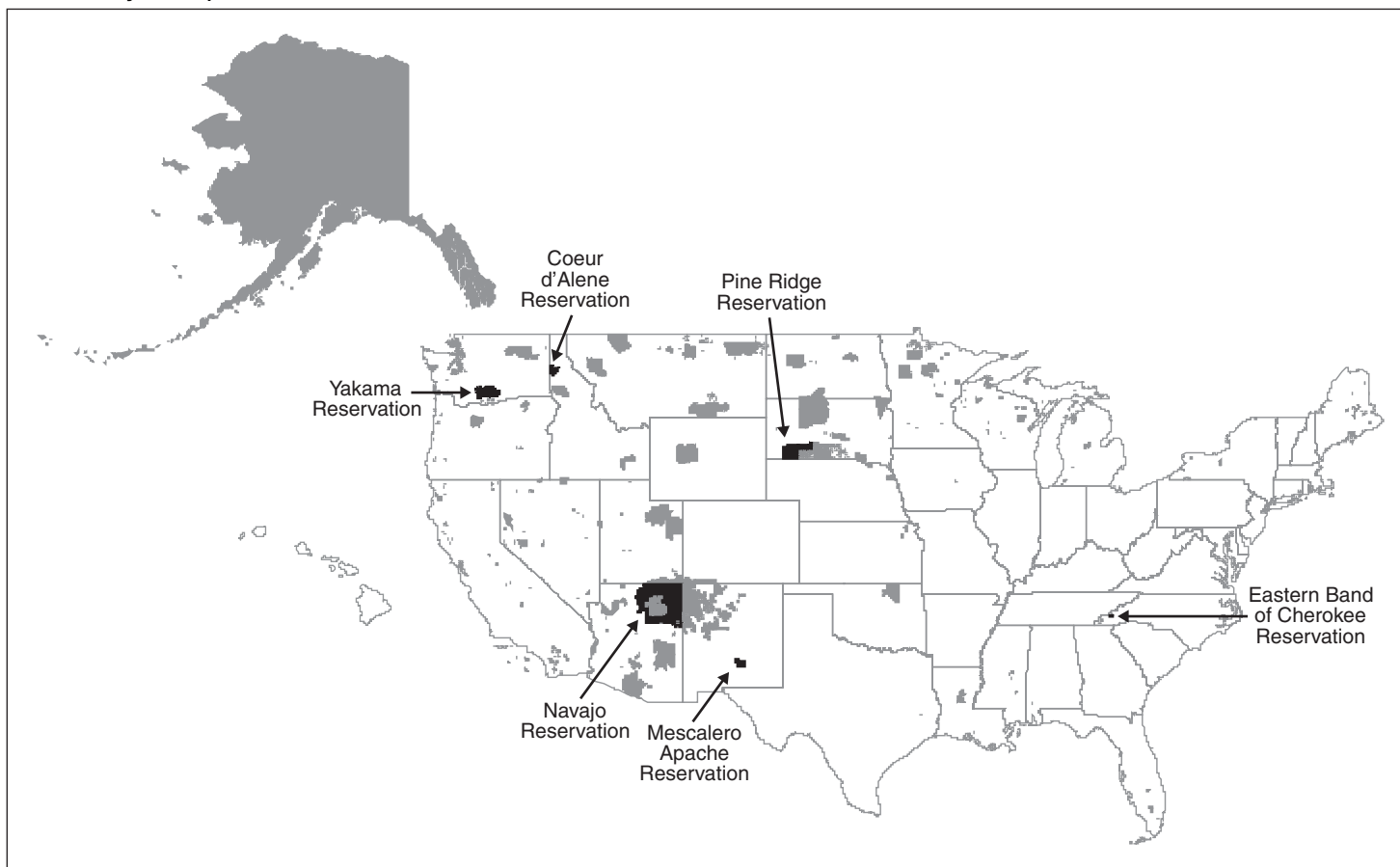
Background



According to the 2000 Census, approximately 588,000 Native Americans were residing on tribal lands.⁶ Tribal lands vary dramatically in size, demographics, and location. They range in size from the Navajo Nation, which consists of about 24,000 square miles, to some tribal land areas in California comprising less than 1 square mile (see figure 1). Over 176,000 Native Americans live on the Navajo reservation, while other tribal lands have fewer than 50 Native residents. The population on a majority of tribal lands is predominantly Native American, but some tribal lands have a significant percentage of nonNative Americans. In addition, while most tribal lands are located in rural or remote locations, some are located near metropolitan areas. Tribes are unique in being sovereign governments within the United States. The federal government has recognized the sovereign status of tribes since the founding of the United States. The U.S. Constitution, treaties, and other federal government actions have established tribal sovereignty. To help manage tribal affairs, tribes have formed governments or subsidiaries of tribal governments that include schools, housing, health, and other types of corporations. In addition, the

⁶ For this report, GAO has defined tribal lands as lands that include any federally recognized Indian tribe's reservation, off-reservation trust lands, pueblo, or colony, and Alaska Native regions established pursuant to the Alaska Native Claims Settlement Act, Pub. L. No. 92-203, 85 Stat. 688 (1971) (codified as amended at 43 U.S.C. §§ 1601 *et seq.*). Tribal lands do not include Oklahoma Tribal Statistical Areas, and the population figure of 588,000 does not include the 325,000 Native Americans living on OTSAs. The source of the data that GAO used throughout this report was the Census 2000 American Indian and Alaska Native Summary File. The term "Native Americans" is used to refer to people who identified themselves as American Indians and/or Alaska Natives alone or in combination with one or more races.

Bureau of Indian Affairs (BIA) in the Department of the Interior has a fiduciary responsibility to tribes and assumes some management responsibility for all land held in trust for the benefit of the individual Native American or tribe.

Figure 1: Map of Tribal Lands in the United States Based on 2000 Census Data (Tribes Included in GAO's 6 Site Visits Are Indicated by Name)^a



-  Tribal lands visited by GAO
-  Other tribal lands

Source: GAO analysis of 2000 Census data.

^aHawaii does not have any federally recognized tribes or tribal lands. Since July 2000, a number of bills have been introduced to provide a process for the recognition by the United States of a Native Hawaiian governing entity. Most recently, on January 25, 2005, H.R. 309 and S. 147--the Native Hawaiian Government Reorganization Act of 2005--were introduced in the House and Senate, respectively.

This map does not include Oklahoma Tribal Statistical Areas (OTSAs).

In Alaska, federal law directed the establishment of 12 for profit regional corporations, 1 for each geographic region comprised of Natives having a common heritage and sharing common interests, and over 200 native villages.⁷ These corporations have become the vehicle for distributing land and monetary benefits to Alaska Natives to provide a fair and just settlement of aboriginal land claims in Alaska. The Native villages are entities within the state that are recognized by BIA to receive services from the federal government. The 12 regional corporations have corresponding nonprofit arms that provide social services to the villages.

Native American tribes are among the most economically distressed groups in the United States. According to the 2000 Census, about 37 percent of Native American households have incomes below the federal poverty level—more than double the rate for the U.S. population as a whole. Residents of tribal lands often lack basic infrastructure, such as water and sewer systems, and telecommunications services. According to tribal officials and government agencies, conditions on tribal lands have made successful economic development more difficult than in other parts of the country. A study done for the federal government, based on research gathered in 1999, found that the high cost and small markets associated with investment in tribal lands deter business investment.⁸

The federal government has long acknowledged the difficulties of providing basic services, such as electricity and telephone service, to rural areas of the country. The concept of universal telephone service has its origins in Section 1 of the Communications Act, which states that the Federal Communications Commission was created “for the purpose of regulating interstate and foreign commerce in communication by wire and radio so as to make available, so far as possible, to all the people of the United States a rapid, efficient, nationwide, and worldwide wire and radio communication service with adequate facilities at reasonable charges....”⁹ The goal of universal service is to ensure that all U.S. residents have access

⁷ In addition, a thirteenth corporation was established later for nonresident Alaska Natives. See, 43 U.S.C. § 1606.

⁸ College of Engineering, New Mexico State University, *Assessment of Technology Infrastructure in Native Communities*, prepared at the request of the Department of Commerce, Economic Development Administration.

⁹ 47 U.S.C. §151.

to quality telephone service regardless of their household income or geographic location. The Telecommunications Act of 1996 reaffirmed the commitment to universal service and expanded it to include not just traditional telephone service but access to advanced telecommunications services (such as high-speed Internet access) for schools, libraries, and rural health care providers.

A 1995 report by the Census Bureau based on 1990 census data noted that about 47 percent of Native American households on tribal lands had telephone service, compared to about 95 percent of households nationally.¹⁰ In June 2000, the FCC Chairman noted that the Commission's universal service policies "had yielded a remarkable rate of telephone subscribership, above 90 percent for the nation as a whole."¹¹ However, he also noted that telephone subscribership among the rural poor was roughly 20 percent lower than the rest of the nation, while Native Americans living on tribal lands were only half as likely as other Americans to subscribe to telephone service. In August 2000, FCC identified certain categories of Americans, including Native Americans, who were having difficulty obtaining access to advanced telecommunications services.

Tribal Telephone Subscribership Rate Is Substantially Below the National Level and Internet Subscribership Rate Is Unknown

According to data from the 2000 decennial census, the rate of telephone subscribership for Native American households on tribal lands was substantially below the national rate of 97.6 percent. While this data indicates some progress since 1990, changes since then are unknown due to a lack of more current data. Additionally, the rate of Internet subscribership is unknown because no federal survey has been designed to capture this information for tribal lands.

¹⁰ Bureau of the Census, *Housing of American Indians on Reservations—Equipment and Fuels*, Statistical Brief, SB/95-11, (Washington, D.C.: April 1995). This statistical brief evaluated American Indian households on reservations with 500 or more American Indian Households that lacked telephone service.

¹¹ *Federal-State Joint Board on Universal Service; Promoting Deployment and Subscribership in Unserved and Underserved Areas, Including Tribal and Insular Areas*, CC Docket No. 96-45, Twelfth Report and Order, Memorandum Opinion and Order, and Further Notice of Proposed Rulemaking, 15 FCC Red 12208 (2000).

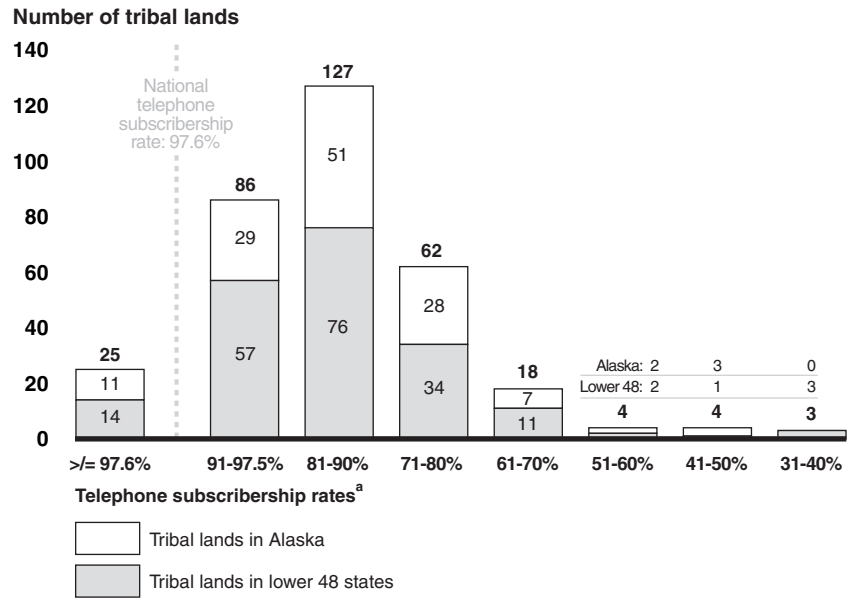
Telephone Subscribership for Native American Households on Most Tribal Lands Was Substantially Below the National Rate in 2000

According to the 2000 decennial census, the telephone subscribership rate for Native American households on tribal lands in the lower 48 states was 68.6 percent, while for Alaska Native Villages it was 87 percent—both substantially below the national rate of 97.6 percent.¹² Figure 2 shows the number of tribal lands within various percentile ranges of telephone subscribership for Native American households, based on our analysis of 2000 decennial census data. We have separated Alaska Native tribal lands from the tribal lands in the lower 48 states because telecommunications infrastructure in Alaska differs from that of the lower 48 states due to Alaska’s weather and terrain. The data is shown for 198 tribal lands in the lower 48 states and 131 tribal lands in Alaska. Tribal lands with fewer than 100 people are not included in the data available from the Census Bureau.¹³ In these areas, there must be at least 100 people in a specific group, including American Indian and Alaska Native tribal groupings, before data will be shown.

¹² All telephone subscribership rates in this report are estimates derived from a sample collected through the Census 2000. Within most American Indian and Alaska Native areas, 1 in every 2 households was asked detailed questions on population and housing characteristics, such as availability of telephone service.

¹³ Census 2000 data product, American Indian and Alaska Native Summary File, includes tabulations of the population and housing data collected from a sample of the population (within most American Indian and Alaska Native areas, 1 in every 2 households). In these areas, there must be at least 100 people in a specific group, including American Indian and Alaska Native tribal groupings, before data will be shown. As a result of this threshold, even though as of March 2000, there were over 550 federally recognized tribes, Census 2000 data shows 198 lower 48 tribal lands and 131 Alaska Native Villages for people who indicated their race, alone or in combination, as American Indian and/or Alaska Native.

Figure 2: Telephone Subscriber Rates for Tribal Lands In the Lower 48 States and Alaska Native Villages, Based on Census 2000 Data



Source: GAO analysis of 2000 Census data.

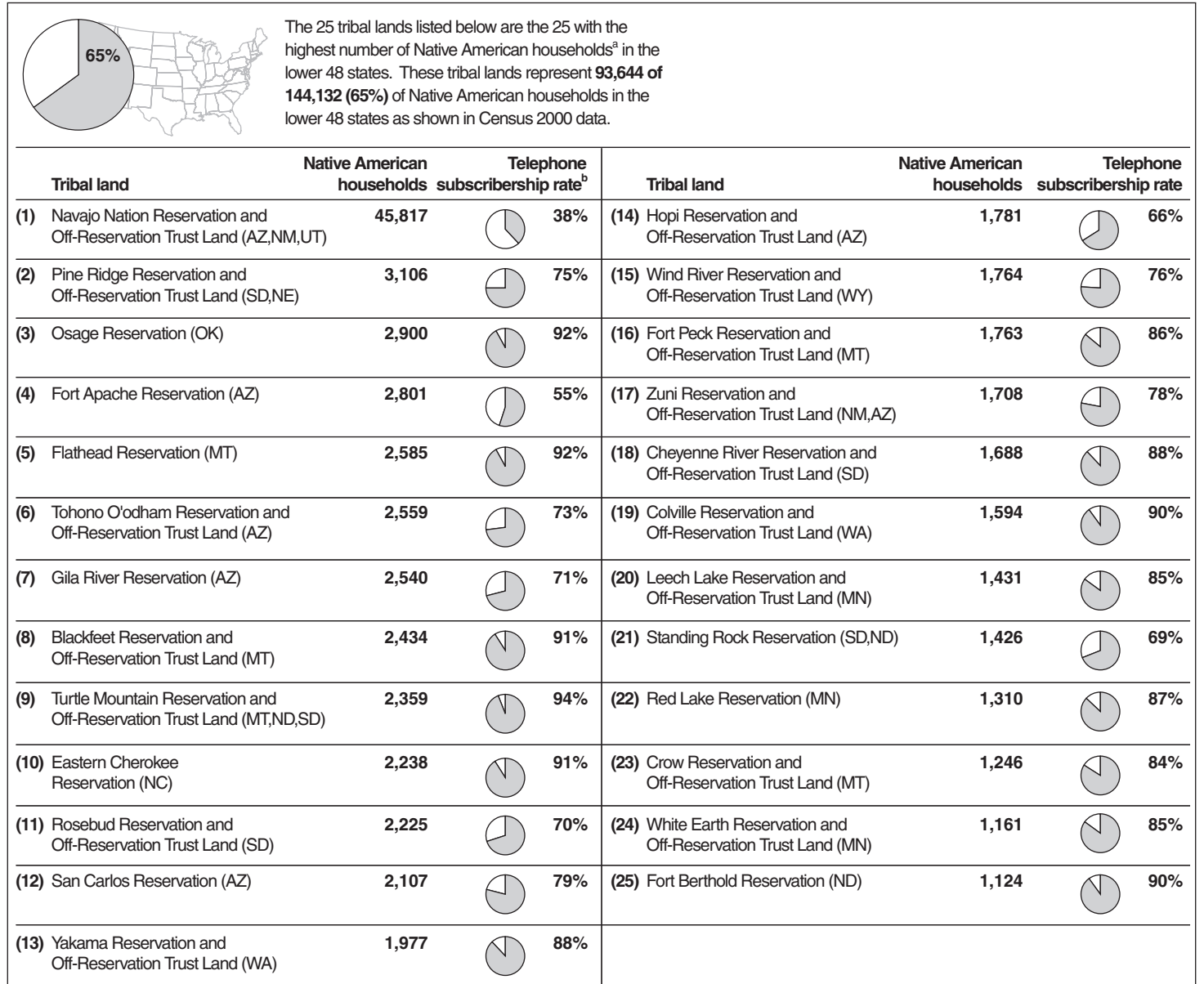
^a Telephone subscriber rates of Native American households with telephone service available are based on 2000 Census sample data. Within most American Indian and Alaska Native areas, 1 in every 2 households was asked detailed questions on population and housing characteristics, such as availability of telephone service. This chart contains telephone subscriber rates for the 198 lower 48 tribal lands and 131 Alaska Native Villages for which the Census Bureau published data regarding Native American households. In our analysis, we did not include Oklahoma Tribal Statistical Areas.

As figure 2 shows, there was considerable variation among tribes regarding telephone subscriber rates, with some comparable or higher than the national rate but most below it—and many substantially so. We found, for example, that the Kalispel tribal land in Washington had a telephone subscriber rate of 100 percent, while the tribal lands of the Kickapoo Traditional Tribe of Texas had a rate of 34 percent. To get a better understanding of telephone subscriber rates by individual tribe and population size, we reviewed data for the 25 tribal lands with the highest number of Native American households. These 25 tribal lands represent about 65 percent of all Native American households, as shown in Census 2000 data. The lands vary greatly in the number of Native American households located on them (from about 46,000 for the Navajo Nation to about 1,100 for Fort Berthold) and in geographic size, with the Navajo Nation’s lands comprising about 24,000 square miles and the Eastern Band of Cherokee’s land comprising about 83 square miles.

As shown in figure 3, the Native American household telephone subscribership rates for these most populous tribal lands were all below the national rate of 97.6 percent.¹⁴ Nine of the 25 tribal lands, representing about 44 percent of Native American households on tribal lands in the lower 48 states, had telephone subscribership rates at a level below 78 percent—which is about what the national rate was over 40 years ago when the 1960 decennial census was taken. The subscribership rate for the most populous tribal land—the Navajo—was only 38 percent.

¹⁴ The calculations in this section of the report do not include Native American households located in Oklahoma Tribal Statistical Areas.

Figure 3: Telephone Subscriber Rates for the 25 Tribal Lands with the Most Native American Households,^a Based on Census 2000



Source: GAO analysis of 2000 Census data.

^aThe Census 2000 data in this report are for the American Indian and/or Alaska Native alone or in combination with one or more other races. Households are classified by the race of the householder. When the term Native American households is used, it refers to the total number of occupied housing

units where the race of the householder is American Indian and/or Alaska Native alone or in combination with one or more other races.

^bTelephone subscribership rates of Native American households with telephone service available are based on 2000 Census sample data. Within most American Indian and Alaska Native areas, 1 in every 2 households was asked detailed questions on population and housing characteristics, such as availability of telephone service. This chart contains telephone subscribership rates for the 25 lands of the 198 lower 48 tribal lands and 131 Alaska Native Villages with the most number of households for which the Census Bureau published data regarding Native American households. In our analysis, we did not include Oklahoma Tribal Statistical Areas.

Because the 2000 decennial census is the most current data available on telephone subscribership rates on tribal lands, it is not known whether these rates have changed between 2000 and the present. To help improve the accuracy of the next decennial census and collect demographic, socioeconomic and housing data in a more timely way, the Census Bureau developed the American Community Survey (ACS), which includes a question on telephone service.¹⁵ In January 2005, the Census Bureau began sending out the ACS questionnaire to households. Annual results will be available for populations on all individual tribal lands by summer 2010, and sooner for tribal lands with populations over 20,000. This schedule is based on the time it will take to accumulate a large enough sample to produce data for areas with populations as small as 600 people.¹⁶

No Federal Data Available on Internet Subscribership Rates For Tribal Lands

The status of Internet subscribership on tribal lands is unknown because no federal survey has been designed to track this information. Although the Census Bureau and FCC currently collect some national data on Internet subscribership, and FCC also collects some state level data, none of their survey instruments are designed to estimate Internet subscribership on tribal lands. In addition, officials of both agencies told us that to the best of

¹⁵ For Census 2000, as in several previous decennial census, two forms were used, a short form and a long form. The short form was sent to every household, and the long form, containing questions about population and housing characteristics, was sent to only a limited number of households. The American Community Survey replaced the long form questionnaire in the decennial census. The next decennial census will only consist of the short form questionnaire. For more information on the American Community Survey see GAO, *Legal Authority for American Community Survey*, B-289852 (Washington, D.C.: April 4, 2002), *The American Community Survey: Accuracy and Timeliness Issues*, [GAO-02-956R](#) (Washington, D.C.: September 30, 2002), *American Community Survey: Key Unresolved Issues*, [GAO-05-82](#) (Washington, D.C.: November 8, 2004).

¹⁶ Estimates will be based on 5-year average data for tribal lands with less than 20,000 people (available in 2010) and 3-year average data for tribal lands with populations between 20,000 and 64,999 (available in 2008). Most tribal lands have less than 20,000 people. Tribal lands with populations of 65,000 people or more will have annual estimates (available in 2006).

their knowledge, no other federal agency collects data on Internet subscribership.

Unlike telephone subscribership data, the 2000 decennial census did not collect information on Internet subscribership, nor is the Census Bureau currently collecting it on the ACS. The Census Bureau does collect some national data on Internet subscribership through the Current Population Survey (CPS). However, this monthly survey of households conducted by the Census Bureau for the Bureau of Labor Statistics is designed primarily to produce national and state estimates for characteristics of the labor force. To obtain national and state estimates on Internet subscribership rates, supplemental questions on Internet and computer use have been added to the CPS questionnaire. According to a Department of Commerce report, based on October 2003 CPS data, the Internet subscribership rate for U.S. households was about 55 percent.¹⁷ However, Commerce Department officials told us that the CPS sample cannot provide reliable estimates of Internet subscribership on tribal lands because there are not enough tribal land households in the sample to provide a reliable measure.

FCC collects data on the deployment of advanced telecommunications capability in the United States, but this data cannot be used to determine Internet subscribership rates for tribal lands.¹⁸ Pursuant to section 706 of the Telecommunications Act of 1996, FCC is required to conduct regular inquiries concerning the availability of advanced telecommunications capability for all Americans. To fulfill its mandate, FCC has issued four reports, starting in January 1999, on the availability of advanced telecommunications capability in the United States. To obtain data for these reports, FCC requires service providers to report the total number of high-speed lines (or wireless channels), broken down by type of technology, for each state. For each of the technology subtotals, providers also report additional detail concerning the percentage of lines that are

¹⁷ National Telecommunications and Information Administration, U.S. Department of Commerce, *A Nation Online: Entering The Broadband Age*, (Washington, D.C.: September 2004).

¹⁸ Section 706(c)(1) of the Telecommunications Act of 1996 defines advanced telecommunications, without regard to any transmission media or technology, as high-speed, switched, broadband telecommunications capability that enables users to originate and receive high-quality voice, data, graphics, and video telecommunications using any technology. See, Pub. L. No. 104-104, Title VII, § 706, Feb. 8, 1996, 110 Stat. 153, reproduced in the notes under 47 U.S.C. § 157.

connected to residential users¹⁹ and a list of the zip codes where they have at least one customer of high-speed service. Because the providers are not required to report the total number of residential subscribers in each zip code to whom they provide high-speed service, and because tribal lands do not necessarily correspond to zip codes, this data cannot be used to determine the number of residential Internet subscribers on tribal lands. Finally, data on the availability of “dial-up” Internet access is not provided in these reports for any areas in the country because it is not considered an advanced telecommunications capability.

The FCC has acknowledged that the zip code data present an elementary view of where high-speed Internet service subscribers are located.²⁰ In particular, its data collection method does not fully describe some segments of the population, such as Native Americans residing on tribal lands. FCC has recognized that its section 706 data collection efforts in rural and underserved areas need improvement to better fulfill Congress’ mandate.²¹ Without current subscribership data, it is difficult to assess progress or the impact of federal programs to improve telecommunications on tribal lands.

In a September 2004 letter to the Census Bureau, the FCC Chairman at that time stated that in order to better implement section 706 of the Telecommunications Act, FCC needs to know the rate of Internet subscribership, and particularly, the rate of Internet subscribership in smaller and more sparsely populated areas of the country, that would include tribal lands. Given the limitations of the current Census Bureau and FCC data collection efforts, FCC requested the Census Bureau add a question to the ACS regarding Internet subscribership. The ACS is designed

¹⁹ *Local Telephone Competition and Broadband Reporting*, WC Docket No. 04-141, Report and Order, 19 FCC Rcd 22340 (2004). Under this Order, all facilities-based providers of broadband connections to end users are required to report broadband data, all local exchange carriers are required to report local telephone service data, and all mobile telephone carriers are required to report mobile telephone data. Providers subject to the requirements and regulations established in the Order had to complete and file the amended form no later than September 1, 2005, and semiannually thereafter.

²⁰ *Inquiry Concerning the Deployment of Advanced Telecommunications Capabilities to All Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996*, CC Docket No. 98-146, Third Report, 17 FCC Rcd 2844, para. 24 (2002).

²¹ *Local Telephone Competition and Broadband Reporting*, 19 FCC Rcd 22340 (2004).

to collect information for communities across the country, including small geographic areas such as small towns, tribal lands, and rural areas.

Both FCC and Census Bureau officials told us that if a question is added to the ACS, it would provide Internet subscribership data for the nation and smaller geographic areas. An FCC official also noted that a comparative survey like the ACS, one that shows the differences of Internet subscribership between tribal lands and other geographic areas, is far more valuable than a survey that only collects Internet subscribership data on tribal lands. Census Bureau officials mentioned to us, however, that there are several methodological issues related to making changes to the ACS. Because adding questions would lengthen the ACS and could result in a reduced response rate, the Census Bureau's current practice is to add a question to the ACS only if it is mandated by law. They told us that section 706 of the Telecommunications Act mandates that FCC, not the Census Bureau, be responsible for collecting data on advanced telecommunications. Therefore, Congress would need to pass legislation mandating that the Census Bureau collect Internet subscribership data. FCC officials told us that currently it is not clear whether FCC will pursue collection of Internet subscribership data.

Native Americans Can Benefit from Several General and Tribal-Specific Federal Programs to Improve Telecommunications Services

The Department of Agriculture's Rural Utilities Service (RUS) and FCC are responsible for several programs designed to improve the nation's telecommunications infrastructure and make services affordable for all consumers. RUS's programs focus on rural telecommunications development, while FCC's universal service programs focus on providing support for areas where the cost of providing service is high, as well as for low-income consumers, schools, libraries, and rural health care facilities. All of these general programs can benefit tribal lands and Native American consumers. In addition, FCC has recognized the need to make special efforts to improve tribal telecommunications by establishing additional support programs specifically aimed at benefiting tribal lands and their residents. Issues have arisen, however, over some aspects of how eligibility for FCC's universal service programs is determined with regard to tribal lands.

General Programs Available to Improve Telecommunications Services for Tribes

Federal efforts to expand telephone service in underserved areas date back to 1949 when the Rural Electrification Administration was authorized to loan monies to furnish and improve the availability of telephone service in rural areas throughout the United States. In 1994, RUS replaced the Rural Electrification Administration.²² RUS programs provide support to improve rural telecommunications infrastructure through grants, loans, and loan guarantees. Eligible participants in the RUS grant, loan, and loan guarantee programs include federally recognized tribes. The RUS grant, loan, and loan guarantee programs can be used to improve telecommunications infrastructure in rural areas, which include many of the tribal lands. Tables 1 and 2 provide a summary listing of these grant and loan programs and eligible participants, along with recent funding levels.

Table 1: Summary of RUS Grant Programs for Rural Telecommunications

Program	Purpose	2004 Funds
Community Connect Broadband Grants	Provides grants to incorporated organizations, federally recognized tribes, state or local governments, and other entities including cooperatives, private corporations or limited liability companies organized on a for-profit or not-for-profit basis who will deploy broadband service in rural communities.	\$9 million ^a
Distance Learning and Telemedicine Grants	Provides grants to incorporated organizations, federally recognized tribes, state or local governments, and other entities including private corporations organized on a for-profit or not-for-profit basis who operate a rural community facility or deliver distance learning or telemedicine services to entities that operate a rural community facility or to residents of rural areas to encourage and improve telemedicine services and distance learning services.	\$25 million ^a

Source: Consolidated Appropriations Act of 2004, Pub. L. No. 108-199, 118 Stat. 3 (2004).

Note: Figures have been rounded.

^a Fiscal Year 2004 Appropriations

²² RUS was established by the Federal Crop Insurance Reform and Department of Agriculture Reorganization Act of 1994. RUS is a component of the Department of Agriculture.

Table 2: Summary of RUS Loan and Loan Guarantee Programs for Rural Telecommunications

Program	Description	2004 Funds
Rural Telecommunications Loan Programs ^a		
Hardship	Provides loans bearing a 5 percent interest rate to eligible entities to finance the construction, operation, and/or improvement of telecommunications facilities to provide and improve telephone service in rural areas. ^a	\$145 million ^b
Cost of Money	Provides loans bearing an interest rate tied to the Department of Treasury's cost-of-money rate to eligible entities to finance the construction, operation, and/or improvement of telecommunications facilities to provide and improve telephone service in rural areas. ^a	\$48.5 million ^b
Federal Financing Bank (FFB) ^c	Provides loan guarantees bearing interest rates equal to the Department of Treasury's cost of money for debt instruments with similar maturities and options, plus one-eighth of one percent to eligible entities to finance the construction, operation, and/or improvement of telecommunications facilities to provide and improve telephone service in rural areas. ^a	\$320 million ^b
Distance Learning and Telemedicine Loans	Provides loans to incorporated organizations or partnerships, federally recognized tribes, state or local governments, and other entities including private corporations organized on a for-profit or not-for-profit basis that operate a rural community facility or deliver distance learning or telemedicine services to entities that operate a rural community facility or to residents or rural areas to encourage and improve telemedicine services and distance learning services in rural areas.	\$30.3 million ^b
Rural Broadband Access Loan and Loan Guarantee Program	Provides loans to eligible applicant cooperative, nonprofit, limited dividend or mutual associations, limited liability companies, commercial organizations, federally recognized tribes, and under certain circumstances, state or local governments that will deploy broadband services in rural communities. ^d	\$602.9 million ^b

Source: Rural Utilities Service.

Note: Figures have been rounded.

^aEligible entities include public bodies providing telephone service in rural areas as of October 28, 1949, as well as cooperative, nonprofit, limited dividend, or mutual associations. Additionally, RUS generally will not make a loan to another entity to provide the same telecommunications service in an area served by an incumbent RUS telecommunications borrower providing such service.

^bThis figure represents fiscal year 2004 loans approved under multiple fiscal years' budget authority. Approved loans only indicate that an agreement between the lender (RUS, FFB, or a private lender) and a borrower has been reached to loan monies.

^cFederal Financing Bank is an instrumentality within the United States Department of the Treasury. Section 306 of the Rural Electrification Act authorizes RUS to offer 100 percent guarantees of loans made by FFB to qualified electric and telecommunications borrowers.

^dAn entity is not eligible if it serves more than 2 percent of the telephone subscriber lines installed in the United States.

FCC also has several general programs to support improved telecommunications services. FCC's universal service programs support the longstanding goal of making communications services available "so far as possible, to all the people of the United States." The universal service

programs put in place in the 1980s focused on making telephone service affordable for low-income consumers and areas where the cost of providing service was high. The Telecommunications Act of 1996 extended the scope of federal universal service support to make advanced telecommunications services (such as high-speed Internet access) available to eligible public and nonprofit elementary and secondary schools, libraries, and nonprofit rural health care providers at discounted rates. Universal service program operations are carried out by a not-for-profit corporation, the Universal Service Administrative Company (USAC), under FCC's rules and oversight. Table 3 lists key FCC universal service programs and recent funding levels that could be used to improve service on tribal lands in areas where the cost of providing service is high; lower the cost of service to low-income individuals; and support telecommunications services for local schools, libraries, and rural health care centers.²³

Table 3: Summary of Key FCC Universal Service Programs

Program	Description	2004 Funds
High Cost	Provides eligible local telephone companies with funds to serve consumers in remote or rural areas, where the cost of providing service comparable to that available in urban areas is substantially greater than the national average, thereby lowering rates for local and long distance service.	\$3.5 billion ^a
Low Income (Lifeline and Linkup)	Assists qualifying low-income consumers through discounts on installation and monthly telephone services. Also provides free toll limitation service to prevent or limit the amount of long distance telephone calls. In 2000, FCC augmented this program to provide additional support for residents on tribal lands (known as Enhanced Lifeline and Linkup).	\$758.8 million ^a
Schools and Libraries (E-rate)	Assists eligible public and non-profit elementary and secondary schools and libraries through discounts on telecommunications and information services. Discounts are available for local and long distance telephone service, Internet access, internal connections (e.g., wiring and networking schools and libraries), and basic maintenance on internal connections.	\$2.3 billion ^b
Rural Health Care	Assists health care providers located in rural areas through discounts on telecommunications services. Discounts are provided to make rates for facilities in rural areas reasonably comparable to those in nearby urban areas. ^c	\$35 million ^b

Source: USAC.

²³ For additional information about these FCC programs, see GAO, *Telecommunications: Federal and State Universal Service Programs and Challenges to Funding*, [GAO-02-187](#), (Washington, D.C., Feb. 4, 2002).

Note: Figures have been rounded.

^aThis figure represents USAC's total unaudited disbursements during calendar year 2004.

^bThis figure represents a USAC estimate for calendar year 2004.

^cSome public or non-profit health care providers not located in a rural area may receive some financial support for long distance charges necessary to connect to an Internet service provider.

In addition to financial assistance, RUS and FCC's Wireless Telecommunications Bureau established the VISION program in 2004 as a joint policy initiative to provide technical assistance to improve the provision of wireless broadband service in rural communities. VISION is part of a larger Rural Wireless Outreach Initiative between RUS, FCC's Wireless Telecommunications Bureau, and private industry, that is intended to coordinate activities and information on financial and other assistance regarding telecommunications opportunities for rural communities. The program is designed to provide rural communities within the United States and its territories with on-site regulatory, legal, engineering, and technical assistance to identify barriers and solutions to providing wireless broadband services to these communities. Thirteen tribal organizations have applied for assistance from this program, though no awards had been made as of October 2005.

The General Services Administration's (GSA) Federal Technology Service (FTS) 2001 contract provides telecommunications services to federal agencies, the District of Columbia government, tribal governments, and insular governments such as American Samoa, at discounted prices. Several tribes, such as the Oneida Tribe of Indians of Wisconsin and the Choctaw Nation of Oklahoma, have made use of the FTS 2001 contract to improve the telecommunications infrastructure on their lands.²⁴

FCC's Programs Targeted to Tribal Lands and Residents

Beginning in June 2000, FCC established additional support to improve telecommunications infrastructure deployment and subscribership on tribal lands. FCC took this step in recognition that Native American communities have, on average, the lowest reported telephone subscribership levels in the country.

²⁴ GSA established the Native American Business Center that is overseen by GSA's regional office in Denver, Colorado. The purpose of the center is to help tribal businesses participate as vendors in GSA contracts and assist tribes in accessing GSA contracts.

Enhanced Link-Up and Lifeline Programs

FCC's Enhanced Link-Up and Lifeline programs, which began in 2000, provide additional discounts on the cost of telephone service for tribal and nontribal residents of tribal lands who have incomes at or below 135 percent of the Federal Poverty Guidelines or who participate in one of several federal assistance programs, such as food stamps or Medicaid.²⁵ Enhanced Link-Up provides qualified participants with one-time discounts of up to 100 dollars on installation fees. Enhanced Lifeline provides ongoing discounts on basic local telephone service that enable some qualified participants to pay as little as 1 dollar a month. As with FCC's other universal service programs, the service providers are reimbursed from FCC's universal service fund for the discounts they give to the programs' participants. Tables 4 and 5 list the number of Enhanced Link-Up and Lifeline participants (both Native American and nonnative American residents of tribal lands) and the amount of support distributed between June 2000 and December 2004.

Table 4: Number of Enhanced Link-Up Participants and Funds Distributed to Service Providers

	June-Dec. 2000	2001	2002	2003	2004
Number of Participants	2,040	23,360	29,900	22,290	41,030
Amount of reimbursements to providers	\$61,590	\$533,560	\$832,660	\$615,760	\$1,277,340

Source: USAC.

Note: Years are calendar years. The program began in the middle of 2000. Dollar amounts and number of participants have been rounded.

²⁵ There are multiple levels of Lifeline and Link-Up support. The lowest level of Lifeline support provides up to \$6.50 per month in financial assistance, while the highest level (Enhanced Lifeline) provides up to \$33.25 a month in financial assistance on a monthly phone bill for eligible subscribers on tribal lands. There are two levels of Link-Up support. The first level provides up to \$30 in financial assistance for the installation charges for phone services. The second level (Enhanced Link-Up) provides up to 100 dollars in financial assistance for eligible subscribers on tribal lands.

Table 5: Number of Enhanced Lifeline Participants and Funds Distributed to Service Providers

	June- Dec. 2000	2001	2002	2003	2004
Number of Participants	18,690	56,820	112,190	147,200	176,390
Amount of reimbursements to providers	\$507,780	\$6,960,050	\$17,954,810	\$24,178,010	\$30,346,090

Source: USAC.

Note: Years are calendar years. The program began in the middle of 2000. Dollar amounts and number of participants have been rounded.

At present, service providers file quarterly data forms with USAC that are used in reimbursing them for the discounts they give to their subscribers through the Link-Up and Lifeline programs. This data can be broken out by state, but not by tribal land, because the reporting form does not ask service providers to indicate the number of participants and amount of funding by tribal land. State-level data, however, has limited use in measuring the performance of these programs with respect to individual tribal lands. Nearly all the states containing tribal lands have more than one of them, as shown earlier in figure 1, so their data is a sum total of multiple tribal lands.²⁶ Moreover, some tribal lands extend across state lines. The Navajo Nation's land, for instance, crosses the borders of Arizona, New Mexico, and Utah; and the Standing Rock Sioux's tribal land crosses the borders of North and South Dakota. Consequently, the participation and funding data relevant to these tribal lands (and others like them) are split among the data of multiple states. Because FCC does not have data on program participation and funding by individual tribal land, some basic questions cannot be answered: what percentage of residents of particular tribal lands are benefiting from the programs and how have the participation rates on individual tribal lands changed over time?

At one point, FCC took steps to obtain more detailed program data. When the Enhanced Link-Up and Lifeline programs were established in 2000, the Commission directed one of its bureaus to revise, as necessary, the form used by service providers for the general Link-Up and Lifeline programs

²⁶ According to 2000 Census, the population on tribal lands in states with only one tribal land comprises approximately 1 percent of the total population on all tribal lands.

already in operation. In June 2003, FCC sought comment on changes to its Lifeline program, including the collection of additional data, and made revisions to the form. In December 2003, FCC received approval from the Office of Management and Budget for the revised form, which included requiring service providers to list the number of their Enhanced Lifeline subscribers by individual tribal land. However, in spring 2004, some service providers met with FCC officials to voice concerns that the collection of such information would be difficult to implement into their billing systems, but did not provide specific cost estimates for its implementation. In March 2005, FCC indefinitely suspended the use of the revised form due to these concerns.²⁷

Tribal Land Bidding Credit Program

FCC's Tribal Land Bidding Credit program is designed to provide incentives for wireless providers to deploy wireless services across tribal lands.²⁸ FCC is authorized to auction radiofrequency spectrum to be used for the provision of wireless services in the United States. Under the Tribal Land Bidding Credit program, FCC reduces the cost of a radiofrequency spectrum license to a winning bidder in a spectrum auction if the bidder agrees to deploy facilities and provide telecommunications service to qualifying tribal lands. The agreement includes constructing and operating a wireless system that offers service to at least 75 percent of the population of the tribal land area covered by the credit within 3 years of the grant of the license. Tribal lands with telephone subscribership below 85 percent are eligible for the program.

The program began in 2000, with the first credits awarded in 2003. In total, the program has awarded credits to six licensees who have pledged to deploy facilities and provide telecommunications services to 10 tribal lands. Most of the credits to date have been awarded to two licensees for

²⁷ *Wireline Competition Bureau Announces Delay of Effective Date for Revised Form 497 Used for Low-Income Universal Service Support Until Further Notice*, WC Docket No. 03-109, Public Notice, 20 FCC Rcd 4395 (2005).

²⁸ *Extending Wireless Telecommunications Services to Tribal Lands*, WT Docket No. 99-266, Report and Order and Further Notice of Proposed Rulemaking, 15 FCC Rcd 11794 (2000).

providing service on three tribal lands. Table 6 lists the dollar value of tribal land bidding credits awarded through April 2005.²⁹

Table 6: Tribal Land Bidding Credits Awarded

Licensee Name	Tribal Land To Be Served	Date License(s) Awarded	Dollar Value of Bidding Credit
Crown Castle	White Mountain Apache (AZ)	10/1/2003	\$3,157,000
Milky Way Broadband	Uintah and Ouray (UT)	11/23/2004	\$263,500
Nemont Communications	Turtle Mountain (ND)	1/12/2005	\$137,000
Ronan Telephone	Blackfeet (MT)	1/29/2004	\$182,000
Scott MacIntyre	Walker River Paiute (NV)	5/13/2003	\$182,000
Space Data	Eastern Band of Cherokee (NC)	4/15/2003	\$34,300
Space Data	Ft. McDermitt Paiute and Shoshone (NV and OR)	4/15/2003	\$269,800
Space Data	Hualapai (AZ)	4/15/2003	\$102,300
Space Data	Jicarilla Apache (NM)	4/15/2003	\$15,050
Space Data	Hualapai & Jicarilla Apache (AZ and NM)	4/15/2003	\$1,419,500
Space Data	Navajo (AZ, NM, UT)	1/12/2005	\$42,260
Total			\$5,804,710

Source: FCC.

Note: Dollar amounts have been rounded.

At present, it is unclear what the program's long-term impact will be in creating a significant incentive to deploy wireless service on tribal lands. FCC has acknowledged that the program is underutilized by service providers, attributing this to economic and technical factors. Several industry and tribal stakeholders expressed concerns that the program has a limited ability to improve service on tribal lands. These stakeholders stated that the main problem with the program is that tribal land bidding credits deal with the least expensive cost element of providing wireless service to tribal lands: the spectrum license. In fact, they said that spectrum to serve tribal lands can be acquired more economically through spectrum leasing

²⁹ These figures include the spring 2005 Broadband PCS (Personal Communications Services) spectrum auction, the second largest spectrum auction conducted in terms of auction revenue bids since the formation of the tribal land bidding credit program. Broadband PCS services encompass a variety of mobile and fixed radio services with two-way data capabilities that compete with existing cellular and specialized mobile radio services.

arrangements with other licensees than through the Tribal Land Bidding Credit program. In their view, the main barrier to deploying wireless service on tribal lands is the high cost of network infrastructure, such as cellular towers. During 2006, FCC will have an opportunity to begin reviewing the actual effect of the program. By then, licensees who received Tribal Land Bidding Credits in 2003 are supposed to have met the requirement to cover 75 percent of the tribal land area for which their credit was awarded.

Indian Telecommunications Initiative

In spring 2002, FCC established the Indian Telecommunications Initiative (ITI) to provide assistance to improve telecommunications services on tribal lands. The Initiative's strategic goals are to improve tribal lands' telephone subscribership rates, increase the telecommunications infrastructure, and inform consumers about the financial support available through federal programs, such as the universal service programs. ITI also seeks to promote understanding, cooperation, and trust among tribes, government agencies, and the telecommunications industry to address telecommunications issues facing tribal lands.

Since its inception, ITI has organized several informational workshops to provide tribes and tribal organizations with information about federal telecommunications programs such as Enhanced Lifeline and Link-Up. ITI has also used these workshops to disseminate information about FCC rules and policies that affect the deployment of telecommunications services on tribal lands, such as cellular tower siting procedures. FCC senior officials and other staff also attend and participate in a variety of meetings on telecommunications issues with tribal officials. FCC has also distributed educational materials to tribes and tribal organizations about its universal service programs and other issues of interest.

Some Issues Involving Tribes Have Arisen with Respect to Federal Universal Service Programs

The implementation of universal service programs is largely the joint responsibility of federal and state government. However, the sovereign status of tribes raises unique issues and concerns. Service providers, tribal officials, and others have cited two specific areas of concern. One involves FCC's process to determine whether the FCC has jurisdiction to designate service providers as eligible to receive universal funds for serving tribal lands. A second is related to the statutory limitations of tying the eligibility for universal service funding under the E-rate program for tribal libraries to state Library Services and Technology Act funds.

Designation of Eligible Telecommunications Carriers

Some stakeholders we spoke with emphasized that deployment of services on tribal lands, particularly by wireless carriers, might be improved if FCC had a more timely process for determining its jurisdiction to designate a provider wanting to serve tribal lands as an Eligible Telecommunications Carrier (ETC). As defined by the Communications Act, service providers must be designated as an ETC in order to participate in FCC's universal service programs.³⁰ The Act gives the individual states the primary responsibility for designating ETCs. Initially, the Act made no provision for cases where a service provider might not be subject to state jurisdiction, such as those operating on tribal lands. In 1997, Congress amended the Act by requiring FCC to determine a service provider's eligibility to receive federal universal service funds in cases where a state lacks jurisdiction to make an ETC determination.³¹ In response, FCC developed a process by which a service provider seeking ETC status for serving a tribal land may petition the Commission to determine whether the provider is subject to the state commission's jurisdiction. If the FCC finds that the state does not have jurisdiction, FCC can make the ETC determination.

To date, FCC has received ten applications for ETC designations involving tribal lands. Six of the applications were from tribally-owned wireline service providers, and four were from non-tribally-owned wireless service providers.³² FCC provided the tribally-owned wireline providers with ETC status within a few months of their application.³³ Two different non-tribally owned wireless service providers petitioned FCC for ETC designation on three separate tribal lands.³⁴ As indicated in table 7, FCC granted one of these three petitions in 10 months. Another was withdrawn by the provider

³⁰ Eligible Telecommunications Carriers are required to offer services that are supported by Federal universal support mechanisms including services, such as local telephone service, access to emergency services, and operator assistance, and to advertise the availability of such services and charges. 47 U.S.C. § 214(e).

³¹ 47 U.S.C. § 214(e)(6).

³² However, FCC dismissed two of these applications because the applicants were in process or had already been designated as an ETC by a state commission. One was from a tribally-owned service provider, Cheyenne River Sioux Tribe Telephone Authority (CRSTTA). One was from a non-tribally owned provider, Smith Bagley, Inc..

³³ CRSTTA filed a petition for ETC designation with FCC, however FCC dismissed it because the South Dakota Commission had already designated CRSTTA as an ETC.

³⁴ Smith Bagley Inc. filed a petition for ETC designation to serve multiple tribal lands within the Arizona and New Mexico, however FCC dismissed it because Smith Bagley had already applied for this designation with the Arizona and New Mexico Commissions.

after more than three years with no FCC decision, while the third has been pending at FCC for more than 3 years.

Table 7: Status of Wireless Providers' ETC Applications on Tribal Lands

Applicant	Tribal Land To Be Served	State	Application Filed	Resolution	Timeframe
Western Wireless	Crow Reservation	Montana	August 1999	Application withdrawn in June 2003	3+ years
Western Wireless	Pine Ridge Reservation	South Dakota	January 2001	Granted in October 2001	10 months
Smith Bagley Inc.	Navajo Reservation (Utah portion)	Utah	May 2002	Still pending	3+ years

Source: GAO analysis of FCC data.

FCC has noted that determining whether a state or FCC has ETC jurisdiction regarding a tribal land is “a legally complex and fact specific inquiry, informed by the principles of tribal sovereignty, federal Indian law, treaties, as well as state law.”³⁵ When we asked about the long timeframes involved with the first and third items in table 7, FCC officials explained that they must conduct a case-specific inquiry for each application to determine whether the Commission has the authority to make an ETC designation. In its 2001 Western Wireless decision, FCC noted that it would resolve the Western Wireless ETC decision in light of the guidance provided by the Supreme Court in *Montana v. United States*, 450 U.S. 544 (1981).³⁶ This case sets out the guiding principle that Indian tribes lack jurisdiction to regulate nonmembers on the reservation, but it recognized

³⁵ *Federal-State Joint Board on Universal Service; Promoting Deployment and Subscriberhip in Unserved and Underserved Areas, Including Tribal and Insular Areas*, 15 FCC Rcd 12208, at para. 8.

³⁶ *Western Wireless Corporation Petition for Designation as an Eligible Telecommunications Carrier for the Pine Ridge Reservation in South Dakota*, CC Docket No. 96-45, Memorandum Opinion and Order, 16 FCC Rcd 18145, para. 14 (2001).

two exceptions.³⁷ Applying this framework to the service agreement between the Oglala Sioux Tribe and Western Wireless, FCC granted Western Wireless ETC status over its service to tribal members living within the Pine Ridge reservation.

FCC has not issued any further guidance on how it will make its ETC decisions on tribal lands. FCC officials told us that the information needed to make a determination may change from application to application. They said that they try to complete these designations in a timely fashion, but applicants may not provide sufficient information, and staff normally dedicated to these issues may need to focus on other issues facing FCC. In 2000, FCC sought public comment on the creation of a 6-month timeline for the resolution of jurisdictional issues surrounding an ETC designation on tribal lands.³⁸ However, in 2003 FCC formally decided against creating this timeline because determining FCC's jurisdiction over ETC designation on tribal lands "is a legally complex inquiry that may require additional time to fully address."³⁹

Tribal Libraries' Eligibility for E-rate Funding

Some tribal officials we spoke with emphasized the importance of tribal libraries as a means for members to have Internet access and expressed concern about their difficulty in obtaining E-rate funding for their libraries. Under current eligibility requirements, tribal libraries can apply for universal service fund support through the E-rate program provided they meet eligibility requirements. The Communications Act defines E-rate

³⁷ Under the first Montana exception, "[a] tribe may regulate, through taxation, licensing, or other means, the activities of nonmembers who enter consensual relationships with the tribe or its members, through commercial dealings, contracts, leases or other arrangements." Under the second Montana exception, "[a] tribe may . . . exercise civil authority over the conduct of non-Indians on fee lands within its reservation when that conduct threatens or has some direct effect on the political integrity, the economic security, or the health or welfare of the tribe." 450 U.S. 544, 565, 566 (1981).

³⁸ *Federal-State Joint Board on Universal Service; Promoting Deployment and Subscribership in Unserved and Underserved Areas, Including Tribal and Insular Areas*, 15 FCC Rcd 12208. The Commission committed to resolve, within six months of the date filed, all ETC designation requests for non-tribal lands that are properly before it under section 214(e)(6). The Commission also committed to resolve within six months of release of an order resolving the jurisdictional issue, any request for ETC designation on tribal land. See, paras. 151-152, 114, and 121, respectively.

³⁹ *Federal-State Joint Board on Universal Service; Promoting Deployment and Subscribership in Unserved and Underserved Areas Including Tribal and Insular Areas*, CC Docket No. 96-45, Twenty-Fifth Order on Reconsideration, Report and Order, Order, and Further Notice of Proposed Rulemaking, 18 FCC Rcd 10958, para. 27 (2003).

eligible libraries as those eligible for assistance from a state library administrative agency under the Library Services and Technology Act (LSTA),⁴⁰ which provides federal grant funds to support and develop library services in the United States. LSTA has two types of library grants that primarily relate to governmental entities: one for states and one for federally recognized tribes and organizations that primarily serve and represent Native Hawaiians.⁴¹ To be eligible for E-rate funds, a tribal library must be eligible for state LSTA funds and not just tribal LSTA funds.

The eligibility criterion has practical implications for tribal libraries. Although we did not survey all the states on this issue, officials in two states told us that their state laws preclude tribal libraries within their states from being eligible to receive state LSTA funds, which has the effect of making them ineligible to receive E-rate funds. Officials in Oklahoma said that only county and city libraries are eligible for state funding such as LSTA monies. Tribal libraries are not county or city libraries and therefore not eligible for Oklahoma's state LSTA funds. One former tribal librarian in Oklahoma told us that she did not apply for E-rate funding because the state library administrative agency provided her with documentation indicating that the tribe was not eligible for state LSTA funds. Montana officials told us that their state law also has similar limitations regarding tribal libraries' eligibility for state LSTA funds.

The eligibility criterion also has practical implications for the E-rate program. Libraries applying for LSTA funds must self-certify their eligibility. As part of its integrity process, USAC requires a third party verification of the eligibility requirement. Thus, USAC verifies a library's eligibility for E-rate funds by asking state library administrative agencies to provide written certification of a library's eligibility for state LSTA funds.⁴² This process has prompted a number of comments from several of those we interviewed. Some tribal and state library agency officials noted that the current eligibility criterion infringes on tribal sovereignty by involving the state in tribal library E-rate funding. One state librarian, for example,

⁴⁰ The Communications Act of 1934, as amended, provides that a library or library consortium not eligible for assistance from a State library administrative agency under the Library Services and Technology Act (LSTA), 20 U.S.C. § 9121 et seq. would not be entitled to E-rate funds. 47 U.S.C. § 254(h)(4).

⁴¹ 20 U.S.C. § 9141 and 20 U.S.C. § 9162. The Institute of Museum and Library Services (IMLS) administers the Library Services and Technology Act.

⁴² In the case of a state library, USAC seeks third party verification from IMLS.

expressed discomfort at being put in the position of acting on behalf of a sovereign tribe and expressed the strong belief that eligibility for E-rate funding should be a matter between the tribe and USAC, without involvement by state government agencies. USAC officials told us that they have received some E-rate applications from tribal libraries.⁴³ In those cases, a USAC board member successfully worked with the states in question to obtain the certifications. However, USAC officials and the USAC board member emphasized the time-consuming nature of these resolution efforts.

In fall 2002, FCC, USAC, and the Institute of Museum and Library Services (IMLS) officials met to discuss possible remedies for this situation. These discussions produced a consensus that a change to the E-rate eligibility requirement for libraries defined in the Communications Act could facilitate tribal libraries' eligibility for E-rate funding. These discussions focused on a modification to the Act that would allow tribal libraries eligible for funding from either a state library administrative agency or tribal government under the LSTA to be eligible for funding under the E-rate program. FCC officials told us that modifications to the Act would require legislative action by the Congress, because such modifications cannot be made by FCC through a Commission order or administrative proceeding.

Multiple Barriers Exist to Improving Telecommunications on Tribal Lands

Tribal and government officials, Native American groups, service providers, and other entities we interviewed cited several barriers to improving telecommunications on tribal lands. The two barriers most often cited by officials of the tribes and Alaska regional native non-profit organizations we interviewed were the rural location and rugged terrain of tribal lands and tribes' limited financial resources. The third most often cited barrier was a lack of technically trained tribal members to plan and implement improvements in telecommunications. A fourth barrier cited by tribal officials and other stakeholders is the complex and costly process of obtaining rights-of-way for deploying telecommunications infrastructure on tribal lands.

⁴³ The E-rate application does not ask for a tribal designation.

Rural Location and Limited Financial Resources Were the Most Often Cited Barriers

The rural location and rugged terrain of most tribal lands and tribes' limited financial resources were the barriers to improved telecommunications most often cited by officials of tribes and Alaska Native Villages we interviewed. These two barriers were also cited by representatives of service providers and federal agencies. These two barriers are interrelated, can deter providers from investing in infrastructure on tribal lands, and contribute to the low levels of subscribership on many tribal lands.

Tribal lands are mostly rural and characterized by large land areas, rugged terrain such as mountains and canyons, low population density, and geographic isolation from metropolitan areas. Figure 4, from the Pine Ridge Indian Reservation in South Dakota, illustrates some of these characteristics.

Figure 4: Wireless Tower near Kyle, South Dakota on the Pine Ridge reservation (April 2005)



Source: GAO.

Generally, these factors make the cost of building and maintaining the infrastructure needed to provide service higher than they would be in urban settings. For example, more cable per customer is required over large, sparsely populated areas, and when those areas are mountainous, it can be more difficult and costly to install the cable. The Rural Task Force, formed by the Federal-State Joint Board on Universal Service,⁴⁴ documented the high costs of serving rural customers in a report issued in January 2000, which stated that the average telecommunications infrastructure cost per customer for rural providers was \$5,000, while the average infrastructure cost per customer for non-rural providers was \$3,000.⁴⁵ Officials from 17 tribes and 11 Alaska regional native non-profit organizations we interviewed told us that the rural location of their tribe is a telecommunications barrier.

Tribes' limited financial resources are also seen as a barrier to improving telecommunications services on tribal lands. Many tribal lands—including some of those we visited such as the Navajo, the Mescalero Apache, the Yakama and the Oglala Sioux—have poverty rates more than twice the national rate, as well as high unemployment rates. The 2000 U.S. Census showed that the per capita income for residents on tribal lands was \$9,200 in 1999, less than half the U.S. per capita income of \$21,600. Officials of 33 of the 38 Native American entities we interviewed told us that lack of financial resources was a barrier to improving telecommunications services. Several of these tribal officials told us that their tribal governments must use their tribes' limited financial resources on other priorities such as water and sewer lines, housing, and public safety. In addition, high levels of poverty on many tribal lands may also make it less likely that tribal residents will subscribe to those telephone and Internet services that are available, particularly when geographic barriers have increased the costs of those services. For example, a Yakama Nation tribal official told us that many residents cannot afford a computer or Internet access; some cannot even afford telephone service.

⁴⁴ Section 254 of the Telecommunications Act of 1996 required FCC to institute the Federal-State Joint Board on Universal Service. 47 U.S.C. § 254 (a)(1). The board makes recommendations to implement the universal service provisions of the Act. The board is comprised of FCC commissioners, state utility commissioners, and a consumer advocate representative.

⁴⁵ Rural Task Force, *The Rural Difference: Rural Task Force White Paper 2*, (Washington Utilities and Transportation Commission, January 2000), <http://www.wutc.wa.gov/rtf> (downloaded August 25, 2005).

These two factors, the rural location of tribal lands (which increases the cost of installing telecommunications infrastructure) and tribes' limited financial resources (which can make it difficult for residents and tribal governments to pay for services) can combine to deter service providers from making investments in telecommunications on tribal lands. This lack of investment can result in a lack of service, poor service quality, and little or no competition. With regard to a lack of service, an official with the Yakama Nation told us that while many tribal residents in the more heavily populated areas have access to telephone service, the tribe's service provider has not built additional infrastructure to reach less populated areas and has no plans to do so in the near future. A representative of the company that provides service to the Coeur d'Alene tribe told us that high-speed Internet was only available in certain areas of the Coeur d'Alene tribal land, that there were no immediate plans to expand the service area, and that there were cost issues in providing service to the more remote and less densely populated parts of the reservation. Another provider's representative told us that providing digital subscriber lines (DSL)⁴⁶ to most parts of the Eastern Band of Cherokee's reservation would not be profitable because the land is rugged and to connect many of those who live out in remote rural areas would require an investment that would be difficult to justify. With regard to service quality, of the 38 tribes and tribal representatives we interviewed, 9 mentioned service quality as a barrier to improved telecommunications. One tribe told us that their local provider has no local service office and few technicians, so that the company may take days to repair or respond to a problem. With regard to the lack of competition, officers of 2 tribes told us that because there is only 1 provider, they have no choice but to pay the prices being charged for services, even though they think the prices are too high.

Lack of Technically-Trained Tribal Members Can Impede Planning and Was the Third Most Commonly Cited Barrier

The third barrier most commonly cited by tribal representatives was the lack of tribal members trained in or knowledgeable about telecommunications technologies. Officials of 13 of the 38 Native American tribes and tribal organizations we interviewed told us that lack of telecommunications training and knowledge among tribal members is a barrier to improving their telecommunications. Some of these officials said they needed more technically trained members to plan and oversee the implementation of telecommunications improvements, as well as to

⁴⁶ Digital Subscriber Line is a broadband connection that provides greater capacity for faster data transmission than can be provided over a conventional telephone line.

manage existing systems. For example, one tribal official told us that he is currently understaffed and is running a multi-tribe wireless network with just one other person. Another tribal official told us that there is only one tribal member with formal training in telecommunications and that the tribe needs a well trained person to take charge of the tribe's telecommunications needs. An official of the Coeur d'Alene tribe, who has technical training, told us that the tribe does not have a sufficient number of technically knowledgeable staff members to develop and maintain needed telecommunications systems.

The same Coeur d'Alene tribal official also told us that tribes without technically trained staff would be at a disadvantage in negotiating with service providers. This official added that having tribal members trained in telecommunications was necessary to ensure that a tribe's planned improvements included the equipment and technology the tribe wanted and needed. In addition, one non-tribal stakeholder mentioned that a lack of training prevented tribes from choosing appropriate technologies for their specific needs. One industry stakeholder mentioned that tribes needed a better understanding of the range and capacity of shared spectrum wireless technology so they would not be disappointed by its limitations.⁴⁷ A 1995 Office of Technology Assessment study of telecommunications on tribal lands stated that most Native American reservations, villages, and communities would benefit from developing a plan or vision of how telecommunications could best meet their educational, health, economic development, and cultural needs.⁴⁸ In 1999, the Department of Commerce estimated that very few tribes had telecommunications plans.⁴⁹ Of the 38 tribes and tribal organizations we interviewed, 14 told us they have some type of technology plan and 7 more said they had a plan in development.

⁴⁷ Shared spectrum, also known as unlicensed spectrum, allows the user to utilize a particular set of radiofrequency spectrum without obtaining a license from a spectrum license holder.

⁴⁸ U.S. Congress, Office of Technology Assessment, *Telecommunications Technology and Native Americans: Opportunities and Challenges*, (Washington, D.C.: U.S. Government Printing Office, August 1995).

⁴⁹ College of Engineering, New Mexico State University, *Assessment of Technology Infrastructure in Native Communities*, prepared at the request of the Department of Commerce, Economic Development Administration.

Industry stakeholders also told us that having tribal staff knowledgeable in telecommunications policies improves the process of deploying services on tribal lands. One service provider told us that if tribes delegated telecommunications decisions to a tribal governmental committee, the company could provide service more effectively and efficiently. Instead, when a company has to bring telecommunications decisions before the full tribal council, the process can be very time consuming because the full tribal council meets infrequently and telecommunications issues are often not at the top of the agenda. Another provider told us that having staff knowledgeable in telecommunications policies and procedures, such as rights of way and contract issues, allows providers to more quickly and effectively deploy services because time is not spent negotiating over unfamiliar terms.

Rights-of-Way Issues Were Also Cited as a Barrier to Improved Telecommunications Services on Tribal Lands

According to several service providers and tribal officials, obtaining a right-of-way through Indian lands is a time-consuming and expensive process that can impede service providers' deployment of telecommunications infrastructure.⁵⁰ The right-of-way process on Indian lands is more complex than the right-of-way process for non-Indian lands because BIA must approve the application for a right-of-way across Indian lands. BIA grants or approves actions affecting title on Indian lands, so all service providers installing telecommunications infrastructure on Indian lands must work with BIA or its contractor (realty service provider) to obtain a right-of-way through Indian lands.⁵¹ To fulfill the requirements of federal regulations for rights-of-way over Indian lands and obtain BIA approval, service providers are required to take multiple steps and coordinate with several entities during the application process. These steps must be taken to obtain a right-of-way over individual Indian allotments as well as tribal lands. Several of the steps involve the landowner, which could be an individual landowner, multiple landowners, or the tribe, depending on the status of the land. For example, the right-of-way process requires a)

⁵⁰ The term "Indian lands," which includes tribal trust lands and Indian allotments, is used in this discussion of rights-of-way because the term "tribal lands" used elsewhere in this report encompasses types of land not subject to BIA right-of-way approval.

⁵¹ The Indian Self-Determination and Education Assistance Act (ISDEA), as amended, directs Interior, at the request of a tribe, to contract with Indian tribes or tribal organizations to carry out the services and programs the federal government provides to Indians. Therefore, as authorized by the ISDEA, regional nonprofit corporations or tribal entities can assume management of the realty function from BIA to perform realty services for Indian lands. See, 25 U.S.C. § 450f.

written consent by the landowner to survey the land; b) an appraisal of the land needed for the right-of-way; c) negotiations with the landowner to discuss settlement terms; d) written approval by the landowner for the right-of-way; and e) BIA approval of the right-of-way application.⁵²

Service providers told us that a lack of clarity in federal regulations for rights-of-way over Indian lands can also slow down the right-of-way approval process. During the right-of-way approval process, BIA has a responsibility to ensure that the right-of-way suits the purpose and size of the equipment being installed on the land. However, federal regulations do not have guidance or descriptions for advanced telecommunications infrastructure, which would assist BIA in evaluating telecommunications rights-of-way applications. According to a Department of the Interior official, descriptions and guidance for advanced telecommunications infrastructure are absent because the regulations were created prior to the advent of modern telecommunications equipment. For example, the federal regulations have guidance and descriptions for the size of the right-of-way needed and voltage levels of electrical equipment that can be installed for commercial purposes,⁵³ but similar descriptions and guidance are not available for advanced telecommunications rights-of-way. According to service providers, this lack of clarity can cause grey areas for BIA when it attempts to classify the type of advanced telecommunications infrastructure the service provider intends to install and whether it is for commercial or residential purposes. This adds time to the right-of-way approval process because BIA has to determine if the regulations allow for the installation of the applicant's infrastructure. A BIA official acknowledged that portions of the federal regulations, including the section on telecommunications infrastructure, are outdated. As a result, BIA is currently revising the regulations to better apply to modern utility technologies, including advanced telecommunications infrastructure, but timeframes for completion of this work have not been established.

As mentioned above, BIA requires that service providers obtain approval from the individual landowner or the tribe for a right-of-way. Service providers told us that obtaining landowner consent for a right-of-way across an individual Indian allotment is time consuming and expensive, which can delay or deter deployment of telecommunications infrastructure

⁵² 25 C.F.R. §169.3 (2005).

⁵³ 25 C.F.R §§ 169.22(a), 169.27 (2005).

on tribal lands. For example, one service provider told us that an individual Indian allotment of land can have over 200 owners, and federal regulations require the service provider to gain approval from a majority of them.⁵⁴ The official stated that the time and cost of this process is compounded by the fact that a telecommunications service line often crosses multiple allotments. In addition, if the service provider cannot obtain consent for the right-of-way from the majority of landowners, the provider is forced to install lines that go around the allotment, which is also expensive.

Tribes Are Addressing Barriers to Improved Telecommunications in Different Ways

Several tribes are moving towards owning or developing part or all of their own telecommunications systems to address the barriers of tribal lands' rural location and rugged terrain and tribes' limited financial resources, which can deter service providers from investing in telecommunications on tribal lands. These tribes are using federal grants, loans, or other assistance, long-range planning, and private-sector partnerships to help improve service on their lands. In addition, some tribes have addressed these barriers by focusing on wireless technologies, which can be less costly to deploy across large distances and rugged terrain. Some tribes are addressing the shortage of technically-trained tribal members to plan and implement improvements on tribal lands through mentoring and partnerships with educational institutions. To help reduce the time and expense required to obtain a right-of-way across tribal lands, one tribe is developing a right-of-way policy to make the tribal approval process more timely and efficient.

Several Tribes Are Moving Towards Developing Their Own Telecommunications Systems to Address Multiple Barriers

From our interviews of officials of 26 tribes and 12 Alaska regional native non-profit organizations, we found that 22 are addressing the need to improve their telecommunications services by developing or owning part or all of their own local telecommunications network. Some of those we spoke to told us that they were doing this because their provider was unwilling to invest in improved telecommunications services, in part due to the barriers of the tribe's rural location, rugged terrain, and limited financial resources. An additional 10 tribes told us that they have considered or are considering owning part or all of their telecommunications systems.

⁵⁴ See, 25 C.F.R. § 169.3 (2005).

Four of the 6 tribes we visited are developing their own telecommunications systems to address the lack of investment by telecommunications companies. These tribes are addressing their limited financial resources to fund telecommunications improvements by one of three methods. Two of the 4 have obtained federal funds, another has reduced its use of services from the current provider to help fund its own system, and a fourth tribe has partnered with a local business also adversely affected by poor telecommunications service. Two of these tribes also told us that they have been able to provide better service and lower prices than the incumbent provider because they are more concerned about providing service than about making a profit.

Coeur d'Alene Tribe

The Coeur d'Alene Tribe in Idaho is using an RUS grant to overcome its limited financial resources and develop its own high speed wireless Internet system. Tribal officials told us that the wireline service provider for the Coeur d'Alene Tribe had not deployed the necessary equipment to offer high speed Internet access to all residents on tribal lands because deploying the equipment was not profitable. (An official of the service provider told us that high speed Internet was only available in certain areas, that there were no immediate plans to expand the service area, and that there were cost issues in expanding service to the more remote and less densely populated parts of the reservation.) The tribe applied for an RUS Community Connect Broadband grant to purchase and deploy a wireless system to provide high-speed Internet access to all residents of the tribal land. This type of grant can be used for expenditures for a wide array of infrastructure and related needs, including necessary equipment that many tribal members cannot afford. For example, the grant allows for the purchase of equipment required to connect households and businesses to the wireless system, and for the construction of a community technology center for training and Internet access. The grant is being used to fund 5 towers to ensure that the wireless system reaches all populated Coeur d'Alene lands, as well as fiber optic cable, technical staff, and operational costs. The grant will make high-speed Internet access available to all residents at the Community Technology Center, shown in figure 5, at no cost, and high-speed Internet access to homes and businesses will be available for purchase. The grant will also provide tribal members training in computer use and maintenance. Tribal officials told us that after the first 2 years of operation, they expect to earn sufficient revenue from system subscribers to fund needed maintenance and improvements.

Figure 5: Coeur d'Alene Community Technology Center (April 2005)

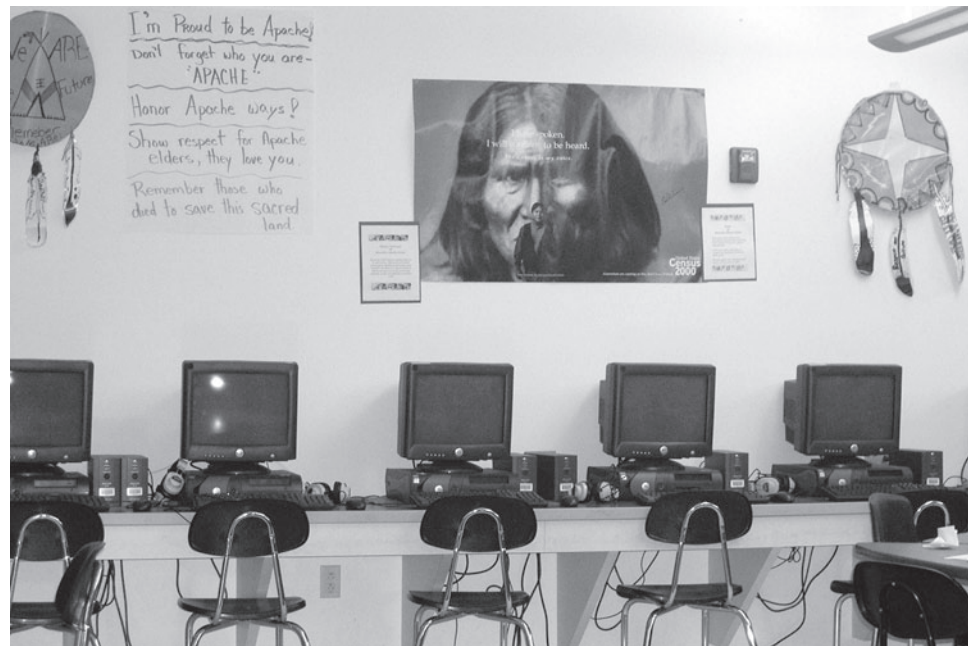


Source: GAO.

Mescalero Apache

The Mescalero Apache in New Mexico used RUS loans to overcome financial barriers and establish their own telecommunications company. The tribe also borrowed equipment from an equipment manufacturer until it was able to purchase its own. Tribal officials told us that their former service provider had not invested adequate funds in the telecommunications network on Mescalero Apache tribal lands to provide high quality voice or data services. They added that, as a result, telephone service was poor and high quality voice and data services, such as Internet access, were not widely available. The Mescalero Apache Tribal Government purchased the telecommunications network from the local telephone company that had been providing service on the tribal land. The tribe formed Mescalero Apache Telecommunications, Inc. (MATI) to develop this network and directed the company to focus on providing services to all Mescalero Apache lands and not just on maximizing profit. MATI then rebuilt the system, putting in more than 1,000 miles of fiber-optic cable and providing high-speed Internet access as well as local and long distance telephone service. According to a MATI official, telephone and high-speed Internet access, such as DSL, are now nearly universally available within reservation boundaries. MATI has deployed various high-speed Internet access services to tribal businesses and schools. Figure 6 shows the Mescalero Apache School computer lab which utilizes MATI-provided Internet connectivity.

Figure 6: Computer Lab at the Mescalero Apache School (April 2005)



Source: GAO.

Yakama Nation

The Yakama Nation in Washington established a long-range plan to overcome its financial barriers by using funds saved over the past few years through reduction of the tribal government's use of telecommunications services from its provider. The tribe is using these savings to develop its own telecommunications system to provide telephone and high-speed Internet access. The tribe is also using monies from the negotiation of utility rights-of-way. The tribal government made the decision to develop its own telecommunications company several years ago, partly in response to the increase in monthly telecommunications charges levied by the local provider, which raised the tribe's annual cost from \$275,000 to \$325,000. At that time, the tribe put together a long-range plan that required the tribe to reduce its use of the current provider's services, and use the resulting savings to develop its own system. A tribal official told us that long-range financial planning and careful budgeting have been important to the tribe's success and that infrastructure has been purchased or installed each year based on what the tribe could afford. Since 1998, the tribe has used annual savings from reduced telephone services and funds from other services to establish a telecommunications company, and then purchase related equipment. The tribe was able to purchase this fiber optic cable at 25

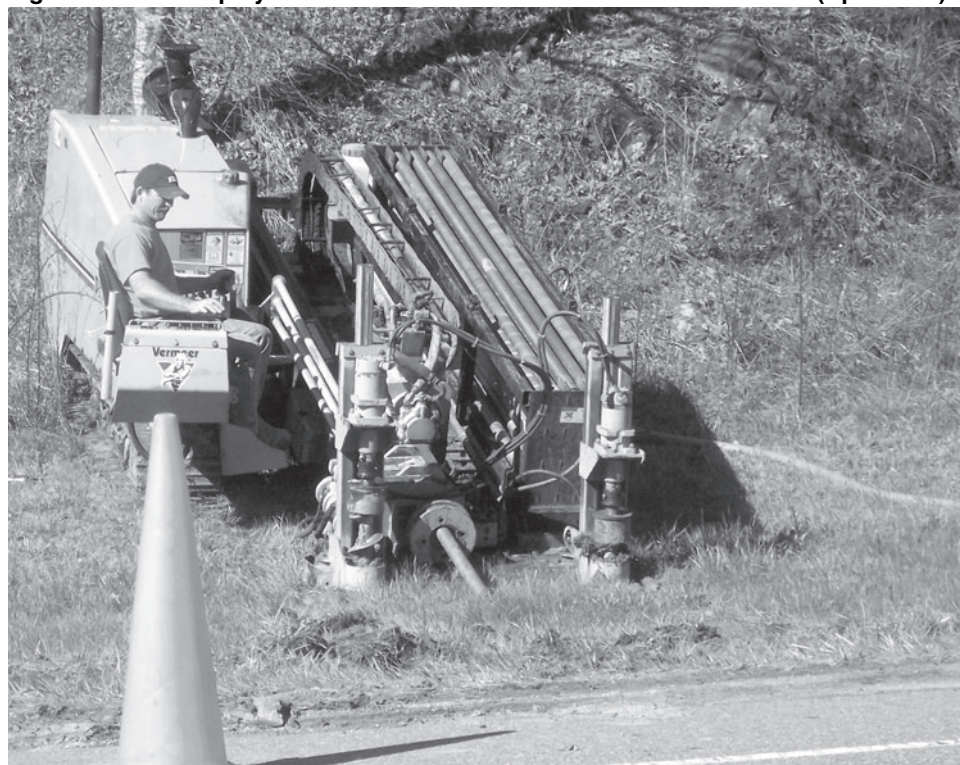
percent of its retail price and negotiated with a local contractor to install the fiber at a price far below the market rate. The tribe plans to sell the equipment necessary to connect to the new telecommunications system to tribal members and tribal businesses.

Eastern Band of Cherokee

The Eastern Band of Cherokee in North Carolina overcame financial barriers by partnering with another local business to build a fiber optic cable network throughout and beyond its tribal lands to provide high-speed Internet access and transport. The Eastern Band of Cherokee's tribal lands are located in the Smokey Mountains and are geographically isolated from major metropolitan areas that have Internet access points. As a result, it is expensive to connect infrastructure in the area to the nearest high-speed Internet access points. A tribal official told us that the tribe's service provider did not expand or upgrade the telecommunications infrastructure on tribal lands because the provider did not find the additional investment in infrastructure to be profitable. (The provider representative told us that providing DSL to most parts of the reservation would not be profitable as the land is rugged and rural, and to connect many of those who live out in remote rural areas would require an investment that would be difficult to justify.) A tribal official told us that one example of the poor service quality is an outage that occurred within the past year. All communications services were unavailable for 48 hours in 6 counties because a cut was made in the company's copper wire. Since the system has no backup provision, there was no service until the cut was repaired. The Cherokee told us their casino lost millions of dollars during the outage, and that the loss for the region as a whole was estimated at \$72 million. To improve service and offer residents on tribal lands high-speed Internet access, the tribe partnered with a local corporation that provides electronic income tax filing services, and had also suffered financial loss from the recent outage. Together, the tribe and the corporation are constructing a fiber optic cable network, both on and off tribal lands. Figure 7 shows fiber being deployed for this network. The Eastern Band of Cherokee and their partner have formed a company that will act as both a wholesaler and a retailer of telecommunications services. A company official told us that because of the cost of putting in the fiber and the low density of the service area, a private, for-profit company would never have made this level of investment. Officials of the tribe and the company told us that the tribe will use its ownership in these networks and future planned deployment of cable and wireless infrastructure to ensure that all residents of tribal lands can receive high-speed Internet, VoIP (Voice over Internet Protocol), and

other information and content applications at costs and quality levels comparable to or better than metropolitan areas.⁵⁵

Figure 7: Fiber Deployment on Eastern Band of Cherokee Reservation (April 2005)



Source: GAO.

Some Tribes Have Focused on Wireless Technologies to Address Barriers of Rural Location and Rugged Terrain and Limited Financial Resources

Several tribes we interviewed have focused their efforts on wireless technologies to help address the barriers of tribal lands' rural, rugged location and tribes' limited financial resources, with funding for these efforts coming from both public and private sources. Service providers and equipment manufacturers told us that wireless service is often less expensive to deploy across large distances than wireline service because

⁵⁵ Voice over Internet Protocol, also called VoIP, is the routing of voice conversations over the Internet or any other Internet Protocol network.

wireless infrastructure, such as a tower, is less expensive to deploy than a wireline infrastructure.

Examples of tribes focusing on wireless technologies include the following:

- Several tribes have deployed shared spectrum wireless networks to provide high-speed Internet access.⁵⁶ For example, the Southern California Tribal Chairman's Association (SCTCA), a consortium of 17 federally recognized tribes, received a grant from a private foundation to establish a wireless network, called the Tribal Digital Village Network (TDVNet), to provide high-speed Internet access to all 17 tribes. SCTCA tribes are located in Southern California in remote and hilly terrain and scattered across 150 square miles. In addition to its low cost, TDVNet utilizes shared spectrum technologies because the equipment can operate on solar power. This is particularly important in remote areas where electrical power may not be available. TDVNet staff are also developing Voice over Internet Protocol (VoIP) capabilities to provide telephone service over high-speed Internet access in those tribal communities where the deployment of wireline service is cost prohibitive. The Coeur d' Alene and the Washoe Tribe of Nevada and California are deploying similar networks.
- Service provider officials in Alaska told us that satellite telecommunications systems are the only telecommunications options to provide telephone service for many Alaska Native Villages because the vast distances from these areas to existing infrastructure make wireline systems too expensive to install.⁵⁷ A major Alaska service provider is utilizing a combined satellite and shared spectrum wireless network to extend high-speed Internet access to many Alaska Native Villages.

In addition, 2 tribes we visited addressed their need for improved telecommunications services by encouraging wireless companies to compete with wireline providers for customers on their lands. In both

⁵⁶ As previously noted, shared spectrum allows the user to utilize a particular set of radiofrequency spectrum without obtaining a license from a spectrum license holder.

⁵⁷ Some stakeholders noted that satellite service has some quality of service issues due to a high latency problem caused by the signal traveling 22,000 miles out into space to the satellite and back to Earth again. This signal delay can make the service unsuitable for certain interactive applications.

cases, the wireless companies have obtained status as an ETC and are able to obtain universal service funds, particularly the High Cost Fund and Enhanced Lifeline and Enhanced Linkup, to profitably provide service in these areas.

Oglala Sioux

The Oglala Sioux in South Dakota encouraged a wireless company to provide service in the area in order to improve services and reduce the cost of telephone service to the tribal land customers. According to tribal and wireless service provider officials, the key to developing this solution was the wireless provider's ability to use universal service funds to help subsidize the costs of its network and offer discounted telephone service to tribal land residents. To access universal service funds, the wireless provider, with consent from the tribe, applied to FCC for ETC status, which was granted in 2001, enabling the wireless provider to access universal service funds. The tribe also worked with the provider to create an expanded local calling area that included all areas of the reservation and the town of Rapid City, South Dakota. According to a tribal official, the addition of Rapid City, South Dakota, as part of the local calling area was an important cost-saving measure for the tribe because a significant number of Oglala Sioux live in the Rapid City area.

According to tribal and service provider officials, this wireless service allows tribal members to reach public safety services from nearly any location on tribal lands. A tribal official said that this is particularly important due to the tribe's large land area, remote location, and the summer and winter weather extremes in the area. The tribal official also told us that the wireless provider initially anticipated having about 300 customers on the Oglala Sioux's Pine Ridge Indian Reservation land, but had about 4,000 customers within 1 year of offering service.

Navajo Nation

The Navajo government has encouraged 2 wireless providers to offer services on Navajo lands in competition with wireline providers. The Navajo Nation encourages providers to deploy wireless telecommunications networks because providing wireline telecommunications throughout the Navajo Nation is cost prohibitive due to the tribe's large land area, which is about the size of West Virginia. Census data indicate that residents on Navajo lands in Arizona, New Mexico, and Utah are among the most economically distressed groups in the United States. Tribal officials told us that competition is the best method to lower prices and improve services. One wireless provider has been able to access universal service funds to make service more affordable. Officials from wireless companies told us that access to

universal service program funds combined with the use of less costly wireless technologies provides a viable business case for entry onto Navajo lands.

Some Tribes Are Addressing the Need for More Technically-Trained Tribal Members Through Mentoring and Partnerships

Some tribes we visited discussed ways they were developing technical expertise in telecommunications, while others spoke of the importance of the technical expertise they had, particularly in helping them plan for telecommunications improvements.

Addressing Need for More Technically-Trained Tribal Members

Tribal, industry, and government stakeholders said that training in telecommunications technologies provides tribal members with some of the necessary skills to operate the tribes' own telecommunications networks. Several tribal officials told us that having staff with the technical expertise necessary to plan and manage telecommunications improvements was critical to their efforts. However, less than half of the tribal officials we interviewed told us that their tribes have developed telecommunications plans or estimated the cost of planned improvements.

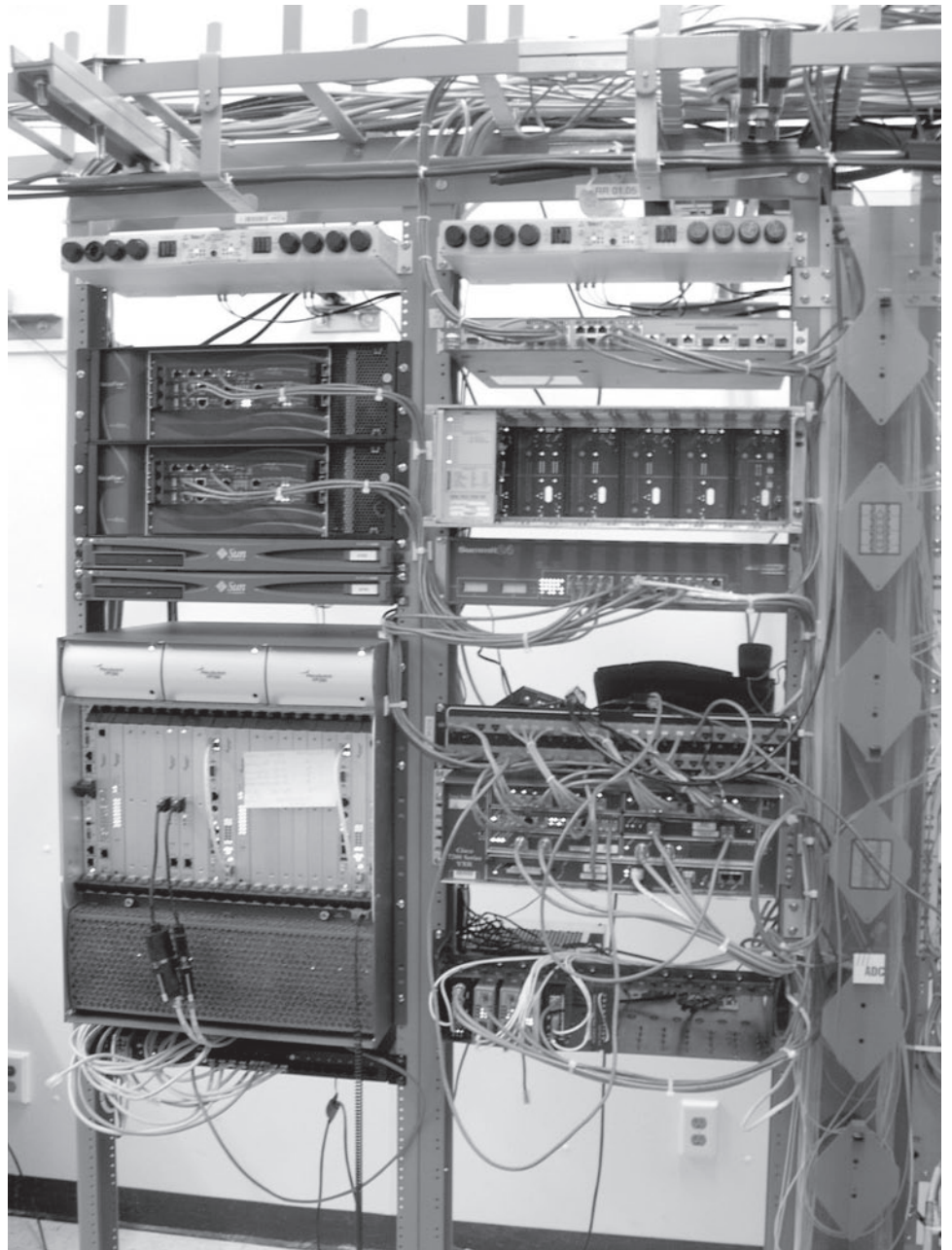
One tribe that has taken steps to get needed technical training is the Coeur d'Alene Tribe. The tribe plans to provide two colleges with access to its new high-speed Internet system in exchange for distance learning classes and technical training. Similarly, the Yakama Nation has proposed to connect a local university to its telecommunications system in exchange for technical training for its staff. A Yakama official emphasized that having trained staff to manage and maintain the telecommunications system once it is operational is very important, and the tribe determined that this kind of exchange with a local university would help provide the staff with the necessary training.

The Mescalero Apache Tribe has improved its technical capacity by hiring technically trained staff, and has created a technical mentoring program. MATI hired tribal and non-tribal members to operate its telephone company. Although about half of MATI's staff consists of non-tribal members, tribal officials expect to hire more tribal members as they receive the necessary training. Many of the employees who are not tribal members are experienced and technically proficient. MATI has created a mentoring program partnering the experienced and technically trained employees with newer employees. The goal is to create a self-sufficient tribal staff with the knowledge to understand and operate a

telecommunications network. In addition, the company offers technical consulting services to other tribes that are interested in providing their own telecommunications network.

MATI also hosts an annual telecommunications conference for tribes and municipal governments to inform them about the basics of telecommunications finance and technology. In addition, MATI has used its technical expertise to explore new ways to deploy telecommunications services. Figure 8 shows MATI's Voice over Internet Protocol service platform that it utilizes as a means to send voice conversations over the Internet.

Figure 8: MATI's Voice over Internet Protocol Equipment (April 2005)



Source: GAO.

To address the current lack of computer and Internet knowledge among its tribal members, the Coeur d'Alene Tribe plans to provide training and Internet access at the Community Technology Center as long as their budget permits. Those attending training will be assisted by the recently hired technical staff in repairing and refurbishing computers that belonged to tribal offices, and will be allowed to keep the computers for home use once the work is complete. The Yakama Nation and Eastern Band of Cherokee also plan to train tribal members in computer and Internet use at an existing tribal technology center.

Using Technical Expertise for Effective Planning

Officials of several tribes told us that having staff with technical expertise was critical to their efforts to plan their telecommunications. For example, a tribal official of the Rincon Band of Luiseno Mission Indians of the Rincon Reservation, told us that a tribal member with technical knowledge determined the need for improved Internet access and identified the appropriate technology (wireless broadband). He also identified a funding opportunity to bring high-speed Internet access to 17 Southern California tribes, most of which did not have Internet access because of geographic barriers and prohibitive infrastructure costs.

Officials of 14 of the 38 tribes and tribal organizations we interviewed told us that they have developed a technology plan. An official of the Coeur d'Alene Tribe told us that plans are important to ensure that tribes have selected technologies that are appropriate for their tribal needs and geography. All 6 of the tribes we visited are taking actions to improve their telecommunications based on plans they developed.

Most of the tribal officials we interviewed told us that their tribes do not have cost estimates for improving telecommunications. The Coeur d'Alene tribal official told us that determining the cost of new systems and making plans to pay for these improvements is important. This official added that plans should not only include information about how to finance the system, but should also describe the means to pay for training of staff so they will have the technical expertise required to maintain and manage the current or proposed system. For example, Yakama Nation and Coeur d'Alene tribal officials stated that they designed telecommunications systems that will produce revenue from customers sufficient to pay for improvements, maintenance, and technically trained staff.

One Tribe is Developing a Right-of-Way Policy to Make the Tribal Approval Process More Timely and Efficient

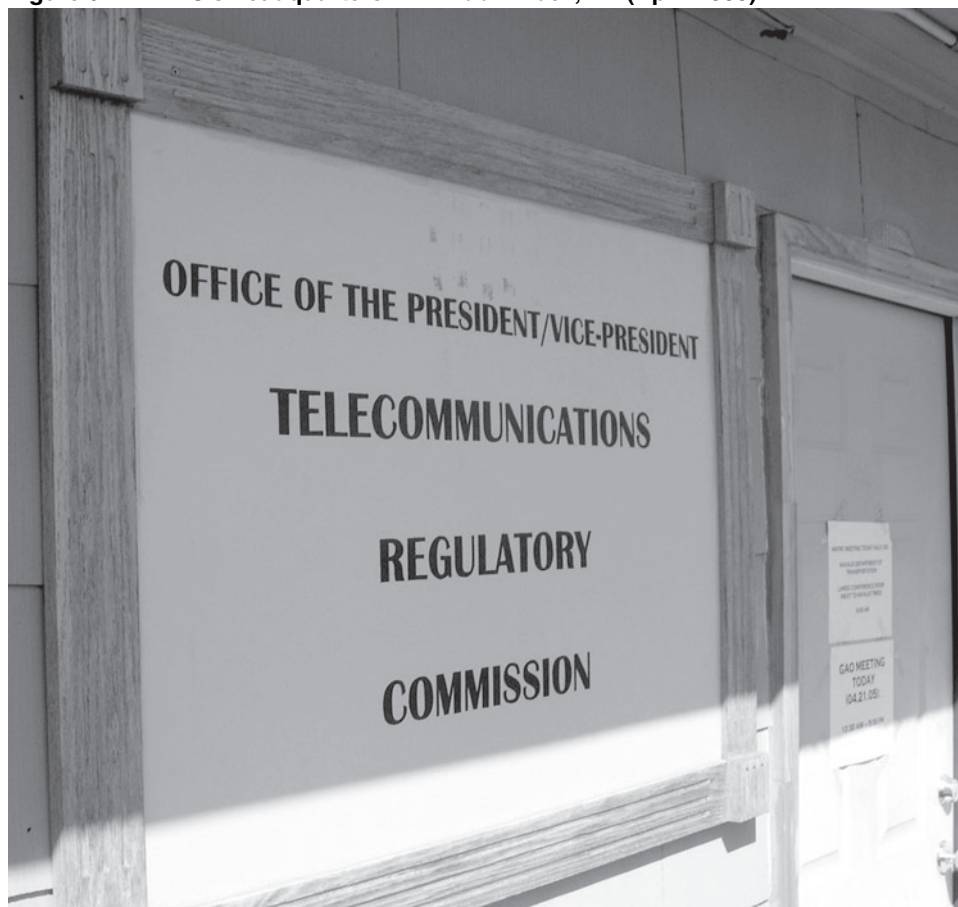
Navajo Nation officials and service providers told us that the Navajo Nation's right-of-way approval process is time consuming and expensive, which has delayed or deterred the deployment of telecommunications infrastructure on Navajo land. For example, an official from one service provider told us that this tribal approval process impedes service because the timeline for obtaining tribal council approval varies for each right-of-way application, tribal departments can differ on the goals and price of the right-of-way, and it takes extra time for these departments to reach consensus. A Navajo official agreed that their right-of-way processes can delay deployment of telecommunications infrastructure and increase its cost because timelines vary for each application. Another official told us that a major reason for this slow process is that tribal entities involved in Navajo's internal rights-of-way process have different opinions on the goals and price of telecommunications rights-of-ways. For example, some tribal officials expect high up-front rights-of-way fees based on their experiences for granting rights-of-way for natural resources like coal, which would typically produce a higher revenue stream than telecommunications.⁵⁸

To address this issue, Navajo officials are developing an approach to reduce the time and expense required to obtain tribal consent for a telecommunications right-of-way across their land. The Navajo Nation Telecommunications Regulatory Commission (NNTRC) has drafted a policy to streamline tribal consent for telecommunications rights-of-way. (Figure 9 shows the NNTRC's headquarters in Window Rock, Arizona.) One of NNTRC's functions is to decrease the barriers service providers encounter while deploying telecommunications infrastructure on the land. Through information gathering sessions between commissioners and service providers, the commission determined that the Navajo process for the approval of telecommunications rights-of-way needed to be changed because the deployment of telecommunications services was being delayed. In order for NNTRC to make changes to the Navajo right-of-way

⁵⁸ Navajo officials and service providers told us that the tribal consent process for telecommunications rights-of-way has been dictated by tribal regulations for natural resources rights-of-way. The Navajo Nation is able to charge a higher price for natural resource rights-of-way because the extraction of the resource leads to continuous and high revenue streams for the applicant. In contrast, telecommunications rights-of-way in rural areas are not likely to yield similar revenue streams. Several Navajo officials and service providers told us that Navajo's natural resource right-of-way price for a telecommunications right-of-way is cost prohibitive, because the service provider's revenue from the infrastructure will not justify the installation cost of the telecommunications equipment of high rights-of-way fees.

process, the Tribal Council first granted NNTRC full authority over telecommunications issues, such as rights-of-way for telecommunications infrastructure.

Figure 9: NNTRC's headquarters in Window Rock, AZ (April 2005)



Source: GAO.

To address the barriers service providers encounter with the Navajo right-of-way process, NNTRC drafted a policy that grants NNTRC the sole responsibility for providing tribal approval for a right-of-way. This would allow “one stop shopping” for the service providers, who would no longer have to coordinate with multiple tribal departments and offices. According to a Navajo official, this policy is currently being reviewed for approval by

several of their tribal government departments. Following this approval process, NNTRC intends to implement this policy.

In addition, NNTRC officials stated that there is a more feasible price structure for telecommunications rights-of-way that better reflects the market value of telecommunications rights-of-way. This price structure would include an upfront payment covering the market value of the land plus an additional percent of future earnings from the equipment. The officials told us that this type of arrangement would assist the service provider's business case because the provider would have to release less capital in the beginning of the project, while offering telecommunications services to Navajo residents. Once the infrastructure begins to produce a revenue stream and has a viable business case, the Navajo Nation would receive a percentage of these funds for the life of the infrastructure.

Conclusions

Under the principles of universal service, as established by Congress, FCC has recognized the need to promote telecommunications deployment and subscribership on tribal lands. Despite improvements in both deployment and subscribership of telecommunications services, as of 2000, Native Americans on tribal lands still lag significantly behind the rest of the nation. The underlying cause of this problem is difficult to determine because of a paucity of current information about both deployment and subscribership of telecommunications for Native Americans on tribal lands. Moreover, this lack of adequate data makes it difficult for FCC and Congress to assess the extent to which federal efforts designed to increase telecommunications deployment and subscribership on these lands is succeeding.

One difficulty we found relates to a statutory provision in the Communications Act which precludes some tribal libraries from benefiting from a universal service program. The current statutory provision does not allow tribal libraries to obtain E-rate funding for libraries unless the tribal library is eligible for assistance from a state library administrative agency under LSTA. In at least two cases, tribes have not applied for E-rate funds because their tribal libraries are not eligible for state LSTA funds. However, FCC has stated that it cannot modify the eligibility criteria in the statute. Clarifying this issue could help bring high-speed Internet access to more residents of tribal lands through their tribal libraries.

In reviewing how some tribes are addressing barriers to improving telecommunications services on tribal lands, we found that tribes took a variety of approaches for addressing these barriers, suggesting that

flexibility in planning and implementing telecommunications improvements on tribal lands is important. Because circumstances vary widely, we do not know the extent to which other tribes and Alaska Native Villages may be able to benefit from the experiences of these six. However, given that many tribes and Alaska Native Villages face similar barriers, policy makers working to assist tribes and Alaska Native Villages in improving telecommunications may want to consider the approaches employed by these tribes.

Matters for Congressional Consideration

Congress should consider directing FCC to determine what additional data is needed to help assess progress toward the goal of providing access to telecommunications services, including high-speed Internet, for Native Americans living on tribal lands; determine how this data should regularly be collected; and report to Congress on its findings.

To facilitate Internet access for tribal libraries, Congress should consider amending the Communications Act of 1934 to allow libraries eligible for Library Service and Technology Act funds provided by the Director of IMLS to either a state library administrative agency or to a federally recognized tribe to be eligible for funding under the E-rate program.

Agency Comments

We provided a draft of this report for comment to BIA, the Census Bureau, NTIA, FCC, General Services Administration, Institute of Museum and Library Services, and RUS. BIA provided written comments, presented in appendix IV, stating that BIA recognized the need to update its rights-of-way regulations to include advanced telecommunications infrastructure, and is working to include this in its trust related regulations. BIA stated that it will issue a Rights-of-Way Handbook in March 2006, to ensure consistent application of existing regulations. RUS and the General Services Administration responded that they had no comments. The Institute of Museum and Library Services provided written comments, found in appendix V, stating that the report accurately reflected its understanding of the relevant issues and concerns. NTIA offered technical comments, as did the Census Bureau and FCC, which we have incorporated where appropriate. In the draft report, we recommended that the Chairman of the Federal Communications Commission direct FCC staff to determine what additional data is needed to help assess progress toward the goal of providing access to telecommunications services, including high-speed Internet, to Native Americans living on tribal lands; determine

how this data should be regularly collected; and report to Congress on its findings. In oral comments responding to our recommendation, FCC agreed that additional data is needed to help assess progress toward the goal of providing access to telecommunications services, including high-speed Internet. However, FCC did not agree that it is the organization best positioned to determine the data needed in this context, noting that other federal agencies and departments possess expertise and more direct authorization to determine whether and what economic and demographic data are needed to support policy making. In view of FCC's disagreement with our recommended action, we have made it a matter for Congressional consideration. We continue to believe that FCC, as the agency responsible under the Communications Act for the goal of making available, as far as possible, telecommunications at reasonable charges to all Americans, is the appropriate agency to determine what data is needed to advance the goal of universal service and support related policy decisions—especially for Native Americans on tribal lands who continue to be disadvantaged in this regard.

As agreed with your offices, unless you publicly announce the contents of this report earlier, we plan no further distribution of it until 30 days after the date of this letter. At that time, we will send copies of this report to the appropriate congressional committees, tribal organizations and governments, Bureau of Indian Affairs, Census Bureau, Economic Development Administration, Federal Communications Commission, General Services Administration, Indian Health Service, Institute of Museum and Library Services, National Science Foundation, National Telecommunications and Information Administration, Rural Utilities Service, Universal Service Administrative Company, and the Director of the Office of Management and Budget. We will make copies available to others upon request. In addition, this report will be available at no cost on the GAO web site at <http://www.gao.gov>. If you have any questions about the report, please contact me at (202) 512-2834 or goldsteinm@gao.gov. Contact points for our Office of Congressional Relations and Public Affairs

may be found on the last page of this report. GAO staff who contributed to this report are listed in appendix VI.

A handwritten signature in black ink, appearing to read 'M. Goldstein', with a long horizontal flourish extending to the right.

Mark L. Goldstein
Director, Physical Infrastructure Issues

Scope and Methodology

The objectives of this report were to determine: 1) the status of telecommunications subscribership (telephone and Internet) for Native Americans on tribal lands in the lower 48 states and Alaska; 2) federal programs available for improving telecommunications services on tribal lands; 3) the barriers that exist to improving telecommunications on tribal lands; and 4) how some tribes have addressed these barriers.

To respond to the objectives of this report, we gathered information from a variety of sources. Specifically, we gathered information by (1) reviewing material relevant to telecommunications on tribal lands from federal, state, Native American, academic, non-profit, and private sources; (2) interviewing federal and state regulatory agency officials; (3) interviewing officials of national and regional Native American organizations; (4) interviewing officials of telecommunications provider and equipment manufacturer organizations; (5) conducting telephone interviews of tribal officials on 26 tribal lands and 12 Alaska regional native non-profit organizations; and (6) making site visits to six tribal lands.

To provide information on the status of telecommunications subscribership for Native Americans on tribal lands in Alaska and the lower 48 states, we analyzed data from the 2000 decennial census. To determine telephone subscribership, we used Census 2000 data product, American Indian and Alaska Native Summary File. This summary file includes tabulations of the population and housing data collected from a sample of the population (within most Native American and Alaska Native areas, 1 in every 2 households). In these areas, there must be at least 100 people in a specific group, including Native American and Alaska Native tribal groupings, before data will be shown. In our analysis of this 2000 Census data we did not include Native individuals or households located in Oklahoma Tribal Statistical Areas (OTSA). OTSAs are statistical entities identified and delineated by the Census in consultation with federally recognized Native American tribes in Oklahoma that do not currently have a reservation, but once had a reservation in that state. Boundaries of OTSAs are those of the former reservations in Oklahoma, except where modified by agreements with neighboring tribes for data presentation purposes. We also excluded all other tribal lands in the Census 2000 data that were not federally recognized. As a result of these exclusions and the Census reporting threshold, the data show 198 lower 48 tribal lands and 131 Alaska Native Villages for people who indicated their race, alone or in combination, as American Indian and/or Alaska Native. We assessed the reliability of the data from the Census Bureau by interviewing knowledgeable agency officials about data collection methods, particularly those pertaining to

collection of data on tribal lands, reviewing existing documentation on Census data, and conducting electronic testing of the data. We determined that the data were sufficiently reliable for the purposes of this report.

To determine the status of Internet subscribership on tribal lands, we spoke to the Census Bureau about the Current Population Survey (CPS). The CPS is a monthly survey of households conducted by the Census Bureau for the Bureau of Labor Statistics, and is designed primarily to produce national and state estimates for characteristics of the labor force. To obtain national and state estimates on Internet subscribership rates, supplemental questions on Internet and computer use have been added to the CPS questionnaire. However, the CPS sample cannot provide reliable estimates of Internet subscribership on tribal lands.

To determine the availability of federal programs that improve telecommunications on tribal lands, we interviewed agency officials from the Federal Communications Commission (FCC), the Universal Service Administrative Company (USAC), the Rural Utilities Service (RUS), the National Telecommunications and Information Administration (NTIA), the Bureau of Indian Affairs (BIA), the Economic Development Administration (EDA), the Indian Health Service (IHS), the Institute of Museum and Library Services (IMLS), the National Science Foundation (NSF) and the General Services Administration (GSA). To determine the funding amounts for these programs, we reviewed annual federal budget data and agency documents. To learn about FCC programs targeted to tribal lands, we interviewed tribal officials, FCC staff, and service providers. To learn the amount of funds disbursed and number of program subscribers for Enhanced Lifeline and Enhanced Linkup, we obtained information from the Universal Service Administrative Company. To assess the reliability of the FCC's data for the Enhanced Lifeline and Enhanced Linkup programs, we interviewed agency officials knowledgeable about the data and the systems that produced them. The FCC does not track this information by tribal lands; however, we determined that the data were sufficiently reliable to present the total amount of money disbursed by year and the total number of subscribers to these programs by year.

To assess the reliability of FCC's data on Tribal Land Bidding Credits, we interviewed agency officials knowledgeable about the data and the systems that produced them. We determined that the data were sufficiently reliable for the purposes of our report.

To learn what barriers exist to improve telecommunications services on tribal lands, we analyzed information from various federal agencies, such as the Census Bureau, FCC, the Department of Commerce, as well as reports from a private foundation, the Benton Foundation and a national tribal organization, the National Congress of American Indians. We reviewed two previous studies of telecommunications technology on tribal lands. We also reviewed testimony from hearings before the Senate Committee on Indian Affairs and the House of Representatives Committee on Financial Services and Committee on Resources. We conducted interviews with national and regional tribal organizations, major local service providers, selected wireless equipment manufacturers, and non-profit organizations that have contributed to improving telecommunications on tribal lands. Finally, we conducted interviews with officials of 26 tribes and 12 Alaska regional native nonprofit organizations.

We selected officials of tribal lands for interviews by first separating the Alaska Native Villages from the federally recognized reservations in the lower 48 states because telecommunications infrastructure in Alaska differs from that of the lower 48 due to Alaska's weather and terrain. To learn about the barriers facing Alaska Native Villages and the efforts to overcome them, we interviewed officials from 12 Alaska regional native nonprofit organizations. To learn about the barriers facing tribes in the lower 48 states, we interviewed tribal officials from a total of 26 of the more than 300 tribal lands of the lower 48 states, selected by using demographic and economic indicators from both 1990 and 2000 Census data for natives and nonnatives, as well as information from various reports, studies and testimonies on individual tribal efforts to improve telecommunications.

To select tribes in the lower 48 states to interview, we focused on the larger and more populated tribal lands in the lower 48 states, using Census data to select those tribes with populations over 100 persons and those tribal lands larger than one square mile. We also excluded tribal lands for which there was no 1990 Census data because without this data we could not identify change in telephone subscribership rates from 1990 to 2000. We then grouped the remaining tribal lands into 8 population categories, ranging in size from over 30,000 to under 500. Having postulated that the major barriers to increased telephone subscribership might be associated with poverty, geographic isolation, and lack of technical skills, we used the 1990 and 2000 Census data to determine for each of these tribal lands the percent of the population at or below the poverty level, the mileage of tribal lands from the closest population center of over 15,000, the percent of

those over 25 without a high school diploma, and the change in telephone subscribership rate from 1990 to 2000. We selected tribal lands from each of the 8 population groups with a range of scores on the above described criteria. Within the group of tribal lands that met the above criteria, we also strove to select tribal lands, where possible, from different geographic regions of the county. Using this methodology, we selected 21 tribal lands for interview. We used data from the 1990 and 2000 decennial censuses' American Indian and Alaska Native summary file.

In addition to the 21 tribal lands selected, we also selected five tribal lands that had made efforts to improve telecommunications. We learned about these tribes from our analysis of documents from FCC, a national tribal organization, scholars and nonprofit organizations, as well as from our interviews with tribes, tribal organizations, service providers and equipment manufacturers. Tribes' efforts included establishing tribally owned telecommunications companies, introducing new technologies to provide Internet access, developing programs to provide technical training for tribal members, and establishing a tribal regulatory agency to improve telecommunications, including the rights-of-way processes on tribal land.

The telephone interviews conducted with officials from these 26 tribal lands and 12 Alaska regional native nonprofit organizations covered topics such as which companies provide wireline and wireless telephone service and Internet access on tribal lands; what factors contributed to any change in telephone subscribership rates from 1990 to 2000 (as derived from Census data); any barriers tribes faced in improving telecommunications services on tribal lands; how those barriers had been addressed; tribes' experience with applying for various federal programs and with providers seeking Eligible Telecommunications Carrier status or applying for Tribal Lands Bidding Credits.

Based on our analysis of the compiled research and interviews, we determined that tribes faced barriers in one or more of the following four categories: financial, geographic, technical, or rights-of-way. From our interviews, we identified 11 tribes as potential candidates for site visits because they were confronting one or more of these four barriers, had made progress in improving telecommunications services on their lands, and as a group, represented a range of population and tribal land sizes, as well as geographic locations. We then selected 6 of these tribes for site visits, assuring that, as a group, they represented all of the identified barriers and were located in different geographic regions of the lower 48 states. In addition to interviewing tribal officials at the six sites we visited,

we also interviewed officials of some of the companies that provided telecommunications service to those sites regarding their views about the barriers to improving telecommunications services on tribal lands.

We conducted our audit work from August 2004 through December 2005 in Washington, D.C., and at the Coeur D'Alene Tribe of the Coeur D'Alene Reservation, Idaho; Confederated Tribes and Bands of the Yakama Nation, Washington; Eastern Band of Cherokee Indians of North Carolina; Oglala Sioux Tribe of the Pine Ridge Reservation, South Dakota; Mescalero Apache Tribe of the Mescalero Reservation, New Mexico; and Navajo Nation in Arizona, New Mexico, and Utah. Our work was conducted in accordance with generally accepted government auditing standards.

List of Tribes, Alaska Regional Native Nonprofit Organizations, and Other Groups Interviewed

A. Native American Tribes in the Lower 48 States	State
Blackfeet Tribe of the Blackfeet Indian Reservation of Montana	MT
Brighton Reservation of the Seminole Tribe of Florida	FL
Coeur D'Alene Tribe of the Coeur D'Alene Reservation	ID
Confederated Tribes of the Warm Springs Reservation of Oregon	OR
Confederated Tribes and Bands of the Yakama Nation	WA
Dresslerville Colony of the Washoe Tribe of Nevada and California	NV, CA
Eastern Band of Cherokee Indians of North Carolina	NC
Fort McDowell Yavapai Nation	AZ
Grand Portage Band of the Minnesota Chippewa Tribe	MN
Ho-Chunk Nation of Wisconsin	WI
Kaibab Band of Paiute Indians of the Kaibab Indian Reservation	AZ
Mescalero Apache Tribe of the Mescalero Reservation	NM
Mississippi Band of Choctaw Indians	MS
Navajo Nation	AZ, NM, UT
Northern Cheyenne Tribe of the Northern Cheyenne Indian Reservation	MT
Oglala Sioux Tribe of the Pine Ridge Reservation	SD
Paiute-Shoshone Indians of the Bishop Community of the Bishop Colony	CA
Pueblo of Picuris	NM
Pueblo of Santa Clara	NM
Quileute Tribe of the Quileute Reservation	WA
Rincon Band of Luiseno Mission Indians of the Rincon Reservation	CA
San Carlos Apache Tribe of the San Carlos Reservation	AZ
Three Affiliated Tribes of the Fort Berthold Reservation	ND
Tuscarora Nation of New York	NY
White Mountain Apache Tribe of the Fort Apache Reservation	AZ
Winnebago Tribe of Nebraska	NE, IA
B. Alaska Regional Native Non-Profit Organizations	
Aleutian Pribilof Island Association	
Association of Village Council Presidents	
Bristol Bay Native Association	
Central Council	
Chugachmuit	
Cook Inlet Tribal Council	
Copper River Native Association	
Fairbanks Native Association	

Appendix II
List of Tribes, Alaska Regional Native
Nonprofit Organizations, and Other Groups
Interviewed

(Continued From Previous Page)

Kawerak, Incorporated

Kodiak Area Native Association

Maniilaq Association

Tanana Chiefs Conference

C. Other Groups Interviewed

Affiliated Tribes of Northwest Indians

Alaska Communications Systems Group Inc.

American Indian Higher Education Consortium

American Distance Education Consortium

American Indian Library Association

BalsamWest FiberNET, LLC

Bay Area Research Wireless Network

BellSouth Corporation

Bill & Melinda Gates Foundation

California State Library

Cheyenne River Sioux Tribe Telephone Authority

Cingular Wireless, LLC

Crown Castle International, Corp.

CTIA- The Wireless Association

Dandin Group, Inc.

GCI, Inc.

Golden West Telecommunications

Intelsat, Ltd.

Iridium, LLC

Lukas, Nace, Gutierrez, & Sachs

Mescalero Apache Telecommunications, Inc.

Metaswitch

Mobile Satellite Ventures, LP

Montana State Library

Motorola, Inc.

National Congress of American Indians

National Indian Telecommunications Institute

Nations Connect of America

Native Networking Policy Center

Navajo Communications Company, Inc.

North Dakota State Library

Oklahoma Department of Libraries

Olympic Technology, Inc.

Appendix II
List of Tribes, Alaska Regional Native
Nonprofit Organizations, and Other Groups
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(Continued From Previous Page)

OnSat Network Communications, Inc.

Organization for the Promotion and Advancement of Small Telecommunications Companies

Pew Internet & American Life Project

Power Line Communications Association

Proxim Corporation

Qwest Communications International, Inc.

Regulatory Commission of Alaska

Sacred Wind Communications, Inc.

San Carlos Apache Telecommunications Utility, Inc.

SBC Communications, Inc.

Smith Bagley, Inc.

Solectek

South Dakota Public Utilities Commission

Space Data, Corp.

Sprint Corporation

Sprint PCS

TelAlaska, Inc.

Terabeam Wireless

United Utilities

United Power Line Council

Verizon Communications, Inc.

Western Wireless, LLC

Source: GAO.

Six Tribes' Efforts to Address Telecommunications Barriers

We visited six tribes—the Coeur d'Alene of Idaho, the Yakama of Washington, the Eastern Band of Cherokee of North Carolina, the Mescalero Apache of New Mexico, the Oglala Sioux of South Dakota, and the Navajo of Arizona, New Mexico, and Utah—to determine how they approached their particular barriers to improving their telecommunications services. These tribes vary in size, geography, and other characteristics. In addition, we discussed approaches to overcoming barriers with officials of other tribes, service providers, and other entities, and found that tribes use numerous approaches to overcome the barriers they face. The approaches taken by a tribe often address more than one barrier.

The Coeur d'Alene Tribe Developed a System to Provide High-Speed Internet Access for Tribal Residents Using an RUS Grant

The Coeur d'Alene, whose tribal lands cover 523 square miles in northern Idaho, used an overall strategy of developing the tribe's own system to provide high-speed Internet access for tribal members. Within this telecommunications strategy, the tribe's particular approaches included applying for and obtaining an RUS grant, negotiating for rights-of-ways, and developing technical expertise.

Background

The Coeur d'Alene's tribal lands are located about 27 miles from Coeur d'Alene, Idaho, the nearest population center of 15,000 or more inhabitants. According to the 2000 Census, 1,303 Native Americans were living on the Coeur d'Alene lands. The estimated per capita income for Native Americans on Coeur d'Alene lands was \$10,267, or less than half the national estimate of \$21,587, while the poverty level was 28 percent, 15.6 percent above the national estimate of 12.4 percent. The unemployment level was 18 percent, or 12.2 percent above the national unemployment level of 5.8 percent.

Barriers

According to tribal officials, the tribe's major barriers to improved telecommunications services included the following:

Financial: Many tribal residents are poor and a tribal official said many cannot afford high-speed Internet service. This official told us that the Coeur d'Alene face an underemployment problem, as many people are employed but are paid low wages and have little money to spend on communications services. This official also told us that in addition, the tribe itself does not have the funds to pay for telecommunications equipment and services for its residents.

Geographic: Service providers have not expanded the telecommunications infrastructure across the tribe's lands or upgraded the infrastructure to provide high-speed Internet access, partly because the large land area consisting of hilly and mountainous terrain makes expansion of the infrastructure expensive. According to a Coeur d'Alene tribal official, service providers determined that the cost of infrastructure expansion or improvement was too great to offer service to a limited number of tribal land residents, many of whom could not afford high speed Internet access.

Lack of tribal technical capacity: A tribal official told us that the tribe does not have a sufficient number of technically knowledgeable staff members to develop and maintain needed telecommunications systems.

Rights-of-way: This became an issue for the tribe after it decided to put up its own wireless system. Tribal officials told us that they could not afford to pay the prices asked by some landowners and residents within reservation boundaries for rights-of-way to locate equipment on their land.

Approaches

To obtain better telecommunications services, the tribe decided to develop its own telecommunications system that would offer high-speed Internet access to all residents. One of the tribal members who had received technical training and was knowledgeable about high-speed Internet access determined that such access was possible at affordable rates and that the tribe's large and rugged land area made a wireless system the least expensive choice. According to a tribal official, high-speed Internet access will improve access to business and educational opportunities, telemedicine services, and better enable the tribe to preserve its language and history.

Since the tribe did not have sufficient funds to develop a telecommunications system on its own, the technically trained tribal member applied for an RUS Community Connect grant. This type of grant can be used for expenditures for a wide array of infrastructure and related needs, such as household and business connection equipment as well as the construction of a community technology center. In May 2003, the tribe was awarded a \$2.8 million grant that will be used to pay for five towers, fiber optic cable, equipment to send and receive wireless signals for all tribal households and businesses, technical staff to deploy and operate the system for 3 years, operational costs, and the community technology center. As of July 2005, the system was complete and operating. The technically trained tribe member is now managing the system.

Once the tribe received the grant, it had to overcome the barriers of 1) obtaining rights-of-way in order to locate equipment and 2) developing a technically knowledgeable staff to eventually operate the planned system. Rather than paying for rights-of-way across private land, the tribe acquired the rights-of-way they needed for access roads and equipment in exchange for connections to the system. To address the current lack of technical knowledge among tribal residents, the tribe is working with two local colleges to increase its technical knowledge. The tribe is offering the college access to its new broadband system in exchange for distance learning classes and technical training. The tribe has also made plans to receive technical training from the Mescalero Apache Tribe, which owns its own system and provides training in telecommunications. In addition, to increase interest among tribal members in Internet access and computer usage, the tribal government plans to provide tribal members with training and Internet access at the tribe's community technology center for as long as its budget will allow. Those attending training will be assisted by the recently hired technical staff in repairing and refurbishing computers that belong to the tribe and are no longer needed. They will be allowed to keep the computers for home use once the work is complete.

Services are being offered for free for 2 years to the Benewah Medical Center, local libraries, fire and police departments on tribal land, as well as tribal and local public schools. The system will also make telemedicine services available so that those who are uninsured or underinsured can obtain the expertise of physicians not located on tribal lands. In addition, tribal members and non-tribal members will have high-speed Internet access at the community center at no cost. However, there will be a fee for high-speed Internet access to homes for tribal and non-tribal members living within reservation boundaries. Tribal officials told us that, after the first 2 years of operation, they expect to earn sufficient revenue from subscribers within tribal boundaries to fund needed maintenance and improvements, as well as offset the costs of operating the Community Technology Center.

Additionally, tribal officials told us that they are planning to purchase a local cable company to acquire the company's lines and the rights-of-way that the company has negotiated across land within reservation boundaries. The tribe is hoping to use revenue from the broadband Internet system to provide broadband through cable services to current and future customers. Tribal officials expect the broadband services to attract businesses and are planning to provide technical support to new businesses on tribal lands, such as writing software.

The Yakama Nation Is Developing a Wireless Telephone System and High-Speed Internet over Cable Using Financial Planning to Help Deploy Infrastructure

The Yakama Nation, whose lands encompass 2,153 square miles in south central Washington, is developing its own telecommunications system that will offer wireless telephone and high-speed Internet access to all tribal land residents. The tribe has developed a long-range plan to finance development through savings accumulated over several years, mainly by reducing the amount of services purchased from the incumbent telecommunications provider and negotiating rights-of-way for telecommunications infrastructure.

Background

The Yakama Nation's tribal lands are located about 24 miles from Yakima, Washington, the nearest population center of 15,000 or more inhabitants. According to the 2000 Census, 31,646 residents were living on Yakama tribal lands, 7,756 of them being Native Americans. Estimated per capita income for Native Americans on Yakama lands was \$8,816 or less than half the national estimate of \$21,587, while the poverty level was 31 percent, 18.6 percent above the national estimate of 12.4 percent. Unemployment levels were 23 percent, or 17.2 percent above the national unemployment level of 5.8 percent.

Barriers

According to the tribal official with whom we spoke, the tribe's major barriers to improved telecommunications services included the following:

Financial: According to the tribal official, in the past few years, the tribe's main industry, timber, has not done well, and unemployment rates and poverty have been above the national average. Many residents cannot afford telephone service and some of those who are not connected cannot afford the installation cost to become connected to the current infrastructure. The tribal official told us that many tribal members cannot afford a computer or Internet access, and the Internet access that is available is mostly low-speed dial-up service. The tribal official also said that in the past few years, the local service provider had raised its recurring monthly charges, resulting in an annual bill to the tribe of \$325,000, an increase of \$50,000 in annual costs, which was difficult for the tribal government to afford.

Geographic: While many tribal residents in the more heavily populated areas have access to telephone service, the tribal official told us that the tribe's service provider has not built additional infrastructure to reach less populated areas and has no plans to do so in the near future. In addition, the tribal member told us that the service provider had established calling zones that make calls from one part of the reservation to another long

distance. This has increased the cost of telephone service for both residents and the tribal government.

Lack of Tribal Technical Capacity: The tribal official stated that the tribe does not have a sufficient number of technically knowledgeable tribal members to develop and maintain needed telecommunications systems.

Approaches

The Yakama Nation is addressing these barriers by developing its own telecommunications system that will provide wireless telephone service and high-speed Internet access to the tribal government and the community at large. The tribal official told us that seven years ago, the tribe determined that it could improve telecommunications services by forming its own company, offering telecommunications services to tribal residents and tribal businesses as well as other homes and businesses, both on and off tribal lands. This official also said the tribe has developed a business plan to receive its license from the state of Washington to operate as a competitive local exchange carrier, allowing it to sell its services. The tribal official told us the system will improve education by providing high-speed Internet access to tribal schools and offer residents greater access to jobs and business opportunities. The tribal official also told us that although the system is not yet complete, the Yakama Tribal Government buildings are now connected to each other through a Local Area Network (LAN) and have high-speed Internet access. This level of service has reduced the fees the tribe pays to the local service provider, allowing the tribe to increase the funding available for developing its own telephone telecommunications system.

To overcome the funding barrier, the tribe put together a long-range plan that required the tribe to reduce its use of the current provider's services and then use the savings to develop its own system. Since 1998, the tribe has used annual savings from reduced telephone services and funds from other services to establish a telecommunications company and then purchase needed equipment. The technically trained tribal member who headed the planning and development of this system told us that because of the downturn in the telecommunications sector in the past few years and the long-range plans the tribe had made, the tribe was able to purchase surplus fiber at 25 percent of its retail price. In addition, the tribe was also able to negotiate with a local contractor for installation of the fiber at a price far below market rates. The tribal official told us that long-range financial planning and careful budgeting have been important to the tribe's success and that infrastructure has been purchased or installed each year based on what the tribe could afford.

The tribe is addressing its lack of technical capacity in a number of ways. The tribe has proposed to connect a local university to its telecommunications system in exchange for technical training. In addition, the tribe plans to train residents in computer and Internet use at an existing tribal technology center. The tribal official emphasized that determining how the tribe could afford the cost of trained staff to manage and maintain the system once it is operational was a very important part of their planning. The tribe determined that the system could produce revenue to pay for technically trained staff and necessary maintenance by offering wireless telephone and high-speed Internet access to areas adjacent to tribal lands.

The tribe plans to erect additional towers; offer homes and businesses the opportunity to purchase equipment to connect to the system; and connect the tribally-owned system to the public switched network.¹ The tribal official told us that several locations are available to connect to the public switched network and they will select the location that offers the tribe the best price. The tribal official estimates that the system will be complete in 1 to 2 years.

**Eastern Band of Cherokee
Partnered with Local
Business to Install, Own and
Operate
Telecommunications
Networks for High-Capacity
Transmission Services**

The Eastern Band of Cherokee, whose tribal lands cover about 82 square miles in the Smoky Mountains of western North Carolina, has improved telecommunications infrastructure and services, particularly high-capacity transmission and Internet-based services, by deploying two fiber networks – a tribally-owned fiber-optic ring within the reservation area, and a jointly-owned fiber optic network in three states. To build these networks, Eastern Band of Cherokee partnered with a local business, provided part of the funding, and is applying for a USDA RUS loan jointly with their partner company.

Background

The Eastern Band of Cherokee's tribal lands are located about 33 miles from Asheville, North Carolina, the nearest population center of 50,000 or more inhabitants. According to the 2000 Census, there were 6,132 Native Americans living on Eastern Band of Cherokee's tribal land. The estimated per capita income for Native Americans on Eastern Band of Cherokee lands was \$12,248, somewhat more than half the national estimate of

¹ A public switched network is any common carrier network that provides a connection between two or more users such that the users have exclusive and full use of the connection.

\$21,587, while the poverty level was 24 percent, 11.6 percent above the national estimate of 12.4 percent. The unemployment level was 9 percent, or 3.2 percent above the national unemployment level of 5.8 percent.

Barrier

Tribal officials told us that the major barrier to improved telecommunication services the Eastern Band of Cherokee faced was:

Geographic: Tribal lands are geographically isolated by the Smokey Mountains and there is low population density in the area. According to a tribal telecommunications company official, prices for fiber-optic transmission networks and high-speed Internet access points are many times higher than in major metropolitan areas, where such connections are plentiful and competitively priced. A major contributor to the high cost of service is the transmission of data. This official said that voice, data, and Internet traffic from this rural mountain community must be hauled long distances for aggregation and connection to the national backbones of telecommunications and Internet service providers. The carriage provided by the local telephone company is priced at rates that are distance sensitive, making them some of the highest in the state. However, according to a tribal official, despite the local provider's prices, the provider's current telecommunications infrastructure on Eastern Band of Cherokee's tribal lands is out of date and malfunctions frequently, causing interruptions in service.

Approach

To improve access to fiber-optic infrastructure and to lower the cost of transmission for Internet service providers, as well as for schools, hospitals, rural clinics, government agencies and residents on tribal lands, the tribe constructed two fiber-optic networks. The first is a network that provides access within the reservation; the second is a network that provides an interconnecting network through parts of three states and is referred to as a middle-mile network. According to one of the tribal telecommunications company officials we interviewed, the middle-mile network is a very high-capacity network that can move large amounts of information at high speeds with plenty of capacity for future growth. This official told us that to deploy this middle-mile network, the tribe partnered with a private firm, one of the largest electronic tax filers in the United States and one of the largest employers in the region after the tribe. Together, they formed a joint venture company to construct, own, and operate the network. The company official also told us that the joint

venture company leases dark fiber² and also operates as a certificated competitive local exchange carrier and interexchange carrier in three states. The networks support very high capacities for real-time, interactive applications such as three-dimensional modeling and simulation. The company also offers open access to its dark fiber on short-term and long-term leases (up to 20 years) to any requesting entity and sells its fiber and services at rates pegged to the wholesale rates being charged in large metropolitan areas.

The company official stated that system deployment began in September, 2003, with completion expected by the end of 2005 and will consist of about 257 miles of underground fiber optic cable. A tribal official told us the tribe wanted to help attract new businesses to the area as well as help existing companies modernize and expand. Of equal importance to the tribe are improvements and enhancements in government services, health care and education, and residential Internet access. A telecommunications company official told us the joint venture has already begun providing wide-area data and Internet transmission services for a four-site hospital system in the area, greatly reducing the hospital system's costs and providing throughput speeds of only 6 seconds for transmission of x-ray images between sites.

Officials of the tribe and the company told us that the tribe will use its ownership in these networks and future planned deployment of cable and wireless infrastructure to ensure that all residents of tribal lands can receive high-speed Internet, VoIP (Voice over Internet Protocol), and other information and content applications at costs and quality levels comparable to or better than metropolitan areas. The tribe is currently planning facilities and programs for computer training laboratories for tribal members to learn about computers, networks, and the Internet, and is also planning for workforce retraining programs.

**The Mescalero Apache
Purchased the Local
Telecommunications
Company and Improved
Services Using RUS Loans**

The Mescalero Apache reservation covers 719 square miles and is located in south eastern New Mexico. The Mescalero Apache addressed their telecommunications issues by purchasing the local telephone company with the help of RUS loans and developing initiatives to improve the tribe's technical capacity to provide telephone service and high-speed Internet access.

² Dark fiber refers to fiber optic cable that is in place, but not being used.

Background

According to the 2000 Census, there were 2,932 Native American residents living on Mescalero Apache land. The estimated per capita income for Native American residents was \$7,417, slightly more than one-third the national estimate of \$21,587, while the level of poverty was 37 percent, 24.6 percent above the national estimate of 12.4 percent. The unemployment level was 17 percent, 11.2 percent above the national unemployment level of 5.8 percent.

Barriers

According to tribal officials, before the Mescalero Apache purchased the local telecommunications company, the tribes' major barriers to improving telecommunications service included the following:

Geographic: The size of the reservation makes the deployment of wireline infrastructure expensive and the small number of tribal residents limits the ability of the service providers to recoup their investment. Tribal officials told us that the former local service provider was unwilling to upgrade the telecommunications network on the Mescalero Apache reservation to provide high-quality voice or data services.

Lack of Tribal Technical Capacity: In 1995, the tribal Council passed a resolution stating the tribe's intention to purchase the former telephone service provider's network. However, the tribe did not have a sufficient base of technically knowledgeable tribal members to operate the former provider's telephone network.

Approaches

To overcome these barriers, the tribal government purchased the former wireline service provider's network on the reservation. The tribal government then formed the company, Mescalero Apache Telecommunications, Inc. (MATI), to develop this network to provide higher quality telecommunications services than previously available. MATI then rebuilt the network by installing more than 1,000 route miles of fiber optic cable to provide high-speed Internet access as well as local and long distance telephone service. According to a MATI official, telephone and high-speed Internet access are now nearly universally available within the reservation and Gigabit Ethernet, which is nearly 1,000 times faster than DSL, has been deployed to the Mescalero casino. In addition, this MATI official told us that the number of residential telephone subscribers on the Mescalero Apache tribal lands has increased from 10 per cent to 97 percent since these improvements were made to the network.

To address the geographic issue, the MATI official said that the tribal government instructed MATI to focus on providing services to the

reservation rather than maximizing profit, which could limit investment in services.

Additionally, MATI utilizes various approaches to improve its technical capacity to offer higher quality services. Specifically, it developed strategic relationships and training to improve the staff's technical capabilities to operate telecommunications technologies. For example, the MATI official told us that when MATI was starting to provide service, MATI was able to borrow a switch from a manufacturer. Currently, MATI has an agreement with a VoIP equipment manufacturer to deliver voice calls over the Internet. This agreement has allowed MATI to begin to deploy this technology to customers outside the reservation over a shared spectrum wireless network. The MATI official said that this relationship has also allowed MATI to train their personnel on the use of this equipment.

The MATI official also told us that MATI created a technical mentoring program to build tribal telecommunications capacity. Although about half of MATI's staff consists of non-tribal members, tribal officials expect to hire more tribal members as they receive technical training and non-tribal members retire. Newer tribal staff are paired with experienced non-tribal staff for the purpose of learning telecommunications technologies. The MATI official said that the goal is to create a self-sufficient tribal knowledge base to understand and operate the telecommunications network. This official said that MATI's development of its technical capabilities has also allowed it to offer technical consulting services to other tribes that are interested in providing their own telecommunications network. For example, Coeur d'Alene tribal officials told us that they plan to use MATI staff to train some of their telecommunications staff and increase the tribe's technical capacity to operate a telecommunications network. The MATI official also told us that MATI hosts an annual telecommunications conference for tribes and municipal governments to inform them about the basics of telecommunications finance and technology.

**The Oglala Sioux Partnered
With a Wireless Provider to
Create Competition and
Increase Telephone
Subscribership**

Oglala Sioux lands cover approximately 3,150 square miles and are located in southwestern South Dakota. To improve telecommunications services on their tribal lands, the Oglala Sioux partnered with Western Wireless Corporation (now merged with Alltel), a wireless service provider, to offer wireless phone service on their lands in competition with the wireline provider. According to tribal and Western Wireless officials, access to the Universal Service High Cost Fund and Enhanced Link-Up and Lifeline programs allows Western Wireless to recover some infrastructure

deployment costs and offer discounted telephone service to residents of the Oglala Sioux's Pine Ridge Indian Reservation.

Background

The Oglala Sioux tribal lands are located in southwestern South Dakota, about 80 miles south of Rapid City, South Dakota, the nearest population center of 50,000 or more inhabitants. According to the 2000 Census, 14,334 Native Americans were living on these tribal lands.³ The estimated per capita income for Native Americans was \$5,624, slightly more than one-quarter the national estimate of \$21,587, while the poverty level was 55 percent, more than 40 percent above the national estimate of 12.4 percent. The unemployment level was 37 percent, or 32.2 percent above the national unemployment level of 5.8 percent.⁴

Barriers

According to tribal and industry officials, the tribe's major barriers to improved telecommunications services included the following:

Financial: According to a tribal official, tribal members have limited financial resources to purchase telecommunications services. Census data indicate that the Pine Ridge Indian Reservation is one of the most economically distressed tribal lands in the United States. Over one half the population falls below the federal poverty line while unemployment is more than six times the national estimate.

Geographic: The Pine Ridge Indian Reservation is geographically isolated and has a low population density, which according to the tribal official, has limited the number of companies interested in providing telecommunications services. According to the 2000 Census, approximately 14,000 Oglala Sioux were living on the 3,150 square mile reservation, an area about one and half times the size of Delaware. The tribal official also told us that geographic isolation of the Pine Ridge Indian Reservation also meant that it was difficult for tribal members to reach public safety services when traveling through remote areas of the reservation.

³ The tribal official with whom we spoke at Oglala Sioux told us that this number does not coincide with tribal figures, which indicate there are almost twice this number of Native Americans living on this land.

⁴ The tribal official with whom we spoke said the tribal unemployment levels were closer to 80 percent.

Approaches

To overcome these barriers, the Oglala Sioux partnered with a wireless service provider to offer wireless phone service to residents of the Pine Ridge Indian Reservation. The Oglala Sioux Tribe and the wireless provider signed a service agreement to formalize this partnership. The agreement defined the provider's responsibilities to provide wireless phone service and the tribe's responsibilities and rights to advertise the service and receive leasing fees for the wireless towers on its land.⁵

According to a tribal official and provider officials, the key to deploying wireless service on the Pine Ridge reservation was the provider's ability to access federal universal service funds to subsidize its network costs (High Cost fund) and offer discounted telephone service (Enhanced Link-Up and Lifeline). In order to access these funds, the provider, with consent from the Oglala Sioux Tribe, applied for and received an eligible telecommunications carrier (ETC) designation from FCC in 2001. This enabled the provider to access High Cost funds as well as the Enhanced Link-Up and Lifeline programs, which lower the costs of telephone service for low-income customers.

The provider deployed several towers in diverse areas of the reservation to provide wide-spread coverage. The tribe also worked with the provider to create an expanded local calling area for its customers that included all areas of the reservation as well as Rapid City, South Dakota. According to a tribal official, the addition of Rapid City as part of the local calling area was an important cost-saving measure for the tribe because a significant number of Oglala Sioux live in the Rapid City area.

A tribal official told us that wireless telephone service has improved public safety and the general quality of telecommunications service on the Pine Ridge reservation. According to tribal and provider officials, tribal members can reach public safety services, such as 911, from nearly any location on the reservation. According to a tribal official, this is particularly important due to the summer and winter temperature extremes on the reservation. The wireline service provider officials also noted that the wireless provider's presence as a competitor has helped to sharpen their focus on providing high-quality services. A tribal official told us that the wireless provider initially anticipated having about 300 customers on

⁵ The agreement outlined additional items for each party such as revenue sharing between Western Wireless and the Oglala Sioux for monies generated from the service.

Oglala Sioux tribal lands, but had about 4,000 customers within 1 year of offering service.

The Navajo Nation is Addressing Telecommunications Barriers by Streamlining Tribal Government Processes, Encouraging Competition, and Emphasizing Wireless Technologies

The Navajo Nation is the largest federally recognized tribe and tribal land in the United States. According to the 2000 Census, the Navajo Nation covers over 24,000 square miles, an area roughly the size of West Virginia, and extends into the states of Arizona, New Mexico and Utah.⁶ To improve telecommunications on their lands, the Navajo are streamlining the tribal rights-of-way process to aid service providers; encouraging competition in order to improve prices and service quality; and emphasizing wireless technologies better suited to the geography of the tribal land.

Background

The Navajo Nation's tribal lands are not located near any major metropolitan area. According to the 2000 Census, 176,256 Native Americans were living on Navajo tribal lands. The estimated per capita income for Native Americans on Navajo lands was \$6,801, less than one-third the national estimate of \$21,587, while the poverty level was 44 percent, 31.6 percent above the national estimate of 12.4 percent. The unemployment level was 26 percent, or 21.2 percent above the national unemployment level of 5.8 percent.

Several telecommunications providers, both wireline and wireless, serve the Navajo Nation; however, not all areas within the reservation have access to voice or data service. Two providers provide high-speed Internet connectivity on parts of the reservation. One of them offers DSL to households at various places on the reservation. However, an official from this company noted that DSL works best if deployed within 15,000 feet of the central office, while many residents live beyond the 15,000-foot limit. The other provider offers high-speed Internet connections through satellite at 110 Navajo Nation chapter houses. However, one tribal official told us that the tribal chapter house connections are not financially sustainable in the long term. All three states (Arizona, New Mexico, and Utah) granted a library designation to the 110 chapter houses, and all chapter houses were approved by USAC for library E-rate funds. This official also stated that the

⁶ According to Navajo officials, based on a tribal estimate, the Navajo Nation covers about 27,000 square miles.

tribe uses E-rate funds to pay for about 85 percent of the annual \$3 million cost for satellite connectivity. However, the official told us that the tribe must pay the remaining 15 percent of the cost, or about \$450,000, and that Navajo officials consider this amount to be a high cost.

Barriers

According to tribal officials, the tribe's major barriers to improving telecommunications services include the following:

Geographic: Geographic isolation has increased the cost of providing service on Navajo lands and limited the number of companies interested in providing telecommunications services. The distances needed to connect communities and homes with copper wires or fiber optic cable make wireline telecommunications systems expensive. For example, the tribe estimated in 1999 that it cost about \$5,000 to connect a new wireline subscriber. The installation of wireless infrastructure is also expensive due to the vast network of towers and power access needed to relay signals around the rugged landscape. Service providers have told us the cost of deploying telecommunications infrastructure on Navajo lands impedes the provision of services.

Rights-of-way: According to tribal officials, several factors combine to make obtaining rights-of-way across Navajo trust lands difficult, and serve as deterrents to extending and improving the tribe's telecommunications infrastructure. Both service provider and tribal officials told us that the tribal government's process for approving rights-of-way across trust lands is time-consuming and expensive. In addition, tribal officials told us that obtaining approval of rights-of-way from BIA across Indian allotments within tribal boundaries can also be very time-consuming and expensive because ownership of these lands has been divided among a large number of heirs, and at least 51 percent of the heirs must approve any change in the status of the land. In some cases, the location of many of these heirs is unknown.

Approaches

To address these barriers and improve telecommunications services on the reservation, tribal leaders formed the Navajo Nation Telecommunications Regulatory Commission (NNTRC). The Navajo Nation requires service providers to supply the NNTRC with information about their intended service areas, service offerings, and network buildout plans. This information allows the NNTRC to review providers' plans for providing services and then holds them accountable for fulfilling those plans. The NNTRC encourages providers to attend hearings to comment on the barriers they encounter to providing telecommunications services. As a

result, the NNTRC works with the service providers to reduce or remove barriers.

The NNTRC is addressing geographic barriers by encouraging providers to deploy wireless telecommunications systems that are more appropriate for the Nation's large geographic area. NNTRC is also addressing the cost of services on the Navajo Nation by encouraging multiple providers to offer services, thus creating competition. NNTRC officials told us that competition is the best method to lower prices and improve services. Currently, NNTRC works with wireless companies to encourage them to extend their service throughout the Navajo Nation. Officials from wireless companies serving and seeking to serve the Navajo Nation told us that access to universal service program funds combined with their use of less costly wireless technologies provides a viable business case for their entry onto Navajo lands.

Tribal officials told us that the NNTRC drafted a rights-of-way policy that includes new procedures to make the tribe's process for approving rights-of-way more efficient and timely for service providers. According to a Navajo official, this policy is currently being reviewed for approval by several of their tribal government departments. Following this approval process, NNTRC intends to implement this policy.

Comments from the Department of the Interior, Bureau of Indian Affairs



United States Department of the Interior

OFFICE OF THE SECRETARY
Washington, DC 20240



DEC 21 2005

Mr. Mark L. Goldstein
Director, Physical Infrastructure Issues
United States Government Accountability Office
441 G. Street, NW
Washington, DC 20548

Dear Mr. Goldstein

The Department of the Interior appreciates the opportunity to provide comments on the Government Accountability Office draft report entitled *Telecommunications: Challenges to Assessing and Improving Telecommunications for Native Americans on Tribal Lands* (Report No. GAO-06-189).

As noted in the report, the Department of the Interior, Bureau of Indian Affairs (BIA) grants or approves actions affecting title, including rights-of-way, on Indian lands. The BIA recognizes the need to update its rights-of-way regulations to include advanced telecommunications infrastructure. The BIA is presently working to include this in its trust related regulations. In order to ensure consistent application of existing regulations, the BIA has developed a Rights-of-Way Handbook, which will be issued in March 2006.

If you require additional information, please contact Mr. Arch Wells, Director, Office of Trust Services, Bureau of Indian Affairs, at (202) 208-5831.

Sincerely,

Associate Deputy Secretary

Comments from the Institute of Museum and Library Services



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Creating a Nation of Learners

December 2, 2005

Mark L. Goldstein
Director, Physical Infrastructure Issues
United States Government Accountability Office
Washington, DC 20548

Re: GAO-06-189 (draft)

Dear Mr. Goldstein:

Thank you for providing the Institute of Museum and Library Services with a copy of GAO's draft report entitled, "Telecommunications: Challenges to Assessing and Improving Telecommunications for Native Americans on Tribal Lands." We appreciated having an opportunity to review the draft and to provide you with our comments.

On behalf of IMLS, I wanted to let you know that we have reviewed the draft and believe it accurately reflects our understanding of the relevant issues and concerns. We appreciate the efforts taken by GAO's staff to understand and provide recommendations on the matters raised in this report.

If you have any questions, please do not hesitate to contact me. I can be reached at 202-653-4640.

Sincerely yours,

Nancy E. Weiss
General Counsel

cc: Mary L. Chute, Acting Director, IMLS
Mamie Bittner, Director of Public and Legislative Affairs, IMLS

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GAO Contact and Staff Acknowledgments

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