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INITIAL PROPOSAL OF THE PUBLIC ADVOCATES OFFICE ON THE ORDER INSTITUTING RULEMAKING PROCEEDING TO CONSIDER CHANGES TO THE COMMISSION'S CARRIER OF LAST RESORT RULES

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I. INTRODUCTION

Pursuant to Rule 6.2 of the California Public Utilities Commission's (Commission or CPUC) Rules of Practice and Procedure, and the *Order Instituting Rulemaking Proceeding to Consider Changes to the Commission's Carrier of Last Resort Rules* (OIR), the Public Advocates Office at the California Public Utilities Commission (Cal Advocates) submits this Initial Proposal. This Initial Proposal addresses the questions in the Preliminary Scoping of Issues.[1]

There must be an obligation that ensures customers have access to affordable, high quality, and reliable essential communications services as the networks that serve them are modernized. Decision (D.) 96-10-066 reaffirmed the Commission's commitment to universal service by ensuring that basic telephone service is available throughout California, and that rates remain affordable.[2] In the nearly three decades since this decision, communications technology has progressed, and carriers continue to modernize their networks to provide advanced communications services. As network modernization and technology transitions occur, it is important that all Californians have access to these new technologies. Therefore, Commission policy should evolve alongside our changing communications networks, in order to protect customers and ensure that they benefit from technology transitions.

The Commission should retain its overall Carrier of Last Resort (COLR) framework with the following revisions to its COLR rules:

- Condition provisional authorization to end the COLR obligation on the COLR's complete deployment of broadband basic service across the COLR's service area (or withdrawal request area).

[1] Rulemaking (R.) 24-06-012, *Order Instituting Rulemaking Proceeding to Consider Changes to the Commission's Carrier of Last Resort Rules*, June 28, 2024, at 4-6.

[2] Decision (D.) 96-10-066, *Re Universal Service and Compliance with the Mandates of Assembly Bill 3643*.

- Amend the basic service definition applicable to COLRs to add a broadband service[3] component.[4] The formal meaning of basic service applicable to COLRs should be updated to present day conditions. This allows the Commission to consider the role of broadband infrastructure when it determines whether a COLR's application to end its COLR obligation is in the public interest.
- Authorize the COLR to *provisionally* end its COLR obligation upon a showing that the COLR satisfies the proposed withdrawal conditions described herein.
- Adopt a 36-month[5] Provisional COLR Withdrawal Period in effect following provisional withdrawal approval and during which time the Commission would evaluate access and affordability impacts on customers.
- Authorize *final* COLR withdrawal if the COLR continues to meet the required standards during the withdrawal period.
- Adopt Copper Retirement Migration Plan Requirements and Copper Retirement Customer Protections, as described herein, to protect customers whenever an incumbent local exchange carrier (ILEC)[6] plans a copper retirement network change, and during the technology transitions that may presage a request for COLR withdrawal.
- Adopt a comprehensive basic service requirement, as described herein, which includes the elements of availability, reliability, service quality and affordability. This will assist the Commission in its determination of whether a COLR

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[3] As described below, the broadband basic service component the Commission should consider would provide customers speeds of at least 100 megabits per second (Mbps) download, and 20 Mbps upload.

[4] Cal Advocates does not here recommend that a broadband basic service component be added for any purpose other than for determining the reasonableness of requests for withdrawal from the COLR obligation.

[5] As discussed in Section III.C.1., Proposed COLR Withdrawal Requirements, the 36-month (three-year period) for the provisional approval of a COLR withdrawal allows the Commission to collect and assess data in quarterly reporting during this time. This period allows for data collection and assessment to provide sufficient information to determine whether the withdrawal conditions have been met.

[6] "Incumbent Local Exchange Carrier" (ILEC) refers to a wireline telephone company that provides local telecommunications services under regulation within a specified service area. CPUC, Telecommunications Carrier Types with Definition, last accessed September 13, 2024. Available at: https://www.cpuc.ca.gov/industries-and-topics/internet-and-phone/telecommunications-carrier-types-with-definition.

remains necessary in a specific service area and whether to revise a service area.

- Utilize the updated basic service requirement to evaluate potential alternative service providers. This must serve as a critical point of review determining a COLR's request to end its obligation to serve.

These COLR rule revisions are necessary because many Californians still lack universal access to broadband service at 100/20 megabits per second (Mbps) or faster, and have no choice of a provider which offers this essential service. More specifically:

- **Broadband service coverage at 100/20 Mbps or faster:**[7] Cable modem service providing 100/20 Mbps or faster service is unavailable to 27% of households (aggregated from the 16 COLR service areas), fiber optics service delivering these speeds is unavailable to 69% of households, fixed wireless service delivering 100/20 Mbps or faster is unavailable to 92% of households, and mobile broadband delivering speeds of 100/20 Mbps or faster is not available in any of the 16 COLR service areas.
- **Broadband service/provider alternatives:**[8] Both a fiber and a cable provider do not serve 75% of aggregated households in the 16 COLR service areas; a fiber, a cable and a fixed wireless provider does not serve 97.82% of households; at least three cable or fiber providers do not serve 96.79% of households; and at least four cable, fiber or fixed providers do not serve 95.55% of households.

During this time of network and technology transitions, the guarantee of universal service must remain of paramount importance to the Commission. To that end, Cal Advocates' Initial Proposal discusses these recommendations and supporting analysis.

Cal Advocates recommends a sequential and structured approach for the Commission to determine if a COLR may withdraw from a COLR obligation, under specified conditions and identified geographies within its service area. The sequence of

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[7] Based on CPUC Annual Collected Broadband Data. https://www.cpuc.ca.gov/industries-and-topics/internet-and-phone/broadband-mapping-program/cpuc-annual-collected-broadband-data. Data as of December 31, 2021. See Section III.A.4.

[8] Based on CPUC Annual Collected Broadband Data. https://www.cpuc.ca.gov/industries-and-topics/internet-and-phone/broadband-mapping-program/cpuc-annual-collected-broadband-data. Data as of December 31, 2021. See Section IIIIII.BIII.B.2.

these steps, each under Commission oversight, is described in Section III.C., Customer Migration: Proposed Revised COLR Rules. APPENDIX A: Sequenced Requirements for COLR Withdrawal, summarizes these steps.

This Initial Proposal explains the above recommendations and addresses the OIR's Preliminary Scoping of Issues questions "a" through "l."[9] The table below depicts where each of the questions is answered:

Initial Proposal Section	OIR Question
Universal Service: Proposed Basic Service for All Californians (Section III.A.)	h
Technology Transition: Evaluating Need for a COLR (Section III.B.)	a,b,c,d
Customer Migration: Proposed Revised COLR Rules (Section III.C.)	j,k,l
CPUC Jurisdiction Over Non-regulated Carriers and Providers as COLRs (Section III.D.)	e,f,g

II. BACKGROUND

On June 28, 2024, the CPUC issued this OIR. These rules were originally adopted in D.96-10-066 and affirmed in D.12-12-038. D.96-10-066 reaffirmed the Commission's commitment to universal service by ensuring that basic telephone service is available throughout California at an affordable rate.[10] In D.96-10-066, the Commission adopted rules on how universal service would be carried out as local exchange telephone markets

[9] With the exception of "i." R.24-06-012 at 4.

[10] D.96-10-066, at 1.

opened to competing carriers.[11] The rules included a "basic service" definition (discussed in detail in Section III.A.1., Current Basic Service Definition) and required that all carriers that provide local exchange service offer, at a minimum, service that satisfies the basic service definition.[12] The decision also established that the definition of basic service may be revisited in the future.[13]

In conformance with the state's commitment to universal service, D.96-10-066 discussed and adopted rules governing the COLR obligation.[14] The COLR obligation and governing rules are based on the concept that, by accepting the franchise obligation from the state to serve a particular area, the public utility is obligated to serve all the customers in that service area who request service.[15] Therefore, the COLR concept ensures that customers (both residential and business) receive service, including in high-cost areas.[16]

Under current COLR rules, the incumbent local exchange carriers (ILECs) continue to serve and be designated the COLR in all their respective service areas. The ILEC retains that obligation until another carrier is designated as the COLR.[17] The ILEC could also decide to remain as a COLR. The rules also provide for a procedure to replace the last remaining COLR that wants to be relieved of its COLR obligation in one of two ways: (a) another carrier is identified and is willing to serve as a COLR or (b) a reverse auction is held, and the result is another carrier comes forward and is willing (and able) to serve as a COLR.[18] If no replacement COLR is identified in the application or in the

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[11] D.96-10-066, at 1.

[12] D.96-10-066, at 1.

[13] D.96-10-066, at 1.

[14] D.96-10-066, at 161.

[15] D.96-10-066, at 113.

[16] D.96-10-066, at 158, FOF 171.

[17] D.96-10-066, Appendix B at 11.

[18] D.96-10-066, Appendix B at 11.

reverse auction process, then the Commission must deny the COLR withdrawal application under its current rules.[19] [20]

In this rulemaking, the Commission seeks to consider revision of the COLR rules. It should do so while it ensures universal service to all Californians. However, this universal service should not only include basic voice telephone service. It should also include broadband service. The inclusion of broadband service results in modern communication networks that leave no one behind.[21]

Over nearly three decades, communications technology has progressed, and carriers continue to modernize their networks. Carriers are transitioning from Public Switched Telephone Network (PSTN) or Plain Old Telephone Service (POTS) to modern broadband internet networks (packet-switched based) able to offer needed voice and data services. As COLRs modernize their networks to provide these necessary and innovative services, no one should be abandoned with inferior service or no service at all. To ensure all customers benefit from network modernizations by COLRs, Cal Advocates developed the following principles which guide the analysis in this Initial Proposal Adoption of these three principles will ensure that all customers benefit in the ongoing and upcoming network modernizations of COLRs.

1) Universal Access to Reliable, Quality and Affordable Essential Communications Services, Including Broadband Services

All Californians must have access to reliable, quality, and affordable essential communications services that include broadband service in addition to voice service. These essential communications services must be technology-neutral and support access to emergency services.

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[19] D.96-10-066, Appendix B at 11.

[20] D.12-12-038, *Adopting Basic Telephone Service Revisions* affirmed the Commission's COLR rules and revised the elements of basic service.

[21] See, Section III.A.3., Proposed New Basic Service Definition: Voice and Broadband.

2) Technology Transitions to a Modern Communications Network Must be Transparent, Meet the Customers' Communications Needs, Ensure Public Safety, Not Adversely Impact the Environment, and Not Leave Any Customer Behind.

A technology transition to a modern communications network must ensure that no customer is abandoned with inferior service or no service at all, whether they are a residential customer, an anchor institution, a first responder, or a business. A transition must also be transparent, meet customers' communications needs on a technology-neutral basis, and ensure public safety. A technology transition must also ensure compliance with all environmental regulations as existing infrastructure is maintained, upgraded to new facilities, or decommissioned. Changes to the communications network infrastructure must avoid or mitigate significant environmental impacts in accordance with the California Environmental Quality Act (CEQA).

3) Customer Migrations Must be Transparent, Meet the Customer's Communications Needs, be Accessible to the Customer, Ensure Public Safety, and Mitigate any Impact to Customers.

Customer Migration must be transparent, meet the customer's communications needs, and be accessible to the customer. Accessibility includes pre-planned multilingual public education programs. Customer Migration must also ensure public safety and mitigate any impact to the customer. Impacts to the customer include the price the customer pays for existing and new service, and the terms and conditions of those services.

III. DISCUSSION

A. Universal Service: Proposed Basic Service for All Californians

This section addresses the scoping memo question "***h. Should the Commission revise the requirements of basic service? If yes, which requirements or elements should be revised, and what should be those revisions?***" This section: (1) reviews the current basic service definition and elements, (2) provides current aggregated levels of basic telephone service subscribership in the COLR service areas, and (3) presents

Cal Advocates' recommendation to include broadband service (at 100/20 Mbps or faster) in a revised definition of basic service.

1. Current Basic Service Definition

In D.96-10-066, the Commission defined "basic service" as the minimum level of service which each carrier of local exchange service is required to provide to all its customers.[22] Pursuant to D.96-10-066, carriers that provide local exchange service shall offer, at a minimum, all elements of basic service listed below:

1. Access to single party local exchange service.
2. Access to all interexchange carriers offering service to customers in a local exchange.
3. Ability to place calls.
4. Ability to receive free unlimited incoming calls.
5. Free touch tone dialing.
6. Free and unlimited access to 911/E911.
7. Access to local directory assistance, and access to foreign NPAs.
8. Lifeline rates and charges for eligible customers.
9. Customer choice of flat or measured rate service.[23]
10. Free provision of one directory listing per year as provided for in D.96-02-072.
11. Free white pages telephone directory.
12. Access to operator services.
13. Voice grade connection to public switched telephone network.
14. Free access to 800 or 800-like toll free services.
15. One-time free blocking for information services and one time billing adjustments for charges incurred inadvertently, mistakenly, or that were unauthorized.

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[22] D.96-10-066, at 160.

[23] The COLR rules exempt the Small ILECs from the basic service element that they be required to offer customers the choice of flat or measured rate service, unless the Small ILECs already offered that option. D.96-10-066, at 160.

16. Access to telephone relay service as provided for in [Public Utilities] Code [section] 2881.
17. Free access to customer service for information about ULTS, service activation, service termination, service repair and bill inquiries.[24]

In the late 1990s, this basic service definition standardized the elements of telephone service to support the universal service policy throughout the state. This basic service definition has been in place nearly three decades and served its purpose to provide communication services essential for participation in society regardless of income or geographical location (urban or rural). Cal Advocates does not recommend changes to these voice related components of basic service. However, Cal Advocates recommends updating the basic service components to include broadband service at speeds of at least 100 megabits per second (Mbps) download and 20 Mbps upload (100/20 Mbps) as a condition of authorization to withdraw from the COLR obligation in a service area (as described in detail in Section III.A.3.).

2. Current Basic Service Availability in COLR Service Areas

In D.96-10-066, the Commission established the following set of ILECs to serve as the COLR in their existing service areas:

- Pacific Bell doing business as AT&T California (AT&T).
- Frontier California Inc., Citizens Telecommunications Company of California Inc., Frontier Communications of Southwest Inc. (collectively, Frontier).
- Consolidated Communications of California (Consolidated).
- Calaveras Telephone Company, Ducor Telephone Company, Foresthill Telephone Co., Happy Valley Telephone Company, Hornitos Telephone Company, Kerman Telephone Co., Pinnacles Telephone Co., The Ponderosa Telephone Co., Sierra Telephone Company, Siskiyou Telephone Company, Volcano Telephone

[24] D.96-10-066, at 160.

Company, Winterhaven Telephone Company (collectively, Small ILECs).[25] [26]

The 16 ILECs currently serve as COLRs in their existing service areas covering all of California's 39,506,579 residents, 13,463,857 households, and 14,373,522 housing units in all COLR service areas.[27] AT&T is the largest COLR with 74.42% of the population in California in its service area, followed by Frontier with 24.46% of the population in its service area.[28] Table 1 displays the population, household, and housing units within in each COLR service area in all of California.

Table 1. Population, Household, and Housing Units in California by each COLR

COLR	Population (Pop)	Pop in California (%)	Households (HH)	HH in California (%)	Housing Units (HU)	HU in California(%)
AT&T	29,426,272	74.42%	10,122,886	75.12%	10,745,410	74.66%
Frontier	9,669,942	24.46%	3,186,714	23.65%	3,456,265	24.01%
Consolidated	283,376	0.72%	105,409	0.78%	109,050	0.76%
Small ILECs	126,989	0.32%	48,848	0.36%	62,797	0.44%

COLRs provide basic service to customers located in High Fire Threat Districts (HFTDs), Floodplains, Tsunami Hazard areas, disadvantaged communities, tribal areas, and areas where the median household income level is below 80% of the state average median household income. Key demographic features of the COLR service areas include:

- 25.49% of the households in AT&T's COLR service area are located in areas considered to be disadvantaged communities, and 10.39% of the households are located in HFTDs.

[25] D.96-10-066, at 163, 166.

[26] APPENDIX C: Demographics of the 16 COLR Service Areas provides a map of the 16 COLR service areas.

[27] APPENDIX C: Demographics of the 16 COLR Service Areas.

[28] APPENDIX C: Demographics of the 16 COLR Service Areas.

- Frontier's service area includes 381,286 households located in HFTDs. This means that 11.96% of the households in Frontier's service area live in a HFTD.
- Consolidated serves as the COLR in Placer County and Sacramento County, with 30.50% of those households considered low-income.
- The Small ILECs' service areas include rural areas of California, with 88.66% of the households located in HFTDs and 58.43% of the households considered low-income, with a median household income less than 80% of the state average.[29]

Currently, the COLR carriers provide basic service in their respective service areas. In the Commission's review of the COLR rules, Cal Advocates urges the Commission to consider how the unique features of each COLR service area shape the basic service needs of the people who reside there.

3. Proposed New Basic Service Definition: Voice and Broadband

The Commission should update the basic service definition to include a broadband component applicable to COLRs at the time of withdrawal. As a condition of authorization to withdraw from the COLR obligation in a service area, the Commission should require a showing that the COLR has deployed technologies sufficient to provide broadband basic service across that area.

The Commission previously defined "basic service" as a minimum level of service that residents have come to expect.[30] The Commission later refined its definition of "basic telecommunications services" to mean "those services essential to meet universal service needs."[31] In turn, "universal service" suggests that there are services so essential

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[29] APPENDIX C: Demographics of the 16 COLR Service Areas.

[30] D.96-10-066, at 1. ("The term 'basic service' for residential customers is defined to include those telephone service elements that consumers have come to expect.")

[31] D.12-12-038, at 1. To expand on the "universal service needs" mentioned, this decision cites to the "principles underlying the [CPUC's] universal telephone service goals" found in Decision (D.) 95-07-050, *Rulemaking on the Commission's Own Motion into Universal Service and to Comply with the Mandates of Assembly Bill 3643; Investigation on the Commission's Own Motion into Universal Service and to Comply with the Mandates of Assembly Bill 3643*.

to participation in modern life that policy should aim to ensure that these services are (1) available to all and, (2) affordable.[32] Particularly in the post-Covid world, it is axiomatic that broadband is an essential service for which we should strive towards universal service.

Indeed, California has already committed to ensuring universal access to broadband.[33] [34] However, while the COLR obligation "serve[s] the 'public good' by providing a backstop for end users to ensure universal access to critical services[,]"[35] there is currently no "backstop" for ensuring universal access to broadband throughout the state. The Commission administers several broadband deployment grant programs,[36] but it is unclear whether the funding available via these programs is sufficient to achieve universal access to broadband.[37] Internet Service Provider (ISP) participation in such programs is voluntary, and the programs allow participants to choose which areas, if any, to apply for funding to serve,[38] often leaving the highest-cost and lowest revenue

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[32] D.95-07-050, at FOF 5. ("Universal service means essentially two things: 1) that a minimum level of telecommunication services is available to virtually everyone in the state; and 2) that the rates for such services remain reasonable.")

[33] The primary goal of the California Broadband Action Plan is to ensure that "[a]ll Californians have high-performance broadband available at home, schools, libraries, and businesses." California Broadband Action Plan at 22 (2020), available at https://broadbandcouncil.ca.gov/wp-content/uploads/sites/68/2020/12/BB4All-Action-Plan-Final.pdf.

[34] By accepting Broadband Equity, Access, and Deployment (BEAD) program funding, the Commission has committed to ensuring that affordable, reliable, high-speed internet is accessible at every location within its jurisdiction. National Telecommunications and Information Administration (NTIA), BEAD Notice of Funding Opportunity at 8 (May 2022).

[35] Sherry Lichtenberg, Ph.D., Carrier of Last Resort: Anachronism or Necessity? at 1 (2016), *National Regulatory Research Institute Report No. 16–06*, available at https://pubs.naruc.org/pub/FA85B978-00A3-862C-5E8D-9E10816FA7DB.

[36] These programs include the California Advanced Services Fund (CASF), Broadband Infrastructure Grant Account, the Federal Funding Account, and the BEAD Program, which is still under development in Rulemaking (R.) 23-02-016, *Order Instituting Rulemaking Proceeding to Consider Rules to Implement the Broadband Equity, Access, and Deployment Program*.

[37] See e.g., CPUC BEAD Five-Year Action Plan at 7 (Aug. 28, 2023), available at california-bead-five-year-action-plan---final-draft---20230828.pdf.

[38] For California state broadband grant deployment program rules, see CPUC Decision (D.) 22-11-023, *Adopting Modifications to California Advanced Services Fund Broadband Infrastructure Grant Account*,

(continued on next page)

generating locations out of ISP grant applications.[39] In short, the Commission generally lacks a mechanism to compel a broadband provider to deploy broadband service to a specific location or area, and existing voluntary programs may not suffice to ensure every location in California is ultimately served by broadband. The opportunity for the Commission to relieve the COLR of its COLR obligation provides a reasonable and effective incentive that would achieve the Commission's goal of ensuring universal access to broadband.[40]

The Commission previously considered whether it would be feasible to add broadband as a component of basic service.[41] In 2000, California enacted Senate Bill (SB) 1712, which required the Commission to "initiate a proceeding investigating the feasibility[42] of redefining universal telephone service by incorporating two-way voice, video, and data service as components of basic service."[43] The resulting report, adopted October 24, 2002, concluded that while the Commission had the authority to redefine basic service to include a broadband component, it was not, at that time, feasible to do so

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Att. 1, Infrastructure Account Rules; Decision (D.) 22-04-055, *Adopting Federal Funding Account Rules*, App. A, Federal Funding Account Program Rules and Guidelines; and CPUC BEAD Initial Proposal Vol. 2.

[39] See CPUC BEAD Initial Proposal Vol. 2 at 15:

> California recognizes the challenging underlying economics of deploying broadband to the locations that are currently unserved or underserved; for example, even with a generous grant program, some areas may not attract any applications at all, or may attract only a single application whose costs are not constrained by competition for funds to serve that area. This is because, even where deployment is fully funded with BEAD funds, it may be economically challenging for a grantee to operate and sustain the network because of low revenue opportunity and high operating costs.

[40] As described elsewhere in this proposal, the Commission should investigate the feasibility of extending California High-Cost Fund-B subsidies to former COLRs for the purposes of supporting broadband basic service operations and maintenance in designated high costs areas.

[41] See Rulemaking (R.) 01-05-046, *Rulemaking on the Commission's Own Motion to Comply with the Mandates of Senate Bill 1712.*

[42] "Feasibility" was defined as meaning consistency with principles of technological and competitive neutrality, equitable distribution of the funding burden, and that the benefits outweighed the costs. Senate Bill 1712 (Polanco, 2000), codified as Public Utilities Code (Pub. Util. Code), § 871.7(d).

[43] Pub. Util. Code, § 871.7(c).

"primarily due to the resulting cost to be allocated to all other users, as well as the monthly price lifeline [sic] customers would be required to pay."[44]

Nearly a quarter century later, the communications network has undergone significant modernization, including a significant increase in the availability and utilization broadband. Therefore, today's circumstances which would determine the feasibility of updating the definition of basic service to include broadband are distinguishable from the circumstances the Commission contemplated in 2002.

In apparent anticipation of evolving circumstances, SB 1712 also directed the Commission to "develop a process to periodically review and revise the definition of universal service to reflect new technologies and markets."[45] However, the Commission has not conducted such a review since 2012.[46] Arguably, a review that satisfies the requirements of SB 1712 has not occurred since the 2002 report cited above. The Order Instituting Rulemaking in the proceeding that led to the 2012 basic service updates explicitly ruled out consideration of broadband as a basic service component in that proceeding.[47]

In fact, regulators have long recognized that the services that constitute "basic service" will change over time with the changing needs and expectations of the public.[48] Given the mandate created by SB 1712, and the significant cumulative public investments made in broadband deployment since SB 1712 was adopted,[49] including the expansion of federal Lifeline to include support for standalone broadband service, the question of whether it is feasible to adopt a broadband basic service component is ripe for another look.

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[44] Decision (D.) 02-10-060, *Opinion Completing Proceeding and Closing Document,* at 2.

[45] Pub. Util. Code, § 883 (b)(7).

[46] D.12-12-038.

[47] R.09-06-019, *Order Instituting Rulemaking on Reforms to the California High Cost Fund-B,* at 3, n.1.

[48] See e.g., D.96-10-066, at 18.

[49] See e.g., Senate Bill (S.B.) 156 (2021, Committee Bill), allocating $6 billion for middle mile, last mile, and deployment technical assistance grants and loan reserve funding in California.

The Commission should update its basic service components applicable to COLRs to include broadband service at speeds of at least 100 Mbps download and 20 Mbps upload (100/20 Mbps). D.96-10-066, Appendix B, sets forth four criteria the Commission must consider when determining whether a service should be added as a basic service component.[50] The criteria are as follows:

- The service is essential for participation in society. Broadband service delivered at speeds of 100/20 Mbps satisfies this condition.
- A substantial majority, 65%, of residential customers subscribe to the service. Broadband service delivered at speeds of 25/3 Mbps satisfies this condition, and broadband service delivered at speeds of 100/20 Mbps may satisfy this condition.
- The benefits of adding the service outweigh the costs. Broadband service delivered at speeds of 100/20 Mbps may satisfy this condition.
- Availability of the service, or subscription rates, would not increase without intervention.[51] Broadband service delivered at speeds of 100/20 Mbps satisfies this condition.

As described below, broadband offered at speeds of 100/20 Mbps may satisfy all four factors.[52] Given this, and the pace of expansion of uses for high-speed home broadband access,[53] the Commission should set a forward-looking 100/20 Mbps broadband basic service standard.

[50] CPUC D.96-10-066, Appendix B at 160-161.

[51] D.96-10-066, at 161, Appendix B, Rule 4.D.3.

[52] Federal Communications Commission (FCC) 2022 Communications Marketplace Report at 23, FCC 22-103.

[53] FCC 2024 Section 706 Report at 14, ¶25, FCC 24-27.

1) Broadband service is essential for participation in modern society.

Access to broadband service is essential for participation in modern society, particularly in the spheres of education, employment, healthcare, and public safety.[54] [55]

Increasingly, broadband service is essential for obtaining an education. The COVID-19 pandemic laid bare the necessity of having a home internet connection for children to receive an education during certain community emergencies. Even outside the context of emergency education, however, lack of access to a home broadband connection impacts student outcomes via the "homework gap."[56] Home broadband access also increases opportunities for adult education. Nationally, primarily online colleges enrolled 1.1 million students[57] and roughly 10 million college students took at least one online course in the 2021-2022 school year.[58]

Broadband access is also important for succeeding in today's workforce and improving conditions for workforce participants. A study conducted in 2014 found that

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[54] See detailed analysis in Appendix B: Broadband Service is Essential for Participation in Modern Society.

[55] See the Bipartisan Infrastructure Act (Infrastructure Investment and Jobs Act of 2021), P.L. 117-58 §60101(1) (2021): "Access to affordable, reliable, high-speed broadband is essential to full participation in modern life in the United States." See also California Broadband Council, California Broadband Plan at 2 (2020), available at https://broadbandcouncil.ca.gov/wp-content/uploads/sites/68/2020/12/BB4All-Action-Plan-Final.pdf.See also D.20-07-032, Adopting Metrics and Methodologies for Assessing the Relative Affordability of Utility Services at 27, 34.See also FCC 2024 Section 706 Report at 1, ¶1, FCC 24-27. See also CPUC BEAD Program Five Year Action Plan at 6 (2023): "California understands that access to broadband is not a luxury, but an essential service necessary to participate in everyday life[.]"

[56] The "homework gap" describes the inability to fully participate in educational opportunities experienced by students who lack home access to broadband. *FCC Notice of Proposed Rulemaking In the Matter of Addressing the Homework Gap through the E-Rate Program*, FCC 23-91 at ¶2 (2023).

[57] Ilana Hamilton and Brenda Swanston, 2024 Online Learning Statistics (May 31, 2024), Forbes Advisor, available at https://www.forbes.com/advisor/education/online-colleges/online-learning-stats/#1, citing National Center for Education Studies, Selected statistics for degree-granting postsecondary institutions that primarily offer online programs, by control of institution and selected characteristics: Fall 2022 and academic year 2021–22, available at https://nces.ed.gov/programs/digest/d23/tables/dt23_311.33.asp.

[58] Ilana Hamilton and Brenda Swanston, 2024 Online Learning Statistics (May 31, 2024), Forbes Advisor, available at https://www.forbes.com/advisor/education/online-colleges/online-learning-stats/#1, citing National Center for Education Statistics, Number and percentage of students enrolled in degree-granting postsecondary institutions, by distance education participation, location of student, level of enrollment, and control and level of institution: Fall 2021 and fall 2022, available at https://nces.ed.gov/programs/digest/d23/ tables/dt23_311.15.asp.

60 to 70% of active job postings were posted online.[59] "Massive open online courses" (MOOCs) and less formal instruction found on sites like YouTube and online forums democratize training and development, allowing those with broadband access the tools to acquire and improve job skills.[60] Growth in remote work opportunities is one factor in recent increases in employment among people with disabilities.[61] Home broadband access is an essential tool for getting a job and improving job skills, and allows for greater participation in the workforce for Californians with disabilities.

Universal access to fast broadband is increasingly essential for accessing modern healthcare services, assisting providers and patients to achieve better outcomes. As early as 2002, medical providers informed the Commission that hospitals and patients in rural areas need "advanced telecommunications services."[62] Of family health physicians in California, 97% had adopted use of electronic health records by 2020, increasing the ability to share patient information across health systems[63] and save hospitals money.[64]

Universal access to broadband services at patients' homes can also improve health outcomes. A 2024 study indicates that positive health impacts of increased broadband access are most consistently seen across models when "broadband access" is defined as

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[59] Jennifer Duane, Access to Broadband Fuels Workforce Development and Enhances Job Skills (Nov. 15, 2016), National Telecommunications and Information Administration website, https://www.ntia.gov/blog/access-broadband-fuels-workforce-development-and-enhances-job-skills.

[60] Adie Tomer, Lara Fishbane, Angela Siefer, and Bill Callahan, Digital Prosperity: How Broadband Can Deliver Health and Equity to All Communities at 36 (Feb. 2020), Metropolitan Policy Program at Brookings, available at https://www.brookings.edu/wp-content/uploads/2020/02/20200227_BrookingsMetro_Digital-Prosperity-Report-final.pdf.

[61] Adam Ozimek, Remote Work is Enabling Higher Employment Among Disabled Workers (Oct. 2022), Economic Innovation Group, available at https://eig.org/remote-work-is-enabling-higher-employment-among-disabled-workers/.

[62] D.02-10-060, at 35-36.

[63] California Health and Human Services Agency Center for Data Insights and Innovation, California Data Exchange Landscape: Section Draft at 8 (May 2022), available at https://www.chhs.ca.gov/wp-content/uploads/2022/05/3_CalHHS_DxF_California-Data-Exchange-Landscape_Draft_05-12-2022.pdf.

[64] National Telecommunications and Information Administration pamphlet, Why Does Broadband Matter?, available at https://broadbandusa.ntia.doc.gov/sites/default/files/publication-pdfs/bbusa_why_does_broadband_matter.pdf.

access to 100/10 Mbps, though positive impacts are also seen when access is defined as 25/3 Mbps.[65]

Finally, universal access to broadband service improves public safety.[66] While public safety professionals primarily rely on a nationwide, interoperable public safety mobile broadband network (FirstNet), members of the public rely on home broadband connections to access public safety information and resources. In-home broadband access also provides for redundancy and/or reliability in areas where mobile service is inconsistent. Finally, fixed broadband access provides homes and businesses with the resources necessary for real-time visual and data safety monitoring such as surveillance or security via video streaming, alarm monitoring, and fire monitoring via video streaming and analysis.

2) Over 65% of residential customers in California subscribe to broadband service at home.

As noted above, the Commission found that over 70% of Californians[67] subscribed to broadband services with speeds of at least 25/3 Mbps as of December 31, 2022.[68] The Federal Communications Commission (FCC) estimated that in 2021, between 61 and 69% of all California households (not only those to whom service had been deployed) subscribed to fixed broadband services offering speeds of at least 100 Mbps download.[69]

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[65] Vikas Gawai and Steven Deller, Is There a Link between Access to Broadband and Health Outcomes? at 14 (Apr. 2024), available at http://dx.doi.org/10.2139/ssrn.4779027.

[66] See CPUC BEAD Five-Year Action Plan at 6: "Broadband powers the State's most critical systems, from its electrical grid to its water supply systems, its public safety and emergency response networks. Broadband underpins modern life."

[67] This refers to 70% of Californians, out of all those to whom 25/3 Mbps broadband had been deployed, and who thus had the opportunity to subscribe.

[68] *CPUC 2023 Annual Report for the California Advanced Services Fund*, at 18-19, available at https://www.cpuc.ca.gov/-/media/cpuc-website/industries-and-topics/reports/casf-2023-annual-report-43024.pdf.

[69] FCC 2022 Communications Marketplace Report at 23, Fig. II.A.15, FCC 22-103. This is the most recent subscription data published in an FCC Communications marketplace Report.

Further, data from the end of 2022 indicates that at least 42% of people in the United States with access to 100/20 Mbps fixed terrestrial service subscribes to such service.[70] This factor in the Commission's basic service analysis is clearly satisfied for 25/3 Mbps broadband service and may be satisfied for 100/20 Mbps service, given the time that has elapsed since 2022 and given deployment and monthly service fee funding distributed since the data noted above was collected.

Regardless of whether this criterion is technically satisfied, however, the Commission can still find that 100/20 Mbps broadband should be added as a component of basic service. Concern about this specific criterion led the Commission to find that there are some cases in which petitioners need only make a showing that three of the four criteria need be satisfied to consider revising the components of basic service.[71] Further, the Commission has determined that weighing of the criteria should be done on a case-by-case basis along with review of other policy considerations.[72]

Given the flexibility the Commission has determined is reasonable in its review process here, and to ensure that the Commission reaches its goal of universal access to 100/20 Mbps broadband, the Commission should take a forward-looking approach to this criterion and waive strict application if it does not find it satisfied. The FCC's adoption of 100/20 Mbps as the fixed broadband speed benchmark used to evaluate the fulfillment

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[70] Kevin Taglang, "Affordability, Adoption, Availability, and Equitable Access Impact FCC's Broadband Deployment Report," Benton Institute for Broadband and Society, Weekly Digest, Apr. 26, 2024, https://www.benton.org/blog/affordability-adoption-availability-and-equitable-access-impact-fccs-broadband-deployment. Cal Advocates notes that more recent data specific to California is not available.

[71] See D.96-10-066 at 21, where the Commission determined that, as part of the Commission's immediate review procedure, a proponent of adding a new basic service element need only make a showing that 3 of the 4 criteria are met. This, the Commission noted, would alleviate "the concern that a proposed service element may be so essential for participation in society, but has not yet reached a 65% subscribership rate in residential households." The Commission's "immediate" review process noted above would allow a petitioner to propose adding a basic service element outside of what the Commission adopted as a three-year review cycle of basic service elements.

[72] See D.96-10-066 at 22.

of universal service goals evidences the reasonableness of this forward-looking approach.[73]

3) The Commission has implicitly determined that the benefits of adding broadband as a basic service outweigh the costs.

By virtue of its acceptance of BEAD funding, the Commission has committed to deploying affordable 100/20 Mbps (or faster) broadband to every unserved and underserved location in the state. The Commission's action demonstrates a belief that the benefits of delivering universal access to affordable broadband justifies the cost.[74]

If the Commission determines that this issue needs to be investigated further, however, the Commission should address the factors listed below. As mentioned above and elsewhere in this Initial Proposal, the Commission should require COLRs to proactively deploy broadband basic service to all unserved and underserved locations in their COLR service area as a pre-condition of authorization to withdraw from the COLR obligation. Additional public funding may be necessary to facilitate deployment of broadband basic service, via subsidies for capital expenses and ongoing operations and maintenance (O&M) costs, to achieve and sustain universal access. Therefore, the cost factor estimates the Commission could identify and analyze include the:

- Remaining number and characteristics (e.g., income demographics, high-cost nature, etc.) of locations that lack access to 100/20 Mbps broadband connections after existing funding programs are exhausted.
- Remaining capital investment required to deploy infrastructure needed to provide 100/20 Mbps broadband access to locations identified through the process above after current funding programs, including the Federal Funding Account (FFA), the Broadband Equity, Access, and Deployment program (BEAD) and the Rural Digital Opportunity Fund (RDOF) are exhausted.

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[73] FCC 2024 Section 706 Report at 2, ¶ 2, FCC 24-27.

[74] NTIA, BEAD Notice of Funding Opportunity at 8 (May 2022). See also CPUC DRAFT BEAD Initial Proposal Vol. 2 at 25, where the CPUC describes its proposed BEAD subgrantee selection process, approved by the NTIA, that is a "part of the CPUC's larger plan for ensuring service to all California locations that are currently unserved or underserved."

- Estimated funding required to ensure sustainability of networks given anticipated O&M costs of basic broadband service to be deployed in high-cost areas.
- Estimated impacts on universal service fund surcharges should California LifeLine and/or the California High Cost Fund-B (CHCF-B) be expanded to subsidize standalone basic broadband service access and O&M.[75]

If the Commission decides to scope this issue for further review, given the resources the Commission already has put to this effort, the Commission's Communications Division should prepare a staff proposal examining the cost factors noted above. For example, Communications Division staff have performed extensive cost modeling to estimate the cost of connecting all locations in the state that lack access to non-legacy wireline broadband service of at least 25/3 Mbps with an end-to-end fiber network,[76] and the attendant estimates of revenues needed to ensure networks are sustainable.[77] While the Commission has already implicitly acknowledged the benefits of deploying broadband service to every location lacking 100/20 Mbps service in the state, the analysis factors above may help the Commission determine specific costs that remain. Those costs may include additional capital expense, O&M support in high-cost areas, and low-income subsidies that may remain as outstanding costs after BEAD, FFA, and other deployment grant funds are exhausted.

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[75] Revision of these programs may require action in separate rulemakings or by the Legislature. The Commission should include related questions in the Scoping Memo for this proceeding.

[76] CPUC BEAD Five-Year Action Plan at 6-7.

[77] See e.g., the Commission's process for creating priority areas for the Federal Funding Account, which "designed [priority areas] to support a sustainable business case for applicants based on network engineering design and modeling," while "[r]evenue for each priority area was modeled based on estimated price and demand of broadband service." CPUC Federal Funding Account Priority Areas Fact Sheet, available at https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/communications-division/documents/broadband-implementation-for-california/priority-areas-webpage/priority-areas-fact-sheet.pdf.

4) The availability of broadband service or adoption will not increase without intervention.

"Market failures exist when the private market is unable or unwilling to provide for a socially important good because of a lack of return on investment."[78] Such a market failure is evident across large swathes of rural California where low population density and difficult terrain increase broadband deployment and O&M costs,[79] leaving rural areas less likely to have access to faster broadband services.[80] This market failure is also evident in low-income urban areas in California where ISPs fail to upgrade infrastructure and, as a result, offer slower speeds than in other neighborhoods, often at higher prices than are available in wealthier neighborhoods.[81]

In its BEAD program Initial Proposal Volume 2, the Commission acknowledged that, for many locations in California, the business case for broadband deployment does not exist without government support and is potentially insufficient even with fully public-funded deployment:

> California recognizes the challenging underlying economics of deploying broadband to the locations that are currently unserved or underserved; for example, even with a generous grant program, some areas may not attract any applications at all, or may attract only a single application whose costs are not constrained by competition for funds to serve that area. This is because, even where deployment is fully funded with BEAD funds, it may be economically challenging for a

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[78] Christopher Ali, Farm Fresh Broadband: The Politics of Rural Connectivity at 21 (2021), Massachusetts Institute of Technology.

[79] NTIA, Economics of Broadband Networks: An Overview at 1 (2022), available at https://broadbandusa.ntia.doc.gov/sites/default/files/2022-03/Economics%20of%20Broadband%20Networks%20PDF.pdf.

[80] FCC 2022 Communications Marketplace Report at 13, ¶24, FCC 22-103.

[81] See Aaron Sankin, Still Loading: Los Angeles Becomes First U.S. City to Outlaw Digital Discrimination (Feb. 1, 2024), *The Markup*, https://themarkup.org/still-loading/2024/02/01/los-angeles-becomes-first-us-city-to-outlaw-digital-discrimination.See also California Community Foundation, Slower and More Expensive, Sounding the Alarm Disparities in Advertised Pricing for Fast, Reliable Broadband (2022), available at https://www.calfund.org/wp-content/uploads/Pricing-Disparities-Report.pdf.

> grantee to operate and sustain the network because of low revenue opportunity and high operating costs.[82]

The Commission's above acknowledgment highlights how current broadband deployment funding programs can replicate unsubsidized market activity by "cherry-picking" the easiest eligible locations to include in their grant funding proposals. This often ends up leaving many outlying rural locations and low-income "donut holes" in urban areas out of broadband deployment funding proposals.[83] As noted in the opening paragraphs of this section, COLRs exist as a "backstop," as the final resort for ensuring customers have access to basic services. COLRs should be the "backstop" broadband providers for these locations and the COLR obligation is the best tool the Commission has to truly ensure universal service in California.

4. Broadband Service Coverage in California

This subsection presents the broadband service coverage landscape[84] in the 16 COLR service areas. Cal Advocates supports a technology transition to modern communications networks across California which ensures that no customer is left behind, including potential new customers. This technology transition must meet customers' communications needs on a technology-neutral basis and protect public safety.

Accordingly, this subsection provides coverage levels for different broadband technologies. First, it briefly presents coverage for legacy digital subscriber line (DSL)

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[82] CPUC BEAD Initial Proposal Volume 2 at 20.

[83] See Sean Gonzalves, Charter Poised to Haul in Half of Montana's Broadband Grants; Smaller ISPs Raise Questions (Aug. 23, 2022), Community Networks, https://communitynets.org/content/charter-poised-haul-half-montanas-broadband-grants-smaller-isps-raise-questions.See also Emma Gautier, Realizing Ambitions of Open Access Broadband in Marin County, CA (Mar. 30, 2023), Institute for Local Self-Reliance, https://ilsr.org/articles/ambitions-of-open-access-broadband-in-marin/.

[84] Based on CPUC Annual Collected Broadband Data. https://www.cpuc.ca.gov/industries-and-topics/internet-and-phone/broadband-mapping-program/cpuc-annual-collected-broadband-data. Data as of December 31, 2021. This is the latest CPUC publicly available data release. Current broadband deployment might differ from this latest release. See Methodology in APPENDIX D: Broadband Service Coverage Analysis.

technologies. Then, it expands to other future-proof technology alternatives including cable modem, fiber optics, fixed wireless, and mobile wireless.

The findings of this section are used to evaluate the need of COLRs in different geographical regions,[85] and to apply Cal Advocates' proposed principles.

Copper DSL in COLR Service Areas

Copper DSL[86] refers to technologies that provide fixed wireline service via copper wire.[87] In the 16 COLR service areas, Copper DSL is available at speeds of at least 25/3

[85] Discussed in Section III.B., Technology Transition: Evaluating Need for a COLR.

[86] For broadband deployment data, the FCC assigned the code technology of transmission 10,11,12, and 20 to DSL. DSL technologies include technologies which use asymmetric DSL, ADSL2, VDSL, and symmetric DSL.

[87] Legacy DSL technology (ADSL2/ADSL2+, and VDSL2) provides broadband service over traditional copper telephone lines already installed in homes and businesses. Limitations of DSL technologies include that service speeds are highly dependent on the distance to the central office or the length of the copper lines, the lack of expansion of traditional telephone lines resulting in a lack of DSL footprint growth, and a failure to provide future-proof data rates of hundreds of Mbps or gigabit service. Typical DSL technology speeds are the following:

- ADSL2 or ADSL2+ with loops of over 12,000 feet provide rates of 6 Mbps/1Mbps. To provide faster speeds over 30 Mbps, DSL operators can bond loops if enough copper loops are available. Faster speeds can also be obtained by shortening loop lengths.
- DSL with loops of over 5,000 feet typically uses VDSL2 to provide 20 Mbps downstream and 4 Mbps upstream.
- DSL with loops of over 3,000 feet also uses VDSL2 to provide 35 Mbps downstream and 6 Mbps upstream.

Mbps (state broadband service standard)[88] and 100/20 Mbps.[89] COLRs and other companies provide Copper DSL in the 16 COLR service areas.[90] [91]

Copper DSL coverage is provided in the COLR service areas mainly through asymmetrical DSL and very high-speed digital subscriber line (VDSL). AT&T, Frontier,

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[88] Senate Bill-156 Communications: Broadband (2021) ""unserved area" means an area for which there is no facility-based broadband provider offering at least one tier of broadband service at speeds of at least 25 Mbps downstream, 3 Mbps upstream, and a latency that is sufficiently low to allow real time interactive applications, considering updated federal and state broadband mapping data." https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=202120220SB156.

[89] Based on CPUC Annual Collected Broadband Data. https://www.cpuc.ca.gov/industries-and-topics/internet-and-phone/broadband-mapping-program/cpuc-annual-collected-broadband-data. Data as of December 31, 2021. This is the latest CPUC publicly available data release. Current broadband deployment might differ from this latest release. See Methodology in APPENDIX D: Broadband Service Coverage Analysis.

[90] The copper DSL providers with the largest coverage in each of the 16 COLR areas are:

AT&T: Calaveras Telephone Company, ConnectTo, Cal-Ore Communications, Frontier California Inc., Impulse Internet Services, Sierra Tel Internet, South Valley Internet, The Ponderosa Telephone Co, Volcano Vision Inc, AT&T Service, Inc, Sonic, Raw Bandwidth Communications.

Frontier: Calaveras Telephone Company, Cal-Ore Communications Inc., ConnectTo, Frontier California Inc., Impulse Internet Services, South Valley Internet, WillitsOnline, AT&T Service, Inc.

Consolidated: Consolidated, AT&T Inc,

Sierra:.Sierra Tel Internet, The Ponderosa Telephone Company

Kerman: N/A

Ponderosa: Ponderosa Telephone Company, AT&T Inc, Sierra Tel Internet, Frontier California

Siskiyou: N/A

Calaveras: Calveras Telephone Company

Happy Valley: TDS Telecom

Foresthill: N/A

Cal-Ore: Cal-Ore

Ducor: Ducor Telephone Company

Winterhaven: TDS Telecom

Hornitos: TDS Telecom, Sierra Tel Internet

Pinnacles: Pinnacles, Frontier California Inc

Volcano: Volcano Vision Inc

[91] APPENDIX D: Broadband Service Coverage Analysis presents copper DSL coverage in the 16 COLR service areas by served population, households, and housing units at speeds of at least 25/3 Mbps for each technology code within copper DSL.

Consolidated, and nine of the 13 Small ILECs provide Asymmetric xDSL at speeds of 25/3 Mbps,[92] see Figure 1. AT&T provides VDSL at 25/3 Mbps to 62.04% of served households in its service area. All other COLRs provide low coverage, below 3% in their service area. AT&T provides VDSL at speeds of at least 100/20 Mbps in its service area to only 46.14% of served households.[93]

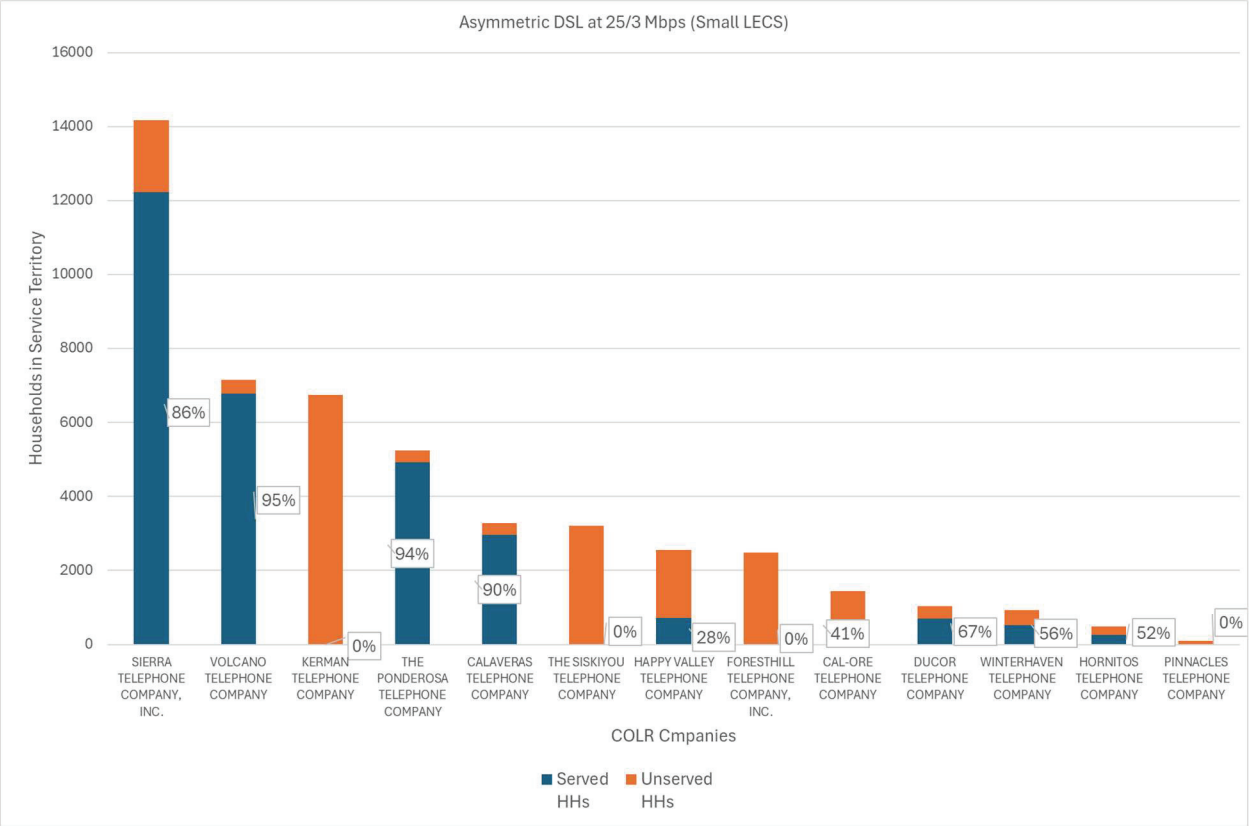

Figure 1. Asymmetrical DSL at 25/3 Mbps for the Small ILECs

[92] The Small ILECS include Sierra, Volcano, Ponderosa, Calaveras, Happy Valley, Cal-Ore, Ducor, Winterhaven, and Hornitos. The asymmetric DSL coverage for served households at 25/3 Mbps for the nine Small ILECs ranges from 39% coverage to 94% coverage.

[93] The CPUC broadband availability data is based on self-reported coverage by carriers and broadband service providers. The actual feasibility of providing DSL speeds of 100/20 Mbps or faster might be limited by the status of the infrastructure and the distance to the central office, among other factors.

Cable Modem Technology in COLR Service Areas[94]

Cable modem technology[95] refers to technologies that provide fixed wireline broadband service using coaxial cable[96] or hybrid fiber coaxial.[97] Cable modem coverage is available at speeds of at least 25/3 Mbps and 100/20 Mbps in the 16 COLR service areas[98] and is provided through cable modem DOCSIS 3.0 and the current industry standard cable modem DOCSIS 3.1.[99] Both COLRs and other companies provide cable modem coverage in the 16 COLR service areas.[100] AT&T, Frontier, and Consolidated

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[94] Based on CPUC Annual Collected Broadband Data. https://www.cpuc.ca.gov/industries-and-topics/internet-and-phone/broadband-mapping-program/cpuc-annual-collected-broadband-data. Data as of December 31, 2021. This is the latest CPUC publicly available data release. Current broadband deployment might differ from this latest release. See Methodology in APPENIDX D: Broadband Service Coverage Analysis.

[95] For broadband deployment data, the FCC assigned the code technology of transmission 42 and 43 to Cable modem DOCSIS 3.0 and DOSCIS 3.1, respectively.

[96] Cable modem uses coaxial cables already installed by cable television operators to deliver video. Benefits of this technology include large coverage areas for consistently fast speeds with low packet loss and latency. It also has high reliability, except for risk of damage to aerial and buried lines. Limitations include that there are only a few cable broadband providers in most areas, and sometimes only a single provider. It has been deployed in most areas, though less so in some rural areas.

[97] The Cable modem technology is commonly deployed along with fiber optics and is called Hybrid Fiber Coaxial (HFC). This technology transmits data through fiber that feeds into coaxial lines to the end user.

The speed of cable modem of hybrid fiber coaxial varies based on number of end users on the coaxial segment. The upload speed is often slower than download speed in DOCSIS.

[98] Cable modem coverage in the 16 COLR service areas by served population, households, and housing units is presented in APPENIDX D: Broadband Service Coverage Analysis.

[99] DOCSIS 3.1 is the current industry standard for providing high-quality internet access over hybrid fiber coaxial (HFC) networks and can reach download speeds of up to 10Gbps (gigabit per second). CableLabs DOCSIS 3.1 Technology. https://www.cablelabs.com/technologies/docsis-3-1.

[100] The cable modem DOCSIS 3.1 providers with the largest coverage in each of the 16 COLR service areas are the following:

AT&T: Charter Communications Inc, Comcast Cable Communications, Cox Communications, WaveDivision Holdings LLC, ZitoWest Holdings LLC

Frontier: Charter Communications Inc, Comcast Cable Communications, Cox Communications, WaveDivision Holdings, LLC, Zito West Holding LLC

Consolidated: Comcast Cable Communications

Sierra: N/A

Kerman: Comcast Cable Communications

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provide cable modem 3.1 coverage at speeds of at least 25/3 Mbps and 100/20 Mbps to 76% of AT&T's households, 66% of Frontier's households, and 90% of Consolidated's households. The Small ILECs provide cable modem 3.1 coverage with a large footprint in Kerman's (66%) service area and lower footprint (0% to 15%) in the remaining Small ILECs as depicted in Figure 2.

Ponderosa: Comcast Cable Communications
Siskiyou: N/A
Calaveras: Comcast Cable Communications
Happy Valley: Charter Communications
Foresthill: N/A
Cal-Ore: N/A
Ducor: N/A
Winterhaven: Charter Communications
Hornitos: N/A
Pinnacles: N/A
Volcano: N/A

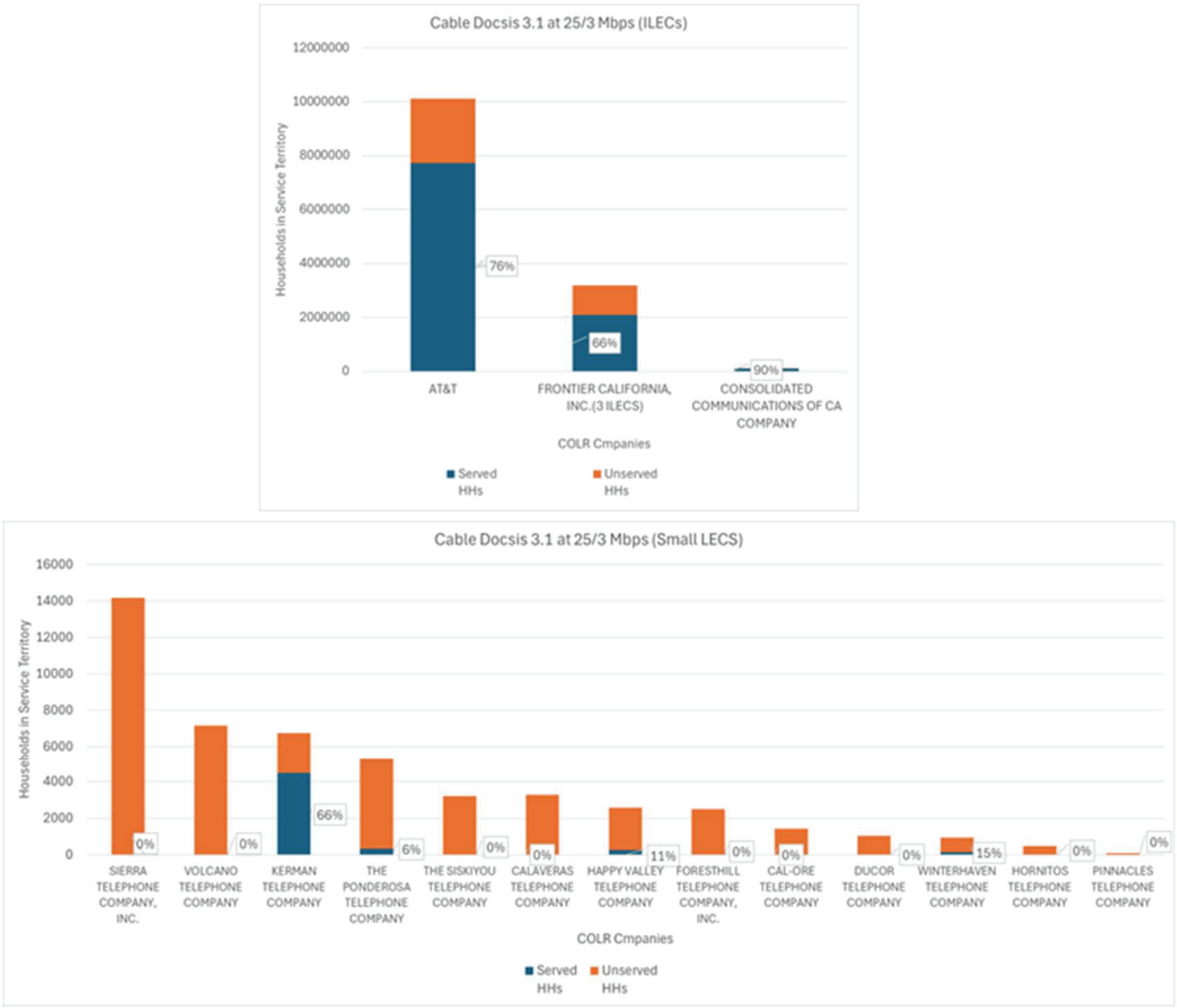

Figure 2. Cable Modem DOCSIS 3.1 at speeds of 25/3 Mbps for 16 COLRs

It is important to assess current broadband availability in the COLR service areas in order to identify places where there is still a need to expand technology. AT&T, Frontier, and Consolidated have a larger footprint (number and percentage of households) offering cable modem DOCSIS 3.1 at 25/3 Mbps and 100/20 Mbps (or faster) than the coverage provided by the Small ILECs. Only five of the 13 Small ILECs' households have broadband service by cable modem DOCSIS 3.1. Yet, the large ILECs still do not have complete 100% cable modem DOCSIS 3.1 coverage in their service areas.

Fiber Optics in COLR Service Areas[101]

Fiber optics (fiber)[102] refers to technologies that provide fixed wireline broadband service using optical carriers or fiber optics[103] to the end user. Fiber is available at speeds of at least 25/3 Mbps and 100/20 Mbps in the 16 COLR service areas.[104]

AT&T, Frontier, Consolidated, and eight of the 13 Small ILECs have fiber coverage at speeds of at least 25/3 Mbps and 100/20 Mbps deployed by the COLRs and other companies.[105] The Frontier, AT&T, and Consolidated service areas have fiber at

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[101] Based on CPUC Annual Collected Broadband Data. https://www.cpuc.ca.gov/industries-and-topics/internet-and-phone/broadband-mapping-program/cpuc-annual-collected-broadband-data. Data as of December 31, 2021. This is the latest CPUC publicly available data release. Current broadband deployment might differ from this latest release. See Methodology in APPENIDX D: Broadband Service Coverage Analysis.

[102] For broadband deployment data, the FCC assigned the code technology of transmission 50 to fiber optics. Fiber technology include Fiber to the premise (FTTP).

[103] The fiber-optic technology converts electrical-signals-carrying-data to light and sends the light through transparent glass fibers of a few microns in diameter, comparable to human hair. There are three basic types of FTTP deployments: point-to-point (P2P) networks, active Ethernet networks, and passive optical networks or PON. PON is the most widely deployed residential FTTH (fiber-to-the-home) technology in the United States.

- Ethernet PON or EPON can provide 1.25 Gbps downstream and upstream.
- Gigabit PON or GPON service can provide speeds from 2.5 Gbps downstream and upstream.
- Next Generation PON or NG-PON2, and 10 Gigabit PON or XG-PON can provide 10 Gbps downstream and upstream.

The benefits of fiber include consistently high speeds and transmitting across large distances without signal degradation. Fiber optics has the fastest download and upload speeds on average. It has very low latency, and high reliability except for risk of damage to aerial and buried lines. Limitations include the requirement of new infrastructure, in contrast to DSL and cable modems using already deployed telephone and cable television infrastructure. However, fiber is preferred for providing the highest broadband speed capacity. Fiber optics deployment is increasing as internet service providers replace copper. It has become the default technology for new builds or upgrades in urban areas and many rural areas.

[104] Fiber coverage in the 16 COLR areas by served population, households, and housing units is shown in APPENDIX D: Broadband Service Coverage Analysis presents.

[105] The fiber providers with the largest coverage in each of the 16 COLR service areas are the following:

AT&T: AT&T Service, Inc, Atherton Fiber, Cal-Ore Communications Inc., Charter Communications Inc, Comcast Cable, Consolidated Communications, Consolidated Smart Broadband Systems LLC, Cox Communications, Cruzio, Frontier California Inc., Google Fiber California LLC, Horizon Cable TV Inc., Inyo Networks, Nevada County Fiber Inc, Oasis Broadband, Plumas-Sierra Telecommunications, Ponderosa Edge, Race Communications, Sea Ranch Connect, ,Sebastian – Audeamus, Sonic.net, Tekify

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speeds of at least 25/3 Mbps and 100/20 Mbps to 34% of Frontier's households, 30% of AT&T's households, and 20% of Consolidated households. Siskiyou has fiber coverage to 62% of its households and Cal-Ore has coverage to 29% of its households. Of the 13 total Small ILECs, the remaining seven Small ILECs[106] have coverage ranging 12% or less in their service areas as depicted in Figure 3.

Fiber & Wireless, Ting Fiber, Ultimate Internet Access, Inc., Volcano Vision Inc, WaveDivision Holdings, LLC.

Frontier: AT&T Service, Inc, Charter Communications Inc, Comcast Cable Communications, ConnectAnza, Consolidated Communications, Consolidated Smart Broadband Systems, LLC, Cox Communications, Frontier California Inc., Inyo Networks, Plumas-Sierra Telecommunications, Race Communications, Route 66 Broadband, Sea Ranch Connect, Sebastian – Audeamus, South Valley Internet, Ultimate Internet Access, Inc., WaveDivision Holdings, LLC.

Consolidated: Consolidated Cable Communications, WaveDivision Holdings LLC, AT&T Inc

Sierra: N/A

Kerman: Sebastian – Kerman, Sebastian - Audeamus

Ponderosa: The Ponderosa Telephone Co

Siskiyou: Siskiyou Telephone Company

Calaveras: Calaveras Telephone Company

Happy Valley: N/A

Foresthill: Sebastian - Foresthill

Cal-Ore: Cal-Ore Communications

Ducor: Ducor Telephone Company

Winterhaven: N/A

Hornitos: N/A

Pinnacles: Pinnacles Telephone Co.

Volcano: Volcano Vision Inc

[106] The remaining seven Small ILECs include Sierra, Volcano, Kerman, Calaveras, Foresthill, Ducor, and Pinnacles.

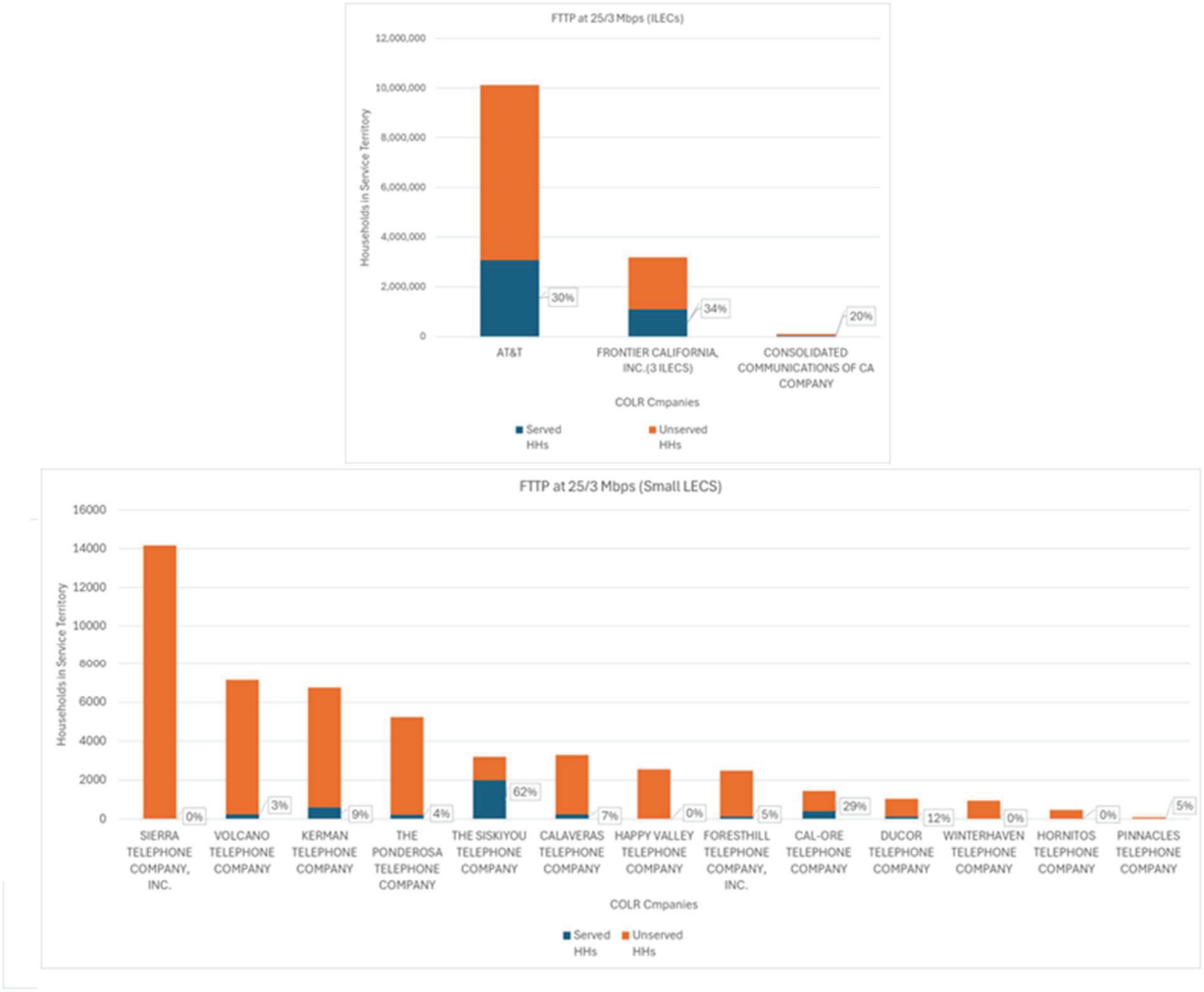

Figure 3. The 16 COLRs' Fiber Coverage at Speeds of 25/3 Mbps.

Fiber is present in some of the COLR service areas at speeds of at least 25/3 Mbps and 100/20 Mbps. It is important to assess areas that lack fiber or are more vulnerable to natural disasters. Broadband must expand to these areas to ensure customers have access to communication service in case of emergencies. For example, AT&T has fiber coverage at speeds of 100/20 Mbps or faster to only 9.40% of households with a median household income less than 80% of the state median and to only 8.85% of households in

disadvantaged communities in AT&T's service area.[107] This leaves 90.60% of households with median household incomes less than 80% of state median unserved, and 91.15% of disadvantaged communities unserved in AT&T's service area. Broadband coverage must continue to expand in these areas.

Fixed Wireless Service Coverage in COLR Service Areas[108] [109]

Fixed wireless broadband[110] refers to technologies that require installation of antennas at the customer premises and in towers or poles for repeaters, access points, or base stations. Coverage limitations of fixed wireless deployments include signal attenuation, and degradation or blocking due to obstructions (i.e., terrain, buildings, vegetation) between towers and customer premises. As a result, fixed wireless service speeds might significantly reduce depending on line-of-sight obstructions, spectrum interference, number of simultaneous users, and in some cases, precipitation.

The main fixed wireless service providers include wireless internet service providers (WISPs) and mobile service providers.[111] Except for Cal-Ore, the COLR

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[107] For demographic descriptions APPENIDX C: Demographics of the 16 COLR Service Areas and APPENIDX D: Broadband Service Coverage Analysis.

[108] As described in APPENIDX D: Broadband Service Coverage Analysis the CPUC broadband availability data is self-reported by broadband internet service providers. In multiple CPUC broadband-related proceeding instances, some broadband stakeholders (i.e., local government, customer and advocacy groups, and others) reported inaccuracies of actual coverage presented by these data. Cal Advocates utilizes these data as the best available data source for estimating broadband coverage. Nevertheless, Cal Advocates acknowledges that actual coverage might differ (i.e., coverage might be much smaller).

[109] Based on CPUC Annual Collected Broadband Data. https://www.cpuc.ca.gov/industries-and-topics/internet-and-phone/broadband-mapping-program/cpuc-annual-collected-broadband-data. Data as of December 31, 2021. This is the latest CPUC publicly available data release. Current broadband deployment might differ from this latest release. See Methodology in APPENIDX D: Broadband Service Coverage Analysis.

[110] For broadband deployment data, the FCC assigned the code technology of transmission 70 to terrestrial fixed wireless. Fixed wireless technologies include technologies which use both unlicensed and licensed spectrum such as IEEE 802.11, IEEE 802.16, 4G LTE, 5G, millimeter-wave, Television White Spaces, among others.

[111] The fixed wireless providers with the largest coverage in each of the 16 COLR service areas are the following:

(continued on next page)

ILECs do not provide fixed wireless services. **Table 2** below presents fixed wireless coverage in the 16 COLR service areas by household, population, and housing units at speeds of at least 25/3 Mbps. In the three ILEC COLR service areas (AT&T, Frontier, Consolidated), fixed wireless service coverage is 21% or less of total households. For three of the four Small ILECs with more than 5,000 households (Sierra, Kerman, and Ponderosa), fixed wireless coverage is around 40%; Volcano's fixed wireless coverage is lower, at 4%. For the Small ILECs with less than 5,000 households, fixed wireless coverage ranges from 0 to 10% (Calaveras, Foresthill, Cal-Ore, Pinnacles), in the 50% range (Siskiyou, Ducor, Winterhaven), and near 80% (Happy Valley, Hornitos).

AT&T: T-Mobile, Verizon Wireless, Digital Path, MINetworks, Velocity Communications.

Frontier: T-Mobile, Verizon Wireless, GeoLinks, Pacific Lightwave, Unwired Broadband, Etheric Networks, Digital Path, Com-Pair Services, Succeed.Net, OACYS Technology, WISPRENN, Ayera Technologies, AeroSurf, Southern California Telephone Company, Towerstream, WebPerception, Kern Valley Wireless, Advanced Wireless, Mono Broadband.

Consolidated: Cal.net, Succeed.net, Verizon

Sierra: Connifer Communications, T-Mobile, Unwired Broadband, Verizon

Volcano: Cal.net, T-Mobile

Kerman: T-Mobile, Unwired Broadband

Ponderosa: T-Mobile, Unwired Broadband, Verizon

Siskiyou: Digital Path

Calaveras: Cal.net, Connifer Communications, Matrix Broadband, Verizon

Happy Valley: Com-Pair Services, Digital Path, Geolinks, Shasta Beam, Velocity Communications

Foresthill: Oasis Broadband, Verizon

Cal-Ore: Cal-Ore

Ducor: Digital Path, DM-Tech, OACYs Technology, Shasta Beam, Unwired Broadband

Winterhaven: Beamspeed

Hornitos: Connifer Communications, Unwired Broadband

Pinnacles: N/A

Table 2. Fixed Wireless Coverage in COLR Service Areas at 25/3 Mbps.

COLR Service Area	Total HHs	Served HHs	% Served HHs	Total Pop	Served POP	% Served POP	Total HUs	Served HUs	% Served HUs
PACIFIC BELL (AT&T)	10,122,886	2,078,222	21%	29,426,272	5,511,535	19%	10,745,410	2,214,513	21%
FRONTIER CALIFORNIA	3,186,714	638,044	20%	9,669,942	1,765,250	18%	3,456,265	684,303	20%
CONSOLIDATED COMM	105,409	17,094	16%	283,376	43,608	15%	109,050	17,605	16%
SIERRA TELEPHONE	14,181	5,736	40%	34,058	13,450	39%	17,307	6,528	38%
VOLCANO TELEPHONE	7,157	295	4%	16,115	606	4%	9,928	489	5%
KERMAN TELEPHONE	6,750	2,579	38%	24,122	8,096	34%	7,014	2,655	38%
THE PONDEROSA TELEPHONE	5,235	1,982	38%	13,338	5,083	38%	9,274	2,372	26%
THE SISKIYOU TELEPHONE	3,282	1,946	59%	8,329	4,591	55%	4,262	2,657	62%
CALAVERAS TELEPHONE	3,201	49	2%	7,444	68	1%	3,900	51	1%
HAPPY VALLEY TELEPHONE	2,561	1,996	78%	6,576	4,812	73%	3,248	2,345	72%
FORESTHILL TELEPHONE	2,491	251	10%	6,167	686	11%	2,715	288	11%
CAL-ORE TELEPHONE	1,434	117	8%	3,761	347	9%	1,817	144	8%
DUCOR TELEPHONE	1,038	518	50%	2,984	1,332	45%	1,293	602	47%
WINTERHAVEN TELEPHONE	937	543	58%	2,703	1,643	61%	1,349	646	48%
HORNITOS TELEPHONE	485	416	86%	1,105	954	86%	590	500	85%
PINNACLES TELEPHONE	96	0	0%	287	0	0%	100	0	0%

Figure 4 below overall shows that fixed wireless coverage at 25/3Mbps is not ubiquitous in the COLR service areas. In the COLR service areas that exhibit highest coverage (Happy Valley at 78% and Hornitos at 86%), it is still imperative to expand coverage. For example, in the Happy Valley service area, there is a total of 2,561 households, 2,009 of which are located in HFTDs.[112] Based on the fixed wireless coverage analysis at 25/3 Mbps, 1,577 households in HFTDs and 1,996 of the total

[112] See APPENDIX C: Demographics of the 16 COLR Service Areas for detailed information on COLR and coverage demographic analysis.

households have coverage at 25/3 Mbps. This means no coverage for 432 households in HFTDs and 565 of the total households. In Hornitos service area, 322 out of 485 total households are located in HFTDs. Based on the fixed wireless coverage analysis at 25/3 Mbps, 292 households located in HFTDs and 416 of the total households have coverage at 25/3 Mbps. This means no coverage for 30 households in HFTDs and 69 of the total households.

Figure 4. Fixed Wireless Coverage (households) at 25/3 Mbps in (above) the ILEC Service Areas and (below) Small ILECs.

Table 3 below presents fixed wireless coverage in the 16 COLR service areas by household, population, and housing units at speeds of at least 100/20 Mbps. As expected, fixed wireless coverage at higher speeds (than 25/3 Mbps) produced a smaller footprint, as wireless radios and antennas provide higher speeds at shorter distances. In the three major ILEC COLR service areas (AT&T, Frontier, Consolidated), fixed wireless service coverage is less than 10% of total households. For the Small ILECs with more than 5,000 households (Sierra, Volcano, Kerman, and Ponderosa), fixed wireless coverage is around or less than 38% (except for Volcano with no coverage). For the Small ILECs with less than 5,000 households (Siskiyou, Calaveras, Happy Valley, Foresthill, Cal-Ore, Ducor, Winterhaven, Pinnacles), fixed wireless coverage is nonexistent or minimal (0 to 2%), except for Hornitos that reports a 73% household coverage.

Table 3. Fixed Wireless Coverage in COLR Service Areas at 100/20 Mbps.

COLR Service Area	Total HHs	Served HHs	% Served HHs	Total Pop	Served POP	% Served POP	Total HUs	Served HUs	% Served HUs
PACIFIC BELL (AT&T)	10,122,886	925,012	9%	29,426,272	2,444,789	8%	10,745,410	986,420	9%
FRONTIER CALIFORNIA	3,186,714	244,817	8%	9,669,942	666,139	7%	3,456,265	258,778	7%
CONSOLIDATED COMM	105,409	5,520	5%	283,376	14,227	5%	109,050	5,647	5%
SIERRA TELEPHONE	14,181	5,381	38%	34,058	12,606	37%	17,307	6,099	35%
VOLCANO TELEPHONE	7,157	0	0%	16,115	0	0%	9,928	0	0%
KERMAN TELEPHONE	6,750	2,259	33%	24,122	7,043	29%	7,014	2,331	33%
THE PONDEROSA TELEPHONE	5,235	1,777	34%	13,338	4,607	35%	9,274	2,139	23%
THE SISKIYOU TELEPHONE	3,282	0	0%	8,329	0	0%	4,262	0	0%
CALAVERAS TELEPHONE	3,201	0	0%	7,444	0	0%	3,900	0	0%
HAPPY VALLEY TELEPHONE	2,561	13	1%	6,576	21	0%	3,248	14	0%
FORESTHILL TELEPHONE	2,491	42	2%	6,167	118	2%	2,715	49	2%
CAL-ORE TELEPHONE	1,434	0	0%	3,761	0	0%	1,817	0	0%
DUCOR TELEPHONE	1,038	12	1%	2,984	48	2%	1,293	14	1%
WINTERHAVEN TELEPHONE	937	0	0%	2,703	0	0%	1,349	0	0%
HORNITOS TELEPHONE	485	353	73%	1,105	855	77%	590	405	69%

PINNACLES TELEPHONE	96	0	0%	287	0	0%	100	0	0%

Figure 5 below shows that fixed wireless coverage at 100/20 Mbps or faster is not ubiquitous in the COLR service areas. In nine of the Small ILECs, coverage is minimal or nonexistent.

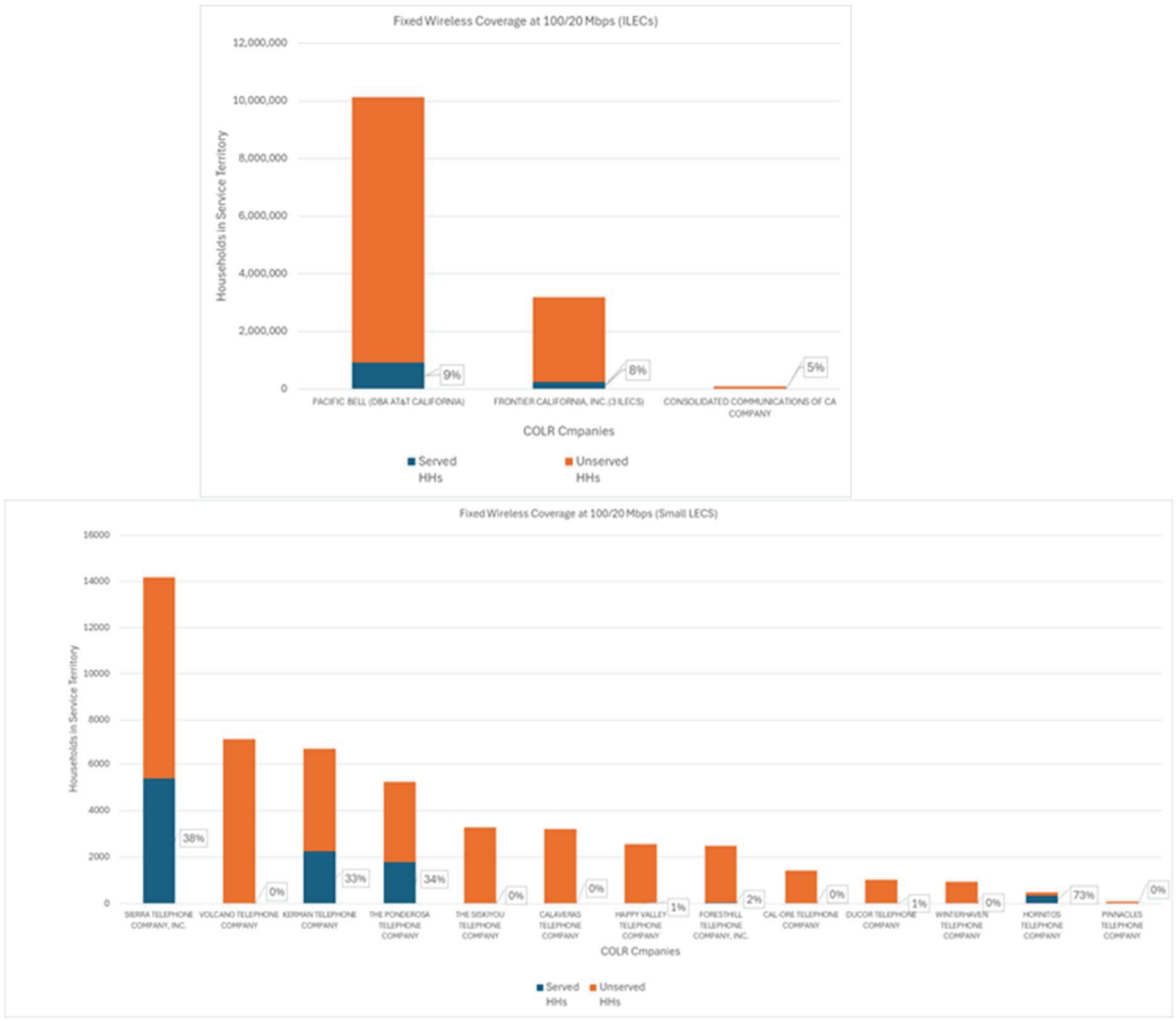

Figure 5. Fixed Wireless Coverage (households) at 100/20 Mbps in (above) the ILEC Service Areas and (below) Small ILECs.

Mobile Wireless Service Coverage in COLR Service Areas[113]

Mobile wireless broadband[114] [115] refers to technologies which use (macro-, micro-, pico-, femto-) base stations installed in towers, buildings or poles to provide voice and/or broadband data services to mobile (portable) devices, and in more recent years, to provide fixed residential service customers.[116] Verizon offers LTE Home Internet,[117] T-Mobile offers 5G Home Internet,[118] and AT&T offers Internet Air.[119] Similar to fixed

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[113] Based on CPUC Annual Collected Broadband Data. https://www.cpuc.ca.gov/industries-and-topics/internet-and-phone/broadband-mapping-program/cpuc-annual-collected-broadband-data. Data as of December 31, 2021. This is the latest CPUC publicly available data release. Current broadband deployment might differ from this latest release. See Methodology in APPENIDX D: Broadband Service Coverage Analysis.

[114] For Mobile Broadband Data, the FCC assigned the following technology codes: 83 is LTE technology; 85 CDMA and EVDO/EVDO Rev A; 86 is GSM, WCDMA/UMTS/HSPA, and HSPA+; and 89 is 5G-NR.

[115] Mobile broadband includes packet-based data technologies using in 2G, 3G, 4G and 5G mobile service. 2G included standards such as GPRS, EDGE and CDMA2000, 3G included WCDMA, HSDPA, HSPA and CDMA2000 EV-DO, 4G included LTE, and the newer 5G includes 5G-NR.

4G Long-Term Evolution (LTE) was designed by the 3rd Generation Partnership Project (3GPP) group for mobile communications in densely populated areas. Mobile LTE can achieve aggregated data rates of up to 300 Mbps which allows it to provide speeds for end users up to tens, or even several hundred, of Mbps. The most common LTE bands range from 700 MHz to 3.8 GHz.

5G is the 5th generation mobile network technology designed to connect mobile users, machines, objects, and devices. The 5G technology promises enhanced communication features including delivering multi-Gbps data speeds, ultra-low latency, more reliability, massive network capacity, increased availability, and a more uniform user experience to more users. The 3GPP group also defined the global specifications for this 5G technology and standard.

[116] As noted in the Fixed Wireless Coverage section, mobile carriers (AT&T Wireless, Verizon, T-Mobile) are listed as providers of technology code 70 (fixed wireless).

[117] Verizon website: Is LTE Home Internet wireless internet? LTE Home Internet is broadband internet service delivered via the Verizon 4G LTE wireless network. A radio signal connects a 4G LTE cell tower to a receiver at your home, providing internet access with no data caps and typical download speeds of 25-50 Mbps so you can work, play and stream with confidence. https://www.verizon.com/home/internet/lte/.

[118] T-Mobile website: How our 5G home internet works. T-Mobile's 5G network is built on a series of cell sites that use radio waves to send and receive data. Your gateway converts the nearest 5G signal into Wi-Fi, allowing you to access the internet wirelessly. https://www.t-mobile.com/home-internet/how-5g-home-internet-works?INTNAV=tNav%3AHowItWorks.

[119] AT&T website: AT&T Internet Air - Wireless internet delivered on our reliable 5G network. In very rare cases, if your data usage is contributing significantly to congestion on the wireless network, AT&T will significantly slow your speed for a minimum of 30 minutes. 5G coverage not available everywhere. LTE coverage may be used depending on signal availability at your address. https://www.att.com/internet/internet-air/.

wireless technologies, use of the wireless spectrum[120] can impact consistent coverage and speeds due to environmental factors such as obstructions, number of simultaneous users, and atmospheric precipitation. 4G and 5G are primarily deployed in densely populated urban areas and, on a smaller scale, in rural areas.

Table 4 and **Table 5** below present self-reported mobile broadband coverage of AT&T and T-Mobile in the 16 COLR service areas by household, population, and housing units at speeds of at least 25/3 Mbps.[121] None of the mobile broadband providers reported service speeds at or above 100/20 Mbps. In the three larger ILEC COLR service areas (AT&T, Frontier, Consolidated), AT&T mobile broadband service ranges from 93% to 100% of total households.[122] T-Mobile ranges from 95% to 100%.[123] For the Small ILECs with more than 5,000 households (Sierra, Volcano, Kerman, and Ponderosa), mobile broadband coverage ranges for AT&T from 36% to 95%, and for T-Mobile from 47% to 100%. For the Small ILECs with less than 5,000 households, mobile broadband coverage ranges for AT&T from 0% to 93%, and for T-Mobile from 34% to 100%. There is no reported mobile broadband coverage at 100/20 Mbps or faster.

[120] Another limitation is the availability of and access to the licensed spectrum.

[121] Based on CPUC Mobile Broadband Data, only AT&T Wireless and T-Mobile reported service at speeds at or above 25/3Mbps. None of the mobile broadband providers reported service speeds at or above 100/20 Mbps.

[122] As described in APPENIDX D: Broadband Service Coverage Analysis the CPUC mobile broadband data is self-reported by mobile service providers and in multiple CPUC broadband-related proceedings, some parties (i.e., local government, customer and advocacy groups, and others) reported inaccuracies of actual coverage presented by these data. However, Cal Advocates used these data as the best available data source for estimated broadband coverage. Nevertheless, Cal Advocates acknowledges that actual coverage might be much smaller.

[123] See APPENIDX D: Broadband Service Coverage Analysis.

Table 4. AT&T Mobile Wireless Coverage in COLR Service Areas at 25/3 Mbps.

COLR Service Area	Total HHs	Served HHs	% Served HHs	Total Pop	Served POP	% Served POP	Total HUs	Served HUs	% Served HUs
PACIFIC BELL (AT&T)	10,122,886	9,565,380	94%	29,426,272	27,875,093	95%	10,745,410	10,103,466	94%
FRONTIER CALIFORNIA	3,040,172	2,812,538	93%	9,216,283	8,566,312	93%	3,295,384	3,027,729	92%
CONSOLIDATED COMM	105,409	105,409	100%	283,376	283,376	100%	109,050	109,050	100%
SIERRA TELEPHONE	14,181	7,977	56%	34,058	19,434	57%	17,307	9,437	55%
VOLCANO TELEPHONE	7,157	2,541	36%	16,115	5,783	36%	9,928	3,042	31%
KERMAN TELEPHONE	6,750	6,389	95%	24,122	22,850	95%	7,014	6,635	95%
THE PONDEROSA TELEPHONE	5,235	1,842	35%	13,338	4,759	36%	9,274	3,546	38%
THE SISKIYOU TELEPHONE	3,282	1,719	52%	8,329	4,244	51%	4,262	2,179	51%
CALAVERAS TELEPHONE	3,201	0	0%	7,444	0	0%	3,900	0	0%
HAPPY VALLEY TELEPHONE	2,561	1,247	49%	6,576	3,368	51%	3,248	1,349	42%
FORESTHILL TELEPHONE	2,491	387	16%	6,167	964	16%	2,715	433	16%
CAL-ORE TELEPHONE	1,434	0	0%	3,761	0	0%	1,817	0	0%
DUCOR TELEPHONE	1,038	962	93%	2,984	2,794	94%	1,293	1,106	86%
WINTERHAVEN TELEPHONE	937	0	0%	2,703	0	0%	1,349	0	0%
HORNITOS TELEPHONE	485	129	27%	1,105	297	27%	590	144	24%
PINNACLES TELEPHONE	96	49	51%	287	138	48%	100	49	49%

Table 5. T-Mobile Wireless Coverage in COLR Service Areas at 25/3 Mbps

COLR Service Area	Total HHs	Served HHs	% Served HHs	Total Pop	Served POP	% Served POP	Total HUs	Served HUs	% Served HUs
PACIFIC BELL (AT&T)	10,122,886	9,626,729	95%	29,426,272	28,044,825	95%	10,745,410	10,179,555	95%
FRONTIER CALIFORNIA	3,186,714	3,083,173	96%	9,669,942	9,373,256	97%	3,456,265	3,326,998	96%
CONSOLIDATED COMM	105,409	105,409	100%	283,376	283,376	100%	109,050	109,050	100%
SIERRA TELEPHONE	14,181	10,349	73%	34,058	24,838	73%	17,307	12,207	71%
VOLCANO TELEPHONE	7,157	3,365	47%	16,115	7,384	46%	9,928	4,957	50%
KERMAN TELEPHONE	6,750	6,750	100%	24,122	24,122	100%	7,014	7,014	100%

THE PONDEROSA TELEPHONE	5,235	4,773	91%	13,338	12,193	91%	9,274	7,684	83%
THE SISKIYOU TELEPHONE	3,282	3,065	93%	8,329	7,750	93%	4,262	4,009	94%
CALAVERAS TELEPHONE	3,201	2,038	64%	7,444	4,782	64%	3,900	2,317	59%
HAPPY VALLEY TELEPHONE	2,561	1,689	66%	6,576	4,466	68%	3,248	1,802	55%
FORESTHILL TELEPHONE	2,491	2,286	92%	6,167	5,673	92%	2,715	2,472	91%
CAL-ORE TELEPHONE	1,434	1,260	88%	3,761	3,340	89%	1,817	1,567	86%
DUCOR TELEPHONE	1,038	353	34%	2,984	1,291	43%	1,293	378	29%
WINTERHAVEN TELEPHONE	937	937	100%	2,703	2,681	99%	1,349	1,332	99%
HORNITOS TELEPHONE	485	463	95%	1,105	1,073	97%	590	568	96%
PINNACLES TELEPHONE	96	67	70%	287	153	53%	100	70	70%

This self-reported mobile broadband data indicates that AT&T Wireless and T-Mobile report mobile broadband coverage at 25/3 Mbps in all households (100%) in the COLR service areas of Consolidated Communications (for AT&T Wireless), and Consolidated Communications, Kerman, and Winterhaven (for T-Mobile).

In multiple instances, broadband stakeholders have disputed the reported coverage. Thus, while this self-reported coverage can be utilized as an initial reference point, the data needs to be validated to be considered actual coverage.

Cal Advocates' analysis indicates that there is still a significant number of households not served by mobile broadband at 25/3 Mbps in the different COLR service areas. AT&T Wireless does not yet serve 557,506 and 277,634 households at 25/3Mbps in the AT&T and Frontier COLR service areas, respectively, and 25,606 households in all the combined Small ILEC service areas. T-Mobile does not yet serve 496,157 and 103,541 households at 25/3 Mbps in the AT&T and Frontier COLR service areas, respectively, and 11,453 households in all the combined Small ILEC service areas.

B. Technology Transition: Evaluating Need for a COLR

In this section, Cal Advocates responds to the following questions in the OIR:

a. Is it still necessary for the Commission to maintain its COLR rules? Here, the Commission adopts a rebuttable presumption that

the COLR construct remains necessary, at least for certain individuals or communities in California.

b. Should the Commission revise the definition of a COLR, and if yes, how should the Commission revise that definition? What should be the responsibilities of a COLR?

c. Should the Commission revise how it defines a COLR's service territory?

d. Are there regions or territories in California that may no longer require a COLR? Are there regions that require COLR service? If yes, how should the Commission distinguish between the two? What criteria should be met for a region or territory to no longer require COLR designation?

When evaluating whether a COLR remains necessary or whether to revise the definition of a COLR's service area, the Commission should be guided by two complementary principles. First, the Commission should keep in mind the need for universal access to reliable, quality, and affordable essential communications services, including broadband services. Second, the Commission should remain tethered to technology transitions to modern communications networks (offering at least 100/20 Mbps broadband services on a technology-neutral basis) that are transparent, meet the customer's communications needs, ensure public safety, safeguard the environment, and do not leave any customer behind.

Cal Advocates offers a simple, four-point criteria to integrate these guiding principles into the Commission's analysis:

1) Universal service (technology-neutral)
2) Reliable service
3) Quality service
4) Affordable service

The Commission should also apply these criteria to its evaluation of alternative service providers that could serve in place of COLRs. The criteria protect against an erroneous assumption that a COLR is no longer necessary, which is especially critical when reviewing COLR withdrawal requests. The criteria will help determine if there are providers offering similar or better basic services; if the services meet service quality

standards such as reliability, uptime, outages, time to repair, and quality of experience; and if the services are affordable enough to prevent price from becoming a subscribership barrier.

Furthermore, even when alternative service providers are screened through the four-point criteria, the Commission should require a showing that the COLR has itself deployed technologies sufficient to provide broadband basic service across a service area (100% deployment) as a condition of authorization to withdraw from the COLR obligation in that service area.

1. Criteria to Assess the Need for a COLR

Criterion 1: Universal (Ubiquitous) Service (Technology-neutral)

The universal service commitment should remain a major goal for the Commission in the instant proceeding. As stated in the OIR, Assembly Bill (AB) 3643, enacted in 1994, directed the Commission to initiate a proceeding to ensure universal telecommunications service includes "[e]ssential telecommunications services" that are "provided at affordable prices to all Californians regardless of linguistic, cultural, ethnic, physical, geographic, or income considerations."[124]

Therefore, to assess whether a COLR is necessary, the Commission should analyze the availability of essential telecommunication services[125] throughout the state, with focus on identifying unserved or underserved areas in low-income areas, disadvantaged communities, and urban and rural geographies, among others. Furthermore, as demonstrated by the devastating wildfires and other natural disasters that the state has faced in past few years, it is critical that these services are available in HFTDs, and flood and tsunami hazard areas.

The Commission should continue to support all telecommunication carriers, especially COLRs, and broadband service providers in the expansion of these essential

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[124] Stats. 1994, Ch. 278 (Polanco and Moore).

[125] Which should include both voice and broadband services, in accordance with the New Basic Service Definition applicable to COLRs that has been proposed by Cal Advocates.

communication services (voice and broadband at speeds of at least 100/20 Mbps). In the last decade, many telecommunications and broadband service providers have expanded the footprint of modern high-speed broadband services. The previous section provides the results of the assessment of broadband services at 100/20 Mbps or faster in the 16 COLR service areas.[126] The following are highlights of unserved households:

- Cable modem (DOCSIS 3.1) service at 100/20 Mbps or faster is available to 73% of households (aggregated from the 16 COLR service areas), which means 27% of households are unserved.
- Fiber service at 100/20 Mbps or faster is available to 31% of households (aggregated from the 16 COLR service areas), which means 69% of households are unserved.
- Fixed wireless service at 100/20 Mbps or faster is available to 8% of households (aggregated from the 16 COLR service areas), which means 12,278,671 of households are unserved.
- Mobile broadband service at 100/20 Mbps or faster is unavailable in all 16 COLR service areas.

These results demonstrate that access to modern communications networks is not yet ubiquitous across California's 16 COLR service areas.

Furthermore, in assessing access to essential basic communication services, the Commission should include the following criteria:

- Ubiquitous access to essential basic communication services should be assessed in an entire COLR service area or, at a minimum, at the census block group (GBG) level to prevent erroneous assessments that an "area" is already served (by cherry-picking only specific census blocks). Reporting requirements, and the geographies encompassing reported data, are further discussed below in this section. The assessment of ubiquitous access is further discussed in Section III.C.1., Proposed COLR Withdrawal Requirements.
- Basic communication services should be provided to all Californians regardless of linguistic, cultural, ethnic, physical, geographic, or income considerations. Therefore, the assessment of available basic service should emphasize ensuring access to Deaf and Disabled Telecommunication Program (DDTP) participants, and ensuring

[126] See Section III.III.A.4., Broadband Service Coverage in California.

access in disadvantaged communities, low-income areas, Tribal lands, HFTDs, and flood and tsunami hazard areas.

- Assessment of available basic communication services (on a technology-neutral basis) should include validation of actual coverage, based on nationally accepted standards, as defined hereunder.
    - Fixed (wireless and wireline) and Mobile broadband availability should be assessed based on the protocols, regulations, specifications, and testing requirements of the Broadband Data Collection (BDC) program of the FCC,[127] as the BDC has been implemented, and from time to time updated by rulemakings[128] of the FCC.
    - Reporting to the CPUC by COLRs should be required to be based on these BDC protocols, and additionally made available to the CPUC simultaneously with reporting to the FCC of the same information at the federally mandated biannual basis.[129]
    - Reporting to the CPUC by COLRs should be required to present data at the granular Broadband Serviceable Location (BSL)[130] level, in order to determine the ubiquity of coverage, and aggregated and geographically nested at the census block (CB), census block group (CBG), and Study Area levels, in order for CPUC to track such information based on widely available and recognized underlying demographic and geographic information.
    - The geographic limits of COLR service areas should be defined by the applicable Study Areas and Study Area Boundaries

[127] See: Broadband Data Collection of the Federal Communications Commission. Available at: https://www.fcc.gov/BroadbandData

[128] *Establishing the Digital Opportunity Data Collection*, WC Docket No. 19-195; Modernizing the FCC Form 477 Data Program, WC Docket No. 11-10.

[129] See: *Broadband Data Collection (BDC) FAQs*. Available at: https://help.bdc.fcc.gov/hc/en-us/articles/7682769466395-Broadband-Data-Collection-BDC-FAQs

[130] See: What is the Location Fabric? Available at: https://help.bdc.fcc.gov/hc/en-us/articles/5375384069659-What-is-the-Location-Fabric.

(SABs)[131] as established and maintained by the FCC, and as updated on a biennial basis.[132]

Criterion 2: Reliable Service

Different technologies and associated network deployments have intrinsic technical characteristics and limitations in terms of reliability. This is mainly due to the type of data signals (electric or light) and the propagation media (air, fiber optics, copper or coaxial cables) that comprise the physical network layer of the Transmission Control Protocol/Internet Protocol model. National Telecommunications and Information Administration (NTIA)'s Broadband Network Deployment Engineering[133] summarizes standard considerations for different technologies. It describes reliability of fiber optics and hybrid fiber coaxial as high, except for risk of damage to aerial and buried lines. For fixed wireless, reliability may be lower in adverse weather (e.g., rain fade) over longer distances or with line-of-sight obstructions (e.g., high-density foliage). Mobile broadband also propagates through air and using (electromagnetic) spectrum bands. Therefore, this technology faces similar reliability constraints as fixed wireless. However, it has slightly better performance than fixed wireless in non-line-of-sight conditions.

Table 6 presents NTIA's technical considerations for broadband technologies including fiber optics, hybrid fiber coaxial and fixed wireless.

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[131] See: *Study Area Boundary Data*. Available at: https://www.fcc.gov/economics-analytics/industry-analysis-division/study-area-boundary-data

[132] The most recent Study Area Boundary recertifications of the FCC are based on data submitted by local exchange carriers by June 30, 2023. Information is available at: *Biennial Recertifications of Study Area Boundary Data Are Due No Later Than June 30, 2023;* Public Notice (DA 23-416), Rel. 05/16/23

[133] NTIA's Broadband Network Deployment Engineering – An Overview. Available at: https://broadbandusa.ntia.doc.gov/sites/default/files/2022-03/Broadband%20Network%20Deployment%20Engineering%20PDF.pdf.

Table 6. Technical Considerations of Broadband Technologies (from NTIA's Broadband Network Deployment Engineering - An Overview)

Terrestrial/Wireless Broadband	Considerations in Unserved and Underserved Areas
Fiber	**Speed:** Fastest download and upload speeds on average **Latency:**[134] Very low **Reliability:** High except for risk of damage to aerial and buried lines **Prevalence:** Increasing as internet service providers replace copper; has become default for new builds or upgrades in urban areas and many rural areas
Hybrid Fiber Coaxial (HFC)	**Speed:** Varies based on number of end users on coax segment; upload speed often slower than download speed under DOCSIS **Latency:** Relatively low **Reliability:** High except for risk of damage to aerial and buried lines **Prevalence:** Common in most areas, though less widespread in rural areas
Fixed Wireless Access (FWA)	**Speed:** Varies based on spectrum availability and potential congestion **Latency:** Very/relatively low; depends on design, spectrum, and environmental conditions **Reliability:** May be lower in adverse weather (e.g., rain fade) over longer distances or with line-of-sight obstructions (e.g., high-density foliage) **Prevalence:** Available in many rural areas, especially with difficult terrain

[134] Latency (measured in milliseconds): Latency is defined as a measurement of the time it takes a data packet to travel through the network. Latency significantly impacts the performance of interactive, real-time applications, including VoIP, online gaming, videoconferencing, and Virtual Private Networks platforms. In practical terms, latency is perceived as a delay in the data transmission, for example a delay from the time a user clicks to download a file to the time the downloading process begins. Another example is a videoconference call being out of synchronization and as a result requiring participants to wait periods between exchanges.

The assessment of available basic service in COLR service areas should consider the reliability of the existing service or services. Furthermore, for HFTDs and flood or tsunami hazard areas, the assessment should consider backbone redundancy (also known as backbone diversity) as an additional factor in reliability. Existing broadband networks should be capable of providing service and route traffic even during failure (damage or destruction) of some network segments (or routes). This is critically important for safety and emergency response such as in the case of wildfires. Redundancy also should include presence of multiple service providers in HFTDs and flood or tsunami hazard areas. In case service offered by a provider goes down, there should be other providers and services available.

Criterion 3: Quality Service

Another criterion to analyze when determining if a COLR remains necessary or if there are service areas that may no longer require a COLR, is whether there are existing high-quality services in such service areas. These services should meet quality standards adopted by the Commission in GO 133-D.[135] To the extent service quality standards are not yet established for broadband, service providers should indicate the service quality measurements and reporting procedures they have for the service provided that is, at a minimum, the functional equivalent of established standards.

Criterion 4: Affordable Service

Assessing the affordability of basic broadband service is equally important as the other technical criteria to determine if a COLR remains necessary, or if there are service areas that may no longer require a COLR. The Commission should assess the availability of providers and affordability of plan choices in all COLR service areas and consider the following:

- Pricing plans of legacy services (i.e., DSL technologies) and speeds available, including terms and conditions (including data caps).

[135] See also the open Rulemaking (R.) 22-03-016, *Order Instituting Rulemaking Proceeding to Consider Amendments to General Order 133*.

- Pricing plans of higher speeds services (or modern services) and speeds available, including terms and conditions.
- Installation fees and any additional fees for new customers.
- Overall cost and timeline for migration from a legacy service (i.e., DSL technologies) to a modern service, both when a customer migrates between different services offered by the same provider, and when a customer migrates to different services offered by a different provider.
- Pricing that is bundled with other services.
- Access to affordable and low-income plans.

The pricing analysis and assessment should answer the following questions:

- Is pricing a barrier to a customer who may have to migrate from a legacy service to a modern service?
- Is pricing comparable within each COLR service area including in:
    - Rural locations,
    - Disadvantaged communities,
    - Low-income areas,
    - Tribal lands, and
    - HFTDs, and flood and tsunami hazard areas?
- Are there any barriers for enrollment in affordable or low-income plans?

Based on the four-point criteria above and the principle of universal service for all Californians, COLRs remain necessary because current levels of the proposed New Basic Service Definition (voice and broadband at 100/20 Mbps or faster) have not reached most service areas and there are no conclusive assessments of service quality, reliability, and pricing of available services in all COLR service areas.

2. The Evaluation of Multiple Potential Providers and the Need for COLRs

The Commission should use the recommended 4-point criteria listed above to evaluate potential alternative communication service providers. Applying these criteria will avoid an erroneous assumption that a COLR is no longer necessary (especially in the

context of COLR withdrawal requests, as discussed in Section IIIIII.C.1., Proposed COLR Withdrawal Requirements).

In order to assess and identify areas with multiple potential alternative communication service providers, Cal Advocates conducted an initial analysis of broadband (100/20 Mbps or faster) providers in all COLR service areas. **Table 7** below presents a summary of multiple broadband providers and the number of households served. The results include fiber optics, cable and fixed wireless service. There are no mobile wireless broadband providers as there is no reported mobile broadband service at 100/20 Mbps or faster. The main highlights of this analysis include the following (as shown in **Figure 6**):

- Only 25% of aggregated households in the 16 COLR service areas are served by at least both a fiber and a cable provider.
- Only around 2.12% of aggregated households are served by at least a fiber, a cable, and a fixed wireless provider.
- Only around 3.21% of aggregated households are served by at least 3 providers, either fiber, cable, or both.
- Only around 0.45% of aggregated households are served by at least 4 providers, either fiber, cable, or fixed wireless.

Table 7. Multiple Providers Coverage at 100/20 Mbps in Aggregated 16 COLR Service Areas.

Number of Broadband Providers	Total HHs	Served HHs	% Served HHs	Total Pop	Served POP	% Served POP
Fiber and Cable (2 Providers or More)	13,463,857	3,423,706	25%	39,506,579	10,238,528	26%
Fiber, Cable and Fixed Wireless (3 Providers or More)	13,463,857	285,492	2.12%	39,506,579	779,247	1.97%
Fiber and Cable (3 Providers or More)	13,463,857	431,560	3.21%	39,506,579	1,182,665	2.99%
Fiber, Cable, and Fixed Wireless (4 Providers or More)	13,463,857	60,390	0.45%	39,506,579	153,655	0.39%

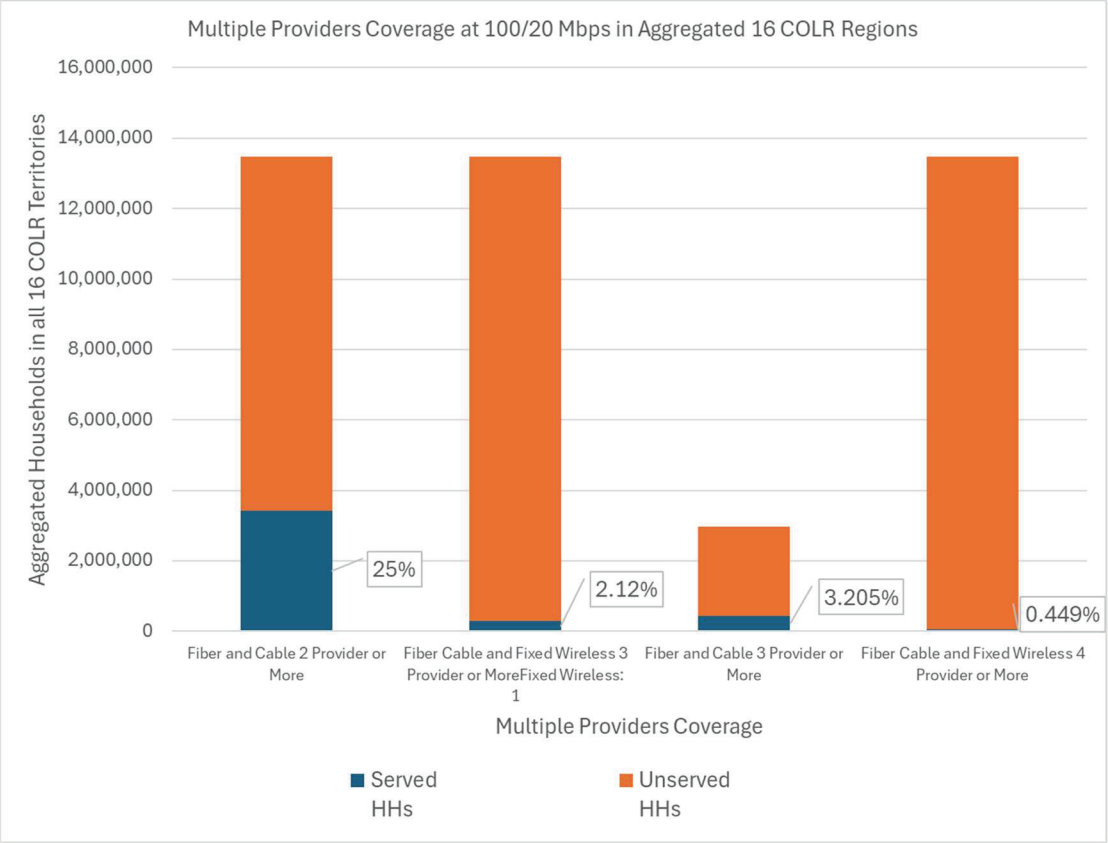

Figure 6. Multiple Providers Coverage at 100/20 Mbps in Aggregated 16 COLR Service Areas.

This analysis was conducted at the census block level using self-reported data by broadband providers. If the analysis would have been conducted at a census block group (CBG) level, the number of served households would be smaller because the analysis would only count households in census block groups served entirely (throughout the entire census block group) by providers. Any assessment of alternative providers for purposes of a COLR requesting to withdraw from the COLR obligation should be conducted at least at the CBG level to prevent cherry-picking of specific areas (or census blocks).

These results show that the overwhelming majority of households in the aggregated 16 COLR service areas are not served by multiple providers of essential basic communications services). Therefore, COLRs are necessary to ensure universal service

to all Californians who must have at least two service providers to choose from that provide voice and basic broadband service at a minimum of 100/20 Mbps.

C. Customer Migration: Proposed Revised COLR Rules

This section responds to the following questions in the OIR:

j. Should the Commission revise its rules for how and when a COLR is allowed to withdraw from its designated service territory? If so, how should the Commission revise its rules? Should the Commission require that the service of a potential replacement COLR be functionally similar to that of the current COLR? If yes, what similar functionality requirements should the Commission adopt?

k. When should a COLR seeking to withdraw be required to notify residents in the COLR territory of its request to withdraw? What should be included in the contents of that notification? What method(s) should be used for notification?

l. If a COLR applies to withdraw, and a new COLR is designated, is there a need for a customer transition period? If yes, how long should that transition period last? What customer service protections, if any, should the Commission impose as part of a customer transition period? What other elements or processes, other than customer protections, should be provided in a customer transition period? How long should a customer transition period last?

The revised COLR rules should support implementation of the New Basic Service Definition and the Technology Transition Plan.

1. Proposed COLR Withdrawal Requirements

It is still necessary for the Commission to maintain COLR rules in specific service areas and communities in California. It is critical for communities in California to have access to essential communications services provided by COLRs, both voice and broadband services. As discussed earlier, many Californians still lack access to essential communications services, and therefore, a COLR is still necessary in some communities to ensure universal access.

Nonetheless, COLRs are modernizing their networks. In network modernization and technology transitions, no one should be abandoned with inferior service or no service at all. COLRs must meet all of the requirements below before the Commission

can authorize withdrawal from their COLR obligation. Additionally, customers should not be forced to migrate to new networks. Instead, the additional deployment options should provide customers with more choices. The following presents a Provisional Authorization of COLR Withdrawal. This Provisional COLR Withdrawal Period would be for a specified and limited time (i.e., 36 months). During this period, the Commission would evaluate the impact of the withdrawal on customers and service.

a. COLR Withdrawal Conditions

To be granted a 36-month[136] Provisional COLR Withdrawal Period, a current COLR should meet the following ten conditions:

1) A COLR withdrawal request area must be defined at a minimum at the CBG level to prevent erroneous assessments that an "area" is already served (by cherry-picking only specific census blocks). However, the basic service assessment (described below) should utilize basic service deployment and subscribership data (provided by the COLR) at the census block and serviceable location levels. The COLR must meet the conditions below in the entire request area at the census block level.
2) The COLR must have met the New Basic Service Definition (voice and broadband at speeds of at least 100/20 Mbps) by achieving deployment of such service to 100% of its COLR service area on a technology-neutral basis. The broadband service should not include data caps as they may be an indication that the underlying network capacity is insufficient.
3) The COLR must be in compliance with service quality standards (revised GO 133-D),[137] including "reliability" and "availability" service standards. To the extent service quality standards are not yet established for broadband, the COLR must submit a Tier 3 Advice Letter indicating the service quality measurements and reporting procedures it has for the service provided that is, at a minimum, the functional equivalent of established standards. This filing must

[136] The 36-month (three-year period) for the provisional approval of a COLR withdrawal allows the Commission to collect and assess data in quarterly reporting during this time. This period allows for data collection and assessment to provide sufficient information to determine whether the withdrawal conditions have been met.

[137] R.22-03-016.

further indicate how the service or new technology maintains essential basic services or standards.

4) The COLR must provide affordable broadband service plans to ensure pricing is not a barrier for service adoption.

5) The COLR must provide a report (at census block and serviceable location levels) and validation that its basic service is able to support specialized communications services such as services to people with disabilities, alarm systems, elevators, and health devices. The report must identify a list of customers, time for transitions, a list of devices that may or may not be compatible, and information related to testing of equipment. Additionally, it must incorporate workshop and/or hearing input from customers who utilize these devices, among other items. This report must show that these customers are not adversely impacted.

6) The COLR must submit a Technology Transition Plan to be reviewed and approved by the Commission. The COLR's technology transition must include a transition plan for resellers relying on the COLR's infrastructure and facilities to reach customers.

7) The COLR must submit a Customer Migration Plan. The Commission should review and approve the plan. The Customer Migration Plan must be submitted at the time the ILEC files its Section 251 Copper Retirement Network Change Notices,[138] before the withdrawal application is submitted.

8) The COLR's service area must have alternative communication providers (a minimum determined by the Commission based on Cal Advocates' recommendations in Section III.B., Technology Transition: Evaluating Need for a COLR) that offer broadband service at a minimum of 100/20 Mbps and emergency services in that area (voice and broadband, 911), and the service quality standards described above (revised GO 133-D).[139] Additionally, alternative communication providers must be registered or granted operating authority (i.e., CPCN, NDIEC, DIVCA, WIR) by the Commission to provide communication services in California.

9) The COLR must meet requirements set pursuant to CEQA and be in compliance with Pole proceeding requirements as provided for in

[138] See 47 C.F.R. § 51.331.

[139] R.22-03-016.

R.17-06-028 when deploying or decommissioning legacy facilities or infrastructure.

10) The COLR agrees to continue to participate in the California LifeLine program as a non-COLR.

b. Provisional Withdrawal Authorization

If the COLR meets all the above conditions at the census block level, the COLR would be eligible for the Provisional Authorization of COLR Withdrawal for those census block groups for a 36-month period. As noted above, a COLR withdrawal request area should be defined, at a minimum, at the CBG level, however, the basic service assessment and meeting the conditions listed above should be conducted at the census block level (utilizing data provided by the COLR). After a COLR receives a Provisional Authorization of COLR Withdrawal, customers should not be forced to migrate to new deployments or services, as these new services are intended to provide customers more choices.

The Commission's determination of whether to grant a permanent Authorization of COLR Withdrawal should be based on its review of data reported quarterly by the COLR during the 36-month period. The data should include the number of customers served, the number of customers lost, and service quality metrics such as those defined in GO 133-D. If the Commission approves the Authorization of COLR Withdrawal after the 36-month period in a specific service area, the Commission should continue to monitor the service area to ensure compliance with CPUC regulations for service quality, network resiliency, and the required availability of newly defined basic service.

c. Incentivization Mechanisms for Network Modernization and Expansion

The above withdrawal requirements establish concrete customer protections and transparency. Existing COLRs (whether or not they seek to withdraw from the COLR obligation) already have numerous incentives to modernize their networks for all customers including the following:

1) Existing grant programs such as the California Advanced Service Fund (CASF), FFA and BEAD provide funding to communications providers to expand broadband infrastructure.

2) The California High-Cost Fund A (CHCF-A) allows small rural telephone companies to invest in broadband capable networks. To support providers in reaching basic service requirements, the Commission should modernize the CHCF-B (currently allowed for telephone lines maintained by price cap carriers) to include broadband basic service at a minimum of 100/20 Mbps. Doing so would encourage deployment and affordability in high-cost areas.

2. The Commission Should Adopt Copper Retirement Customer Migration Plan Requirements and Copper Retirement Customer Protections.

Although copper retirements have and will continue to occur largely outside the context of changes in COLR obligations, an application to withdraw from the COLR obligation could presage this network change.[140] Before a copper retirement can occur, the network operator must migrate customers off the copper network and onto a new network, owned either by the entity that is retiring copper or an alternative provider.

Consistent with Cal Advocates' other recommendations related to technology transitions in this Initial Proposal, the Commission should adopt Copper Retirement Customer Migration Plan requirements and Copper Retirement Customer Protections that will protect customers when they are forced to migrate from a copper network onto a new network. In D.11-08-033, the Commission adopted the following requirements that an ILEC must follow when it intends to retire or permanently remove copper loop facilities:

- Concurrent filing of FCC copper retirement network change notices with the Commission when a Competitive Local Exchange Carrier

[140] The COLR obligation is technology-neutral. Therefore providers can upgrade their networks from copper to successor networks independent of their status as a COLR, provided they continue to offer basic service and follow other COLR requirements. However, AT&T's amended application to relinquish its COLR obligation contains the following language that suggests that relief from the COLR obligation will lead to more copper retirements: "To satisfy its COLR obligation to provide basic telephone service, AT&T California still operates a legacy TDM network composed of copper lines and antiquated circuit switches."A.23-03-003, *Amended Application of Pacific Bell Telephone Company d/b/a AT&T California (U 1001 C) for Targeted Relief from its Carrier of Last Resort Obligation and Certain Associated Tariff Obligations*, at 25.

(CLEC) uses an affected copper loop and service of such notices on interconnecting CLECs;

- Procedures for negotiations between the ILEC retiring copper networks and interconnecting CLECs; and
- A requirement that "when retiring copper loops, ILECs shall also offer to their retail end-user customers a comparable service over fiber that the customer was previously receiving."[141]

The Commission has considered adopting additional rules applicable to when an ILEC plans to retire portions of its copper network, or otherwise migrate customers off its network to a CLEC's network. When the Commission adopted Mass Migration Guidelines applicable to when a CLEC needs to migrate its customers to another CLEC or to an ILEC,[142] it deferred setting related rules for ILECs to a separate rulemaking.[143] The Commission closed the separate rulemaking without having adopted ILEC customer migration guidelines.[144]

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[141] D.08-11-033, *Adopting Process Governing Retirement by Incumbent Local Exchange Carriers of Copper Loops and Related Facilities Used to Provide Telecommunications Services*, at 43. The decision defines "copper retirement" as "the replacement of copper loops or copper subloops with fiber to the home or fiber to the curb loops." D.08-11-033, at 1, n.1. It is unclear whether the final requirement applies when an ILEC retires copper loops *without* replacing them with fiber. This is a point the Commission should address, given that ILECs may view copper retirement as a path to leaving geographic markets entirely. AT&T, for example, stated in its Q1 2024 earnings call that they could use fiber rollout as an opportunity to "turn down footprint," where they could "turn out the lights, walk away, take the cost out of business." Quote from John T. Stankey, AT&T Inc., CEO, President & Director, as recorded in REFINITIV STREETEVENTS Edited Transcript, T.N - Q1 2024 AT&T Inc Earnings Call at 17, April 24, 2024, available at https://investors.att.com/~/media/Files/A/ATT-IR-V2/financial-reports/t-usq-transcript-2024-04-24.pdf.

[142] D.10-07-024, *Opinion Adopting Mass Migration Guidelines*, Attachment 1 contains Guidelines for CLEC Involuntary Exits from Local Exchange Services Market, originally adopted in D.06-10-021, applicable when a wholesale provider(s), either an underlying ILEC or CLEC, contacts the Commission about the need to initiate a mass migration process, often due to CILEC failure to pay for wholesale services or CLEC breach of contract. Attachment 2 to this decision contains Principles and Procedures for CLEC-to-CLEC/ILEC End-User Migrations, applicable when CLEC end-user customers choose to migrate to another CLEC or an ILEC. Attachment 3 to this decision contains Mass Migration Guidelines, applicable when a CLEC is voluntarily exiting the local exchange services market, or a portion of its market, and has a customer base to migrate to other carriers.

[143] D.10-07-024 at 15, deferring consideration of ILEC-to-CLEC voluntary migrations to the conclusion of the reverse auction process being considered in R.09-06-019.

[144] The Commission ultimately did not hold the intended reverse auction in R.09-06-019 and closed that

(continued on next page)

The FCC's rules related to copper retirements require ILECs to provide public notice of copper retirements[145] either via filing a public notice with the FCC or via public posting of the notice in industry fora or on the ILEC's website.[146] The FCC eliminated its requirement that ILECs directly notice affected customers in part because "incumbent ILECs necessarily must reach out to these customers and communicate with them about their specific planned copper retirement to work with them, individually, to access their homes in order to accomplish their migration to the new fiber-based network."[147] The Commission can ensure customers are informed and protected by overseeing the content and manner of the notices that ILECs provide to customers.

The Commission should require all ILECs that intend to retire their copper networks to file a Tier 2 advice letter containing a proposed Copper Retirement Customer Migration Plan that satisfies the requirements below. The Commission should require ILECs to submit this advice letter and provide copies of their Section 251 Copper Retirement Network Change Notices to the Commission at the time the ILEC files its section 251 notice (or certification of such notice) with the FCC.[148] The Copper Retirement Customer Migration Plan requirements below will ensure that an ILEC's retail end customers have the time and information needed to make informed choices when network changes occur. The Commission should consider adopting additional requirements that may protect interconnectors that rely on copper networks subject to proposed retirement and their customers.

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proceeding without having adopted ILEC-to-CLEC Mass Migration Guidelines. See, D.12-12-038, and Decision (D.) 14-06-008, *Regarding Cost Proxy Update Provisions and Related Matters, and Closes the Proceeding*.

[145] "Copper retirement" is defined in the Code of Federal Regulations as "(i) [t]he removal or disabling of copper loops, subloops, or the feeder portion of such loops or subloops; or (ii) The replacement of such loops with fiber-to-the-home loops or fiber-to-the-curb loops[…]."47 CFR § 51.325.

[146] 47 CFR § 51.329. If the ILEC elects to provide notice via industry fora, it must certify having done so with the FCC.

[147] FCC Report and Order, *Declaratory Ruling, and Further Notice of Proposed Rulemaking* at 23, ¶ 49, FCC 17-154.

[148] See 47 CFR § 51.333(1); D.08-11-033 at 43.

a. Copper Retirement Customer Migration Plan Requirements

The Commission should require ILECs intending to retire all or portions of a copper network, regardless of the ILEC's COLR status or any intention to change COLR status, to submit a Copper Retirement Customer Migration Plan, that provides the following information:

1) A timeline of critical events in the copper retirement and customer migration processes, including a proposed date by which customers must elect a new service plan, and a cutoff date by which the ILEC intends to retire the portions of its copper network subject to its Section 251 Copper Retirement Network Change Notice.
2) A list of census blocks located wholly or partially within the affected service area,[149] including a clear indication of whether each census block is wholly or partially within the affected service area.
3) A list of zip codes located wholly or partially within the affected service area, including a clear indication of whether each zip code is wholly or partially within the affected service area.
4) A count of the homes passed by the copper network the ILEC intends to retire.
5) A count of current ILEC landline customers[150] connected to the copper network the ILEC intends to retire.
6) A list of current ILEC landline customers connected to the copper network the ILEC intends to retire.
7) Contact names and telephone numbers for an identified copper retirement customer migration coordinator, an appropriate customer service line, the regulatory contact, and any other pertinent contacts.
8) A Copper Retirement Notice Plan which satisfies requirements listed below.

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[149] Here "affected service area" means the area served by to the copper retirement identified in the ILEC's Section 251 Copper Retirement Network Change Notice.

[150] "Landline" here means a copper loop voice service connection.

9) A statement declaring whether the ILEC intends to discontinue any voice services in the affected service area within six months following retirement of its copper network.

10) A statement declaring whether the ILEC intends to discontinue any broadband services in the affected service area within six months following retirement of its copper network.

11) A list of all alternative providers offering voice service in the affected service area, including an indication of whether each alternative voice service provider offers landline voice, VoIP, or wireless voice.

12) A list of all alternative providers offering broadband service in the affected service area, including an indication of whether each alternative broadband service provider offers landline voice, VoIP, or wireless voice.

13) A list of landline voice service plans, VoIP service plans, and wireless voice service plans that the ILEC will offer for six months following retirement of its copper network and that all alternative providers in the affected service area offer at the time the ILEC is preparing its Section 251 Copper Retirement Network Change Notice, including:

    a. Plan specifications

    b. Plan prices

    c. An indication of whether each plan is a landline voice plan or wireless voice plan

14) A list of broadband service plans that the ILEC will offer for six months following retirement of its copper network and that all alternative providers in the affected service area offer at the time the ILEC is preparing its Section 251 Copper Retirement Network Change Notice, including:

    1. Plan specifications

    2. Plan prices

    3. An indication of the technologies over which each of the plans noted are available (i.e., Digital Subscriber Line (DSL), fiber, coaxial cable, terrestrial fixed wireless, etc.).

15) A map of the service area subject to the copper retirement which, if printed, should be no smaller than 8.5" X 11" in size. The delineation of affected areas on the map should be at the ZIP Code level. Census blocks layers should be overlayed on the map. The

map should delineate between zip codes that would be partially impacted by the proposed withdrawal and zip codes that would be wholly impacted (i.e., every served location within the zip code would be subject to a copper retirement). The map should include the major county roads and county and state highways, so that the average customer and relevant public representatives can clearly understand which addresses will be affected by the copper retirement.

16) A link or web address to an interactive map of the affected service area that satisfies the above conditions, housed on the ILEC's website, that allows customers and public representatives to determine, at the address level, which addresses the copper retirement will impact.

b. Copper Retirement Notice Plan

The ILEC's Copper Retirement Customer Migration Plan must include a Copper Retirement Notice Plan to be in effect upon approval of the Tier 2 advice letter required above, and which satisfies the following:

1) Contains a list of languages in which the ILEC intends to produce all required notices. If the language will vary based on the specific notice (i.e., direct or general, as defined below), the location to which the ILEC will send the notice, or the public forum in which the ILEC will post the notice, the ILEC should articulate this in the Copper Retirement Notice Plan.

2) Contains a list of relevant public officials, including their titles and geographic jurisdictions, serving the area affected by the copper retirement.

3) Describes the modes by which the ILEC will directly send the proposed Notice of Copper Retirement to all affected customers (i.e., bill insert, separate letter, email, etc.).

4) Contains the date by which the ILEC intends to send an initial Notice of Copper Retirement, which should be no later than 60 days prior to the date by which customers must select a new service, and the dates or ranges of dates for any other intended contacts with affected customers (e.g., phone calls to customers, second notices, etc.).

5) Contains a proposed sample Notice of Copper Retirement that the ILEC will send to all affected customers and relevant public officials noted above, and that the ILEC will post in a prominent position on

the ILEC's public website and on the ILEC's social media platforms, that satisfies the following criteria:

a. Contains neutral, factual language explaining copper retirements, including a statement indicating whether the ILEC retiring its copper network intends to replace that copper network with another wired network.

b. Contains important dates for affected customers to be aware of, including the date by which they must select a new service plan or provider.

c. Contains a clear statement indicating that customers in the affected service area will experience network changes that will de-power customers' phones lines on the successor fiber network, such that customers will require battery backup for their phones connected to that successor network to work during a blackout.

d. Contains a clear statement indicating whether the ILEC offers such battery backup and at what cost.

e. Contains a statement indicating whether customers may lose access to California LifeLine or DDTP, including California Relay Service, by virtue of the copper retirement.

f. Contains information regarding the anticipated interoperability of devices like fire alarms, fire panels, elevators,[151] fax machines and health monitors[152] that copper retirement may impact.

g. Contains a count of the homes passed by the copper network the ILEC intends to retire.

h. Contains the customer service line number identified in subsection (V)(C)(3)(a)(7), above.

i. Contains the ILEC's website address.

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[151] James Anderson, *As Copper Retirement Accelerates, Customers Feel the Pain of POTS Transformation* (May 16, 2024), Channel Futures, available at https://www.channelfutures.com/ethernet/copper-retirement-pain-pots-transformation-mettel.

[152] Jenna Levantoff, *As AT&T Retires Copper, the Biden FCC Must Bring Back Ground Rules* (May 26, 2021), Public Knowledge, available at https://publicknowledge.org/as-att-retires-copper-the-biden-fcc-must-bring-back-ground-rules/.

j. Contains the website address on the ILEC's website where the ILEC will post its approved Copper Migration Customer Migration Plan.

k. Contains information regarding the potential need for impacted customers to port their phone numbers, if applicable.

l. Contains the mapping resources identified by subsections (V)(C)(3)(a)(16) and (V)(C)(3)(a)(17) above.

c. Copper Retirement Customer Protections

To protect customers throughout the course of a copper retirement, the Commission should adopt the follow requirements. The ILEC that migrates customers from a copper network to a fiber network must:

- Waive installation and/or activation fees for customers who must subscribe to a new plan because of a copper retirement.
- Ensure number portability for customers who choose to subscribe to a new provider because of the copper retirement. This should include a requirement that ILECs reserve the phone numbers of customers they are unable contact during the transition.
- Offer affected customers battery backup for purchase during the migration process.
- Submit monthly letters to the Director of the CPUC Communications Division detailing steps taken to comply with their Copper Retirement Customer Migration Plan.

3. COLR Withdrawal Customer Notices

The Commission should require applicants seeking to withdraw from the COLR obligation to post or send notice to affected customers,[153] relevant public officials,[154] and the public, as applicable,[155] at two points in the withdrawal proceeding:

1) As soon as is practicable, and no more than 45 days,[156] after the application has been posted to a docket on the Commission's website ("Application Notice") and an assigned administrative law judge has approved the text of the Application Notice; and
2) At least five days before public participation hearings are scheduled to occur ("PPH Notice").

COLRs seeking authorization to withdraw should send both notices directly to affected customers and relevant public officials via letter, bill insert, or email (if the individual has elected to receive such communications via email). The COLR should

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[153] Here "affected customers" means the applicant's landline customers residing in the service area subject to the withdrawal application.

[154] Here, "relevant public officials" includes the contact individuals listed for California Native American Tribes on the contact list maintained by the Native American Heritage Commission for the purposes of Chapter 905 of the Statutes of 2004, (see Public Resource Code (Pub. Res. Code), § 21073), limited to those California Native American Tribes whose Tribal Ancestral Territory (as defined in the Commission's Tribal Land Transfer Policy) is wholly or partly included within the service area subject to the withdrawal application. "Relevant public officials" also includes the public officials listed in the analogous notice requirement for direct notice of an application to increase rates found in Rules of Practice and Procedure, Rule 3.2(b), and analogous representatives of townships and villages:

> 1) the Attorney General and the Department of General Services, when the State is a customer or subscriber whose rates or fares would be affected by the proposed increase; 2) the County Counsel (or District Attorney if the county has no County Counsel) and County Clerk, and the City Attorney and City Clerk, listed in the current Roster published by the Secretary of State in each county and city in which the proposed increase is to be made effective; and 3) any other persons whom applicant deems appropriate or as may be required by the Commission.

[155] Withdrawal of a COLR impacts not only the COLR's customers within the service area subject to the withdrawal proposal but also every individual living in the COLR service area who could have no COLR obligated to provide basic service and LifeLine service, should the Commission approve the withdrawal application.

[156] The 45-day requirement here is analogous to CPUC Rules of Practice and Procedure, Rule 3.2 (d), which requires entities filing an application to increase rates to provide customer notice of that application within 45 days of having filed the application, if the entity operates on a 30-day billing cycle. This provision is slightly more generous, requiring that the notice be sent/posted within 45 days of the application having been assigned an online Docket Card on the Commission's website. This is so that a link to the Docket Card can be included in the notice.

provide the notices to the public via posts on their website in a prominent place and on their social media platforms. The notices should be accessible[157] and in languages affected customers are likely to understand. As indicated by the extensive public interest, including by government officials, in A.23-03-003, the proceeding deciding AT&T's request to relinquish its COLR obligation, the public requires information and involvement in all such matters.[158] The Application and PPH Notices address this need.

a. The Application Notice

A proposed Application Notice should include the following information:

1) A neutral, factual explanation of the COLR obligation, including a statement informing affected customers that if the Commission approves the withdrawal application, the withdrawing COLR would no longer be required to satisfy those requirements.
2) A website address at which affected customers can find the withdrawal application, and an explanation that the application contains additional details that may help affected customers understand the implications of the application.
3) A statement informing affected customers whether the withdrawing COLR intends to discontinue its landline voice service[159] in the affected service area within a specified time frame of approval of its application to withdraw from its COLR obligation, should the Commission approve the application.
4) A statement informing affected customers whether the withdrawing COLR intends to retire any/all of its copper network in the affected service area within six months of approval of its application to withdraw from its COLR obligation and, if so, a statement that such network changes would de-power customers' phone lines on a

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[157] Applicants should make notices accessible by adhering to design protocols that assist all individuals, including individuals with disabilities, receive the information conveyed via the accessible notices. This should include, but not be limited to, use of plain language in notices, providing notices in large and accessible fonts, ensuring notices have sufficient contrasting colors to be accessible by individuals with visual impairments, making notices available in braille, in audio format, or in document formats that are accessible by screen readers. Accessible notices contain alt text for images.

[158] See A.23-03-003, which contains over 500 written public comments. See the same docket for evidence of interest in AT&T's COLR withdrawal proceeding by the City and County of San Francisco, the Counties of Santa Clara and San Mateo, as well as the Rural County Representatives of California, parties to proceeding A.23-03-003.

[159] "Landline" here means a copper loop voice service connection.

successor fiber network, such that customers will require battery backup for their phones connected to that successor network to work during a blackout.

5) A statement informing affected customers that they may be obligated to rely solely on Voice over Internet Protocol (VoIP) or mobile voice service, should the Commission approve the application.

6) A link to the application's Docket Card on the Commission's website and an explanation of opportunities for the public to provide comment on the application via the Docket Card, including via the "Public Comment" tab of the online Docket Card.

7) A statement indicating that the Commission will schedule PPHs at which members of the public may provide comment on the application.

8) A statement indicating that the Commission will schedule a pre-hearing conference at which parties will discuss procedural matters pertaining to the application.

9) A map of the areas affected which, if printed, should be no smaller than 8.5" x 11" in size. The delineation of affected areas on the map should be at the zip code level. The map should delineate between zip codes that would be partially impacted by the proposed withdrawal and zip codes that would be wholly impacted (i.e., every served location within the zip code would be subject to loss of or change in COLR). The map should include the major county roads and county and state highways, so that the average customer may clearly understand if they reside in an area that could be impacted by this application.

10) A link to an interactive map of the areas affected by the proposed withdrawal that satisfies the conditions described above. The interactive map should also allow for a census block layer to be overlaid, and it should be housed on the withdrawing COLR's website. The overlay should allow customers to determine, at the address level, whether they will be impacted by the proposed withdrawal and any related planned copper retirements.

b. The Public Participation Hearing Notice

The PPH Notice should contain the same information as the Application Notice (except for a statement indicating that the Commission will schedule PPHs) and should also include a prominent heading and email subject line, if applicable, indicating that the Commission has scheduled PPHs. The notice should inform customers that they may

provide public comment at such hearings. The PPH Notice should include the dates, times, locations, and access information for each of the scheduled PPHs.

4. COLR Withdrawal Customer Transition Plans

As described in Section III.C.1., Proposed COLR Withdrawal Requirements, the Commission should adopt a 36-month Provisional Withdrawal Period following provisional approval of a COLR's application to withdraw from its COLR obligation. The Commission should also adopt customer transition plan requirements for when a COLR is authorized to withdraw from its COLR obligation (COLR Withdrawal Customer Transition Plan). COLR Withdrawal Customer Transition Plans are necessary to ensure that customers are aware of a change in a legal obligation that exists for their benefit and protection. COLRs are designated to ensure at least one entity carries a legal obligation to provide basic service to all customers upon request within the COLR's designated service area.[160] Commission rules require a COLR to continue fulfilling its COLR obligation until another COLR is designated.[161] Adoption of COLR Withdrawal Customer Transition Plan requirements will ensure that customers subject to a COLR change or withdrawal are aware of the changes triggered by the withdrawal or change and are specifically aware that they are a member of the public affected by the change or withdrawal of a COLR.

The Commission should require COLRs seeking to end their COLR obligation to include a draft COLR Withdrawal Customer Transition Plan that satisfies the requirements below with their withdrawal applications. The Commission should review a proposed COLR Withdrawal Customer Transition Plan as a necessary component of approving the application to withdraw.

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[160] D.96-10-066, at 109; Appendix B, Adopted Universal Service Rules, at 158.

[161] D.96-10-066, at 109.

a. COLR Withdrawal Customer Transition Plan Requirements

The proposed COLR Withdrawal Customer Transition Plan must provide the following information:

1) A proposed date by which the withdrawing COLR requests to be relieved of its COLR obligation.
2) A list of census block groups located wholly or partially within the affected service area, including a clear indication of whether each census block is wholly or partially within the affected service area.
3) A list of zip codes located wholly or partially within the affected service area, including a clear indication of whether each zip code is wholly or partially within the affected service area.
4) A count of the population residing in the service area from which the withdrawing COLR intends to withdraw from its COLR obligation.
5) A count of current COLR landline customers residing in the affected service area.
6) A list of current COLR landline customers residing in the affected service area.
7) Contact names and telephone numbers for an identified COLR transition coordinator, COLR-withdrawal specific designated customer service line, a regulatory contact, and any other pertinent contacts.
8) A COLR Withdrawal Notice Plan which satisfies the COLR Withdrawal Notice Plan requirements noted below.
9) A statement declaring whether the withdrawing COLR intends to retire any/all of its copper network in the affected service area within six months following approval of its application to withdraw from its COLR obligation; if yes, the withdrawing COLR must comply with the Copper Retirement Customer Migration Plan requirements listed elsewhere in this Initial Proposal.
10) A statement declaring whether the withdrawing COLR intends to discontinue its landline voice service in the affected service area within six months following approval of its application to withdraw from its COLR obligation.

11) A statement declaring whether the withdrawing COLR intends to discontinue its broadband service in the affected service area within six months following approval of its application to withdraw from its COLR obligation.

12) A list of all approved alternative providers (pursuant Commission's evaluation of alternative providers as recommended in Section III.B.2., The Evaluation of Multiple Potential Providers and the Need **for COLR**) offering voice service in the affected service area, including indication of whether each alternative voice service provider offers landline voice, wireless voice, or both.

13) A list of all approved alternative providers (pursuant Commission's evaluation of alternative providers as recommended in Section III.B.2., The Evaluation of Multiple Potential Providers and the Need for COLR) offering broadband service in the affected service area, including indication of the technology over which alternative providers offer broadband in the affected service area.

14) A list of landline voice service plans and wireless voice service plans that the withdrawing COLR will offer for six months following approval of its application to withdraw from its COLR obligation, and that all alternative providers in the affected service area offer at the time the withdrawing COLR is preparing its application to withdraw, including:

    a. Plan specifications

    b. Plan prices

    c. Indication of whether each plan is a landline voice plan or wireless voice plan.

15) A list of broadband service plans that the withdrawing COLR will offer for six months following approval of its application to withdraw from its COLR obligation, and that all alternative providers in the affected service area offer at the time the withdrawing COLR is preparing its application to withdraw, including:

    a. Plan specifications

    b. Plan prices

    c. Indication of the technologies over which each of the plans noted are available (i.e., Digital Subscriber Line (DSL), fiber, coaxial cable, terrestrial fixed wireless, etc.).

16) A map of the areas affected by the COLR withdrawal which, if printed, should be no smaller than 8.5" X 11" in size. The delineation of affected areas on the map should be at the ZIP Code level. The map should delineate between zip codes that would be partially impacted by the proposed withdrawal and zip codes that would be wholly impacted (i.e., every served location within the zip code would be subject to loss of or change in COLR). The map should include the major county roads and county and state highways, so that the average customer and relevant public representatives may clearly understand which addresses are subject to an application for COLR withdrawal.

17) A link or web address to an interactive map of the areas affected that satisfies the conditions of subsections (V)(C)(4)(a) above, housed on the withdrawing COLR's website that allows the average customer and relevant public representatives to clearly understand which addresses are subject to an application for COLR withdrawal**.**

b. COLR Withdrawal Notice Plan

The withdrawing COLR's Customer Transition Plan must include a COLR Withdrawal Notice Plan to be in effect upon approval of the application to withdraw. The Withdrawal Notice Plan should include the following:

1) A list of languages in which the withdrawing COLR intends to produce all required notices. If the language will vary based on specific notice (i.e., direct or general, as defined below), the location to which the COLR will send the notices, or the public forum in which the COLR will post the notices, the COLR should articulate this in the COLR Withdrawal Notice Plan.

2) A list of relevant public officials, including their titles and geographic jurisdictions, serving the area subject to the application to withdraw from its COLR obligation.

3) A description of the modes by which the COLR will send the proposed Notice of COLR Withdrawal directly to all affected customers (i.e., bill insert, separate letter, email, etc.).

4) A timeline containing proposed milestones, relative to the date the Commission approves the withdrawal application ("Day 1"), for sending Notices of COLR Withdrawal.

5) A proposed sample Notice of COLR Withdrawal that the COLR will send to all affected customers and relevant public officials noted

above, and will post on the COLR's public website and social media platforms, within 30 days of Commission approval of the request to withdraw, that satisfies the following criteria:

a. Contains neutral, factual language explaining the COLR obligation, including a statement that the withdrawing COLR will no longer be obligated to satisfy the obligation as of the effective date of Commission approval of the withdrawal application.

b. Contains important dates for customers to be aware of, including placeholders for the date the application is approved and the date on which the 36-month Provisional Withdrawal Period will end.

c. Contains a clear statement indicating whether the COLR intends to retire any copper networks in the affected service area within 6 months following the withdrawal from the COLR obligation, and a clear statement indicating whether customers in the affected service area will experience network changes that will de-power customers' phones lines on a successor fiber network, such that customers will require battery backup for their phones connected to that successor network to work during a blackout.

d. Contains a statement indicating whether customers may lose access to California LifeLine or DDTP, including California Relay Services.

e. Contains a count of the population residing in the service area from which the withdrawing COLR intends to withdraw from the COLR obligation.

f. Contains the designated customer service line identified in subsection (IV)(A)(7), above.

g. Contains the withdrawing COLR's website address.

h. Contains the website address of the approved COLR Withdrawal Customer Transition Plan, hosted on the withdrawing COLR's website.

i. Contains a map of the areas affected by the COLR withdrawal which, if printed, should be no smaller than 8.5" X 11" in size. The delineation of affected areas on the map should be at the ZIP Code level. The map should delineate between zip codes that would be partially impacted by the proposed withdrawal and zip codes that would be wholly

impacted (i.e., every served location within the zip code would be subject to loss of or change in the COLR). The map should include the major county roads and county and state highways, so that the average customer and relevant public representative may clearly understand which addresses are subject to COLR withdrawal.

j. Contains a link or web address to an interactive map of the areas affected that satisfies the conditions of subsections (V)(C)(4)(a)(5) above, housed on the withdrawing COLR's website that allows customers and relevant public representatives to understand which addresses the COLR withdrawal will impact.

6) The withdrawing COLRs may ultimately tailor the Notices of COLR Withdrawal's geographic components (i.e., lists of affected zip codes, maps) to subareas of the affected service area if such tailoring would ease customer understanding of information.

7) The COLR Withdrawal Notice Plan should also include any plans for follow-up notification arrangements, such as a second direct Notice of COLR Withdrawal, phone calls, bill inserts, emails, etc.

D. CPUC Jurisdiction Over Non-regulated Carriers and Providers as COLRS

This section addresses the Commission's jurisdiction over VoIP, wireless carriers, and broadband service providers and the following OIR questions:

e. Can the Commission require Voice over Internet Protocol (VoIP) providers to be COLRs? If yes, should the Commission designate VoIP providers as COLRs?

f. Can COLR service be provisioned using wireless voice service? Can the Commission direct wireless voice providers to serve as COLRs? If yes to both, should the Commission designate wireless voice providers as COLRs?

g. If the Commission does not have the authority to require a wireless voice provider to offer COLR service, is a wireless voice provider eligible to volunteer to be a COLR? If yes, should the Commission grant such an application? Should the requirements of a potential wireless COLR be different than a COLR offering Plain Old Telephone Service (POTS) or VoIP service?

1. Regulation of VoIP and Wireless Providers as COLRs, and Highspeed Broadband as Part of Basic Service, Falls Squarely Within the Commission's Authority and Jurisdiction.

The California Constitution has long bestowed the Commission with broad jurisdiction and wide-ranging regulatory authority over public utilities.[162] The Commission's power extends to the "regulat[ion] of every public utility in the State" and the Commission "may do all things. . .which are necessary and convenient in the exercise of such power and jurisdiction."[163] The Commission's power to regulate, control, and exercise jurisdiction over public utilities includes any and every "telephone corporation" that "performs a service for, or delivers a commodity to, the public or any portion thereof for which any compensation or payment whatsoever is received."[164]

It is well established that, by the plain language of Public Utilities Code sections 233 and 234, "the Legislature intended to define the term 'telephone corporation' broadly, without regard to the particular manner by which users of telephones are put into communication."[165] The term "telephone corporation" includes "every corporation or person owning, controlling, operating, or managing any telephone

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[162] See *Decision Adopting Wireless Provider Resiliency Strategies* (D.) 20-07-011, July 16, 2020, at 14, citing *Wise v. Pacific Gas & Electric Co.* (1991) 77 Cal. App. 4th 287, 293 (citing California Constitution, Art. XII, §§ 2, 4, 6.).

[163] Pub. Util. Code, § 701.

[164] Pub. Util. Code, § 216.

[165] *Order Modifying Decision (D.) 19-08-025, and Denying Rehearing of Decision, As Modified*, D.20-09-012, September 15, 2020, at 34, citing *City of Huntington Beach v. Pub. Util. Comm'n* (2013) 214 Cal. App.4th 566, 585-86, citing *Coml. Communications v. Public Util. Com.* (1958) 50 Cal.2d 512, 522 (In holding that "mobile communication systems" using radio technology to communicate with individuals in vehicles were § 233 telephone lines, the court observed that "[t]he exact form or shape of the transmitter and the receiver or the medium over which the communication can be effected is not prescribed by law."); See also: *Decision Adopting an Emergency Disaster Relief Program for Communications Service Provider Customers* (D.) 19-08-025, August 23, 2019, at COL 4 (". . .It follows then, that the means by which a telephone corporation provides service – analog, wireless technology or Internet protocol (IP) technology – does not affect whether the provider is a public utility telephone corporation.");*Decision Adopting Wireline Provider Resiliency Strategies* (D.) 21-02-029, February 18, 2021, at 10 ("Under California law, the means by which service is provided, whether it be traditional landline, wireless technology, or IP-enabled, does not affect whether the provider meets the definition of a public utility telephone corporation.").

line for compensation in this state."[166] In defining "telephone line," the Legislature took care to include "all conduits, ducts, poles, wires, cables, instruments, and appliances, and all other real estate, fixtures, and personal property owned, or controlled, operated, or managed in connection with or to facilitate communication by telephone, whether such communication is had with or without the use of transmission wires."[167] While the Public Utilities Code does not define the word "telephone," telecommunications jurisprudence has understood the term by looking to the plain meaning of the word "telephony" as "two-way communication by speaking as well as by listening" over a distance.[168] Following this clear statutory language, and the ensuing consistent interpretation by the courts and the Commission, the Commission's jurisdiction over wireless and VoIP providers, and thus broadband IP technology used for voice telephony, is affirmed.[169]

California's articulated telecommunications policies reflect this same commonsense, *function over form*, assumed jurisdiction by the Commission over the utilities that provide telephony service via diverse and continuously evolving specific facilities and technologies. In Public Utilities Code section 709, the Legislature infused the Commission's jurisdiction with a mandate that the State "continue our universal service commitment by assuring the continued affordability and widespread availability

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[166] Pub. Util. Code, § 234.

[167] Pub. Util. Code, § 233.

[168] *Order Modifying Decision (D.) 19-08-025, and Denying Rehearing of Decision, As Modified,* D.20-09-012, September 15, 2020, at 34, citing *City of Huntington Beach v. Pub. Util. Comm'n* (2013) 214 Cal. App.4th 566, 585, citing *Coml. Communications v. Public Util. Com.* (1958) 50 Cal.2d 512, 522, citing *Television Transmission, Inc. v. Public Utilities Com.* (1956) 47 Cal.2d 82, 88.

[169] *See*, e.g., D.19-08-025 at COL 17 ("VoIP providers clearly fit within the plain language of the definition of a public utility "telephone corporation."); D.21-02-029 at 10-11 ("Thus, the Commission's jurisdiction extends to VoIP carriers as well as to traditional landline carriers, and the Commission has clear authority to apply the backup power rules adopted in this decision today to VoIP carriers."); D.20-07-011 at COL 1 ("The Commission has jurisdiction over facilities-based wireless providers, and authority to ensure the reliability of communications networks in emergencies."), COL 5 ("The Commission has both the jurisdiction and the authority to require wireless telecommunications carriers to maintain service in Tier 2 and 3 high fire threat districts, so that service continues when commercial power sources are cut off."), and COL 7 ("The Commission has jurisdiction over wireless telephone corporations and other communications utilities.").

of high-quality telecommunications services to all Californians" while also "encourag[ing] the development of new technologies. . .that efficiently meet[] consumer need and encourage[e] the ubiquitous availability of a wide choice of state-of-the-art services."[170] The Legislature mandated that the State engage in "rapid implementation of advanced information and communications technologies."[171]

Assembly Bill 3643 (Stats. 1994, Ch. 279) directed the Commission to initiate a proceeding to ensure that "universal telecommunications service" means affordable, accessible, essential telecommunications services. Pursuant to the Legislature's directive, the Commission engaged in the Rulemaking Proceeding (R.) 95-01-020 which culminated in D.96-10-066 and the present Universal Service Rules governing COLRs.[172] In D.96-10-066, the Commission expressed intent and an assumption of jurisdiction consistent with regulation of VoIP and wireless providers as COLRs and integrating highspeed broadband into the definition of basic service.[173] The Universal Service Rules' Principles state that the Commission should seek "a progressive expansion of the definition of basic service" and "deployment of advanced telecommunications technologies to all consumer groups."[174] The Commission further states that it should "provide consumers with the ability to choose among competing basic service carriers regardless of technologies employed by carriers who provide basic service,"[175] and it

[170] Pub. Util. Code, § 709, subd. (a) and (c).

[171] Pub. Util. Code, § 709, subd. (e).

[172] D.96-10-066, at 3-6 and 157-165.

[173] D.96-10-066, Appendix B. Adopted Universal Service Rules, 3. Universal Service Principles and Objectives, A. Principles, at 159

[174] D.96-10-066, Appendix B. Adopted Universal Service Rules, 3. Universal Service Principles and Objectives, A. Principles, 2., at 159.

[175] D.96-10-066, Appendix B. Adopted Universal Service Rules, 3. Universal Service Principles and Objectives, A. Principles, 4., at 159.

should not hesitate to provide necessary incentives "to promote deployment of advanced telecommunications technology."[176]

The Commission's forward-looking path to universal service is further evidenced in its expansion of the definition of basic service to include services utilizing broadband technology. Since 2020, California LifeLine has subsidized broadband bundled with voice[177] and LifeLine is "an important means for achieving universal service by making basic telephone service affordable to low-income households. . ."[178] LifeLine's broadband subsidy exemplifies the Commission acting in accordance with section 1302 of Title 47 of the United States Code's mandate that "each State commission with regulatory jurisdiction over telecommunications services shall encourage the deployment. . .of advanced telecommunications capability to all Americans. . ."[179] Along those same lines, Federal Lifeline presently permits subsidies for standalone broadband.[180]

2. COLR Options to Modernize Their Networks

Existing COLRs already have numerous incentives to modernize their networks for all customers, which include the following:

1) Grant programs such as the CASF, FFA, and BEAD provide funding to communications providers to expand broadband infrastructure.
2) The CHCF-A which allows for Small Rural Telephone companies to invest in broadband capable networks.

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[176] D.96-10-066, Appendix B. Adopted Universal Service Rules, 3. Universal Service Principles and Objectives, A. Principles, 6., at 159.

[177] *Decision Establishing Specific Support Amounts and Minimum Service Standards for California LifeLine and Authorizing Replacement of Federal Support for Wireline Participants* (D.) 20-10-006, October 8, 2020, at COL 17 ("The Program should offer subsidies for Voice over Internet Protocol service bundled with fixed broadband service, so long as such Voice over Internet Protocol service connects to the Public Switched Telephone Network and meets E-911 obligations.").

[178] Pub. Util. Code, § 871.5.

[179] 47 U.S.C. § 1302, subd. (a).

[180] 47 CFR § 54.401, subd. (a), ("Lifeline means a non-transferrable retail service offering provided directly to qualifying low-income customers. . .that provides qualifying low-income consumers with voice telephony service or broadband Internet access service. . .").

The Commission should look to modernize the CHCF-B (currently allowed for telephone lines maintained by price cap carriers) to support the expansion of broadband in high-cost areas by COLRS and prior COLRs via O&M subsidies.

IV. CONCLUSION

The Commission is committed to universal access to modern communication services for all Californians. The COLR construct ensures these services will be available to all, regardless of linguistic, cultural, ethnic, physical, geographic, or income considerations. The Commission's revisions of the COLR rules must maintain the guarantee of universal service as network and technology transitions occur so that no customer is left behind with inferior service or no service at all.

Respectfully submitted,

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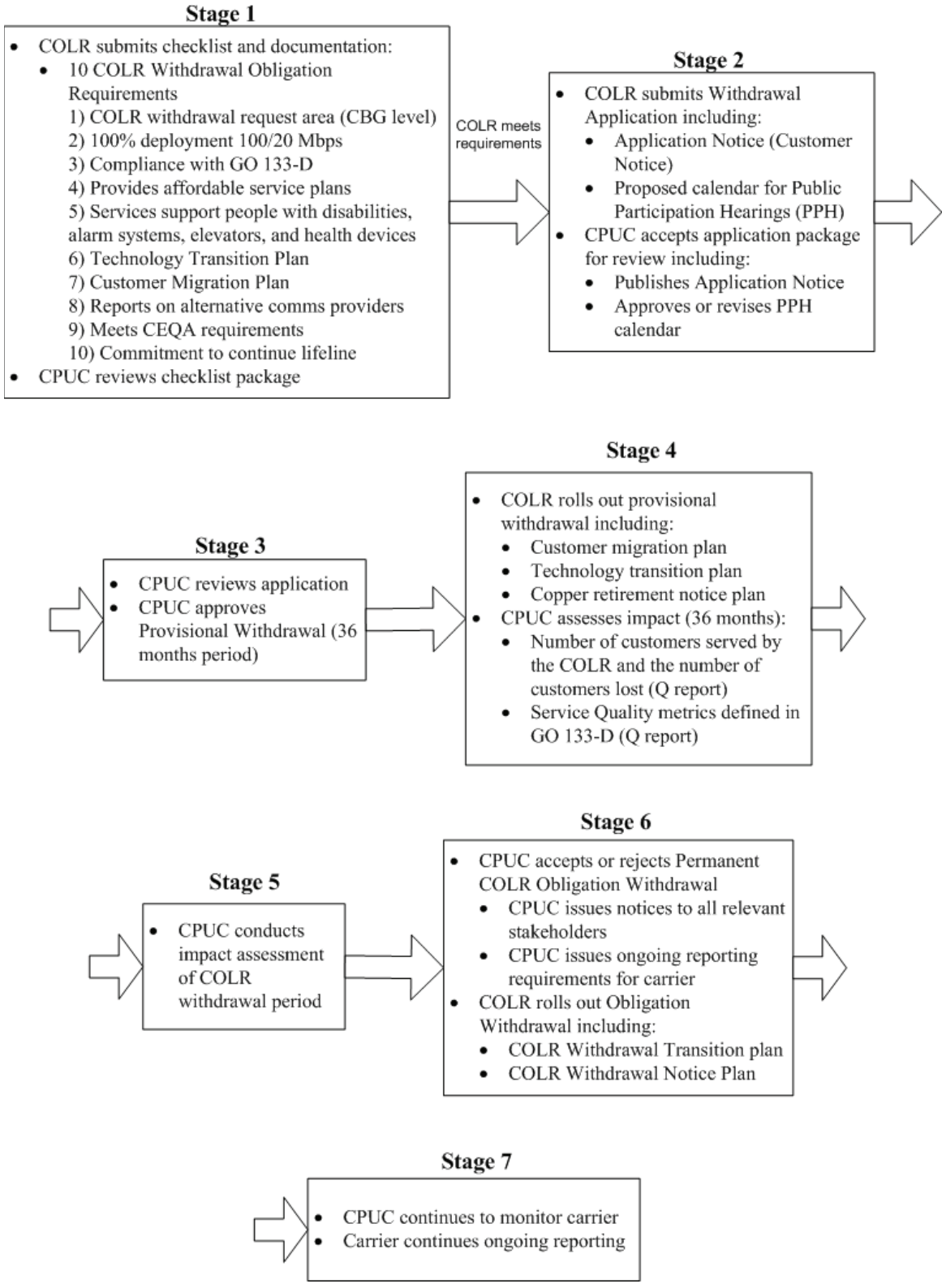
APPENDIX A: Sequenced Requirements for COLR Withdrawal



Stage 1

- COLR submits checklist and documentation
    - Checklist consists of 10 COLR Withdrawal Obligation Requirements
        1. COLR withdrawal request area (at minimum of CBG level)
        2. 100% deployment of 100/20 Mbps across request area
        3. Compliance with GO 133-D
        4. Provides affordable service plans
        5. Reports service support people with disabilities, alarm systems, elevators, and health devices
        6. Technology Transition Plan
        7. Customer Migration Plan
        8. Reports on alternative communication providers
        9. Meets CEQA requirements
        10. Commitment to continue participating on lifeline
- CPUC reviews checklist package
    - If COLR meets withdrawal requirements, process moves to stage 2
    - If COLR does not meet withdrawal requirements, process ends

Stage 2

- COLR submits Withdrawal Application including:
    - Application Notice (Customer Notice)
    - Proposed calendar for Public Participation Hearings (PPH)
- CPUC accepts application package for review including:
    - Publishing Application Notice
    - Approving or revising PPH calendar

Stage 3

- CPUC reviews application
- CPUC approves Provisional Withdrawal (36 months period)

Stage 4

- COLR starts rolling out provisional withdrawal including:
    - Customer Migration Plan
    - Technology Transition Plan
    - Copper Retirement Notice Plan
- CPUC assess impact for 36 months including:
    - The number of customers served by the COLR and the number of customers lost reported quarterly to the Commission.
    - Service quality metrics such as out of service metrics as defined in GO 133-D reported quarterly to the Commission

Stage 5

- CPUC conducts assessment of COLR withdrawal period

Stage 6

- CPUC accepts or rejects Permanent COLR Obligation Withdrawal
    - CPUC issues notices to all relevant stakeholders
    - CPUC issues ongoing reporting requirements for carrier
- COLR rolls out Obligation Withdrawal including
    - COLR Withdrawal Transition plan
    - COLR Withdrawal Notice Plan

Stage 7

- CPUC continues monitoring carrier
- Carrier continues ongoing reporting

APPENDIX B: Broadband Service is Essential for Participation in Modern Society

Access to broadband service is essential for participation in modern society, particularly in the spheres of education, employment, healthcare, and public safety.[1]

Increasingly, broadband service is essential for obtaining an education. The COVID-19 pandemic laid bare the necessity of a home internet connection for children to receive an education during certain community emergencies. Even outside the context of emergency education, however, lack of access to a home broadband connection impacts student outcomes via the "homework gap."[2] As far back as 2009, at least 70% of teachers reported assigning homework that required broadband access to complete.[3] A 2019 study on educational outcomes for students in grades 8-11 who lack home broadband connections found that 82% of students report that they sometimes or often receive homework that requires internet access.[4] This same study also found that students with fast home internet access report higher grade point averages than those with no access or only cell phone access to the internet, even when controlling for other factors such as family income and race.[5] Regardless of other factors, students who relied only on cell phones to access the internet did worse on standardized tests; the impact of lack of a wired home broadband connection was found to exceed the impacts of race or family

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[1] See the Bipartisan Infrastructure Act (Infrastructure Investment and Jobs Act of 2021), P.L. 117-58 §60101(1) (2021): "Access to affordable, reliable, high-speed broadband is essential to full participation in modern life in the United States." See also California Broadband Council, California Broadband Plan at 2 (2020), available at https://broadbandcouncil.ca.gov/wp-content/uploads/sites/68/2020/12/BB4All-Action-Plan-Final.pdf.See also D.20-07-032, Adopting Metrics and Methodologies for Assessing the Relative Affordability of Utility Services at 27, 34.See also FCC 2024 Section 706 Report at 1, ¶1, FCC 24-27. See also CPUC BEAD Program Five Year Action Plan at 6 (2023): "California understands that access to broadband is not a luxury, but an essential service necessary to participate in everyday life[.]"

[2] The "homework gap" describes the inability to fully participate in educational opportunities experienced by students who lack home access to broadband. *FCC Notice of Proposed Rulemaking In the Matter of Addressing the Homework Gap through the E-Rate Program*, FCC 23-91 at ¶2 (2023).

[3] Jinghong Cai, National School Boards Association website, Digital Homework (June 3, 2019), https://nsba.org/ASBJ/2019/June/Digital-Homework (last accessed Aug. 13, 2024).

[4] Hampton, K. N., Fernandez, L., Robertson, C. T., & Bauer, J. M. Broadband and Student Performance Gaps at 27 (2020). James H. and Mary B. Quello Center, Michigan State University. https://doi.org/10.25335/BZGY-3V91. [Hereinafter Hampton et al.]

[5] Hampton et al. at 34.

income on standardized test scores.[6] Educational success for children sets a foundation for post-secondary educational achievement and higher earning potential.[7] Home broadband access allows children a greater opportunity to succeed in school and ultimately to compete in today's economy, improving their lives and those of their families.

Home broadband access also increases opportunities for adult education. Primarily online colleges enrolled 1.1 million students[8] and roughly 10 million college students took at least one online course in the 2021-2022 school year.[9] Online courses and degrees can decrease the time and cost burden of attaining advanced degrees.[10] While rates for students enrolled in four-year, primarily online programs obtaining a degree within six years were lower than those for students attending in-person four-year programs, online courses may increase graduation rates for students enrolled in two-year programs.[11]

Broadband access is also important for succeeding in today's workforce and improving conditions for workforce participants. A study conducted in 2014 found that

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[6] Hampton et al. at 36.

[7] Ali, T., Chandra, S., Cherukumilli, S., Fazlullah, A., Galicia, E., Hill, H., McAlpine, N., McBride, L., Vaduganathan, N., Weiss, D., Wu, M. Looking back, looking forward: What it will take to permanently close the K–12 digital divide at 8 (2021). San Francisco, CA: Common Sense Media.https://www.commonsensemedia.org/sites/default/files/featured-content/files/final_-_what_it_will_take_to_permanently_close_the_k-12_digital_divide_vfeb3.pdf.

[8] Ilana Hamilton and Brenda Swanston, 2024 Online Learning Statistics (May 31, 2024), Forbes Advisor, available at https://www.forbes.com/advisor/education/online-colleges/online-learning-stats/#1, citing National Center for Education Studies, Selected statistics for degree-granting postsecondary institutions that primarily offer online programs, by control of institution and selected characteristics: Fall 2022 and academic year 2021–22, available at https://nces.ed.gov/programs/digest/d23/tables/dt23_311.33.asp.

[9] Ilana Hamilton and Brenda Swanston, 2024 Online Learning Statistics (May 31, 2024), Forbes Advisor, available at https://www.forbes.com/advisor/education/online-colleges/online-learning-stats/#1, citing National Center for Education Statistics, Number and percentage of students enrolled in degree-granting postsecondary institutions, by distance education participation, location of student, level of enrollment, and control and level of institution: Fall 2021 and fall 2022, available at https://nces.ed.gov/programs/digest/d23/ tables/dt23_311.15.asp.

[10] Ilana Hamilton and Brenda Swanston, 2024 Online Learning Statistics (May 31, 2024), Forbes Advisor, available at https://www.forbes.com/advisor/education/online-colleges/online-learning-stats/#1.

[11] Ilana Hamilton and Brenda Swanston, 2024 Online Learning Statistics (May 31, 2024), Forbes Advisor, available at https://www.forbes.com/advisor/education/online-colleges/online-learning-stats/#1.

60 to 70% of active job postings were posted online.[12] "Massive open online courses" (MOOCs) and less formal instruction found on sites like YouTube and online forums democratize training and development, allowing those with broadband access the tools to acquire and improve job skills.[13] Growth in remote work opportunities is one factor in recent increases in employment among people with disabilities.[14] Home broadband access is an essential tool for getting a job and improving job skills, and allows for greater participation in the workforce for Californians with disabilities.

While helping individuals succeed in the workforce, increased broadband access also has macro-economic impacts. A study using economic modelling conducted by Deloitte found that a 10% increase in broadband access in 2014 would have resulted in more than 875,000 additional US jobs and $186 billion more in economic output in 2019.[15] Other studies support the expectation of increases in productivity that would stem from increased access to reliable, high-speed home broadband.[16] Remote work is also

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[12] Jennifer Duane, Access to Broadband Fuels Workforce Development and Enhances Job Skills (Nov. 15, 2016), National Telecommunications and Information Administration website, https://www.ntia.gov/blog/access-broadband-fuels-workforce-development-and-enhances-job-skills.

[13] Adie Tomer, Lara Fishbane, Angela Siefer, and Bill Callahan, Digital Prosperity: How Broadband Can Deliver Health and Equity to All Communities at 36 (Feb. 2020), Metropolitan Policy Program at Brookings, available at https://www.brookings.edu/wp-content/uploads/2020/02/20200227_BrookingsMetro_Digital-Prosperity-Report-final.pdf.

[14] Adam Ozimek, Remote Work is Enabling Higher Employment Among Disabled Workers (Oct. 2022), Economic Innovation Group, available at https://eig.org/remote-work-is-enabling-higher-employment-among-disabled-workers/.

[15] Jack Fritz and Dan Littman, Broadband for all: charting a path to economic growth at 6 (2021), Deloitte, available at https://s3.amazonaws.com/connected-nation/19dbae8e-7fe0-497d-a4c9-d9e56af691fc/us-charting-a-path-to-economic-growth.pdf.

[16] See e.g., Jose Maria Barrero, Nicholas Bloom, and Steven J. Davis, Internet Access and its Implications for Productivity, Inequality, and Resilience (July 2021), The University of Chicago Becker Friedman Institute for Economics, available at https://bfi.uchicago.edu/insight/research-summary/internet-access-and-its-implications-for-productivity-inequality-and-resilience/.

growing in popularity, with California leading the nation.[17] Employment has increased faster for occupations that allow for remote work.[18]

Universal access to fast broadband is increasingly essential for modern healthcare services, assisting providers and patients achieve better outcomes. As early as 2002, medical providers have informed the Commission that hospitals and patients in rural areas need "advanced telecommunications services."[19] By 2020, 97% of family health physicians in California adopted use of electronic health records, increasing the ability to share patient information across health systems[20] and save hospitals money.[21]

Universal access to broadband services at patients' homes can also directly increase health outcomes. A 2024 study indicates that positive health impacts of increased broadband access are most consistently seen across models when "broadband access" is defined as access to 100/10 Mbps, though positive impacts are also seen when access is defined as 25/3 Mbps.[22] Another study found that expanded broadband access can improve outcomes in pre-planned health procedures, because patients may more easily research their choices in health care providers and facilities.[23] Researchers hypothesize that broadband access improves health outcomes in part by increasing access

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[17] Sarah Bohn, Hans Johnson, and Eric McGee, Remote Work is Reshaping the California Labor Market (June 2024), Public Policy Institute of California, available at https://www.ppic.org/blog/remote-work-is-reshaping-the-california-labor-market/.

[18] Sarah Bohn, Hans Johnson, and Eric McGee, Remote Work is Reshaping the California Labor Market (June 2024), Public Policy Institute of California, available at https://www.ppic.org/blog/remote-work-is-reshaping-the-california-labor-market/.

[19] D.02-10-060, at 35-36.

[20] California Health and Human Services Agency Center for Data Insights and Innovation, California Data Exchange Landscape: Section Draft at 8 (May 2022), available at https://www.chhs.ca.gov/wp-content/uploads/2022/05/3_CalHHS_DxF_California-Data-Exchange-Landscape_Draft_05-12-2022.pdf.

[21] National Telecommunications and Information Administration pamphlet, Why Does Broadband Matter?, available at https://broadbandusa.ntia.doc.gov/sites/default/files/publication-pdfs/bbusa_why_does_broadband_matter.pdf.

[22] Vikas Gawai and Steven Deller, Is There a Link between Access to Broadband and Health Outcomes? at 14 (Apr. 2024), available at http://dx.doi.org/10.2139/ssrn.4779027.

[23] Jessica Van Parys and Zach Y. Brown, Broadband Internet Access and Health Outcomes: Patient and Provider Responses in Medicare at 26 (Aug. 2023), National Bureau of Economic Research, Working Paper No. 31579, available at https://www.nber.org/system/files/working_papers/w31579/w31579.pdf.

to telehealth[24] as well as increasing the ability of practitioners and individuals to find and transmit patient and medical information.[25] Access to telehealth services reduces hospital admissions as well as overall average lengths of hospital stays.[26] Universal access to home broadband is essential to ensure equitable access to the best healthcare available in modern society.

Finally, universal access to broadband service improves public safety.[27] While public safety professionals primarily rely on a nationwide, interoperable public safety mobile broadband network (FirstNet), members of the public rely on home broadband connections to access public safety information and resources. In home broadband access also provides for redundancy and/or reliability in areas where mobile service is inconsistent. Finally, fixed broadband access provides homes and businesses with the resources necessary for real-time visual and data safety monitoring such as surveillance or security via video streaming, alarm monitoring, and fire monitoring via video streaming and analysis.

As noted above, home broadband access is increasingly necessary for Californians to thrive in educational settings and in the workplace. Fixed broadband connections help Californians and California businesses succeed in our modern economy. Universal access to broadband improves health outcomes and public safety. From participation in our

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[24] Vikas Gawai and Steven Deller, Is There a Link between Access to Broadband and Health Outcomes? at 3 (Apr. 2024), available at http://dx.doi.org/10.2139/ssrn.4779027, citing Ganjali, R., Jajroudi, M., Kheirdoust, A., Darroudi, A., & Alnattah, A., Telemedicine solutions for clinical care delivery during COVID-19 pandemic: A scoping review. *Frontiers in Public Health*. 10: 937207. https://doi.org/10.3389/fpubh.2022.937207.

[25] Jessica Van Parys and Zach Y. Brown, Broadband Internet Access and Health Outcomes: Patient and Provider Responses in Medicare at 3-4 (Aug. 2023), National Bureau of Economic Research, Working Paper No. 31579, available at https://www.nber.org/system/files/working_papers/w31579/w31579.pdf.

[26] National Telecommunications and Information Administration pamphlet, Why Does Broadband Matter?, available at https://broadbandusa.ntia.doc.gov/sites/default/files/publication-pdfs/bbusa_why_does_broadband_matter.pdf.

[27] See CPUC BEAD Five-Year Action Plan at 6: "Broadband powers the State's most critical systems, from its electrical grid to its water supply systems, its public safety and emergency response networks. Broadband underpins modern life."

democracy to connecting to loved ones near and far, universal access to broadband connections is essential for full participation in modern society.

APPENDIX C: Demographics of the 16 COLR Service Areas

Methodology: For estimating the number of customers (i.e., population, households and housing units) in each of the 16 COLR service areas, and corresponding demographics (i.e., high fire thread districts, tribal lands, flood hazard, Tsunami zones, disadvantaged communities, and median household income), Cal Advocates used the following publicly available data sets and analysis methodology. The results of this analysis include maps and tables of the 16 COLR service areas as presented below.

- **FCC COLR boundaries** Study Area Boundary data was downloaded from the FCC's website. June 2024 dataset was used for the analysis. https://www.fcc.gov/economics-analytics/industry-analysis-division/study-area-boundary-data.

- **Census Population**: Census population data was obtained from the United States Census Bureau. https://www.census.gov/geographies/mapping-files/2020/geo/tiger-line-file.html. 2020 Census block data was used for population, household, and housing unit data named tl_2020_06_tabblock20. https://www2.census.gov/geo/tiger/TIGER2020PL/STATE/06_CALIFORNIA/06/**.**

- **High Fire Threat Districts (HFTDs):** Defined as areas where environmental conditions pose an elevated risk for utility-associated wildfires and are identified on a CPUC Fire-threat map which classifies them as either in Tier 2 or Tier 3 fire threat areas. The definition is defined in D.17-01-009. https://www.cpuc.ca.gov/industries-and-topics/wildfires/fire-threat-maps-and-fire-safety-rulemaking.

- **Tribal Lands:** Land within any Indian reservation as defined in 18 U.S.C. 1151 subsection (a). https://gis.data.cnra.ca.gov/datasets/21620043addf4c9da3540538671e47ba/explore?location=39.817492%2C-115.229757%2C5.61

- **Flood Hazard:** Floodplains are defined as an area where there is an increased risk of a body of water rising and overflowing into communities as defined by the 2023 State of California Hazard Mitigation Plan. Available at: https://www.caloes.ca.gov/wp-content/uploads/Hazard-Mitigation/Documents/2023-California-SHMP_Volume-2-Appendix-A_12.15.2023.pdf. https://gis.bam.water.ca.gov/bam/.

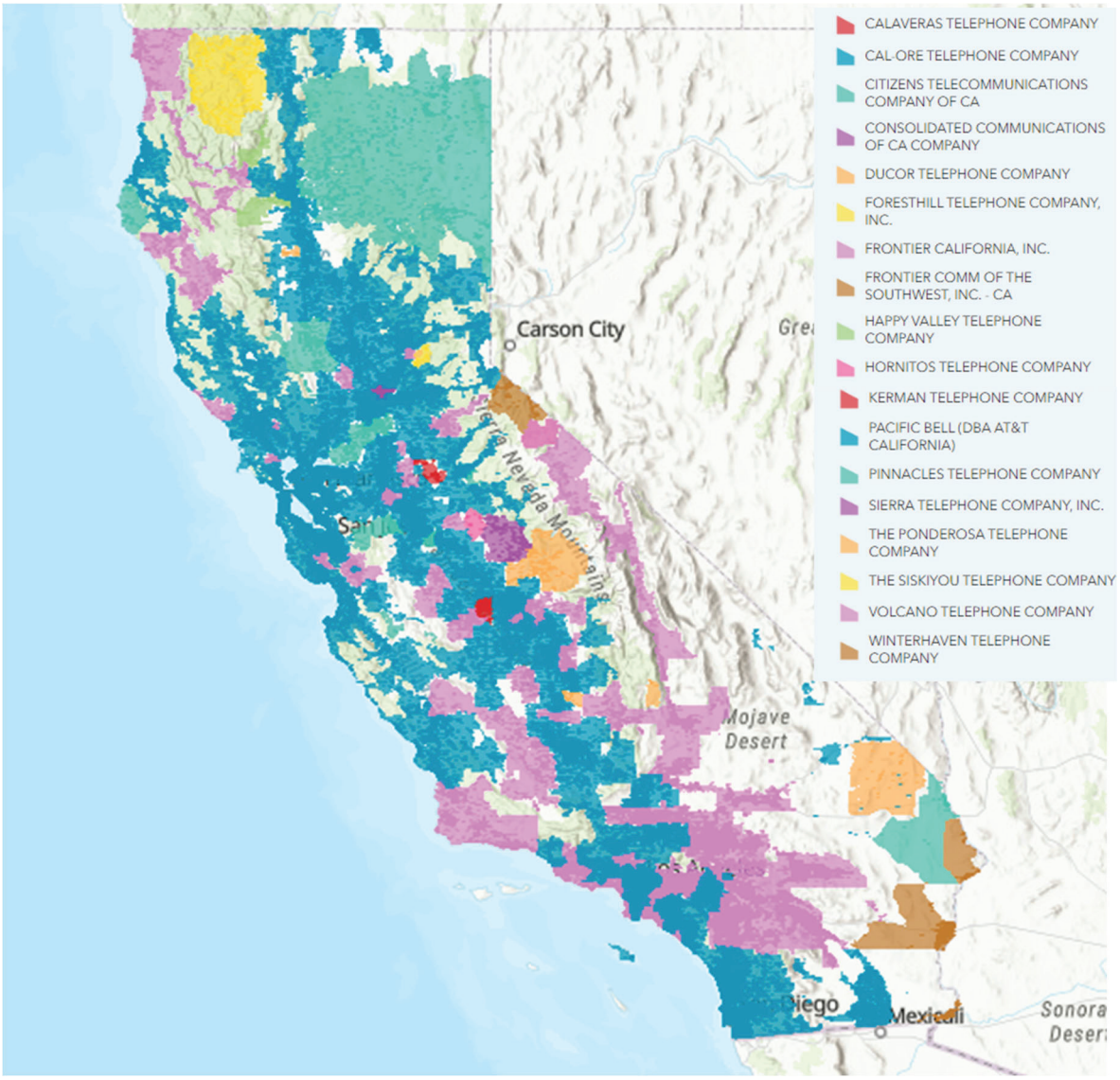
- **Tsunami Zones:** Tsunami Hazard Areas are defined as Tsunami Hazard Areas refers to areas where there is an increased risk of tsunamis affecting the communities and are identified on the CA Tsunami Hazard Area map from the California Department of Conservation. https://www.arcgis.com/home/item.html?id=2769c700c0694548b5435a60ff52b807

- **Disadvantaged Communities:** Disadvantaged Communities are defined by the California Office of Environmental Health Hazard Assessment (OEHHA) as census tracts that score in the top 25% of CalEnviroScreen 3.0, along with those that score

within the highest 5% of CalEnviroScreen 3.0's Pollution Burden but do not receive an overall CalEnviroScreen score. https://oehha.ca.gov/calenviroscreen/sb535

- **Median Household Income:** Median Household Income was derived from the American Community Survey at the tract and block level. 80% and below MHI was calculated using the latest Census state MHI ($91,551). https://data.census.gov/profile/California?g=040XX00US06

COLR Service Areas



Demographics of Each COLR Service Area

AT&T (Pacific Bell)

COLR	Attribute	Population	% Pop	HH	%HH	HU	%HU
AT&T	Served Area	29,426,272	74.48%	10,122,886	75.19%	10,745,410	74.76%
	HFTD	2,891,172	9.83%	1,051,334	10.39%	1,175,482	10.94%
	Floodplains	1,038,003	3.53%	352,024	3.48%	378,947	3.53%
	Tsunami hazard area	293,872	1.00%	115,526	1.14%	136,600	1.27%
	DAC	8,456,786	28.74%	2,579,876	25.49%	2,702,795	25.15%
	MHI < 80%	10,589,342	35.99%	3,536,383	34.93%	3,753,887	34.93%
	Tribal	12,540	0.04%	3,875	0.04%	4,141	0.04%

Frontier California, Inc

COLR	Attribute	Population	% Pop	HH	%HH	HU	%HU
Frontier California	Served Area	9,187,387	23.26%	3,031,447	22.52%	3,283,359	22.84%
	HFTD	1,011,422	11.01%	363,129	11.98%	429,626	13.08%
	Floodplains	215,311	2.34%	76,131	2.51%	87,399	2.66%
	Tsunami hazard area	95,555	1.04%	48,521	1.60%	57,775	1.76%
	DAC	2,693,739	29.32%	771,290	25.44%	804,273	24.50%
	MHI < 80%	3,490,290	37.99%	1,144,007	37.74%	1,249,153	38.04%
	Tribal	41,982	0.46%	20,172	0.67%	30,258	0.92%

Citizens Communications Company of California

COLR	Attribute	Population	% Pop	HH	%HH	HU	%HU
Citizens	Served Area	457,420	1.16%	147,976	1.10%	162,698	1.13%
	HFTD	42,309	9.25%	17,212	11.63%	23,645	14.53%
	Floodplains	25,808	5.64%	9,058	6.12%	10,676	6.56%
	Tsunami hazard area	156	0.03%	61	0.04%	78	0.05%
	DAC	83,767	18.31%	26,054	17.61%	27,146	16.68%
	MHI < 80%	163,156	35.67%	57,810	39.07%	65,441	40.22%
	Tribal	1,324	0.29%	497	0.34%	538	0.33%

Frontier Communications of the Southwest, Inc.

COLR	Attribute	Population	% Pop	HH	%HH	HU	%HU
Southwest	Served Area	25,135	0.06%	7,291	0.05%	10,208	0.07%
	HFTD	2,358	9.38%	945	12.96%	1,303	12.76%
	Floodplains	390	1.55%	176	2.41%	488	4.78%
	Tsunami hazard area	0	0.00%	0	0.00%	0	0.00%
	DAC	3,084	12.27%	1,087	14.91%	1,197	11.73%
	MHI < 80%	14,496	57.67%	5,516	75.65%	7,834	76.74%
	Tribal	1,754	6.98%	791	10.85%	1,960	19.20%

Consolidated

COLR	Attribute	Population	% Pop	HH	%HH	HU	%HU
Consolidated	Served Area	283,376	0.72%	105,409	0.78%	109,050	0.76%
	HFTD	83	0.03%	15	0.01%	15	0.01%
	Floodplains	5,062	1.79%	2,005	1.90%	2,110	1.93%
	Tsunami hazard area	0	0.00%	0	0.00%	0	0.00%
	DAC	0	0.00%	0	0.00%	0	0.00%
	MHI < 80%	79,330	27.99%	32,155	30.50%	33,405	30.63%
	Tribal	0	0.00%	0	0.00%	0	0.00%

Cal-Ore

COLR	Attribute	Population	% Pop	HH	%HH	HU	%HU
Cal-Ore	Served Area	3,761	0.01%	1,434	0.01%	1,817	0.01%
	HFTD	0	0.00%	0	0.00%	0	0.00%
	Floodplains	117	3.11%	62	4.32%	78	4.29%
	Tsunami hazard area	0	0.00%	0	0.00%	0	0.00%
	DAC	0	0.00%	0	0.00%	0	0.00%
	MHI < 80%	3,761	100.00%	1,434	100.00%	1,817	100.00%
	Tribal	0	0.00%	0	0.00%	0	0.00%

Foresthill

COLR	Attribute	Population	% Pop	HH	%HH	HU	%HU
Foresthill	Served Area	6,167	0.02%	2,491	0.02%	2,715	0.02%
	HFTD	6,167	100.00%	2,491	100.00%	2,715	100.00%
	Floodplains	0	0.00%	0	0.00%	0	0.00%
	Tsunami hazard area	0	0.00%	0	0.00%	0	0.00%
	DAC	0	0.00%	0	0.00%	0	0.00%
	MHI < 80%	577	9.36%	233	9.35%	272	10.02%
	Tribal	0	0.00%	0	0.00%	0	0.00%

Kerman

COLR	Attribute	Population	% Pop	HH	%HH	HU	%HU
Kerman	Served Area	24,122	0.06%	6,750	0.05%	7,014	0.05%
	HFTD	0	0.00%	0	0.00%	0	0.00%
	Floodplains	194	0.80%	74	1.10%	88	1.25%
	Tsunami hazard area	0	0.00%	0	0.00%	0	0.00%
	DAC	21,332	88.43%	5,982	88.62%	6,218	88.65%
	MHI < 80%	15,023	62.28%	4,295	63.63%	4,471	63.74%
	Tribal	0	0.00%	0	0.00%	0	0.00%

Pinnacles

COLR	Attribute	Population	% Pop	HH	%HH	HU	%HU
Pinnacles	Served Area	287	0.00%	96	0.00%	100	0.00%
	HFTD	195	67.94%	72	75.00%	76	76.00%
	Floodplains	27	9.41%	7	7.29%	7	7.00%
	Tsunami hazard area	0	0.00%	0	0.00%	0	0.00%
	DAC	0	0.00%	0	0.00%	0	0.00%
	MHI < 80%	0	0.00%	0	0.00%	0	0.00%
	Tribal	0	0.00%	0	0.00%	0	0.00%

Siskiyou

COLR	Attribute	Population	% Pop	HH	%HH	HU	%HU
Siskiyou	Served Area	7,444	0.02%	3,201	0.02%	3,900	0.03%
	HFTD	5,478	73.59%	2,311	72.20%	2,862	73.38%
	Floodplains	1,509	20.27%	592	18.49%	681	17.46%
	Tsunami hazard area	0	0.00%	0	0.00%	0	0.00%
	DAC	0	0.00%	0	0.00%	0	0.00%
	MHI < 80%	7,334	98.52%	3,151	98.44%	3,840	98.46%
	Tribal	300	4.03%	111	3.47%	120	3.08%

Ducor

COLR	Attribute	Population	% Pop	HH	%HH	HU	%HU
Ducor	Served Area	2,984	0.01%	1,038	0.01%	1,293	0.01%
	HFTD	1,710	57.31%	686	66.09%	914	70.69%
	Floodplains	28	0.94%	4	0.39%	5	0.39%
	Tsunami hazard area	0	0.00%	0	0.00%	0	0.00%
	DAC	1,141	38.24%	309	29.77%	324	25.06%
	MHI < 80%	2,887	96.75%	1,024	98.65%	1,273	98.45%
	Tribal	0	0.00%	0	0.00%	0	0.00%

Ponderosa

COLR	Attribute	Population	% Pop	HH	%HH	HU	%HU
Ponderosa	Served Area	13,338	0.03%	5,235	0.04%	9,274	0.06%
	HFTD	11,326	84.92%	4,509	86.13%	8,012	86.39%
	Floodplains	84	0.63%	33	0.63%	135	1.46%
	Tsunami hazard area	0	0.00%	0	0.00%	0	0.00%
	DAC	0	0.00%	0	0.00%	0	0.00%
	MHI < 80%	7,354	55.14%	2,875	54.92%	3,936	42.44%
	Tribal	331	2.48%	103	1.97%	109	1.18%

Sierra

COLR	Attribute	Population	% Pop	HH	%HH	HU	%HU
Sierra	Served Area	34,058	0.09%	14,181	0.11%	17,307	0.12%
	HFTD	32,277	94.77%	13,403	94.51%	16,363	94.55%
	Floodplains	131	0.38%	34	0.24%	57	0.33%
	Tsunami hazard area	0	0.00%	0	0.00%	0	0.00%
	DAC	0	0.00%	0	0.00%	0	0.00%
	MHI < 80%	21,460	63.01%	9,178	64.72%	11,546	66.71%
	Tribal	63	0.18%	14	0.10%	18	0.10%

Volcano

COLR	Attribute	Population	% Pop	HH	%HH	HU	%HU
Volcano	Served Area	16,115	0.04%	7,157	0.05%	9,928	0.07%
	HFTD	15,903	98.68%	7,054	98.56%	9,131	91.97%
	Floodplains	0	0.00%	4	0.06%	4	0.04%
	Tsunami hazard area	0	0.00%	0	0.00%	0	0.00%
	DAC	0	0.00%	0	0.00%	0	0.00%
	MHI < 80%	6,806	42.23%	3,064	42.81%	4,508	45.41%
	Tribal	0	0.00%	0	0.00%	0	0.00%

Calaveras

COLR	Attribute	Population	% Pop	HH	%HH	HU	%HU
Calaveras	Served Area	8,329	0.02%	3,282	0.02%	4,262	0.03%
	HFTD	3,257	39.10%	1,333	40.62%	1,654	38.81%
	Floodplains	137	1.64%	40	1.22%	40	0.94%
	Tsunami hazard area	0	0.00%	0	0.00%	0	0.00%
	DAC	0	0.00%	0	0.00%	0	0.00%
	MHI < 80%	2,519	30.24%	966	29.43%	1,114	26.14%
	Tribal	0	0.00%	0	0.00%	0	0.00%

Happy Valley

COLR	Attribute	Population	% Pop	HH	%HH	HU	%HU
Happy Valley	Served Area	6,576	0.02%	2,561	0.02%	3,248	0.02%
	HFTD	5,078	77.22%	2,009	78.45%	2,513	77.37%
	Floodplains	79	1.20%	24	0.94%	34	1.05%
	Tsunami hazard area	0	0.00%	0	0.00%	0	0.00%
	DAC	0	0.00%	0	0.00%	0	0.00%
	MHI < 80%	3,146	47.84%	1,258	49.12%	1,787	55.02%
	Tribal	0	0.00%	0	0.00%	0	0.00%

Winterhaven

COLR	Attribute	Population	% Pop	HH	%HH	HU	%HU
Winterhaven	Served Area	2,703	0.01%	937	0.01%	1,349	0.01%
	HFTD	0	0.00%	0	0.00%	0	0.00%
	Floodplains	133	4.92%	91	9.71%	299	22.16%
	Tsunami hazard area	0	0.00%	0	0.00%	0	0.00%
	DAC	0	0.00%	0	0.00%	0	0.00%
	MHI < 80%	1,537	56.86%	583	62.22%	891	66.05%
	Tribal	1,869	69.15%	593	63.29%	701	51.96%

APPENDIX D: Broadband Service Coverage Analysis

Methodology: For estimating the customer coverage (i.e., population, households and housing units) for different technologies (i.e., DSL, cable modem, fiber optics, fixed wireless, and mobile broadband) offered by broadband service providers in each of the 16 COLR service areas, Cal Advocates used the COLR service area boundaries, customer and demographic data and results presented in the previous Appendix C (Demographics of the 16 COLR Service Areas), and additionally used the following publicly available data sets and analysis methodology. The results of this analysis include maps and tables of the 16 COLR service areas as presented below.

- **CPUC Broadband Availability Data:** Collected as of December 31, 2021 as part of the annual broadband data collection from providers across California, using data formats from the Broadband Data Submission Guidelines webpage. https://www.cpuc.ca.gov/industries-and-topics/internet-and-phone/broadband-mapping-program/cpuc-annual-collected-broadband-data

Broadband technologies included in this analysis are the following:

- **DSL (legacy technology):** Technology codes 10 (Asymmetric xDSL), 11 (ADSL2, ADSL2+), and 12 (VDSL).
- **Cable Modem:** Technology codes 42 (DOCSIS 3.0) and 43 (DOCSIS 3.1).
- **Fiber Optics:** Technology code 50.
- **Fixed Wireless:** Technology code 70.
- **Mobile Wireless:** Technology code 83 (LTE) and 89 (5G-NR).

The COLR service area boundaries, customer and demographic data was overlapped with the broadband availability data to calculate the coverage in terms of population, households, housing units, and corresponding demographics.

Broadband Coverage by Technology

Copper DSL Coverage

Asymmetric DSL at 25/3 Mbps

COLR name	Population	% Pop	HH	%HH	HU	%HU
AT&T	395,220	1.34%	170,715	1.69%	182,069	1.69%
Calaveras	7,543	90.56%	2,970	90.49%	3,762	88.27%
Cal-Ore	1,486	39.51%	581	40.52%	763	41.99%
Citizens Telecommunications	40,391	8.83%	15,473	10.46%	18,072	11.11%
Consolidated	69,388	24.49%	27,839	26.41%	28,856	26.46%
Ducor	1,707	57.21%	700	67.44%	826	63.88%
Foresthill	0	0.00%	0	0.00%	0	0.00%
Frontier California	574,437	6.25%	221,418	7.30%	246,839	7.52%
Frontier Comm of the Southwest	0	0.00%	0	0.00%	0	0.00%
Happy Valley	1,873	28.48%	709	27.68%	768	23.65%
Hornitos	577	52.22%	250	51.55%	290	49.15%
Kerman	8	0.03%	0	0.00%	1	0.01%
Pinnacles	0	0.00%	0	0.00%	0	0.00%
Ponderosa	12,207	91.52%	4,918	93.94%	8,681	93.61%
Sierra	28,811	84.59%	12,233	86.26%	14,808	85.56%
Siskiyou	0	0.00%	0	0.00%	0	0.00%
Volcano	14,953	92.79%	6,784	94.79%	8,866	89.30%
Winterhaven	1,215	44.95%	525	56.03%	818	60.64%

VDSL at 25/3 Mbps

COLR name	Population	% Pop	HH	%HH	HU	%HU
AT&T	18,027,233	61.26%	6,279,738	62.04%	6,556,267	61.01%
Calaveras	0	0.00%	0	0.00%	0	0.00%
Cal-Ore	0	0.00%	0	0.00%	0	0.00%
Citizens Telecommunications	2,397	0.52%	764	0.52%	865	0.53%
Consolidated	6,595	2.33%	2,446	2.32%	2,518	2.31%
Ducor	0	0.00%	0	0.00%	0	0.00%
Foresthill	0	0.00%	0	0.00%	0	0.00%
Frontier California	27,377	0.30%	10,071	0.33%	10,480	0.32%
Frontier Comm of the Southwest	0	0.00%	0	0.00%	0	0.00%
Happy Valley	0	0.00%	0	0.00%	0	0.00%
Hornitos	0	0.00%	0	0.00%	0	0.00%
Kerman	0	0.00%	0	0.00%	0	0.00%
Pinnacles	0	0.00%	0	0.00%	0	0.00%
Ponderosa	54	0.40%	17	0.32%	17	0.18%
Sierra	0	0.00%	0	0.00%	0	0.00%
Siskiyou	0	0.00%	0	0.00%	0	0.00%
Volcano	0	0.00%	0	0.00%	0	0.00%
Winterhaven	0	0.00%	0	0.00%	0	0.00%

Asymmetric DSL 100/20 Mbps

COLR name	Population	% Pop	HH	%HH	HU	%HU
AT&T	398	0.00%	199	0.00%	225	0.00%
Calaveras	504	6.05%	203	6.19%	505	11.85%
Cal-Ore	0	0.00%	0	0.00%	0	0.00%
Citizens Telecommunications	0	0.00%	0	0.00%	0	0.00%
Consolidated	0	0.00%	0	0.00%	0	0.00%
Ducor	0	0.00%	0	0.00%	0	0.00%
Foresthill	0	0.00%	0	0.00%	0	0.00%
Frontier California	0	0.00%	0	0.00%	0	0.00%
Frontier Comm of the Southwest	0	0.00%	0	0.00%	0	0.00%
Happy Valley	0	0.00%	0	0.00%	0	0.00%
Hornitos	0	0.00%	0	0.00%	0	0.00%
Kerman	0	0.00%	0	0.00%	0	0.00%
Pinnacles	0	0.00%	0	0.00%	0	0.00%
Ponderosa	565	4.24%	230	4.39%	1,268	13.67%
Sierra	0	0.00%	0	0.00%	0	0.00%
Siskiyou	0	0.00%	0	0.00%	0	0.00%
Volcano	10,273	63.75%	4,821	67.36%	6,138	61.83%
Winterhaven	0	0.00%	0	0.00%	0	0.00%

VDSL at 100/20 Mbps

COLR name	Population	% Pop	HH	%HH	HU	%HU
AT&T	13,170,986	44.76%	4,670,954	46.14%	4,874,342	45.36%
Calaveras	0	0.00%	0	0.00%	0	0.00%
Cal-Ore	0	0.00%	0	0.00%	0	0.00%
Citizens Telecommunications	1,553	0.34%	514	0.35%	525	0.32%
Consolidated	1,501	0.53%	467	0.44%	490	0.45%
Ducor	0	0.00%	0	0.00%	0	0.00%
Foresthill	0	0.00%	0	0.00%	0	0.00%
Frontier California	13,786	0.15%	5,461	0.18%	5,638	0.17%
Frontier Comm of the Southwest	0	0.00%	0	0.00%	0	0.00%
Happy Valley	0	0.00%	0	0.00%	0	0.00%
Hornitos	0	0.00%	0	0.00%	0	0.00%
Kerman	0	0.00%	0	0.00%	0	0.00%
Pinnacles	0	0.00%	0	0.00%	0	0.00%
Ponderosa	0	0.00%	0	0.00%	0	0.00%
Sierra	0	0.00%	0	0.00%	0	0.00%
Siskiyou	0	0.00%	0	0.00%	0	0.00%
Volcano	0	0.00%	0	0.00%	0	0.00%
Winterhaven	0	0.00%	0	0.00%	0	0.00%

Cable Modem Coverage

Cable Modem 3.1 at 25/3 Mbps

COLR name	Population	% Pop	HH	%HH	HU	%HU
AT&T	22,528,309	76.56%	7,733,055	76.39%	8,147,040	75.82%
Calaveras	46	0.55%	15	0.46%	15	0.35%
Cal-Ore	0	0.00%	0	0.00%	0	0.00%
Citizens Telecommunications	347,855	76.05%	113,407	76.64%	119,342	73.35%
Consolidated	247,788	89.56%	94,695	89.84%	98,002	89.87%
Ducor	0	0.00%	0	0.00%	0	0.00%
Foresthill	0	0.00%	0	0.00%	0	0.00%
Frontier California	6,140,096	66.94%	1,980,865	65.46%	2,121,123	64.71%
Frontier Comm of the Southwest	0	0.00%	0	0.00%	0	0.00%
Happy Valley	674	10.25%	272	10.62%	286	8.81%
Hornitos	0	0.00%	0	0.00%	0	0.00%
Kerman	16,132	68.37%	4,469	67.70%	4,559	66.44%
Pinnacles	0	0.00%	0	0.00%	0	0.00%
Ponderosa	795	5.96%	330	6.30%	385	4.15%
Sierra	0	0.00%	0	0.00%	0	0.00%
Siskiyou	0	0.00%	0	0.00%	0	0.00%
Volcano	0	0.00%	0	0.00%	0	0.00%
Winterhaven	380	14.06%	136	14.51%	164	12.16%

Cable Modem 3.1 at 100/20 Mbps

COLR name	Population	% Pop	HH	%HH	HU	%HU
AT&T	22,511,624	76.50%	7,723,784	76.30%	8,137,008	75.73%
Calaveras	0	0.00%	0	0.00%	0	0.00%
Cal-Ore	0	0.00%	0	0.00%	0	0.00%
Citizens Telecommunications	347,855	76.05%	110,157	74.44%	115,949	71.27%
Consolidated	247,788	89.56%	92,387	89.84%	95,620	89.87%
Ducor	0	0.00%	0	0.00%	0	0.00%
Foresthill	0	0.00%	0	0.00%	0	0.00%
Frontier California	6,140,096	66.83%	1,980,865	65.34%	2,121,123	64.60%
Frontier Comm of the Southwest	0	0.00%	0	0.00%	0	0.00%
Happy Valley	674	10.25%	272	10.62%	286	8.81%
Hornitos	0	0.00%	0	0.00%	0	0.00%
Kerman	16,132	66.88%	4,469	66.21%	4,559	65.00%
Pinnacles	0	0.00%	0	0.00%	0	0.00%
Ponderosa	795	5.96%	330	6.30%	385	4.15%
Sierra	0	0.00%	0	0.00%	0	0.00%
Siskiyou	0	0.00%	0	0.00%	0	0.00%
Volcano	0	0.00%	0	0.00%	0	0.00%
Winterhaven	380	14.06%	136	14.51%	164	12.16%

Fiber Coverage

Fiber at 25/3 Mbps

COLR name	Population	% Pop	HH	%HH	HU	%HU
AT&T	8,808,371	29.93%	3,077,059	30.40%	3,261,764	30.35%
Calaveras	533	6.40%	231	7.04%	388	9.10%
Cal-Ore	1,145	30.44%	415	28.94%	491	27.02%
Citizens Telecommunications	122,472	26.77%	38,516	26.03%	39,561	24.32%
Consolidated	58,496	20.64%	20,575	19.52%	21,173	19.42%
Ducor	534	17.90%	124	11.95%	124	9.59%
Foresthill	270	4.38%	122	4.90%	125	4.60%
Frontier California	3,414,054	37.16%	1,044,252	34.45%	1,102,630	33.58%
Frontier Comm of the Southwest	210	0.84%	91	1.25%	118	1.16%
Happy Valley	0	0.00%	0	0.00%	0	0.00%
Hornitos	0	0.00%	0	0.00%	0	0.00%
Kerman	2,186	9.06%	601	8.90%	608	8.67%
Pinnacles	12	4.18%	5	5.21%	5	5.00%
Ponderosa	522	3.91%	208	3.97%	291	3.14%
Sierra	0	0.00%	0	0.00%	0	0.00%
Siskiyou	4,351	58.45%	1,986	62.04%	2,315	59.36%
Volcano	571	3.54%	239	3.34%	712	7.17%
Winterhaven	0	0.00%	0	0.00%	0	0.00%

Fiber at 100/20 Mbps

COLR name	Population	% Pop	HH	%HH	HU	%HU
AT&T	8,807,224	29.93%	3,076,889	30.40%	3,261,589	30.35%
Calaveras	533	6.40%	231	7.04%	388	9.10%
Cal-Ore	1,145	30.44%	415	28.94%	491	27.02%
Citizens Telecommunications	122,235	26.72%	38,435	25.97%	39,471	24.26%
Consolidated	58,496	20.64%	20,575	19.52%	21,173	19.42%
Ducor	534	17.90%	124	11.95%	124	9.59%
Foresthill	270	4.38%	122	4.90%	125	4.60%
Frontier California	3,412,398	37.14%	1,043,605	34.43%	1,101,938	33.56%
Frontier Comm of the Southwest	210	0.84%	91	1.25%	118	1.16%
Happy Valley	0	0.00%	0	0.00%	0	0.00%
Hornitos	0	0.00%	0	0.00%	0	0.00%
Kerman	2,186	9.06%	601	8.90%	608	8.67%
Pinnacles	12	4.18%	5	5.21%	5	5.00%
Ponderosa	499	3.74%	202	3.86%	281	3.03%
Sierra	0	0.00%	0	0.00%	0	0.00%
Siskiyou	4,351	58.45%	1,986	62.04%	2,315	59.36%
Volcano	571	3.54%	239	3.34%	712	7.17%
Winterhaven	0	0.00%	0	0.00%	0	0.00%

Fixed Wireless Coverage 25/3 Mbps

AT&T (Pacific Bell)

Attribute	Population	% Pop	HH	%HH	HU	%HU	Fixed Wireless Providers
Served Fixed Wireless 25/3	5,511,535	18.73%	2,078,222	20.53%	2,214,513	20.61%	T-Mobile, Verizon Wireless, Digital Path, MINetworks, Velocity Communications, etc.
HFTD	825,951	14.99%	327,971	15.78%	362,322	16.36%	
Floodplains	211,413	3.84%	76,609	3.69%	82,299	3.72%	
Tsunami hazard area	61,787	1.12%	28,592	1.38%	31,937	1.44%	
DAC	1,843,988	33.46%	621,456	29.90%	653,569	29.51%	
Tribal	3,062	0.06%	912	0.04%	992	0.04%	
MHI	2,342,578	42.50%	856,441	41.21%	913,217	41.24%	

Citizens Communications Company of California

Attribute	Population	% Pop	HH	%HH	HU	%HU	Fixed Wireless Providers
Served Fixed Wireless 25/3	93,256	20.39%	35,921	24.27%	41,492	25.50%	Digital Path, Verizon Wireless, California Broadband Services, Com-Pair Services, Succeed.Net, Internet Free Planet, among others
HFTD	17,670	18.95%	7,454	20.75%	9,850	23.74%	
Floodplains	12,462	13.36%	4,995	13.91%	5,880	14.17%	
Tsunami hazard area	102	0.11%	34	0.09%	48	0.12%	
DAC	17,922	19.22%	6,694	18.64%	7,009	16.89%	
Tribal	583	3.28%	244	0.68%	258	0.62%	
MHI	39,490	42.35%	15,619	43.48%	17,404	41.95%	

Frontier California, Inc.

Attribute	Population	% Pop	HH	%HH	HU	%HU	Fixed Wireless Providers
Served Fixed Wireless 25/3	1,671,566	18.19%	601,965	19.86%	642,616	19.57%	T-Mobile, Verizon Wireless, GeoLinks, Pacific Lightwave, Unwired BB, Etheric Networks, OACYS Tech, WISPRENN, Ayera Tech, AeroSurf, Southern CA Tel, Towerstream, WebPerception, Kern Valley Wireless, Advanced Wireless
HFTD	217,837	13.03%	83,925	13.94%	93,716	14.58%	
Floodplains	45,436	2.72%	16,943	2.81%	19,247	3.00%	
Tsunami hazard area	17,866	1.07%	10,720	1.78%	12,650	1.97%	
DAC	512,778	30.68%	158,165	26.27%	164,630	25.62%	
Tribal	7,170	0.43%	3431	0.57%	4539	0.71%	
MHI	648,609	38.80%	232,388	38.60%	250,303	38.95%	

Frontier Communications of the West, Inc.

Attribute	Population	% Pop	HH	%HH	HU	%HU	Fixed Wireless Providers
Served Fixed Wireless 25/3	428	1.70%	158	2.17%	195	1.91%	T-Mobile, Mono Broadband, Verizon Wireless
HFTD	281	65.65%	110	69.62%	122	62.56%	
Floodplains	0	0%	08	0%	0	0%	
Tsunami hazard area	0	0.00%	0	0.00%	0	0.00%	
DAC	0	0.00%	0	0.00%	0	0.00%	
Tribal	0	0.00%	0	0.00%	0	0.00%	
MHI	319	74.53%	119	75.32%	155	79.49%	

Consolidated Communications

Attribute	Population	% Pop	HH	%HH	HU	%HU	Fixed Wireless Providers
Served Fixed Wireless 25/3	43,608	15.39%	17,094	16.22%	17,605	16.14%	Cal.net; Succeed.net; Verizon
HFTD	60	0.14%	12	0.07%	12	0.07%	
Floodplains	1,791	4.11%	753	4.41%	775	4.40%	
Tsunami hazard area	0	0.00%	0	0.00%	0	0.00%	
DAC	0	0.00%	0	0.00%	0	0.00%	
Tribal	0	0.00%	0	0.00%	0	0.00%	
MHI	10,303	23.63%	4,208	24.62%	4,346	24.69%	

Cal-Ore

Attribute	Population	% Pop	HH	%HH	HU	%HU	Fixed Wireless Providers
Served Fixed Wireless 25/3	347	9.23%	117	8.16%	144	7.93%	Cal-Ore
HFTD	0	0.00%	0	0.00%	0	0.00%	
Floodplains	8	2.31%	4	3.42%	4	2.78%	
Tsunami hazard area	0	0.00%	0	0.00%	0	0.00%	
DAC	0	0.00%	0	0.00%	0	0.00%	
Tribal	0	0.00%	0	0.00%	0	0.00%	
MHI	347	100.00%	117	100.00%	144	100.00%	

Calaveras

Attribute	Population	% Pop	HH	%HH	HU	%HU	Fixed Wireless Providers
Served Fixed Wireless 25/3	4,591	55.12%	1,946	59.29%	2,657	62.34%	Cal.Net; Connifer Communications; Matrix Broadband; Verizon
HFTD	2,104	45.83%	917	47.12%	1,147	43.17%	
Floodplains	20	0.44%	12	0.62%	12	0.45%	
Tsunami hazard area	0	0.00%	0	0.00%	0	0.00%	
DAC	0	0.00%	0	0.00%	0	0.00%	
Tribal	0	0.00%	0	0.00%	0	0.00%	
MHI	1,569	34.18%	637	32.73%	751	28.26%	

Ducor

Attribute	Population	% Pop	HH	%HH	HU	%HU	Fixed Wireless Providers
Served Fixed Wireless 25/3	1,332	44.64%	518	49.90%	602	46.56%	DIGITALPATH; DM-Tech; OACYs Technology; Shasta Beam; Unwired Broadband
HFTD	766	57.51%	332	64.09%	396	65.78%	
Floodplains	0	0.00%	2	0.39%	2	0.33%	
Tsunami hazard area	0	0.00%	0	0.00%	0	0.00%	
DAC	468	35.14%	148	28.57%	158	26.25%	
Tribal	0	0.00%	0	0.00%	0	0.00%	
MHI	1,292	97.00%	511	98.65%	595	98.84%	

Foresthill

Attribute	Population	% Pop	HH	%HH	HU	%HU	Fixed Wireless Providers
Served Fixed Wireless 25/3	686	11.12%	251	10.08%	288	10.61%	Oasis Broadband; Verizon
HFTD	686	100.00%	251	100.00%	288	100.00%	
Floodplains	0	0.00%	0	0.00%	0	0.00%	
Tsunami hazard area	0	0.00%	0	0.00%	0	0.00%	
DAC	0	0.00%	0	0.00%	0	0.00%	
Tribal	0	0.00%	0	0.00%	0	0.00%	
MHI	0	0.00%	0	0.00%	0	0.00%	

Siskiyou

Attribute	Population	% Pop	HH	%HH	HU	%HU	Fixed Wireless Providers
Served Fixed Wireless 25/3	68	0.91%	49	1.53%	51	1.31%	DIGITALPATH
HFTD	68	100.00%	49	100.00%	51	100.00%	
Floodplains	0	0.00%	0	0.00%	0	0.00%	
Tsunami hazard area	0	0.00%	0	0.00%	0	0.00%	
DAC	0	0.00%	0	0.00%	0	0.00%	
Tribal	0	0.00%	0	0.00%	0	0.00%	
MHI	68	100.00%	49	100.00%	51	100.00%	

Volcano

Attribute	Population	% Pop	HH	%HH	HU	%HU	Fixed Wireless Providers
Served Fixed Wireless 25/3	606	3.76%	295	4.12%	489	4.93%	Cal.net; T-Mobile
HFTD	543	89.60%	270	91.53%	304	62.17%	
Floodplains	0	0.00%	0	0.00%	0	0.00%	
Tsunami hazard area	0	0.00%	0	0.00%	0	0.00%	
DAC	0	0.00%	0	0.00%	0	0.00%	
Tribal	0	0.00%	0	0.00%	0	0.00%	
MHI	0	0.00%	0	0.00%	0	0.00%	

Happy Valley

Attribute	Population	% Pop	HH	%HH	HU	%HU	Fixed Wireless Providers
Served Fixed Wireless 25/3	4,812	73.18%	1,996	77.94%	2,345	72.20%	Com-Pair Services
HFTD	3,784	78.64%	1,577	79.01%	1,760	75.05%	DIGITALPATH,
Floodplains	32	0.67%	7	0.35%	7	0.30%	GeoLinks
Tsunami hazard area	0	0.00%	0	0.00%	0	0.00%	Shasta Beam
DAC	0	0.00%	0	0.00%	0	0.00%	Velocity Communications, Inc.
Tribal	0	0.00%	0	0.00%	0	0.00%	
MHI	2,381	49.48%	977	48.95%	1,233	52.58%	

Hornitos

Attribute	Population	% Pop	HH	%HH	HU	%HU	Fixed Wireless Providers
Served Fixed Wireless 25/3	954	86.33%	416	85.77%	500	72.20%	Conifer Communications
HFTD	639	66.98%	292	70.19%	356	75.05%	
Floodplains	0	0.00%	0	0.00%	0	0.30%	Unwired Broadband Inc
Tsunami hazard area	0	0.00%	0	0.00%	0	0.00%	
DAC	0	0.00%	0	0.00%	0	0.00%	
Tribal	0	0.00%	0	0.00%	0	0.00%	
MHI	954	100.00%	416	100.00%	500	52.58%	

Kerman

Attribute	Population	% Pop	HH	%HH	HU	%HU	Fixed Wireless Providers
Served Fixed Wireless 25/3	8,096	33.56%	2,579	38.21%	2,655	37.85%	T-Mobile
HFTD	0	0.00%	0	0.00%	0	0.00%	
Floodplains	138	1.70%	64	2.48%	69	2.60%	Unwired Broadband Inc
Tsunami hazard area	0	0.00%	0	0.00%	0	0.00%	
DAC	6,459	79.78%	2,099	81.39%	2,162	81.43%	
Tribal	0	0.00%	0	0.00%	0	0.00%	
MHI	5,546	68.50%	1,826	70.80%	1,880	70.81%	

Pinnacles

Attribute	Population	% Pop	HH	%HH	HU	%HU	Fixed Wireless Providers
Served Fixed Wireless 25/3	0	0%	0	0.00%	0	0.00%	N/A
HFTD	0	0%	0	0%	0	0%	
Floodplains	0	0%	0	0%	0	0%	
Tsunami hazard area	0	0%	0	0%	0	0%	
DAC	0	0%	0	0%	0	0%	
Tribal	0	0%	0	0%	0	0%	
MHI	0	0%	0	0%	0	0%	

Ponderosa

Attribute	Population	% Pop	HH	%HH	HU	%HU	Fixed Wireless Providers
Served Fixed Wireless 25/3	4,048	30.35%	1,621	30.96%	1,953	21.06%	T-Mobile
HFTD	58	1.43%	22	1.36%	22	1.13%	
Floodplains	0	0.00%	0	0.00%	0	0.00%	Unwired Broadband Inc
Tsunami hazard area	0	0.00%	0	0.00%	0	0.00%	
DAC	97	2.40%	24	1.48%	39	2.00%	Verizon Wireless
Tribal	0	0.00%	0	0.00%	0	0.00%	
MHI	2,495	61.64%	993	61.26%	1,211	62.01%	

Sierra

Attribute	Population	% Pop	HH	%HH	HU	%HU	Fixed Wireless Providers
Served Fixed Wireless 25/3	13,450	39.49%	5,736	40.45%	6,528	37.72%	Conifer Communications
HFTD	13,068	97.16%	5,565	97.02%	6,330	96.97%	
Floodplains	54	0.40%	19	0.33%	24	0.37%	T-Mobile
Tsunami hazard area	0	0.00%	0	0.00%	0	0.00%	
DAC	0	0.00%	0	0.00%	0	0.00%	Unwired Broadband Inc
Tribal	0	0.00%	0	0.00%	0	0.00%	
MHI	7,615	56.62%	3,304	57.60%	3,788	58.03%	Verizon Wireless

Winterhaven

Attribute	Population	% Pop	HH	%HH	HU	%HU	Fixed Wireless Providers
Served Fixed Wireless 25/3	1,643	60.78%	543	57.95%	646	37.72%	
HFTD	0	0.00%	0	0.00%	0	96.97%	
Floodplains	0	0.00%	0	0.00%	0	0.37%	Beamspeed, LLC
Tsunami hazard area	0	0.00%	0	0.00%	0	0.00%	
DAC	0	0.00%	0	0.00%	0	0.00%	
Tribal	1,460	88.86%	478	88.03%	545	0.00%	
MHI	767	46.68%	289	53.22%	327	58.03%	

Fixed Wireless 100/20 Mbps

AT&T (Pacific Bell)

Attribute	Population	% Pop	HH	%HH	HU	%HU	Fixed Wireless Providers
Served Fixed Wireless 100/20	2,444,789	8.31%	925,012	9.14%	986,420	9.18%	T-Mobile, Verizon Wireless, Digital Path, MINetworks, Velocity Communications, etc.
HFTD	273,923	11.20%	107,102	11.58%	116,413	11.80%	
Floodplains	119,847	4.90%	42,416	4.59%	45,255	4.59%	
Tsunami hazard area	376,672	15.41%	17,976	1.94%	19,901	2.02%	
DAC	879,518	35.98%	298,525	32.27%	315,312	31.97%	
Tribal	1,849	0.08%	528	0.06%	572	0.06%	
MHI	1,028,241	42.06%	373,693	40.40%	398,105	40.36%	

Citizens Telecommunications Company of CA

Attribute	Population	% Pop	HH	%HH	HU	%HU	Fixed Wireless Providers
Served Fixed Wireless 100/20	30,672	6.71%	10,364	7.00%	11,100	6.82%	Digital Path, Verizon Wireless, California Broadband Services, Com-Pair Services, Succeed.Net, Internet Free Planet, among others
HFTD	501	1.63%	213	2.06%	260	2.34%	
Floodplains	6,142	20.02%	2,240	21.61%	2,496	22.49%	
Tsunami hazard area	102	0.33%	34	0.33%	48	0.43%	
DAC	7,733	25.21%	2,351	22.68%	2,428	21.87%	
Tribal	0	0.00%	0	0.00%	0	0.00%	
MHI	11,630	37.92%	3,968	38.29%	4,189	37.74%	

Frontier California, Inc.

Attribute	Population	% Pop	HH	%HH	HU	%HU	Fixed Wireless Providers
Served Fixed Wireless 100/20	635,467	6.92%	234,453	7.73%	247,678	7.54%	T-Mobile, Verizon Wireless, GeoLinks, Pacific Lightwave, Unwired BB, Etheric Networks, OACYS Tech, WISPRENN, Ayera Tech, AeroSurf, Southern CA Tel, Towerstream, WebPerception, Kern Valley Wireless, Advanced Wireless
HFTD	70,479	11.09%	27,382	11.68%	29,853	12.05%	
Floodplains	15,424	2.43%	6,251	2.67%	6,946	2.80%	
Tsunami hazard area	11,468	1.80%	7,141	3.05%	8,122	3.28%	
DAC	197,646	31.10%	61,976	26.43%	64,859	26.19%	
Tribal	161	0.03%	46	0.02%	52	0.02%	
MHI	210,658	33.15%	75,903	32.37%	80,319	32.43%	

Frontier Communications of the Southwest, Inc.

Attribute	Population	% Pop	HH	%HH	HU	%HU	Fixed Wireless Providers
Served Fixed Wireless 100/20	0	0%	0	0.00%	0	0.00%	N/A
HFTD	0	0%	0	0%	0	0%	
Floodplains	0	0%	0	0%	0	0%	
Tsunami hazard area	0	0%	0	0%	0	0%	
DAC	0	0%	0	0%	0	0%	
Tribal	0	0%	0	0%	0	0%	
MHI	0	0%	0	0%	0	0%	

Consolidated Communications

Attribute	Population	% Pop	HH	%HH	HU	%HU	Fixed Wireless Providers
Served Fixed Wireless 100/20	14,227	5.02%	5,520	5.24%	5,647	5.18%	Cal.net; Succeed.net; Verizon
HFTD	0	0.00%	0	0.00%	0	0.00%	
Floodplains	0	0.00%	0	0.00%	0	0.00%	
Tsunami hazard area	0	0.00%	0	0.00%	0	0.00%	
DAC	0	0.00%	0	0.00%	0	0.00%	
Tribal	0	0.00%	0	0.00%	0	0.00%	
MHI	3,523	24.76%	1,452	26.30%	1,474	26.10%	

Cal-Ore

Attribute	Population	% Pop	HH	%HH	HU	%HU	Fixed Wireless Providers
Served Fixed Wireless 100/20	0	0%	0	0.00%	0	0.00%	N/A
HFTD	0	0%	0	0%	0	0%	
Floodplains	0	0%	0	0%	0	0%	
Tsunami hazard area	0	0%	0	0%	0	0%	
DAC	0	0%	0	0%	0	0%	
Tribal	0	0%	0	0%	0	0%	
MHI	0	0%	0	0%	0	0%	

Calaveras

Attribute	Population	% Pop	HH	%HH	HU	%HU	Fixed Wireless Providers
Served Fixed Wireless 100/20	0	0%	0	0.00%	0	0.00%	N/A
HFTD	0	0%	0	0%	0	0%	
Floodplains	0	0%	0	0%	0	0%	
Tsunami hazard area	0	0%	0	0%	0	0%	
DAC	0	0%	0	0%	0	0%	
Tribal	0	0%	0	0%	0	0%	
MHI	0	0%	0	0%	0	0%	

Ducor

Attribute	Population	% Pop	HH	%HH	HU	%HU	Fixed Wireless Providers
Served Fixed Wireless 100/20	48	4.39%	12	%	14	3.79%	Unwired Broadband
HFTD	0	0.00%	0	0.00%	0	0.00%	
Floodplains	0	0.00%	2	4.35%	2	4.08%	
Tsunami hazard area	0	0.00%	0	0.00%	0	0.00%	
DAC	48	100.00%	12	100.00%	14	100.00%	
Tribal	0	0.00%	0	0.00%	0	0.00%	
MHI	48	100.00%	10	83.33%	12	85.71%	

Foresthill

Attribute	Population	% Pop	HH	%HH	HU	%HU	Fixed Wireless Providers
Served Fixed Wireless 100/20	118	1.91%	42	1.69%	49	1.80%	Oasis Broadband;
HFTD	118	100.00%	42	100.00%	49	100.00%	
Floodplains	0	0.00%	0	0.00%	0	0.00%	
Tsunami hazard area	0	0.00%	0	0.00%	0	0.00%	
DAC	0	0.00%	0	0.00%	0	0.00%	
Tribal	0	0.00%	0	0.00%	0	0.00%	
MHI	0	0.00%	0	0.00%	0	0.00%	

Siskiyou

Attribute	Population	% Pop	HH	%HH	HU	%HU	Fixed Wireless Providers
Served Fixed Wireless 100/20	0	0%	0	0.00%	0	0.00%	N/A
HFTD	0	0%	0	0%	0	0%	
Floodplains	0	0%	0	0%	0	0%	
Tsunami hazard area	0	0%	0	0%	0	0%	
DAC	0	0%	0	0%	0	0%	
Tribal	0	0%	0	0%	0	0%	
MHI	0	0%	0	0%	0	0%	

Volcano

Attribute	Population	% Pop	HH	%HH	HU	%HU	Fixed Wireless Providers
Served Fixed Wireless 100/20	0	0%	0	0.00%	0	0.00%	N/A
HFTD	0	0%	0	0%	0	0%	
Floodplains	0	0%	0	0%	0	0%	
Tsunami hazard area	0	0%	0	0%	0	0%	
DAC	0	0%	0	0%	0	0%	
Tribal	0	0%	0	0%	0	0%	
MHI	0	0%	0	0%	0	0%	

Happy Valley

Attribute	Population	% Pop	HH	%HH	HU	%HU	Fixed Wireless Providers
Served Fixed Wireless 100/20	21	0.32%	13	0.51%	14	0.43%	GeoLinks
HFTD	21	100.00%	13	100.00%	14	100.00%	
Floodplains	0	0.00%	0	0.00%	0	0.00%	
Tsunami hazard area	0	0.00%	0	0.00%	0	0.00%	
DAC	0	0.00%	0	0.00%	0	0.00%	
Tribal	0	0.00%	0	0.00%	0	0.00%	
MHI	0	0.00%	0	0.00%	0	0.00%	

Hornitos

Attribute	Population	% Pop	HH	%HH	HU	%HU	Fixed Wireless Providers
Served Fixed Wireless 100/20	855	77.38%	353	72.78%	405	68.64%	Unwired Broadband Inc
HFTD	540	63.16%	229	64.87%	261	64.44%	
Floodplains	0	0.00%	0	0.00%	0	0.00%	
Tsunami hazard area	0	0.00%	0	0.00%	0	0.00%	
DAC	0	0.00%	0	0.00%	0	0.00%	
Tribal	0	0.00%	0	0.00%	0	0.00%	
MHI	885	100.00%	353	100.00%	405	100.00%	

Kerman

Attribute	Population	% Pop	HH	%HH	HU	%HU	Fixed Wireless Providers
Served Fixed Wireless 100/20	7,043	29.20%	2,259	33.47%	2,331	33.23%	T-Mobile
HFTD	0	0.00%	0	0.00%	0	0.00%	
Floodplains	138	1.96%	64	2.83%	69	2.96%	Unwired Broadband Inc
Tsunami hazard area	0	0.00%	0	0.00%	0	0.00%	
DAC	5,427	77.06%	1,784	78.97%	1,843	79.06%	
Tribal	0	0.00%	0	0.00%	0	0.00%	
MHI	4,530	64.32%	1,513	66.98%	1,563	67.05%	

Pinnacles

Attribute	Population	% Pop	HH	%HH	HU	%HU	Fixed Wireless Providers
Served Fixed Wireless 100/20	0	0%	0.00%	0	0	0%	N/A
HFTD	0	0%	0	0%	0	0%	
Floodplains	0	0%	0	0%	0	0%	
Tsunami hazard area	0	0%	0	0%	0	0%	
DAC	0	0%	0	0%	0	0%	
Tribal	0	0%	0	0%	0	0%	
MHI	0	0%	0	0%	0	0%	

Ponderosa

Attribute	Population	% Pop	HH	%HH	HU	%HU	Fixed Wireless Providers
Served Fixed Wireless 100/20	4,607	34.54%	1,777	33.94%	2,139	23.06%	Unwired Broadband Inc
HFTD	3,828	83.09%	1,518	85.42%	1,840	86.02%	
Floodplains	58	1.26%	22	1.24%	22	1.03%	
Tsunami hazard area	0	0.00%	0	0.00%	0	0.00%	
DAC	97	2.11%	24	1.35%	39	1.82%	
Tribal	0	0.00%	0	0.00%	0	0.00%	
MHI	2,184	47.41%	849	47.78%	1,055	49.32%	

Sierra

Attribute	Population	% Pop	HH	%HH	HU	%HU	Fixed Wireless Providers
Served Fixed Wireless 100/20	12,606	37.01%	5,381	37.95%	6,099	35.24%	
HFTD	12,372	98.14%	5,298	98.46%	5,993	98.26%	
Floodplains	54	0.43%	19	0.35%	24	0.39%	T-Mobile
Tsunami hazard area	0	0.00%	0	0.00%	0	0.00%	
DAC	0	0.00%	0	0.00%	0	0.00%	Unwired Broadband Inc
Tribal	16	0.13%	5	0.09%	5	0.08%	
MHI	6,771	53.71%	2,949	54.80%	3,359	55.07%	

Winterhaven

Attribute	Population	% Pop	HH	%HH	HU	%HU	Fixed Wireless Providers
Served Fixed Wireless 100/20	0	0%	0	0.00%	0	0.00%	N/A
HFTD	0	0%	0	0%	0	0%	
Floodplains	0	0%	0	0%	0	0%	
Tsunami hazard area	0	0%	0	0%	0	0%	
DAC	0	0%	0	0%	0	0%	
Tribal	0	0%	0	0%	0	0%	
MHI	0	0%	0	0%	0	0%	

Mobile Broadband 25/3 Mbps

T-Mobile

COLR Service Area	Total Pop	Served POP	% Served POP	Total HHs	Served HHs	% Served HHs	Total HUs	Served HUs	% Served HUs
AT&T (PACIFIC BELL)	29,426,272	28,044,825	95%	10,122,886	9,626,729	95%	10,745,410	10,179,555	95%
CALAVERAS TELEPHONE COMPANY	8,329	7,750	93%	3,282	3,065	93%	4,262	4,009	94%
CAL-ORE TELEPHONE COMPANY	3,761	3,340	89%	1,434	1,260	88%	1,817	1,567	86%
CITIZENS TELECOMMUNICATIONS COMPANY OF CA	457,420	43,9291	96%	147,976	140,566	95%	162,698	150,667	93%
CONSOLIDATED COMMUNICATIONS OF CA COMPANY	283,376	283,376	100%	105,409	105,409	100%	109,050	109,050	100%
DUCOR TELEPHONE COMPANY	2,984	1,291	43%	1,038	353	34%	1,293	378	29%
FORESTHILL TELEPHONE COMPANY, INC.	6,167	5673	92%	2,491	2286	92%	2,715	2,472	91%
FRONTIER CALIFORNIA, INC.	9,187,387	8,915,604	97%	3,031,447	2,935,631	97%	3,283,359	3,166,701	96%
FRONTIER COMM OF THE SOUTHWEST, INC. - CA	25,135	18,361	73%	7,291	6,976	96%	10,208	9,630	94%
HAPPY VALLEY TELEPHONE COMPANY	6,576	4,466	68%	2,561	1,689	66%	3,248	1,802	55%
HORNITOS TELEPHONE COMPANY	1,105	1,073	97%	485	463	95%	590	568	96%
KERMAN TELEPHONE COMPANY	24,122	24,122	100%	6,750	67,50	100%	7,014	7014	100%
PINNACLES TELEPHONE COMPANY	287	153	53%	96	67	70%	100	70	70%
PONDEROSA TELEPHONE COMPANY	13,338	12,193	91%	5,235	4,773	91%	9,274	7,684	83%
SIERRA TELEPHONE COMPANY, INC.	34,058	24,838	73%	14,181	10,349	73%	17,307	12,207	71%
SISKIYOU TELEPHONE COMPANY	7,444	4,782	64%	3,201	2,038	64%	3,900	2,317	59%
VOLCANO TELEPHONE COMPANY	16,115	7,384	46%	7,157	3,365	47%	9,928	4,957	50%
WINTERHAVEN TELEPHONE COMPANY	2,703	2,681	99%	937	937	100%	1,349	1,332	99%

AT&T

COLR Service Area	Total Pop	Served POP	% Served POP	Total HHs	Served HHs	% Served HHs	Total HUs	Served HUs	% Served HUs
AT&T (PACIFIC BELL)	29,426,272	27,875,093	95%	10,122,886	9,565,380	94%	10,745,410	10,103,466	94%
CALAVERAS TELEPHONE COMPANY	8,329	4,244	51%	3,282	1,719	52%	4,262	2,179	51%
CAL-ORE TELEPHONE COMPANY	3,761	0	0%	1,434	0	0%	1,817	0	0%
CITIZENS TELECOMMUNICATIONS COMPANY OF CA	457,420	39,0763	85%	147,976	12,3614	84%	162,698	129,749	80%
CONSOLIDATED COMMUNICATIONS OF CA COMPANY	283,376	283,376	100%	105,409	105,409	100%	109,050	109,050	100%
DUCOR TELEPHONE COMPANY	2,984	2,794	94%	1,038	962	93%	1,293	1,106	86%
FORESTHILL TELEPHONE COMPANY, INC.	6,167	964	16%	2,491	387	16%	2,715	433	16%
FRONTIER CALIFORNIA, INC.	9,187,387	85,44,780	93%	3,031,447	2806735	93%	3,283,359	301,9851	92%
FRONTIER COMM OF THE SOUTHWEST, INC. - CA	25,135	21,532	86%	7,291	5,803	80%	10,208	7,878	77%
HAPPY VALLEY TELEPHONE COMPANY	6,576	3,368	51%	2,561	1,247	49%	3,248	1,349	42%
HORNITOS TELEPHONE COMPANY	1,105	297	27%	485	129	27%	590	144	24%
KERMAN TELEPHONE COMPANY	24,122	22,850	95%	6,750	6,389	95%	7,014	6,635	95%
PINNACLES TELEPHONE COMPANY	287	138	48%	96	49	51%	100	49	49%
PONDEROSA TELEPHONE COMPANY	13,338	4,759	36%	5,235	1,842	35%	9,274	3,546	38%
SIERRA TELEPHONE COMPANY, INC.	34,058	19,434	57%	14,181	7,977	56%	17,307	9,437	55%
SISKIYOU TELEPHONE COMPANY	7,444	0	0%	3,201	0	0%	3,900	0	0%

VOLCANO TELEPHONE COMPANY	16,115	5,783	36%	7,157	2,541	36%	9,928	3,042	31%
WINTERHAVEN TELEPHONE COMPANY	2,703	0	0%	937	0	0%	1,349	0	0%

No other mobile broadband provider reported speeds at or above 25/3 Mbps.

Mobile Broadband 100/20 Mbps

No mobile broadband provider reported speeds at or above 100/20 Mbps.

APPENDIX E: Technology Transition Analysis

Methodology: To identify areas and estimate customer coverage (service availability) by multiple potential alternative communication service providers, Cal Advocates conducted an analysis of broadband (100/20 Mbps) providers in all 16 COLR service areas. Cal Advocates used data and results from the two previous appendices, Demographics of the 16 COLR Service Areas (i.e., COLR service area boundaries, customer and demographic data), and Broadband Service Coverage (i.e., customers served by broadband service providers using different technologies such as DSL, cable modem, fiber optics, fixed wireless, and mobile broadband). The table below presents a summary of the estimates of customer coverage (i.e., aggregated households from all COLR service areas) by multiple broadband providers that offer non-legacy technologies and report offering speeds at or above 100/20 Mbps (i.e., cable modem, fiber optics, fixed wireless) in the 16 COLR service areas.

Number of Broadband Providers	Total HHs	Served HHs	% Served HHs	Total Pop	Served POP	% Served POP
Fiber and Cable 2 Providers or More	13,463,857	3,423,706	25%	39,506,579	10,238,528	26%
Fiber Cable and Fixed Wireless 3 Providers or More	13,463,857	285,492	2.12%	39,506,579	779,247	1.97%
Fiber and Cable 3 Providers or More	13,463,857	431,560	3.21%	39,506,579	1,182,665	2.99%
Fiber Cable and Fixed Wireless 4 Providers or More	13,463,857	60,390	0.45%	39,506,579	153,655	0.39%