Chapter 6. Barriers

Many of the barriers to greater broadband deployment relate to the "last mile" problem. The "last mile" refers to the connection between the broadband infrastructure and the consumer at the neighborhood level. For many communities, connecting the last mile represents the single greatest challenge to delivering broadband to consumers. Last mile hurdles include such issues as difficult topography, problems with government permitting and licensing, as well as the economic and technical challenges caused by low population density and distance from major population centers.

6.1 Access to Non-Telecommunications Utility Property and Facilities

Municipal and utility resistance to placement of wireless antennas and other telecommunications equipment on existing utility poles and structures or in utility Rights of Way is a barrier to broadband deployment. Notwithstanding that both state law[120] and federal law[121] mandate non-discriminatory access to utility Rights of Way, local governments have been slow to grant the necessary permits. For example, the cities of San Francisco, Walnut Creek, Santa Monica, Napa and Calabasas have either refused to grant access to wireless providers or have imposed extraordinary requirements on the applicants that have had the effect of indefinitely delaying deployment. These cities and utilities have offered various reasons for denying wireless broadband providers access to existing right-of-way including the desire to develop city-owned broadband facilities, aesthetics, worker safety and deference to the wishes of utility pole owners.[122]

6.1.1 Section 851

Public Utilities Code Section 851 requires a utility to obtain prior CPUC approval before selling or leasing property that is necessary or useful in the utility's performance of its duties to the public. This arises as a barrier to broadband deployment because it can prevent a utility from leasing access to existing utility property, such as electricity distribution poles, to a company seeking to use those poles to carry broadband infrastructure such as wires or antennae. Even when the CPUC approves a Section 851 application, the delay in receiving CPUC approval is often so long as to effectively deter broadband projects. In recent years, the average time for the CPUC to act on a Section 851 application has decreased from more than a year to approximately six months. However, the CPUC has been sharply divided on interpretation of the standards necessary for Section 851 approval (whether the proposed transaction must provide a public "benefit" or must simply have no negative impact). Many routine applications can remain pending at the CPUC for nine months or longer with no indication that approval is assured. The result is significant regulatory uncertainty, which can disrupt financing and planning of broadband projects.

[120] California Public Utilities Code Section 7901.
[121] 47 U.S.C. Section 253.
[122] Conversation between CPUC Staff and Counsel for NextG Networks of California, Inc. on March 17, 2005.

6.1.2 California Environmental Quality Act (CEQA)

In the case of broadband deployment over existing utility Rights of Way, the application of Section 851 also triggers CPUC review under the California Environmental Quality Act (CEQA) for any such proposed build-out.[123] For example, if Southern California Edison were to lease power lines for broadband deployment, CPUC approval including a favorable CEQA review would be required even though the physical changes to existing power lines would be minimal and would result in no discernable environmental effects. The CPUC has the power to grant categorical exemptions from Section 851 requirements to certain types of projects, however inconsistent interpretation of the relevant exemption standard has limited the use of that mechanism.[124]

Case Study: San Mateo Bridge

In March 2000, PG&E sought CPUC approval under Section 851 for authority to lease space on its electric transmission towers crossing San Francisco Bay to a company seeking to install fiber optic cable. PG&E obtained authority to install the wires from the Bay Conservation and Development Commission (BCDC), which, consistent with CEQA, found that the installation of wires on existing utility poles is categorically exempt from CEQA. PG&E began installation, while continuing its efforts to obtain CPUC authority for the lease transaction.

On October 8, 2002, the CPUC issued a draft decision that denied PG&E approval of the lease, effectively shutting down work on the project. On May 22, 2003, the CPUC granted the Section 851 application, but found that the installation of fiber optic cable on the towers was not categorically exempt from CEQA. On June 20, 2003, PG&E filed a petition to modify the decision, noting that the BCDC had found that the installation of utility transmission facilities on utility towers categorically exempt from CEQA. On April 1, 2004, over four years after PG&E's first request for approval, the CPUC reversed its position and found the installation to be exempt from CEQA. By that point, however, the fiber optic company had filed for bankruptcy protection.[125]

6.2 Rights of Way

The process for obtaining Right of Way (ROW) permits for construction of broadband infrastructure in California is lengthy, expensive, inconsistent and is cited as one of the most significant barriers to broadband deployment. ROW permits are issued by various agencies - federal, state and local, as well as tribal governments - to build broadband infrastructure on property controlled by those agencies. There is no consistency in the application form or process, or in the permitting criteria or fees.

California Public Utilities Code Section 7901 authorizes telecommunications providers Rights of Way (ROW) access within the state of California. The Code further defines the rights of municipalities with respect to ROW as the "right to exercise reasonable control as to the time, place, and manner in which roads, highways, and waterways are accessed."[126] The California Government Code reserves the right of local governments to charge permit fees to companies that access ROW.[127] The federal government does not assert jurisdiction over public Rights of Way, but does define the role of state and local governments in their administration.[128]

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123 California Public Resources Code Sections 21000 – 21177.
124 California Public Resources Code Section 853(b).
125 CPUC Decision 04-04-068 (2004).
126 California Public Utilities Code Section 7901.1(a).
127 California Government Code Section 50030.
128 Section 253(c) of the 1996 Telecommunications Act.

6.2.1 ROW Fees are Inconsistent and Often Above Cost

The 1996 Act stipulates that local municipalities may "require fair and reasonable compensation from telecommunications providers, on a competitively neutral and nondiscriminatory basis."[129] In addition, California Government Code Section 50030 states that "any permit fee imposed by a city, including a chartered city, a county, or a city and county... shall not exceed the reasonable costs of providing the service for which the fee is charged and shall not be levied for general revenue purposes." As a result, local governments have the right to collect fees from telecommunications providers for access to ROW to cover the costs associated with administration of the ROW.

The Legislature and the courts have upheld the requirement that fees be limited to the local government's cost of providing access. In response to concerns that local governments were charging developers unfair or unrelated fees that were hindering development, California adopted the Mitigation Fee Act (MFA) in 1987.[130] The act requires public agencies to meet specific requirements when imposing a fee as a condition of new development. Most importantly, the MFA states that there must be a relationship between fees and the local government's cost of administering the development.

The law was first applied to a communications case in *Williams Communications vs. City of Riverside*.[131] On December 19, 2003, the *Williams* court found that ROW fees must be limited to the local government's cost to administer permits and ordered that the city refund $750,000 that it had required as a condition for granting a license to Williams for installing and maintaining fiber optic facilities in the city streets. The court also ruled that there could be no separate fee or distinction for providers of advanced data services.[132]

Despite statute and case law, ROW fees remain an area of contention between municipalities and telecommunications providers. Local governments have argued that "reasonable," a term used in both the state and federal law, does not necessarily infer that fees are to only cover costs. Providers have argued that to be reasonable, fees must be directly related to the city's costs. Providers believe that local governments often use the ROW process as an opportunity to increase local revenue which in turn, "raise[s] the cost of deploying broadband."[133]

There is no consistency in how cities and counties calculate ROW costs and often apply different fee requirements for similar infrastructure projects. Verizon reports, for example, that the fee schedule for its FTTP Project from the City of Banning is based on the amount Verizon has traditionally been charged as an ILEC. The County of Riverside and City of Beaumont, by contrast, have charged additional fees based on footage of aerial facilities. Turlock, Sunnyvale, and Palo Alto, for example, charge fees based on the provider's cost of construction, not the cities' respective costs.

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[129] Ibid.
[130] Government Code Section 66000 et seq.
[131] 114 Cal. App 4th 642 (2003).
[132] Ibid.
[133] Verizon California Inc.'s Opening Comments in R. 03-04-003.

6.2.2 ROW Application Processing is Inconsistent, Costly and Time-Consuming

The time to process a ROW application varies depending on the local government, and providers are unable to predict how long it will take to obtain permission to build out facilities. Obtaining permits can take anywhere from weeks to months in each jurisdiction. When setback requirements and in-depth reviews by municipal planning departments are imposed, turnaround times approach the upper limits of this range. Reviews for compliance with zoning regulations also add to processing delay. The City and County of Los Angeles on average has a turnaround time of six weeks to obtain permits, although each project varies greatly. For example, placing utility cabinets above ground may lengthen the permit process due to local design-review codes. In some jurisdictions providers complain that cities sometimes do not reply to permit requests at all. Other cities, like Sunnyvale, Santa Clara, and Corona, require providers to enter into right of way agreements that can take many months to negotiate before the city will issue permits. SBC reports that it took two years to obtain permits for recent projects in Orange, Riverside and San Bernardino counties, although they indicate that the majority of permits are issued within the lower range of the time frame.[134]

Uncertainty caused by the ROW application process is a barrier to deployment. Financing of projects is often based on estimated completion dates that are impossible to predict under the current process. The National Association of Regulatory Utility Commissioners (NARUC) adopted a resolution that states that ROW reform is necessary and that deployment of advanced services would benefit from requiring local government to "act on applications for access to public Rights of Way in a reasonable and fixed period of time."[135]

6.2.3 ROW Application Forms and Assessment Criteria Are Inconsistent

Each city and county in California has its own ROW application. Providers who intend to offer services within multiple cities and counties are faced with a different form for each jurisdiction. Providers also face different criteria upon which cities and counties assess their ROW applications. These criteria can even differ within the same jurisdiction, depending on the type of technology deployed or the type of project sponsor. For example, some permitting agencies, cities, counties request higher fees for fiber installations than they have traditionally charged for other materials for no discernible reason, and they impose additional engineering requirements, such as engineering stamps.[136] In contrast, ILEC engineers are exempted from this requirement pursuant to Business and Professional Code Section 6747. This results in different rules being applied to projects depending upon the status of the project sponsor.

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[134] Email transmittals between CPUC Staff and representatives of Verizon and SBC on January 14, 2005; January 26, 2005; January 27, 2005.

[135] "Broadband Facilities and ROW," July 13, 2002, NARUC; http://www.naruc.org/associations/1773/files/broadband_access.pdf.

[136] The stamp certifies the plans were developed by a registered professional engineer. Communications companies contract with outside engineering firms to have their plans reviewed and then stamped. However most engineering firms only stamp plans they develop, requiring communications companies to contract the outside firm to draw the plans as opposed to being able to use their own employees, which is usually cost prohibitive.

6.2.4 California Lacks Efficient ROW Dispute Resolution Method

A dispute over ROW can delay the deployment of facilities for months or even years. In some cases, a provider may be forced to completely withdraw its plan.

In 1998, the CPUC adopted a ROW dispute resolution process for carriers and municipalities in Decision 98-10-058. However, local governments can ignore a CPUC order granting access to a ROW because they are not subject to CPUC jurisdiction. With no other recourse available to them, providers often proceed directly to expensive court battles to resolve disputes.

6.2.5 No Standards for State Agencies in ROW Permitting

State law currently provides little certainty as to the process and criteria used by state agencies in imposing and collecting ROW fees. California Government Code Section 50030 does not apply to state agencies, which led to a recent dispute between the California Department of Transportation (CalTrans) and SBC in Humboldt County. In that case, CalTrans imposed millions of dollars in ROW fees for deployment of fiber optic lines along a freeway, as a means of raising General Fund revenue to close a budget gap in 2001 . In the past, CalTrans had used an "incremental cost recovery" model in pricing ROW. To generate additional revenues, however, CalTrans charged SBC $6.40 per linear foot per one-inch conduit for right of way access, adding up to $2 million to the project cost. The CPUC ruled the dispute out of its jurisdiction, and SBC sued in federal court maintaining that the fees were illegal. Deployment of high-speed Internet access to the region was halted while the fees were disputed in court. A two-year impasse ended in June 2003 when SBC agreed to place $1.4 million in disputed fees in an escrow account. Although the long-awaited construction project was able to proceed, the core issue as to the extent to which a state agency can charge above-cost ROW fees remains unresolved and continues to be litigated.[137]

6.3 Carrier Certification Process Inconsistent and Unclear

The CPUC has traditionally required that telephone companies constructing facilities outside their traditional service territories seek authority to do so under Public Utilities Code Section 1001. With the advent of competition in the telecommunication market in California, new market entrants began to offer services in the state. Since these carriers did not have "service territories," the CPUC began requiring new entrants to obtain a Certificate of Public Convenience and Necessity (CPCN) to construct facilities and begin offering service.

Thus, the CPUC has required new entrants to obtain CPUC approval prior to entering the market and prior to construction of any facilities. For those firms that utilize existing facilities owned by other carriers, the granting of a CPCN focuses simply on the fitness of the provider to offer service in California, such as the company's record of compliance with consumer protection laws, as well as the records of the company's owners and management team. However, for those carriers seeking to construct new facilities to provide service, obtaining a CPCN requires the filing of a formal application and final approval by the CPUC, which can take many months longer to process and approve.

[137] North Coast Times, June 5,2003; see also http://www.cenic.org/gb/pubs/gartner/report/broadbandObstacles.htm.

In 1996 the CPUC developed a process to streamline the application and environmental review process for new carriers. However, in 1999 the CPUC changed the process to require that new entrants file a formal application for a CPCN. This was intended to be a temporary measure to remain in place while the CPUC addressed concerns with the process established in 1996, such as inequitable treatment of carriers based on a carrier's status. In February of 2000, the CPUC opened R.00-02-003 to address these underlying issues. However, this proceeding has been dormant since the summer of 2000. No new rules have been established, and the stop-gap measures remain in place, leaving the industry without a workable process for entry and build-out of networks.

The CPUC's current implementation of its CPCN approval process is problematic because it does not treat carriers seeking to construct new facilities in a uniform manner. The primary area where this disparate treatment occurs is in the review of the environmental impacts of the new entrants' proposed networks. The CPUC administers its review differently depending on the regulatory classification of the provider, and depending on when the provider received its certificate to operate in California - instead of the environmental impacts of the specific project.

The lack of uniformity in the CPUC approval process is illustrated by the following example: an ILEC is not required to seek review for either a CPCN or under CEQA for a project to build out infrastructure, as long as it is within its existing service territory. A CLEC that received authority to operate in California in 1996 might need approval depending on whether or not the project will be built in an existing ROW.[138] A CLEC that just recently applied to enter the California market would be required to file a CPCN application with the CPUC before it could do anything. Energy utilities are permitted under CPUC rules to construct certain facilities without CPUC approval or environmental review. However, such exemptions have not been made available to many telecommunications providers. Additionally, many of the CPUC staff conducting the reviews have experience reviewing large electric and natural gas projects, but relatively little experience reviewing telecommunications projects. Providers are hesitant to invest time and resources in a project if they cannot predict if, when, or under what conditions the project will be approved.

6.4 Cable Franchising

California Government Code Section 53066 allows cities and counties to authorize exclusive franchises for the construction of a cable TV system.[139] Under this arrangement, there is minimal competition among cable companies for customers. Other cable providers are not permitted to compete in the area unless the local government grants an additional franchise, which is referred to as a competitive franchise.[140] The local government evaluates requests for competitive franchises based on "significant positive or negative impacts on the community being served."[141] If an additional franchise is approved, state code mandates that the competitive franchise be required "to wire and serve the same geographic area within a reasonable time," as the incumbent provider.[142] This obligation to wire and serve the same area as the incumbent is cost prohibitive to most potential entrants, as it requires a massive infrastructure investment that is in most cases not economically viable.

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[138] CPUC Decision 96-12-120.

[139] California Government Code Section 53066. (a) Any city or county or city and county in the State of California may, pursuant to such provisions as may...authorize by franchise or license the construction of a community antenna TV system.

[140] California Government Code Section 53066.3 (a) allows "...a city, county, or city and county elects to grant an additional cable TV franchise in an area where a franchise has already been granted to a cable TV operator..."

[141] California Government Code Section 53066.3.(1).

[142] California Government Code Section 53066.3 (d).

To facilitate deployment and encourage competition in the cable video market, the 1996 Act created a new designation for competitive cable providers called Open Video System (OVS) as an alternative to traditional cable TV regulation.[143] The OVS designation was created to encourage competition by lessening the regulatory burdens on OVS providers. Most importantly, the OVS designation does not include the build out requirements. This allows a competitive provider to enter the market without the requirement to extend its network throughout the entire franchise territory.

California code does not currently recognize the OVS designation, however, and state requirements for a competitive franchise are in direct contradiction to the federal scheme. The California Attorney General recognized this problem and opened Opinion No. 02-1013 in 2002, requesting comments. An opinion was never issued.

6.5 Convergence and Service Bundling

The ability of ILECs to respond to the competitive telecommunications marketplace with bundled offers that bring down prices for consumers, and which consumers increasingly demand, is frustrated by the current pricing and imputation requirements, tariff filing process, and affiliate transaction rules and requirements imposed on them by the CPUC. Wireless competitors are not subject to any of the requirements imposed upon ILECs, and cable telephony and other wireline competitors are only subject to the tariff filing process, not any of the pricing or imputation rules. As a result, ILECs are not always able to respond to more attractive offers for bundled services that are offered to consumers by CLECs and cable companies.

For example, in order for an ILEC in California to introduce a new service offering, such as call blocking, extensive cost analyses must be done in preparation for filing a tariff for CPUC approval. These cost analyses often require two months of work. 60 days prior to the target offering date, the ILEC must provide notice of the offer to CLECs, as required by the Interconnection Agreements. 30 days prior to the target offering date, the ILEC then files for CPUC approval, and includes the cost analyses demonstrating that the new offer meets the Commission's price floor and imputation rules.[144] For the first 20 days after the filing, competitors can protest the filing, which they almost always do. If the Advice Letter process is suspended in response to a Protest, a delay of up to 120 days may occur before the new service can be offered.[145] In total, the CPUC's regulatory requirements often delay new ILEC bundled service offerings by a minimum of four months.

In addition, it is more difficult for an ILEC in California to take the lead in making a competitive offering because it must give 60 days notice about any new offering. Competitors, free from the regulatory burdens imposed on ILECs, are often able to put together a competing offer and bring it to the marketplace at the same time, or even prior to, the ILEC offering.

[143] 1996 Telecommunications Act, Section 653. FCC Rules, Section 76.1500-76.1505.
[144] CPUC General Order 96-A.
[145] CPUC Decision D.05-01-032.

6.6 Broadband Access Challenges to the Disabled Community

Broadband access for those with disabilities lags behind the non-disabled. One reason for this is the fact that many technical adaptations for consumer premises equipment and assistive services for the disabled are not widely available and are often expensive. Public access points, such as community centers and libraries, often can not accommodate disabled individuals, despite requirements under California law and the Americans with Disabilities Act.[146] A variety of computer-based assistive technology devices and software tools are available to help people with disabilities. However, access to a computer and appropriate software is often prohibitively expensive.[147] Disability Rights Advocates quotes prices for JAWS® screen-reading software for blind and visually-impaired consumers at up to $1,095.00, and voice recognition software at $179.99.

Assistive technologies available to the disabled community through the Deaf & Disabled Telecommunications Program (DDTP) are focused on traditional voice communications services over the Public Switched Telephone Network, not high-speed Internet access, services, consumer premises equipment or software such as those mentioned above.

6.7 Challenges to Access in Rural Communities

In rural California, low population density makes investment in certain types of broadband infrastructure, such as DSL and cable, less economically feasible than in urban and suburban areas. In Tuolumne County, for example, local officials indicate that more than 90% of the population does not have access to high-speed Internet service other than satellite.[148] Dial-up Internet service over analog phone lines remains the predominant form of Internet connection in many rural areas for reasons of economics, demographics and lack of infrastructure.

The demographics of rural areas play a large role in broadband subscription rates, making cost-effective investments in infrastructure even more difficult. Research data from 2002 indicate that nearly two-thirds of rural residents believe that they will not go online at all in the future. Rural areas also have large elderly populations, who are the least likely of all consumers to go online, as well as the smaller numbers of high school and college students relative to the rest of the population. High school and college students are the most likely to use the Internet. A significantly higher percentage of rural residents earn less than $30,000 per year (47% compared with 39% of urban and 29% of suburban residents). The $30,000 per year earning level is a significant break point in terms of usage rates.[149]

Figure 6.1
Internet Use by Population by Community Type[150]
May 2002

	Will go online	Will not go online
Urban	47%	50%
Rural	33%	62%

[146] Comments of Disability Rights Advocates and the Center for Independent Living, San Francisco meeting on February 10, 2004.
[147] Disability Watch, p. 93.
[148] Amador-Tuolumne Community Action Agency, Opening Comments in R. 03-04-003.
[149] Pew Internet & American Life Project, "The Ever-Shifting Internet Population," April 2003.
[150] Ibid., p. 16.

Population demographics are significant criteria in infrastructure investment decisions. Less densely populated areas are at a disadvantage in attracting private capital for broadband infrastructure because there are fewer willing consumers to provide a return on any investment over a reasonable period.

Local officials and community based organizations have provided subsidies and grants to build broadband infrastructure in rural areas. Construction loans for broadband deployment are available from the Rural Utilities Service (RUS). The definition of "rural" that certain federal agencies use, however, unduly restricts the flow of subsidies to many areas.[151] The U.S. Department of Agriculture (USDA), which oversees the RUS, defines rural as "any incorporated or unincorporated place that (A) has not more than 20,000 inhabitants based on the most recent available population statistics of the Bureau of the Census; and (B) is not located in an area designated as a standard metropolitan statistical area." This definition disadvantages many rural California communities because some large, rural counties also include a large urban population, resulting in the entire county not obtaining RUS grants because it does not meet requirement (B).

For example, California's San Joaquin Valley is approximately 80% rural with low population densities.[152] But by federal definitions, it is not eligible for federal funding.

[151] New Valley Connexions' Public Policy Roadmap for Improving Broadband Access, December 2003, pp. 18-20.
[152] New Valley Connexions, p. 3.