Central Coast Broadband Consortium

The Honorable Lena Gonzalez
State Capitol, Room 2068
Sacramento, CA 95814

May 15, 2020

RE: Support for SB 1130 - Telecommunications: California Advanced Services Fund

Dear Senator Gonzalez,

As chair of the Central Coast Broadband Consortium (CCBC), I wish to express our strong support for Senate Bill 1130, and to thank you for introducing it. SB 1130 would set modern, high speed broadband standards for our region, and all of California. Broadband infrastructure and service that meets 21st century standards is a necessity for all Californians, not just for those fortunate to live in communities that are sufficiently affluent and centrally located to meet the return on investment requirements of incumbent telecommunications corporations.

The CCBC is the California Public Utilities Commission's designated, and funded, Regional Broadband Consortium representing Monterey, San Benito and Santa Cruz counties. In a joint effort with the Monterey Bay Economic Partnership, we conducted an extensive survey of the broadband connectivity needs of our region. This survey produced three key findings:

1. Residential and business broadband needs are the same for all, regardless of location. A rancher in Bitterwater conducts business using the same online platforms and services as a software developer in Santa Cruz. A farmworker household in San Ardo needs access to the same online educational resources and information and entertainment services as their counterparts in Pebble Beach.
2. Modern educational, informational and entertainment resources, as well as online financial, social and governmental services require reliable residential broadband service at a minimum of 100 Mbps download and 20 Mbps upload speeds.
3. Small business needs can likewise be met with reliable broadband service at a minimum of 100 Mbps download and 20 Mbps upload speeds, but larger businesses – particularly those that employ large numbers of people – need access to faster speeds and higher quality connections.

The results of our survey are attached, as well as an analysis of broadband infrastructure in the State of California. SB 1130 will meet the needs and fill the gaps that we've identified. For these reasons, we strongly support SB 1130. Please feel free to contact me if you have any questions.

Sincerely,

Joel Staker
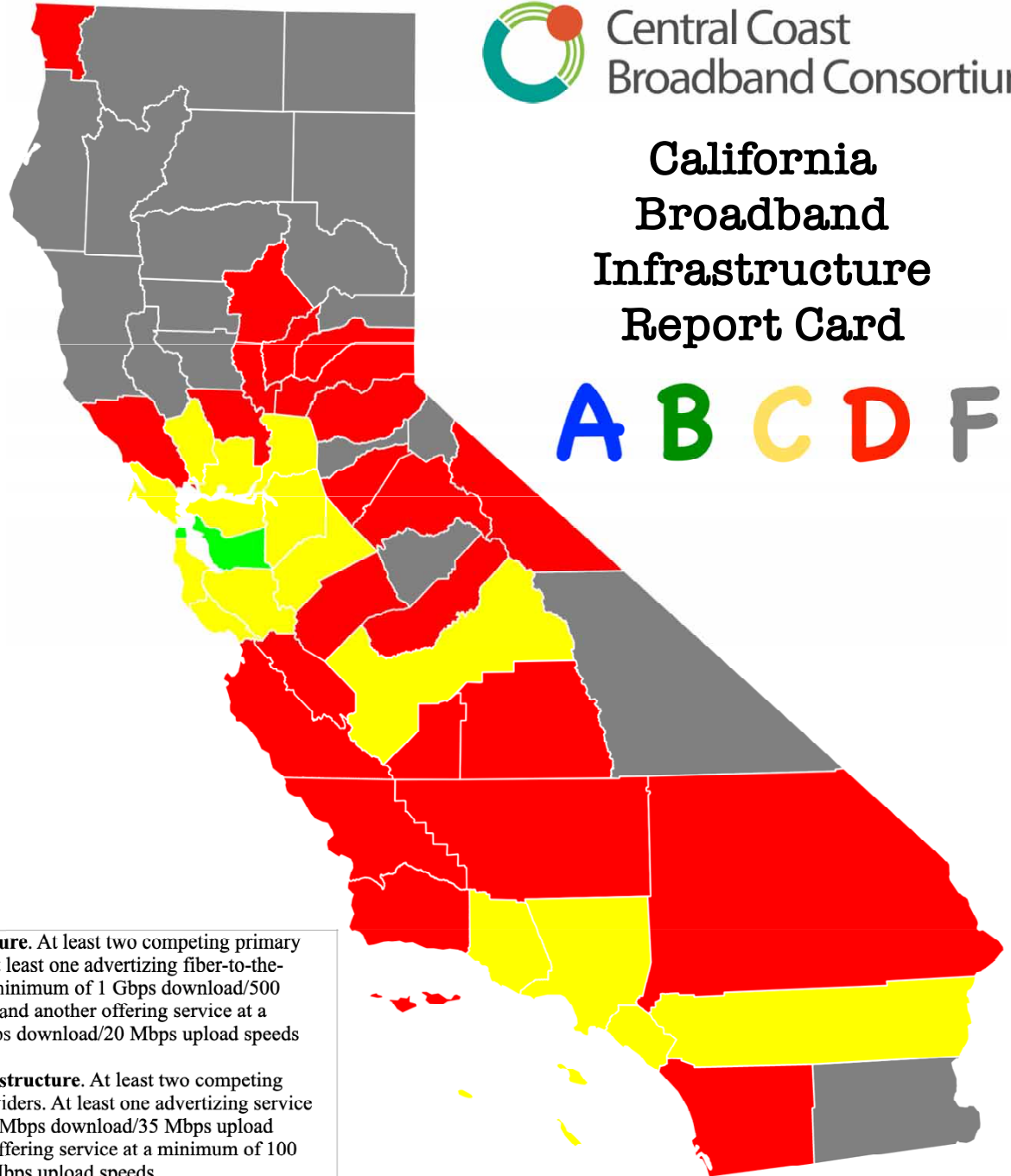Chair, Central Coast Broadband Consortium

Attachments

cc: Senator Anna Caballero
        Senator Bill Monning

Central Coast Broadband Consortium

California Broadband Infrastructure Report Card

A B C D F

A **Superior infrastructure**. At least two competing primary wireline providers. At least one advertizing fiber-to-the-premise service at a minimum of 1 Gbps download/500 Mbps upload speeds, and another offering service at a minimum of 400 Mbps download/20 Mbps upload speeds using any technology.

B **Above average infrastructure**. At least two competing primary wireline providers. At least one advertizing service at a minimum of 900 Mbps download/35 Mbps upload speeds, and another offering service at a minimum of 100 Mbps download/20 Mbps upload speeds.

C **Average infrastructure.** At least two competing primary wireline providers. At least one advertizing service at a minimum of 400 Mbps download/20 Mbps upload speeds, and another offering service at a minimum of 30 Mbps download/5 Mbps upload speeds.

D **Barely passing**. At least one wireline provider that meets the Central Coast Broadband Consortium/Monterey Bay Economic Partnership minimum standard of 100 Mbps download and 20 Mbps upload speeds.

F **Fail**. At least one wireline provider offers service, but no service is available that meets the Central Coast Broadband Consortium/Monterey Bay Economic Partnership minimum standard of 100 Mbps download and 20 Mbps upload speeds.

F- **Unserved**. No broadband service available

Data used in this analysis was submitted by Internet service providers to the California Public Utilities Commission and the Federal Communications Commission, and is current as of 31 December 2018.

The Central Coast Broadband Consortium's online map shows Report Card and other broadband infrastructure data for California:

Central Coast Broadband Consortia online map

Tabular data are here:
Central Coast Broadband Consortium wireline broadband availability analysis (22 March 2020 revision)

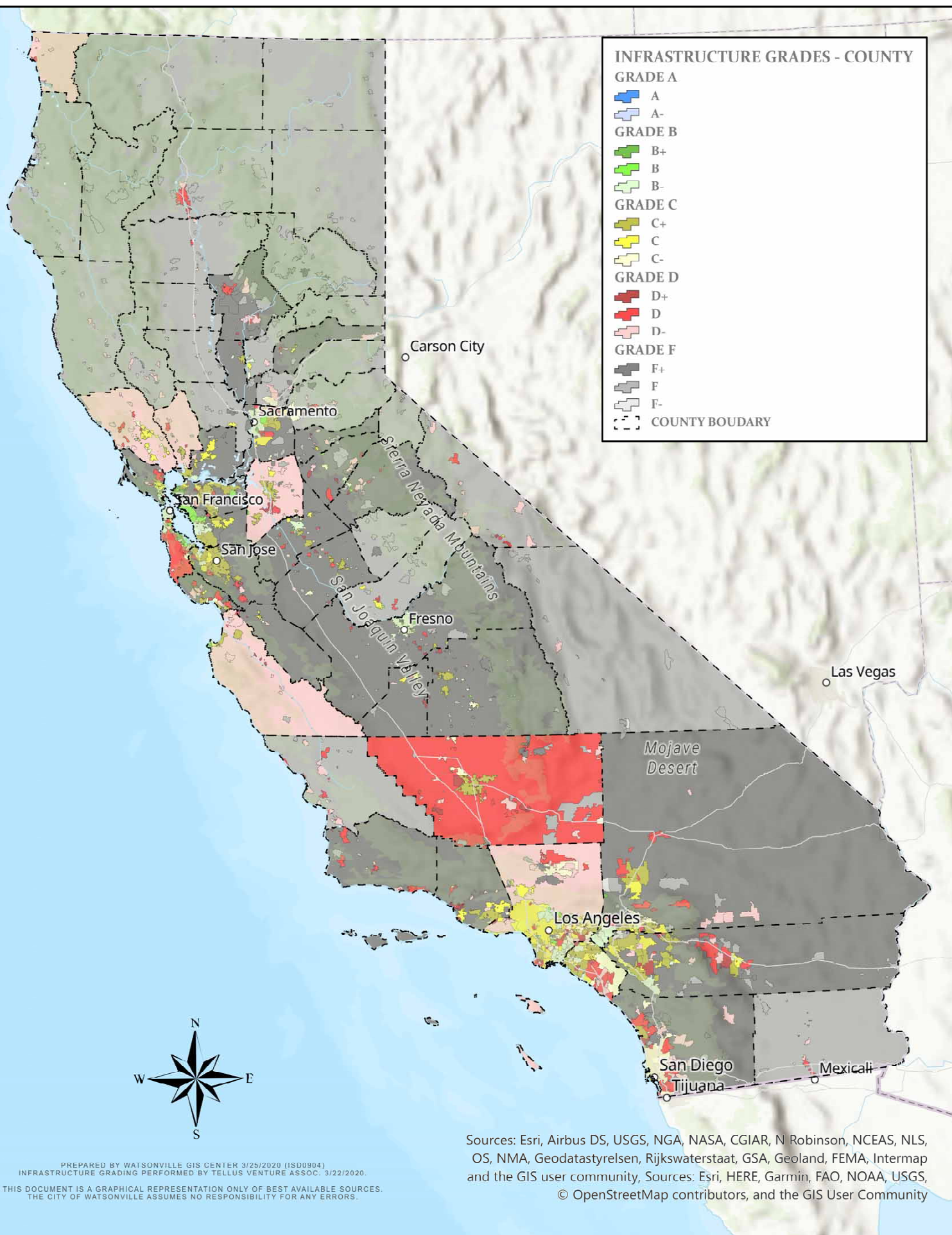| County	Grade	GPA	Median HH income	Population 2019	Pop at Zero service	Pop at 6/1	Pop at 10/1	Pop at 25/3	Pop at 100/20	Pop at 1000/500
Alameda	B-	2.77	$96,623	1,669,301	42,183	1,625,420	1,625,420	1,625,328	1,624,526	777,443
Alpine	F	0.04	$63,330	1,162	964	184	184	93	93	0
Amador	F+	0.61	$59,360	38,294	7,304	29,955	29,955	29,704	16,273	8,794
Butte	D-	0.68	$48,900	226,466	17,220	202,173	202,173	202,021	202,015	908
Calaveras	D-	0.84	$43,709	45,117	6,395	37,631	37,598	36,481	32,803	7,333
Colusa	F+	0.62	$55,333	22,117	9,972	11,912	11,902	11,687	8,724	3,125
Contra Costa	C+	2.40	$99,646	1,155,879	16,123	1,137,941	1,137,941	1,137,817	1,135,594	271,988
Del Norte	D-	0.78	$46,327	27,401	2,298	25,103	25,103	25,094	24,967	0
El Dorado	D-	0.70	$66,814	191,848	29,090	155,560	155,147	152,277	118,455	18,770
Fresno	C-	1.86	$53,004	1,018,241	58,250	928,507	928,474	911,406	892,284	416,031
Glenn	F+	0.41	$44,677	29,132	6,582	19,415	19,415	18,855	18,855	0
Humboldt	F	0.01	$43,351	135,333	19,729	111,202	111,186	110,201	4,656	2,678
Imperial	F+	0.52	$44,003	190,266	22,872	165,968	165,968	163,093	161,599	0
Inyo	F	0.17	$49,545	18,593	2,898	15,685	15,685	15,685	3,161	1,086
Kern	D+	1.41	$52,777	916,464	60,629	853,571	853,232	851,993	812,876	227,405
Kings	D	1.25	$44,243	153,710	31,351	117,502	117,502	116,989	116,867	21,557
Lake	F+	0.50	$39,469	65,071	8,931	49,561	49,561	49,073	49,044	5
Lassen	F	0.02	$40,141	30,150	16,885	11,393	11,044	8,970	1,420	780
Los Angeles	C	2.09	$71,244	10,253,715	123,278	10,117,079	10,114,383	10,099,184	10,020,081	1,491,396
Madera	D	0.96	$53,976	159,536	21,563	136,909	136,906	120,396	106,634	22,030
Marin	C-	1.70	$103,955	262,879	10,142	251,262	251,247	251,244	247,958	44,016
Mariposa	F	0.01	$53,020	18,068	4,270	13,332	13,332	1,621	665	545
Mendocino	F+	0.39	$49,229	89,009	22,110	64,377	64,377	63,241	60,134	165
Merced	D	1.24	$45,356	282,928	29,758	240,454	240,371	236,197	235,308	64,661
Modoc	F	0.01	$46,453	9,602	4,815	4,501	4,281	3,560	212	21
Mono	D-	0.72	$51,725	13,616	1,806	11,761	11,761	11,758	11,748	3,978
Monterey	D+	1.63	$66,576	445,414	25,796	415,779	415,779	413,959	411,606	64,361
Napa	C-	1.85	$81,413	140,779	9,643	129,893	129,893	129,555	129,080	23,844
Nevada	D-	0.69	$63,475	98,904	16,681	75,129	75,129	74,480	61,265	18,871
Orange	C	1.97	$90,950	3,222,498	95,492	3,117,814	3,117,810	3,114,447	3,102,956	631,080
Placer	D-	0.77	$69,455	396,691	23,527	364,684	364,684	358,814	254,737	72,227
Plumas	F	0.13	$54,063	19,779	6,980	12,685	12,459	7,696	4,562	4,050
Riverside	C-	1.85	$61,520	2,440,124	70,900	2,363,555	2,362,246	2,358,462	2,311,946	138,013
Sacramento	C+	2.30	$65,857	1,546,174	32,382	1,501,390	1,501,158	1,495,666	1,485,576	278,441
San Benito	D	1.17	$77,834	62,296	7,179	53,627	53,627	53,345	53,109	3,597
San Bernardino	D+	1.47	$53,008	2,192,203	62,384	2,125,625	2,122,675	2,113,136	2,094,985	61,085
San Diego	D+	1.33	$75,775	3,351,785	146,198	3,193,656	3,193,599	3,188,076	3,174,047	809,031
San Francisco	B-	2.73	$105,602	883,869	5,654	875,514	875,514	875,499	875,243	434,942
San Joaquin	C-	1.89	$61,184	770,385	39,920	724,429	724,213	722,354	717,529	115,364
San Luis Obispo	D-	0.71	$71,439	280,393	30,464	238,007	237,958	235,704	231,472	6,627
San Mateo	C+	2.63	$109,450	774,485	5,530	767,981	767,981	767,959	765,051	356,271
Santa Barbara	D-	0.86	$73,141	454,593	20,794	433,088	432,028	430,158	423,978	36,981
Santa Clara	C+	2.27	$114,959	1,954,286	56,749	1,894,086	1,893,868	1,892,893	1,879,862	493,878
Santa Cruz	C-	1.67	$79,281	274,871	15,745	258,099	258,094	257,890	255,805	61,596
Shasta	F+	0.49	$47,020	178,773	22,906	145,334	144,613	140,654	128,288	4,295
Sierra	F	0.03	$49,899	3,213	2,817	131	131	131	131	131
Siskiyou	F	0.00	$43,244	44,584	7,476	35,199	35,199	21,685	106	48
Solano	C-	1.79	$77,349	441,307	23,178	416,332	416,289	416,184	392,264	40,362
Sonoma	D+	1.56	$75,627	500,675	17,307	479,842	479,840	479,385	475,062	23,238
Stanislaus	C-	1.88	$56,162	558,972	23,859	529,325	529,000	526,042	522,228	106,628
Sutter	D+	1.51	$60,713	97,490	4,920	90,688	90,688	90,064	89,972	11,647
Tehama	F+	0.32	$44,185	64,387	21,362	34,336	34,172	31,531	31,298	236
Trinity	F	0.00	$38,118	13,688	11,379	1,865	1,865	1,865	0	0
Tulare	D+	1.34	$45,565	479,112	44,568	419,298	418,925	403,208	400,619	134,853
Tuolumne	D-	0.80	$53,722	54,590	12,280	38,533	38,533	38,267	37,892	9,495
Ventura	C-	1.72	$82,761	856,598	19,476	834,276	833,405	832,061	826,581	18,218
Yolo	D-	0.72	$64,825	222,581	19,234	199,757	199,652	195,318	141,673	20,589
Yuba	D+	1.39	$54,145	77,916	11,541	62,426	62,426	62,282	61,688	13,597
California total	C-	1.69	$68,011	39,927,313	1,491,734	38,170,740	38,157,599	37,982,739	37,247,563	7,378,314

County	Grade	GPA	Median HH income	Population 2019	% Pop at Zero service	% Pop at 6/1	% Pop at 10/1	% Pop at 25/3	% Pop at 100/20	% Pop at 1000/500
Alameda	B-	2.77	$96,623	1,669,301	3%	97%	97%	97%	97%	47%
Alpine	F	0.04	$63,330	1,162	83%	16%	16%	8%	8%	0%
Amador	F+	0.61	$59,360	38,294	19%	78%	78%	78%	42%	23%
Butte	D-	0.68	$48,900	226,466	8%	89%	89%	89%	89%	0%
Calaveras	D-	0.84	$43,709	45,117	14%	83%	83%	81%	73%	16%
Colusa	F+	0.62	$55,333	22,117	45%	54%	54%	53%	39%	14%
Contra Costa	C+	2.40	$99,646	1,155,879	1%	98%	98%	98%	98%	24%
Del Norte	D-	0.78	$46,327	27,401	8%	92%	92%	92%	91%	0%
El Dorado	D-	0.70	$66,814	191,848	15%	81%	81%	79%	62%	10%
Fresno	C-	1.86	$53,004	1,018,241	6%	91%	91%	90%	88%	41%
Glenn	F+	0.41	$44,677	29,132	23%	67%	67%	65%	65%	0%
Humboldt	F	0.01	$43,351	135,333	15%	82%	82%	81%	3%	2%
Imperial	F+	0.52	$44,003	190,266	12%	87%	87%	86%	85%	0%
Inyo	F	0.17	$49,545	18,593	16%	84%	84%	84%	17%	6%
Kern	D+	1.41	$52,777	916,464	7%	93%	93%	93%	89%	25%
Kings	D	1.25	$44,243	153,710	20%	76%	76%	76%	76%	14%
Lake	F+	0.50	$39,469	65,071	14%	76%	76%	75%	75%	0%
Lassen	F	0.02	$40,141	30,150	56%	38%	37%	30%	5%	3%
Los Angeles	C	2.09	$71,244	10,253,715	1%	99%	99%	98%	98%	15%
Madera	D	0.96	$53,976	159,536	14%	86%	86%	75%	67%	14%
Marin	C-	1.70	$103,955	262,879	4%	96%	96%	96%	94%	17%
Mariposa	F	0.01	$53,020	18,068	24%	74%	74%	9%	4%	3%
Mendocino	F+	0.39	$49,229	89,009	25%	72%	72%	71%	68%	0%
Merced	D	1.24	$45,356	282,928	11%	85%	85%	83%	83%	23%
Modoc	F	0.01	$46,453	9,602	50%	47%	45%	37%	2%	0%
Mono	D-	0.72	$51,725	13,616	13%	86%	86%	86%	86%	29%
Monterey	D+	1.63	$66,576	445,414	6%	93%	93%	93%	92%	14%
Napa	C-	1.85	$81,413	140,779	7%	92%	92%	92%	92%	17%
Nevada	D-	0.69	$63,475	98,904	17%	76%	76%	75%	62%	19%
Orange	C	1.97	$90,950	3,222,498	3%	97%	97%	97%	96%	20%
Placer	D-	0.77	$69,455	396,691	6%	92%	92%	90%	64%	18%
Plumas	F	0.13	$54,063	19,779	35%	64%	63%	39%	23%	20%
Riverside	C-	1.85	$61,520	2,440,124	3%	97%	97%	97%	95%	6%
Sacramento	C+	2.30	$65,857	1,546,174	2%	97%	97%	97%	96%	18%
San Benito	D	1.17	$77,834	62,296	12%	86%	86%	86%	85%	6%
San Bernardino	D+	1.47	$53,008	2,192,203	3%	97%	97%	96%	96%	3%
San Diego	D+	1.33	$75,775	3,351,785	4%	95%	95%	95%	95%	24%
San Francisco	B-	2.73	$105,602	883,869	1%	99%	99%	99%	99%	49%
San Joaquin	C-	1.89	$61,184	770,385	5%	94%	94%	94%	93%	15%
San Luis Obispo	D-	0.71	$71,439	280,393	11%	85%	85%	84%	83%	2%
San Mateo	C+	2.63	$109,450	774,485	1%	99%	99%	99%	99%	46%
Santa Barbara	D-	0.86	$73,141	454,593	5%	95%	95%	95%	93%	8%
Santa Clara	C+	2.27	$114,959	1,954,286	3%	97%	97%	97%	96%	25%
Santa Cruz	C-	1.67	$79,281	274,871	6%	94%	94%	94%	93%	22%
Shasta	F+	0.49	$47,020	178,773	13%	81%	81%	79%	72%	2%
Sierra	F	0.03	$49,899	3,213	88%	4%	4%	4%	4%	4%
Siskiyou	F	0.00	$43,244	44,584	17%	79%	79%	49%	0%	0%
Solano	C-	1.79	$77,349	441,307	5%	94%	94%	94%	89%	9%
Sonoma	D+	1.56	$75,627	500,675	3%	96%	96%	96%	95%	5%
Stanislaus	C-	1.88	$56,162	558,972	4%	95%	95%	94%	93%	19%
Sutter	D+	1.51	$60,713	97,490	5%	93%	93%	92%	92%	12%
Tehama	F+	0.32	$44,185	64,387	33%	53%	53%	49%	49%	0%
Trinity	F	0.00	$38,118	13,688	83%	14%	14%	14%	0%	0%
Tulare	D+	1.34	$45,565	479,112	9%	88%	87%	84%	84%	28%
Tuolumne	D-	0.80	$53,722	54,590	22%	71%	71%	70%	69%	17%
Ventura	C-	1.72	$82,761	856,598	2%	97%	97%	97%	96%	2%
Yolo	D-	0.72	$64,825	222,581	9%	90%	90%	88%	64%	9%
Yuba	D+	1.39	$54,145	77,916	15%	80%	80%	80%	79%	17%
California total	C-	1.69	$68,011	39,927,313	4%	96%	96%	95%	93%	18%

County	Grade	GPA	Median HH income	Housing Units 2019	HU at Zero service	HU at 6/1	HU at 10/1	HU at 25/3	HU at 100/20	HU at 1000/500
Alameda	B-	2.77	$96,623	605,977	12,617	592,666	592,666	592,627	592,237	286,659
Alpine	F	0.04	$63,330	1,783	782	980	980	533	533	0
Amador	F+	0.61	$59,360	18,278	1,608	16,178	16,178	15,966	8,366	4,380
Butte	D-	0.68	$48,900	85,447	7,856	74,805	74,805	74,738	74,736	294
Calaveras	D-	0.84	$43,709	28,210	3,640	23,882	23,866	23,346	21,107	3,824
Colusa	F+	0.62	$55,333	8,195	3,741	4,362	4,356	4,272	3,299	1,241
Contra Costa	C+	2.40	$99,646	416,062	5,712	409,642	409,642	409,577	408,523	92,540
Del Norte	D-	0.78	$46,327	11,352	1,236	10,116	10,116	10,113	10,055	0
El Dorado	D-	0.70	$66,814	91,987	14,887	73,246	73,073	71,455	48,900	8,058
Fresno	C-	1.86	$53,004	334,239	18,746	306,626	306,615	301,474	291,820	144,122
Glenn	F+	0.41	$44,677	11,310	2,860	7,247	7,247	7,025	7,025	0
Humboldt	F	0.01	$43,351	63,138	10,705	50,211	50,202	49,704	1,918	1,166
Imperial	F+	0.52	$44,003	58,002	7,312	49,967	49,967	48,944	48,204	0
Inyo	F	0.17	$49,545	9,532	2,005	7,520	7,520	7,520	1,586	526
Kern	D+	1.41	$52,777	299,674	16,184	282,640	282,489	281,933	265,138	75,189
Kings	D	1.25	$44,243	46,414	4,851	40,028	40,028	39,853	39,804	7,402
Lake	F+	0.50	$39,469	34,409	5,020	25,889	25,889	25,565	25,542	5
Lassen	F	0.02	$40,141	12,763	5,743	6,089	5,913	4,564	637	285
Los Angeles	C	2.09	$71,244	3,568,898	39,424	3,524,367	3,523,182	3,516,837	3,484,265	514,205
Madera	D	0.96	$53,976	50,496	5,025	45,046	45,045	36,548	30,416	5,476
Marin	C-	1.70	$103,955	112,394	2,949	108,659	108,652	108,650	105,980	19,755
Mariposa	F	0.01	$53,020	10,489	3,094	7,120	7,120	793	308	252
Mendocino	F+	0.39	$49,229	40,760	11,160	28,500	28,500	28,030	25,968	63
Merced	D	1.24	$45,356	86,955	8,966	73,992	73,964	72,586	72,304	20,843
Modoc	F	0.01	$46,453	5,272	2,779	2,335	2,209	1,844	118	12
Mono	D-	0.72	$51,725	14,106	1,955	12,103	12,103	12,042	12,029	2,431
Monterey	D+	1.63	$66,576	141,007	8,313	131,465	131,465	130,996	130,053	20,034
Napa	C-	1.85	$81,413	55,180	3,499	51,036	51,036	50,982	50,728	10,229
Nevada	D-	0.69	$63,475	53,984	8,448	41,913	41,913	41,631	35,482	9,192
Orange	C	1.97	$90,950	1,104,164	39,232	1,057,955	1,057,953	1,056,522	1,052,637	202,491
Placer	D-	0.77	$69,455	167,548	10,761	152,028	152,028	149,130	102,866	28,479
Plumas	F	0.13	$54,063	15,895	5,900	9,930	9,779	6,410	2,899	2,549
Riverside	C-	1.85	$61,520	847,851	31,634	814,638	814,008	812,432	793,068	40,936
Sacramento	C+	2.30	$65,857	574,449	11,831	557,682	557,595	555,532	551,336	112,613
San Benito	D	1.17	$77,834	19,395	2,558	16,352	16,352	16,216	16,149	1,069
San Bernardino	D+	1.47	$53,008	723,783	30,913	691,137	690,339	686,634	678,374	20,968
San Diego	D+	1.33	$75,775	1,219,460	43,908	1,170,774	1,170,750	1,168,513	1,163,371	316,880
San Francisco	B-	2.73	$105,602	399,372	1,359	396,384	396,384	396,383	396,197	178,384
San Joaquin	C-	1.89	$61,184	246,521	12,360	231,858	231,791	231,175	229,588	39,238
San Luis Obispo	D-	0.71	$71,439	122,810	10,856	107,109	107,095	106,091	104,254	2,387
San Mateo	C+	2.63	$109,450	279,248	2,357	276,455	276,455	276,445	275,305	127,039
Santa Barbara	D-	0.86	$73,141	160,111	5,216	154,599	154,120	153,272	150,840	14,826
Santa Clara	C+	2.27	$114,959	671,439	17,035	653,208	653,139	652,821	648,034	171,945
Santa Cruz	C-	1.67	$79,281	105,862	3,777	101,706	101,705	101,620	100,729	26,930
Shasta	F+	0.49	$47,020	78,027	11,430	61,973	61,625	59,874	54,024	1,793
Sierra	F	0.03	$49,899	2,352	2,062	77	77	77	77	77
Siskiyou	F	0.00	$43,244	24,200	4,600	18,600	18,600	11,560	43	20
Solano	C-	1.79	$77,349	159,586	6,382	152,512	152,497	152,455	142,971	15,420
Sonoma	D+	1.56	$75,627	204,976	7,611	195,511	195,509	195,254	192,112	9,610
Stanislaus	C-	1.88	$56,162	182,514	8,107	172,452	172,362	171,300	169,830	37,677
Sutter	D+	1.51	$60,713	34,398	2,062	31,600	31,600	31,359	31,323	4,094
Tehama	F+	0.32	$44,185	27,655	9,655	14,417	14,328	13,025	12,921	96
Trinity	F	0.00	$38,118	8,942	7,695	843	843	843	0	0
Tulare	D+	1.34	$45,565	150,622	16,142	130,046	129,932	125,732	124,840	41,734
Tuolumne	D-	0.80	$53,722	31,624	7,256	21,208	21,208	21,066	20,899	4,735
Ventura	C-	1.72	$82,761	289,647	7,060	281,613	281,308	280,728	278,329	5,559
Yolo	D-	0.72	$64,825	77,679	4,561	72,156	72,156	71,163	52,216	7,630
Yuba	D+	1.39	$54,145	28,650	5,099	21,937	21,937	21,877	21,636	4,848
California total	C-	1.69	$68,011	14,235,093	550,536	13,575,389	13,570,218	13,495,657	13,163,951	2,648,209

County	Grade	GPA	Median HH income	Housing Units 2019	% HU at Zero service	% HU at 6/1	%HU at 10/1	% HU at 25/3	% HU at 100/20	% HU at 1000/500
Alameda	B-	2.77	$96,623	605,977	2%	98%	98%	98%	98%	47%
Alpine	F	0.04	$63,330	1,783	44%	55%	55%	30%	30%	0%
Amador	F+	0.61	$59,360	18,278	9%	89%	89%	87%	46%	24%
Butte	D-	0.68	$48,900	85,447	9%	88%	88%	87%	87%	0%
Calaveras	D-	0.84	$43,709	28,210	13%	85%	85%	83%	75%	14%
Colusa	F+	0.62	$55,333	8,195	46%	53%	53%	52%	40%	15%
Contra Costa	C+	2.40	$99,646	416,062	1%	98%	98%	98%	98%	22%
Del Norte	D-	0.78	$46,327	11,352	11%	89%	89%	89%	89%	0%
El Dorado	D-	0.70	$66,814	91,987	16%	80%	79%	78%	53%	9%
Fresno	C-	1.86	$53,004	334,239	6%	92%	92%	90%	87%	43%
Glenn	F+	0.41	$44,677	11,310	25%	64%	64%	62%	62%	0%
Humboldt	F	0.01	$43,351	63,138	17%	80%	80%	79%	3%	2%
Imperial	F+	0.52	$44,003	58,002	13%	86%	86%	84%	83%	0%
Inyo	F	0.17	$49,545	9,532	21%	79%	79%	79%	17%	6%
Kern	D+	1.41	$52,777	299,674	5%	94%	94%	94%	88%	25%
Kings	D	1.25	$44,243	46,414	10%	86%	86%	86%	86%	16%
Lake	F+	0.50	$39,469	34,409	15%	75%	75%	74%	74%	0%
Lassen	F	0.02	$40,141	12,763	45%	48%	46%	36%	5%	2%
Los Angeles	C	2.09	$71,244	3,568,898	1%	99%	99%	99%	98%	14%
Madera	D	0.96	$53,976	50,496	10%	89%	89%	72%	60%	11%
Marin	C-	1.70	$103,955	112,394	3%	97%	97%	97%	94%	18%
Mariposa	F	0.01	$53,020	10,489	29%	68%	68%	8%	3%	2%
Mendocino	F+	0.39	$49,229	40,760	27%	70%	70%	69%	64%	0%
Merced	D	1.24	$45,356	86,955	10%	85%	85%	83%	83%	24%
Modoc	F	0.01	$46,453	5,272	53%	44%	42%	35%	2%	0%
Mono	D-	0.72	$51,725	14,106	14%	86%	86%	85%	85%	17%
Monterey	D+	1.63	$66,576	141,007	6%	93%	93%	93%	92%	14%
Napa	C-	1.85	$81,413	55,180	6%	92%	92%	92%	92%	19%
Nevada	D-	0.69	$63,475	53,984	16%	78%	78%	77%	66%	17%
Orange	C	1.97	$90,950	1,104,164	4%	96%	96%	96%	95%	18%
Placer	D-	0.77	$69,455	167,548	6%	91%	91%	89%	61%	17%
Plumas	F	0.13	$54,063	15,895	37%	62%	62%	40%	18%	16%
Riverside	C-	1.85	$61,520	847,851	4%	96%	96%	96%	94%	5%
Sacramento	C+	2.30	$65,857	574,449	2%	97%	97%	97%	96%	20%
San Benito	D	1.17	$77,834	19,395	13%	84%	84%	84%	83%	6%
San Bernardino	D+	1.47	$53,008	723,783	4%	95%	95%	95%	94%	3%
San Diego	D+	1.33	$75,775	1,219,460	4%	96%	96%	96%	95%	26%
San Francisco	B-	2.73	$105,602	399,372	0%	99%	99%	99%	99%	45%
San Joaquin	C-	1.89	$61,184	246,521	5%	94%	94%	94%	93%	16%
San Luis Obispo	D-	0.71	$71,439	122,810	9%	87%	87%	86%	85%	2%
San Mateo	C+	2.63	$109,450	279,248	1%	99%	99%	99%	99%	45%
Santa Barbara	D-	0.86	$73,141	160,111	3%	97%	96%	96%	94%	9%
Santa Clara	C+	2.27	$114,959	671,439	3%	97%	97%	97%	97%	26%
Santa Cruz	C-	1.67	$79,281	105,862	4%	96%	96%	96%	95%	25%
Shasta	F+	0.49	$47,020	78,027	15%	79%	79%	77%	69%	2%
Sierra	F	0.03	$49,899	2,352	88%	3%	3%	3%	3%	3%
Siskiyou	F	0.00	$43,244	24,200	19%	77%	77%	48%	0%	0%
Solano	C-	1.79	$77,349	159,586	4%	96%	96%	96%	90%	10%
Sonoma	D+	1.56	$75,627	204,976	4%	95%	95%	95%	94%	5%
Stanislaus	C-	1.88	$56,162	182,514	4%	94%	94%	94%	93%	21%
Sutter	D+	1.51	$60,713	34,398	6%	92%	92%	91%	91%	12%
Tehama	F+	0.32	$44,185	27,655	35%	52%	52%	47%	47%	0%
Trinity	F	0.00	$38,118	8,942	86%	9%	9%	9%	0%	0%
Tulare	D+	1.34	$45,565	150,622	11%	86%	86%	83%	83%	28%
Tuolumne	D-	0.80	$53,722	31,624	23%	67%	67%	67%	66%	15%
Ventura	C-	1.72	$82,761	289,647	2%	97%	97%	97%	96%	2%
Yolo	D-	0.72	$64,825	77,679	6%	93%	93%	92%	67%	10%
Yuba	D+	1.39	$54,145	28,650	18%	77%	77%	76%	76%	17%
California total	C-	1.69	$68,011	14,235,093	4%	95%	95%	95%	92%	19%

STATEWIDE INFRASTRUCTURE GRADES BY CDP/ROC

INFRASTRUCTURE GRADES - COUNTY

GRADE A
- A
- A-

GRADE B
- B+
- B
- B-

GRADE C
- C+
- C
- C-

GRADE D
- D+
- D
- D-

GRADE F
- F+
- F
- F-

- - - COUNTY BOUDARY

Carson City

Sacramento

San Francisco

San Jose

Sierra Nevada Mountains

San Joaquin Valley

Fresno

Las Vegas

Mojave Desert

Los Angeles

San Diego
Tijuana

Mexicali

N
W   E
S

Central Coast Broadband Consortium Broadband Infrastructure Grading Methodology

Broadband infrastructure grades compare the primary, wireline infrastructure in a region, county, town or census block to the Californian average:

A **Superior infrastructure**. At least two competing primary wireline providers. At least one advertizing fiber-to-the-premise service at a minimum of 1 Gbps download/500 Mbps upload speeds, and another offering service at a minimum of 400 Mbps download/20 Mbps upload speeds using any technology.

B **Above average infrastructure**. At least two competing primary wireline providers. At least one advertizing service at a minimum of 900 Mbps download/35 Mbps upload speeds, and another offering service at a minimum of 100 Mbps download/20 Mbps upload speeds.

C **Average infrastructure.** At least two competing primary wireline providers. At least one advertizing service at a minimum of 400 Mbps download/20 Mbps upload speeds, and another offering service at a minimum of 30 Mbps download/5 Mbps upload speeds.

D **Barely passing**. At least one wireline provider that meets the Central Coast Broadband Consortium/Monterey Bay Economic Partnership minimum standard of 100 Mbps download and 20 Mbps upload speeds.

F **Fail**. At least one wireline provider offers service, but no service is available that meets the Central Coast Broadband Consortium/Monterey Bay Economic Partnership minimum standard of 100 Mbps download and 20 Mbps upload speeds.

F- **Unserved**. No broadband service available

In a study conducted for the East Bay Broadband Consortium (EBBC) in 2013[1], in cooperation with the Central Coast Broadband Consortium, core broadband infrastructure was evaluated in Alameda, Contra Costa and Solano Counties using data submitted to the California Public Utilities Commission by Internet service providers. A comparative report card was developed, with the average grade – "C" – set at the most prevalent infrastructure, and corresponding service levels, available to residents of California: a combination of relatively high speed cable modem and mid-range telephone company DSL facilities.

This methodology was subsequently used by the Central Coast Broadband Consortium to evaluate Californian broadband infrastructure and service on a statewide basis, on behalf of the California Emerging Technology Fund and the California Center for Rural Policy, and to do in-depth analysis of broadband service and infrastructure in Monterey, Santa Cruz and San Benito counties.

The primary data for assessing the quantity and quality of broadband infrastructure comes from the California Public Utilities Commission, which collects service level reports submitted by providers to the Federal Communications Commission annually, and then runs that data through a validation process. The most recent data available was submitted by carriers as of 31 December 2017. This data can be broken down to the census block level, and shows what level of service Internet companies claim to provide, but not necessarily what they deliver. The accuracy of this data and the definition of

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[1] East Bay Broadband Report Card, Tellus Venture Associates, 28 January 2014.

service levels varies from company to company, although it is generally consistent within any given company. In other words, if Company Z exaggerates the speeds and availability of home Internet service, it tends to do so to more or less the same extent everywhere. By using a comparative system for ranking, rather than using the absolute values provided, the variation in the accuracy of the data can be smoothed out and an apples-to-apples comparison can be achieved.

Consumer-grade service throughout California was assessed, and the averages of available service (median, mode and mean) used as one of the two primary grading benchmarks. The other benchmark was the minimum level of service of 100 Mbps download and 20 Mbps upload speeds, which was determined by a 2018 study conducted by the Central Coast Broadband Consortium and the Monterey Bay Economic Partnership[2] to be the minimum necessary to conduct business, do homework, enjoy online entertainment and otherwise fully participate in today's digital economy.

Upload speed was given equal weight to download speed because upload speed provides a reliable indication of the capacity of the underlying infrastructure. It is increasingly important to consumers and businesses alike. When a service provider skimps on upload speeds, as frequently happens, it is usually because its cables and other core equipment have a limited capacity.

The data was examined, and irrelevant data points that skewed results were removed. Grades were then assigned according to the criteria in the table above.
A "C" grade indicates that consumer grade broadband service, and consequently the underlying core infrastructure, in a given area meets the statewide average. A "D" grade means it meets the minimum service standard determined by the CCBC/MBEP study. "F" grades indicate full or partial failure. "A" and "B" grades show that service in an area is superior to the California average.

The first step in grading was to give a letter grade to each census block in California. Then, the grade points were tallied, weighted by population and averaged for the census blocks within cities, counties and unincorporated areas, to produce a numerical grade on a four point scale, which was rounded to the nearest tenth.

The numerical grade point average for an area was then converted to a letter grade on the following scale:

Infrastructure Grade Point Scale							
A	4.0	C+	2.3-2.6	D-	0.7-0.9
A-	3.7-3.9	C	2.0-2.2	F+	0.3-0.6
B+	3.3-3.6	C-	1.7-1.9	F	0.0-0.2
B	3.0-3.2	D+	1.3-1.6	F-	No service available
B-	2.7-2.9	D	1.0-1.2		

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[2] Achieving Ubiquitous Broadband Coverage in the Monterey Bay Region, Monterey Bay Economic Partnership, November 2018.

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Achieving Ubiquitous Broadband Coverage in the Monterey Bay Region

November 2018

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About Monterey Bay Economic Partnership (MBEP)

Monterey Bay Economic Partnership (MBEP) is a regional nonprofit, membership organization consisting of public, private and civic entities located throughout the counties of Monterey, San Benito and Santa Cruz. Our mission is to improve the economic health and quality of life in the region.

MBEP's work is accomplished through targeted initiatives:

- Transportation: improving how we move within and between our cities
- Housing: ensuring the availability of safe and affordable housing
- Workforce development: helping regional employers to hire local talent and providing resources to enable residents to make a living wage
- Technology: supporting a thriving tech ecosystem in the region

Our core values are represented in the chart below.

MBEP's Tech Ecosystem Initiative

Our model for building a successful and healthy Tech Ecosystem is based on the following components:

MBEP acts as a catalyst and a convener for each of these components. We hold quarterly meetings with key influencers, industry leaders and policy makers who determine the direction of our Tech Ecosystem Committee. This committee has been focused on multiple tracks simultaneously:

● Promotion of start-up challenges, hackathons, competitions in the local educational institutions
● Proliferation of Tech MeetUps and AgTech MeetUps in the area
● Encouragement of technical training and curriculum in colleges and universities
● Access to broadband infrastructure, including the completion of the Sunesys fiber backbone from Soledad to Santa Cruz
● Extension of broadband service through the middle and last mile, including gigabit fiber light-ups throughout the region

About the Central Coast Broadband Consortium
The Central Coast Broadband Consortium is a 10-year old broadly based, ad hoc group of local governments and agencies, economic development, education and health organizations, community groups and private businesses. It is dedicated to improving broadband availability, access and adoption in Monterey, Santa Cruz and San Benito Counties, and has a long history of broadband development projects implemented by its members and as a group.

The top priority of the CCBC to provide resources and incentives to telecommunications service providers, including local government agencies, to build broadband infrastructure and extend it throughout Monterey, San Benito and Santa Cruz counties. The main effort of the CCBC's CASF-funded project is to create a database of existing broadband resources and assets, including accessible conduit, rights of way and wireless sites, and to work with local agencies to develop model policies that support broadband deployment.

Regional Broadband Leadership Team

Through the work of the Tech Ecosystem Committee it became apparent in 2017 that another more specialized group was needed to champion access to high-speed broadband. MBEP partnered with the Central Coast Broadband Consortium and Tellus Venture Associates on this effort and assembled the Broadband Leadership Team, composed of city managers, supervisors, ISP management, and technical staff from educational institutions. We invited representatives of cities and counties, ISPs and local policy makers.

The following is the list of participants in the Broadband Leadership Team:
- Ray Corpuz, City of Salinas
- Peggy Dolgenos, Cruzio
- John Freeman, City of San Juan Bautista
- Zach Friend, County of Santa Cruz
- Chris Frost, Cruzio
- James Hackett, Cruzio
- Matt Huffaker, City of Watsonville
- Mary Ann Leffel, MCBC
- Chip Lenno, CSUMB
- Maureen McCarty, Assemblymember Mark Stone's office
- René Mendez, City of Gonzales
- Andy Myrick, City of Salinas
- Larry Samuels, CSUMB
- Brad Smith, UCSC
- Jim Warner, UCSC
- Steve Blum, Tellus Venture Associates

The State of California previously established an arbitrary standard of 98% broadband coverage. With more recent legislation the State lowered the standard for broadband to be defined as 6 Mbps download and 1 Mbps upload speeds. Based on this modified standard, the State determined that broadband exists in all but 20,000 homes and businesses in California, whereas the previous standard determined that 300,000 homes and businesses did not have coverage. The majority of state infrastructure funding was removed by this new legislation.

The Tech Ecosystem Committee agreed that California standards of 6 Mbps download and 1 Mbps upload were woefully inadequate for current users' needs in our region. The Broadband

Leadership Team was conceived to establish new regional standards and take action in providing true high-speed coverage for all areas including underserved communities.

Current Broadband Standards

The definition of "broadband" varies widely depending on which entity is doing the evaluation. See below for a list of standards.

	Download	Upload
California legislature (CPUC) as of 2018	6 Mbps	1 Mbps
FCC and USDA (baseline for broadband)*	25 Mbps	3 Mbps
FCC (above baseline for broadband)	100 Mbps	20 Mbps
California average **reported** speeds as of December 2016	250 Mbps	20 Mbps
FCC (definition of gigabit service)	1,000 Mbps	500 Mbps

*Note: 2018 FCC Broadband Deployment Report proposes to maintain the 25 Mbps/3 Mbps standard.

Assessment: Broadband Coverage in the Monterey Bay Region Today

In 2017 the region made a major leap forward with the completion of the Sunesys project. This provides a fiber backbone from Soledad to Santa Cruz, terminating at UC Santa Cruz. Local ISPs can now leverage this high-speed fiber infrastructure to offer gigabit service. Gigabit service is not pervasive throughout the region because funding is needed for building middle and last mile infrastructure. Some ISPs, such as Cruzio, have developed a business model to bring this premium service to both businesses and residential customers. As of mid-2018 Cruzio has lit up both downtown Santa Cruz and Watsonville with gigabit service.

While larger ISPs have the financial ability to fund new broadband infrastructure, it can be very difficult for smaller ISPs to obtain outside funding (such as State grants) to develop additional broadband infrastructure. One of the largest barriers to obtaining this outside funding incumbent providers' service claims in census blocks in the region. The primary broadband providers are AT&T, Comcast and Charter Communications, with Frontier Communications providing some service in small areas in the north and south of the region. AT&T's last mile infrastructure is largely based on copper, and therefore is mostly limited to speeds of 25 Mbps download and 3 Mbps upload. Comcast is able to provide higher speeds due to its infrastructure, but speeds and performance fluctuate significantly based on time of day and the number of users online at a specific time. Smaller ISPs, such as Cruzio or Surfnet, cannot receive state or federal funding to build modern infrastructure in the areas covered by AT&T, Comcast and Charter. Overall lack of competition gives these providers no incentive to improve speeds and service beyond what is offered, even though users' needs may be drastically different.

The following is a full list of ISPs in the region:

- AT&T
- CENIC
- Charter
- Comcast
- Cruzio
- Etheric
- Frontier Communications
- HughesNet (satellite)
- Pinnacles Telephone Company
- Razzolink
- RedShift
- SoMoCo (wireless)
- Sonic.net
- Suddenlink
- Surfnet
- Verizon
- Viasat (satellite)

ISPs offer broadband through wireline, mobile, fixed wireless, and satellite service. The latest CPUC reports show coverage as of December 2016 for primary wireline service only (not wireless or satellite). The coverage maps show reported (not actual) speeds from ISPs for residential customers only. Commercial use data is incomplete. However, it should be noted that if even one resident in a particular census block has service and others do not, the CPUC will consider that census block "served." A designated "served" census block is not eligible for CPUC grants to upgrade infrastructure and increase speeds. As a result the coverage maps represent a best case scenario, not a realistic view.

Unserved and Underserved Census Blocks as of December 2016
(at speeds of 6 Mbps down/1 Mbps up)
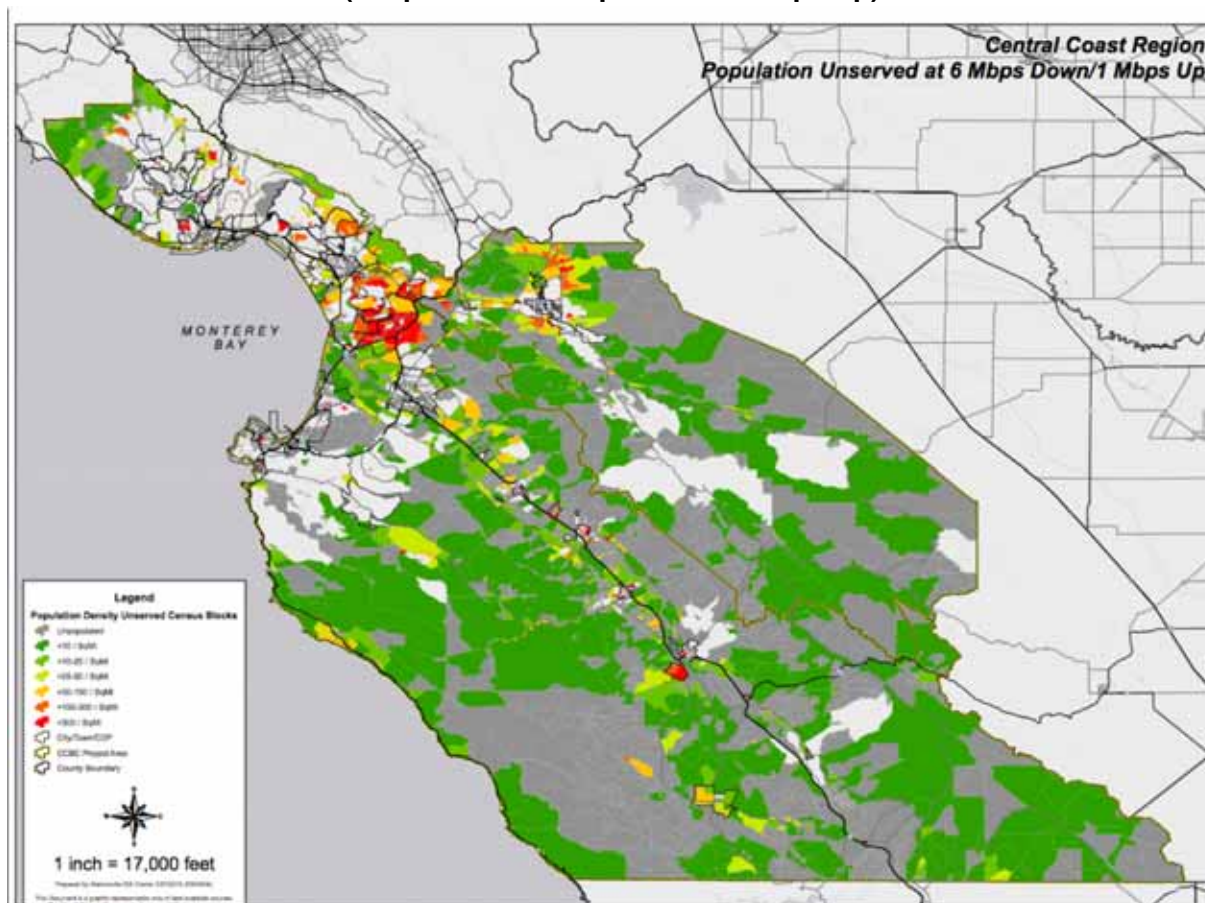
Based on the California legislature standard of 6 download and 1 upload shown above, much of the region is still currently unserved.

Goals

The ultimate goal of the Broadband Leadership Team is to encourage ISPs to offer upgraded service that meets users' requirements. This can be accomplished by:
- Encouraging competition among ISPs
- Advocating for improved policies and enforcement
- Improving middle mile infrastructure so that ISPs can fully offer upgraded service

Desired Outcomes

Ideally, the Broadband Leadership Team would like to produce the following results:
- Proliferation of high-speed broadband as defined by our region's needs, not based on federal or state standards
- Broadband infrastructure and service levels matched to the needs of residents and businesses in our region

- ISP compliance with the needs of the region based on data gathered from users and new regional standards
- Delivery of draft policy language to decision makers in the region to serve as a model for their jurisdictions
- Creation of a common set of policies that will streamline the processes across the region
- Increased competition among incumbents and new carriers resulting in an improved customer experience

Ways to accomplish these outcomes include:
- Growing middle-mile fiber
- Having public agencies participate in the market to promote upgraded infrastructure
- Applying political and economic pressure on incumbents
- Gaining capital or public subsidies to stimulate upgrades
- Regulating common carrier (least desirable)

Strategies

Research: The first step for the Broadband Leadership was to gather data from users, both residents and businesses. We conducted two surveys to assess existing coverage, needs and use cases. The survey addressed both speeds and applications for broadband. In addition, we used data from a survey conducted by the County of Santa Cruz to further bolster our assumptions and conclusions about broadband requirements.

Standards Assessment: Based on the data gathered from end users, the team determined the new definition for "high-speed broadband" in the region. It will also determine the acceptable level of coverage in the region based on the new standard of 100 down/ 20 up. We must weigh the costs of improving infrastructure and delivery to the end customer against the increased cost of service. Though 98% is the California standard, the team may decide on a different percentage of coverage for the Monterey Bay region. Population density below a certain threshold may not be considered worthwhile from a cost standpoint.

Implementation: In addition to publishing this white paper and increasing awareness around broadband coverage, the team will also formulate draft resolutions for adoption by City Councils and Board of Supervisors. Model policies for jurisdictions including deregulatory measures and definitions of the regional standard will be drafted. Following that, infrastructure upgrades with providers will be encouraged, and expectations for cost, latency and reliability will be outlined for providers.

Then the team will act as an intermediary to advocate for users' broadband needs in the region. These strategies can be supported through:
- Outreach to incumbent ISPs
- Assistance with CASF grant applications

- Outreach to residents and businesses via Action Center campaigns which will encourage policy makers to push these efforts forward

Challenges

Fiber: Achieving sufficient broadband coverage under new standards is not a foregone conclusion. One major challenge concerns infrastructure and the lack of ubiquitous independent middle-mile fiber in the region. This fiber exists in the Salinas Valley and Santa Cruz, but areas south of Soledad and east of Salinas are not covered.

Aging infrastructure: Another significant infrastructure challenge involves existing wireline infrastructure that is aging and is in serious need of upgrades. The chosen upgrade path for telephone companies' rural copper networks is low-capacity wireless infrastructure, rather than high capacity fiber due to cost concerns and return on investment. Wireless local loop, a 4G technology that is 10 Mbps down/ 1 Mbps up, costs less than other upgrades. This technology meets FCC standards and the modified California standard which supports the CASF subsidies.

Upgrade priorities for copper: Incumbent providers are upgrading from copper to fiber only in what they deem "high potential" areas. These areas demonstrate demographic characteristics including density and median income to lead providers to believe that their upgrade costs will be justified (Pebble Beach is one such example). Alternatively, incumbents will upgrade to fiber if there is competitive service in a particular census block, as in Santa Cruz, where Comcast upgraded its service due to Cruzio's introduction of fiber in the area. Rural areas - which cover a significant portion of the Monterey Bay region - realistically will not be included in these upgrade plans unless they are heavily subsidized. Public backing is critical to gaining fiber-based competitors in areas that are not considered "high potential." Fiber in downtown Santa Cruz through Cruzio proves to be an exception to this rule.

Broadband Needs for the Monterey Bay Region

Rather than relying on California or federal standards for defining high-speed broadband access, the team decided to establish broadband service standards that are based on regional needs, both for today and for the future. The group also agreed that the standards should be realistic and attainable based on cost/benefit analysis (e.g., planning for gigabit fiber throughout the region would be cost prohibitive and impractical from an infrastructure standpoint).

The first step was to assess the needs of the businesses and consumers in the Monterey Bay region. We gathered data from the Broadband Leadership Team on broadband applications and use cases. It became apparent that more research was needed for a thorough analysis. In April 2018 we created a survey to the entire region for both businesses and consumers. We received 187 responses to the business survey and 155 responses to the consumer survey.

Survey Results

The MBEP/CCBC survey covered a number of topics, including satisfaction levels with speed and service providers, use cases for high-speed broadband, willingness to pay for higher speed service and reliability, and promised versus actual speeds delivered.

The following is a brief summary of the results. A full report can be obtained from MBEP. A synopsis of major data points is highlighted in the Appendix.

Promised vs. Actual Speed: Actual speeds for businesses who answered the survey varied greatly, with over 20% reporting that they didn't know their speeds. Approximately 40% of consumers did not know their promised and actual speeds.

On a nationwide basis, as of the end of 2015, advertised download speeds varied greatly, with only one provider (TWC, which does not serve the Monterey Bay region) offering 300 Mbps download speeds. Actual speeds measured were often 25% to 50% lower than advertised.

Desired Speeds and Cost: When asked about ideal download and upload speeds, 63% of business respondents stated they would like to have 100 Mbps or higher download and 61% stated they would like to have 25 Mbps or higher upload. 69% of these businesses said they would be willing to pay $70 or more per month.

50% of respondents in the consumer survey stated that they would like to have download speeds of 100 Mbps or more. 66% of consumers said they were willing to pay $40 to $99 a month for their ideal speeds.

Satisfaction with Current Service: In the MBEP survey, 52% of businesses and consumers reported that they were very or somewhat satisfied with their internet speeds and service.

Primary Uses: Business respondents primarily require high-speed broadband for data and file transfer as well as web browsing, whereas consumers cited video streaming, web browsing and email as the primary uses.

Based on the survey results, the following matrix of acceptable speeds was established by audience for review by the Broadband Leadership Team.

	6 down/ 1 up CA legislature min	25 down/ 3 up FCC/USDA baseline	100 down/20up FCC "above baseline"	250 down/20 up CA avg max	1000 down/ 500 up FCC "Gigabit"
MBEP consumer	🔴	🟨	🟢	🟢	🟢
MBEP business	🔴	🔴	🟨	🟢	🟢
MBEP combined	🔴	🟨	🟢	🟢	🟢
North county	🔴	🟨	🟢	🟢	🟢
South county	🔴	🟨	🟢	🟢	🟢
Monterey	🔴	🟨	🟢	🟢	🟢
San Benito	🔴	🟨	🟢	🟢	🟢
Santa Cruz	🔴	🟨	🟢	🟢	🟢

Santa Cruz County conducted a broadband survey in spring of 2018 as well. Their data provided some information on price sensitivity of existing customers. 42% of the residential respondents in the Santa Cruz County survey reported that they would be willing to pay more for service that suits their needs regardless of what price they are currently paying. Of those who stated that they would pay more, 71% reported that they would be willing to pay up to $50 more per month. 70% of all respondents currently pay less than $100 per month.

CASF Grants

The California Advanced Services Fund (CASF) provides a variety of grants for broadband infrastructure development and adoption. Over $300 million is offered for infrastructure, and $20 million is allocated for adoption.

- **Infrastructure funding:** grant funds are available to build and upgrade infrastructure in areas that are unserved by existing broadband providers. "Unserved" is defined as an area in which not wireless or wireline providers offer service at advertised speeds of 6 Mbps download and 1 Mbps upload.
- **Rural and urban regional broadband consortia:** CASF allocated several million dollars for seven regional consortia to promote ubiquitous broadband and advance broadband adoption in unserved and underserved areas.
- **Broadband adoption:** Grants in the amount of $20 million are available to increase publicly available broadband access and digital literacy training programs.

Adoption money is highly competitive, and not really aimed at expanding access. The new infrastructure program is still being developed, but once the new rules are written, we may be able to apply for grants for projects. Finding the right partners will depend at least partly on the process that the CPUC develops (the last Surfnet application spent nearly three years in review, and then was rejected). That's not a viable model for most ISPs. When we have the new rules, we should try to figure out how to match the regional opportunities with the money with the right ISPs.

Regional Success Stories

Sunesys

The Sunesys project is a 91-mile fiber optic cable infrastructure installed from Soledad to UC Santa Cruz. This effort was initiated by UC Santa Cruz, which needs high bandwidth for big data projects including work in genomics and astronomy. Local ISPs can connect from this backbone to leverage the high-speed broadband access; this infrastructure does not deliver service to the end user. The CPUC provided over $10 million in grants for this project. The fiber backbone was completed in 2017.

Cruzio

Cruzio is a local ISP located in Santa Cruz. In 2017 it initiated the Santa Cruz Fiber project, in which it leverages the Sunesys backbone to provide gigabit service to Santa Cruz and Watsonville. Cruzio financed the last mile improvements to make this happen. Watsonville Community Plaza got service in February 2018, and businesses are getting lit up in summer of 2018. Cruzio is able to offer a $49 per month plan for this service.

Surfnet Paradise Road

A $343,000 grant from CASF was used for Surfnet to provide service to close to 300 homes on Paradise Road in the mouth of Salinas Valley. 100 Mbps service was provided to the area. Surfnet was the first provider to offer high-speed fiber to homes in Monterey County.

Pinnacles Telephone Company

The CPUC provided a CASF grant to Pinnacles to upgrade DSL service in an area of San Benito County that is difficult to serve. The $195,000 grant upgraded the infrastructure to provide better service to approximately 40 homes.

Charter Communications

Charter Communications owns cable franchises in several communities in the region, including Watsonville and Hollister where it offers full digital service, including Internet access. However, it refused to upgrade its analog systems in the Salinas Valley and northern California, despite many requests over many years from local communities. In 2015, with support from the Central Coast Broadband Consortium, the City of Gonzales and the County of Monterey asked the California Public Utilities Commission to require Charter to upgrade its legacy systems, as a condition of approval for its acquisition of Time Warner Cable. The request was granted, and digital upgrades are underway.

Watsonville Municipal Fiber

CASF funds were also used to upgrade municipal dark fiber and conduit systems in Watsonville.

Comcast

Santa Cruz County used a fund, created and funded through its previous franchise agreement with Comcast, to pay for line extensions in the Santa Cruz mountains.

Regional Standard Recommendations

Using the findings from the studies shown above as well as other data provided by CCBC, the Broadband Leadership Team made the decision to adopt a new regional standard: **100 Mbps download** and **20 Mbps upload**. As indicated by the coverage map earlier below, the majority of the Monterey Bay region (based on December 2016 data) is not served or is underserved based on this regional standard. Coverage is not even close to the 98% claimed by the State of California as defined by its standard, nor is the California standard sufficient for our users' needs.

New standards of 100 down/20 up would mean that only 38% of the region would be served on a population basis. Once the Charter Communications upgrade is completed, coverage will be closer to 98% at 6 down/1 up standard, but will not be improved for 100 down/20 up coverage.

**Unserved and Underserved Census Blocks as of December 2016
(at speeds of 100 Mbps down/20 Mbps up)**
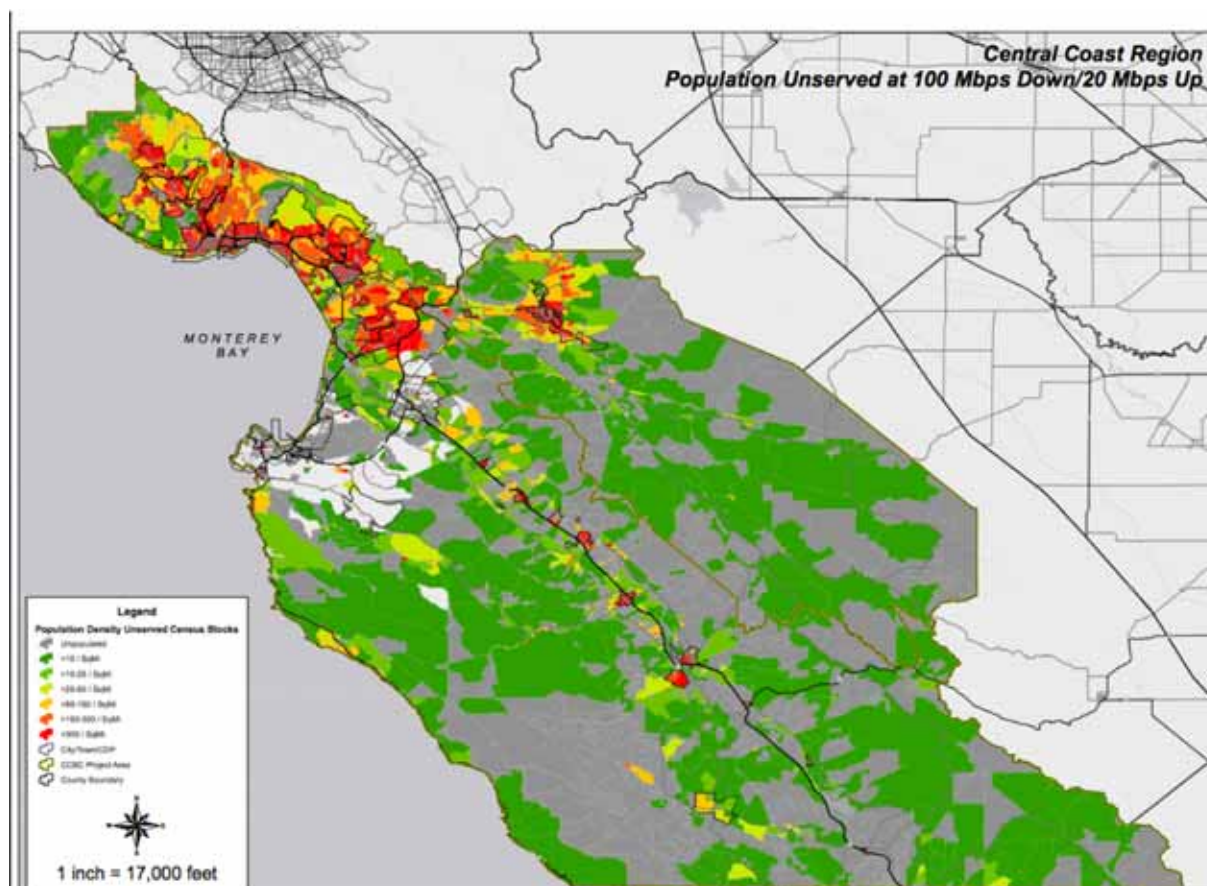
Based on a standard of 100 download and 20 upload, the vast majority of the region is unserved, in both highly and less densely populated census blocks.

Recommended Policies for Jurisdictions

Ideally, MBEP and CCBC would like to encourage local jurisdictions to adopt policies that favor the proliferation of broadband as defined by the Broadband Leadership Team (not as defined by the State) in the Monterey Bay region. Though we cannot impact what the State of California defines as a "served" area, we can establish our own standards that meet users' needs.

The following are some examples of verbiage that can be incorporated into policy documents at a local level:

Served vs. Unserved Areas

A census block is considered unserved if 50% or less of its population does not have broadband access at the regional standard of 100 Mbps download/ 20 Mbps upload. (Current CASF standards consider a census block to be served even if 99% of its inhabitants do not have coverage. The FCC 2018 Broadband Deployment Report specifies that a census block is

covered "if there was at least one service provider serving that census block that reported 5 Mbps/1 Mbps as the minimum advertised speed.")

CPUC is now using adoption rate (still in draft form). If a census block has over 40% of people subscribing to service, then that census block is considered "served."

Technology Used for Covered Areas
Only wireline is considered when an area is considered served or unserved, not wireless technologies, including fixed terrestrial, mobile and satellite service.

Speed vs. Cost
Incumbent internet service providers will be required to serve all census blocks (see definition above) without increasing current costs of service by more than 25%.

Provider Preference
If a provider cannot serve census blocks at the regional standard without increasing costs more than 25% of current levels, the census block will be open to other internet service provider proposals for coverage.

Fair Competition
Large incumbent providers, such as AT&T, Comcast and Charter Communications shall not be given preferential treatment to unserved census blocks. ISP coverage that meets the speed and cost requirements may be offered to a provider of any size.

Prioritizing Areas
Use a rigorous, quantitative approach to setting broadband development priorities as accomplished by the CCBC. Identify communities based on social and economic development impact, and prioritize service to those communities.

Summary & Next Steps
We currently have sufficient information to put a stake in the ground for new standards of broadband performance in the Monterey Bay region. The key is getting from planning to execution at this point. We face a number of challenges, from the standpoint of existing infrastructure and ability to cover our vastly varied geographies. Our Broadband Leadership Team will next establish a clear course of action, outlining roles and responsibilities to help us move forward. We will develop a timeline for anticipated coverage and upgrades, and will appeal to the various jurisdictions to get them on board. Improving our broadband will eventually lead to increased prosperity and growth of our region, and for that reason we must make it a priority.
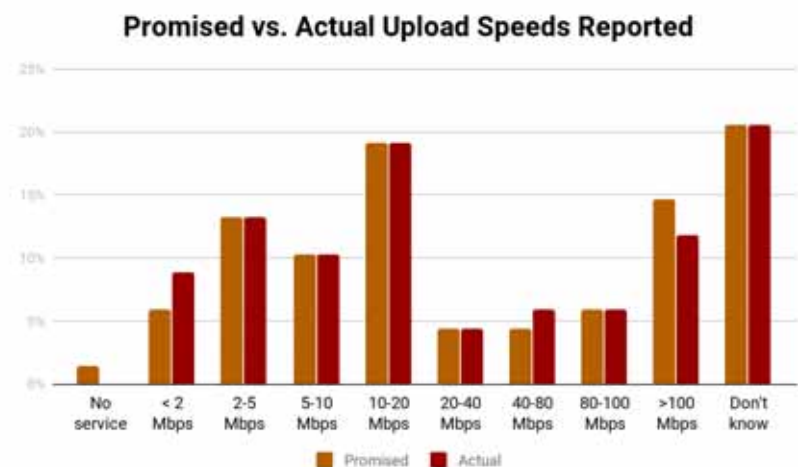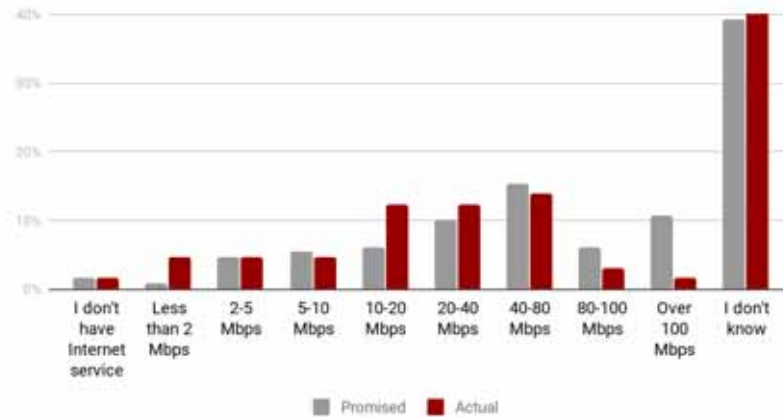
Appendix

Survey Data

Promised vs. Actual Download Speeds Reported

Source: 2018 MBEP Broadband Business Survey

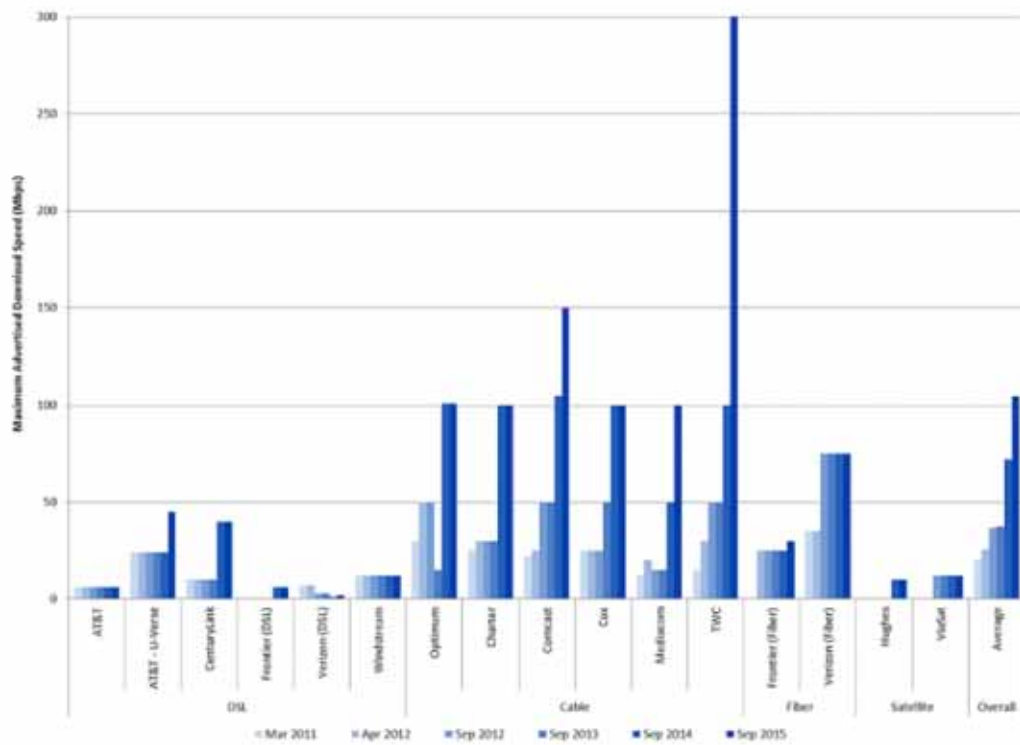**Promised vs. Actual Upload Speeds Reported**

Source: 2018 MBEP Broadband Business Survey
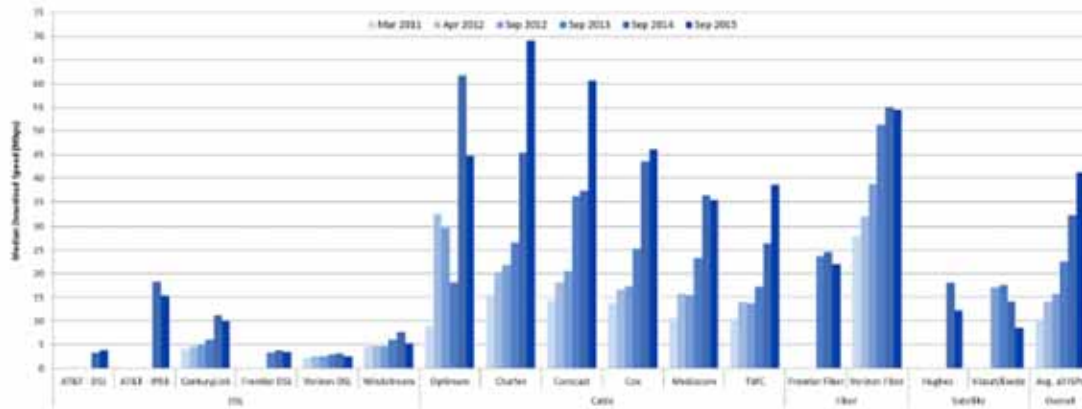
Promised vs. Actual Download Speeds Reported

Source: 2018 MBEP Broadband Consumer Survey
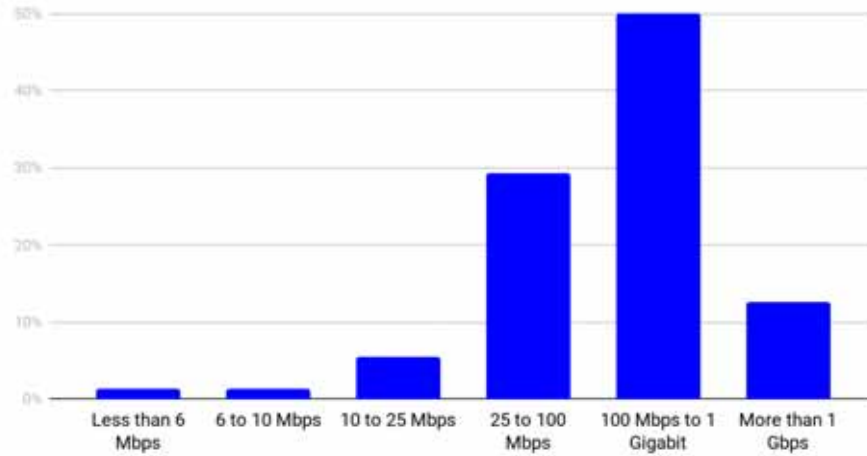
Maximum Advertised Download Speed by Provider

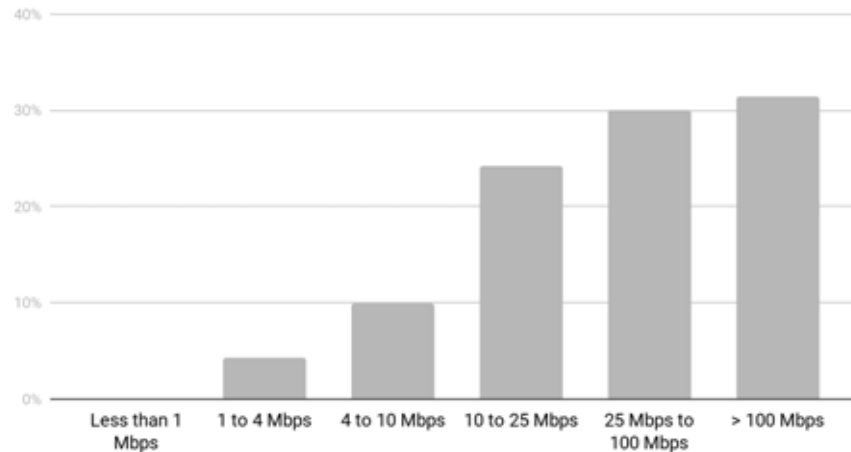*Source: 2016 FCC Measuring Fixed Broadband Report*

Median Download Speeds by ISP

Source: 2016 FCC Measuring Fixed Broadband Report

Ideal Download Speeds

Source: 2018 MBEP Broadband Business Survey

Ideal Upload Speeds

Source: 2018 MBEP Broadband Business Survey

Source: 2018 MBEP Broadband Consumer Survey

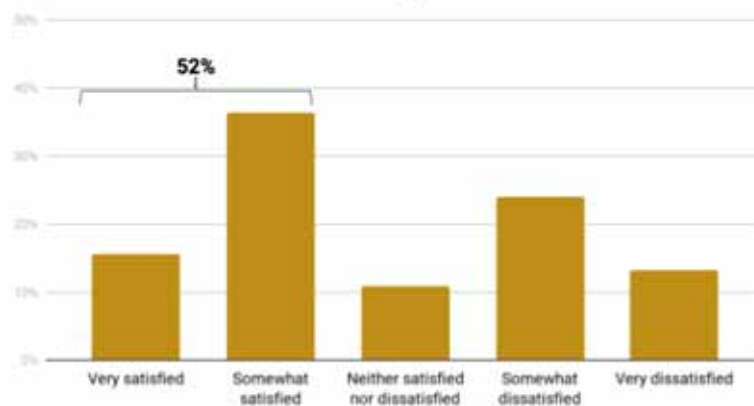## Monthly Cost vs. Amount Respondents are Willing to Pay for Service

Source: 2018 MBEP Broadband Consumer Survey
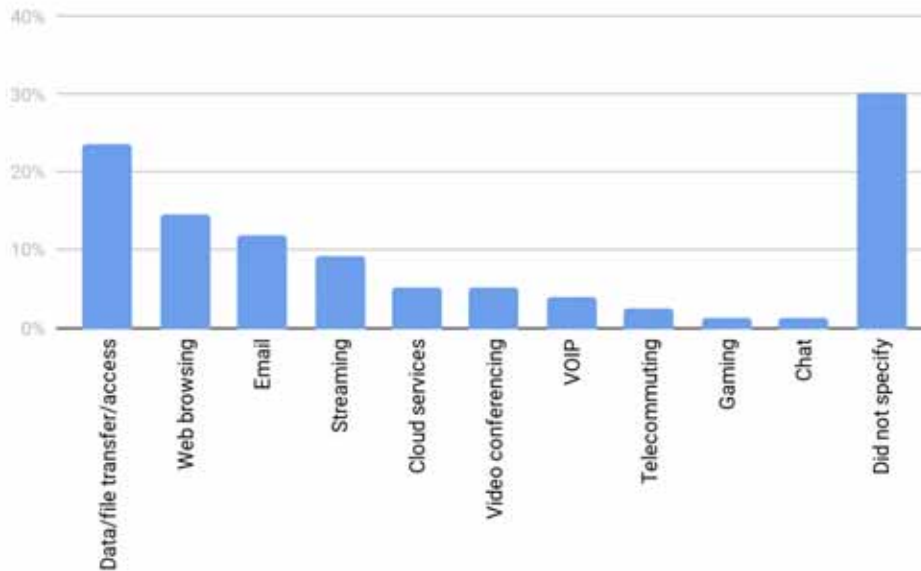
Satisfaction with Speeds Provided
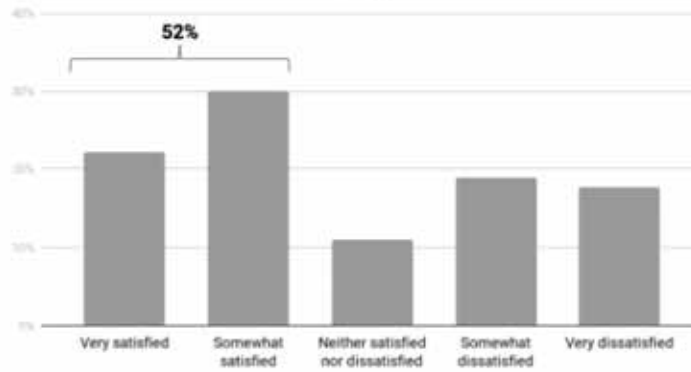
Source: 2018 MBEP Broadband Business Survey
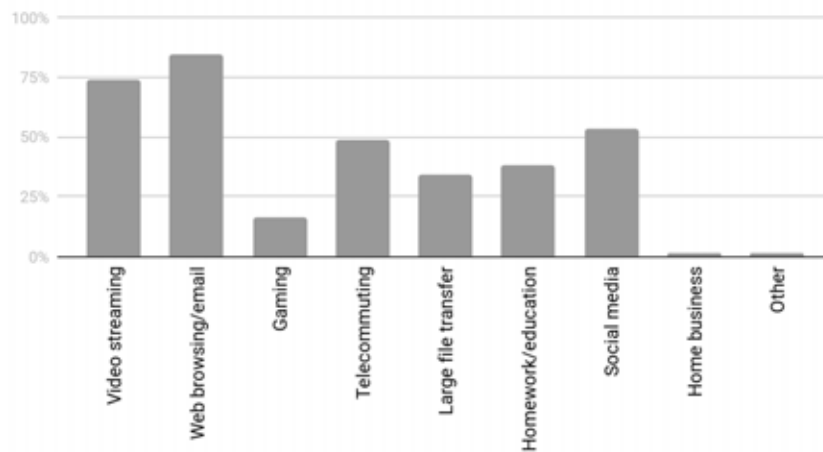
Satisfaction with Speeds Provided

Source: 2018 MBEP Broadband Consumer Survey

Primary Use for High-Speed Broadband for Businesses

Source: 2018 MBEP Broadband Business Survey

Primary Uses for Broadband in the Household

Source: 2018 MBEP Broadband Consumer Survey