

The Camino Fiber Network Cooperative (CFNC) was incorporated in 2009 as a California nonprofit consumer cooperative corporation. It was formed to provide Internet-protocol based advanced telecommunications services via open access fiber optic to the premises infrastructure in central El Dorado County, California. CFNC's goal is to offer its members services including ultra high speed Internet connectivity, Voice over Internet Protocol (VOIP) and high definition video and videoconferencing services — and do so affordably and with superior value.

Thousands of El Dorado County residences, home-based and small businesses and particularly those located in unincorporated areas of the county adjacent to the county seat of Placerville lack even basic broadband as defined by the Federal Communications Commission. They are situated in areas not served by the physical plants of the legacy incumbent cable and telephone providers. These areas have only limited access to small, locally owned and operated Wireless Internet Service Providers (WISPs) and 3G mobile services due to challenging terrain and foliage and the business models of small WISPs that limit their ability to offer affordable access at speeds above 1 Mbs and with low latency. Many residents and small businesses are forced to rely on substandard and costly satellite Internet services that cannot provide a quality online experience due to high latencies and low bandwidth usage caps.

An alternative approach is urgently needed to address the lack of infrastructure in these areas because the business models of the existing wire line providers prevent them from building out their distribution systems to reach them. Telecom cooperatives like CFNC can potentially offer that alternative. Such cooperatives have a well established record dating back nearly a century of providing telecommunications to consumers in areas of the United States that investor owned providers cannot profitably serve.

CFNC is currently conducting an extensive survey of broadband access, speeds, application preferences and price points in El Dorado County and is willing to share the survey results in aggregate form with potential partners and vendors including Google. The survey is expected to yield a rich data set by midyear 2010.

CFNC is acting as an unofficial nongovernmental organization (NGO) in cooperation with the County of El Dorado to address the need to build out advanced telecommunications services, particularly in unincorporated areas of the county. County officials have been briefed and are aware of and supportive of CFNC's efforts. CFNC has also garnered support within the educational community where educators see the value of "no home left behind" given the rapid growth of digital learning that benefits children who have Internet access at home and conversely disadvantages those who do not.

In a beautiful Sierra Nevada foothills locale 50 miles from California's capital, a 1GB fiber to the premise telecommunications network in central El Dorado County would showcase to state policymakers the viability of an alternative to the investor-owned, proprietary closed access cable and telephone company business model for delivering the advanced, Internet-protocol based telecommunications services.

Alternative business models are needed to serve less densely populated areas such as El Dorado County in recognition of the fact that many people deliberately choose to reside in and operate

businesses in such areas as an alternative to urban and suburban living. Indeed, over the past two decades, many have come to El Dorado County from more populous urban California counties in search of a quasi-rural small town ambiance, improved quality of life and better educational resources for their children. El Dorado County is an ideal setting to demonstrate that people can have lucrative, well paid professions in locations outside densely populated metro centers and suburban commute corridors.

Many who come here are independent consultants and information technology workers who work from their homes at least some of the time — or wish to do so. These self-employed, telecommuters and virtual employees require suitable telecommunications infrastructure that can support stable, two-way videoconferencing at reasonable cost. According to U.S. Census Bureau estimates, population growth in El Dorado County outstrips that of the state as a whole. The county's population increased by a projected 12.7 percent between April 1, 2000 and July 1, 2008 compared to an 8.5 percent increase for all of California.

A 1GB fiber network would also help show that employees and business owners can videoconference to have "face time" with managers, clients and customers without the time, health, economic and environmental costs of physical travel and the stress of daily commuting. This would be best demonstrated in an area such as central El Dorado County where there is an appreciable cost associated with moving people and not their work product versus in a metro area where workplaces and homes are typically separated by a 30 minute drive and often less.

With 1GB fiber to the premises, central El Dorado County could also provide a model for a more distributed workforce and economy that mitigates transportation demand and associated adverse environmental impacts at a time when public resources for roads, highways and public transit are stretched thin. In this regard, the El Dorado County Transportation Commission is supportive of CFNC's goal to bring fiber to the premises as a transportation demand mitigation strategy.

Remote work is not only environmentally greener. It also sets the stage for positive health impacts amid rising obesity, diabetes and an aging population that boosts demand for costly health care services by freeing up time that people would otherwise spend commuting to engage in physical exercise regimens. In addition, the construction of advanced telecommunications infrastructure to support remote work and virtual, online businesses is consistent with El Dorado County land use policy that tends to disfavor brick and mortar construction in preference for lower impact forms of economic development. In addition, the county has a large number of retired senior citizens who could benefit from telemedicine applications to allow them to remotely consult with distant medical professionals located in California metro areas.

Deployment of a 1GB fiber to the premises network would also likely draw significant interest for personal video entertainment services. Much of El Dorado County is located more than 60 miles from Sacramento area television transmitters, too far to reliably receive digital TV signals. As noted previously, large areas of the county are located outside the footprint of the incumbent cable provider and would likely jump at the chance to obtain TV programming and movies via fiber to their premises. In addition, online shopping holds considerable appeal given that county residents must often drive 30 to 50 miles to reach a large selection of retailers located in the greater Sacramento area.

El Dorado County residents have disposable income with a higher median household income than California as a whole. This is significant in that income is considered one of the best predictors of adoption of advanced telecommunications services. According to U.S. Census Bureau data, El Dorado County's median household income in 2008 was an estimated \$67,019 compared to the California median household income that year of \$61,017.

CFNC believes El Dorado County's relatively high household income level has produced considerable pent up demand for advanced telecommunications services. CFNC's ongoing consumer survey is expected to produce data verifying this pent up demand — demand that has been unmet for many years. Evidence of this unfulfilled demand first emerged in an [online petition to AT&T](#) launched in 2005 signed by [261 county residents](#) urging AT&T to upgrade its infrastructure in El Dorado County or divest it. AT&T has done neither in the ensuing five years.

CFNC's review of California Public Utilities Commission (CPUC) data found 11 central El Dorado County census tracts encompassing Placerville and surrounding communities comprising more than 23,000 premises are underserved for broadband Internet access under CPUC and federal guidelines as of Dec. 31, 2008.

These 11 census tracts are as follows:

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Since CFNC has been up and running as a start up consumer-owned telecom cooperative for several months with an established board of directors and contacts with leaders in the county's educational and business communities, local government and media, it is organizationally ready to immediately partner with Google on this project. CFNC board includes a partner in a Fortune 500 management consulting firm who provides strategic consulting services to telecommunications and information technology clients. Two other directors are employed by major information technology companies. CFNC's board is headed by one of the nation's most authoritative [bloggers](#) (hosted by Google's Blogger service) on the topic of advanced telecommunications infrastructure as shown by Google search result rankings.

In addition, CFNC has contacts with those who can facilitate rights of way and pole attachment arrangements to help speed fiber infrastructure deployment. CFNC has reviewed various deployment options including aerial fiber along existing poles as well as burying fiber conduits in county roadways via micro trenching. While much of unincorporated El Dorado County has residential densities exceeding rural density (about 800 residents per square mile in Camino ZIP Code 95709, for example), residential density is unevenly distributed. This suggests flexible, mixed network architecture would be the most rapid and cost efficient method of deploying of fiber optic infrastructure. A local custom of self-help for private road construction and maintenance can speed deployment of fiber among property owners anxious to obtain advanced telecom services. These property owners would share the cost of trenching along privately owned roads to bring fiber to their premises.

In addition, CFNC has been in contact with the county's electric utility provider, Pacific Gas & Electric, regarding its intent to construct open access fiber telecom infrastructure in the county. PG&E's representative indicated the utility's interest in joining CFNC as a commercial member of the coop to gain access the fiber infrastructure to support PG&E's smart grid and smart meter initiatives. Interest in commercial CFNC membership has also been expressed by the U.S. Forest Service, which operates multiple facilities in Camino.