



# **LANDS OF OPPORTUNITY: Bringing Telecommunications Services to Rural Communities**

*Federal Communications Commission  
A Consumer & Governmental Affairs Bureau Publication  
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This publication is intended to serve as a resource tool for local, state, and tribal government leaders, community planners, educators and health care professionals on:

- Programs and incentives available to assist in the development of telecommunications services;
- How to develop infrastructure or basic and advanced telecommunications services; and
- The potential of advanced telecommunications to serve as a springboard for economic growth in rural communities.

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# LANDS OF OPPORTUNITY: Building Rural Connectivity

## INTRODUCTION

The Federal Communications Commission (FCC) is an independent United States government agency directly responsible to Congress, established by the Communications Act of 1934. The agency regulates interstate and international radio, television, wire, satellite and cable communications. The FCC's jurisdiction covers the 50 states, the District of Columbia and U.S. territories.

The core mission of the FCC, as established by Congress, is to make available, to the greatest extent possible, to all the people of the United States, without discrimination on the basis of race, color, religion, national origin, or sex, nation-wide and world-wide quality communications services at reasonable charges and to promote safety of life and property through the use of communications services.

Through its bureaus and offices, the FCC:

- Educates and informs consumers about telecommunications goods and services and engages their input to help guide the work of the Commission;
- Enforces the Communications Act, as well as the Commission's rules, orders and authorizations;
- Represents the Commission in satellite and international matters;
- Regulates AM, FM radio and television broadcast stations;
- Oversees wireless services and regulates the use of radio spectrum to fulfill the communications needs of individuals, businesses, governments, public safety service providers, aircraft and ship operators; and,
- Develops rules and policies concerning telephone companies that provide interstate, and under certain circumstances intrastate, telecommunications services to the public through the use of wire-based transmission facilities.

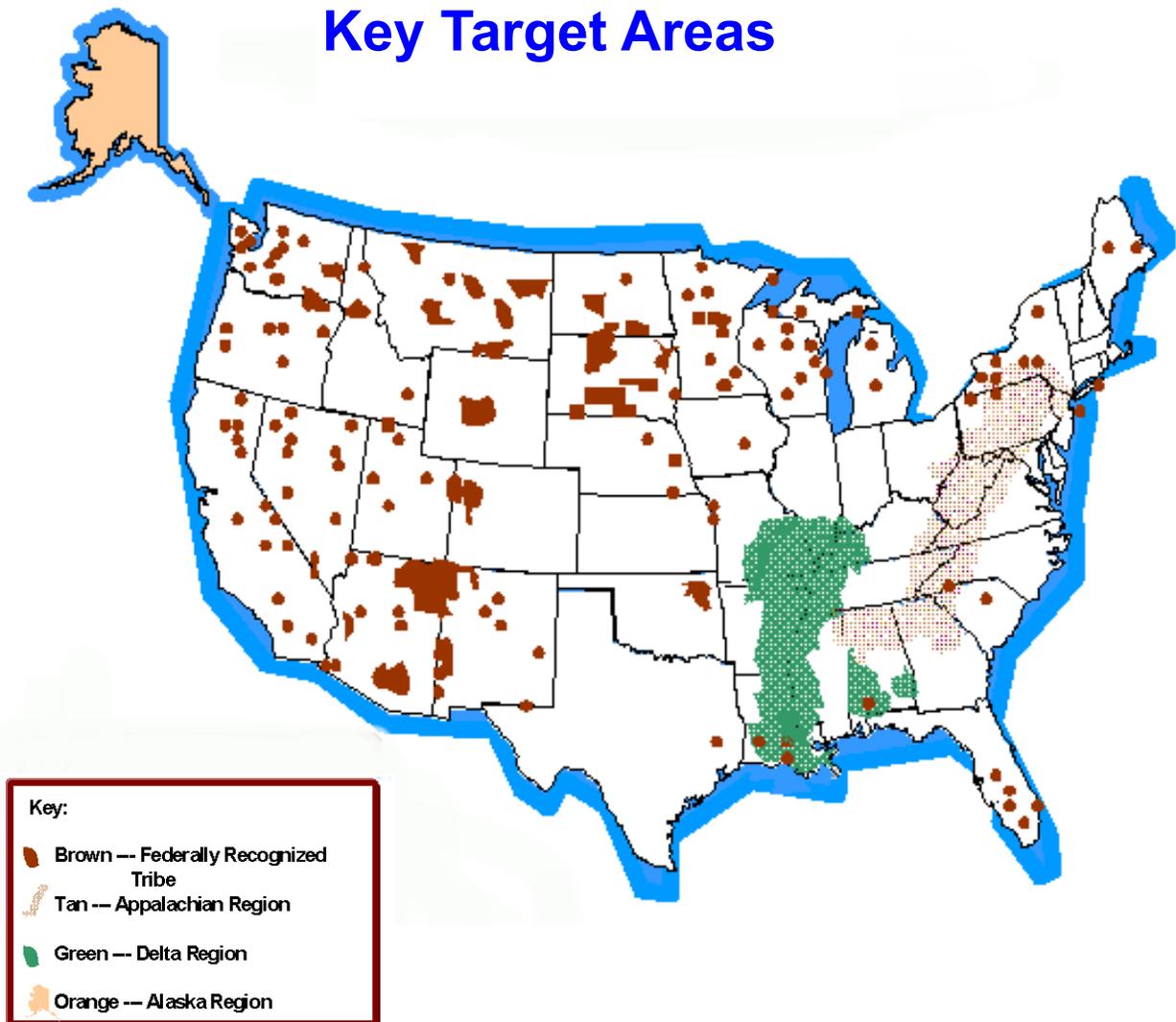


## THE FCC'S "LANDS OF OPPORTUNITY: BUILDING RURAL CONNECTIVITY OUTREACH PROGRAM"

The FCC's "Lands of Opportunity: Building Rural Connectivity Outreach Program," under the leadership of FCC Chairman Michael K. Powell, was created to help educate rural communities about the benefits afforded by basic and advanced telecommunications services and how these services can foster distance learning, e-commerce, e-government, telemedicine, and overall economic development. Through this outreach program, the FCC seeks to further its goal of helping rural America reap the benefits that telecommunications services offer.

Recognizing the scale of the goal of reaching all rural communities, the FCC targeted three key regions where the needs are particularly acute: the Appalachian Region; the Delta Region; and Alaska Native Villages. In addition, the FCC continues its ongoing outreach efforts in Indian Country.

### Key Target Areas



## TELECOMMUNICATIONS TECHNOLOGY CHOICES

In choosing the telecommunications service that is right for a rural community, four general types of services are available. Cost, availability and regulatory treatment are primary factors that may impact your community's technology choice, as well as geography and terrain.

- **Wireline:** The traditional telephone system is a wireline system. Voice and data are transmitted using a transmission medium such as copper wire, coaxial or fiber optic cable. The type of transmission medium determines how much information and what kinds of service can be provided. Systems consist of telephones, wire connections and switching devices.
- **Wireless:** Land-based wireless technology transmits voice and data using radio waves, or electromagnetic spectrum. Wireless networks may transmit to a receiver that is mobile, such as a cell phone, or to a stationary receiver, such as an antenna at an office. In addition to wireless transmitters, receivers, and repeaters, a mobile wireless system may include switching centers, and interconnection to the public switched telephone network.
- **Satellite:** A satellite is a radio relay station that orbits the earth or that is positioned in space over a fixed point on the earth. Satellites are used to transmit services such as telephone, television, and data signals originated by common carriers, broadcasters and distributors of cable TV programming. A typical system used for voice transmission may consist of mobile subscriber transceivers or telephones, satellites that interconnect with the transceivers and gateway ground stations that manage the network and interconnect with other networks.
- **Cable:** Cable technology is used to distribute TV signals, either through coaxial, optical fiber cable, or through satellite delivery. Cable operators may use their own poles, microwave links, place their cables underground, or use transmission facilities or rights-of-way owned or controlled by a utility service or municipality. Some cable systems offer a full range of telecommunications services, including high-speed Internet access and data services.

## KEY CONSIDERATIONS IN TECHNOLOGY CHOICES

The FCC recognizes that the challenges associated with gaining access to telecommunications service are unique to every community. Different communities are in different stages of economic development, particularly where telecommunications access is concerned, and each community may face its own particular impediments to telecommunications deployment. As a result, choosing the telecommunications system best suited for a particular community may vary depending on regulatory, geographic and market considerations. These three key considerations — regulatory, geography and cost — are discussed below.

- **Regulatory:** The regulatory scheme that applies to a particular telecommunications service differs depending on the technology involved. For example, in general, the FCC has jurisdiction over long distance, wireless and satellite services, while state governments have jurisdiction over wireline local telephone service. The FCC and local franchising authorities are responsible for enforcing a variety of cable television regulations. A franchising authority is the municipal, county or other government organization that regulates certain aspects of the cable television industry at the state or local level.

In addition to telecommunications-related regulations, other federal, state, local and tribal laws may apply. For example, applicable federal, state, and tribal environmental and historic preservation laws and regulations must be followed before, during and after constructing telecommunications facilities, including wireless transmission towers. Consultation with federally-recognized Indian Tribes is key when placing telecommunications infrastructure in remote, historic, ecologically threatened areas because the construction may impact environmental or preservation interests. Compliance with federal property laws and policies regarding tribal trust and individually-held trust and restricted lands, such as the federal process of obtaining a right-of-way, is a prerequisite to such actions taken in Indian Country. Compliance with appropriate laws and regulations which may have been issued by a tribal government also must be met before telecommunications-related construction and services are provided on tribal land.

- **Geography:** Geography can be a significant consideration. For example, wireless services may work better in certain environments, such as where there are adequate transmission towers and fewer transmission obstructions. Satellite systems work well in geographically isolated areas where impassable terrain may make service via wireless or wireline economically challenging.
- **Cost:** Cost is a key factor. Wireline service may be a cost prohibitive alternative when there are geographic challenges, limited infrastructure, and minimal economic resources. Wireless service may provide a viable alternative for those who reside in very remote areas and cannot afford the cost of expensive line extensions. Satellite technology represents a potentially cost-effective means to serve communities with low penetration rates, especially those in remote areas. Satellites have large coverage areas and, in many cases, can reach an entire region, thereby spreading the costs of deployment across a number of communities.

## **BASIC AND ADVANCED TELECOMMUNICATIONS SERVICES**

Discussions about telecommunications issues often differentiate between basic and advanced services. “**Basic telecommunications services**” generally refers to “plain old telephone service” (POTS) – service supplying standard residential telephone service to individual consumers, without any added features. “**Advanced telecommunication services**,” however, generally refers to services such as broadband services provided by digital subscriber line (DSL), cable modem, wireless access, satellite access, fiber to the home (FTTH) and broadband over power lines (BPL) technologies. For more information about broadband visit: <http://www.fcc.gov/cgb/broadband.html> and <http://www.fcc.gov/cgb/consumerfacts/highspeedinternet.html>. For information about BPL, go to <http://wireless.fcc.gov/spectrum/proceedingdetails.htm?proid=367>.

Broadband has many beneficial applications in education, the provision of telemedicine, emergency services, and in promoting e-commerce and economic development generally.

In addition, Voice over Internet Protocol (VoIP), an emerging technology that allows you to make telephone calls using a broadband Internet connection instead of a regular (or analog) phone line, may be a useful telecommunications alternative in many rural areas. For more information about VoIP see the FCC website, [www.fcc.gov/voip](http://www.fcc.gov/voip). Some VoIP services only work using special VoIP phone, while other services allow you to use a traditional phone through an adaptor.

The FCC and other federal agencies have numerous programs available to assist rural communities in developing and obtaining both basic and advanced telecommunications services.

## **UNIVERSAL SERVICE PROGRAMS**

The concept of “universal service” – which originated in the 1920s – is that all Americans should have access to telephone service at rates they can afford. The FCC has long worked to promote this goal. In 1996, with the passage of new telephone laws, Congress mandated the goals of universal service and required the FCC to:

- Promote the availability of quality services at just, reasonable, and affordable rates;
- Increase access to advanced telecommunications services throughout the Nation; and
- Advance the availability of such services to all consumers, including those in low income, rural, insular and high cost areas at rates that are reasonably comparable to those charged in urban areas.

Congress has expanded the concept of universal service to include all schools, classrooms, health care providers, and libraries. In addition, providers of telecommunications services are required to support universal service programs in some fair and non-discriminatory manner.

The FCC's federal Universal Service Fund (USF) supports four principal universal service programs. The Universal Service Administrative Company (USAC) was created to administer the USF programs. These programs are:

### **Low-Income Program**

The Low-Income Program provides discounts on telephone installation and monthly telephone service to qualifying consumers. Specifically, two programs are available to qualified low-income consumers:

**The Lifeline Assistance Program** provides certain discounts on monthly service for qualified telephone subscribers. As of August 2004, the federal discount is up to \$10.00 per month, depending on the actions of authorities in your state and is in addition to whatever discount your state might provide. This discount may change periodically. For information on current discounts, see [www.lifelinesupport.org](http://www.lifelinesupport.org).

**Link-Up America** helps qualified low-income consumers to connect, or hook up, to the telephone network. This federal program offsets one-half of the initial hook-up fee, up to \$30.00, for qualified households. The program also includes a plan to encourage local telephone companies to offer low-income telephone subscribers a deferred payment schedule for these charges.

Qualifications for participating in the Low-Income Program vary by state. States that have their own State Lifeline Program have their own criteria. In states that rely solely on the Federal Low-Income Program, the named subscriber must participate in one of the following programs: Medicaid, food stamps, Supplemental Security Income (SSI), federal public housing assistance (Section 8), Low-Income Home Energy Assistance Program (LIHEAP), the Temporary Assistance to Needy Families program (TANF) and the National School Lunch's free lunch program (NSL). Consumers are also eligible to participate if their income is at or below 135% of the Federal Poverty Guidelines.

Residents of American Indian and Alaska Native tribal communities may qualify for enhanced Lifeline support (up to an additional \$25.00 in support beyond current levels) and expanded Link-Up support (up to \$70.00 in additional support beyond current levels). Eligible consumers should contact their local telephone company or state regulatory agency for information about these programs and to determine whether or not they qualify for discounts under the Low-Income Program.

The telephone number for state regulatory agencies can be found on the Web site of the National Association of Regulatory Utility Commissioners:

[www.naruc.org/displaycommon.cfm?an=15](http://www.naruc.org/displaycommon.cfm?an=15).

### **Schools and Libraries**

The Schools and Libraries Program, also called the E-Rate Program, makes technology, such as telephone service and the Internet, affordable for schools and libraries in America. Eligible schools and libraries receive discounts on telephone service, Internet access, and internal connections (i.e., network wiring) within school and library buildings. The discounts range from 20% to 90%, depending on the household income level of students in the community and whether or not the school or library is located in an urban or rural area.

To receive these discounts, schools and libraries must develop a technology plan that is approved by USAC and demonstrates the relationship between the information technology to be supported and the school's curriculum or library objectives. The school or library then provides notice that it seeks services.

Vendors bid for the contract with the school or library. After the school or library selects a vendor, it must file an application with USAC for approval of its request for discounted service. For more information visit: [www.sl.universalservice.org](http://www.sl.universalservice.org).

### **Rural Health Care Program**

The FCC encourages the growth of telehealth in rural areas by making telecommunications rates for public and non-profit rural health care providers nearly the same as those paid in urban areas. The Universal Service Fund makes advanced telecommunications services affordable for rural health care providers.

Under the Rural Health Care Program, public and non-profit health care providers in rural areas can receive discounts on monthly telecommunications charges, installation charges, and long distance Internet connection charges.

Rural health care providers use funds from this program for a variety of patient services, such as transmitting x-rays from remote areas to be read by health care professionals and experts in urban areas.

For example, through Rural Health Care Program funding, satellite technologies are being used to connect health clinics in remote communities in Alaska with centrally-located specialists that are able to diagnose medical problems and devise treatment regimens to be implemented by clinic personnel. Alaska's first live surgery "by means of videoconferencing" saved the life of a woman who required immediate medical intervention and could not be MedeVaced to Anchorage because of weather conditions.

To receive discounts, the rural health care provider must submit a form requesting services to USAC. USAC will post the form on its Web site, seeking carriers to provide the requested services. After the rural health care provider selects a telecommunications carrier, services may be ordered. Using Universal Service funds, the carrier provides the telecommunications services to the rural health care provider at discounted prices.

### **High Cost Support Program**

The High Cost Support Program ensures that consumers in all regions of the nation have access to and pay rates for telecommunications services that are reasonably comparable to those services provided and rates paid in urban areas.

These programs ensure that carriers in high cost rural areas have access to basic and advanced telecommunications services, opportunities and financial support. A rural carrier is one that serves a relatively small number of lines or a relatively small area.

Participants in any of the components of the High Cost support mechanism must be an eligible telecommunications carrier, or ETC. States have primary responsibility for designating carriers as ETCs; however, under certain circumstances, the FCC may have jurisdiction. Carriers should contact the appropriate state public utilities commission to determine how to initiate the ETC designation process. Contact information for state public utility commissions can be found on the Web site of the National Association of Regulatory Utility Commissioners at [www.naruc.org/displaycommon.cfm?an=15](http://www.naruc.org/displaycommon.cfm?an=15).

For more information about these Universal Service Programs, visit the FCC's Web site at [http://www.fcc.gov/wcb/universal\\_service/welcome.html](http://www.fcc.gov/wcb/universal_service/welcome.html). The Universal Service Administrative Company also provides detailed information about the four programs at <http://www.universalservice.org/default.asp>.

## OTHER FEDERAL RESOURCES

In addition to the Universal Service Programs, other federal agencies have initiatives designed specifically to offer discounts and other incentives for rural communities to develop telecommunications infrastructure and services. Some of these programs, which may have limited application windows each year, are described below:

### Distance Learning and Telemedicine Loans and Grants

**Department:** U.S. Department of Agriculture, Rural Utilities Service

**Objectives:** To encourage and improve the use of telemedicine, telecommunications, computer networks, and related advanced technologies to provide educational and medical benefits through distance learning and telemedicine projects to people living in rural areas and to improve rural opportunities.

**Assistance Type:** Project Grants; Direct Loans.

**Use:** Telecommunications, computer networks and related advanced technologies that provide educational and/or medical benefits to students, teachers, medical professionals and rural residents. Grants are limited up to 70 percent of the eligible costs of a project. Cost of money loans may be provided up to 100 percent of the eligible costs. Eligible costs depend on the type of financial assistance being requested; i.e., grant or loan.

**Applicants:** Organizations such as schools, libraries, hospitals, medical centers, or other eligible organizations that will be users of a telecommunications, computer network, or related advanced technology system to provide educational and/or medical benefits to rural residents.

**Contact Information:** Assistant Administrator, Telecommunications, Rural Utilities Service, Room 4056, South Building, U.S. Department of Agriculture, 1400 Independence Avenue, SW., Washington, DC 20250-1500. Telephone: (202) 720-9554.

Web site: <http://www.rurdev.usda.gov>.

### Community Connect Program (Broadband)

**Department:** U.S. Department of Agriculture, Rural Utilities Service

**Objectives:** To promote broadband service in extremely rural, lower-income American communities where it currently does not exist, and to promote “community-oriented connectivity” that would stimulate economic development and enhance educational and health care opportunities.

**Applicants:** Legally incorporated organizations, Indian tribes and tribal organizations, state and local government agencies, cooperatives, private corporations and limited liability companies, organized on a for-profit or non-profit basis. Eligible applicants must have the authority to own and operate broadband facilities and enter into contracts.

**Assistance Type:** Project Grants.

**Use:** Grants must be used to deploy basic broadband transmission service, free of charge, to critical community facilities within the proposed service area, and offer broadband service to residential and business customers. As a condition for funding, grantees must construct, acquire, expand or operate a community center that provides free access to broadband transmission services for at least two years. Grantees must also provide matching contributions in the amount of 15% of the grant amount. Matching contributions may be in the form of cash, in-kind services and specified costs and expenses.

**Contact information:** Assistant Administrator, Rural Utilities Service, STOP 1590, 1400 Independence Ave., SW, Washington, DC 20250-1590.

Telephone: (202) 720-9554.

Web site: <http://www.usda.gov/rus/telecom/commconnect.htm>.

## Rural Business Enterprise Grants

**Department:** U.S., Department of Agriculture, Rural Business-Cooperative Service

**Objectives:** To facilitate the development of small and emerging private business, industry, and related employment for improving the economy in rural communities.

**Assistance Type:** Project Grants.

**Use:** Rural Business Enterprise Grant (RBEG) funds may be used to create, expand or operate rural distance learning networks or programs that provide educational or job training instruction related to potential employment or job advancement to adult students; develop, construct or acquisition land, buildings, plants, equipment, access streets and roads, parking areas, utility extensions, necessary water supply and waste disposal facilities; refinancing; services and fees; and to establish a revolving loan fund. Television Demonstration Grant (TDG) funds may be used for television programming to demonstrate the effectiveness of providing information on agriculture and other issues of importance to farmers and other rural residents.

**Applicants:** Applicants eligible for RBEG grants are public bodies and nonprofit corporations serving rural areas such as States, counties, cities, townships, and incorporated towns and villages, boroughs, authorities, districts and Indian tribes on Federal and State reservations which will serve rural areas. Applicants eligible for TDG grants are statewide, private, nonprofit, public television systems whose coverage is predominantly rural.

**Contact Information:** Director, Specialty Lenders Division, Rural Business-Cooperative Service, Department of Agriculture, Washington, DC 20250-3222. Telephone: (202) 720-1400.

Web site: <http://www.rurdev.usda.gov>.

## Public Telecommunications Facilities, Planning and Construction

**Department:** U.S. Department of Commerce, National Telecommunications and Information Administration (NTIA)

**Objectives:** To assist in the planning, acquisition, installation and modernization of public telecommunications facilities, through planning grants and matching construction grants, in order to: a) extend delivery of public telecommunications services to as many citizens of the United States and territories as possible by the most efficient and economical means, including the use of broadcast and non-broadcast technologies; b) increase public telecommunications services and facilities available to, operated by and owned by minorities and women; and c) strengthen the capability of existing public television and radio stations to provide public telecommunications service to the public.

**Assistance Type:** Project Grants.

**Use:** Provides grants for the planning and construction of public telecommunications facilities. Matching grants are given for apparatus necessary for production, dissemination, interconnection, captioning, broadcast, or other distribution of programming and reception of noncommercial educational, cultural radio and television programs and related noncommercial instructional or informational material.

**Applicants:** A public or noncommercial educational broadcast station; a noncommercial telecommunications entity; a system of public telecommunications entities; a nonprofit foundation, corporation, institution or association organized primarily for educational or cultural purposes; State, local and Tribal governments (or an agency thereof); or a political or special purpose subdivision of a State. Special consideration is given to applications that increase minority and women's ownership of, operation of, and participation in public telecommunications entities.

**Contact Information:** Office of Telecommunications and Information Applications/NTIA, Room 4625, Department of Commerce, 1401 Constitution Avenue, NW, Washington, DC 20230.

Telephone: (202) 482- 5802. Web site: <http://www.ntia.doc.gov/ptfp>.

## Community Technology Centers

**Department:** U.S. Department of Education

**Objectives:** To promote the use of technology in education through the development of model programs that demonstrate the educational effectiveness of technology in urban and rural areas and economically distressed communities. Projects funded under this program support community centers that provide access to technology to residents of their local communities.

**Assistance Type:** Project Grants.

**Use:** Projects funded under this program must be for the purpose of meeting the needs of residents of rural and urban areas and economically distressed communities through development of community technology centers.

**Applicants:** State educational agencies, local educational agencies, institutions of higher education, other public and private nonprofit or for-profit agencies and organizations, or groups of such agencies, institutions or organizations are eligible to receive grants under this program.

**Contact Information:** Division of Adult Education and Literacy, Office of Vocational and Adult Education, Department of Education, 400 Maryland Ave., SW., Washington, DC 20202-7240. Telephone: (202) 205-8270. Web site: <http://www.ed.gov/offices/OVAE>.

## Rural Telemedicine Grants

**Department:** U.S. Department of Health and Human Services, Health Resources and Services Administration

**Objectives:** The purpose of this grant program is to expand access to, coordinate, restrain the cost of, and improve the quality of essential health care services, including preventive and emergency services, through the development of integrated health care delivery systems or networks in rural areas and regions. Specifically, the purpose of the Rural Telemedicine Grant Program is to demonstrate how Telemedicine can be used as a tool in developing integrated systems of health care, improving access to health services for rural citizens and reducing the isolation of rural health care practitioners. The purpose is also to collect information for a systematic evaluation on the feasibility, costs, appropriateness, and acceptability of rural Telemedicine.

**Assistance Type:** Project Grants.

**Use:** Funds may be used to demonstrate the use of Telemedicine in facilitating the development of rural health care networks and for improving access to health care services for rural citizens; provide a baseline of information for a systematic evaluation of Telemedicine systems serving rural areas; purchase or lease and install equipment; and to operate the Telemedicine system and evaluate the Telemedicine system. Not more than 40 percent of grant funds may be expended for equipment. Not more than 20 percent of grant funds may be expended for indirect costs. Grant funds may not be used for purchasing and installing telecommunications transmission equipment (e.g., microwave towers, satellite dishes, amplifiers, digital switching equipment or laying cable or telephone lines). Construction costs are allowable only for minor renovations related to the installation of equipment.

**Applicants:** An entity that is a health care provider and a member of an existing or proposed Telemedicine network, or an entity that is a consortium of health care providers that are members of an existing or proposed Telemedicine network are eligible for a grant. An eligible network may include for-profit entities so long as the network grantee is a nonprofit entity.

**Contact Information:** Co-Director of Rural Telemedicine Grants, Office for the Advancement of Telehealth, 5600 Fishers Lane, Room 11A-16, Rockville, MD 20857. Telephone: (301) 443-1293. Grants Management contact: Grants Management Office, HIV/AIDS Bureau, Health Resources and Services Administration, 5600 Fishers Lane, Rockville, MD 20857. Telephone: (301) 443-2385. Web site: <http://www.telehealth.hrsa.gov>.

For more information about federal rural programs and funding sources, contact the U.S. Department of Agriculture's Rural Information Center, National Agricultural Library, 10301 Baltimore Ave., Room 304, Beltsville, MD 20705-2351; Telephone: 1-800-633-7701; E-mail: [ric@nal.usda.gov](mailto:ric@nal.usda.gov); Web site: [www.nal.usda.gov/ric](http://www.nal.usda.gov/ric).

## Regional Authorities

The Appalachian Regional Commission (ARC) and the Delta Regional Authority (DRA) provide grants for economic development and infrastructure projects in their jurisdictions that include telecommunications components. (See the map on page 2 for the approximate geographical areas served by these agencies.) Information about grants available from these agencies is provided in the “Partnerships” section on the following pages.

## Non-Government Funding Sources

Private and corporate foundations and similar organizations may also be sources of funding for telecommunications projects in rural areas. One good listing of these sources can be found through the Digital Divide Network at [www.digitaldividenetwork.org](http://www.digitaldividenetwork.org).

## Telecommunications Development Fund

Another source of funding is the Telecommunications Development Fund (TDF). The mission of the TDF is to improve telecommunications for all Americans, by:

- Promoting access to capital for small businesses;
- Strengthening competition in the telecommunications industry;
- Stimulating new technological growth and development;
- Promoting universal service; and
- Enhancing the delivery of telecommunications services to rural and underserved areas.

TDF is a Washington, DC-based private corporation that finances emerging companies with high growth potential, innovative ideas and strong management. The Telecommunications Act of 1996 enabled the TDF receive its initial funding.

TDF funds come from the interest paid by a banking institution on the "up-front" money bidders pay during spectrum licensing auctions held by the FCC. TDF offers financing in the form of equity investments ranging from \$375,000 to \$1 million per initial investment.

For more information, contact the TDF at <http://www.tdfund.com/index.html> or call 202-293-8840.



## PARTNERSHIPS

The FCC has developed partnerships to foster the deployment of advanced telecommunications services in rural areas – and to increase participation in the Lifeline and Link-Up programs that provide affordable telephone service to low-income consumers. Partnerships are essential in reaching stakeholder groups and individual consumers who can benefit from both basic and advanced telecommunications services. The FCC has developed working partnerships to improve telecommunications in Appalachia and the Mississippi Delta Region and has also created partnerships intended to bring improved telecommunications services to American Indian tribes and Alaska Native Villages.

### Appalachia

The FCC has formed a strategic partnership with the Appalachian Regional Commission (ARC) to address low penetration rates and other deployment issues. This partnership consists of the FCC joining ARC and their 410 rural counties, spread across northern New York to Northeast Mississippi and forming the Appalachian Region. Working with ARC, the agency is engaged in cooperative outreach which permits it to maximize its efforts and successes.

At the grassroots level, the FCC is reaching out through local media in the region to bring information to millions of consumers about the availability of Lifeline/Link-Up and broadband and other advanced services.

The FCC also participated in conferences and symposiums to educate consumers in Appalachia about federal universal service programs and developments in telecommunications services. And, through focused programs with key stakeholders, the agency has explored the potential of specific technologies to promote the economic development, safety and the well-being of the citizens in this region.

The FCC partnered with the ARC, the Tennessee Regulatory Authority and the Rural Utilities Service of the USDA in holding a two-day program in Tennessee highlighting telemedicine, homeland security and policies to bring advanced services to Appalachia. The FCC's efforts in Appalachia will continue to focus on the needs of this region and how telecommunications might offer solutions. For more information about the ARC, visit [www.arc.gov](http://www.arc.gov).

**Grants:** The Appalachian Regional Commission is an economic development agency that serves 13 states located in the Appalachian region of the country. The ARC annually funds telecommunications-related projects that benefit all sectors of the local economy including: strategic telecommunications planning programs, Aggregation of Demand programs, traditional E-learning programs / distance learning projects, telemedicine / telehealth programs, E-government programs and "Applications" and demonstrations projects in E-commerce activities that benefit all sectors of the local economy including the private sector. The ARC grant approval process works through a Federal / state / local partnership; potential grantees should consult the ARC web site at [www.arc.gov](http://www.arc.gov) to determine if they are eligible to receive funding, and who should be contacted at the state office level. The ARC does not accept direct applications.

## Delta Region

The FCC's efforts in Appalachia have served as a model for its approach to the Mississippi Delta Region, which consists of 240 counties and parishes in 8 states. The agency also is launching similar, broad-based outreach efforts in that area of the country with the Delta Regional Authority (DRA).

Facing some of the same economic and geographic challenges as Indian Country and Appalachia, the Delta Region's penetration rates lie within the lowest 10 percent of the Nation. Like ARC, the DRA is charged with facilitating economic development in the region.

The FCC has met with the DRA and is developing an ongoing partnership through which it can engage in cooperative efforts to address the unique telecommunications needs of this region. The agency is exploring other joint outreach opportunities with the DRA, including workshops, public forums and media news spots, in an effort to reach out to this distressed area. For more information about the DRA visit: [www.dra.gov](http://www.dra.gov).

**Grants:** The DRA provides grants within the area it serves for economic development and infrastructure, including telecommunications components. For information about DRA grants visit <http://www.dra.gov/pressannouncement.pdf> or call 1-888-468-6372, ext. 25.

## Indian Country

In June 2000, the Commission began a focused effort to increase telephone penetration rates among American Indian tribes. These efforts included rulemaking activities and consumer outreach efforts aimed at promoting deployment of telephone service in Indian Country. In addition, the FCC, as part of its Office of Intergovernmental Affairs in the Consumer & Governmental Affairs Bureau, designated a Tribal Government Liaison to consult with tribal entities.

Since that time, the FCC has continued a focused outreach campaign, entitled "Indian Telecommunications Initiatives" (ITI). ITI is a wide-ranging, comprehensive effort aimed at fulfilling the mandate that all Americans, including those living in American Indian and Alaskan Native tribal communities, have access to affordable, quality telecommunications services. ITI includes FCC-sponsored interactive regional workshops; attendance and participation by FCC senior staff at conferences sponsored by tribal and other organizations; meetings with representatives of individual tribes to address their unique telecommunications issues; and dissemination of educational materials to American Indian tribes and tribal organizations.

## **Alaska Native Villages**

Two hundred twenty-seven of the more than 560 federally-recognized Indian tribes are located in Alaska. They are organized politically as “Alaska Native Villages,” and constitute about 19 percent of Alaska’s total population, and 80 percent of its “rural” population.

The remote nature of most Alaska Native Villages, as well as climactic and other geographic challenges, impede the construction of adequate roads and utility infrastructure that are necessary for the provision of electricity, water, telecommunications and police and fire-protection services. This remoteness has been a considerable obstacle to economic development.

The FCC visited with members of these communities and with Alaska Native organizations in these regions, including the Alaska Rural Development Council, to learn more about their specific telecommunications needs. The visit also demonstrated the federal government’s commitment to improving the quality of life for Alaska Natives through the development and deployment of telecommunications infrastructure necessary to access vital telecommunications services. The agency has continued its outreach efforts with Alaska Natives through ongoing activities.

## **CONCLUSION**

Telecommunications services have tremendous potential to foster distance learning, e-commerce, e-government, telemedicine, and spur overall economic development. Through its rural outreach initiatives, the FCC is working to help rural America reap the benefits that these services offer. This document is intended to serve as a starting point for rural area leaders interested in developing telecommunications infrastructure in their communities. For more detailed information and any questions, please visit the FCC’s Web site at [www.fcc.gov/cgb/rural](http://www.fcc.gov/cgb/rural) or call us at : Toll Free Voice: 1-888-CALL-FCC (1-888-225-5322); Toll Free TTY: 1-888 TELL-FCC (1-888-835-5322).

## GLOSSARY OF TERMS

**Access Charge** - A fee charged to subscribers or other telephone companies by a local exchange carrier for the use of its local exchange networks.

**Analog Signal** - A signaling method that uses continuous changes in the amplitude or frequency of a radio transmission to convey information.

**Bandwidth** - The capacity of a telecom line to carry signals. The width of a communications channel.

**Broadband** - The capacity of a line or channel to carry signals. The necessary bandwidth is the amount of spectrum required to transmit signals and data at high speed without distortion or loss of information. FCC rules require suppression of the signal outside the band to prevent interference.

**Calling Party Pays** - A billing method in which a wireless phone caller pays only for making calls and not for receiving them.

**Cellular Technology** - This term, often used for all wireless phones regardless of the technology they use, derives from cellular base stations structure of the technology in which calls are received and transmitted. Both cellular and PCS phones use cellular technology.

**Closed Captioning** - A service for persons with hearing disabilities that displays spoken words from television program dialogs on the screen.

**Commercial Leased Access** - Manner through which independent video producers can access cable capacity for a fee.

**Common Carrier** - In the telecommunications arena, the term used to describe a telephone company.

**Communications Assistant** - A person who facilitates telephone conversations between text phone users, users of sign language or individuals with speech disabilities through a Telecommunications Relay Service. This service allows a person with hearing or speech disabilities to communicate with anyone else via telephone at no additional cost.

**Community Antenna Television (CATV)** - Commonly called "Cable TV", a service through which subscribers pay to have local television stations and additional programs brought into their homes from an antenna via a coaxial cable.

**Cramming** - A practice in which customers are billed for enhanced features such as voice mail, caller-ID, and call-waiting that they have not ordered.

**Dial-Around-** Long distance services that require consumers to dial a long distance provider's access code (like a "10-10" number) before dialing a long distance number to bypass or "dial around" the consumer's chosen long distance carrier in order to get a better rate.

**Digital Television (DTV)** - A new technology for transmitting and receiving broadcast television signals. DTV provides clearer resolution and improved sound quality.

**Direct Broadcast Satellite (DBS)** - A high-powered satellite that transmits or retransmits signals which are intended for direct reception by subscribers. The signal is transmitted to a small earth station or dish (usually the size of an 18-inch pizza pan) mounted on homes or other buildings.

**E-mail** - Also called electronic mail, e-mail is everything from simple messages flowing over a local area network (LAN) from one cubicle to another, to messages flowing across the globe.

**Enhanced Service Providers** - A for-profit business that offers to transmit voice and data messages and simultaneously adds value to the messages it transmits. Examples include telephone answering services, alarm/security companies and transaction processing companies.

**En Banc** - An informal meeting held by the FCC to hear presentations on specific topics by diverse parties. The FCC Commissioners, or other officials, question presenters and use their comments in considering FCC rules and policies on the subject matter that is under consideration.

**Frequency Modulation (FM)** - A signaling method that varies the carrier frequency in proportion to the amplitude of the modulating signal.

**Global Positioning System (GPS)** - A constellation of 24 satellites orbiting the earth used for navigation. The satellites provide a network to pinpoint your location.

**High Definition Television (HDTV)** - An improved television system which provides approximately twice the vertical and horizontal resolution of existing television standards. It also provides audio quality approaching that of compact discs.

**Instructional Television Fixed Service (ITFS)** - A service provided by one or more fixed microwave stations operated by an educational organization and used to transmit instructional information to fixed locations.

**Interactive Data Video Service (IDVS)** - A communication system, operating over a short distance, that allows nearly instantaneous two-way responses by using a hand-held device at a fixed location. Viewer participation in game shows, distance learning and e-mail on computer networks are examples.

**Interference** - Unwanted electrical signals or noise causing degradation of reception on a communications circuit.

**Landline** - Traditional wired phone service.

**Land Mobile Service** - A public or private radio service providing two-way communication, paging and radio signaling.

**Low Power FM Radio (LPFM)** - A broadcast service that permits the licensing of 50-100 watt FM radio stations within a service radius of up to 3.5 miles and 1-10 watt FM radio stations within a service radius of 1 to 2 miles.

**Low Power Television Service (LPTV)** - A broadcast service that permits program origination, subscription service or both via low powered television translators. LPTV service operates on a secondary basis to regular television stations. Transmitter output is limited to 1,000 watts for UHF stations, 10 watts for VHF stations, except when VHF operation is on an allocated channel, when 100 watts may be used.

**Must-carry (retransmission)** - The 1992 Cable Act requires a cable system to carry signals of both commercial and noncommercial television broadcast stations that are "local" to the area served by the cable system.

**Network** - Any connection of two or more computers and computer related things — terminals, printers, modems, etc. — that enables them to communicate. Networks may also include transmission devices, servers, cables, routers and satellites.

**Number Portability** - A term used to describe the ability of individuals, businesses and organizations to retain their existing telephone number(s) when switching to a new service provider.

**Open Video Systems** - An alternative method to provide cable-like video service to subscribers.

**Operator Service Provider (OSP)** - A common carrier that provides services from public phones including payphones and those in hotels/motels.

**Paging System** - A one-way mobile radio service where a user carries a small, light-weight miniature radio receiver capable of responding to coded signals. These devices, called "pagers," emit an audible signal, vibrate or do both when activated by an incoming message.

**Personal Communications Services (PCS)** - Any of several types of wireless, voice and/or data communications systems, typically incorporating digital technology. PCS licenses are most often used to provide services similar to advanced cellular mobile or paging services. PCS can also be used to provide other wireless communications services, including services that allow people to place and receive communications while away from their home or office as well as wireless communications to homes, office buildings and other fixed locations.

**Presubscribed Interexchange Carrier Charge** - A charge that long distance companies pay to local telephone companies to help them recover the costs of providing the "local loop." Local loop is a term that refers to the outside telephone wires, underground conduit, telephone poles and other facilities that link each telephone customer to the telephone network.

**Public Safety Answering Point (PSAP)** - A generic term for the person or group of persons who answer 911 emergency phone calls.

**Roaming** - The use of a wireless phone outside of the "home" service area defined by a service provider. Higher per-minute rates are usually charged for calls made or received while roaming. Long distance rates and a daily access fee may also apply.

**Satellite** - A radio relay station that orbits the earth. A complete satellite communications system also includes earth stations that communicate with each other via the satellite. The satellite receives a signal transmitted by an originating earth station and retransmits that signal to the destination earth station(s).

**Satellite Home Viewer Improvement Act (SHVIA)** - An Act modifying the Satellite Home Viewer Act of 1988, SHVIA permits satellite companies to provide local broadcast TV signals to all subscribers who reside in the local TV station's market. SHVIA also permits satellite companies to provide "distant" network broadcast stations to eligible satellite subscribers.

**Satellite Master Antenna Television (SMATV)** - A satellite dish system used to deliver signals to multiple dwelling units (e.g., apartment buildings and trailer parks.)

**Satellite Transmission** - A form of transmission which sends signals to an orbiting satellite which receives them, amplifies them and returns those signals back to the earth. Satellite transmission provides great clarity but suffers from delay.

**Scanner** - A radio receiver that moves across a wide range of radio frequencies and allows audiences to listen to any of the frequencies.

**Service Plan** - The rate plan you select when choosing a wireless phone service. A service plan typically consists of a monthly base rate for access to the system and a fixed amount of minutes per month.

**Service Provider** - Any company which provides service to anyone else, i.e. phone service, Internet service, etc.

**Slamming** - The term used to describe what occurs when a customer's long distance service is switched from one long distance company to another without the customer's permission. Unauthorized switching violates FCC rules.

**Special Emergency Radio Service** - A private Land Mobile Radio Service employed by persons or organizations engaged in emergency medical and rescue service, health care, or similar activity.

**Spectrum** - The range of electromagnetic radio frequencies used in the transmission of radio, data, and video.

**Subscriber Line Charge (SLC)** - A monthly fee paid by telephone subscribers that is used to compensate the local telephone company for part of the cost of installation and maintenance of the telephone wire, poles and other facilities that link your home to the telephone network.

**Tariff** - The documents filed by a carrier describing their services and the payments to be charged for such services.

**Telecommunications Relay Service (TRS)** - A free service that enables people with Teletype Text Machines (TTY), individuals who use sign language and people who have speech disabilities to use telecommunications services by having a third party transmit and translate the call. Callers using this service can access this service by dialing 711 nationwide.

**Telephony** - The word used to describe the science of transmitting voice over a telecommunications network.

**Teletype Machine** - A type of machine that allows people with hearing or speech disabilities to communicate over the phone using a keyboard and a viewing screen. It is sometimes called a Telecommunications Device for the Deaf (TDD).

**Television Receive Only Earth Station (TVRO)** - Earth station equipment that receives video signals from satellite or Multi-Point Distribution Service (MDS) type transmissions.

**Ultra High Frequency (UHF)** - The part of the radio spectrum from 300 to 3000 megahertz which includes TV channels 14-83, as well as many land mobile and satellite services.

**Unbundling** - The term used to describe the access provided by local exchange carriers so that other service providers can buy or lease portions of their network elements, such as interconnection loops, to serve subscribers.

**Universal Service** - A program that helps ensure that all consumers in the nation have access to quality telecommunications and information services at affordable rates. The program also makes support available to schools and libraries to receive access to telecommunications and Internet services.

**Very High Frequency** - The part of the radio spectrum from 30 to 300 megahertz, which includes TV Channels 2-13, the FM broadcast band and some marine, aviation and land mobile services.

**Video Description** - An audio narration for television viewers who are blind or visually disabled, which consists of verbal descriptions of key visual elements in a television program, such as settings and actions not reflected in the dialog. Narrations are inserted into the program's natural pauses, and are typically provided through the Secondary Audio Programming channel.

**Voice Carry Over (VCO)** - A reduced form of Telecommunications Relay Service (TRS) where the person with the hearing disability speaks directly to the other end user.

**Voice Over Internet Protocol (VoIP)** - A technology that allows users to make telephone calls using a broadband Internet connection instead of a regular (or analog) phone line.

**Wireless Communications** - Any broadcast or transmission which can be received through microwave or radio frequencies without the use of a cable connection for reception.

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