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PUBLIC ADVOCATES OFFICE

CALIFORNIA PUBLIC UTILITIES COMMISSION

Prepared Testimony of Jayne Parker on Small ILEC Broadband Deployment and Adoption

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1 **MEMORANDUM**

2 This report was prepared by Jayne Parker of the Public Advocates Office at the
3 California Public Utilities Commission (Public Advocates Office) under the general
4 supervision of Project Supervisor Camille Watts-Zagha. Attachment A to this testimony
5 is a statement of qualifications from Jayne Parker. The Public Advocates Office is
6 represented in this proceeding by legal counsel, Candace Choe.

7 Although every effort was made to comprehensively review, analyze and provide
8 the Commission with recommendations on each ratemaking and policy aspect presented
9 in the rulemaking, the absence from the Public Advocate’s Office ‘s testimony of any
10 particular issue does not necessarily constitute its endorsement or acceptance of the
11 underlying request, methodology, or policy position related to that issue.
12

1 **CHAPTER 1 SMALL ILEC BROADBAND DEPLOYMENT,**
2 **SUBSCRIBERSHIP, AND PRICING SUMMARY**

3 **I. SUMMARY**

4 Pursuant to the September 12, 2019, Administrative Law Judges’ Ruling Setting
5 Hearing Dates And Issues For Hearing, this report provides data on broadband
6 deployment in each Small Incumbent Local Exchange Carrier (ILEC) service territory,¹
7 differences between the Federal Communication Commission (FCC) and California
8 Public Utility Commission (CPUC or Commission) broadband deployment data,² census
9 block household totals³ for broadband subscribership, pricing for each Small ILEC,⁴
10 broadband plans,⁵ and the number of broadband providers in the Small ILEC territories.⁶

11 Both federal and state subsidies for broadband deployment in the Small ILECs’
12 participating in the California High Cost Fund A (CHCF-A) territories have resulted in
13 broadband availability as of 2018 at download speeds of 10 Megabits per second (Mbps)
14 for 91-93% of households and download speeds of 25 Mbps for 50-51% of households.
15 However, even where broadband is widely available at 10Mbps download speeds,
16 customer demand remains low.⁷ Subscribership territory-wide improves in areas with a
17 broadband competitor. Because broadband is widely deployed and federal support
18 programs require significantly higher speeds by 2024,⁸ the Small ILECs should focus on

¹ September 12, 2019 Administrative Law Judges’ Ruling Setting Hearing Dates and Issues for Hearing (Scoping Memo) Questions 1, 3 and 4 at pp. 1-2.

² Scoping Memo Question 1 at p. 1.

³ Scoping Memo Question 5F at p. 3.

⁴ Scoping Memo Questions 5B and 5G at pp. 2-3.

⁵ Scoping Memo Question 5C at p. 2.

⁶ Scoping Memo Question 5E at p. 3.

⁷ D.14-12-084 at p. 71 states that the Commission will use several factors to evaluate the CHCF-A investment including customer demand at p. 71.

⁸ BFCC DA-19-373 <https://docs.fcc.gov/public/attachments/DA-19-373A1.pdf> & FCC DA-19-808A1 <https://docs.fcc.gov/public/attachments/DA-19-808A1.pdf>

1 increasing adoption rates for broadband service already available by offering affordable
2 rates. The Public Advocates Office recommends the following:

- 3 • The Commission should not authorize additional CHCF-A
4 subsidies for broadband infrastructure deployment until the
5 Small ILECs increase broadband subscription to statewide
6 levels of 87%.⁹
- 7 • The Commission should not authorize additional subsidies for
8 broadband infrastructure deployment until the Small ILECs
9 provide and demonstrate an accurate accounting of the
10 locations and households where broadband has been deployed
11 as well as available to be installed.
- 12 • In the Small ILEC service territory, the Commission should
13 annually track and report on broadband deployment,
14 subscribership, and pricing to determine the levels of, and
15 pricing for, broadband availability.

16 **II. DISCUSSION**

17 **A. The Commission Must Utilize Multiple Data Sources To** 18 **Determine The Percentage Of Broadband Deployment**

19 The Small ILECs receiving CHCF-A subsidies for broadband deployment should
20 provide accurate information showing where broadband is available, by speed tier. Each
21 company should be the definitive source of this data and the Commission should hold the
22 company accountable for the accuracy of the data. In the interim, the Public Advocates
23 Office reviewed the following sources of broadband deployment data to determine
24 broadband availability in Small ILECs service territory:

- 25 • CPUC Broadband Mapping Data: Pre-Validated and
26 Post-Validated
- 27 • Small ILEC Data Request Responses Regarding
28 Broadband Deployment Data
- 29 • FCC Fixed Broadband Deployment Data from Form 477

30 Because there are strengths and weaknesses to each data source, the Commission
31 should consider these multiple sources of data together to determine broadband

⁹ FCC Internet Access Services as of 12/31/17 <https://www.fcc.gov/internet-access-services-reports>
at p. 29.

- 1 deployment levels in the Small ILEC territories. Figure 1 provides advantages and
- 2 disadvantages for each source of broadband deployment data.

Figure 1:
Broadband Deployment Data Sources

Data	Source	Vintage	Geographic Area Covered	Strength	Weakness
CPUC Validated Data	D.16-12-025	December 31, 2017	Census Blocks	<ul style="list-style-type: none"> ▪ Provides all speeds available in a census block ▪ Allows for a comparison among competing carriers in Small ILEC territories ▪ Validated by CPUC 	<ul style="list-style-type: none"> ▪ Validation process removes households in a census block from deployment total if the census block has no subscribers ▪ Using the total households in census blocks may overstate the number of households deployed to¹⁰
CPUC Pre-Validated Data	D.16-12-025	December 31, 2018	Census Blocks	<ul style="list-style-type: none"> ▪ Includes households in a census blocks with and without subscribers in deployment total ▪ More recent than data from 2017 	<ul style="list-style-type: none"> ▪ Deployment data is uncorroborated and not validated by the CPUC ▪ Census blocks do not match Small ILEC service territory boundaries ▪ Using the total households in census blocks may overstate the number of households deployed to¹¹

¹⁰ Attachment E. Taglang, Kevin, Benton Institute for Broadband & Society, “All Over the Broadband Map”, Accessed October 3, 2019. https://www.benton.org/blog/all-over-broadband-map?utm_source=sendgrid&utm_medium=email&utm_campaign=Newsletters

¹¹ Attachment G, “CPUC Broadband Data Request” Accessed May 9, 2019 <ftp://ftp.cpuc.ca.gov/Telco/BB%20Mapping/2019/Data%20Request/CPUC%20Broadband%20Data%20Request%202019.pdf>

Data	Source	Vintage	Geographic Area Covered	Strength	Weakness
Small ILEC Data Request Responses (Service Drop, Subscribers)	R.11-11-007 PHH-002 Question 2 & Question 4	2017 & 2018	Small ILEC Territory	<ul style="list-style-type: none"> Small ILECs claim using “service drops” is the most accurate method to calculate broadband deployment¹² Data matches Small ILEC service territory boundaries 	<ul style="list-style-type: none"> Data is uncorroborated and not validated by the CPUC Different definition of “deployed” than the FCC and CPUC No historical data available to compare across years
Fixed Broadband Deployment Data	FCC Form 477	December 31, 2017	Census Blocks	<ul style="list-style-type: none"> More companies report to the FCC than to the CPUC (CPUC provides broadband deployment data for 79 carriers in CA vs the FCC which provides data for 103¹³ in California) 	<ul style="list-style-type: none"> Census blocks do not match Small ILEC service territory boundaries Using the total households in census blocks may overstate the number of households deployed to¹⁴

1 Fixed Broadband Deployment Data from the FCC Form 477 and CPUC
2 deployment data define broadband deployment as existing deployment as well as
3 deployment that could allow broadband service to be installed and operational for a
4 subscriber within 10 business days. Broadband deployment is reported by census block.
5 Therefore, if one household in a census block receives or is able to receive broadband

¹² Exhibit B-9; PHH-002 Calaveras Narrative Response Question 3 at p. 9.

¹³ Exhibit B-1; “CPUC CA Broadband Wireline Consumer Data December 31, 2017” https://www.cpuc.ca.gov/Broadband_Availability/ Accessed May 9, 2019 and Exhibit B-2; “CPUC CA Broadband Fixed Wireless Data December 31, 2017” https://www.cpuc.ca.gov/Broadband_Availability/ accessed May 9, 2019 and Exhibit B-4; “FCC 477 California Wireline Data by Census Block” <https://www.fcc.gov/general/broadband-deployment-data-fcc-form-477> Accessed May 10, 2019

¹⁴ Attachment G, “CPUC Broadband Data Request.”

1 service within 10 business days of request, every household in the census block is
2 counted as served. Accounting for all households in a census block “tends to overstate
3 broadband access in rural areas.”¹⁵ The FCC plans to use location specific deployment
4 data in the near future to more closely measure broadband.¹⁶ Currently, to mitigate the
5 potential for overstating deployment, the CPUC validates broadband deployment data
6 received and removes any census blocks without confirmed subscribers from a
7 company’s deployment total. In other words, even if a company reports broadband
8 deployment in a census block, the CPUC will not recognize that broadband is available
9 unless there is at least one customer subscribing to service in that census block. The
10 CPUC uses this method because it attempts to limit the overstatement of broadband
11 availability through the exclusion of uninhabited census blocks.

12 The Small ILECs object to the method used by the FCC’s Form 477 and the
13 CPUC’s broadband deployment data, and proposed an alternative method using “service
14 drops.” The Small ILECs define a service drop as a home or business within its service
15 territory that has a broadband-capable service drop at the location, whether or not the
16 customer at this location subscribes to service.¹⁷

17 To calculate the percentage of broadband deployment, one must know the
18 deployed locations (or the deployed census blocks) and the total number of people,

¹⁵ Exhibit F. Reid, Jon, Bloomberg Law “FCC to Weigh Broadband Mapping Order in August” Accessed September 17, 2019. <https://news.bloomberglaw.com/tech-and-telecom-law/fcc-to-vote-in-august-to-improve-broadband-mapping>

¹⁶ Attachment I, “FCC Establishes New Digital Opportunity Data Collection” <https://www.fcc.gov/document/fcc-improves-broadband-mapping>

¹⁷ Exhibit B-9; Calaveras PHH-002 Meet and Confer Question 2a at p. 3, “A “drop,” as referenced by the Independent Small LECs in their responses to PHH-002, is not a subscriber of broadband service; rather, it is a physical facility that connects a specific customer location to the broader distribution system in a telecommunications network. The characteristics of a “drop” may be impacted by whether they are located in an urban or rural setting. Generally speaking, the “drop” is a facility that runs from the “curb” to the customer premise. In rural areas, variance in dimensions and distances between the customer premise and the broader telecommunications network distribution system will affect the characteristic of the “drop.” With this understanding, the “drop” does not relate to whether there is an “actual broadband subscriber” at a location; it determines whether a location has a physical connection to the available network.”

1 households, and businesses in the geographic area of interest. In the case of Small ILECs,
2 the area of interest is the Small ILEC’s service territory. The Commission should hold
3 Small ILECs accountable for knowing the potential locations, served locations, and
4 subscribers within their territories.¹⁸ The Commission should use the decennial count of
5 households by census block in calculating broadband deployment. With a few exceptions,
6 the Public Advocates Office’s testimony uses this source for the total number of
7 households in each Small ILEC service territory. The Appendix provides a detailed
8 discussion of why the decennial census data is the most reliable source for total
9 households. Household numbers, broadband served locations, and broadband served
10 census blocks are utilized in Figures 2, 3, and 4 to determine the percent of Small ILEC
11 broadband deployment.

12 **B. In The Small ILEC Territories, Broadband Deployment**
13 **At 10mbps Download Speed Is Between 90-93% And**
14 **Deployment At 25mbps Download Speed Is Between 33-**
15 **51%.**

16 Figure 2 below provides the level of broadband deployment for the Small ILECs and
17 competing carriers utilizing the CPUC’s validated broadband mapping data. The most
18 recent data available for competing carriers is as of the end of 2017. While this is the only
19 dataset available for companies other than the Small ILECs, the Public Advocates Office
20 was able to obtain more recent broadband availability data from the Small ILECs, as of
21 December 31, 2018. The more recent data shows an increase in broadband deployment
22 for faster speeds such as download speeds of 25 Mbps; see Figure 3.

¹⁸ However, it will often be necessary to utilize the US census for population and household counts

**Figure 2:
Broadband Availability and Speed in Small ILEC Territories as of December 31, 2017**

Service Territory	Households	Carriers Available			Download Speed: All Carriers			Fiber to the End User
		1 ¹⁹	2	3	≥6 Mbps	≥10 Mbps	≥25 Mbps	
Calaveras	3,419	96%	31%	0%	96%	95%	88%	25%
Cal-Ore	2,120	72%	0%	0%	69%	69%	53%	0%
Ducor	1,367	93%	0%	0%	81%	0%	0%	0%
Foresthill	2,749	91%	67%	0%	91%	91%	74%	74%
Kerman	6,572	96%	57%	0%	96%	96%	61%	24%
Pinnacles	76	67%	0%	0%	67%	67%	0%	0%
Sierra	17,588	97%	40%	0%	97%	97%	0%	0%
Ponderosa	8,560	91%	3%	0%	90%	90%	89%	8%
Siskiyou	4,215	63%	1%	0%	63%	63%	0%	0%
Volcano	9,662	99%	1%	0%	98%	98%	8%	8%
CHCF-A Participant Total	56,328	92%	25%	0%	92%	90%	33%	11%

Data source: CPUC Validated data December 31, 2017.

NOTE: Provides the number of households in census blocks fully within the Small ILEC territories²⁰ that have access to advertised speeds exceeding 200 kbps.²¹ New deployment data for December 31, 2017 was submitted by Calaveras, Cal-Ore, Foresthill, Kerman, Pinnacles, Siskiyou and Volcano, however those numbers are not reflected here because the data were not yet validated by the Communications Division.

1 **C. Excluding Competitive Broadband Providers, Average**
2 **Small ILEC Broadband Deployment At 10mbps**
3 **Download Speed Is Between 91-93% And Average**
4 **Deployment At 25mbps Download Speed Is Between 50-**
5 **51%.**

6 Figure 3 below shows Small ILEC broadband deployment based on pre-validated
7 CPUC data as of December 31, 2018. The data in Figure 3 reflects more recent data and
8 includes deployment available in census blocks where there are no subscribers.

¹⁹ Carrier 1 represents the Small ILEC’s broadband availability for the households in their territory.

²⁰ Explanation of fully within and partially within in Appendix: Small ILEC Territory Comparison with Census Blocks at p. 20.

²¹ Attachment G, “CPUC Broadband Data Request.”

Figure 3:
Small ILEC Broadband Deployment as of December 31, 2018 <<Begin Confidential>>

Small ILEC	Households	Download Speed Available				Fiber to the End User
		≥ 6 Mbps	≥ 10 Mbps	≥ 25 Mbps	≥ 50 Mbps	
Calaveras	3,419					
Cal-Ore	2,120					
Ducor	1,367					
Foresthill	2,749					
Kerman	6,572					
Pinnacles	76					
Sierra	17,588					
Ponderosa	8,560					
Siskiyou	4,215					
Volcano	9,662					
<<End Confidential>>						
CHCF-A Participant Total	56,328	93%	93%	50%	47%	26%

Data Source: CPUC Pre-Validated Data December 31, 2018

NOTE: Figure 3 shows the number of households²² that have access to advertised speeds exceeding 200 kbps.²³ Figure 3 uses only census blocks fully within the Small ILEC’s territories. Small ILECs Calaveras, Cal-Ore, Foresthill, Kerman, Pinnacles Siskiyou, and Volcano confirmed their data through PHH-005 Questions 6 and Q7 and any changes are reflected in Figure 3.

In contrast, the Small ILECs’ data request responses submitted to the Public Advocates Office in May 2019 does not utilize census blocks. Rather, the Small ILECs provided the number of service drops throughout their service territory.²⁴ This data shows that broadband deployment at 10 Mbps download speed is available to 91% of their territory. This data also shows that broadband deployment at 25 Mbps download speed to 51% of their territory. The Small ILECs’ data request responses eliminate several

²² Exhibit B-7; “US Census Bureau, ‘2010 Households by Census Block’” <https://www.census.gov/geographies/mapping-files/time-series/geo/tiger-line-file.2010.html> accessed May 2, 2019.

²³ Attachment G, “CPUC Broadband Data Request.”

²⁴ A service drop is a physical facility that connects a specific customer location to the broader distribution system in a telecommunications network. More in Appendix: Definitions-Service Drops at p. 23.

1 problems with the other data sources, specifically the overestimation of deployment by
 2 counting all households in a census block as served. This is shown in Figure 4 below.

Figure 4:
Small ILEC Broadband Availability based on Service Drops data as of
December 31, 2018 <<Begin Confidential>>

Small ILEC	Territory Locations	Service Drop Download Speed 2018		
		≥ 6 Mbps	≥ 10 Mbps	≥ 25 Mbps
Calaveras				
Cal-Ore				
Ducor				
Foresthill				
Kerman				
Pinnacles				
Sierra				
Ponderosa				
Siskiyou				
Volcano				
<<End Confidential>> CHCF-A Participant Total	68,976	94%	91%	51%

Data Source: PHH-002 Question 4 December 31, 2018

NOTE: Location and Service Drop definition can be found in the Appendix.

D. More Broadband Companies And Greater Customer Choice Is Unlikely To Harm The Small ILECs Or Require The CHCF-A To Grant Increased Subsidies

6 Competitive carriers offering broadband service to census blocks within the Small
 7 ILEC’s territory are shown in Figure 5. As stated previously, this data was gathered
 8 through the CPUC’s Broadband Map data.²⁵ Since the number of households per census
 9 block with broadband availability could range from one and all households in the block,
 10 the Public Advocate Office displays the range of households that could have access to
 11 each carrier. While fixed wireless broadband service does not offer comparable service as

²⁵ Exhibit B-1 and Exhibit B-2.

- 1 fixed wireline broadband service, the fixed wireless companies are included here to show
- 2 the range of choices available to customers.

Figure 5:²⁶

Wireline and Fixed Wireless Choice in Small ILECs' Service Territory Census Blocks data as of December 31, 2017

Service Territory (households)	Broadband Provider 1 or incumbent	Broadband Provider 2	Broadband Provider 3	Broadband Provider 4	Broadband Provider 5	Broadband Provider 6
CALAVERAS (3,419)	Calaveras (143-3,074)	Calaveras Internet* (4-148)	AT&T California (1-45)	Comcast (43-1,120)	Conifer Communication* (2-151)	Cal.net Inc.* (31-1,228)
CAL-ORE (2,120)	Cal-Ore (280 to 1,517)					
DUCOR (1,367)	Ducor (247-1,267)	DigitalPath, Inc* (7-290)	DM-Tech* (3- 19)	OACYS Technology* (9- 63)	Unwired Broadband Inc.* (1- 2)	
FORESTHILL (2,749)	Sebastian (104-2,505)	Suddenlink Communications (33-1,843)	ColfaxNet* (2- 86)			
KERMAN (6,572)	Sebastian (468-6,196)	Comcast (178-3,887)	Unwired Broadband Inc.* (34-458)			
PINNACLES (76)	Pinnacles** (15-52)	GeoLinks* (1-2)				
SIERRA (17,588)	Sierra Tel Internet (640-17,005)	Northland Communications (166-7,063)	Unwired Broadband Inc.* (14-1,492)			
PONDEROSA (8,560)	Ponderosa (430-7,789)	Comcast (13- 271)	Northland Communications (1-3)	Unwired Broadband Inc.* (16-481)		
SISKIYOU (4,215)	Siskiyou (411-2,626)	AT&T California (1-35)	Northland Communications (1-35)			
VOLCANO (9,662)	Volcano** (391-9,435)	AT&T California (1-105)				

Data Source: CPUC Validated Data Wireline and Fixed Wireless December 31, 2017

Note: Carriers with * offer only Fixed Wireless service, carriers with ** offer both fixed wireless and wireline service. This data only includes census blocks that are fully within a provider's territory.

This table is the only table that includes Fixed Wireless companies.

²⁶ Small ILEC Opening Comments on the Fourth Amended Scoping Memo at p. 35: The Small ILECs stated that AT&T does not serve broadband in any of their territories and believe that AT&T overestimated its deployment levels. However, the data received from AT&T by the CPUC suggests that they may have the capability to deploy broadband within 10 days inside Small ILEC territories per the definition of broadband availability used by both the CPUC and FCC.

1 Increased consumer choice for broadband service does not correlate with decreased
2 subscribership for Small ILECs, therefore more customer choice would not result in
3 increased CHCF-A subsidies.²⁷ In fact, CALTEL states that, “draws on the CHCF-A
4 fund have decreased since the market entry of wireless, satellite and broadband-only
5 competition.”²⁸ The four Small ILECs with the highest level of competition are
6 Calaveras, Foresthill, Kerman, and Sierra.²⁹ In 2018, three out of these four Small ILECs
7 had higher than average broadband subscriber totals as shown in Figure 6.³⁰

8 Additionally, there is no indication that the presence of a competitor means revenues
9 will decline. Revenues for the Small ILEC’s affiliated Internet Service Providers (ISPs)
10 do not correlate with the level of consumer choice in 2018.³¹ Of the four carriers with a
11 significant competitor, net revenues were not consistently net positive or net negative. Of
12 the remaining carriers, net revenues also have no pattern.

13 **E. Small ILEC Customers Mostly Subscribe To Lower**
14 **Priced And Slower Broadband Service**

15 The Commission should require Small ILECs to increase their broadband
16 subscribership rates before approving additional funding for broadband deployment.
17 Figure 6 below shows subscribership data for the Small ILECs. Across the Small ILECs
18 participating in CHCF-A, 62% of households subscribed to voice services and 50% of
19 households subscribe to broadband services; data as of December 31, 2018. Between
20 90% - 93% of customers have access to broadband at download speeds between 6 Mbps
21 and 10 Mbps. However as of December 2018, only 53% of customers subscribed to
22 download speeds 6-10Mbps and only 1.4% of customers subscribed to speeds ≥ 25

²⁷ Subscribership and adoption are used interchangeably in this document

²⁸ CALTEL Reply comments to the CA Association of Competitive Telecommunications Companies regarding Fourth Scoping Memo at p. 4.

²⁹ Figure 2 and Figure 5.

³⁰ Exhibit B-9; “R.11-11-007 PHH-002” Question 2. Subscriber is defined as, “active residential Internet service subscriber accounts at the beginning of each month. As used here active means a subscriber receiving and being billed for Internet service, provided by either you or your ISP affiliate.”

³¹ Mr. Ahlstead’s Testimony Figure 1.2 at p. 11.

1 Mbps.³² The FCC states that 87% of Californians subscribed to download speed 200 kbps
 2 or greater as of December 31, 2017,³³ and as of May 8, 2018, 76.8% subscribed to 10
 3 Mbps, 64.5% subscribed to 25 Mbps, and 61.8% subscribed to 50 Mbps.³⁴ The current
 4 practice of recovering investment cost from rate payers for the deployment of broadband
 5 capable facilities without any requirement to increase adoption gives the Small ILECs
 6 little incentive to focus on subscribership. In fact, D-14-12-084 states that customer
 7 demand will be one of the factors used to evaluate broadband capable investments.³⁵
 8 Customer demand exists as evidenced by the FCC adoption rates stated above, so the
 9 Small ILECs should focus on increasing their numbers to match the statewide rates.

Figure 6:
Broadband and Voice Subscribership Rates <<Begin Confidential>>

Small ILEC	2017		2018	
	Voice Subscribers	Broadband Subscribers	Voice Subscribers	Broadband Subscribers
Calaveras				
Cal-Ore				
Ducor				
Foresthill				
Kerman				
Pinnacles				
Sierra				
Ponderosa				
Siskiyou				
Volcano				
<<End Confidential>> CHCF-A Participant Total	64%	50%	62%	50%

³² Figure 7.

³³ FCC Internet Access Services <https://www.fcc.gov/internet-access-services-reports> at 31. Accessed November 8, 2019.

³⁴ FCC 2019 Broadband Deployment Report <https://www.fcc.gov/reports-research/reports/broadband-progress-reports/2019-broadband-deployment-report> at 318. Accessed November 8, 2019.

³⁵ D-14-12-084 at p. 71.

Data Source: PHH-002 Question 1 & 2 December 31, 2017 & December 31, 2018

Note: Assumes one subscriber per household. Represents households in full and partial census blocks within the Small ILEC territories because the subscriber totals were provided at the service territory level, not census block level. Voice subscribers includes Basic Residential Service plus LifeLine Service, broadband subscribers reflect all speed options.

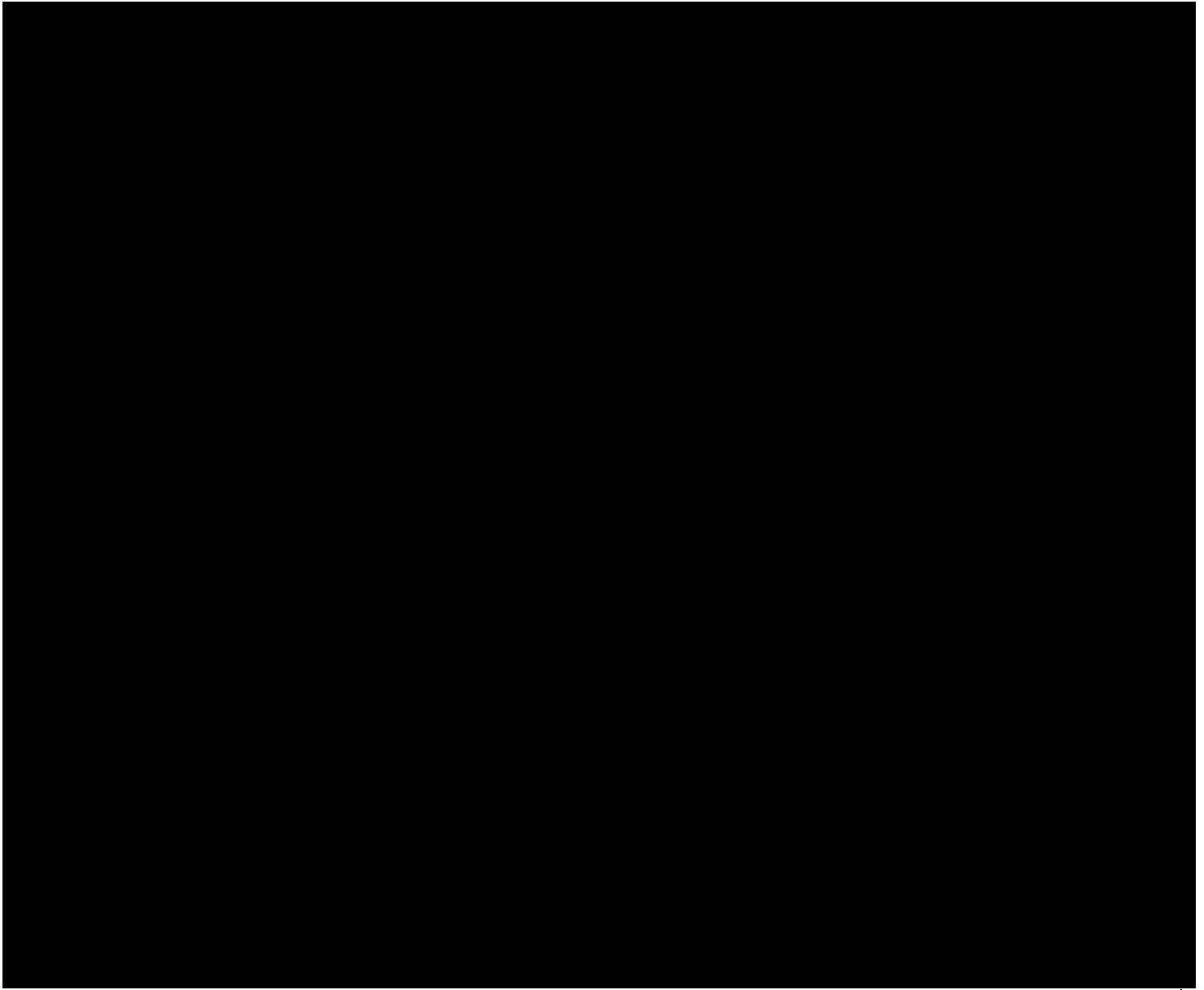
1
2 Figure 7 provides subscribership figures for the Small ILECs as a percentage of
3 their total subscriber count.³⁶ The FCC states that 34.3% of Californians subscribe to
4 download speeds of 100 Mbps,³⁷ however Figure 7 shows that the Small ILECs have
5 0.2% subscribers between download speeds 100-199 Mbps. The Small ILEC broadband
6 subscribers choose slower speeds in part due to the lack of buildout past 25 Mbps in
7 Small ILEC territory, but it may also be due to price. Figure 8 provides the broadband
8 pricing plans offered by the Small ILEC's, Charter, Cox and Frontier at 10-29 Mbps.
9 The prices in Figure 8 combine fees for Fixed Broadband and Fixed Voice because the
10 Small ILECs require customers to purchase voice service to receive broadband service.
11 Prices for Cox and Frontier reflect their Fixed Broadband and Fixed Voice monthly cost,
12 but they were not provided separately and so are shown as one cost under Broadband
13 Cost.³⁸ Additional download speed costs are included in **ATTACHMENT B -**
14 **ATTACHMENT D.**
15

³⁶ Attachment F, "CPUC Data Format for Broadband Subscribers by Census Block" Subscribers are defined as, "Number of connections (no longer percentage of connections!) in this Census Block for this combination of technology code, upstream bandwidth and downstream bandwidth provided in consumer-grade service plans. Consider connections to be "consumer" or "residential" when they deliver Internet-access services that are primarily purchased by, designed for, and/or marketed to residential end users."

³⁷ FCC 2019 Broadband Deployment Report

³⁸ AT&T, Charter, Cox and Frontier are unable to offer voice in the Small ILEC service territory. These prices therefore are illustrative and do not reflect real options for the consumers in these areas.

Figure 7: Subscribers per Carrier December 31, 2018 <<Begin Confidential>>

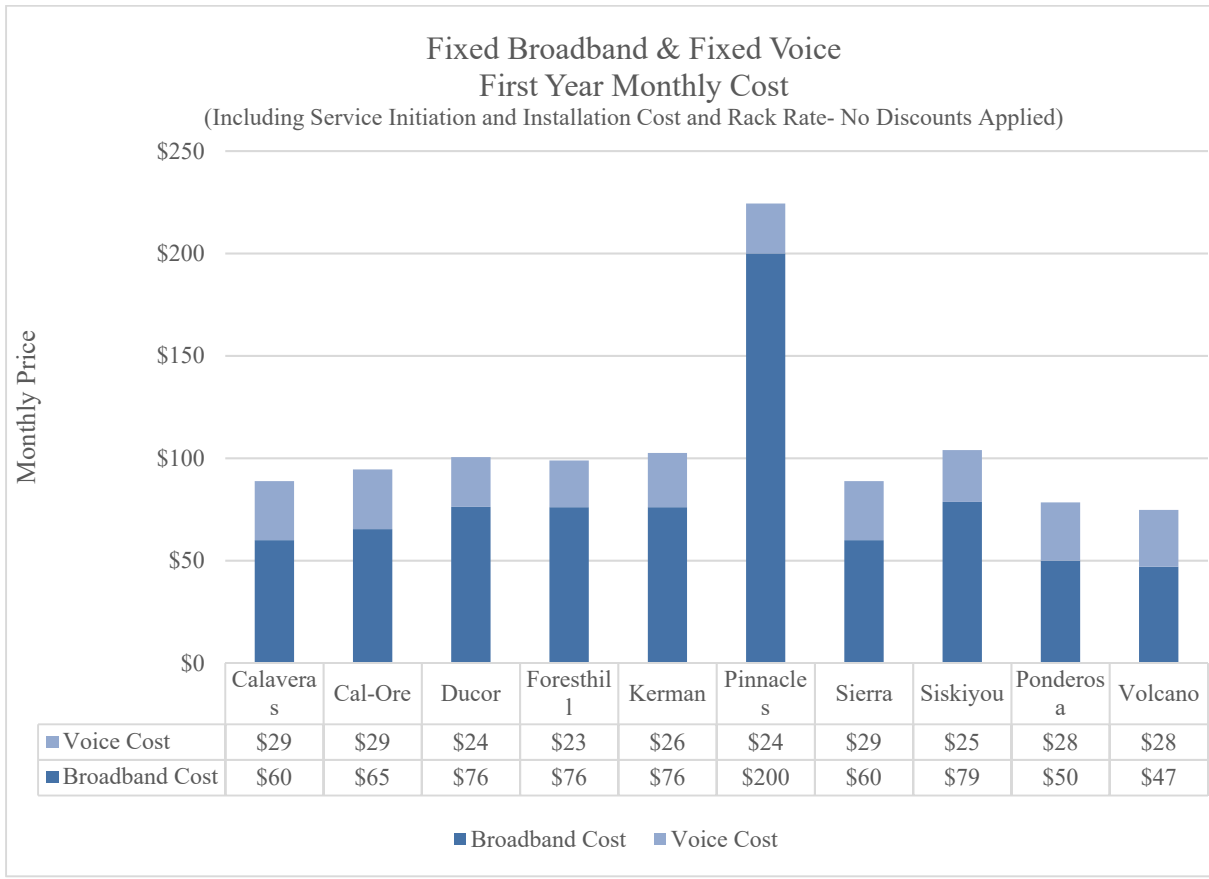


<<End Confidential>> **Data Source:** CPUC Pre-Validated Data December 31, 2018

Note: This data reflects all census blocks. Percentages reflect percentage of subscribers per carrier. Data reflects updates sent by Calaveras, Cal-ore, Foresthill, Kerman, Pinnacles, Siskiyou and Volcano in PHH-005 Questions 6 and 7.

1

Figure 8: Fixed Broadband and Fixed Voice Pricing for Download Speeds 10-29 Mbps as of January 1, 2019



Data Source: R.18-07-006 DR 1 January 1, 2019

Note: Prices amortize the initiation and/or installation cost over 12 months and add the monthly cost for both Fixed Voice and Fixed Broadband.

1 **F. The Commission Should Require Small ILECs To**
 2 **Properly Maintain Their Broadband Deployment,**
 3 **Household, And Location Data**

4 Annual broadband reporting updates are important for the CPUC and the residents
 5 within the Small ILEC’s service territories, however the data used to create these charts
 6 must be maintained and updated properly. The Small ILEC’s data responses showed
 7 multiple discrepancies, such as decreasing broadband deployment in subsequent years,³⁹
 8 including or excluding various Internet service provider affiliates,⁴⁰ and changing

³⁹ Exhibit B-10; “R.11-11-007 PHH-005 Foresthill Excel Sheet:

⁴⁰ Exhibit B-10; “R.11-11-007 PHH-005” Siskiyou Response to Question 6 at p. 8.

1 definitions of what constitutes broadband deployment.⁴¹ These data inconsistencies do
 2 not only relate to broadband deployment, but also reflect the difficulty Small ILECs have
 3 with counting the number of homes and locations in their service territory. CHCF-A
 4 provides subsidies for broadband deployment and it is therefore imperative that the Small
 5 ILECs have accurate and reliable data to determine the reasonableness of proposed
 6 broadband deployment projects. The Small ILEC’s shortcomings in data include:

- 7 • Inability to determine whether broadband speed increases
 8 are “due to new network capabilities or a simple upgrade
 9 in speed”⁴²
- 10 • Inability to maintain historical data⁴³
- 11 • Software shortcomings⁴⁴

12 Siskiyou contains an example of these shortcomings. Siskiyou found errors in the
 13 broadband deployment data they submitted to the CPUC Communication Division (CD)
 14 in 2017 and 2018 and provided corrected data for both years in August 2019 in response
 15 to Public Advocates Office DR PHH-005.⁴⁵ The corrected data altered Siskiyou’s
 16 broadband deployment as follow:

Siskiyou Data Correction <<Begin Confidential>>

Data Source: Siskiyou	Download Speed ≥ 6 Mbps	Download Speed ≥ 10 Mbps	Download Speed ≥ 25 Mbps	Fiber to the End User
Original CPUC 2018 Deployment				
Corrected CPUC 2018 Deployment				

<<End Confidential>>

17

⁴¹ Exhibit B-9; “R.11-11-007 PHH-002” Calaveras Narrative Response.

⁴² Exhibit B-9; “R.11-11-007 PHH-002” Foresthill and Kerman Question 3 at p. 9.

⁴³ Exhibit B-9; “R.11-11-007 PHH-002” Calaveras Question 3 at p. 9.

⁴⁴ Exhibit B-10; “R.11-11-007 PHH-005 Meet and Confer Re Calaveras, Q6 and Attachment J, “Email from William Charley 10/4/19”

⁴⁵ Exhibit B-10; “R.11-11-007 PHH-005” Siskiyou Response to Question 6 at p. 8.

1 Additionally, Calaveras identified inaccuracies in their FCC Form 477
 2 submissions in both 2017 and 2018 because they relied on their billing system to
 3 determine broadband deployment.⁴⁶ Calaveras was unable to update the 2017 and 2018
 4 broadband deployment data with historical data and instead provided broadband
 5 deployment information as of October 2019. The differences are illustrated in Figure 10.
 6 The updated data shows an increase in download speeds available to consumers. This
 7 may be in part because further broadband upgrades occurred between December 2018
 8 and October 2019.

Figure 10:
Discrepancies in census blocks submitted by Calaveras <<Begin Confidential>>

Calaveras Census Blocks	CPUC Pre- Validated 12/31/2018 (highest Mbps)	Supplemental Data 10/3/2019 (download Mbps)	Households in Census Block
[Redacted Data]			

<<End Confidential>> Note: The raw data submitted to the CPUC as of December 31, 2018 is the closest vintage to the data submitted by Calaveras as of October 3, 2019. These census blocks reflect only blocks fully within Calaveras’ territory.

⁴⁶ Exhibit B-10; “R.11-11-007 PHH-005” Meet and Confer Response Calaveras, Q6 and Attachment J, “Email from William Charley 10/4/19”

1 The Commission should reproduce Figures 2, 3, and 4 of this testimony annually
2 to reflect updates to broadband deployment in the Small ILEC’s service territory.
3 Validated broadband deployment data is already published yearly and is available on the
4 Commission’s website as an interactive map⁴⁷ and downloadable shapefile data⁴⁸ but
5 cannot easily be grouped by Small ILEC service territories. It is important to understand
6 the levels of broadband deployment in the Small ILEC service territories due to the
7 amount of state funding they receive, and the fact that they represent 8% of California’s
8 rural population.⁴⁹

9 **G. Public Advocates Office’s Assumptions**

10 In order to determine broadband subscribership and deployment in a given area, it
11 was necessary to designate each census block within a Small ILECs’ service territory as
12 fully within, partially within, or outside of a Small ILEC’s service territory. ⁵⁰ Unless
13 specified otherwise, the Figures in this testimony utilize census blocks fully within a
14 Small ILEC’s service territory because they have the highest level of accuracy instead of
15 allocating census blocks by the percentage of their block within a Small ILEC’s territory.
16 The Small ILECs objected to this process and stated the “percentage of the physical space
17 in the census block served by the Independent Small LEC is equal to the percentage of
18 customers that the company serves in the census block”⁵¹ There are 13,409 census
19 blocks both fully and partially within all of the Small ILECs service territories; 1,407
20 census blocks are partially within the service territory and 12,002 census blocks are fully
21 within the service territory.⁵² Figure 11 below provides the percentage of all 13,409
22 census blocks having a specified range of households.

⁴⁷ California Interactive Broadband Map, <http://www.broadbandmap.ca.gov/> Accessed May 27, 2019

⁴⁸ Exhibit B-1; “CPUC CA Broadband Wireline Consumer Data December 31, 2017” and Exhibit B-2; “CPUC CA Broadband Fixed Wireless Data December 31, 2017.”

⁴⁹ Exhibit B-7; “US Census Bureau, ‘2010 Households by Census Block.’”

⁵⁰ Appendix: Small ILEC Territory Comparison with Census Blocks.

⁵¹ Opening Comments of the Independent Small LECs May 21, 2019 at p. 34.

⁵² More in Appendix: Small ILEC Territory Comparison with Census Blocks.

**Figure 11:
Census Block Household Breakdown**

Small ILEC	0 Households	1-10 Households	11-20 Households	21-30 Households	31-40 Households	40+ Households
Calaveras	41%	27%	15%	8%	3%	6%
Cal-Ore	69%	28%	2%	0%	0%	0%
Ducor	61%	31%	5%	1%	1%	1%
Foresthill	67%	20%	6%	2%	0%	5%
Kerman	34%	42%	16%	3%	1%	3%
Pinnacles	82%	17%	1%	0%	0%	0%
Sierra	39%	33%	9%	6%	3%	10%
Ponderosa	65%	22%	6%	3%	1%	3%
Siskiyou	76%	21%	2%	1%	0%	0%
Volcano	52%	24%	8%	4%	4%	8%
CHCF-A Participating	59%	26%	7%	3%	1%	4%

Data Source: 2010 Census

Note: Shows census blocks fully and partially within the Small ILEC territories in terms of household count. Utilizes 2010 household figures.

1 **III. CONCLUSION**

2 The Small ILECs have deployed broadband infrastructure throughout their service
3 territory providing speeds of 10 Mbps to an average of 91-93% of households and speeds
4 of 25 Mbps to an average of 50-51% of households. However, low levels of customer
5 subscribership⁵³ suggest that the Small ILECs need to focus on increasing their
6 subscribership. This Commission should account for broadband deployment funding that
7 has already been authorized and instruct the Small ILECs to increase their adoption rates
8 to match California’s statewide adoption rate of 87% before approving additional
9 funding. Furthermore, the Commission should hold-off on funding additional broadband
10 infrastructure deployment until Small ILECs can satisfactorily demonstrate an accurate
11 accounting of broadband deployment in each of their service territories. The Commission
12 should also annually track and report on broadband deployment, subscribership, and
13 pricing for all Small ILECs to ensure they are working toward these goals.

⁵³ Figure 6.

APPENDIX

Methods and Definitions

1 **1. SMALL ILEC TERRITORY COMPARISON WITH CENSUS BLOCKS**

2 Census blocks received by the sources noted in Figure 1 were compared to each
3 Small ILEC’s service territory boundaries and identified as fully or partially within a
4 Small ILEC’s territory. We used Esri ArcMap, a geospatial software, to combine the
5 Small ILECs’ service territory boundaries from the FCC Study Area Boundary dataset¹
6 (submitted and certified by ILECs and state commissions through April 27, 2017) with
7 the US Census Bureau’s 2017 California Census Block Boundaries.² The output was
8 compared to the 2016 CPUC’s California Interactive Broadband Map of Small ILECs’
9 exchange areas in CA³ and further refined to produce more than 13,400 census blocks
10 that are either fully or partially within Small ILEC territories. Determining whether a
11 census block was within a carrier’s territory was important given that several Small
12 ILECs share boundaries and therefore contain the overlapping census blocks that are
13 partially within both territories (Sierra, Ponderosa).

14 **2. DEFINITIONS**

15 **i. Census Blocks**

16 Census blocks are defined by the US Census Bureau as, “statistical areas bounded
17 by visible features such as roads, streams, and railroad tracks, and by nonvisible
18 boundaries such as property lines, city, township, school district, county limits and short
19 line-of-sight extensions of roads.”⁴ Census blocks were utilized to determine broadband
20 deployment in each Small ILEC service territory as they are the smallest level of

¹ Exhibit B-5; “FCC Study Areas” <https://www.fcc.gov/economics-analytics/industry-analysis-division/study-area-boundary-data> and Exhibit B-6, “FCC Small ILEC Study Areas” <https://www.fcc.gov/economics-analytics/industry-analysis-division/study-area-boundary-data> Accessed April 3, 2019.

² Exhibit B-7; “US Census Bureau, ‘2010 Households by Census Block.’”

³ Attachment K, “CPUC Small ILEC Exchange Areas” https://www.cpuc.ca.gov/uploadedFiles/CPUC_Public_Website/Content/Utilities_and_Industries/Communications_-_Telecommunications_and_Broadband/Consumer_Programs/Broadband_Availability/CA%20Small%20ILEC%20Exchange%20Areas%202015.pdf Accessed April 2, 2019.

⁴ Attachment H, “US Census Bureau, ‘Census Blocks’” <https://www.census.gov/newsroom/blogs/random-samplings/2011/07/what-are-census-blocks.html>

1 geography available for demographic counts,⁵ and using a larger geographical area might
2 skew the true numbers given that the Small ILEC territories are 89% rural.⁶

3 As of 2010, the state of CA had 710,146 census blocks of which 121,957 had no
4 households. According to the Federal Registrar, a census block should contain a
5 minimum of 600 people or 240 housing units and a maximum of 3,000 people or 1,200
6 housing units.”⁷ Housing units differ from households. “A housing unit is a house, an
7 apartment, a mobile home, a group of rooms, or a single room that is occupied (or if
8 vacant, is intended for occupancy) as separate living quarters.”⁸

9 **ii. Households**

10 The US Census Bureau defines a household as, “A household includes all the
11 persons who occupy a housing unit as their usual place of residence.”⁹ The US Census
12 Bureau does a complete count of population, household and business once every 10
13 years. In between each census, changes are based on sample data. This sampled data
14 cannot reliably be applied to small geographic areas. Although the CPUC Broadband
15 Availability Map does apply annual changes to the decennial household count, these
16 growth rates are difficult to authenticate in rural areas. The Small ILEC’s state the 2010
17 Census contains outdated data, however an alternate source that provided household
18 figures on a block level was not found.¹⁰

19 The Public Advocates Office considered a variety of options to generate an annual
20 growth rate for small geographic areas like census blocks, however we rejected these

⁵ Attachment H, “US Census Bureau, ‘Census Blocks.’”

⁶ Figure 13.

⁷ Federal Register 73 FR 13829, 3/14/2008. <https://www.federalregister.gov/documents/2008/03/14/E8-5075/census-block-group-program-for-the-2010-decennial-census-final-criteria> Accessed July 18, 2019.

⁸ Attachment I, “US Census Bureau, ‘Census Quick Facts’”
<https://www.census.gov/quickfacts/fact/note/US/HSD410217> Accessed September 6, 2019.

⁹ Attachment I, “US Census Bureau, ‘Census Quick Facts.’”

¹⁰ Small ILEC Comments to the 4th Scoping Memo Appendix at p. 34.

1 methods as infeasible or unreliable. We compared county wide growth rates¹¹ which
 2 resulted in an average growth rate of 0.55% across the Small ILECs. The Public
 3 Advocates Office also considered contacting Chambers of Commerce and Municipal
 4 Authorities within each territory, but this was not feasible. Additionally, The Public
 5 Advocates Office attempted to utilize the American Community Survey block group
 6 2017 estimates, but this too was rejected as unreliable.

7 The Public Advocates Office also attempted to update the 2010 Census household
 8 data by asking the Small ILECs for their household count in Data Request PHH-005. If
 9 the Small ILEC data discrepancies can be minimized in the future, it seems that Small
 10 ILECs should be the best source for household information in their service territory.
 11 Figure 12 shows the differences between the 2010 census and the Small ILEC’s
 12 household count. Comparing this with the number of households in census blocks fully
 13 within and partially within the Small ILEC’s territories provides a difference of 2.65%;
 14 though it is a starker difference in several territories like Cal-Ore. The Small ILEC
 15 household figures were not supplied by census block and due to the concerns with data as
 16 previously stated, this document relied upon 2010 Census totals

17 **Figure 12: Household estimates by Small ILEC and 2010 Census**
 18 **<<Begin Confidential>>**

CHCF-A Participating Carriers	2010 Census Households (Full +Partial)	Small ILEC response to: DR PHH-005	% Δ
Calaveras	4,471		
Cal-Ore	2,233		
Ducor	1,572		
Foresthill	2,894		
Kerman	6,651		
Pinnacles	184		
Sierra	19,016		
Ponderosa	10,655		

¹¹ Exhibit B-8; “California Department of Finance Household Estimates”
<http://www.dof.ca.gov/Forecasting/Demographics/Estimates/E-5/> Accessed June 14, 2019.

Siskiyou	4,552		
Volcano	11,477		
<<End Confidential>> Grand Total	63,705	62,018	2.65%

Data Source: PHH-005 Q 8

1
2
3 **iii. Broadband Availability**

4 The FCC determines that “broadband connections are available in a census block
5 if the provider does, or could, within a service interval that is typical for that type of
6 connection—that is, without an extraordinary commitment of resources—provision two-
7 way data transmission to and from the Internet with advertised speeds exceeding 200
8 kbps in at least one direction to end-user premises in the census block.”¹² The CPUC
9 defines deployed in the same manner stating, “Fixed broadband connections are deployed
10 in a Census Block if the provider does, or could, within a service interval that is typical
11 for that type of connection—that is, without an extraordinary commitment of resources—
12 provision two-way data transmission to and from the Internet with advertised speeds
13 exceeding 200 kbps in at least one direction to end-user premises in the Census Block.”¹³
14 The Small ILECs use 10 service days as the service interval for both the FCC Form 477
15 and CPUC Broadband Availability Map data submissions, as required under the rules
16 governing those submissions.¹⁴

17 **iv. Locations**

18 USAC defines a location as, “the latitude and longitude of a coordinate where
19 broadband service is available. A single set of geo-coordinates, denoting a single place of

¹² Exhibit B-11; “FCC Form 477, Local Telephone Competition and Broadband Reporting”
<https://transition.fcc.gov/form477/477inst.pdf> Accessed August 19, 2019. The FCC’s data methods are currently under intense scrutiny with alternatives to the current definition being proposed in the US House of Representatives in May 2019 (<https://www.congress.gov/bill/116th-congress/house-bill/2643/text>) and June 2019 (<https://www.congress.gov/bill/116th-congress/house-bill/3162/text>)

¹³ Attachment E, “CPUC Broadband Data Request.”

¹⁴ Exhibit B-9; “R.11-11-007 PHH-002” Calaveras Response: Meet and Confer Question at p. 3.

1 physical deployment of broadband, such as a home or a business.”¹⁵ Accordingly, the
2 Public Advocates Office used this same definition in its data request PHH-002 Questions
3 3 and 4. Locations include residential and commercial areas.

4 **v. Service Drops**

5 Small ILECs receiving CHCF-A subsidies define a drop as, “not a subscriber of
6 broadband service; rather, it is a physical facility that connects a specific customer
7 location to the broader distribution system in a telecommunications network. The
8 characteristics of a "drop" may be impacted by whether they are located in an urban or
9 rural setting. Generally speaking, the "drop" is a facility that runs from the "curb" to the
10 customer premise. In rural areas, variance in dimensions and distances between the
11 customer premise and the broader telecommunications network distribution system will
12 affect the characteristic of the ‘drop.’”¹⁶

13 With this understanding, the "drop" does not relate to whether there is an "actual
14 broadband subscriber" at a location; it determines whether a location has a physical
15 connection to the available network.”¹⁷ The Small ILECS participating in CHCF-A
16 further state in reference to service drops and broadband service, “One does not
17 necessarily lead to the other; rather, one is a precondition of the other. The service drop is
18 a physical facility, and whether or not this facility is utilized to deliver service is a
19 function of whether a customer purchases service.”¹⁸

20 **vi. Rural vs. Urban**

21 The 2010 Census defines rural and urban areas as, “an urban area will comprise a
22 densely settled core of census tracts and/or census blocks that meet minimum population
23 density requirements, along with adjacent territory containing non-residential urban land
24 uses as well as territory with low population density included to link outlying densely

¹⁵ USAC Glossary of Terms, “Locations” <https://www.usac.org/high-cost/resources/glossary-of-terms/>
[Accessed March 13, 2019](#)

¹⁶ Exhibit B-9; “R.11-11-007 PHH-002” Calaveras Response Meet and Confer Question 2A at p. 3.

¹⁷ Exhibit B-9; “R.11-11-007 PHH-002” Calaveras Response Meet and Confer Question 2A at p. 3.

¹⁸ Exhibit B-9; “R.11-11-007 PHH-002” Calaveras Response: Meet and Confer Question 2E at p. 5.

1 settled territory with the densely settled core. To qualify as an urban area, the territory
 2 identified according to that criteria must encompass at least 2,500 people, at least 1,500
 3 of which reside outside institutional group quarters. The Census Bureau identifies two
 4 types of urban areas: Urbanized Areas (UAs) of 50,000 or more people; Urban Clusters
 5 (UCs) of at least 2,500 and less than 50,000 people. ‘Rural’ encompasses all population,
 6 housing, and territory not included within an urban area.”¹⁹ Figure 13 provides the
 7 estimated number of rural and urban households in the Small ILECs’ service territory
 8 using the 2010 Census.

9 **Figure 13: Rural vs Urban Households in Small ILEC Service Territory**

Small ILEC	Households	Rural Households	Urban Households	% Rural
Calaveras	3,419	2,766	653	81%
Cal-Ore	2,120	2,120	0	100%
Ducor	1,367	1,367	0	100%
Foresthill	2,749	2,749	0	100%
Kerman	6,572	2,677	3,895	41%
Pinnacles	76	76	0	100%
Sierra	17,588	16,187	1,401	92%
Ponderosa	8,560	8,560	0	100%
Siskiyou	4,215	4,215	0	100%
Volcano	9,662	9,662	0	100%
CHCF-A Participant Total	56,328	50,379	5,949	89%

10 Data Source: 2010 Census. Uses full census blocks only

¹⁹ Attachment L, “2010 Census Urban and Rural Classification and Urban Area Criteria”
<https://www.census.gov/programs-surveys/geography/guidance/geo-areas/urban-rural/2010-urban-rural.html> Accessed March 6, 2019

ATTACHMENT A

QUALIFICATION OF WITNESS

1 **PREPARE TESTIMONY AND QUALIFICATIONS**
2 **OF**
3 **JAYNE PARKER**
4

5 **Q1: Please state your name and business address.**

6 A1: My name is Jayne Parker. My business address is 505 Van Ness Avenue, San
7 Francisco, California.
8

9 **Q2: By whom are you employed and in what capacity?**

10 A2: I am currently employed by the CPUC as a Public Utilities Regulatory Analyst I,
11 assigned to the Public Advocates Office’s Communications and Water Policy
12 (CWP) Branch.
13

14 **Q3: Briefly state your educational background and experience.**

15 A3: I have a Bachelor of Arts degree in English Literature and Political Science from
16 Loyola Marymount University and a Master of Science degree in Energy Policy
17 with Johns Hopkins University. I have worked with the Public Advocates Office
18 CWP branch to write this testimony and additional testimony for an ongoing
19 General Rate Case (GRC). I have attended two conferences regarding tribal
20 broadband availability. Prior to joining the CPUC, I was employed at Tesla
21 Motors for 6 years where I analyzed data including customer energy tiers and
22 production, payments, and savings.
23

24 **Q4: What is the scope of your responsibility in this proceeding?**

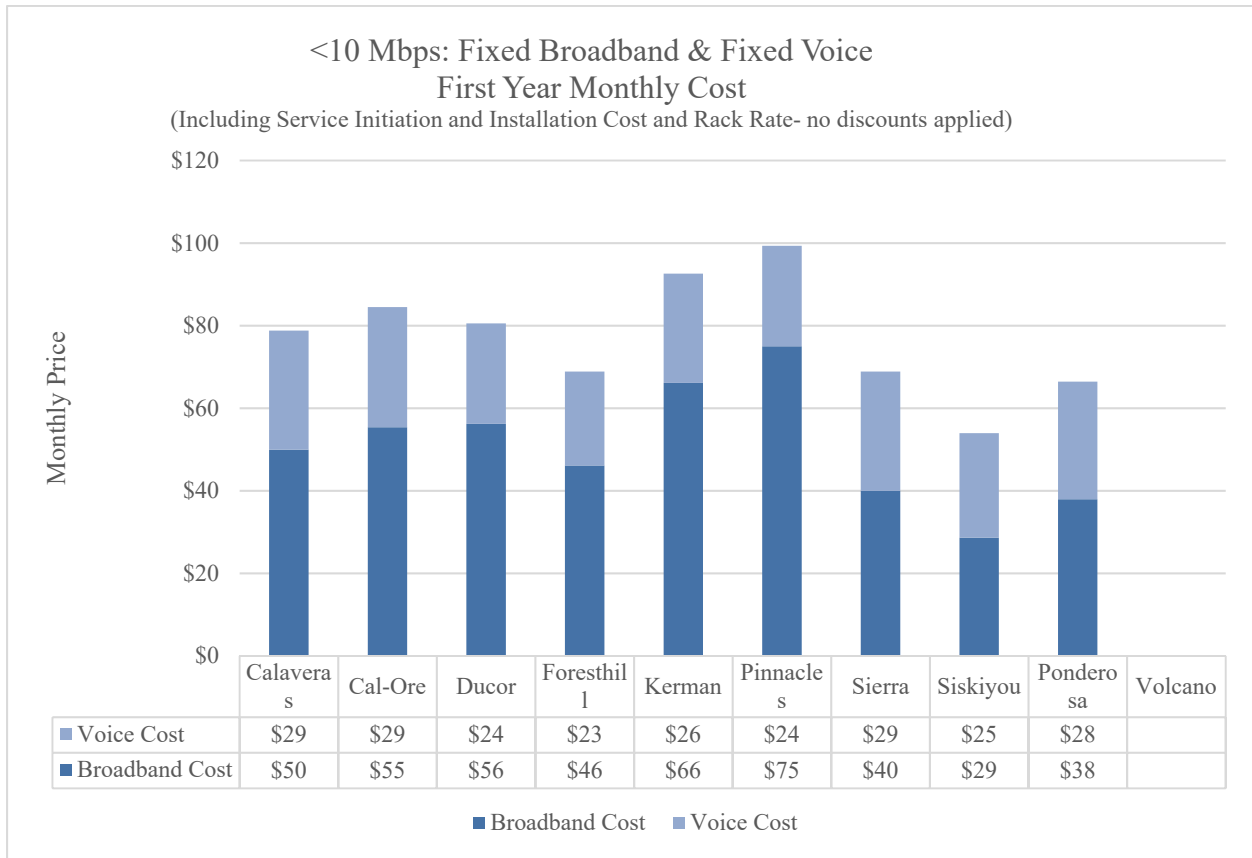
25 A4: For this proceeding, I was responsible for submitting testimony on broadband
26 deployment levels in Small ILEC territories.
27

28 **Q5: Does this complete your testimony at this time?**

29 A5: Yes, it does.
30

ATTACHMENT B

BROADBAND PRICING FOR SMALL ILECS AND COMPETITORS FOR DOWNLOAD SPEEDS OF <10 MBPS

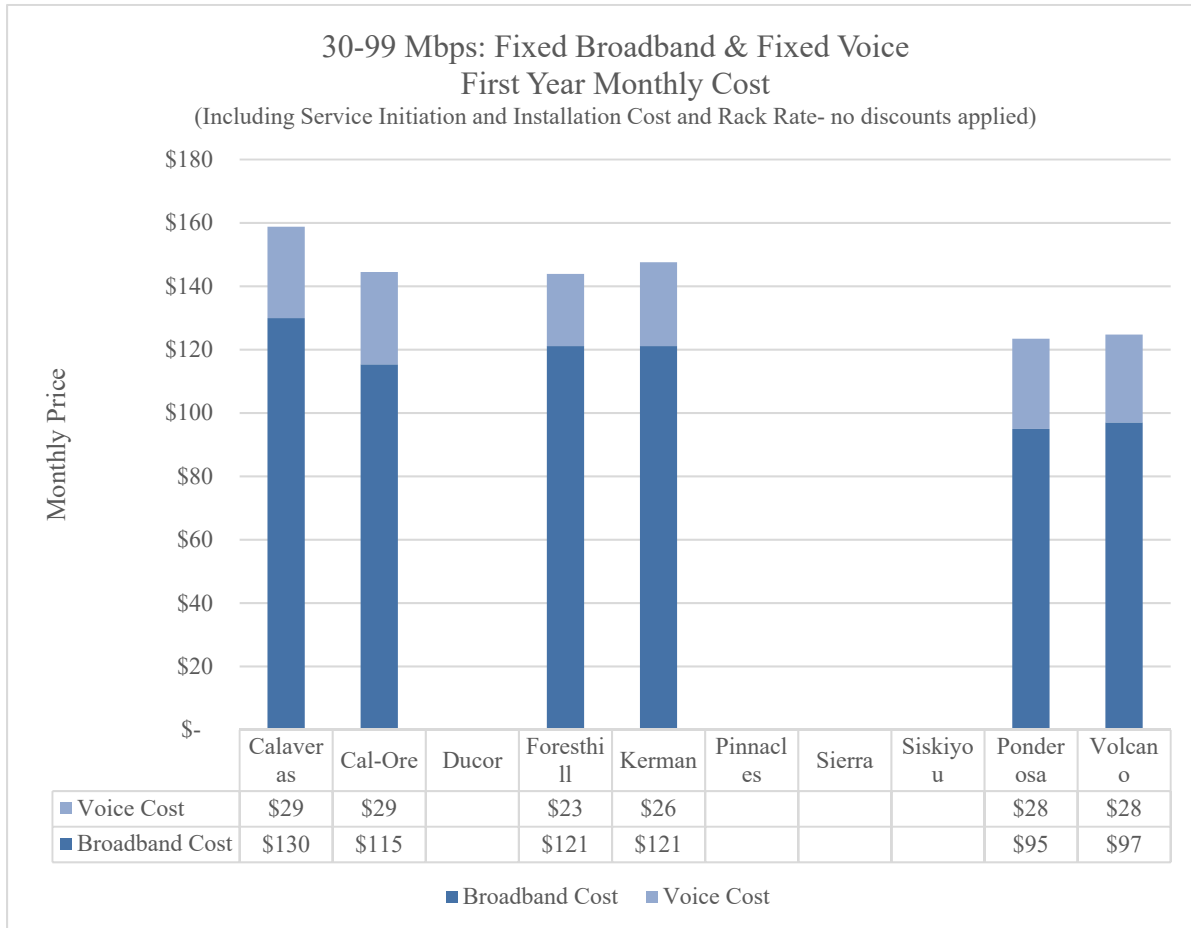


Data Source: R.18-07-006 DR 1 January 1, 2019

Note: Prices amortize the initiation and/or installation cost over 12 months and add the monthly cost for both Fixed Voice and Fixed Broadband.

ATTACHMENT C

BROADBAND PRICING FOR SMALL ILECS AND COMPETITORS FOR DOWNLOAD SPEEDS OF 30-99 MBPS

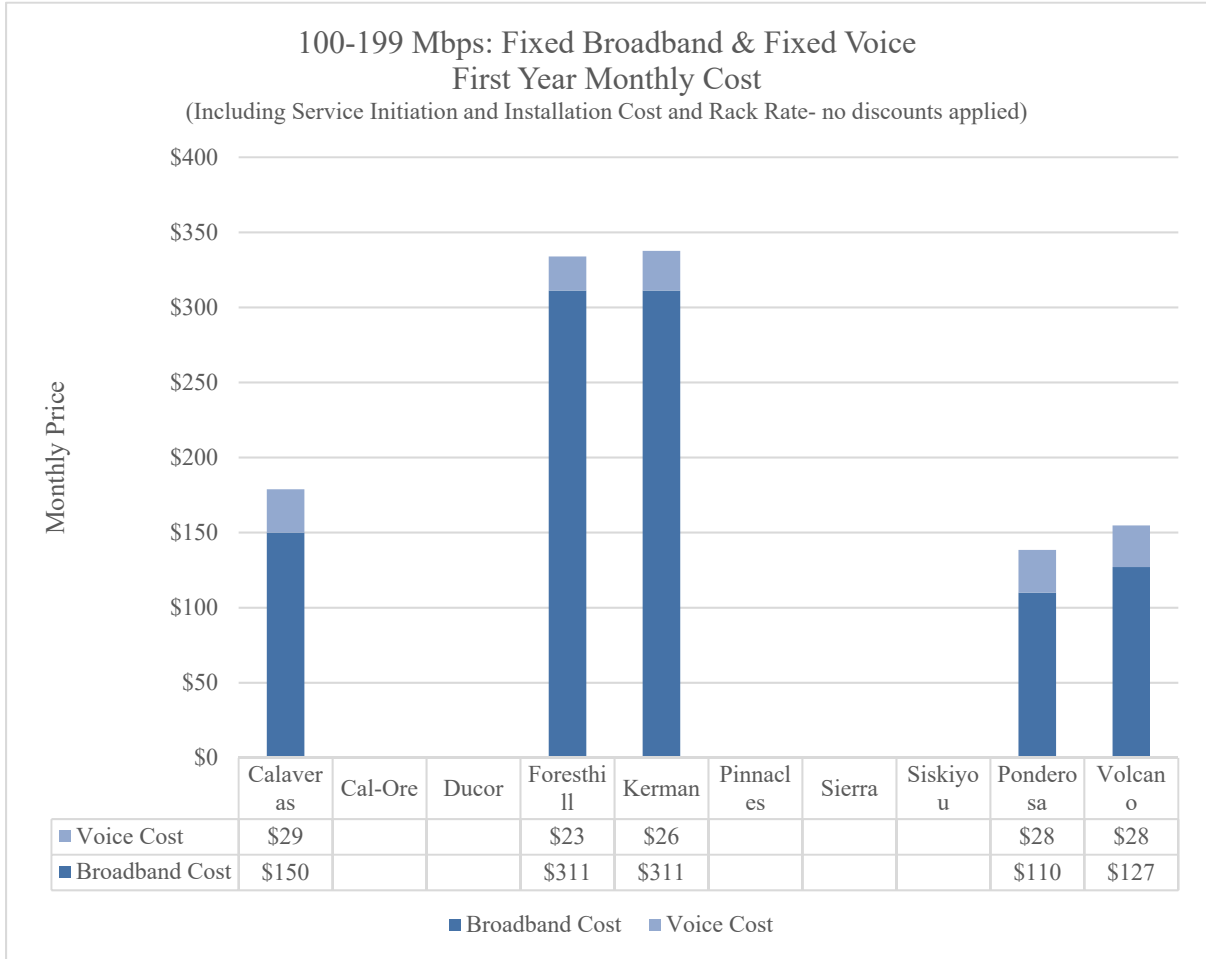


Data Source: R.18-07-006 DR 1 January 1, 2019

Note: Prices amortize the initiation and/or installation cost over 12 months and add the monthly cost for both Fixed Voice and Fixed Broadband.

ATTACHMENT D

BROADBAND PRICING FOR SMALL ILECS AND COMPETITORS FOR DOWNLOAD SPEEDS OF 100-199 MBPS

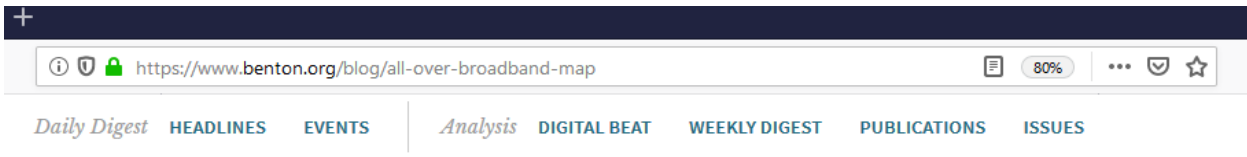


Data Source: R.18-07-006 DR 1 January 1, 2019

Note: Prices amortize the initiation and/or installation cost over 12 months and add the monthly cost for both Fixed Voice and Fixed Broadband. Charter, Cox, and Frontier prices were not provided as separate figures, therefore the prices for these carriers is a both fixed voice and fixed broadband. Voice competition is currently not available in Small ILEC territories, therefore the prices for Charter, Cox, and Frontier are illustrative

ATTACHMENT E

BENTON INSTITUTE FOR BROADBAND & SOCIETY, “ALL OVER THE BROADBAND MAP”



How Does the FCC Determine Where Broadband Service Is?

By way of background, the FCC began collecting subscription and connection data for broadband and telephone service using its Form 477 in 2000. Since then, these data have become the primary source for many FCC actions, including its publication of statutorily mandated reports to Congress regarding competition among certain service providers, and the availability of advanced communications capability. The FCC has also used these data to update its universal service policies, sometimes excluding certain areas from receiving support. Notably, the FCC collects Form 477 data for both fixed and mobile broadband.

Through Form 477, the FCC has required fixed-broadband providers to identify the census blocks in which their service is -- or *could be* -- available. As a result, if a provider could serve even a single household in a census block, the FCC has counted the *entire* census block as being served. In a [2018 report](#), the Government Accountability Office (GAO) found that the FCC's fixed broadband availability methodology overestimates broadband deployment by "counting an entire census block as served if only one location has broadband." GAO also found the FCC data overstated deployment by "allowing providers to report availability in blocks where they do not have any infrastructure connecting homes to their networks if the providers determine they could offer service to at least one household."

For mobile broadband service, the FCC's Form 477 requires providers to report their coverage areas by submitting maps depicting where consumers can expect to receive the minimum advertised services. In imposing this requirement, the FCC does not require providers to use a standardized method with defined technical parameters when determining their coverage areas. As a result, according to the FCC, its mobile broadband data cannot be compared across providers.

How is the FCC Trying to Improve Its Broadband Data?

In August, the FCC changed course and [decided to require](#) fixed-broadband providers to submit new maps of the areas in which their services are available. As part of this new data collection, the FCC will require providers to submit data using shapefiles—or polygons—rather than on a census block basis. This new collection is similar to the FCC's Form 477 data in that it will allow providers to submit availability data based on where a provider has a current connection or "*could provide such a connection within ten business days of a customer request.*" The FCC also required the Universal Service Administrative Company (USAC) to create an online portal for "local, state, and tribal governmental entities and members of the public to review and dispute the broadband coverage polygons filed by fixed providers." The order leaves the current Form 477 system in place, but requests comment on whether the FCC should sunset some or all of the Form 477 collection. The FCC also asked additional questions about whether it should require more granular data for fixed providers, how to account for satellite providers, how to improve mobile broadband coverage data, and how to better incorporate public feedback in the data collection process, among other things.

How Is Congress Proposing to Correct the Data Problems?

This week's hearing was a discussion about legislation proposed in the House to improve broadband deployment data collection. Five bills were on the agenda:

1. On May 9, 2019, Reps. Bob Latta (R-OH) and Peter Welch (D-VT) introduced the [Broadband Mapping After Public Scrutiny Act of 2019](#) (MAPS Act or H.R. 2643). The MAPS Act would require the FCC to establish a challenge process to be used to verify the collection and use of fixed and mobile broadband service coverage data submitted to the FCC by private entities and governmental entities to verify fixed and mobile broadband coverage. The bill has four additional co-sponsors.
2. Six Members united to propose the [Broadband Data Improvement Act of 2019](#) (H.R. 3162) on June 6. The bill would require the FCC to establish a rule that each broadband provider submit, biannually, information regarding the geographic availability of the broadband service it provides, as well as a challenge process in which the validity of the information in the National Broadband Map could be challenged by a provider or member of the public. The National Broadband Map would then be used by Federal agencies to determine the extent of the availability of broadband service. In addition, under this Act, the FCC would select an entity to assist with collecting the information, supporting the challenge process, creating the National Broadband Map, and tracking and validating how funds are made available and used for the development of broadband infrastructure. The legislation also specifies that it shall be unlawful for a person to willfully and knowingly submit information or data that is inaccurate with respect to the availability of broadband internet access service. The FCC would be authorized to be appropriated \$55 million for 2020, as well as an additional \$50 million for every year through 2026 to implement the legislation. The bill now has 34 co-sponsors.

3. Reps. Ben Luján (D-NM), Gus Bilirakis (R-FL) and Mike Doyle (D-PA), the chairman of the Communications Subcommittee introduced the [Map Improvement Act of 2019](#) (H.R. 4128) on July 30, 2019. The bill would require the FCC, in coordination with Department of Commerce's National Telecommunications and Information Administration (NTIA), to establish a standardized methodology for collecting and mapping fixed and mobile broadband internet service coverage data in the United States. The bill would also require a standardized challenge process to verify coverage data from providers and challenge any aspects of the data believed to be inaccurate. The FCC would be required to establish an Office of Broadband Data Collection and Mapping within the Commission to serve as the central point of data collection, aggregation, and validation. The NTIA would be required to establish a technical assistance program under which the Assistant Secretary would provide grants to state and local entities to assist with data collection.
4. Recently, Reps. David Loebsack (D-IA) and Bob Latta (R-OH) introduced the [Broadband Deployment Accuracy and Technological Availability Act](#) (Broadband Data Act or H.R. 4229). The bill would require the FCC to issue new rules to require the collection and dissemination of granular broadband availability data. It would also require the FCC to establish a process to verify the accuracy of such data, including by using data submitted by other government entities or the public. In addition, it would require the FCC to use this data to create coverage maps based on a serviceable location fabric map regarding fixed broadband. The bill has four co-sponsors.
5. Finally, the [Mapping Accuracy Promotes Services Act](#) (MAPS Act or H.R. 4227) was introduced on September 6, 2019 by Reps. Donald McEachin (D-VA) and Billy Long (R-MO). The MAPS Act specifies that it is unlawful for a person to willfully, knowingly, or recklessly submit broadband service data that is inaccurate. The bill has four co-sponsors.

News from the Hearing

The hearing included testimony from six expert witnesses:

- James M. Assey Executive Vice President NCTA—The Internet & Television Association
- Shirley Bloomfield Chief Executive Officer NTCA—The Rural Broadband Association
- Dana J. Floberg Policy Manager Free Press & Free Press Action
- Jonathan Spalter President and CEO USTelecom Association
- Grant Spellmeyer Vice President, Federal Affairs & Public Policy U.S. Cellular
- James W. Stegeman President/CEO CostQuest Associates

Cable and Internet trade group representative Assey [asked](#) the subcommittee to consider three concerns from the cable industry:

- Mapping efforts should produce demonstrably better information than what is available today and should not impose unreasonable burdens on providers to achieve this goal,
- Mapping should track not only where providers have already deployed, but where they have been *awarded funds to deploy* in the future, whether from federal or state programs, and
- Avoid getting sidetracked by attempts to layer in "extraneous" types of data that are not relevant to the consideration of *whether broadband service is or is not available* in a particular geographic area. ["Extraneous data" apparently means subscription, actual speeds delivered, pricing, and latency.]

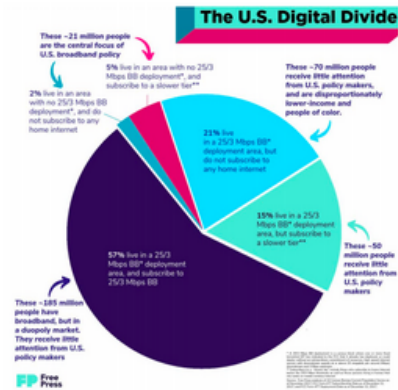
There are a few key concepts that must be adopted and implemented to achieve reliable and accurate maps, NTCA's [Bloomfield said](#):

- Standardization Is Critical to Get an Accurate, Apples-to-Apples Depiction of U.S. Broadband Availability
- Use Crowdsourcing in a Smart Way to “Sanity Check” Self-Reported Data
- Pursue a Robust Challenge Process Before Using Data to Make Funding or Other Policy Decisions

Bloomfield said that latency and usage limits are important performance characteristics to track.

Free Press' Dana Floberg testified that Form 477 data is inaccurate, but perhaps not as inaccurate as many fear. She stressed that bridging the digital divide will require far more than improving the detail of our nation's broadband-deployment maps. The FCC, she said, must also take a serious look at how broadband affordability and racial discrimination make it harder for people to get online. Furthermore, Congress must ensure that the public is able to access the information that the agency collects.

U.S. Cellular's Spellmeyer was representing mainly wireless carriers at the hearing and noted U.S. Cellular's support for the bills before the subcommittee. He specifically spoke to provisions of the Broadband DATA Act which he said are essential to a successful legislative effort. He stressed standardizing cell edge probabilities and cell loading, so that "what appears on the map more closely aligns with what people experience when they use their devices."



USTA's Spalter outlined the work his organization has done with CostQuest on a Broadband Mapping Initiative pilot to "map the gap" in broadband availability in the United States. He also voiced support for the Broadband DATA Act and the MAPS Act. "Together, they would wisely combine multiple datasets to produce a granular-level fabric of data that can be used to pinpoint the location of the unserved," he said.

CostQuest's James Stegeman gave the subcommittee lengthy written testimony an overview of the Broadband Mapping Initiative, an assessment of current broadband coverage and how the use of a national location-specific dataset, what CostQuest refers to as the Broadband Serviceable Location Fabric, can provide specificity of who has access to broadband service and who does not. He urged the subcommittee to consider the following:

- We need a national Broadband Serviceable Location Fabric dataset. The CostQuest pilot showed that the national Fabric can be constructed, helps reveal the unserved home and businesses in the country, and can be accomplished in a reasonable timeframe at a modest budget.
- We need to link the fabric to the FCC's upcoming Digital Opportunity Data Collection (DODC) efforts. Without the fabric, the DODC polygons will only depict images of what is served. There is no reporting of the unserved.
- We need to maintain the fabric as a living dataset that improves over time and recognizes the changes in locations for homes and businesses.

Next Steps

Although we see consensus that there's a problem with broadband data collection, it's only a start. We have a ways to go to a solution. Back in July, the Senate Commerce Committee passed its version of a broadband data solution, the Broadband Deployment Accuracy and Technological Availability (DATA) Act. That bill now is co-sponsored by nearly half of the Senate, but it awaits a floor vote. The legislation considered this week requires a subcommittee and full committee mark-up, floor time, and consideration from the Senate. All that's a lot of hurdles as we hurtle towards a presidential election year.

ATTACHMENT F

BLOOMBERG LAW, “FCC TO WEIGH BROADBAND MAPPING ORDER IN AUGUST”

https://news.bloomberglaw.com/tech-and-telecom-law/fcc-to-vote-in-august-to-improve-broadband-mapping Bloomberg LP [US] Search...

Weigh Broadband ...

FCC to Weigh Broadband Mapping Order in August (1)

June 12, 2019, 7:40 AM; Updated: June 12, 2019, 12:02 PM

- Plan would require more in-depth ISP data, permit public feedback
- Pai says FCC working to open up 5G spectrum

The Federal Communications Commission will vote in August on an order aimed at creating a more precise U.S. map of internet access.

The agency is moving to improve its broadband mapping data as it gears up to dole out more than \$20 billion in telecom subsidies over the next decade to expand high-speed internet access to unserved parts of the country.

“I intend to circulate a report and order at the FCC’s monthly meeting in August that would result in a more granular, and more accurate broadband map,” commission chairman Ajit Pai said at a Senate Commerce, Science and Transportation Committee oversight hearing. “That means requiring broadband providers to report where they actually offer service below the census block level, and looking to incorporate public feedback into our mapping efforts.”

The FCC relies on broadband data submitted by providers such as AT&T Inc. to determine which areas of the country lack internet access and should be eligible for subsidies to improve coverage.

Democrats and Republicans have criticized the FCC for relying on flawed data that tends to overstate broadband access in rural areas.

At the hearing, Sen. Jon Tester (D-Mont.) said Pai’s proposed new broadband data requirements should be matched with penalties against ISPs that submit inaccurate information.

“I really think it’s going to be incumbent on the FCC, and especially you, to let the folks know, even with your rule, that if they don’t take this stuff seriously, they’re going to pay the price,” Tester told Pai.

Pai said he’d get back to the committee on what actions the FCC can take to punish carriers that submit inaccurate data.

5G Spectrum

Pai said the FCC is working as “quickly as we can” to make airwaves in the 3.7-4.2 GHz band, also called the C-band, available to wireless carriers for 5G networks. The commission is weighing whether to let satellite companies that are using the spectrum to sell their access rights to the carriers, instead of holding a public spectrum auction.

Sen. Richard Blumenthal (D-Conn.) raised concerns about news of White House officials attempting to interfere with the agency’s review of the proposed merger of T-Mobile US Inc. and Sprint Corp. Pai said the White House hadn’t contacted him about the merger and he wasn’t aware that the White House contacted any FCC commissioners.

Pai last month announced that he supports the \$26 billion merger deal after the companies vowed to build out broadband service to rural areas and divest from one of their three prepaid phone brands.

To contact the reporter on this story: Jon Reid in Washington at jreid@bloomberglaw.com

Jon Reid
Reporter

Related Articles

[Telecom, Cable Groups Push Rival Plans on FCC Broadband Mapping](#)
May 13, 2019, 1:45 AM

ATTACHMENT G - CPUC BROADBAND DATA REQUEST

STATE OF CALIFORNIA

GAVIN NEWSOM, Governor

PUBLIC UTILITIES COMMISSION
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94103-3296



Response Requested by April 1, 2019

February 8, 2019

To: California Broadband and State-Franchised Video Service Providers

Subject: **Request for Broadband Deployment and Subscription Data as of Dec. 31, 2018**

If you submitted broadband data to us last year, thank you. If this is your first time submitting broadband data, it is important to know that we collect broadband deployment and subscriber data to determine areas where broadband is available. Areas where broadband is not available may be eligible for a [California Advanced Services Fund \(CASF\)](#) grant to deploy network facilities.

Pursuant to Public Utilities Commission Decision [D.16-12-025](#)¹, all communications providers certificated and/or registered with the California Public Utilities Commission (CPUC), that also file Form 477 with the Federal Communications Commission, shall submit annually to the Communications Division by April 1st, broadband subscriber and deployment data at a *Census Block level* as of the prior calendar year's end in a form as designated by Communications Division Staff. Only Mobile providers may submit broadband subscriber data at the Census Tract level. All providers may fulfill the subscriber reporting requirement by submitting subscriber data at the more granular street address level.

Broadband data is to be submitted in the formats posted on the [Broadband Mapping Program](#) website. Please download the data formats, workbooks, and/or shapefiles appropriate for your submission. By not submitting your data in the above referenced formats, your data submittal will not be included on the [California Interactive Broadband Map](#), which could potentially open those areas to CASF grants.

FIXED WIRELESS PROVIDERS

Starting this 2019 data collection cycle, Fixed Wireless providers are no longer required to submit tower location information. Please submit data pursuant to the above instructions.

STATE VIDEO FRANCHISE HOLDERS

Every State Video Franchise (SVF) Holder is required by DIVCA to submit an Annual Report to the CPUC each year (Section 5960 of the CA Public Utilities Code). In addition to video availability and video subscriber data, SVF Holders must also report broadband availability (same as "deployment") and broadband subscriber data, as well as other information that is required in the Annual Report. If your organization is a SVF Holder, please check the Annual Reporting (for Holders) section of the CPUC's [Video Franchising web page](#) for reporting instructions, and continue sending your reports (per DIVCA) to the Video Franchising Group.

¹ Decision 16-12-025, Ordering Paragraph 1.

DEFINITIONS

The CPUC uses the FCC definitions described below:

Broadband: Lines (or wireless channels) that terminate at an end-user location and enable the end user to receive information from and/or send information to the Internet at information-transfer rates exceeding 200 kbps in at least one direction.

Broadband Deployment: Fixed broadband connections are deployed in a Census Block if the provider does, or could, within a service interval that is typical for that type of connection—that is, without an extraordinary commitment of resources—provision two-way data transmission to and from the Internet with advertised speeds exceeding 200 kbps in at least one direction to end-user premises in the Census Block. Companies that would rely on the ordering or installation of a not-yet-leased circuit (including unbundled network elements defined in 47 C.F.R. § 51.319, TDM-based connections, or packet-based connections) to provide service in a Census Block not currently served, should NOT treat that Census Block as having service. Dark fiber acquired under an Indefeasible Right of Use (IRU) should be considered the “owned” facilities of the company that acquired the IRU when the dark fiber is used as part of that entity’s own system.

California Interactive Broadband Map for public use

Providers’ contact information is included on the [California Interactive Broadband Map](#), so that people in areas served by your organization can contact you for more information or to order service. **If you do not wish to have contact information available to those who may wish to purchase service from you, please let us know in writing.**

Confidentiality of submitted data

Pursuant to [CA Public Utilities Code Sec. 583](#), no information furnished to the commission by a public utility, or a corporation which holds a controlling interest in a public utility, shall be open to public inspection or made public except on order of the commission. **Please identify any information that you consider confidential.**

Please submit the requested data no later than **Monday, April 1, 2019** in accordance with the instructions on the CPUC’s [State Broadband Mapping Program](#) webpage and the [Video Franchising](#) webpage. Send questions or comments to broadbandmapping@cpuc.ca.gov.

Thank you for your assistance and cooperation.

Sincerely,

Robert Wullenjohn
Program Manager,
Broadband, Video and Market Branch

ATTACHMENT H

CPUC DATA FORMAT FOR BROADBAND SUBSCRIBERS BY CENSS BLOCK

Data Format for Broadband Subscribers by Census Block

Please submit your data using the corresponding '*Broadband Subscribers Census Block Workbook*'.

DATA FIELDS:

Field	Description	Type	Example
DBA Name	Doing Business As (DBA) Name of your company. In other words, the name of the entity customers could contact to purchase service.	Text	AAA Company
FRN	Provider FCC Registration Number – search here (<i>ONLY numbers no other characters</i>)	Text	0008402202
Block Code	15-digit US Census Block code. ALL California Census codes begin with "06". See More about Census Blocks .	Text	060010062021037
Broadband Data			
Technology of Transmission (TechCode)	<p>Category of technology for the provision of Internet access service used by the portion of the connection that would terminate at the end-user location (premises). Acceptable codes for this section are:</p> <p>10 = Asymmetric xDSL 11 = ADSL2, ADSL2+ 12 = VDSL 20 = Symmetric xDSL* 30 = Other Copper Wireline (all copper-wire based technologies other than xDSL; Ethernet over copper and T-1 are examples) 40 = Cable Modem other than DOCSIS 1, 1.1, 2.0, 3.0 or 3.1 41 = Cable Modem – DOCSIS 1, 1.1 or 2.0 42 = Cable Modem – DOCSIS 3.0 43 = Cable Modem – DOCSIS 3.1 50 = Optical Carrier / Fiber to the end user (Fiber to the home or business end user, does not include "fiber to the curb") 70 = Terrestrial Fixed Wireless 90 = Electric Power Line 0 = All Other</p> <p>If different technologies could be used in the two directions of information transfer (downstream and upstream), report the connection in the technology category for the downstream direction.</p> <p>*Symmetric xDSL is a set of technologies distinct from Asymmetric xDSL technologies. Symmetric xDSL services are designed to only operate with equal information-transfer rates downstream and upstream and they are not typically marketed to residential end users.</p>	Integer	10
Subscriber Downstream Bandwidth (SubscrDown)	The downstream speed in Mbps to which the customer in this Census Block subscribes (i.e. 12). You may enter up to 3 decimal places (768 kbps would be entered as .768)	Float	12

Subscriber Upstream Bandwidth (<i>SubscrUp</i>)	The upstream speed in Mbps to which the customer in this Census Block subscribes (i.e. 1.5). You may enter up to 3 decimal places (768 kbps would be entered as .768)	Float	1.5
Total Connections (<i>TotalConnect</i>)	Number of connections in this Census Block for this combination of technology code, upstream bandwidth and downstream bandwidth.	Integer	100
Consumer Connections (<i>ConsumConnect</i>)	Number of connections (no longer percentage of connections!) in this Census Block for this combination of technology code, upstream bandwidth and downstream bandwidth provided in consumer-grade service plans. Consider connections to be "consumer" or "residential" when they deliver Internet-access services that are primarily purchased by, designed for, and/or marketed to residential end users.	Integer	45

ATTACHMENT I
FCC, “FCC ESTABLISHES NEW DIGITAL OPPORTUNITY DATA COLLECTION”



Media Contact:

Mark Wigfield, (202) 418-0253
mark.wigfield@fcc.gov

For Immediate Release

**FCC ESTABLISHES NEW DIGITAL OPPORTUNITY DATA
COLLECTION**

*Will Collect Granular Geospatial Data Critical to Identifying Gaps in Fixed
Broadband Availability*

WASHINGTON, August 1, 2019—Moving to better identify gaps in broadband coverage across the nation, the Federal Communications Commission today initiated a new process for collecting fixed broadband data to better pinpoint where broadband service is lacking.

Today’s *Report and Order and Second Further Notice of Proposed Rulemaking* concludes that there is a compelling and immediate need to develop more granular broadband deployment data to meet this goal, and accordingly, creates the new Digital Opportunity Data Collection.

To provide the data required by the Commission, the *Report and Order*, among other steps:

- Establishes the Digital Opportunity Data Collection—a new data collection that will collect geospatial broadband coverage maps from fixed broadband Internet service providers of areas where they make fixed service available. This geospatial data will facilitate development of granular, high-quality fixed broadband deployment maps, which should improve the FCC’s ability to target support for broadband expansion through the agency’s Universal Service Fund programs.
- Adopts a process to collect public input on the accuracy of service providers’ broadband maps, facilitated by a crowd-sourcing portal that will gather input from consumers as well as from state, local, and Tribal governments.
- Makes targeted changes to the existing Form 477 data collection to reduce reporting burdens for all filers and incorporate new technologies.

The *Second Further Notice of Proposed Rulemaking* seeks comment on a number of issues, including:

- Possible additional technical standards for fixed broadband providers that could ensure greater precision for the Digital Opportunity Data Collection deployment reporting and ways the Commission can incorporate location-specific fixed broadband deployment data in this new data collection;
- Collection of more accurate, reliable mobile wireless voice and broadband coverage data and incorporation of this information into the Digital Opportunity Data Collection; and,
- Sunsetting the Form 477 broadband deployment collection following the full implementation of the Digital Opportunity Data Collection.

The new data collection will take effect after the Office of Economics and Analytics issues a notice announcing the availability of the new collection platform as well as reporting deadlines.

Action by the Commission August 1, 2019 by Report and Order and Second Further Notice of Proposed Rulemaking (FCC 19-79). Chairman Pai, Commissioners O’Rielly and Carr approving. Commissioners Rosenworcel and Starks approving in part and dissenting in part. Chairman Pai, Commissioners O’Rielly, Carr, Rosenworcel, and Starks issuing separate statements.

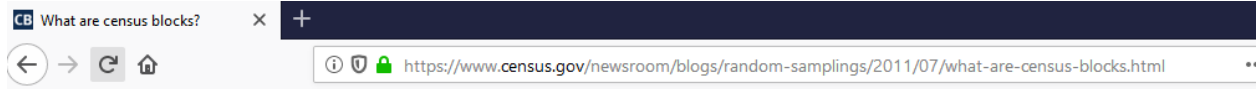
WC Docket Nos. 19-195, 11-10

###

Media Relations: (202) 418-0500 / **ASL:** (844) 432-2275 / **TTY:** (888) 835-5322 / **Twitter:** @FCC / www.fcc.gov

This is an unofficial announcement of Commission action. Release of the full text of a Commission order constitutes official action. See MCI v. FCC, 515 F.2d 385 (D.C. Cir. 1974).

ATTACHMENT J - US CENSUS BUREAU, “CENSUS BLOCKS”



Census Blogs

- About Census Blogs
- Director's Blog
- Global Reach
- Random Samplings
- Research Matters
- Comment Policy
- < [Back to Random Samplings](#)



What are census blocks?

Mon Jul 11 2011
KATY ROSSITER



SUBSCRIBE



Census blocks are:

- Statistical areas bounded by visible features such as roads, streams, and railroad tracks, and by nonvisible boundaries such as property lines, city, township, school district, county limits and short line-of-sight extensions of roads.
- The building blocks for all geographic boundaries the Census Bureau tabulates data for, such as tracts, places, and American Indian Reservations.
- Generally small in area. In a city, a census block looks like a city block bounded on all sides by streets. Census blocks in suburban and rural areas may be large, irregular, and bounded by a variety of features, such as roads, streams, and transmission lines. In remote areas, census blocks may encompass hundreds of square miles.
- A wall-to-wall coverage across the entire territory of the United States, Puerto Rico, and the Island Areas.
- Numbered uniquely with a four-digit census block number ranging from 0000 to 9999 nesting within each census tract, which nest within state and county. The first digit of the census block number identifies the block group. Block numbers beginning with a zero (in Block Group 0) are associated with water-only areas.
- Delineated by the U.S. Census Bureau once every ten years. An automated computer process looks for all visible and nonvisible features in our geographic database (MAF/TIGER) that should be a block boundary and creates a block each time those features create a polygon.
- The smallest level of geography you can get basic demographic data for, such as total population by age, sex, and race.

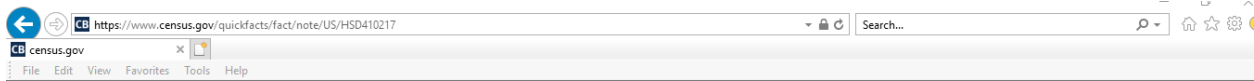


Census blocks are not:

- Delineated based on population. In fact, many census blocks do not have any population.
- Permanent throughout the decade. They may be split when a change in another geographic boundary occurs, such as an incorporated place annexation. If a block is split in between decades, a suffix will be added to the block number. For example, block 1000 would become block 1000A and 1000B.
- A boundary that can be used with [American Community Survey \(ACS\) data](#). ACS data only go down to the block group level.

If you'd like to learn more, visit these [links to block-related products created by the U.S. Census Bureau](#):

1 ATTACHMENT K - US CENSUS BUREAU, "CENSUS QUICK FACTS"



Households and Persons Per Household

Sources: U.S. Census Bureau, American Community Survey (ACS) and Puerto Rico Community Survey (PRCS), 5-Year Estimates. The PRCS is part of the Census Bureau's ACS, [customized for Puerto Rico](#). Both Surveys are updated every year. [American FactFinder](#)

Definition

A household includes all the persons who occupy a housing unit as their usual place of residence. A housing unit is a house, an apartment, a mobile home, a group of rooms, or a single room that is occupied (or if vacant, is intended for occupancy) as separate living quarters. Separate living quarters are those in which the occupants live and eat separately from any other persons in the building and which have direct access from outside the building or through a common hall. The occupants may be a single family, one person living alone, two or more families living together, or any other group of related or unrelated persons who share living arrangements. (People not living in households are classified as living in group quarters.)

Persons per household, or average household size, is obtained by dividing the number of persons in households by the number of households (or householders). For the complete definition, go to [ACS subject definitions](#) "Average household size."

Source and Accuracy

This Fact is based on data collected in the American Community Survey (ACS) and the Puerto Rico Community Survey (PRCS) conducted annually by the U.S. Census Bureau. A sample of over 3.5 million housing unit addresses is interviewed each year over a 12 month period. This Fact (estimate) is based on five years of ACS and PRCS sample data and describes the average value of person, household and housing unit characteristics over this period of collection.

Statistics from all surveys are subject to sampling and nonsampling error. Sampling error is the uncertainty between an estimate based on a sample and the corresponding value that would be obtained if the estimate were based on the entire population (as from a census). Measures of sampling error are provided in the form of margins of error for all estimates included with ACS and PRCS published products. The Census Bureau recommends that data users incorporate this information into their analyses, as sampling error in survey estimates could impact the conclusions drawn from the results. The data for each geographic area are presented together with margins of error at [American FactFinder](#). A more detailed explanation of margins of error and a demonstration of how to use them is provided below.

For more information on sampling and estimation methodology, confidentiality, and sampling and nonsampling errors, please see the Multiyear Accuracy (US) and the Multiyear Accuracy (Puerto Rico) documents at "Documentation - [Accuracy of the data](#)."

Margin of Error

As mentioned above, ACS estimates are based on a sample and are subject to sampling error. The margin of error measures the degree of uncertainty caused by sampling error. The margin of error is used with an ACS estimate to construct a confidence interval about the estimate. The interval is formed by adding the margin of error to the estimate (the upper bound) and subtracting the margin of error from the estimate (the lower bound). It is expected with 90 percent confidence that the interval will contain the full population value of the estimate. The following example is for demonstrating purposes only. Suppose the ACS reported that the percentage of people in a state who were 25 years and older with a bachelor's degree was 21.3 percent and that the margin of error associated with this estimate was 0.7 percent. By adding and subtracting the margin of error from the estimate, we calculate the 90-percent confidence interval for this estimate:

$21.3\% - 0.7\% = 20.6\% \Rightarrow$ Lower-bound estimate
 $21.3\% + 0.7\% = 22.0\% \Rightarrow$ Upper-bound estimate

Therefore, we can be 90 percent confident that the percent of the population 25 years and older having a bachelor's degree in a state falls somewhere between 20.6 percent and 22.0 percent.

For this Fact, its estimates and margins of error along with percents and percent margins of errors can be found on [American Community Survey, Data Profiles-Social Characteristics](#)

More Information

- [Questions on the ACS form and why we ask](#)
- [ACS methodology](#)
- [Families and living arrangements](#)

2

3

ATTACHMENT L: "EMAIL FROM WILLIAM CHARLEY 10/4/2019"

CHCF-A -- Meet and Confer Re Calaveras/Cal PA PHH-005, Q6 - Message (HTML)

File Message Help Tell me what you want to do

Ignore Delete Archive Reply Reply All Forward Meeting Reply & Delete More - Move to: ? To Manager Team Email Done Reply & Delete Create New Move OneNote Assign Policy Mark Unread Categorize Follow Up Translate Related Select Read Aloud Zoom Report Phishing PhishMe

CHCF-A -- Meet and Confer Re Calaveras/Cal PA PHH-005, Q6

William Charley <WCharley@cwclaw.com>
To: Choe, Candace
Cc: Patrick Rosval; Darren Lee; Parker, Jayne; Watts-Zagha, Camille

Cullen Declaration PHH-005-Q(6).pdf 60 KB
Further Supplemental Response to PHH-005-Q(6).xlsx 20 KB

Candace,

Over the past couple of weeks, we have diligently worked with Calaveras to provide additional information responsive to the Cal PA questions about the 2017 and 2018 deployment data. During this review, we have come to the conclusion that neither the 2017 nor the 2018 Form 477 data is accurate. The inaccuracies stem from several factors, most significantly the fact that Calaveras's system contained imprecise information about the blocks in which certain addresses reside. That has been corrected, but we do not believe we can go back and "fix" 2017 or 2018.

In addition, Calaveras has a systemic limitation in gathering this data, as it does not currently have engineering/mapping capabilities that can show pure "deployment" data outside of its billing system. Because of Calaveras's reliance on the billing system, its deployment data is limited by whether or not it has a customer at the designated speed level in the designated census block. This is not an accurate way to depict capabilities, as we have explained previously. Nevertheless, Calaveras does not currently have a reasonable way to produce deployment information other than to go through the billing system. Calaveras is working to improve this and intends to do so in the coming weeks.

The best data that Calaveras can offer at this time is deployment data as of 10/3/19, which we generated yesterday using the billing system. The information is in the attached spreadsheet labeled "Further Supplemental Response to PHH-005-Q(6)." We do not believe this can be compared to the 2017 or 2018 data that was previously reported, but we do believe it is an accurate depiction of current capabilities. Calaveras is continuing to work on more accurate mapping processes to better pinpoint its network deployment. As such, Calaveras reserves the right to supplement this response with more accurate data, once, and if, that data becomes available to it.

Please note that the information in the attachment is confidential and is designated as such in compliance with G.O. 66-D, Section 3.2. This confidentiality designation is supported by the attached confidentiality declaration of Rose Cullen, Chief Financial Officer of Calaveras. This information contains competitively sensitive information, which could inform unfair competition against Calaveras. Network deployment information is a trade secret because it constitutes a "pattern" or "compilation" that derives economic value from not being known to the public and Calaveras's competitors, and Calaveras maintains this information as confidential. See Cal. Gov. Code § 6254(k); Cal. Civ. Code § 3426.1(d); Cal. Evid. Code § 1060. Information of this sort is also protected under the CPRA "balancing test" because its disclosure could distort the competitive market without any corresponding public benefit. Cal. Gov. Code § 6255.

We believe that this final submission completes our agreed upon meet and confer requirements regarding the Small ILECs deployment data (with a potential Calaveras update to come later), but please advise if you believe otherwise.

Thanks,
Bill

Best regards,

Bill Charley
COOPER
WHITE &
COOPER

201 California Street, 17th Floor
San Francisco, CA 94111
Email WCharley@cwclaw.com
Telephone (415) 765-0320

Please consider the environment before printing.

ATTACHMENT M: CPUC SMALL ILEC EXCHANGE AREAS



ATTACHMENT N

2010 CENSUS URBAN AND RURAL CLASSIFICATION AND URBAN AREA CRITERIA

https://www.census.gov/programs-surveys/geography/guidance/geo-areas/urban-rural/2010-urban-rural.html

Census Urban and Rural... X

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2010 Census Urban and Rural Classification and Urban Area Criteria

The Census Bureau's urban-rural classification is fundamentally a delineation of geographical areas, identifying both individual urban areas and the rural areas of the nation. The Census Bureau's urban areas represent densely developed territory, and encompass residential, commercial, and other non-residential urban land uses.

For the 2010 Census, an urban area will comprise a densely settled core of census tracts and/or census blocks that meet minimum population density requirements, along with adjacent territory containing non-residential urban land uses as well as territory with low population density included to link outlying densely settled territory with the densely settled core. To qualify as an urban area, the territory identified according to criteria must encompass at least 2,500 people, at least 1,500 of which reside outside institutional group quarters. The Census Bureau identifies two types of urban areas:

- Urbanized Areas (UAs) of 50,000 or more people;
- Urban Clusters (UCs) of at least 2,500 and less than 50,000 people.

"Rural" encompasses all population, housing, and territory not included within an urban area.