



July 2019

Report on Fixed Wireline Broadband Speeds in Hawaii

Broadband speed data for Hawaii can assist policymakers in understanding the State of Hawaii's evolving broadband picture, thereby enabling more informed policies and strategies to advance the State towards its broadband goals. To help provide this information, the Department of Commerce and Consumer Affairs (DCCA), in addition to participation in the Federal Communications Commission's (FCC) Measuring Broadband America Program, has obtained consumer-initiated fixed wireline speed data for Hawaii from Ookla® the proprietor of Speedtest® and a widely-recognized source for fixed broadband and mobile network testing applications, data, and analysis. Significant quantities of data for Hawaii from tests taken with Speedtest that used servers physically located in Hawaii, analyzed by Ookla through its Speedtest Intelligence® data platform (Speedtest Intelligence data), offer insights to help understand the performance of the State's broadband networks and to monitor improvements to those networks over time.¹

The following tables, charts, and maps reflect fixed wireline broadband performance in Hawaii based on DCCA's analysis of the Speedtest Intelligence data. The Speedtest results are generated from fixed wireline tests performed by internet users in Hawaii from Q3 2016 through Q2 2019.² Where expressly noted, this *2019 Report* also includes Speedtest results for tests performed via WiFi connection for Q3 2018 through Q2 2019.

As shown below and reflected in DCCA's *2018 Report*, Hawaii statewide data from tests taken with Speedtest for June 2017 showed a mean of approximately **97 Megabits per second (Mbps)** download speed and a median download speed of approximately **61 Mbps**. For June 2018, Speedtest data shows increased speeds to approximately **129 Mbps** mean download speed and **78 Mbps** median download speed, and for June 2019, Speedtest data shows an additional increase in speeds to approximately **152 Mbps** mean download speed (134 Mbps for WiFi tests) and **92 Mbps** median download speed (89 Mbps for Wifi tests).

¹ In using Speedtest Intelligence data subscribed for this report, we agree with the benefits and possible limitations of this crowd-sourced data noted by the FCC, International Bureau, in its use of Speedtest Intelligence data for its 2018 International Broadband Data Report: "We note that generally, crowd-sourced data (such as Ookla's) can provide the benefit of generating a large volume of data at a very low cost and of measuring actual consumer experience on a network in a wide variety of locations, indoor and outdoor. Crowd-sourced data, however, are often not collected pursuant to statistical sampling techniques, and may require adjustments to construct a representative sample from the raw data. For instance, crowd-sourced mobile data come from a self-selected group of users, and there often is little control for most tests regarding such parameters as when people implement the test, whether the test is performed indoors or outdoors, the geographic location of the tester, and the vintage of the consumer's device." International Comparison Requirements Pursuant to the Broadband Data Improvement Act, International Broadband Data Report, GN Docket No. 17-199, DA 18-99, rel. Feb. 2, 2018 at 5, n.28.

² Results of tests from users located outside of the State were not used for this report. To provide the most accurate representation of Hawaii's fixed wireline environment, for the *2019 Report*, DCCA where practicable has: (1) adopted the ongoing refinements by Ookla to its data aggregation methodology; and (2) made slight adjustments to better remove non-fixed wireline test results. The fixed wireline tests may be taken by going to <http://www.speedtest.net/> or by downloading the Speedtest desktop or mobile application available from Ookla.

Tables, charts, and maps included in this report:

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Statewide Speeds

This set of tables and charts shows State aggregated results from tests taken with Speedtest for fixed wireline year-over-year and by quarter.

Aggregated Speedtest Results Year-Over-Year

State Fixed Wireline Speeds – Year-Over-Year (Mbps)*					
Year	Mean†		Median††		Sample Count
	Download	Upload	Download	Upload	
2017	97.14	19.17	61.23	11.88	26,880
2018	128.72	29.39	77.81	11.96	24,811
2019	152.37	33.37	92.11	14.36	19,802
2018-2019 Change	+23.65	+3.98	+14.30	+2.40	

*Table compares Speedtest Intelligence data collected from June 1 to June 30 for each year.

†The mean (or average) is the sum of the data set numbers divided by the total number in the data set.

††The median is the “middle” value separating the higher half of a data set from the lower half.

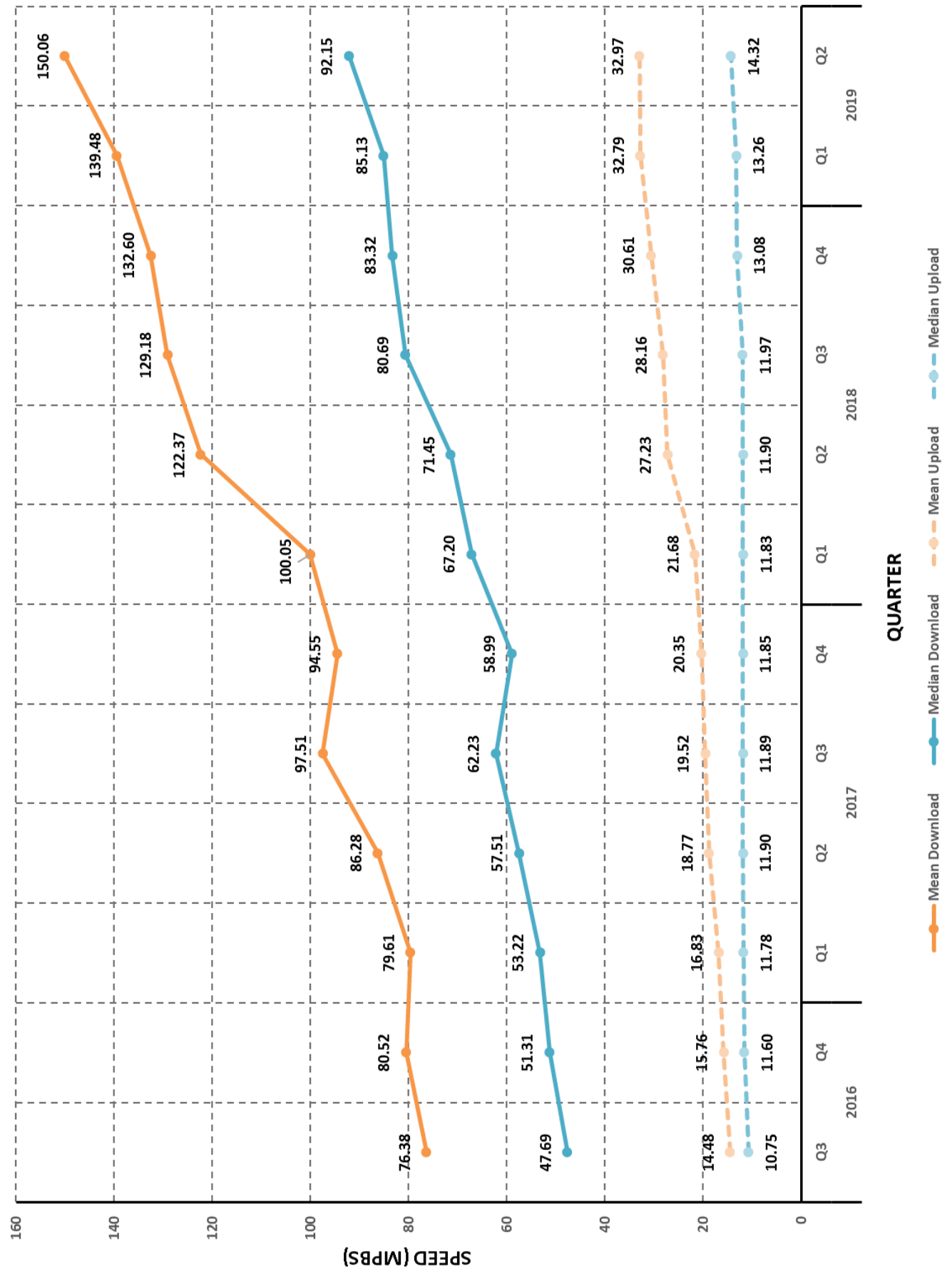
Aggregated Speedtest Results by Top and Bottom 10% by Quarter

State Fixed Wireline Speeds – Top and Bottom 10% – Quarterly (Mbps)						
Year	Quarter	Top 10% of Results		Bottom 10% of Results		Sample Count
		Download	Upload	Download	Upload	
2018	Q1	280.46	43.90	6.52	1.21	87,473
	Q2	315.24	50.70	7.76	1.87	78,558
	Q3	322.43	51.03	8.97	2.69	72,159
	Q4	333.75	62.75	10.00	2.85	63,370
2019	Q1	349.94	78.46	10.45	2.83	60,961
	Q2	354.54	83.85	10.80	2.96	57,159

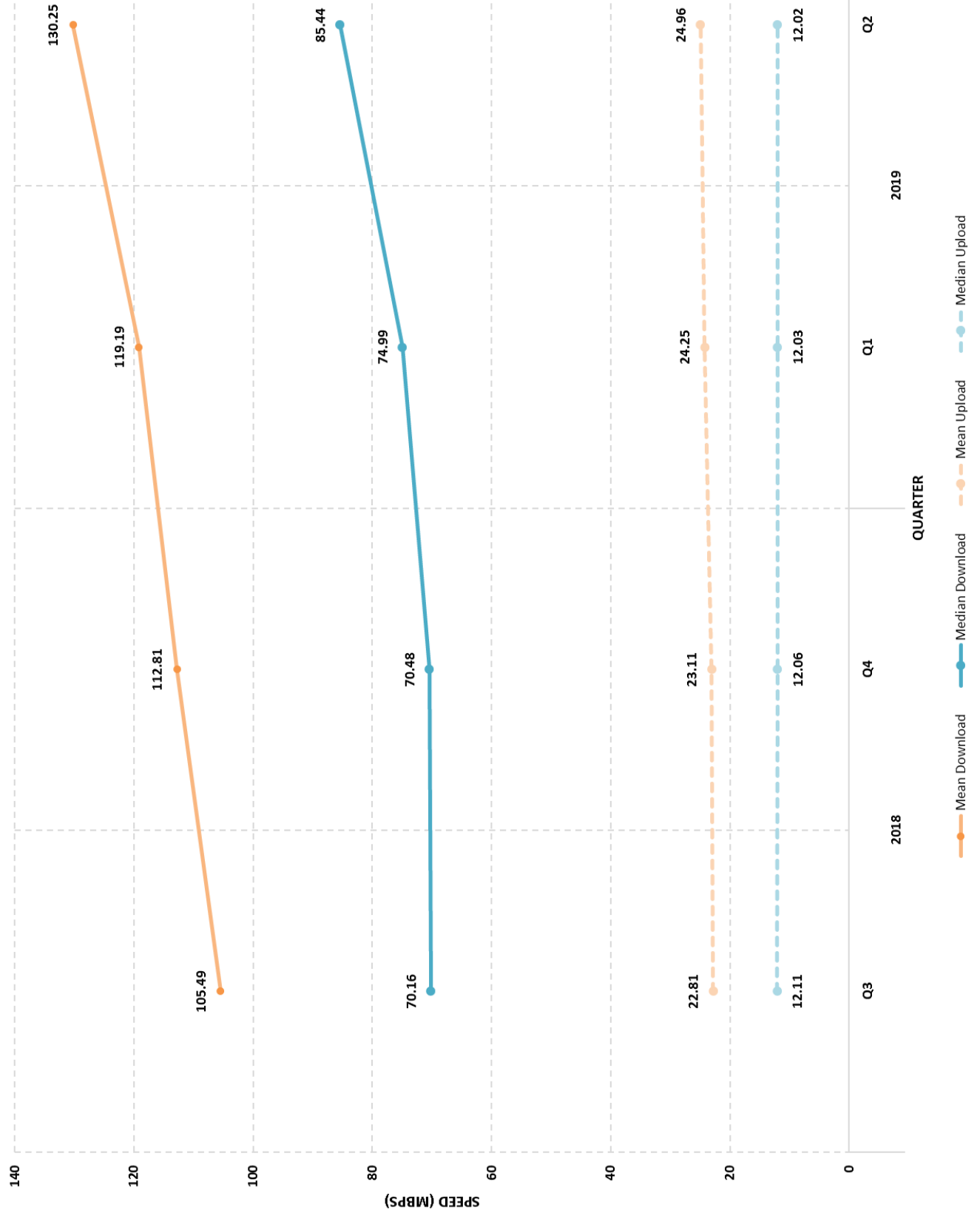
Aggregated Speedtest Results by Quarter

State Fixed Wireline Speeds – Quarterly (Mbps)											
Year	Quarter	Wired					WiFi				
		Download		Upload		Sample Count	Download		Upload		Sample Count
		Mean	Median	Mean	Median		Mean	Median	Mean	Median	
2016	Q3	76.38	47.69	14.48	10.75	83,195	-	-	-	-	-
	Q4	80.52	51.31	15.76	11.60	81,964	-	-	-	-	-
2017	Q1	79.61	53.22	16.83	11.78	80,428	-	-	-	-	-
	Q2	86.28	57.51	18.77	11.9	80,391	-	-	-	-	-
	Q3	97.51	62.23	19.52	11.89	85,654	-	-	-	-	-
	Q4	94.55	58.99	20.35	11.85	85,594	-	-	-	-	-
2018	Q1	100.05	67.2	21.68	11.83	88,761	-	-	-	-	-
	Q2	122.37	71.45	27.23	11.90	78,558	-	-	-	-	-
	Q3	129.18	80.69	28.16	11.97	72,159	105.49	70.16	22.81	12.11	115,523
	Q4	132.60	83.32	30.61	13.08	63,370	112.81	70.48	23.11	12.06	113,585
2019	Q1	139.48	85.13	32.79	13.26	60,961	119.19	74.99	24.25	12.03	106,180
	Q2	150.06	92.15	32.97	14.32	57,159	130.25	85.44	24.96	12.02	100,822

State Fixed Wireline Speeds Q3 2016 - Q2 2019



State Fixed Wireline Speeds - WiFi Only Q3 2018 - Q2 2019



Speeds by County

This set of tables and charts shows results from tests taken with Speedtest for each county year-over-year and by quarter.

Aggregated Speedtest Results Year-Over-Year

County Fixed Wireline Speeds – Year-Over-Year (Mbps)*						
County	Year	Mean		Median		Sample Count
		Download	Upload	Download	Upload	
Hawaii	2017	70.55	12.36	42.57	8.06	3,120
	2018	95.55	14.67	66.03	11.68	2,864
	2019	123.70	22.10	71.95	11.55	2,298
	2018-2019 Change	+28.15	+7.43	+5.92	-0.13	
Honolulu	2017	105.06	21.48	67.31	12.90	19,705
	2018	136.68	34.57	85.57	16.67	18,277
	2019	162.99	38.39	94.54	17.96	14,478
	2018-2019 Change	+26.31	+3.82	+8.97	+1.29	
Kauai	2017	75.70	12.14	53.56	9.41	1,330
	2018	111.21	13.36	71.43	11.76	1,220
	2019	102.82	14.55	70.14	11.22	995
	2018-2019 Change	-8.39	+1.19	-1.29	-0.54	
Maui	2017	80.92	13.70	53.39	10.78	2,723
	2018	116.88	16.03	71.00	11.76	2,451
	2019	133.40	19.61	84.77	11.58	2,032
	2018-2019 Change	+16.52	+3.58	+13.77	-0.18	

*Table compares Speedtest Intelligence data collected from June 1 to June 30 for each year.

Aggregated Speedtest Results by Top and Bottom 10% by Quarter

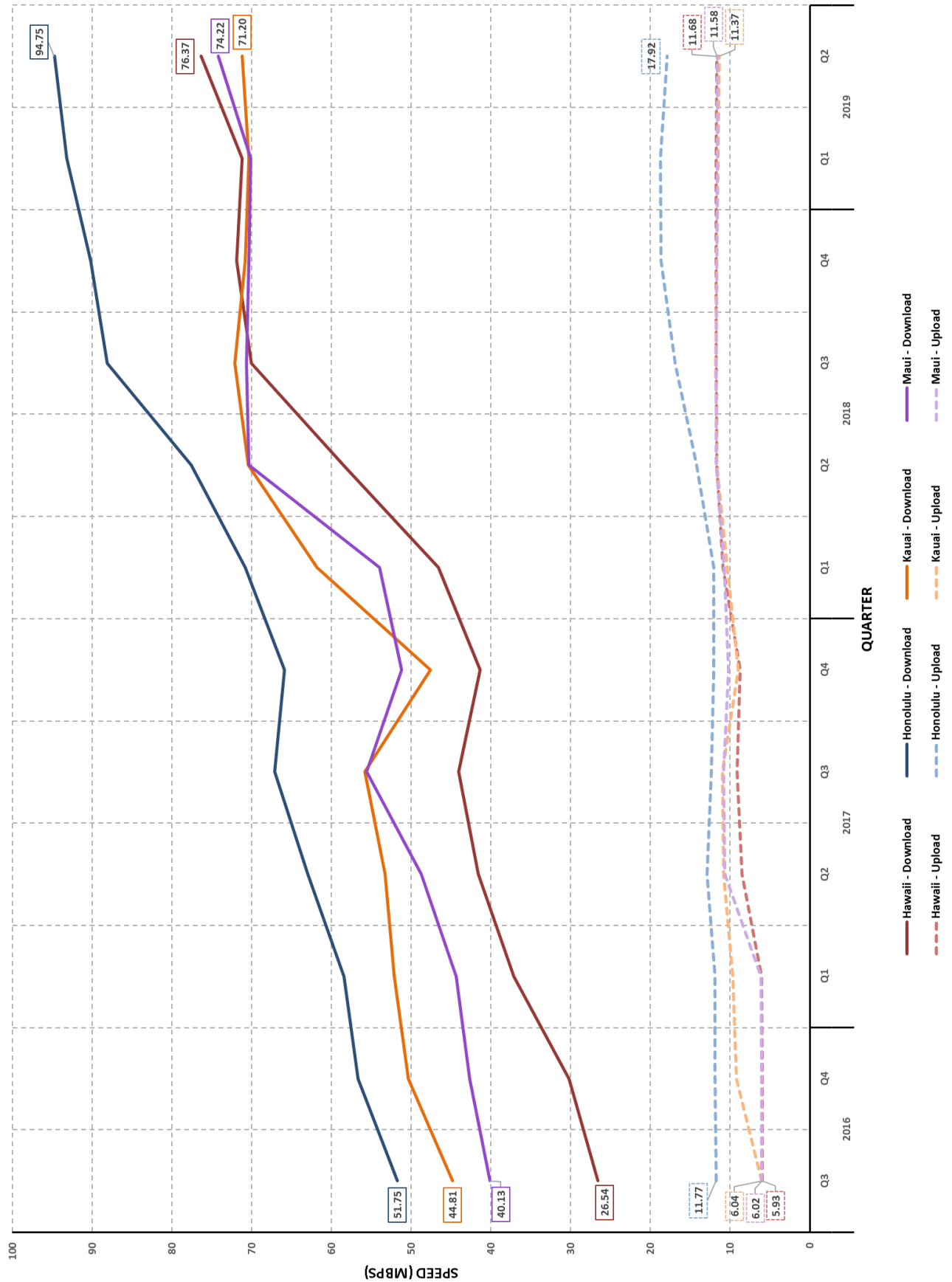
County Fixed Wireline Speeds – Top and Bottom 10% – Quarterly (Mbps)							
County	Year	Quarter	Top 10% of Results		Bottom 10% of Results		Sample Count
			Download	Upload	Download	Upload	
Hawaii	2018	Q1	226.57	23.78	3.74	0.80	12,317
		Q2	235.96	23.83	4.96	0.91	10,061
		Q3	239.80	23.97	6.30	1.00	9,227
		Q4	273.57	39.52	7.35	1.33	8,079
	2019	Q1	251.91	26.95	8.92	1.43	7,815
		Q2	295.68	37.19	7.83	1.58	6,998
Honolulu	2018	Q1	318.63	50.55	8.26	2.02	62,229
		Q2	340.17	72.81	9.47	2.39	56,864
		Q3	342.44	86.04	10.19	2.84	50,984
		Q4	348.54	91.22	11.36	3.41	45,233
	2019	Q1	354.99	95.31	11.78	3.39	43,694
		Q2	376.41	92.80	12.15	3.66	41,060
Kauai	2018	Q1	233.89	23.64	4.64	0.83	3,614
		Q2	236.31	23.71	5.69	0.95	3,416
		Q3	237.20	23.67	6.69	4.28	4,163
		Q4	237.58	23.68	6.59	3.06	3,251
	2019	Q1	237.29	23.66	6.81	2.04	3,064
		Q2	238.97	23.50	6.93	1.86	2,878
Maui	2018	Q1	210.23	23.71	5.20	1.01	9,300
		Q2	250.78	23.82	6.55	1.72	8,217
		Q3	260.02	23.79	6.94	2.34	7,785
		Q4	240.25	23.72	7.34	2.64	6,784
	2019	Q1	239.57	23.72	7.70	2.10	6,371
		Q2	297.70	23.90	8.79	2.67	6,066

Aggregated Speedtest Results by Quarter

County Fixed Wireline Speeds – Quarterly (Mbps)												
County	Year	Quarter	Wired					WiFi				
			Download		Upload		Sample Count	Download		Upload		Sample Count
			Mean	Median	Mean	Median		Mean	Median	Mean	Median	
Hawaii	2016	Q3	55.84	26.54	9.08	5.93	10,326	-	-	-	-	-
		Q4	56.55	30.16	9.51	5.96	10,063	-	-	-	-	-
	2017	Q1	58.52	37.13	10.99	6.06	9,229	-	-	-	-	-
		Q2	64.72	41.55	13.18	8.53	9,077	-	-	-	-	-
		Q3	68.75	44.06	11.37	9.14	9,540	-	-	-	-	-
		Q4	67.42	41.37	12.85	8.76	10,409	-	-	-	-	-
	2018	Q1	71.57	46.55	14.26	10.86	12,307	-	-	-	-	-
		Q2	90.73	58.52	17.12	11.66	10,061	-	-	-	-	-
		Q3	105.49	70.04	18.55	11.74	9,227	90.99	63.27	16.76	11.80	14,266
		Q4	117.80	71.91	20.61	11.77	8,079	99.98	66.43	16.91	11.79	15,013
	2019	Q1	116.12	71.20	19.33	11.71	7,815	103.07	68.79	17.67	11.74	14,328
		Q2	125.64	76.37	21.54	11.68	6,998	109.49	70.20	18.14	11.64	13,472
Honolulu	2016	Q3	82.36	51.75	16.13	11.77	60,839	-	-	-	-	-
		Q4	87.83	56.67	17.74	11.89	59,445	-	-	-	-	-
	2017	Q1	85.88	58.46	18.80	11.92	59,480	-	-	-	-	-
		Q2	92.95	62.98	20.81	12.88	59,553	-	-	-	-	-
		Q3	104.78	67.12	21.98	12.32	64,471	-	-	-	-	-
		Q4	102.67	65.85	23.19	12.04	62,446	-	-	-	-	-
	2018	Q1	109.94	70.82	24.67	12.05	63,377	-	-	-	-	-
		Q2	131.60	77.59	31.35	14.19	56,864	-	-	-	-	-
		Q3	137.15	88.10	32.92	16.92	50,984	112.47	73.87	26.50	14.31	78,743
		Q4	140.44	90.16	35.66	18.62	45,233	119.85	79.32	27.02	14.92	76,212
	2019	Q1	150.58	93.15	38.94	18.77	43,694	127.92	87.21	28.72	14.15	70,424
		Q2	160.39	94.75	38.42	17.92	41,060	140.71	97.82	29.56	14.34	67,336
Kauai	2016	Q3	66.45	44.81	10.25	6.04	3,410	-	-	-	-	-
		Q4	70.45	50.33	11.19	9.22	3,390	-	-	-	-	-
	2017	Q1	72.48	52.11	11.69	9.66	3,129	-	-	-	-	-
		Q2	70.71	53.30	12.25	10.79	3,375	-	-	-	-	-
		Q3	80.18	55.84	11.21	10.97	3,349	-	-	-	-	-
		Q4	71.18	47.59	11.10	9.00	3,607	-	-	-	-	-
	2018	Q1	79.84	61.81	13.88	10.37	3,600	-	-	-	-	-
		Q2	101.96	70.39	16.83	11.64	3,416	-	-	-	-	-
		Q3	114.90	72.08	15.69	11.78	4,163	85.45	62.45	12.78	11.67	6,939
		Q4	107.04	70.80	16.39	11.65	3,251	96.73	67.58	13.37	11.66	6,867
	2019	Q1	103.58	70.36	15.53	11.48	3,064	101.42	68.08	14.00	11.62	6,416
		Q2	111.61	71.20	14.39	11.37	2,878	107.85	70.24	13.25	11.53	6,099

County Fixed Wireline Speeds – Quarterly (Mbps)												
County	Year	Quarter	Wired					WiFi				
			Download		Upload		Sample Count	Download		Upload		Sample Count
			Mean	Median	Mean	Median		Mean	Median	Mean	Median	
Maui	2016	Q3	62.10	40.13	10.98	6.02	8,469	-	-	-	-	-
		Q4	62.99	42.63	11.41	6.04	9,007	-	-	-	-	-
	2017	Q1	61.69	44.36	11.32	6.09	8,552	-	-	-	-	-
		Q2	68.59	48.74	12.93	10.64	8,385	-	-	-	-	-
		Q3	81.16	55.59	13.08	10.77	8,279	-	-	-	-	-
		Q4	79.14	51.22	13.15	10.22	9,130	-	-	-	-	-
	2018	Q1	75.18	53.93	13.85	10.76	9,348	-	-	-	-	-
		Q2	105.79	70.34	15.47	11.72	8,217	-	-	-	-	-
		Q3	112.72	70.69	15.06	11.73	7,785	92.41	63.90	14.17	11.71	15,568
		Q4	110.23	70.36	15.68	11.65	6,784	97.73	65.35	14.24	11.64	15,431
	2019	Q1	109.31	70.10	15.47	11.55	6,371	101.35	65.80	13.92	11.43	14,950
		Q2	125.07	74.22	17.85	11.58	6,066	109.63	69.44	14.46	11.50	13,853

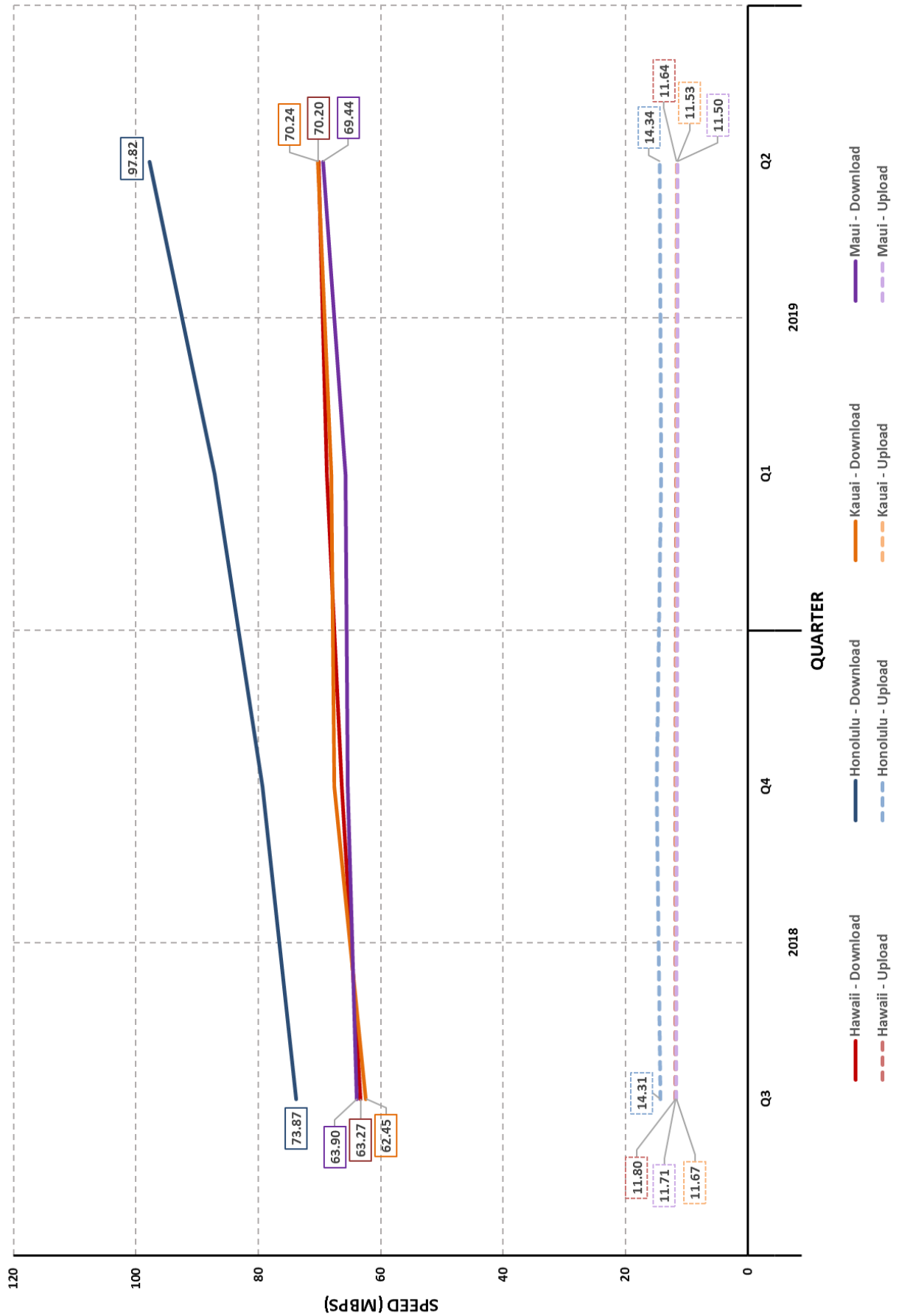
County Fixed Wireline Speeds Q3 2016 - Q2 2019 Median



County Fixed Wireline Speeds - WiFi Only

Q3 2018 - Q2 2019

Median



Speeds by Cities

This set of tables and charts shows Speedtest results for select cities in each county year-over-year and by quarter. For results of tests taken with Speedtest in all cities in Hawaii for which Speedtest Intelligence data is available, please see Appendix.

Aggregated Speedtest Results Year-Over-Year

Select Cities Fixed Wireline Speeds – Year-Over-Year (Mbps)*						
Location (City/Island)	Year	Mean		Median		Sample Count
		Download	Upload	Download	Upload	
Hilo Hawaii	2017	74.14	14.15	51.46	11.24	693
	2018	102.49	14.64	71.65	11.79	708
	2019	119.74	21.61	82.60	11.51	502
	2018-2019 Change	+17.25	+6.97	+10.95	-0.28	
Kailua-Kona Hawaii	2017	95.03	14.06	67.15	12.01	95
	2018	95.29	11.65	52.83	11.28	138
	2019	131.32	19.10	87.20	11.67	211
	2018-2019 Change	+36.03	+7.45	+34.37	+0.39	
Honolulu Oahu	2017	92.95	18.92	57.68	11.85	9,317
	2018	128.66	36.29	75.28	15.41	9,161
	2019	153.25	38.38	90.91	17.10	7,029
	2018-2019 Change	+24.59	+2.09	+15.63	+1.69	
Pearl City Oahu	2017	98.93	16.91	60.81	15.16	523
	2018	137.03	23.76	92.77	13.45	531
	2019	185.84	25.76	114.10	20.15	452
	2018-2019 Change	+48.81	+2.00	+21.33	+6.70	
Kapaa Kauai	2017	58.29	8.47	13.43	5.80	100
	2018	63.32	12.49	25.51	10.16	47**
	2019	80.42	22.88	39.60	10.82	62
	2018-2019 Change	+17.10	+10.39	+14.09	+0.66	
Lihue Kauai	2017	84.69	11.12	35.31	10.13	25**
	2018	128.96	12.11	82.06	11.56	44**
	2019	112.01	19.34	81.22	9.45	36**
	2018-2019 Change	-16.95	+7.23	-0.84	-2.11	
Kahului Maui	2017	92.53	14.09	59.52	11.80	469
	2018	129.38	14.38	71.24	11.78	427
	2019	137.28	20.47	92.15	11.58	389
	2018-2019 Change	+7.90	+6.09	+20.91	-0.20	
Kihei Maui	2017	83.21	11.96	60.11	10.85	386
	2018	133.71	14.91	89.44	11.83	400
	2019	148.41	16.34	88.20	11.63	467
	2018-2019 Change	+14.70	+1.43	-1.24	-0.20	

Select Cities Fixed Wireline Speeds – Year-Over-Year (Mbps)*						
Location (City/Island)	Year	Mean		Median		Sample Count
		Download	Upload	Download	Upload	
Lanai City Lanai	2017	54.93	5.04	68.01	5.79	7**
	2018	38.01	6.20	34.26	5.89	10**
	2019	76.31	19.10	75.32	7.19	6**
	2018-2019 Change	+38.30	+12.90	+41.06	+1.30	
Kaunakakai Molokai	2017	59.91	5.36	59.91	5.36	1**
	2018	68.79	4.90	42.42	4.28	6**
	2019	137.28	20.47	92.15	11.58	20**
	2018-2019 Change	+68.49	+15.57	+49.73	+7.30	

*Table compares Speedtest Intelligence data collected from June 1 to June 30 for each year.

** Directional due to low sample count.

Aggregated Speedtest Results by Top and Bottom 10% by Quarter

Select Cities Fixed Wireline Speeds – Quarterly (Mbps)							
Location (City/Island)	Year	Quarter	Top 10% of Results		Bottom 10% of Results		Sample Count
			Download	Upload	Download	Upload	
Hilo Hawaii	2018	Q1	225.73	23.76	6.28	1.22	2,355
		Q2	236.05	23.72	6.49	2.31	2,195
		Q3	237.26	23.87	5.49	1.75	2,206
		Q4	288.08	30.78	8.00	2.13	2,004
	2019	Q1	236.48	24.09	11.04	3.52	1,718
		Q2	247.61	26.29	8.30	2.26	1,444
Kailua-Kona Hawaii	2018	Q1	198.26	23.51	8.16	4.91	604
		Q2	240.81	23.70	10.36	4.58	500
		Q3	236.54	23.71	12.21	5.28	600
		Q4	309.43	26.36	9.53	3.06	628
	2019	Q1	293.36	29.65	12.20	4.84	748
		Q2	339.77	40.02	10.54	4.10	638
Honolulu Oahu	2018	Q1	286.39	50.58	7.12	1.51	31,477
		Q2	309.83	81.54	8.20	1.98	28,256
		Q3	326.29	91.43	8.56	2.57	25,104
		Q4	333.40	93.18	9.70	2.83	22,676
	2019	Q1	352.29	99.53	9.96	2.82	22,013
		Q2	357.76	93.69	10.60	3.03	20,639
Pearl City Oahu	2018	Q1	348.28	41.06	10.77	2.74	1,280
		Q2	335.67	39.94	11.96	2.89	1,484
		Q3	351.14	30.98	16.04	3.84	1,339
		Q4	354.57	39.19	15.01	3.97	1,415
	2019	Q1	351.93	39.07	16.57	4.01	1,143
		Q2	355.69	37.54	9.49	1.55	1,217
Kapaa Kauai	2018	Q1	125.09	23.60	1.29	0.40	191
		Q2	223.68	22.77	2.26	0.50	157
		Q3	235.76	23.67	2.66	0.68	147
		Q4	343.05	23.82	2.05	0.61	163
	2019	Q1	236.74	37.82	1.72	0.44	180
		Q2	236.96	27.32	1.40	0.50	186
Lihue Kauai	2018	Q1	117.29	22.70	2.83	1.24	64
		Q2	238.06	23.69	6.58	0.93	115
		Q3	247.16	26.50	19.96	5.90	121
		Q4	238.14	24.67	5.25	1.27	145
	2019	Q1	233.47	39.66	5.52	0.95	180
		Q2	236.22	46.45	6.70	0.98	127

Select Cities Fixed Wireline Speeds – Quarterly (Mbps)							
Location (City/Island)	Year	Quarter	Top 10% of Results		Bottom 10% of Results		Sample Count
			Download	Upload	Download	Upload	
Kahului Maui	2018	Q1	235.97	23.70	5.77	0.93	1,362
		Q2	317.27	23.80	7.99	1.32	1,357
		Q3	325.03	23.86	7.72	2.29	1,571
		Q4	350.65	23.96	9.46	2.57	1,042
	2019	Q1	266.18	23.88	9.00	2.75	1,105
		Q2	338.20	34.76	11.33	4.91	1,089
Kihei Maui	2018	Q1	234.24	23.66	6.69	1.26	1,483
		Q2	280.83	23.76	11.48	4.41	1,387
		Q3	237.42	23.62	11.73	4.27	1,264
		Q4	271.99	23.68	10.01	4.18	1,362
	2019	Q1	247.43	23.60	8.69	2.65	1,398
		Q2	348.33	23.66	10.49	4.68	1,265
Lanai City Lanai	2018	Q1	117.76	11.86	47.09	5.36	21**
		Q2	165.98	11.47	12.83	1.75	24**
		Q3	71.57	10.44	11.65	3.23	27**
		Q4	72.78	10.92	22.63	5.45	13**
	2019	Q1	246.42	47.75	9.56	0.97	19**
		Q2	227.12	12.07	6.67	1.50	20**
Kaunakakai Molokai	2018	Q1	118.76	76.31	3.42	0.72	42**
		Q2	133.80	11.57	1.74	2.38	27**
		Q3	224.37	11.90	4.66	0.98	32**
		Q4	74.74	11.25	3.41	1.65	23**
	2019	Q1	98.28	11.73	9.76	2.84	22**
		Q2	235.92	20.37	11.03	2.81	15**

** Directional due to low sample count.

Aggregated Speedtest Results by Quarter

Select Cities Fixed Wireline Speeds – Quarterly (Mbps)												
Location (City/Island)	Year	Quarter	Wired					WiFi				
			Download		Upload		Sample Count	Download		Upload		Sample Count
			Mean	Median	Mean	Median		Mean	Median	Mean	Median	
Hilo Hawaii	2016	Q3	66.49	38.56	10.60	5.98	2,030	-	-	-	-	-
		Q4	70.54	48.69	11.21	10.18	1,786	-	-	-	-	-
	2017	Q1	64.07	45.96	11.78	11.12	1,828	-	-	-	-	-
		Q2	64.31	46.85	12.97	9.64	2,315	-	-	-	-	-
		Q3	79.50	55.20	12.85	11.70	2,184	-	-	-	-	-
		Q4	78.79	55.41	13.38	11.72	2,437	-	-	-	-	-
	2018	Q1	78.73	56.99	14.83	11.73	2,351	-	-	-	-	-
		Q2	99.35	70.38	17.35	11.77	2,195	-	-	-	-	-
		Q3	111.74	76.04	17.05	11.73	2,206	86.97	60.02	15.07	11.83	3,590
		Q4	127.30	93.02	19.04	11.76	2,004	99.87	68.76	15.32	11.90	3,622
	2019	Q1	110.56	88.12	16.71	11.76	1,718	102.24	69.98	16.03	11.80	2,932
		Q2	121.42	89.14	21.31	11.73	1,444	109.49	15.85	71.45	11.71	2,919
Kailua-Kona Hawaii	2016	Q3	75.46	58.18	11.83	10.24	511	-	-	-	-	-
		Q4	81.58	57.99	12.90	11.72	630	-	-	-	-	-
	2017	Q1	83.60	66.31	14.93	11.87	550	-	-	-	-	-
		Q2	79.84	60.91	13.46	11.90	230	-	-	-	-	-
		Q3	87.75	61.84	13.93	11.86	421	-	-	-	-	-
		Q4	73.02	50.90	11.97	11.44	441	-	-	-	-	-
	2018	Q1	78.66	57.23	13.56	11.73	601	-	-	-	-	-
		Q2	99.07	70.19	13.75	11.69	500	-	-	-	-	-
		Q3	109.54	70.44	13.72	11.77	600	99.46	67.59	13.76	11.80	835
		Q4	131.64	74.25	21.96	11.78	628	97.53	67.76	14.79	11.79	1,656
	2019	Q1	128.05	77.15	18.80	11.78	748	107.39	69.81	14.91	11.85	1,791
		Q2	133.90	91.94	20.10	11.84	638	112.84	13.64	70.03	11.66	1,616
Honolulu Oahu	2016	Q3	72.96	44.83	15.05	10.60	31,139	-	-	-	-	-
		Q4	76.48	48.75	15.95	11.47	30,141	-	-	-	-	-
	2017	Q1	78.10	52.79	17.27	11.75	31,358	-	-	-	-	-
		Q2	81.87	54.31	18.28	11.86	29,535	-	-	-	-	-
		Q3	95.00	59.27	19.42	11.89	32,004	-	-	-	-	-
		Q4	93.10	56.50	20.76	11.88	31,337	-	-	-	-	-
	2018	Q1	100.61	67.87	22.75	11.88	32,056	-	-	-	-	-
		Q2	121.19	71.16	30.92	11.97	28,256	-	-	-	-	-
		Q3	129.40	78.58	32.92	15.47	25,104	104.11	70.02	28.91	14.51	35,918
		Q4	131.88	81.69	35.88	17.64	22,676	109.74	70.26	27.99	14.77	34,283
	2019	Q1	141.94	86.91	39.92	18.17	22,013	119.89	78.42	30.59	14.65	32,300
		Q2	150.80	92.37	38.63	17.30	20,639	130.02	31.52	87.21	14.47	31,342

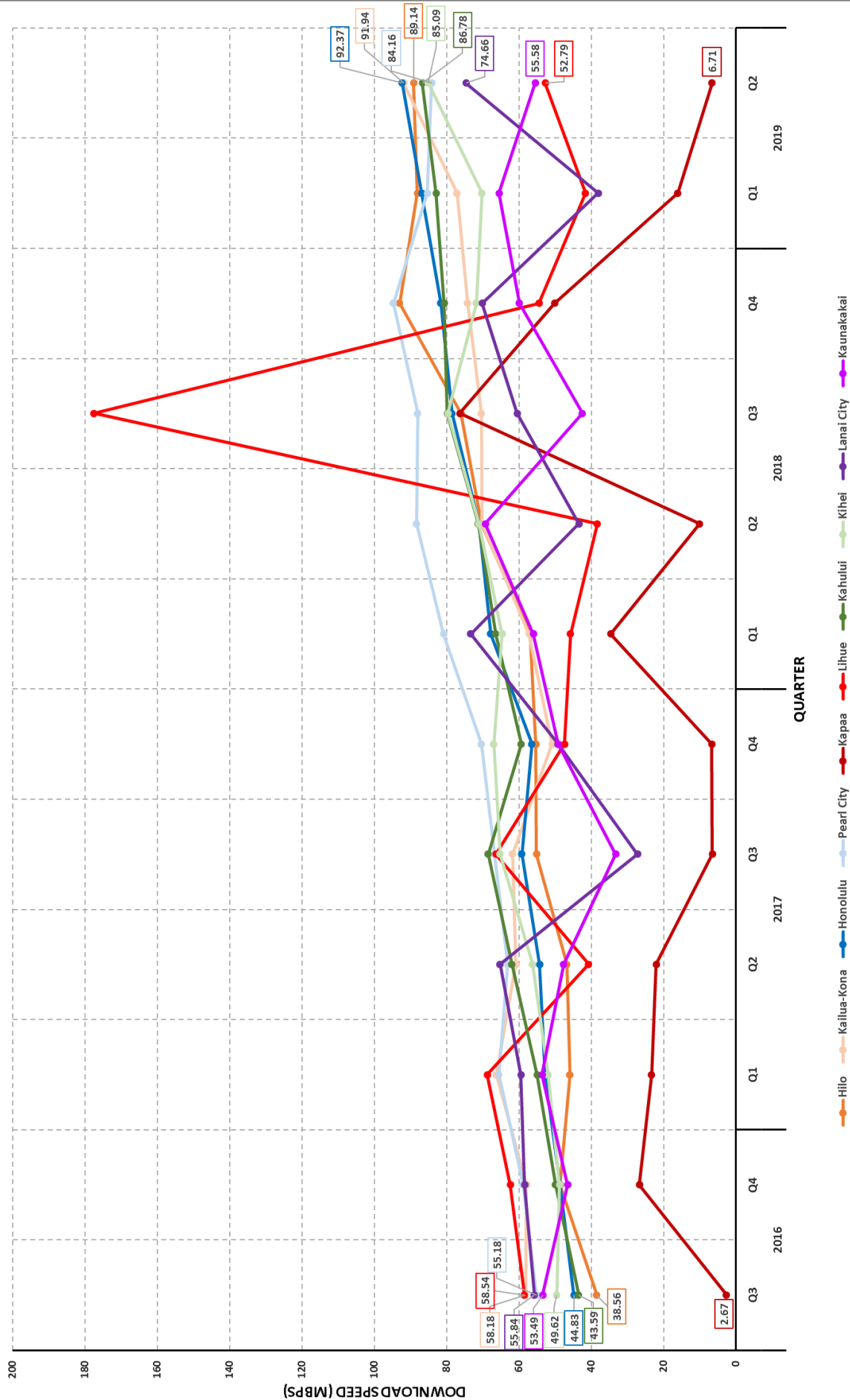
Select Cities Fixed Wireline Speeds – Quarterly (Mbps)												
Location (City/Island)	Year	Quarter	Wired					WiFi				
			Download		Upload		Sample Count	Download		Upload		Sample Count
			Mean	Median	Mean	Median		Mean	Median	Mean	Median	
Pearl City Oahu	2016	Q3	84.54	55.18	13.08	11.71	2,005	-	-	-	-	-
		Q4	95.84	58.89	15.07	11.96	1,356	-	-	-	-	-
	2017	Q1	88.14	65.60	14.66	11.84	1,138	-	-	-	-	-
		Q2	95.09	63.23	16.63	16.04	1,240	-	-	-	-	-
		Q3	112.68	66.84	29.83	13.21	1,819	-	-	-	-	-
		Q4	109.22	70.43	21.24	15.15	1,676	-	-	-	-	-
	2018	Q1	126.00	80.86	22.61	18.30	1,278	-	-	-	-	-
		Q2	133.83	88.39	24.40	15.49	1,484	-	-	-	-	-
		Q3	146.62	88.00	21.23	11.87	1,339	113.36	76.07	24.53	18.60	1,754
		Q4	158.98	94.76	22.70	16.01	1,415	121.93	77.28	23.45	19.14	2,155
	2019	Q1	144.30	85.36	24.48	11.91	1,143	124.41	77.30	20.77	12.51	1,962
		Q2	158.76	84.16	20.54	12.24	1,217	130.52	21.64	82.25	12.14	1,682
Kapaa Kauai	2016	Q3	18.92	2.67	8.49	0.68	140	-	-	-	-	-
		Q4	52.06	26.74	9.28	5.89	173	-	-	-	-	-
	2017	Q1	53.60	23.38	9.10	5.80	232	-	-	-	-	-
		Q2	55.52	22.13	9.24	5.91	241	-	-	-	-	-
		Q3	39.99	6.59	6.45	0.96	180	-	-	-	-	-
		Q4	38.16	6.76	5.66	0.96	104	-	-	-	-	-
	2018	Q1	56.16	34.70	9.16	5.84	191	-	-	-	-	-
		Q2	68.14	10.14	11.69	7.47	157	-	-	-	-	-
		Q3	119.54	76.41	26.58	11.66	147	82.74	56.89	12.46	11.72	928
		Q4	120.46	50.19	45.89	9.98	163	105.22	69.42	13.42	11.71	912
	2019	Q1	75.57	16.13	22.97	9.41	180	106.33	66.80	13.36	11.68	836
		Q2	74.70	6.71	12.81	3.58	186	108.00	13.11	70.34	11.67	761
Lihue Kauai	2016	Q3	75.54	58.54	12.32	11.86	110	-	-	-	-	-
		Q4	94.09	62.44	14.15	11.97	135	-	-	-	-	-
	2017	Q1	73.60	68.81	13.22	11.88	70	-	-	-	-	-
		Q2	71.25	40.79	10.99	8.94	86	-	-	-	-	-
		Q3	80.81	66.43	10.22	5.97	38**	-	-	-	-	-
		Q4	86.28	47.42	12.81	11.76	126	-	-	-	-	-
	2018	Q1	68.70	45.81	11.64	11.48	66	-	-	-	-	-
		Q2	90.58	38.41	9.68	5.90	115	-	-	-	-	-
		Q3	159.62	177.54	17.23	19.83	121	90.76	59.58	14.98	11.73	579
		Q4	106.73	54.49	18.98	11.76	145	90.01	57.80	13.33	11.48	665
	2019	Q1	80.97	41.67	24.21	5.85	180	101.42	62.58	17.21	11.82	585
		Q2	97.65	52.79	18.69	10.75	127	113.26	15.69	70.40	11.54	604

Select Cities Fixed Wireline Speeds – Quarterly (Mbps)												
Location (City/Island)	Year	Quarter	Wired					WiFi				
			Download		Upload		Sample Count	Download		Upload		Sample Count
			Mean	Median	Mean	Median		Mean	Median	Mean	Median	
Kahului Maui	2016	Q3	76.48	43.59	12.29	10.29	1,466	-	-	-	-	-
		Q4	82.19	49.95	13.20	11.43	1,150	-	-	-	-	-
	2017	Q1	70.85	55.00	12.62	11.69	1,556	-	-	-	-	-
		Q2	80.99	61.99	14.11	11.86	1,331	-	-	-	-	-
		Q3	97.12	68.59	13.02	11.79	1,382	-	-	-	-	-
		Q4	87.12	59.39	13.20	11.72	1,426	-	-	-	-	-
	2018	Q1	93.41	66.52	12.58	11.41	1,354	-	-	-	-	-
		Q2	117.36	71.33	14.62	11.77	1,357	-	-	-	-	-
		Q3	131.37	79.89	17.17	11.87	1,571	108.33	73.39	14.35	11.94	1,886
		Q4	132.30	80.68	17.20	11.77	1,042	119.48	88.76	14.52	11.90	1,588
	2019	Q1	124.22	82.94	15.59	11.73	1,105	129.68	94.60	14.90	11.82	1,517
		Q2	144.36	86.78	19.23	11.63	1,089	132.62	14.16	92.12	11.80	1,453
Kihei Maui	2016	Q3	76.35	49.62	11.59	11.05	1,471	-	-	-	-	-
		Q4	69.10	48.84	10.97	7.77	1,503	-	-	-	-	-
	2017	Q1	67.20	52.01	11.00	7.64	1,530	-	-	-	-	-
		Q2	71.96	56.33	12.43	11.53	1,191	-	-	-	-	-
		Q3	86.63	65.28	12.93	11.44	1,363	-	-	-	-	-
		Q4	88.13	67.02	12.50	11.64	1,449	-	-	-	-	-
	2018	Q1	84.06	64.69	11.98	11.49	1,471	-	-	-	-	-
		Q2	117.31	71.15	14.10	11.80	1,387	-	-	-	-	-
		Q3	114.37	79.70	13.34	11.76	1,264	97.37	66.44	14.60	11.76	1,671
		Q4	118.20	71.79	14.87	11.74	1,362	95.82	64.46	13.75	11.54	2,831
	2019	Q1	110.15	70.26	14.13	11.63	1,398	98.54	61.33	13.89	11.25	2,551
		Q2	137.86	85.09	16.72	11.65	1,265	122.07	14.50	70.27	11.61	2,428
Lanai City Lanai	2016	Q3	48.24	55.84	5.97	6.01	8**	-	-	-	-	-
		Q4	89.72	58.50	9.82	5.97	20**	-	-	-	-	-
	2017	Q1	60.09	59.53	5.57	5.74	3**	-	-	-	-	-
		Q2	50.47	65.29	5.14	5.80	8**	-	-	-	-	-
		Q3	44.55	27.25	8.93	11.05	6**	-	-	-	-	-
		Q4	48.96	49.28	6.54	5.91	40**	-	-	-	-	-
	2018	Q1	86.26	73.41	8.99	9.41	21**	-	-	-	-	-
		Q2	64.93	43.50	6.78	5.88	24**	-	-	-	-	-
		Q3	57.35	60.56	6.45	5.90	27**	44.53	37.10	5.36	5.81	109
		Q4	56.57	70.21	7.15	5.88	13**	70.21	31.38	5.53	5.59	40**
	2019	Q1	113.52	38.09	17.58	8.64	19**	60.49	30.08	6.70	5.47	116
		Q2	91.99	74.66	11.66	9.44	20**	70.45	9.49	40.04	5.39	118

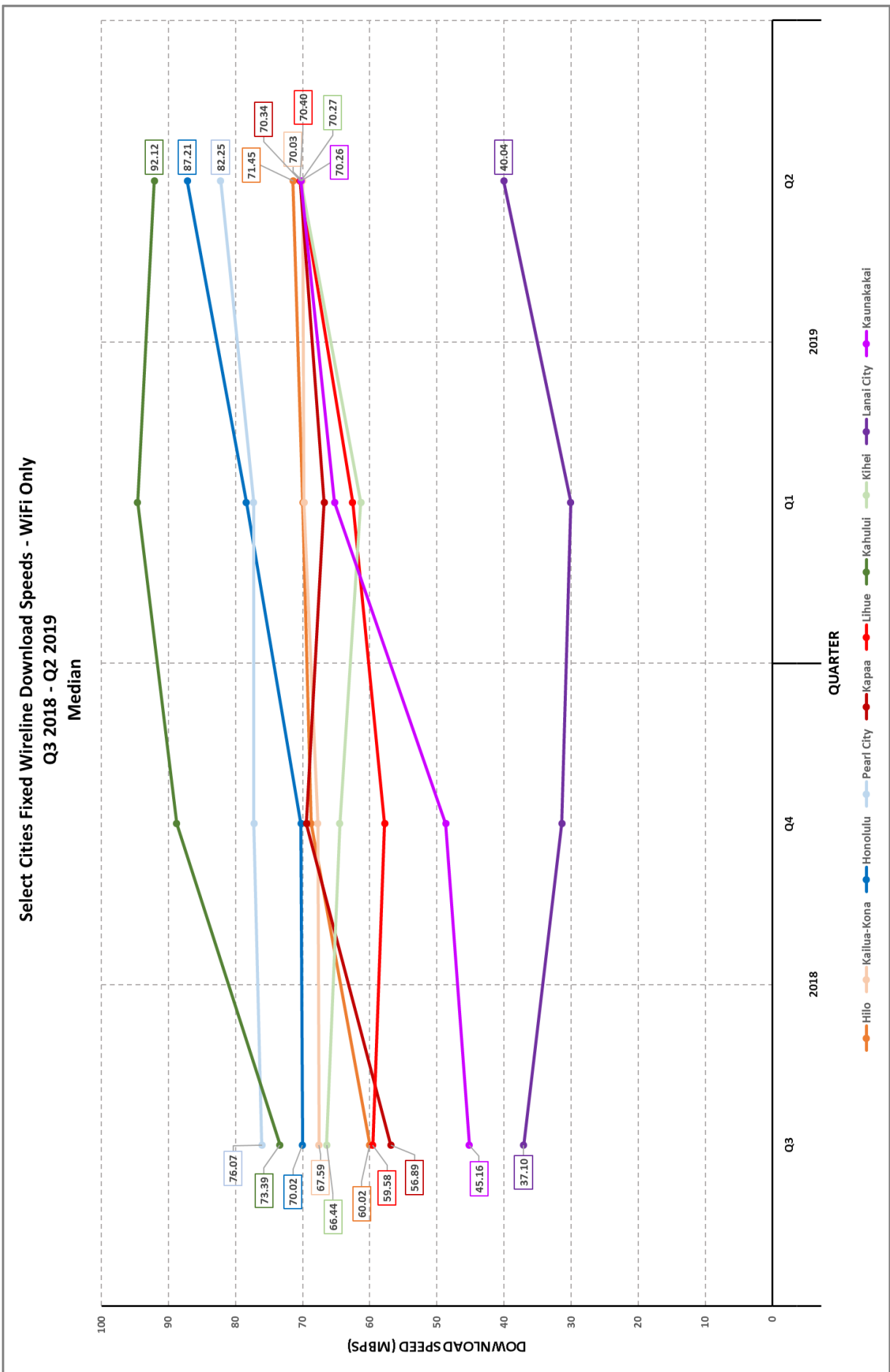
Select Cities Fixed Wireline Speeds – Quarterly (Mbps)												
Location (City/Island)	Year	Quarter	Wired					WiFi				
			Download		Upload		Sample Count	Download		Upload		Sample Count
			Mean	Median	Mean	Median		Mean	Median	Mean	Median	
Kaunakakai Molokai	2016	Q3	43.04	53.49	4.99	5.86	14**	-	-	-	-	-
		Q4	41.54	46.55	5.45	5.89	29**	-	-	-	-	-
	2017	Q1	49.49	53.60	5.63	5.92	39**	-	-	-	-	-
		Q2	38.55	47.69	5.31	5.91	9**	-	-	-	-	-
		Q3	33.09	33.31	5.28	5.93	17**	-	-	-	-	-
		Q4	45.52	49.19	5.28	5.86	24**	-	-	-	-	-
	2018	Q1	65.26	56.02	21.29	5.87	42**	-	-	-	-	-
		Q2	62.89	69.33	5.71	5.86	27**	-	-	-	-	-
		Q3	74.48	42.55	6.97	5.89	32**	59.85	45.16	6.89	6.22	104
		Q4	54.10	59.97	5.70	5.61	23**	71.66	48.68	7.40	6.31	166
	2019	Q1	68.90	65.56	6.46	5.90	22**	86.17	65.25	8.40	10.22	151
		Q2	89.06	55.58	10.76	5.95	15**	114.14	8.44	70.26	10.38	99

** Directional due to low sample count.

Select Cities Fixed Wireline Download Speeds
Q3 2016 - Q2 2019
Median



Speedtest Intelligence® data



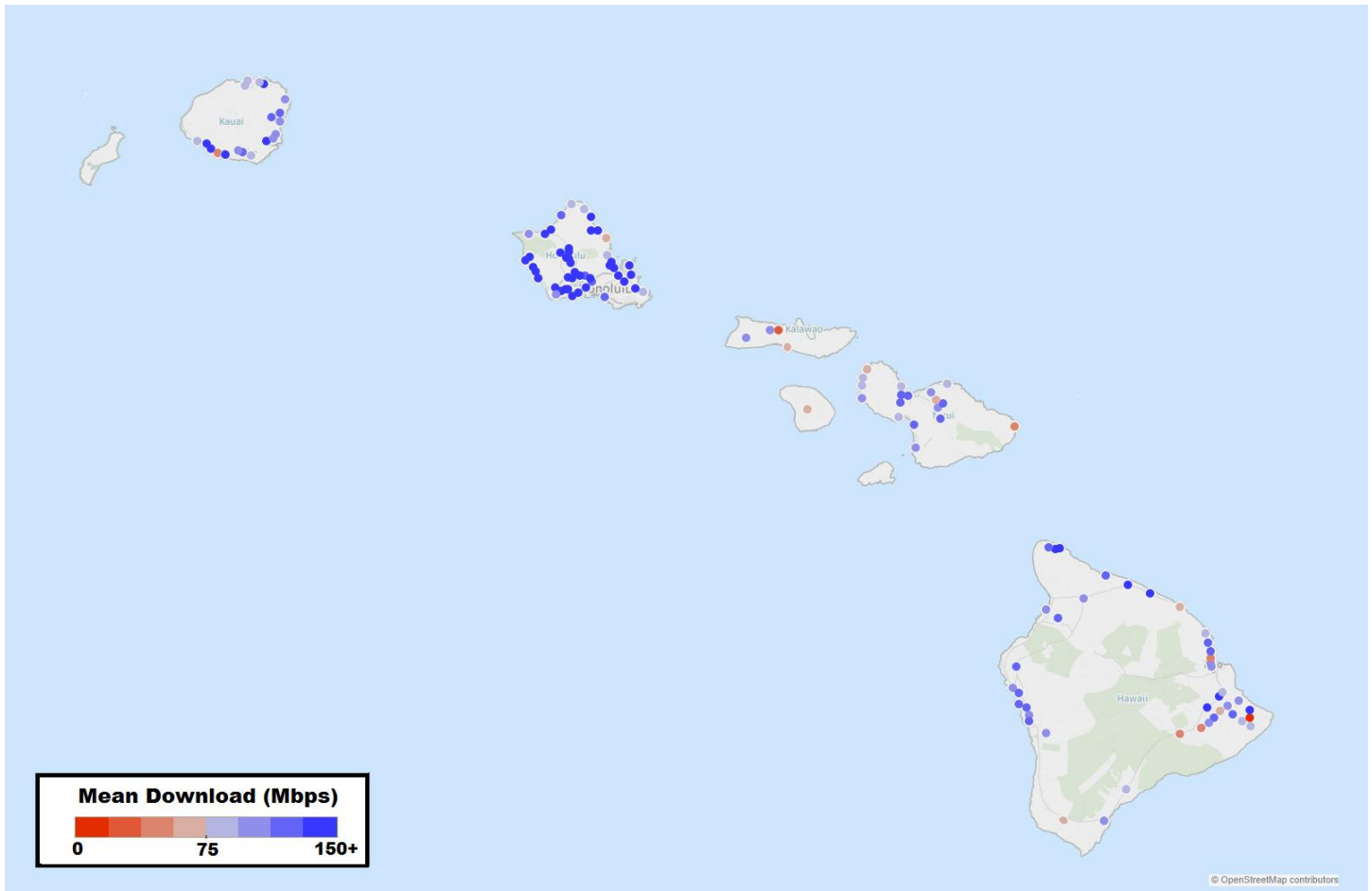
APPENDIX

APPENDIX A

Maps of Speedtest Results

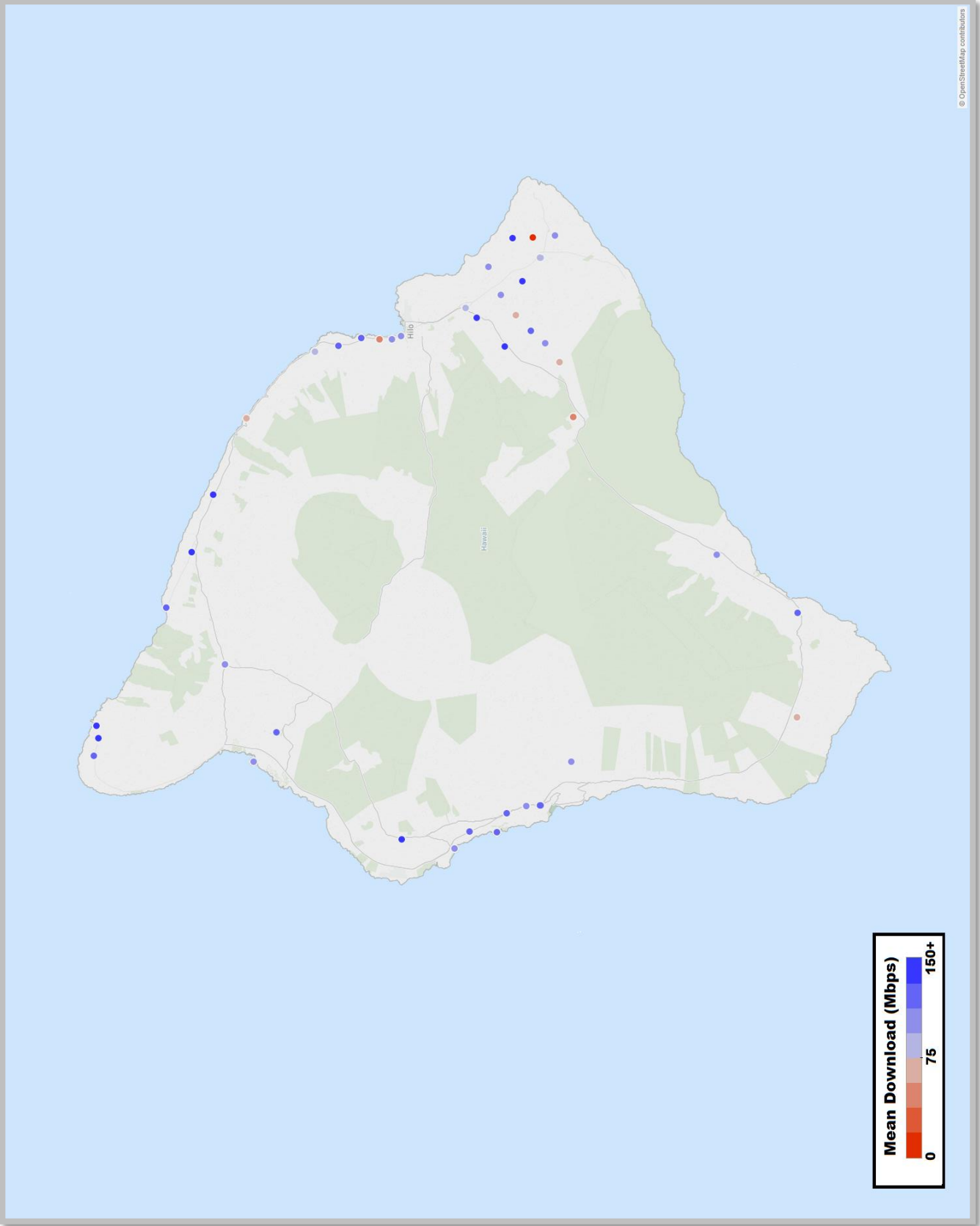
The following maps reflect the aggregated mean download of results from tests taken with Speedtest, including WiFi tests, on a per county basis for the period June 1, 2019 to June 30, 2019.

Statewide



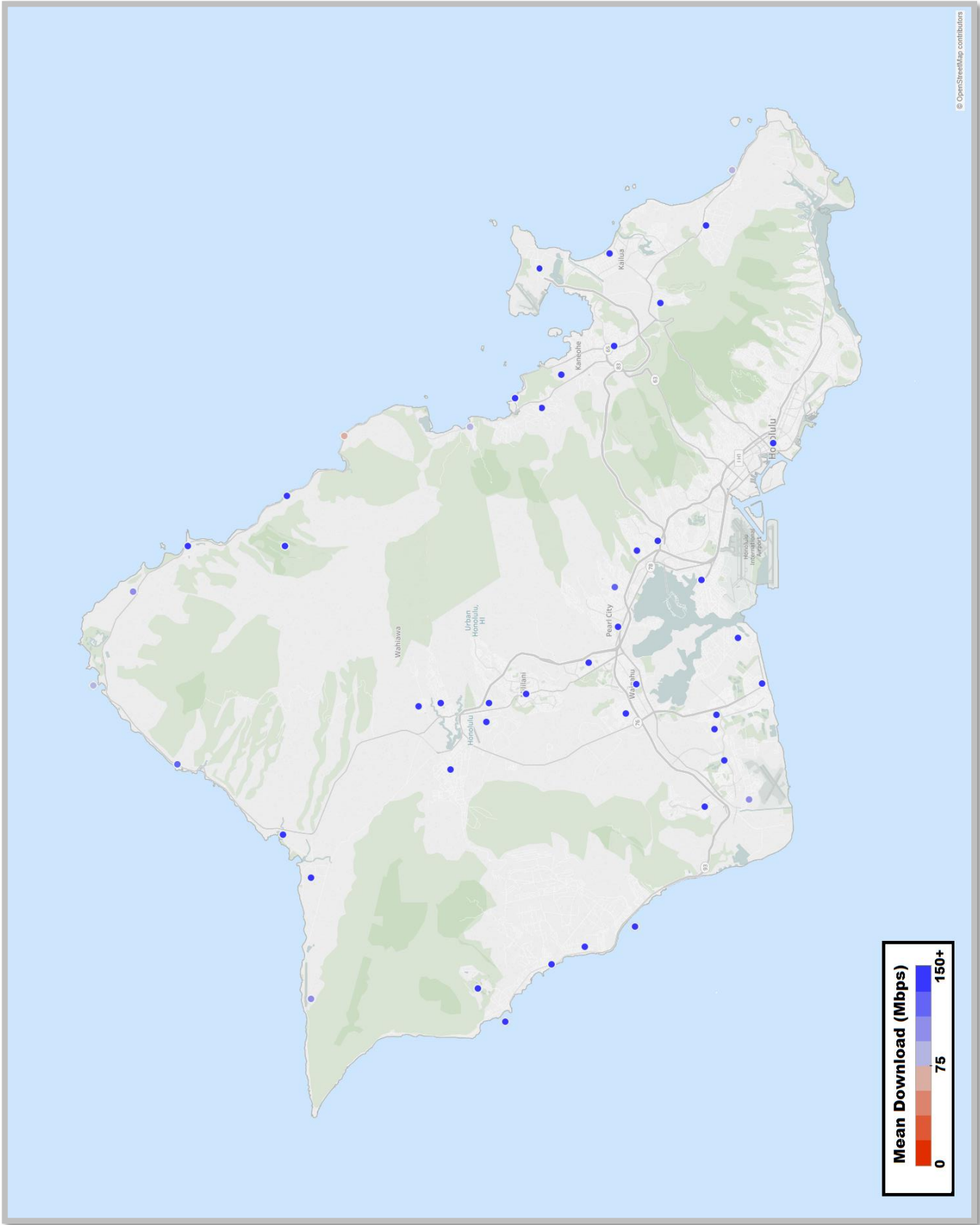
Speedtest Intelligence® data for 6/1/19 - 6/30/19

County of Hawaii



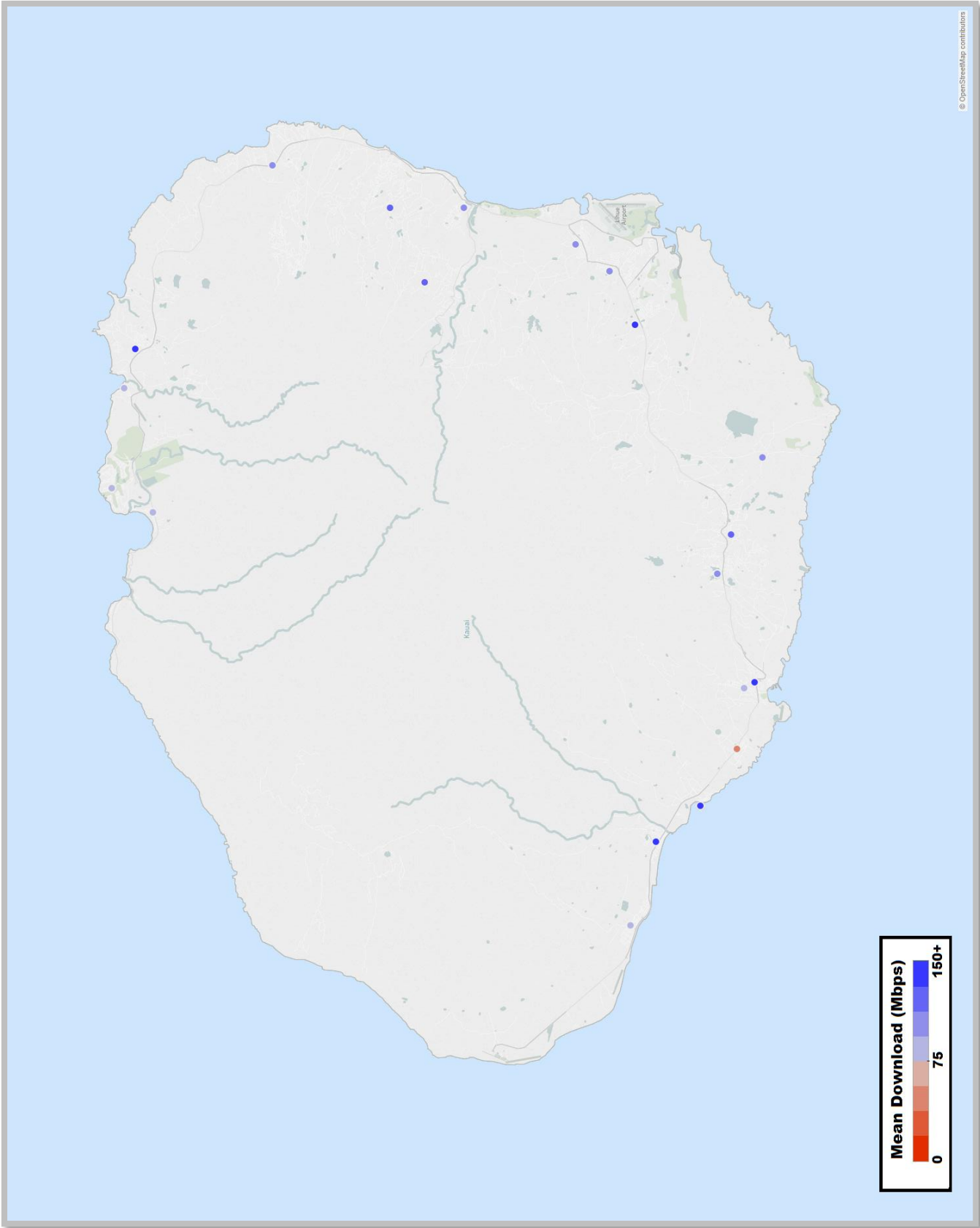
Speedtest Intelligence® data for 6/1/19 - 6/30/19

City & County of Honolulu



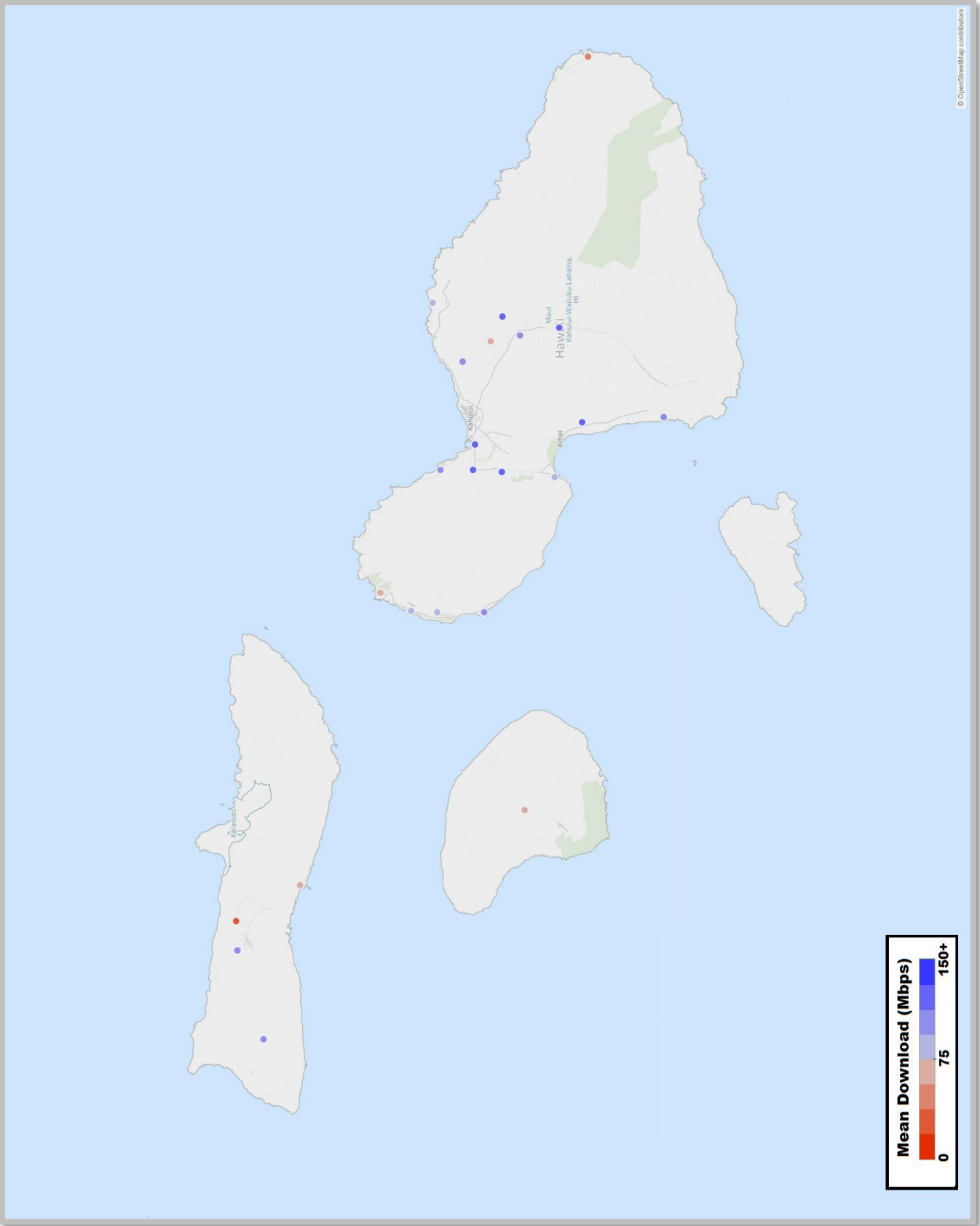
Speedtest Intelligence® data for 6/1/19 - 6/30/19

County of Kauai



Speedtest Intelligence® data for 6/1/19 - 6/30/19

County of Maui



Speedtest Intelligence® data for 6/1/19 - 6/30/19

APPENDIX B

All Cities Fixed Wireline Speeds – Quarterly

The following tables, separated by islands, show results from tests taken with Speedtest by quarter for all cities in Hawaii for which data is available.

Aggregated Speedtest Results for Cities by Quarter – Hawaii Island

Hawaii Island Fixed Wireline Speeds – Quarterly (Mbps)												
Location	Year	Quarter	Wired					WiFi				
			Download		Upload		Sample Count	Download		Upload		Sample Count
			Mean	Median	Mean	Median		Mean	Median	Mean	Median	
Ainaloa	2016	Q3	7.87	0.88	6.63	0.92	3**	-	-	-	-	-
		Q4	5.11	0.82	5.77	0.89	17**	-	-	-	-	-
	2017	Q1	5.14	0.92	5.14	0.92	1**	-	-	-	-	-
		Q2	6.04	0.65	3.32	0.71	41**	-	-	-	-	-
		Q3	5.10	0.83	4.65	0.96	13**	-	-	-	-	-
		Q4	9.99	2.69	2.42	0.86	10**	-	-	-	-	-
	2018	Q1	41.13	19.19	6.68	0.86	64	-	-	-	-	-
		Q2	12.57	5.69	7.43	0.92	41**	-	-	-	-	-
		Q3	21.98	13.36	14.39	1.39	78	127.74	89.98	23.21	11.82	81
		Q4	36.05	4.37	14.42	1.39	23**	104.76	51.44	13.38	11.22	79
	2019	Q1	234.81	18.91	131.27	1.81	58	135.11	108.55	10.60	11.62	110
		Q2	122.41	14.41	10.06	1.83	27**	124.42	69.95	9.16	10.04	61
Captain Cook	2016	Q3	18.55	11.25	5.52	0.95	5**	-	-	-	-	-
		Q4	33.43	8.43	6.35	2.28	7**	-	-	-	-	-
	2017	Q1	5.57	5.14	0.91	0.92	3**	-	-	-	-	-
		Q2	18.40	8.31	1.67	0.85	6**	-	-	-	-	-
		Q3	12.16	4.86	2.71	0.92	22**	-	-	-	-	-
		Q4	369.33	95.26	54.17	79.05	20**	-	-	-	-	-
	2018	Q1	157.00	330.84	13.52	23.72	18**	-	-	-	-	-
		Q2	119.27	63.11	39.11	23.66	35**	-	-	-	-	-
		Q3	163.57	97.16	16.71	14.09	14**	115.85	71.61	14.17	11.89	135
		Q4	136.83	71.42	11.00	8.56	14**	121.29	70.14	13.23	11.70	116
	2019	Q1	125.82	85.85	16.80	21.15	47**	108.36	79.00	13.53	11.73	94
		Q2	230.30	256.82	18.75	23.12	10**	129.14	93.37	12.36	11.60	88

Hawaii Island Fixed Wireline Speeds – Quarterly (Mbps)												
Location	Year	Quarter	Wired					WiFi				
			Download		Upload		Sample Count	Download		Upload		Sample Count
			Mean	Median	Mean	Median		Mean	Median	Mean	Median	
Eden Roc	2016	Q3	5.48	6.19	0.89	0.93	6**	-	-	-	-	-
		Q4	7.22	7.22	0.89	0.89	1**	-	-	-	-	-
	2017	Q1	13.24	11.16	1.51	0.82	8**	-	-	-	-	-
		Q2	-	-	-	-	-	-	-	-	-	-
		Q3	5.48	4.25	0.60	0.59	5**	-	-	-	-	-
		Q4	93.28	93.28	33.55	33.55	1**	-	-	-	-	-
	2018	Q1	90.28	90.28	48.15	48.15	1**	-	-	-	-	-
		Q2	8.58	10.62	0.88	0.95	7**	-	-	-	-	-
		Q3	38.51	6.22	38.78	0.82	16**	97.60	69.08	43.11	44.16	18**
		Q4	46.61	7.88	30.80	0.91	20**	90.12	85.73	42.61	22.82	36**
	2019	Q1	9.54	10.12	0.72	0.89	6**	52.02	37.34	59.94	50.74	11**
		Q2	75.81	63.43	63.51	40.73	24**	72.09	40.80	57.25	54.71	39**
Fern Acres	2016	Q3	5.18	5.18	0.81	0.81	2**	-	-	-	-	-
		Q4	2.24	2.24	0.77	0.77	2**	-	-	-	-	-
	2017	Q1	-	-	-	-	-	-	-	-	-	-
		Q2	5.72	5.38	0.94	0.95	3**	-	-	-	-	-
		Q3	6.48	6.40	0.82	0.91	55	-	-	-	-	-
		Q4	36.12	6.68	10.27	0.85	125	-	-	-	-	-
	2018	Q1	14.92	5.70	4.10	0.84	64	-	-	-	-	-
		Q2	40.57	21.41	21.68	12.48	14**	-	-	-	-	-
		Q3	22.11	6.45	6.57	0.85	14**	88.52	85.28	32.95	19.25	63
		Q4	96.81	43.68	26.93	11.70	32**	106.56	87.99	22.82	11.63	114
	2019	Q1	31.88	33.34	20.83	16.18	5**	174.96	95.13	41.36	11.98	35**
		Q2	192.12	231.01	12.11	11.52	57	157.19	200.48	16.75	11.54	112
Fern Forest	2016	Q3	4.30	3.75	0.68	0.78	46**	-	-	-	-	-
		Q4	6.92	6.66	0.86	0.88	8**	-	-	-	-	-
	2017	Q1	8.36	6.71	0.73	0.74	11**	-	-	-	-	-
		Q2	-	-	-	-	-	-	-	-	-	-
		Q3	-	-	-	-	-	-	-	-	-	-
		Q4	-	-	-	-	-	-	-	-	-	-
	2018	Q1	-	-	-	-	-	-	-	-	-	-
		Q2	120.18	10.54	40.07	1.04	11**	-	-	-	-	-
		Q3	-	-	-	-	-	69.64	86.65	61.07	73.45	50
		Q4	76.42	10.54	14.76	0.92	28**	95.01	86.12	91.44	86.80	64
	2019	Q1	3.66	3.66	0.72	0.72	2**	105.77	93.01	86.18	94.03	63
		Q2	17.64	9.52	10.39	1.05	21**	167.96	136.74	129.91	95.53	53

Hawaii Island Fixed Wireline Speeds – Quarterly (Mbps)												
Location	Year	Quarter	Wired					WiFi				
			Download		Upload		Sample Count	Download		Upload		Sample Count
			Mean	Median	Mean	Median		Mean	Median	Mean	Median	
Halaula	2016	Q3	-	-	-	-	-	-	-	-	-	-
		Q4	-	-	-	-	-	-	-	-	-	-
	2017	Q1	-	-	-	-	-	-	-	-	-	-
		Q2	-	-	-	-	-	-	-	-	-	-
		Q3	25.50	25.35	3.95	4.02	8**	-	-	-	-	-
		Q4	44.57	48.24	6.58	6.43	5**	-	-	-	-	-
	2018	Q1	-	-	-	-	-	-	-	-	-	-
		Q2	234.45	234.45	11.63	11.63	1**	-	-	-	-	-
		Q3	-	-	-	-	-	143.48	148.90	17.74	22.96	23**
		Q4	58.01	9.86	17.49	20.64	4**	143.77	147.12	17.94	21.93	47**
	2019	Q1	-	-	-	-	-	160.18	190.16	15.24	12.29	24**
		Q2	351.74	351.74	23.42	23.42	1**	200.48	234.38	16.95	21.94	33**
Hawaiian Acres	2016	Q3	19.87	6.11	3.66	0.93	63	-	-	-	-	-
		Q4	5.89	5.50	0.87	0.73	91	-	-	-	-	-
	2017	Q1	11.81	5.05	1.54	0.68	133	-	-	-	-	-
		Q2	21.23	5.66	2.77	0.79	61	-	-	-	-	-
		Q3	20.00	5.47	3.71	0.84	166	-	-	-	-	-
		Q4	69.27	6.23	15.01	0.91	227	-	-	-	-	-
	2018	Q1	45.30	10.66	13.21	0.99	348	-	-	-	-	-
		Q2	56.69	8.11	20.55	1.02	257	-	-	-	-	-
		Q3	77.81	19.83	45.73	1.45	250	122.45	70.26	83.14	24.16	180
		Q4	64.98	13.85	26.14	1.05	238	96.21	53.95	39.39	19.29	125
	2019	Q1	73.53	12.70	28.39	1.08	176	119.38	72.13	42.63	23.24	84
		Q2	62.08	11.05	24.46	0.97	114	135.22	83.20	59.18	48.57	67
Hawaiian Beaches	2016	Q3	17.19	5.26	2.16	0.77	72	-	-	-	-	-
		Q4	7.58	4.80	2.01	0.87	71	-	-	-	-	-
	2017	Q1	16.14	6.03	2.77	0.80	135	-	-	-	-	-
		Q2	16.41	10.79	2.24	0.70	10**	-	-	-	-	-
		Q3	35.13	14.70	3.96	5.81	37**	-	-	-	-	-
		Q4	45.96	10.68	10.07	1.11	48**	-	-	-	-	-
	2018	Q1	116.52	72.21	14.18	11.81	75	-	-	-	-	-
		Q2	153.57	201.01	27.74	15.58	20**	-	-	-	-	-
		Q3	115.96	63.20	98.55	6.17	16**	118.22	90.82	16.27	12.71	211
		Q4	213.48	236.59	20.48	12.01	36**	112.33	70.36	13.83	11.92	231
	2019	Q1	199.69	233.30	26.55	22.64	40**	138.39	116.72	14.96	12.24	233
		Q2	218.38	234.37	33.30	22.75	25**	131.79	92.79	13.13	11.58	119

Hawaii Island Fixed Wireline Speeds – Quarterly (Mbps)												
Location	Year	Quarter	Wired					WiFi				
			Download		Upload		Sample Count	Download		Upload		Sample Count
			Mean	Median	Mean	Median		Mean	Median	Mean	Median	
Hawaiian Paradise Park	2016	Q3	28.49	5.21	3.65	0.78	200	-	-	-	-	-
		Q4	20.60	5.76	3.33	0.90	263	-	-	-	-	-
	2017	Q1	34.19	7.83	6.80	0.85	148	-	-	-	-	-
		Q2	36.88	8.53	8.04	0.94	115	-	-	-	-	-
		Q3	70.18	21.31	10.78	10.32	162	-	-	-	-	-
		Q4	42.72	12.19	9.27	5.53	79	-	-	-	-	-
	2018	Q1	86.73	68.74	13.22	11.94	147	-	-	-	-	-
		Q2	109.80	79.85	13.72	11.90	176	-	-	-	-	-
		Q3	106.50	68.67	17.91	11.72	84	94.21	67.88	13.64	11.92	736
		Q4	107.29	28.55	21.03	6.07	87	94.09	51.01	15.87	11.47	917
	2019	Q1	112.90	22.96	16.82	8.60	137	92.36	55.63	21.00	11.44	946
		Q2	124.06	49.37	22.93	11.33	116	98.47	58.10	21.09	10.63	777
Hawi	2016	Q3	-	-	-	-	-	-	-	-	-	-
		Q4	-	-	-	-	-	-	-	-	-	-
	2017	Q1	-	-	-	-	-	-	-	-	-	-
		Q2	-	-	-	-	-	-	-	-	-	-
		Q3	48.77	49.83	18.86	23.42	5**	-	-	-	-	-
		Q4	73.53	48.04	20.70	23.29	7**	-	-	-	-	-
	2018	Q1	27.88	36.54	13.88	19.34	3**	-	-	-	-	-
		Q2	-	-	-	-	-	-	-	-	-	-
		Q3	-	-	-	-	-	58.04	51.78	11.81	11.36	47**
		Q4	84.76	54.11	12.98	12.86	10**	95.88	65.79	14.22	11.77	74
	2019	Q1	35.68	32.54	13.02	14.02	9**	91.08	67.01	11.56	11.72	86
		Q2	206.05	234.01	19.54	19.44	21**	117.64	78.62	12.31	11.62	71
Hilo	2016	Q3	66.49	38.56	10.60	5.98	2,030	-	-	-	-	-
		Q4	70.54	48.69	11.21	10.18	1,786	-	-	-	-	-
	2017	Q1	64.07	45.96	11.78	11.12	1,828	-	-	-	-	-
		Q2	64.31	46.85	12.97	9.64	2,315	-	-	-	-	-
		Q3	79.50	55.20	12.85	11.70	2,184	-	-	-	-	-
		Q4	78.79	55.41	13.38	11.72	2,437	-	-	-	-	-
	2018	Q1	78.73	56.99	14.83	11.73	2,351	-	-	-	-	-
		Q2	99.35	70.38	17.35	11.77	2,195	-	-	-	-	-
		Q3	111.74	76.04	17.05	11.73	2,206	86.97	60.02	15.07	11.83	3,590
		Q4	127.30	93.02	19.04	11.76	2,004	99.87	68.76	15.32	11.90	3,622
	2019	Q1	110.56	88.12	16.71	11.76	1,718	102.24	69.98	16.03	11.80	2,932
		Q2	121.42	89.14	21.31	11.73	1,444	109.49	71.45	15.85	11.71	2,919

Hawaii Island Fixed Wireline Speeds – Quarterly (Mbps)												
Location	Year	Quarter	Wired					WiFi				
			Download		Upload		Sample Count	Download		Upload		Sample Count
			Mean	Median	Mean	Median		Mean	Median	Mean	Median	
Holualoa	2016	Q3	55.22	42.13	8.85	5.97	152	-	-	-	-	-
		Q4	67.75	53.45	11.00	9.63	181	-	-	-	-	-
	2017	Q1	66.67	53.71	10.79	9.79	256	-	-	-	-	-
		Q2	74.66	60.08	12.50	7.98	244	-	-	-	-	-
		Q3	78.04	45.08	12.85	11.62	132	-	-	-	-	-
		Q4	84.81	67.75	13.50	11.76	113	-	-	-	-	-
	2018	Q1	79.90	53.27	12.04	10.34	174	-	-	-	-	-
		Q2	111.44	84.36	14.65	11.81	144	-	-	-	-	-
		Q3	103.78	58.17	13.13	11.71	127	105.71	70.45	16.47	11.77	890
		Q4	110.81	70.06	15.50	11.75	101	108.51	70.02	13.58	11.71	792
	2019	Q1	132.77	70.32	14.03	11.13	95	101.69	68.27	12.32	11.51	746
		Q2	139.00	73.36	13.68	11.61	130	109.06	71.55	13.64	11.61	752
Honalo	2016	Q3	57.22	25.87	8.56	5.94	126	-	-	-	-	-
		Q4	72.12	46.91	10.14	5.98	198	-	-	-	-	-
	2017	Q1	62.90	35.00	11.34	6.04	213	-	-	-	-	-
		Q2	74.52	53.02	12.04	11.55	93	-	-	-	-	-
		Q3	78.12	55.02	12.25	10.69	106	-	-	-	-	-
		Q4	65.90	52.50	13.36	9.43	150	-	-	-	-	-
	2018	Q1	90.27	70.56	12.76	11.69	210	-	-	-	-	-
		Q2	81.35	55.58	11.78	10.76	75	-	-	-	-	-
		Q3	116.03	79.42	15.38	11.83	73	67.20	43.52	12.47	11.65	151
		Q4	118.99	70.35	27.55	20.88	98	91.97	54.14	13.42	11.73	200
	2019	Q1	122.33	70.35	14.44	11.54	122	89.37	63.69	12.63	11.61	168
		Q2	161.59	94.66	14.25	11.45	182	135.68	117.24	12.13	11.68	181
Honaunau-Napoopoo	2016	Q3	6.47	2.92	2.33	0.93	7**	-	-	-	-	-
		Q4	25.17	6.69	4.48	0.97	49**	-	-	-	-	-
	2017	Q1	25.59	13.93	16.45	2.91	21**	-	-	-	-	-
		Q2	40.07	6.29	10.33	0.72	34**	-	-	-	-	-
		Q3	27.46	6.55	4.01	0.90	63	-	-	-	-	-
		Q4	52.83	24.08	19.97	4.68	95	-	-	-	-	-
	2018	Q1	142.02	55.98	42.85	23.47	130	-	-	-	-	-
		Q2	101.04	53.54	41.72	11.21	92	-	-	-	-	-
		Q3	62.93	47.97	29.71	18.68	23**	84.11	63.56	13.20	11.69	132
		Q4	66.54	40.15	20.04	19.66	46**	109.49	69.59	15.55	12.15	198
	2019	Q1	67.85	19.91	13.33	9.37	42**	95.26	66.28	13.69	11.60	176
		Q2	108.64	89.34	43.51	22.86	46**	115.14	70.45	13.15	11.73	195

Hawaii Island Fixed Wireline Speeds – Quarterly (Mbps)												
Location	Year	Quarter	Wired					WiFi				
			Download		Upload		Sample Count	Download		Upload		Sample Count
			Mean	Median	Mean	Median		Mean	Median	Mean	Median	
Honokaa	2016	Q3	-	-	-	-	-	-	-	-	-	-
		Q4	-	-	-	-	-	-	-	-	-	-
	2017	Q1	-	-	-	-	-	-	-	-	-	-
		Q2	-	-	-	-	-	-	-	-	-	-
		Q3	18.22	16.45	11.68	10.62	17**	-	-	-	-	-
		Q4	14.43	14.43	4.65	4.65	2**	-	-	-	-	-
	2018	Q1	135.72	54.94	9.08	7.44	5**	-	-	-	-	-
		Q2	217.08	298.48	22.38	22.05	5**	-	-	-	-	-
		Q3	248.45	355.17	20.32	21.81	3**	146.82	125.54	17.55	21.73	120
		Q4	65.93	35.12	14.88	17.24	9**	126.48	102.79	15.95	17.81	140
	2019	Q1	238.78	321.63	19.85	23.85	3**	174.74	118.47	16.59	19.68	134
		Q2	27.41	15.98	10.36	10.13	8**	132.30	101.78	14.48	14.21	135
Honolulu	2016	Q3	-	-	-	-	-	-	-	-	-	-
		Q4	1.91	1.91	1.44	1.44	1**	-	-	-	-	-
	2017	Q1	-	-	-	-	-	-	-	-	-	-
		Q2	13.97	13.97	2.88	2.88	1**	-	-	-	-	-
		Q3	-	-	-	-	-	-	-	-	-	-
		Q4	-	-	-	-	-	-	-	-	-	-
	2018	Q1	-	-	-	-	-	-	-	-	-	-
		Q2	-	-	-	-	-	-	-	-	-	-
		Q3	-	-	-	-	-	68.52	43.39	11.86	10.02	16**
		Q4	145.07	145.07	18.90	18.90	1**	124.61	101.72	10.88	11.65	18**
	2019	Q1	-	-	-	-	-	98.22	92.44	9.94	9.87	13**
		Q2	-	-	-	-	-	113.98	71.68	24.22	10.55	23**
Kahaluu-Keauhou	2016	Q3	73.50	30.50	9.59	5.50	55	-	-	-	-	-
		Q4	44.68	15.60	10.16	4.50	57	-	-	-	-	-
	2017	Q1	43.01	23.07	9.78	5.91	134	-	-	-	-	-
		Q2	55.73	45.12	17.08	5.98	202	-	-	-	-	-
		Q3	54.68	38.96	7.62	5.77	82	-	-	-	-	-
		Q4	50.03	18.93	11.26	5.99	81	-	-	-	-	-
	2018	Q1	60.00	35.72	14.14	5.94	102	-	-	-	-	-
		Q2	113.14	94.05	15.60	13.53	54	-	-	-	-	-
		Q3	143.91	221.50	15.37	19.90	9**	97.06	66.94	13.09	11.63	423
		Q4	170.11	113.20	16.43	22.19	22**	93.63	67.81	14.02	11.68	481
	2019	Q1	200.40	176.76	17.37	21.11	29**	80.18	58.14	11.27	10.81	662
		Q2	223.48	130.98	17.23	11.90	24**	108.24	70.24	12.07	11.38	416

Hawaii Island Fixed Wireline Speeds – Quarterly (Mbps)												
Location	Year	Quarter	Wired					WiFi				
			Download		Upload		Sample Count	Download		Upload		Sample Count
			Mean	Median	Mean	Median		Mean	Median	Mean	Median	
Kailua-Kona	2016	Q3	75.46	58.18	11.83	10.24	511	-	-	-	-	-
		Q4	81.58	57.99	12.90	11.72	630	-	-	-	-	-
	2017	Q1	83.60	66.31	14.93	11.87	550	-	-	-	-	-
		Q2	79.84	60.91	13.46	11.90	230	-	-	-	-	-
		Q3	87.75	61.84	13.93	11.86	421	-	-	-	-	-
		Q4	73.02	50.90	11.97	11.44	441	-	-	-	-	-
	2018	Q1	78.66	57.23	13.56	11.73	601	-	-	-	-	-
		Q2	99.07	70.19	13.75	11.69	500	-	-	-	-	-
		Q3	109.54	70.44	13.72	11.77	600	99.46	67.59	13.76	11.80	835
		Q4	131.64	74.25	21.96	11.78	628	97.53	67.76	14.79	11.79	1,656
	2019	Q1	128.05	77.15	18.80	11.78	748	107.39	69.81	14.91	11.85	1,791
		Q2	133.90	91.94	20.10	11.84	638	112.84	70.03	13.64	11.66	1,616
Kalaoa	2016	Q3	112.41	59.06	12.81	11.87	32**	-	-	-	-	-
		Q4	89.62	49.73	10.93	7.70	16**	-	-	-	-	-
	2017	Q1	41.05	49.30	7.01	5.90	8**	-	-	-	-	-
		Q2	62.22	50.92	13.14	11.75	25**	-	-	-	-	-
		Q3	68.58	26.20	10.74	6.31	82	-	-	-	-	-
		Q4	66.22	48.10	12.43	11.85	35**	-	-	-	-	-
	2018	Q1	75.64	116.53	15.07	23.23	165	-	-	-	-	-
		Q2	167.33	88.96	16.59	13.64	93	-	-	-	-	-
		Q3	216.30	228.02	22.28	23.17	73	104.22	70.23	16.11	11.95	636
		Q4	160.62	117.18	16.80	18.88	62	121.13	82.19	15.14	11.99	787
	2019	Q1	130.11	92.80	17.87	17.87	46**	118.07	79.37	14.62	11.87	693
		Q2	119.25	78.01	23.36	22.17	61	126.19	84.97	15.03	11.81	697
Kapaau	2016	Q3	-	-	-	-	-	-	-	-	-	-
		Q4	-	-	-	-	-	-	-	-	-	-
	2017	Q1	-	-	-	-	-	-	-	-	-	-
		Q2	-	-	-	-	-	-	-	-	-	-
		Q3	315.31	315.31	23.42	23.42	1**	-	-	-	-	-
		Q4	74.65	66.30	18.77	23.70	16**	-	-	-	-	-
	2018	Q1	31.90	43.97	23.52	23.72	7**	-	-	-	-	-
		Q2	37.47	25.36	12.47	8.40	11**	-	-	-	-	-
		Q3	107.51	107.51	23.51	23.51	2**	106.49	80.30	12.79	12.40	14**
		Q4	49.61	56.30	11.06	6.96	5**	116.97	116.66	11.61	11.51	19**
	2019	Q1	15.83	15.83	6.62	6.62	2**	114.27	64.95	12.78	11.53	28**
		Q2	-	-	-	-	-	153.34	124.57	10.13	9.59	30**

Hawaii Island Fixed Wireline Speeds – Quarterly (Mbps)												
Location	Year	Quarter	Wired					WiFi				
			Download		Upload		Sample Count	Download		Upload		Sample Count
			Mean	Median	Mean	Median		Mean	Median	Mean	Median	
Keaau	2016	Q3	70.69	52.66	11.00	11.47	124	-	-	-	-	-
		Q4	91.00	57.61	13.11	9.26	55	-	-	-	-	-
	2017	Q1	70.25	47.34	10.52	6.49	48**	-	-	-	-	-
		Q2	50.54	15.54	11.29	5.87	45**	-	-	-	-	-
		Q3	63.99	28.24	7.04	5.55	74	-	-	-	-	-
		Q4	76.32	61.04	12.12	10.35	44**	-	-	-	-	-
	2018	Q1	72.39	37.71	13.67	7.92	65	-	-	-	-	-
		Q2	82.68	55.68	11.68	6.46	154	-	-	-	-	-
		Q3	207.23	97.98	75.14	14.52	85	48.22	20.30	12.04	11.81	125
		Q4	139.16	92.96	29.62	22.11	146	48.56	31.49	15.67	11.77	160
	2019	Q1	190.96	118.62	23.05	11.89	87	97.91	42.20	14.16	11.48	79
		Q2	155.54	79.64	23.84	11.78	69	100.61	64.40	12.72	11.21	98
Kealahou	2016	Q3	13.27	6.65	3.75	1.16	17**	-	-	-	-	-
		Q4	39.61	14.62	11.02	1.97	46**	-	-	-	-	-
	2017	Q1	43.86	34.86	17.97	8.89	33**	-	-	-	-	-
		Q2	50.71	11.91	18.04	4.13	41**	-	-	-	-	-
		Q3	42.98	30.36	8.25	5.83	54	-	-	-	-	-
		Q4	38.29	15.55	8.01	5.82	35**	-	-	-	-	-
	2018	Q1	48.07	53.89	6.81	5.69	35**	-	-	-	-	-
		Q2	67.35	63.82	10.79	5.79	16**	-	-	-	-	-
		Q3	69.45	48.13	22.14	22.44	42**	86.31	61.39	10.40	6.71	69
		Q4	86.58	44.09	42.63	21.39	31**	109.55	80.80	15.42	12.33	132
	2019	Q1	60.63	34.78	16.61	13.36	30**	63.97	33.31	15.22	11.73	140
		Q2	116.52	70.04	19.16	11.38	11**	78.63	46.02	12.48	11.58	128
Kukuihaele	2016	Q3	-	-	-	-	-	-	-	-	-	-
		Q4	-	-	-	-	-	-	-	-	-	-
	2017	Q1	-	-	-	-	-	-	-	-	-	-
		Q2	-	-	-	-	-	-	-	-	-	-
		Q3	-	-	-	-	-	-	-	-	-	-
		Q4	25.38	13.81	3.20	3.16	4**	-	-	-	-	-
	2018	Q1	21.77	21.77	5.94	5.94	1**	-	-	-	-	-
		Q2	22.28	22.59	5.88	5.891	5**	-	-	-	-	-
		Q3	21.93	21.95	5.87	5.87	4**	46.26	32.22	6.43	5.72	10**
		Q4	22.01	21.53	5.85	5.85	7**	61.08	13.14	7.98	5.92	5**
	2019	Q1	23.29	23.45	5.82	5.87	4**	74.70	70.32	13.78	11.72	7**
		Q2	-	-	-	-	-	96.71	48.79	7.87	7.92	8**

Hawaii Island Fixed Wireline Speeds – Quarterly (Mbps)												
Location	Year	Quarter	Wired					WiFi				
			Download		Upload		Sample Count	Download		Upload		Sample Count
			Mean	Median	Mean	Median		Mean	Median	Mean	Median	
Kurtistown	2016	Q3	49.14	57.21	10.68	11.77	36**	-	-	-	-	-
		Q4	19.65	11.36	6.54	0.92	26**	-	-	-	-	-
	2017	Q1	61.73	54.77	10.33	5.96	59	-	-	-	-	-
		Q2	72.04	62.67	10.47	10.64	35**	-	-	-	-	-
		Q3	96.88	70.37	13.12	11.78	50	-	-	-	-	-
		Q4	59.13	15.59	7.88	5.72	54	-	-	-	-	-
	2018	Q1	84.92	20.15	14.37	2.54	28**	-	-	-	-	-
		Q2	73.97	71.52	25.29	9.47	22**	-	-	-	-	-
		Q3	82.64	56.70	11.69	11.17	55	144.83	75.90	20.72	21.50	77
		Q4	96.79	71.01	19.98	9.35	45**	153.32	107.69	15.21	14.97	60
	2019	Q1	149.53	118.62	11.37	11.43	18**	165.41	156.39	19.34	18.97	83
		Q2	131.35	90.56	13.80	11.73	44**	209.27	232.79	19.19	22.09	55
Laupahoehoe	2016	Q3	-	-	-	-	-	-	-	-	-	-
		Q4	-	-	-	-	-	-	-	-	-	-
	2017	Q1	-	-	-	-	-	-	-	-	-	-
		Q2	-	-	-	-	-	-	-	-	-	-
		Q3	-	-	-	-	-	-	-	-	-	-
		Q4	-	-	-	-	-	-	-	-	-	-
	2018	Q1	-	-	-	-	-	-	-	-	-	-
		Q2	-	-	-	-	-	-	-	-	-	-
		Q3	-	-	-	-	-	85.87	85.30	11.85	11.78	25**
		Q4	-	-	-	-	-	254.16	163.73	27.57	33.34	42**
	2019	Q1	-	-	-	-	-	166.63	90.20	19.76	11.75	21**
		Q2						133.28	75.98	22.32	15.68	18**
Leilani Estates	2016	Q3	-	-	-	-	-	-	-	-	-	-
		Q4	-	-	-	-	-	-	-	-	-	-
	2017	Q1	-	-	-	-	-	-	-	-	-	-
		Q2	-	-	-	-	-	-	-	-	-	-
		Q3	-	-	-	-	-	-	-	-	-	-
		Q4	-	-	-	-	-	-	-	-	-	-
	2018	Q1	-	-	-	-	-	-	-	-	-	-
		Q2	234.55	234.55	23.82	23.82	1**	-	-	-	-	-
		Q3	-	-	-	-	-	70.22	43.04	9.74	6.22	17**
		Q4	-	-	-	-	-	111.77	85.16	12.42	11.55	45**
	2019	Q1	-	-	-	-	-	97.26	56.78	9.21	11.05	71
		Q2	20.89	20.89	16.85	16.85	2**	81.53	38.25	9.17	10.12	59

Hawaii Island Fixed Wireline Speeds – Quarterly (Mbps)												
Location	Year	Quarter	Wired					WiFi				
			Download		Upload		Sample Count	Download		Upload		Sample Count
			Mean	Median	Mean	Median		Mean	Median	Mean	Median	
Mountain View	2016	Q3	62.40	47.87	11.37	10.85	68	-	-	-	-	-
		Q4	64.81	49.64	12.17	11.80	40**	-	-	-	-	-
	2017	Q1	57.17	43.86	9.64	6.04	80	-	-	-	-	-
		Q2	94.24	70.89	13.12	11.97	41**	-	-	-	-	-
		Q3	25.42	6.78	3.30	0.96	101	-	-	-	-	-
		Q4	39.10	14.24	5.69	2.14	31**	-	-	-	-	-
	2018	Q1	79.24	68.55	11.46	11.79	53	-	-	-	-	-
		Q2	88.63	51.82	39.84	11.64	88	-	-	-	-	-
		Q3	63.55	33.52	12.64	11.41	95	80.91	47.52	16.02	11.40	94
		Q4	195.98	178.18	11.64	11.62	3**	111.94	53.27	11.49	11.37	87
	2019	Q1	36.15	36.15	4.47	4.47	2**	110.78	55.03	17.18	11.74	80
		Q2	91.79	20.25	9.87	9.92	21**	118.04	51.86	14.02	11.78	111
Naalehu	2016	Q3	-	-	-	-	-	-	-	-	-	-
		Q4	-	-	-	-	-	-	-	-	-	-
	2017	Q1	12.69	7.93	41.11	52.82	9**	-	-	-	-	-
		Q2	69.49	29.71	11.07	7.02	23**	-	-	-	-	-
		Q3	48.10	70.61	2.13	0.53	3**	-	-	-	-	-
		Q4	194.89	299.26	18.10	27.66	5**	-	-	-	-	-
	2018	Q1	-	-	-	-	-	-	-	-	-	-
		Q2	133.29	133.29	23.14	23.14	1**	-	-	-	-	-
		Q3	312.96	312.96	23.71	23.71	1**	196.20	233.88	17.32	23.39	46**
		Q4	0.07	0.07	5.96	5.96	1**	238.69	321.17	22.68	23.42	14**
	2019	Q1	308.03	308.03	23.54	23.54	1**	198.26	234.23	16.17	18.17	23**
		Q2	-	-	-	-	-	163.85	138.91	18.05	21.29	38**
Nanawale Estates	2016	Q3	-	-	-	-	-	-	-	-	-	-
		Q4	39.31	34.80	12.46	14.20	5**	-	-	-	-	-
	2017	Q1	-	-	-	-	-	-	-	-	-	-
		Q2	-	-	-	-	-	-	-	-	-	-
		Q3	-	-	-	-	-	-	-	-	-	-
		Q4	-	-	-	-	-	-	-	-	-	-
	2018	Q1	-	-	-	-	-	-	-	-	-	-
		Q2	-	-	-	-	-	-	-	-	-	-
		Q3	-	-	-	-	-	43.22	12.35	5.27	1.06	29**
		Q4	-	-	-	-	-	51.36	10.00	7.23	1.01	26**
	2019	Q1	68.84	68.84	5.59	5.59	1**	34.75	11.37	3.75	1.06	35**
		Q2	-	-	-	-	-	33.96	11.36	3.11	1.04	32**

Hawaii Island Fixed Wireline Speeds – Quarterly (Mbps)												
Location	Year	Quarter	Wired					WiFi				
			Download		Upload		Sample Count	Download		Upload		Sample Count
			Mean	Median	Mean	Median		Mean	Median	Mean	Median	
Ocean View	2016	Q3	5.81	2.43	1.53	0.46	310	-	-	-	-	-
		Q4	5.48	3.53	2.52	0.66	314	-	-	-	-	-
	2017	Q1	6.34	3.21	4.02	0.67	256	-	-	-	-	-
		Q2	18.75	5.11	15.24	0.88	228	-	-	-	-	-
		Q3	9.05	4.41	3.70	0.73	179	-	-	-	-	-
		Q4	10.46	4.66	2.24	0.97	333	-	-	-	-	-
	2018	Q1	60.94	5.46	32.17	1.24	166	-	-	-	-	-
		Q2	49.35	11.99	28.45	1.92	240	-	-	-	-	-
		Q3	65.08	50.07	54.71	50.59	56	158.80	101.90	66.07	84.18	186
		Q4	108.18	78.66	50.40	49.54	70	165.82	83.15	56.44	63.66	177
	2019	Q1	86.83	87.84	50.14	51.66	22**	114.39	51.82	46.42	19.28	189
		Q2	44.59	6.70	27.42	0.89	46**	135.95	70.23	75.73	54.81	215
Orchidlands Estates	2016	Q3	21.72	6.62	3.08	0.92	208	-	-	-	-	-
		Q4	9.43	4.29	1.43	0.76	220	-	-	-	-	-
	2017	Q1	14.59	6.21	2.06	0.77	70	-	-	-	-	-
		Q2	28.86	3.93	5.16	0.70	71	-	-	-	-	-
		Q3	21.09	6.80	4.09	0.93	72	-	-	-	-	-
		Q4	58.28	7.48	15.50	1.02	218	-	-	-	-	-
	2018	Q1	50.04	7.75	11.07	0.90	243	-	-	-	-	-
		Q2	66.38	9.16	17.70	0.94	72	-	-	-	-	-
		Q3	73.53	14.28	27.59	2.73	144	75.03	62.28	31.87	19.37	175
		Q4	64.03	23.52	35.68	7.09	132	74.77	61.33	36.74	21.00	153
	2019	Q1	76.83	9.80	29.09	0.97	163	103.13	88.14	47.18	23.51	166
		Q2	98.67	33.00	56.53	10.71	121	112.27	91.39	65.05	47.33	147
Paauilo	2016	Q3	-	-	-	-	-	-	-	-	-	-
		Q4	-	-	-	-	-	-	-	-	-	-
	2017	Q1	-	-	-	-	-	-	-	-	-	-
		Q2	-	-	-	-	-	-	-	-	-	-
		Q3	-	-	-	-	-	-	-	-	-	-
		Q4	-	-	-	-	-	-	-	-	-	-
	2018	Q1	-	-	-	-	-	-	-	-	-	-
		Q2	-	-	-	-	-	-	-	-	-	-
		Q3	-	-	-	-	-	90.71	71.33	10.95	11.52	20**
		Q4	-	-	-	-	-	80.86	65.26	9.23	11.44	31**
	2019	Q1	-	-	-	-	-	110.40	69.06	12.77	11.88	14**
		Q2	-	-	-	-	-	204.83	233.77	13.99	11.84	11**

Hawaii Island Fixed Wireline Speeds – Quarterly (Mbps)												
Location	Year	Quarter	Wired					WiFi				
			Download		Upload		Sample Count	Download		Upload		Sample Count
			Mean	Median	Mean	Median		Mean	Median	Mean	Median	
Pahala	2016	Q3	-	-	-	-	-	-	-	-	-	-
		Q4	-	-	-	-	-	-	-	-	-	-
	2017	Q1	-	-	-	-	-	-	-	-	-	-
		Q2	-	-	-	-	-	-	-	-	-	-
		Q3	-	-	-	-	-	-	-	-	-	-
		Q4	-	-	-	-	-	-	-	-	-	-
	2018	Q1	-	-	-	-	-	-	-	-	-	-
		Q2	-	-	-	-	-	-	-	-	-	-
		Q3	-	-	-	-	-	111.28	78.96	12.63	11.90	33**
		Q4	-	-	-	-	-	91.97	57.73	12.85	11.78	28**
	2019	Q1	204.87	204.87	12.42	12.42	1**	83.33	38.42	9.57	7.03	41**
		Q2	10.42	3.80	8.81	4.61	3**	75.85	40.36	9.45	8.40	49**
Pāhoa	2016	Q3	5.03	5.53	0.71	0.74	41**	-	-	-	-	-
		Q4	6.11	5.16	0.75	0.79	16**	-	-	-	-	-
	2017	Q1	7.52	8.91	2.39	0.94	5**	-	-	-	-	-
		Q2	12.34	8.51	2.58	1.34	14**	-	-	-	-	-
		Q3	5.26	3.82	0.87	0.83	8**	-	-	-	-	-
		Q4	19.45	6.40	8.23	0.81	40**	-	-	-	-	-
	2018	Q1	6.73	4.79	1.14	0.92	12**	-	-	-	-	-
		Q2	122.80	10.00	66.34	0.95	20**	-	-	-	-	-
		Q3	53.84	7.82	25.37	1.83	14**	47.49	12.14	14.56	2.87	92
		Q4	3.45	4.17	0.68	0.83	5**	70.96	49.75	10.26	9.30	30**
	2019	Q1	-	-	-	-	-	93.22	55.66	11.79	11.40	23**
		Q2	-	-	-	-	-	92.12	50.71	10.74	10.48	32**
Papaikou	2016	Q3	-	-	-	-	-	-	-	-	-	-
		Q4	-	-	-	-	-	-	-	-	-	-
	2017	Q1	3.36	3.36	0.67	0.67	2**	-	-	-	-	-
		Q2	27.66	6.71	6.06	1.10	11**	-	-	-	-	-
		Q3	191.87	191.87	20.20	20.20	1**	-	-	-	-	-
		Q4	120.39	120.39	28.81	28.81	2**	-	-	-	-	-
	2018	Q1	48.98	50.53	9.36	11.52	5**	-	-	-	-	-
		Q2	15.23	5.32	1.14	0.53	10**	-	-	-	-	-
		Q3	25.99	8.81	2.57	2.81	5**	41.40	28.54	11.54	10.93	26**
		Q4	25.55	15.06	9.67	3.11	4**	78.64	40.64	12.71	11.84	38**
	2019	Q1	43.90	43.90	12.31	12.31	2**	103.96	68.20	14.31	14.76	45**
		Q2	60.62	49.75	16.24	16.84	3**	99.47	46.42	10.71	9.89	40**

Hawaii Island Fixed Wireline Speeds – Quarterly (Mbps)												
Location	Year	Quarter	Wired					WiFi				
			Download		Upload		Sample Count	Download		Upload		Sample Count
			Mean	Median	Mean	Median		Mean	Median	Mean	Median	
Paukaa	2016	Q3	24.75	18.85	6.48	5.93	4**					**
		Q4	-	-	-	-	-	-	-	-	-	-
	2017	Q1	-	-	-	-	-	-	-	-	-	-
		Q2	4.94	5.26	0.85	0.81	4**	-	-	-	-	-
		Q3	-	-	-	-	-	-	-	-	-	-
		Q4	8.88	6.37	1.58	0.93	23**	-	-	-	-	-
	2018	Q1	57.13	24.16	7.94	5.81	19**	-	-	-	-	-
		Q2	4.21	3.88	0.57	0.59	3**	-	-	-	-	-
		Q3	79.18	93.69	55.14	61.08	33**	141.66	82.10	15.87	12.50	38**
		Q4	42.56	19.56	9.04	10.26	19**	139.83	95.53	31.12	23.80	34**
	2019	Q1	-	-	-	-	-	152.23	116.20	17.15	17.97	28**
		Q2	-	-	-	-	-	108.36	69.18	19.69	16.24	38**
Pepeekeo	2016	Q3	-	-	-	-	-	-	-	-	-	-
		Q4	-	-	-	-	-	-	-	-	-	-
	2017	Q1	-	-	-	-	-	-	-	-	-	-
		Q2	-	-	-	-	-	-	-	-	-	-
		Q3	-	-	-	-	-	-	-	-	-	-
		Q4	46.76	46.76	8.59	8.59	1**	-	-	-	-	-
	2018	Q1	21.23	11.75	12.64	0.88	8**	-	-	-	-	-
		Q2	11.60	6.63	2.37	0.95	16**	-	-	-	-	-
		Q3	12.00	11.56	0.88	0.90	3**	110.47	65.75	11.24	11.52	49**
		Q4	70.10	70.10	6.39	6.39	1**	87.59	51.69	9.08	10.62	59
	2019	Q1	127.50	148.22	11.24	11.70	7**	90.07	43.30	10.00	11.46	58
		Q2	61.09	61.09	15.04	15.04	2**	108.85	70.05	10.69	11.52	54
Puako	2016	Q3	89.85	72.10	12.92	11.86	40**	-	-	-	-	-
		Q4	59.87	42.20	10.73	11.61	21**	-	-	-	-	-
	2017	Q1	59.23	66.93	7.79	5.73	16**	-	-	-	-	-
		Q2	147.45	148.90	19.75	23.38	6**	-	-	-	-	-
		Q3	91.90	70.37	12.65	11.69	50	-	-	-	-	-
		Q4	67.82	65.99	19.16	11.88	76	-	-	-	-	-
	2018	Q1	71.82	29.62	11.45	10.16	69	-	-	-	-	-
		Q2	92.03	49.87	11.27	6.44	34**	-	-	-	-	-
		Q3	95.83	66.59	28.44	9.85	28**	66.71	46.19	10.10	7.05	598
		Q4	90.22	48.83	42.38	10.08	48**	74.49	53.55	24.62	10.41	662
	2019	Q1	75.46	46.20	33.06	10.07	58	78.23	58.82	21.25	10.53	714
		Q2	125.23	98.31	51.85	11.78	49**	93.37	66.76	24.56	11.19	676

Hawaii Island Fixed Wireline Speeds – Quarterly (Mbps)												
Location	Year	Quarter	Wired					WiFi				
			Download		Upload		Sample Count	Download		Upload		Sample Count
			Mean	Median	Mean	Median		Mean	Median	Mean	Median	
Volcano	2016	Q3	22.39	13.94	2.39	1.56	4**	-	-	-	-	-
		Q4	30.79	25.80	13.05	14.59	15**	-	-	-	-	-
	2017	Q1	33.66	32.35	11.45	14.05	11**	-	-	-	-	-
		Q2	23.62	18.79	13.60	14.29	14**	-	-	-	-	-
		Q3	37.77	41.25	19.36	22.50	35**	-	-	-	-	-
		Q4	49.02	44.52	18.74	16.89	18**	-	-	-	-	-
	2018	Q1	68.13	47.72	21.24	23.68	34**	-	-	-	-	-
		Q2	66.32	48.39	21.88	23.41	22**	-	-	-	-	-
		Q3	82.08	52.19	20.44	23.25	11**	60.56	19.94	9.23	6.32	173
		Q4	43.88	41.16	18.28	22.03	36**	58.11	28.15	9.53	6.36	221
	2019	Q1	41.04	46.89	22.30	22.76	11**	71.01	40.32	11.22	11.26	141
		Q2	47.86	40.14	20.90	22.69	25**	61.66	35.35	11.02	11.04	221
Waikoloa Village	2016	Q3	64.06	58.12	12.30	11.32	141	-	-	-	-	-
		Q4	67.33	47.09	10.14	8.89	136	-	-	-	-	-
	2017	Q1	58.07	31.75	12.18	5.91	211	-	-	-	-	-
		Q2	63.60	35.60	19.63	9.96	155	-	-	-	-	-
		Q3	64.61	41.76	13.76	10.79	119	-	-	-	-	-
		Q4	85.03	66.18	12.61	11.72	172	-	-	-	-	-
	2018	Q1	86.32	68.68	13.77	10.91	156	-	-	-	-	-
		Q2	76.44	46.89	22.37	11.86	154	-	-	-	-	-
		Q3	104.73	71.53	16.96	11.89	101	104.65	70.41	13.36	11.73	662
		Q4	88.73	68.21	28.06	11.74	54	108.36	70.33	12.36	11.59	563
	2019	Q1	152.34	105.60	14.97	13.08	76	110.05	77.57	12.43	11.75	667
		Q2	160.08	149.56	14.82	12.26	89	126.38	88.64	12.56	11.64	563
Waimea	2016	Q3	14.97	7.96	1.91	0.92	30**	-	-	-	-	-
		Q4	7.09	6.14	0.87	0.81	42**	-	-	-	-	-
	2017	Q1	10.11	6.45	2.45	0.93	37**	-	-	-	-	-
		Q2	102.78	76.23	21.85	15.98	32**	-	-	-	-	-
		Q3	54.76	21.20	16.75	2.86	139	-	-	-	-	-
		Q4	42.65	10.98	12.92	2.59	104	-	-	-	-	-
	2018	Q1	38.41	14.17	11.07	2.65	158	-	-	-	-	-
		Q2	65.38	25.14	17.05	2.84	119	-	-	-	-	-
		Q3	77.01	35.40	29.04	5.53	110	105.65	70.40	13.05	11.78	634
		Q4	75.57	37.67	29.26	11.70	133	137.51	83.52	19.11	11.87	689
	2019	Q1	136.93	59.96	42.30	20.75	158	142.62	94.00	20.63	12.02	810
		Q2	130.58	68.95	38.13	22.77	211	124.79	78.92	15.49	11.78	732

Hawaii Island Fixed Wireline Speeds – Quarterly (Mbps)												
Location	Year	Quarter	Wired					WiFi				
			Download		Upload		Sample Count	Download		Upload		Sample Count
			Mean	Median	Mean	Median		Mean	Median	Mean	Median	
Wainaku	2016	Q3	120.12	92.93	15.57	23.80	7**	-	-	-	-	-
		Q4	7.05	6.66	1.30	0.93	56	-	-	-	-	-
	2017	Q1	-	-	-	-	-	-	-	-	-	-
		Q2	69.56	29.36	12.21	11.80	10**	-	-	-	-	-
		Q3	82.09	70.52	10.58	11.24	32**	-	-	-	-	-
		Q4	34.96	6.81	7.77	1.07	43**	-	-	-	-	-
	2018	Q1	39.75	4.47	15.42	0.70	107	-	-	-	-	-
		Q2	45.66	51.44	5.82	5.81	8**	-	-	-	-	-
		Q3	35.34	16.96	13.84	7.82	11**	92.02	69.08	12.43	11.87	39**
		Q4	65.69	10.46	10.28	1.43	58	87.05	67.75	13.46	11.74	27**
	2019	Q1	63.86	34.67	23.49	11.66	31**	130.50	130.15	15.21	11.87	35**
		Q2	122.17	64.99	98.43	17.66	10**	113.42	70.34	12.15	11.59	39**

** Directional due to low sample count.

Aggregated Speedtest Results for Cities by Quarter – Oahu

Oahu Fixed Wireline Speeds – Quarterly (Mbps)												
Location	Year	Quarter	Wired					WiFi				
			Download		Upload		Sample Count	Download		Upload		Sample Count
			Mean	Median	Mean	Median		Mean	Median	Mean	Median	
Ahuimanu	2016	Q3	41.28	10.17	12.07	11.93	23**	-	-	-	-	-
		Q4	69.59	46.09	10.82	5.94	12**	-	-	-	-	-
	2017	Q1	100.08	54.64	13.97	16.65	22**	-	-	-	-	-
		Q2	101.81	70.36	14.52	12.21	59	-	-	-	-	-
		Q3	102.50	54.18	13.04	11.85	186	-	-	-	-	-
		Q4	84.12	39.96	16.15	11.75	130	-	-	-	-	-
	2018	Q1	90.54	45.21	19.80	14.51	143	-	-	-	-	-
		Q2	111.01	70.64	15.61	13.45	94	-	-	-	-	-
		Q3	88.07	54.74	15.04	8.25	57	107.50	68.16	14.58	12.01	369
		Q4	80.33	47.43	12.26	11.59	53	107.54	73.80	17.53	11.92	428
	2019	Q1	289.17	195.07	22.36	23.21	105	125.34	21.04	80.32	18.88	382
		Q2	376.25	234.98	22.54	23.31	42**	135.95	109.14	15.64	11.84	322
Aiea	2016	Q3	74.24	26.67	17.72	5.95	327	-	-	-	-	-
		Q4	80.33	37.34	21.06	13.66	474	-	-	-	-	-
	2017	Q1	83.48	54.95	17.79	11.94	629	-	-	-	-	-
		Q2	92.63	57.74	30.71	15.82	434	-	-	-	-	-
		Q3	101.07	47.00	22.10	17.21	675	-	-	-	-	-
		Q4	121.90	66.44	26.86	19.70	591	-	-	-	-	-
	2018	Q1	181.29	83.84	53.02	21.62	558	-	-	-	-	-
		Q2	137.92	70.36	51.56	20.77	389	-	-	-	-	-
		Q3	124.80	55.35	65.40	21.05	230	91.31	61.23	27.61	12.65	559
		Q4	150.76	97.93	90.02	49.90	261	120.75	75.00	32.43	19.76	566
	2019	Q1	179.86	93.77	58.10	23.02	242	142.01	95.60	27.77	15.36	545
		Q2	142.38	77.13	43.25	20.58	183	151.88	108.66	27.16	14.35	485
Barbers Point Housing	2016	Q3	-	-	-	-	-	-	-	-	-	-
		Q4	-	-	-	-	-	-	-	-	-	-
	2017	Q1	-	-	-	-	-	-	-	-	-	-
		Q2	-	-	-	-	-	-	-	-	-	-
		Q3	-	-	-	-	-	-	-	-	-	-
		Q4	73.34	73.34	51.41	51.41	1**	-	-	-	-	-
	2018	Q1	-	-	-	-	-	-	-	-	-	-
		Q2	14.89	14.89	3.85	3.85	2**	-	-	-	-	-
		Q3	-	-	-	-	-	106.92	73.38	80.83	93.03	17**
		Q4	-	-	-	-	-	123.02	109.58	59.67	57.40	12**
	2019	Q1	-	-	-	-	-	123.99	79.00	69.24	87.46	6**
		Q2	-	-	-	-	-	180.87	94.21	33.87	23.17	7**

Oahu Fixed Wireline Speeds – Quarterly (Mbps)												
Location	Year	Quarter	Wired					WiFi				
			Download		Upload		Sample Count	Download		Upload		Sample Count
			Mean	Median	Mean	Median		Mean	Median	Mean	Median	
Ewa Beach	2016	Q3	110.43	75.76	17.29	20.70	2,686	-	-	-	-	-
		Q4	105.07	67.68	17.67	19.15	2,745	-	-	-	-	-
	2017	Q1	101.36	70.36	19.80	20.31	2531	-	-	-	-	-
		Q2	131.37	80.08	38.24	21.46	3,061	-	-	-	-	-
		Q3	136.60	91.41	25.88	21.41	3,312	-	-	-	-	-
		Q4	128.68	82.73	22.74	21.07	3,039	-	-	-	-	-
	2018	Q1	122.28	86.46	29.97	20.22	2,954	-	-	-	-	-
		Q2	146.60	91.32	34.82	20.37	2,383	-	-	-	-	-
		Q3	162.05	103.54	38.18	22.19	2,476	132.39	103.55	31.14	21.76	4,507
		Q4	162.07	96.31	36.94	21.81	2,274	136.79	105.57	35.54	21.18	4,409
	2019	Q1	167.59	100.41	41.78	21.39	2,273	147.24	114.87	34.41	20.55	4,058
		Q2	167.73	112.70	58.80	21.68	2,193	160.85	126.17	33.02	20.04	3,915
Ewa Gentry	2016	Q3	82.67	51.22	14.72	11.87	283	-	-	-	-	-
		Q4	102.91	66.16	19.35	17.75	424	-	-	-	-	-
	2017	Q1	96.57	64.31	17.78	20.83	467	-	-	-	-	-
		Q2	86.08	52.41	17.03	20.51	191	-	-	-	-	-
		Q3	135.11	99.75	18.30	19.26	311	-	-	-	-	-
		Q4	127.48	74.23	16.69	19.95	259	-	-	-	-	-
	2018	Q1	132.55	101.17	19.84	17.33	272	-	-	-	-	-
		Q2	141.73	87.09	24.60	16.84	335	-	-	-	-	-
		Q3	183.05	135.80	32.14	12.32	190	126.57	97.32	16.47	12.11	385
		Q4	183.37	126.29	22.79	22.30	176	140.13	108.03	17.11	11.95	251
	2019	Q1	152.19	112.81	23.53	16.54	215	141.69	105.60	17.58	11.76	357
		Q2	192.72	158.93	32.01	19.84	199	166.84	174.55	17.70	11.94	283
Ewa Villages	2016	Q3	91.17	46.00	24.10	20.99	95	-	-	-	-	-
		Q4	139.55	39.39	29.92	19.58	51	-	-	-	-	-
	2017	Q1	85.02	64.51	21.90	22.84	60	-	-	-	-	-
		Q2	101.24	52.89	17.66	11.90	75	-	-	-	-	-
		Q3	213.43	69.43	29.18	23.58	103	-	-	-	-	-
		Q4	113.43	78.14	37.38	47.12	182	-	-	-	-	-
	2018	Q1	70.49	22.37	18.02	5.78	290	-	-	-	-	-
		Q2	239.51	122.99	54.53	47.28	98	-	-	-	-	-
		Q3	173.72	88.53	47.09	27.74	109	131.74	101.19	32.89	22.52	350
		Q4	187.07	57.43	32.95	27.54	77	144.05	114.16	37.05	23.12	331
	2019	Q1	184.12	75.41	47.44	32.76	59	163.19	118.09	39.31	22.23	264
		Q2	264.75	313.78	70.28	50.35	37**	172.73	150.25	43.02	20.98	313

Oahu Fixed Wireline Speeds – Quarterly (Mbps)												
Location	Year	Quarter	Wired					WiFi				
			Download		Upload		Sample Count	Download		Upload		Sample Count
			Mean	Median	Mean	Median		Mean	Median	Mean	Median	
Halawa	2016	Q3	53.81	22.69	13.96	8.60	299	-	-	-	-	-
		Q4	56.84	25.51	14.02	7.74	237	-	-	-	-	-
	2017	Q1	76.82	38.61	19.38	11.60	236	-	-	-	-	-
		Q2	78.02	46.37	24.19	14.08	142	-	-	-	-	-
		Q3	100.46	59.18	24.92	17.58	247	-	-	-	-	-
		Q4	67.56	42.11	17.88	11.16	242	-	-	-	-	-
	2018	Q1	132.93	78.31	39.38	19.78	90	-	-	-	-	-
		Q2	144.41	57.88	69.76	32.89	246	-	-	-	-	-
		Q3	152.22	47.51	79.68	20.76	268	97.27	70.25	29.78	12.17	685
		Q4	178.41	90.53	82.87	27.35	155	119.98	77.78	34.82	14.49	700
	2019	Q1	151.66	91.12	58.76	23.59	333	133.29	93.99	35.13	16.68	959
		Q2	181.90	149.36	61.19	23.45	520	143.91	113.28	35.52	16.80	1,286
Haleiwa	2016	Q3	-	-	-	-	-	-	-	-	-	-
		Q4	-	-	-	-	-	-	-	-	-	-
	2017	Q1	-	-	-	-	-	-	-	-	-	-
		Q2	-	-	-	-	-	-	-	-	-	-
		Q3	74.61	70.27	16.57	19.27	7**	-	-	-	-	-
		Q4	114.65	105.60	15.37	14.10	34**	-	-	-	-	-
	2018	Q1	109.41	81.42	14.25	11.88	67	-	-	-	-	-
		Q2	104.32	117.50	12.56	11.81	26**	-	-	-	-	-
		Q3	-	-	-	-	-	67.59	45.78	13.98	11.67	94
		Q4	84.07	91.37	13.87	11.74	11**	94.17	68.51	19.27	11.66	94
	2019	Q1	-	-	-	-	-	118.87	71.32	18.39	13.14	75
		Q2	9.44	9.44	9.66	9.66	1**	143.38	117.21	17.05	11.55	91
Hauula	2016	Q3	79.86	58.38	12.35	11.34	142	-	-	-	-	-
		Q4	88.42	61.47	15.29	12.02	194	-	-	-	-	-
	2017	Q1	69.71	42.12	13.86	11.97	154	-	-	-	-	-
		Q2	96.31	61.22	16.90	15.36	247	-	-	-	-	-
		Q3	89.74	50.22	14.94	11.83	384	-	-	-	-	-
		Q4	67.61	37.73	12.86	11.26	190	-	-	-	-	-
	2018	Q1	105.82	44.70	19.92	22.89	261	-	-	-	-	-
		Q2	67.80	43.73	18.41	23.76	161	-	-	-	-	-
		Q3	72.41	42.33	18.06	23.35	263	92.50	63.70	27.42	13.52	197
		Q4	93.17	56.84	16.62	17.17	191	94.96	65.26	24.28	18.43	238
	2019	Q1	112.64	69.48	15.98	11.89	201	103.90	63.48	23.04	11.62	246
		Q2	140.19	95.17	16.27	17.59	169	118.93	71.84	30.26	16.42	252

Oahu Fixed Wireline Speeds – Quarterly (Mbps)												
Location	Year	Quarter	Wired					WiFi				
			Download		Upload		Sample Count	Download		Upload		Sample Count
			Mean	Median	Mean	Median		Mean	Median	Mean	Median	
Heeia	2016	Q3	80.65	55.46	13.72	11.83	479	-	-	-	-	-
		Q4	88.17	53.25	21.01	15.48	439	-	-	-	-	-
	2017	Q1	88.99	54.70	19.38	19.37	255	-	-	-	-	-
		Q2	113.11	70.88	19.64	19.75	283	-	-	-	-	-
		Q3	107.32	70.09	18.46	18.34	358	-	-	-	-	-
		Q4	87.73	46.86	18.69	14.87	443	-	-	-	-	-
	2018	Q1	118.39	74.72	25.20	19.38	524	-	-	-	-	-
		Q2	138.87	90.79	27.97	22.51	486	-	-	-	-	-
		Q3	140.27	97.60	36.05	22.25	440	93.89	62.09	17.91	14.75	291
		Q4	145.27	94.87	46.92	21.68	579	111.74	73.78	27.08	16.46	901
	2019	Q1	144.88	89.89	49.83	20.41	570	121.32	80.95	32.31	20.94	916
		Q2	182.65	98.33	52.62	22.99	513	127.03	83.52	35.37	17.07	933
Honolulu	2016	Q3	72.96	44.83	15.05	10.60	31,139	-	-	-	-	-
		Q4	76.48	48.75	15.95	11.47	30,141	-	-	-	-	-
	2017	Q1	78.10	52.79	17.27	11.75	31,358	-	-	-	-	-
		Q2	81.87	54.31	18.28	11.86	29,535	-	-	-	-	-
		Q3	95.00	59.27	19.42	11.89	32,004	-	-	-	-	-
		Q4	93.10	56.50	20.76	11.88	31,337	-	-	-	-	-
	2018	Q1	100.61	67.87	22.75	11.88	32,056	-	-	-	-	-
		Q2	121.19	71.16	30.92	11.97	28,256	-	-	-	-	-
		Q3	129.40	78.58	32.92	15.47	25,104	104.11	70.02	28.91	14.51	35,918
		Q4	131.88	81.69	35.88	17.64	22,676	109.74	70.26	27.99	14.77	34,283
	2019	Q1	141.94	86.91	39.92	18.17	22,013	119.89	78.42	30.59	14.65	32,300
		Q2	150.80	92.37	38.63	17.30	20,639	130.02	87.21	31.52	14.47	31,342
Iroquois Point	2016	Q3	23.60	20.64	8.22	5.47	4**	-	-	-	-	-
		Q4	-	-	-	-	-	-	-	-	-	-
	2017	Q1	-	-	-	-	-	-	-	-	-	-
		Q2	61.20	61.20	26.85	26.85	2**	-	-	-	-	-
		Q3	44.07	15.65	12.84	2.90	9**	-	-	-	-	-
		Q4	57.77	29.50	21.42	14.77	26**	-	-	-	-	-
	2018	Q1	77.63	22.47	16.29	13.76	18**	-	-	-	-	-
		Q2	153.48	53.42	40.70	37.34	7**	-	-	-	-	-
		Q3	46.99	36.19	13.70	11.64	17**	142.97	98.73	42.07	22.67	251
		Q4	94.01	55.83	33.86	38.04	5**	185.23	133.27	51.96	22.86	248
	2019	Q1	263.80	263.80	6.01	6.01	2**	160.48	113.98	63.27	22.59	230
		Q2	190.31	196.58	56.68	45.85	12**	236.64	215.55	56.07	22.57	223

Oahu Fixed Wireline Speeds – Quarterly (Mbps)												
Location	Year	Quarter	Wired					WiFi				
			Download		Upload		Sample Count	Download		Upload		Sample Count
			Mean	Median	Mean	Median		Mean	Median	Mean	Median	
Joint Base Pearl Harbor-Hickam	2016	Q3	93.38	58.93	15.71	11.90	1,433	-	-	-	-	-
		Q4	104.46	75.62	19.80	16.38	1,692	-	-	-	-	-
	2017	Q1	85.72	63.83	15.60	17.52	1,703	-	-	-	-	-
		Q2	92.94	69.74	16.43	13.40	1,818	-	-	-	-	-
		Q3	119.59	85.03	19.80	18.07	1,454	-	-	-	-	-
		Q4	120.98	80.70	18.10	14.93	1,760	-	-	-	-	-
	2018	Q1	124.50	77.53	28.27	12.02	1,809	-	-	-	-	-
		Q2	154.27	94.61	41.45	17.66	1,457	-	-	-	-	-
		Q3	169.10	120.55	41.86	21.27	1,142	145.35	115.95	20.16	12.26	2,350
		Q4	163.58	125.50	18.36	16.07	859	154.24	120.18	18.61	12.25	2,161
	2019	Q1	174.06	121.86	18.62	16.28	752	158.92	135.05	18.83	12.27	1,615
		Q2	209.30	142.47	18.45	14.78	419	177.76	157.28	20.09	12.44	1,266
Kaaawa	2016	Q3	1.33	0.97	0.48	0.38	7**	-	-	-	-	-
		Q4	1.30	1.30	0.38	0.38	1**	-	-	-	-	-
	2017	Q1	101.31	39.88	13.18	11.92	29**	-	-	-	-	-
		Q2	47.08	32.58	22.09	6.13	21**	-	-	-	-	-
		Q3	29.31	24.24	5.43	6.03	24**	-	-	-	-	-
		Q4	42.73	46.09	8.24	6.61	12**	-	-	-	-	-
	2018	Q1	38.50	41.85	11.00	11.92	8**	-	-	-	-	-
		Q2	23.36	20.90	11.23	11.75	11**	-	-	-	-	-
		Q3	18.28	11.63	8.39	10.68	10**	82.32	42.18	12.16	11.73	48**
		Q4	89.63	130.47	18.10	21.39	5**	96.84	70.28	12.54	11.40	57
	2019	Q1	202.72	2.69	10.69	0.73	19**	119.43	69.24	12.27	11.23	37**
		Q2	-	-	-	-	-	116.63	70.98	12.17	11.66	42**
Kahaluu	2016	Q3	59.25	39.93	16.19	9.45	498	-	-	-	-	-
		Q4	73.42	42.11	14.77	11.29	353	-	-	-	-	-
	2017	Q1	69.18	42.37	13.41	11.70	818	-	-	-	-	-
		Q2	88.48	56.30	16.73	11.90	1377	-	-	-	-	-
		Q3	92.13	50.84	13.29	11.69	663	-	-	-	-	-
		Q4	92.42	53.25	15.97	11.84	688	-	-	-	-	-
	2018	Q1	101.16	70.37	18.00	12.06	389	-	-	-	-	-
		Q2	112.36	69.20	16.44	11.80	211	-	-	-	-	-
		Q3	150.05	89.87	24.23	11.99	467	108.81	70.38	21.41	12.05	990
		Q4	120.35	72.16	22.50	11.87	138	122.20	72.14	21.03	12.15	255
	2019	Q1	109.05	70.66	15.93	12.01	75	116.50	70.26	15.17	11.75	154
		Q2	157.03	102.11	16.64	14.57	73	150.68	101.99	20.93	12.03	126

Oahu Fixed Wireline Speeds – Quarterly (Mbps)												
Location	Year	Quarter	Wired					WiFi				
			Download		Upload		Sample Count	Download		Upload		Sample Count
			Mean	Median	Mean	Median		Mean	Median	Mean	Median	
Kahuku	2016	Q3	-	-	-	-	-	-	-	-	-	-
		Q4	-	-	-	-	-	-	-	-	-	-
	2017	Q1	-	-	-	-	-	-	-	-	-	-
		Q2	31.83	21.42	18.50	23.28	7**	-	-	-	-	-
		Q3	73.06	78.18	17.41	18.73	10**	-	-	-	-	-
		Q4	77.43	88.83	19.63	20.74	10**	-	-	-	-	-
	2018	Q1	64.92	54.55	18.73	18.98	9**	-	-	-	-	-
		Q2	116.87	144.43	23.52	23.84	13**	-	-	-	-	-
		Q3	129.40	148.32	22.94	24.07	8**	152.28	130.79	22.64	23.08	71
		Q4	161.44	161.44	24.08	24.08	2**	141.42	105.78	25.22	20.59	51
	2019	Q1	-	-	-	-	-	144.83	75.59	21.22	11.99	40**
		Q2	-	-	-	-	-	175.93	194.75	19.25	21.43	25**
Kailua	2016	Q3	92.86	58.17	18.53	12.05	2,370	-	-	-	-	-
		Q4	100.45	65.78	23.99	18.34	2,624	-	-	-	-	-
	2017	Q1	104.31	70.99	21.94	20.54	2,488	-	-	-	-	-
		Q2	103.35	72.39	22.07	20.74	2,549	-	-	-	-	-
		Q3	110.04	71.46	22.83	20.16	2,609	-	-	-	-	-
		Q4	102.09	70.53	22.94	19.95	2,454	-	-	-	-	-
	2018	Q1	112.51	73.31	29.13	20.80	2,479	-	-	-	-	-
		Q2	135.97	82.51	36.39	21.18	2,098	-	-	-	-	-
		Q3	139.44	86.50	32.37	20.88	2,030	98.76	65.00	29.41	20.44	3,496
		Q4	141.07	89.52	46.37	22.27	1,996	114.03	70.36	41.10	21.79	3,646
	2019	Q1	157.21	98.87	60.76	23.09	1,866	117.73	75.39	42.95	20.46	2,947
		Q2	167.93	94.53	47.46	21.05	1,485	144.07	93.40	41.52	20.05	2,587
Kaneohe	2016	Q3	90.34	55.72	15.92	11.94	2,000	-	-	-	-	-
		Q4	97.38	65.28	18.38	14.24	2,058	-	-	-	-	-
	2017	Q1	94.72	61.08	19.33	18.44	1,725	-	-	-	-	-
		Q2	110.75	72.09	20.18	19.78	1,115	-	-	-	-	-
		Q3	108.11	70.05	20.97	19.46	1,997	-	-	-	-	-
		Q4	102.22	67.46	19.97	19.63	1,903	-	-	-	-	-
	2018	Q1	110.96	72.21	22.30	16.44	1,932	-	-	-	-	-
		Q2	134.90	79.21	30.21	18.05	2,125	-	-	-	-	-
		Q3	140.44	94.61	37.16	21.16	1,597	117.02	75.82	25.89	20.45	1,921
		Q4	148.26	94.97	35.05	20.47	1,184	120.62	79.74	28.51	17.65	1,747
	2019	Q1	143.76	93.90	44.34	21.22	1,314	130.47	80.45	30.54	17.05	1,661
		Q2	149.62	82.93	38.16	11.79	1,181	146.15	98.47	33.44	18.07	1,562

Oahu Fixed Wireline Speeds – Quarterly (Mbps)												
Location	Year	Quarter	Wired					WiFi				
			Download		Upload		Sample Count	Download		Upload		Sample Count
			Mean	Median	Mean	Median		Mean	Median	Mean	Median	
Kapolei	2016	Q3	77.63	39.44	13.83	9.19	763	-	-	-	-	-
		Q4	81.48	50.43	16.41	11.74	694	-	-	-	-	-
	2017	Q1	90.71	57.95	16.60	18.80	603	-	-	-	-	-
		Q2	121.71	74.16	26.05	20.85	437	-	-	-	-	-
		Q3	120.62	75.58	30.55	20.05	833	-	-	-	-	-
		Q4	118.43	83.84	24.57	20.06	698	-	-	-	-	-
	2018	Q1	127.37	79.22	29.56	18.95	723	-	-	-	-	-
		Q2	119.03	77.82	33.44	18.83	830	-	-	-	-	-
		Q3	130.36	86.22	48.82	23.31	648	119.72	93.41	36.60	21.97	1,709
		Q4	134.51	105.96	44.48	23.05	612	131.09	112.38	31.51	20.70	1,571
	2019	Q1	177.46	121.68	53.58	22.94	656	137.93	117.16	34.03	13.56	1,394
		Q2	166.63	116.82	50.35	18.11	471	152.92	143.53	37.72	14.44	1,317
Kawela Bay	2016	Q3	-	-	-	-	-	-	-	-	-	-
		Q4	-	-	-	-	-	-	-	-	-	-
	2017	Q1	-	-	-	-	-	-	-	-	-	-
		Q2	-	-	-	-	-	-	-	-	-	-
		Q3	27.90	27.90	11.60	11.60	2**	-	-	-	-	-
		Q4	15.10	15.10	5.63	5.63	2**	-	-	-	-	-
	2018	Q1	24.10	34.52	2.76	3.32	6**	-	-	-	-	-
		Q2	10.32	10.28	8.21	11.65	3**	-	-	-	-	-
		Q3	-	-	-	-	-	58.83	55.64	10.15	11.51	100
		Q4	101.98	32.48	14.52	11.64	5**	66.24	58.65	8.98	10.11	100
	2019	Q1	226.58	149.27	24.78	28.79	3**	83.80	61.14	10.18	11.30	127
		Q2	58.83	58.83	6.19	6.19	2**	80.35	62.44	9.57	10.93	94
Laie	2016	Q3	-	-	-	-	-	-	-	-	-	-
		Q4	-	-	-	-	-	-	-	-	-	-
	2017	Q1	-	-	-	-	-	-	-	-	-	-
		Q2	79.74	46.99	20.89	20.36	6**	-	-	-	-	-
		Q3	123.37	92.79	46.33	51.29	3**	-	-	-	-	-
		Q4	-	-	-	-	-	-	-	-	-	-
	2018	Q1	155.37	155.37	47.45	47.45	1**	-	-	-	-	-
		Q2	71.96	16.39	26.08	16.91	6**	-	-	-	-	-
		Q3	140.54	140.54	117.43	117.43	1**	88.59	65.52	23.11	12.69	213
		Q4	110.82	98.08	22.80	11.71	4**	114.12	75.64	22.51	18.00	182
	2019	Q1	141.19	141.19	13.15	13.15	2**	153.23	119.09	27.54	21.02	150
		Q2	153.75	179.20	35.23	17.68	4**	159.93	119.53	25.53	17.10	154

Oahu Fixed Wireline Speeds – Quarterly (Mbps)												
Location	Year	Quarter	Wired					WiFi				
			Download		Upload		Sample Count	Download		Upload		Sample Count
			Mean	Median	Mean	Median		Mean	Median	Mean	Median	
Maili	2016	Q3	91.32	59.07	14.68	12.02	112	-	-	-	-	-
		Q4	77.72	49.42	13.50	12.01	130	-	-	-	-	-
	2017	Q1	81.67	60.79	14.22	12.44	148	-	-	-	-	-
		Q2	98.08	61.28	14.01	11.92	154	-	-	-	-	-
		Q3	94.58	53.43	13.52	11.95	261	-	-	-	-	-
		Q4	99.51	68.03	16.08	16.46	240	-	-	-	-	-
	2018	Q1	147.34	83.85	17.18	17.93	265	-	-	-	-	-
		Q2	98.60	64.61	16.41	11.81	227	-	-	-	-	-
		Q3	145.33	93.96	21.10	11.88	261	119.89	85.93	22.76	13.74	194
		Q4	110.38	70.94	18.19	11.61	179	158.72	122.36	24.28	11.92	193
	2019	Q1	105.92	77.85	22.40	11.58	103	195.24	176.40	28.34	15.97	194
		Q2	126.34	81.87	20.86	11.70	153	184.00	183.65	22.45	12.34	140
Mākaha	2016	Q3	65.46	57.25	10.89	11.86	18**	-	-	-	-	-
		Q4	90.35	46.40	13.88	11.94	22**	-	-	-	-	-
	2017	Q1	68.09	43.90	16.03	20.71	80	-	-	-	-	-
		Q2	92.83	74.81	20.99	23.54	79	-	-	-	-	-
		Q3	117.20	85.28	18.97	23.35	72	-	-	-	-	-
		Q4	207.13	202.21	18.82	23.13	6**	-	-	-	-	-
	2018	Q1	168.60	164.40	18.15	23.70	12**	-	-	-	-	-
		Q2	234.82	180.37	20.39	23.31	21**	-	-	-	-	-
		Q3	192.58	184.80	21.36	23.18	25**	127.19	98.46	13.97	12.09	252
		Q4	216.50	194.22	16.36	12.72	29**	152.84	127.15	14.31	11.97	424
	2019	Q1	259.28	239.25	18.55	21.02	30**	159.14	117.36	13.96	11.95	343
		Q2	186.64	119.90	22.21	21.61	25**	171.83	179.76	12.94	11.73	331
Makaha Valley	2016	Q3	89.61	75.82	30.45	10.70	3**	-	-	-	-	-
		Q4	94.63	73.85	17.71	22.30	14**	-	-	-	-	-
	2017	Q1	-	-	-	-	-	-	-	-	-	-
		Q2	71.38	71.38	23.34	23.34	2**	-	-	-	-	-
		Q3	-	-	-	-	-	-	-	-	-	-
		Q4	-	-	-	-	-	-	-	-	-	-
	2018	Q1	164.92	104.86	21.11	20.59	17**	-	-	-	-	-
		Q2	126.02	110.59	17.91	21.21	10**	-	-	-	-	-
		Q3	280.95	286.26	68.08	25.03	32**	190.91	178.74	17.94	22.77	69
		Q4	234.67	246.94	22.31	23.68	26**	161.84	151.92	17.07	20.63	50
	2019	Q1	235.12	235.96	23.85	24.16	45**	165.47	165.31	17.75	21.81	57
		Q2	287.60	353.83	21.81	22.11	26**	215.12	228.59	17.34	19.53	108

Oahu Fixed Wireline Speeds – Quarterly (Mbps)												
Location	Year	Quarter	Wired					WiFi				
			Download		Upload		Sample Count	Download		Upload		Sample Count
			Mean	Median	Mean	Median		Mean	Median	Mean	Median	
Makakilo	2016	Q3	100.56	62.32	16.19	17.08	1400	-	-	-	-	-
		Q4	97.50	62.92	15.43	12.02	1250	-	-	-	-	-
	2017	Q1	102.25	73.48	17.45	18.94	1201	-	-	-	-	-
		Q2	127.86	91.19	19.23	22.08	906	-	-	-	-	-
		Q3	116.05	76.54	17.97	18.81	1695	-	-	-	-	-
		Q4	120.94	73.36	20.34	18.99	1566	-	-	-	-	-
	2018	Q1	135.28	93.84	24.29	19.34	1428	-	-	-	-	-
		Q2	141.33	95.63	29.32	17.80	1258	-	-	-	-	-
		Q3	139.95	95.80	27.43	16.51	1390	118.40	91.57	28.97	12.69	1,164
		Q4	148.10	105.29	27.31	16.88	1233	127.62	99.73	25.70	12.48	1,509
	2019	Q1	163.20	118.20	33.70	20.04	1367	137.41	106.42	31.39	12.22	1,620
		Q2	166.63	129.96	36.26	16.30	1,498	151.25	117.12	31.23	13.14	1,753
Marine Corps Base Hawaii	2016	Q3	99.18	59.72	16.34	16.96	370	-	-	-	-	-
		Q4	110.61	70.90	20.12	15.99	213	-	-	-	-	-
	2017	Q1	97.87	71.33	17.60	21.36	376	-	-	-	-	-
		Q2	129.79	94.18	18.16	21.42	361	-	-	-	-	-
		Q3	123.25	79.47	20.66	20.72	321	-	-	-	-	-
		Q4	131.08	93.45	29.15	23.02	357	-	-	-	-	-
	2018	Q1	138.67	94.65	39.16	21.93	190	-	-	-	-	-
		Q2	144.08	73.50	30.88	22.42	192	-	-	-	-	-
		Q3	130.55	93.61	43.34	23.55	192	159.14	123.60	28.94	21.77	599
		Q4	138.10	94.78	34.33	19.74	206	177.44	154.42	24.17	17.27	504
	2019	Q1	162.58	121.08	30.10	18.45	83	199.27	215.16	24.24	12.29	497
		Q2	152.70	91.94	48.67	22.57	143	213.56	230.09	25.11	12.38	432
Maunawili	2016	Q3	56.54	55.39	16.24	19.14	97	-	-	-	-	-
		Q4	3.64	3.64	0.66	0.66	2**	-	-	-	-	-
	2017	Q1	126.77	73.45	31.24	21.30	44**	-	-	-	-	-
		Q2	132.39	87.72	41.94	49.85	60	-	-	-	-	-
		Q3	130.16	49.61	22.92	21.07	21**	-	-	-	-	-
		Q4	112.13	85.37	17.51	20.93	75	-	-	-	-	-
	2018	Q1	97.13	36.74	19.37	22.30	11**	-	-	-	-	-
		Q2	279.99	130.31	64.23	45.93	63	-	-	-	-	-
		Q3	145.17	91.81	39.65	22.53	27**	113.82	79.18	19.73	17.67	378
		Q4	227.11	232.37	65.55	21.94	31**	139.73	112.38	20.51	20.05	356
	2019	Q1	199.67	138.24	142.71	135.04	34**	137.56	93.52	25.05	19.56	286
		Q2	228.72	176.53	70.46	33.35	55	155.74	119.63	20.19	18.80	313

Oahu Fixed Wireline Speeds – Quarterly (Mbps)												
Location	Year	Quarter	Wired					WiFi				
			Download		Upload		Sample Count	Download		Upload		Sample Count
			Mean	Median	Mean	Median		Mean	Median	Mean	Median	
Mililani	2016	Q3	82.06	41.20	13.20	10.10	842	-	-	-	-	-
		Q4	86.54	33.78	13.84	10.47	945	-	-	-	-	-
	2017	Q1	62.14	21.80	11.53	2.94	780	-	-	-	-	-
		Q2	101.61	60.62	22.93	20.75	509	-	-	-	-	-
		Q3	100.14	53.87	20.70	12.47	1,156	-	-	-	-	-
		Q4	102.81	64.78	19.18	12.80	1,054	-	-	-	-	-
	2018	Q1	108.24	72.54	19.78	11.85	813	-	-	-	-	-
		Q2	181.22	115.51	35.87	23.22	938	-	-	-	-	-
		Q3	127.72	74.78	35.45	18.84	701	133.62	92.06	18.12	13.19	1,706
		Q4	175.06	106.90	98.19	23.34	1,068	129.55	83.39	17.21	12.00	2,442
	2019	Q1	162.54	86.16	70.04	21.62	1,097	123.13	78.78	19.45	11.97	2,169
		Q2	160.05	88.67	69.33	20.77	821	148.25	103.09	19.17	13.26	1,821
Mokuleia	2016	Q3	-	-	-	-	-	-	-	-	-	-
		Q4	-	-	-	-	-	-	-	-	-	-
	2017	Q1	5.75	5.75	5.94	5.94	1**	-	-	-	-	-
		Q2	20.60	14.10	6.82	5.94	5**	-	-	-	-	-
		Q3	16.30	16.30	12.31	12.31	2**	-	-	-	-	-
		Q4	16.55	16.55	6.70	6.70	2**	-	-	-	-	-
	2018	Q1	23.28	16.99	7.35	10.50	21**	-	-	-	-	-
		Q2	69.77	69.77	11.47	11.47	2**	-	-	-	-	-
		Q3	51.15	51.15	8.91	8.91	2**	109.86	93.22	13.42	11.71	91
		Q4	4.54	4.54	12.16	12.16	1**	96.40	69.52	11.77	11.62	110
	2019	Q1	112.70	112.70	24.74	24.74	2**	114.00	79.88	13.91	11.77	130
		Q2	50.34	56.93	10.90	11.64	3**	131.51	74.37	13.72	11.61	111
Nānākuli	2016	Q3	62.22	19.68	8.55	2.83	26**	-	-	-	-	-
		Q4	15.51	6.61	3.88	0.86	10**	-	-	-	-	-
	2017	Q1	46.35	28.86	16.52	1.83	13**	-	-	-	-	-
		Q2	52.56	15.61	7.66	4.52	10**	-	-	-	-	-
		Q3	74.62	45.08	12.45	9.61	36**	-	-	-	-	-
		Q4	106.03	74.37	15.58	19.58	30**	-	-	-	-	-
	2018	Q1	282.06	226.74	21.81	23.89	11**	-	-	-	-	-
		Q2	118.89	118.89	11.77	11.77	1**	-	-	-	-	-
		Q3	103.23	112.60	12.68	11.79	19**	121.23	94.36	12.73	11.85	270
		Q4	117.47	117.47	11.74	11.74	1**	145.02	116.60	14.47	11.95	282
	2019	Q1	129.96	108.32	10.55	10.95	22**	145.98	101.30	14.42	12.15	370
		Q2	172.96	117.09	16.43	11.89	38**	139.26	106.83	14.09	11.86	348

Oahu Fixed Wireline Speeds – Quarterly (Mbps)												
Location	Year	Quarter	Wired					WiFi				
			Download		Upload		Sample Count	Download		Upload		Sample Count
			Mean	Median	Mean	Median		Mean	Median	Mean	Median	
Pearl City	2016	Q3	84.54	55.18	13.08	11.71	2,005	-	-	-	-	-
		Q4	95.84	58.89	15.07	11.96	1,356	-	-	-	-	-
	2017	Q1	88.14	65.60	14.66	11.84	1,138	-	-	-	-	-
		Q2	95.09	63.23	16.63	16.04	1,240	-	-	-	-	-
		Q3	112.68	66.84	29.83	13.21	1,819	-	-	-	-	-
		Q4	109.22	70.43	21.24	15.15	1,676	-	-	-	-	-
	2018	Q1	126.00	80.86	22.61	18.30	1,278	-	-	-	-	-
		Q2	133.83	88.39	24.40	15.49	1,484	-	-	-	-	-
		Q3	146.62	88.00	21.23	11.87	1,339	113.36	76.07	24.53	18.60	1,754
		Q4	158.98	94.76	22.70	16.01	1,415	121.93	77.28	23.45	19.14	2,155
	2019	Q1	144.30	85.36	24.48	11.91	1,143	124.41	77.30	20.77	12.51	1,962
		Q2	158.76	84.16	20.54	12.24	1,217	130.52	82.25	21.64	12.14	1,682
Punaluu	2016	Q3	82.15	39.77	12.34	8.85	22**	-	-	-	-	-
		Q4	69.48	91.46	14.71	16.52	6**	-	-	-	-	-
	2017	Q1	69.20	70.94	15.68	23.27	11**	-	-	-	-	-
		Q2	47.25	35.84	12.61	11.10	10**	-	-	-	-	-
		Q3	149.70	119.28	15.41	11.79	5**	-	-	-	-	-
		Q4	-	-	-	-	-	-	-	-	-	-
	2018	Q1	204.91	204.91	11.96	11.96	1**	-	-	-	-	-
		Q2	-	-	-	-	-	-	-	-	-	-
		Q3	141.85	117.55	13.73	11.81	20**	84.16	60.76	49.05	21.18	62
		Q4	64.57	42.85	19.75	23.68	54	93.03	52.91	24.04	21.91	58
	2019	Q1	459.37	459.37	25.47	25.47	2**	101.81	40.86	38.54	21.83	41**
		Q2	-	-	-	-	-	125.91	69.97	32.56	23.40	48**
Pupukea	2016	Q3	55.18	27.60	10.82	10.24	85	-	-	-	-	-
		Q4	109.00	78.07	18.69	21.23	8**	-	-	-	-	-
	2017	Q1	77.59	73.04	13.90	11.87	20**	-	-	-	-	-
		Q2	105.17	67.14	16.95	21.28	37**	-	-	-	-	-
		Q3	95.73	70.32	14.42	11.83	23**	-	-	-	-	-
		Q4	91.38	64.20	15.89	18.66	60	-	-	-	-	-
	2018	Q1	113.90	54.79	15.62	19.28	59	-	-	-	-	-
		Q2	175.16	102.01	16.48	21.52	15**	-	-	-	-	-
		Q3	158.03	130.91	18.73	16.99	12**	92.03	63.28	23.52	12.86	304
		Q4	143.17	113.58	25.58	15.77	76	86.79	58.82	23.15	11.98	330
	2019	Q1	246.36	288.40	56.63	23.68	8**	100.39	62.12	21.56	12.65	359
		Q2	187.29	173.70	66.14	20.02	6**	128.74	69.32	29.85	14.73	267

Oahu Fixed Wireline Speeds – Quarterly (Mbps)												
Location	Year	Quarter	Wired					WiFi				
			Download		Upload		Sample Count	Download		Upload		Sample Count
			Mean	Median	Mean	Median		Mean	Median	Mean	Median	
Schofield Barracks	2016	Q3	101.61	67.74	15.29	12.04	450	-	-	-	-	-
		Q4	113.08	88.47	16.72	20.02	447	-	-	-	-	-
	2017	Q1	111.55	91.62	17.94	21.47	296	-	-	-	-	-
		Q2	102.17	74.56	16.76	20.74	421	-	-	-	-	-
		Q3	131.68	95.59	17.54	20.18	565	-	-	-	-	-
		Q4	136.04	105.29	16.40	14.51	565	-	-	-	-	-
	2018	Q1	141.68	112.76	15.20	11.98	427	-	-	-	-	-
		Q2	170.68	139.05	17.07	13.97	321	-	-	-	-	-
		Q3	158.85	123.36	15.81	11.84	482	182.86	178.49	20.45	12.42	1,014
		Q4	176.72	154.77	16.53	11.85	434	179.02	181.14	20.19	12.03	1,019
	2019	Q1	190.86	169.41	17.80	11.78	380	183.32	206.47	16.86	11.99	798
		Q2	195.68	190.29	20.44	11.92	350	205.97	231.20	18.73	12.11	720
Village Park	2016	Q3	92.46	59.05	14.27	11.92	280	-	-	-	-	-
		Q4	107.49	79.15	15.65	11.92	291	-	-	-	-	-
	2017	Q1	90.51	70.09	14.36	11.97	247	-	-	-	-	-
		Q2	89.93	59.60	15.14	15.78	216	-	-	-	-	-
		Q3	112.12	71.38	15.64	14.10	266	-	-	-	-	-
		Q4	109.80	71.24	14.32	11.86	283	-	-	-	-	-
	2018	Q1	125.80	88.27	22.61	11.85	282	-	-	-	-	-
		Q2	147.58	101.63	33.78	11.95	265	-	-	-	-	-
		Q3	128.40	85.09	15.89	11.74	233	123.53	92.13	16.47	11.79	625
		Q4	134.11	104.26	14.54	11.84	218	138.62	89.56	20.33	11.90	550
	2019	Q1	144.97	93.78	20.28	11.86	331	142.06	94.44	17.08	12.11	573
		Q2	149.10	97.19	24.26	13.01	279	157.80	115.85	19.79	11.80	508
Wahiawa	2016	Q3	89.49	62.97	21.02	18.13	430	-	-	-	-	-
		Q4	114.77	83.24	26.10	22.50	426	-	-	-	-	-
	2017	Q1	96.91	70.75	21.74	20.65	441	-	-	-	-	-
		Q2	93.42	69.88	19.19	20.16	334	-	-	-	-	-
		Q3	100.33	66.59	20.97	20.36	418	-	-	-	-	-
		Q4	126.36	86.78	28.28	22.72	460	-	-	-	-	-
	2018	Q1	121.70	78.83	29.87	19.73	599	-	-	-	-	-
		Q2	155.02	97.31	40.84	21.79	616	-	-	-	-	-
		Q3	154.76	99.25	37.39	21.50	478	129.29	84.59	28.58	20.03	761
		Q4	160.61	100.62	60.95	23.55	388	127.12	80.55	35.18	19.68	699
	2019	Q1	193.55	110.04	55.00	23.55	346	141.87	86.98	35.44	15.96	692
		Q2	194.52	128.46	62.02	23.48	354	146.85	89.23	33.16	15.91	779

Oahu Fixed Wireline Speeds – Quarterly (Mbps)												
Location	Year	Quarter	Wired					WiFi				
			Download		Upload		Sample Count	Download		Upload		Sample Count
			Mean	Median	Mean	Median		Mean	Median	Mean	Median	
Waialua	2016	Q3	-	-	-	-	-	-	-	-	-	-
		Q4	60.13	52.07	18.73	22.11	3**	-	-	-	-	-
	2017	Q1	61.83	61.83	6.01	6.01	1**	-	-	-	-	-
		Q2	62.81	27.13	9.53	5.34	12**	-	-	-	-	-
		Q3	57.79	6.33	8.06	3.34	8**	-	-	-	-	-
		Q4	-	-	-	-	-	-	-	-	-	-
	2018	Q1	139.86	118.21	16.46	21.38	30**	-	-	-	-	-
		Q2	18.81	18.81	2.04	2.04	2**	-	-	-	-	-
		Q3	-	-	-	-	-	139.14	112.81	17.64	18.00	168
		Q4	210.25	70.21	14.41	5.88	27**	121.62	69.94	25.96	15.95	244
	2019	Q1	588.84	888.51	28.60	24.73	20**	104.76	72.65	27.70	12.07	240
		Q2	340.78	194.24	29.96	23.71	25**	140.58	93.19	24.16	12.00	224
Wai'anae	2016	Q3	104.53	59.06	16.34	16.11	357	-	-	-	-	-
		Q4	102.86	66.59	14.47	11.98	380	-	-	-	-	-
	2017	Q1	91.72	70.14	16.16	19.30	529	-	-	-	-	-
		Q2	92.99	70.63	15.38	15.67	362	-	-	-	-	-
		Q3	112.38	71.93	15.29	16.27	318	-	-	-	-	-
		Q4	127.13	94.38	16.01	12.17	420	-	-	-	-	-
	2018	Q1	115.57	80.11	13.91	11.88	493	-	-	-	-	-
		Q2	138.22	101.22	16.12	15.44	476	-	-	-	-	-
		Q3	120.20	71.10	18.25	11.96	332	121.71	89.44	13.60	11.93	387
		Q4	123.00	82.69	14.61	11.75	351	131.77	95.60	13.60	11.69	594
	2019	Q1	138.38	94.25	16.15	14.81	371	143.06	116.27	14.54	11.80	656
		Q2	141.65	94.33	14.12	11.53	348	152.08	134.34	14.62	11.78	581
Waikane	2016	Q3	86.52	58.41	14.46	12.92	102	-	-	-	-	-
		Q4	104.48	111.18	12.08	11.45	15**	-	-	-	-	-
	2017	Q1	69.24	60.58	12.14	11.52	49**	-	-	-	-	-
		Q2	77.09	47.12	20.35	22.03	36**	-	-	-	-	-
		Q3	64.29	56.26	10.77	11.71	13**	-	-	-	-	-
		Q4	96.20	66.45	15.93	17.51	40**	-	-	-	-	-
	2018	Q1	126.09	107.52	16.15	22.54	31**	-	-	-	-	-
		Q2	127.20	77.69	13.89	11.73	49**	-	-	-	-	-
		Q3	119.73	91.65	15.58	16.35	83	94.62	69.88	23.46	19.00	9**
		Q4	125.17	95.95	13.44	11.31	56	89.30	85.78	9.06	10.99	9**
	2019	Q1	155.16	97.61	13.45	11.77	23**	157.26	98.73	25.65	20.64	31**
		Q2	145.92	76.64	14.08	11.65	29**	95.65	34.48	13.38	9.85	31**

Oahu Fixed Wireline Speeds – Quarterly (Mbps)												
Location	Year	Quarter	Wired					WiFi				
			Download		Upload		Sample Count	Download		Upload		Sample Count
			Mean	Median	Mean	Median		Mean	Median	Mean	Median	
Waimalu	2016	Q3	102.58	59.03	16.78	11.96	2,254	-	-	-	-	-
		Q4	99.06	59.09	20.07	11.97	2,005	-	-	-	-	-
	2017	Q1	97.35	63.78	19.69	11.95	1,802	-	-	-	-	-
		Q2	99.26	61.92	25.12	16.98	1,489	-	-	-	-	-
		Q3	135.49	70.98	41.32	15.44	1,909	-	-	-	-	-
		Q4	123.25	70.08	56.05	12.50	2,069	-	-	-	-	-
	2018	Q1	125.90	76.04	31.14	11.98	2,320	-	-	-	-	-
		Q2	133.78	73.75	30.27	11.89	2,274	-	-	-	-	-
		Q3	151.24	93.48	26.13	12.30	1,884	95.02	64.01	22.68	11.96	2,337
		Q4	134.23	84.91	24.57	11.92	1,801	114.71	71.46	22.98	12.22	2,564
	2019	Q1	136.63	76.88	23.80	11.81	1,884	109.30	70.22	23.39	11.90	2,301
		Q2	133.77	77.22	23.75	11.79	1,748	120.79	70.69	25.47	11.89	2,250
Waimanalo	2016	Q3	48.30	58.93	11.93	6.06	7**	-	-	-	-	-
		Q4	-	-	-	-	-	-	-	-	-	-
	2017	Q1	93.86	93.86	24.01	24.01	1**	-	-	-	-	-
		Q2	3.72	2.27	16.09	15.55	4**	-	-	-	-	-
		Q3	26.97	25.14	14.24	14.21	5**	-	-	-	-	-
		Q4	-	-	-	-	-	-	-	-	-	-
	2018	Q1	106.94	1.86	29.14	2.50	19**	-	-	-	-	-
		Q2	0.87	0.54	1.06	0.70	14**	-	-	-	-	-
		Q3	81.73	81.73	11.51	11.51	1**	181.97	204.08	40.34	23.49	91
		Q4	81.73	14.23	31.72	1.52	4**	149.32	97.02	23.64	22.88	72
	2019	Q1	276.58	291.04	18.73	16.25	4**	129.37	90.48	18.44	12.06	87
		Q2	151.69	28.83	33.79	24.26	12**	147.73	127.87	22.53	16.46	43**
Waimanalo Beach	2016	Q3	14.87	14.87	1.79	1.79	1**	-	-	-	-	-
		Q4	70.21	70.21	5.88	5.88	1**	-	-	-	-	-
	2017	Q1	-	-	-	-	-	-	-	-	-	-
		Q2	174.53	91.52	71.68	78.94	9**	-	-	-	-	-
		Q3	86.25	84.39	71.89	73.81	18**	-	-	-	-	-
		Q4	65.79	56.57	23.45	13.89	19**	-	-	-	-	-
	2018	Q1	97.09	98.93	21.06	22.42	24**	-	-	-	-	-
		Q2	107.19	124.04	58.77	54.27	6**	-	-	-	-	-
		Q3	145.08	103.03	135.73	49.01	13**	87.45	57.73	25.83	21.70	126
		Q4	313.51	243.47	90.90	91.84	7**	104.37	57.86	19.56	20.01	134
	2019	Q1	146.89	113.71	73.22	89.18	15**	98.33	57.76	20.27	18.48	145
		Q2	100.59	75.23	36.12	23.20	12**	86.67	60.21	23.17	20.70	149

Oahu Fixed Wireline Speeds – Quarterly (Mbps)												
Location	Year	Quarter	Wired					WiFi				
			Download		Upload		Sample Count	Download		Upload		Sample Count
			Mean	Median	Mean	Median		Mean	Median	Mean	Median	
Waipahu	2016	Q3	97.46	59.01	14.34	11.94	923	-	-	-	-	-
		Q4	91.62	58.56	14.15	11.90	919	-	-	-	-	-
	2017	Q1	100.14	66.20	15.13	11.97	730	-	-	-	-	-
		Q2	85.55	60.93	15.10	11.95	765	-	-	-	-	-
		Q3	92.07	57.25	12.63	11.52	1,052	-	-	-	-	-
		Q4	100.53	67.75	14.40	11.82	996	-	-	-	-	-
	2018	Q1	112.24	70.66	18.39	11.78	1,016	-	-	-	-	-
		Q2	139.08	95.14	21.46	11.88	939	-	-	-	-	-
		Q3	131.53	90.61	16.16	11.83	754	112.39	70.22	25.67	11.94	1,633
		Q4	129.78	87.88	19.78	11.84	787	126.34	86.72	24.27	11.87	1,604
	2019	Q1	146.89	95.50	19.00	13.53	733	144.26	116.88	23.01	12.05	1,486
		Q2	170.05	111.97	22.37	15.44	816	157.45	119.36	26.99	12.26	1,290
Waipio	2016	Q3	7.46	5.75	5.06	0.69	6**	-	-	-	-	-
		Q4	89.21	57.44	13.09	11.72	45**	-	-	-	-	-
	2017	Q1	92.79	65.13	14.33	11.92	196	-	-	-	-	-
		Q2	107.48	72.94	14.82	18.12	118	-	-	-	-	-
		Q3	133.84	93.77	35.21	16.36	176	-	-	-	-	-
		Q4	85.61	48.92	71.70	23.43	128	-	-	-	-	-
	2018	Q1	98.42	115.53	12.61	12.05	41**	-	-	-	-	-
		Q2	114.47	115.27	13.99	11.86	83	-	-	-	-	-
		Q3	100.84	31.68	17.39	9.99	44**	110.84	75.54	17.10	11.91	789
		Q4	135.72	58.82	39.32	22.10	28**	111.27	80.45	16.08	11.77	772
	2019	Q1	137.42	96.15	15.53	23.35	31**	125.62	95.76	14.40	11.66	667
		Q2	198.27	144.18	31.41	23.45	30**	145.95	118.21	16.25	11.70	623
Waipio Acres	2016	Q3	106.14	67.33	14.96	12.10	975	-	-	-	-	-
		Q4	116.26	83.56	15.51	18.46	850	-	-	-	-	-
	2017	Q1	107.40	76.14	15.92	19.30	652	-	-	-	-	-
		Q2	122.82	94.82	19.19	22.70	352	-	-	-	-	-
		Q3	131.32	91.74	24.93	20.87	947	-	-	-	-	-
		Q4	122.92	98.43	20.17	11.93	547	-	-	-	-	-
	2018	Q1	121.64	79.26	17.36	12.04	553	-	-	-	-	-
		Q2	124.85	94.11	16.10	11.79	680	-	-	-	-	-
		Q3	126.81	88.81	19.80	11.82	744	130.35	102.38	34.94	22.68	467
		Q4	159.79	93.20	20.70	20.01	762	131.82	98.25	27.26	13.37	471
	2019	Q1	143.40	95.66	26.41	16.19	449	123.72	97.34	33.29	12.27	323
		Q2	339.26	200.75	27.45	23.23	437	150.01	111.42	31.11	15.46	283

Oahu Fixed Wireline Speeds – Quarterly (Mbps)												
Location	Year	Quarter	Wired					WiFi				
			Download		Upload		Sample Count	Download		Upload		Sample Count
			Mean	Median	Mean	Median		Mean	Median	Mean	Median	
Wheeler Army Airfield	2016	Q3	99.54	71.66	15.35	14.61	563	-	-	-	-	-
		Q4	110.89	84.15	15.51	16.66	515	-	-	-	-	-
	2017	Q1	101.71	77.89	15.99	12.13	448	-	-	-	-	-
		Q2	110.02	93.80	15.86	11.93	530	-	-	-	-	-
		Q3	115.83	84.88	15.96	16.02	456	-	-	-	-	-
		Q4	156.89	92.97	18.84	17.69	307	-	-	-	-	-
	2018	Q1	158.25	92.77	30.38	20.81	403	-	-	-	-	-
		Q2	159.18	100.12	21.37	16.28	179	-	-	-	-	-
		Q3	134.51	94.55	17.64	11.82	141	161.04	153.53	19.51	11.99	207
		Q4	191.97	206.81	18.99	21.13	97	156.57	146.48	29.48	12.05	153
	2019	Q1	302.70	129.20	28.24	22.60	147	189.53	163.81	19.00	11.96	133
		Q2	138.43	113.22	28.00	16.28	56	194.58	219.52	17.90	11.73	151
Whitmore Village	2016	Q3	124.05	94.39	19.32	23.52	29**	-	-	-	-	-
		Q4	181.95	172.58	29.62	24.00	21**	-	-	-	-	-
	2017	Q1	111.17	93.06	15.43	15.58	21**	-	-	-	-	-
		Q2	141.35	83.38	22.73	19.12	32**	-	-	-	-	-
		Q3	73.93	51.55	27.65	11.93	13**	-	-	-	-	-
		Q4	178.03	119.91	19.50	20.99	83	-	-	-	-	-
	2018	Q1	181.31	117.62	41.83	23.49	146	-	-	-	-	-
		Q2	171.86	103.71	19.12	11.98	52	-	-	-	-	-
		Q3	146.65	101.08	20.11	11.88	40**	129.35	103.43	27.42	23.07	77
		Q4	110.68	74.29	12.02	10.73	43**	130.22	80.26	23.06	12.13	68
	2019	Q1	162.80	85.06	21.63	11.76	42**	162.25	117.25	44.11	21.21	95
		Q2	164.73	118.35	15.78	11.73	86	168.93	125.36	25.68	16.47	95

** Directional due to low sample count.

Aggregated Speedtest Results for Cities by Quarter – Kauai

Kauai Fixed Wireline Speeds – Quarterly (Mbps)												
Location	Year	Quarter	Wired					WiFi				
			Download		Upload		Sample Count	Download		Upload		Sample Count
			Mean	Median	Mean	Median		Mean	Median	Mean	Median	
Anahola	2016	Q3	-	-	-	-	-	-	-	-	-	-
		Q4	34.87	34.87	3.69	3.69	2**	-	-	-	-	-
	2017	Q1	71.23	71.23	11.13	11.13	2**	-	-	-	-	-
		Q2	55.07	44.59	14.80	14.87	4**	-	-	-	-	-
		Q3	20.66	17.55	7.38	1.97	7**	-	-	-	-	-
		Q4	-	-	-	-	-	-	-	-	-	-
	2018	Q1	4.70	4.70	0.72	0.72	2**	-	-	-	-	-
		Q2	102.89	102.89	11.74	11.74	1**	-	-	-	-	-
		Q3	-	-	-	-	-	66.14	50.09	12.93	12.11	90
		Q4	91.24	107.16	16.57	21.04	4**	93.46	70.18	14.00	11.81	91
	2019	Q1	164.63	193.48	13.14	13.93	12**	119.83	69.50	13.92	11.68	90
		Q2	66.72	62.87	32.58	16.83	4**	125.90	91.05	11.70	11.01	96
Eleele	2016	Q3	31.53	24.80	6.77	5.74	8**	-	-	-	-	-
		Q4	56.77	53.74	7.64	6.77	4**	-	-	-	-	-
	2017	Q1	80.94	51.29	17.93	22.52	5**	-	-	-	-	-
		Q2	11.27	11.37	1.15	0.99	13**	-	-	-	-	-
		Q3	75.69	59.82	9.19	5.94	10**	-	-	-	-	-
		Q4	10.50	1.94	1.48	0.17	9**	-	-	-	-	-
	2018	Q1	45.39	25.50	13.93	15.88	7**	-	-	-	-	-
		Q2	292.34	325.29	18.52	14.53	3**	-	-	-	-	-
		Q3	350.14	350.14	23.69	23.69	1**	68.28	50.04	10.71	11.16	114
		Q4	304.86	304.86	28.97	28.97	1**	83.32	67.42	11.80	11.60	77
	2019	Q1	20.88	2.37	5.10	0.55	14**	122.17	104.57	13.29	11.63	35**
		Q2	70.89	70.89	16.13	16.13	1**	158.03	117.24	13.81	11.63	66
Hanalei	2016	Q3	4.56	5.86	0.58	0.65	3**	-	-	-	-	-
		Q4	5.79	5.79	0.71	0.71	2**	-	-	-	-	-
	2017	Q1	5.96	6.18	1.67	2.10	7**	-	-	-	-	-
		Q2	89.61	31.47	12.08	10.33	18**	-	-	-	-	-
		Q3	47.22	4.25	9.07	3.29	3**	-	-	-	-	-
		Q4	222.85	310.90	15.97	23.44	3**	-	-	-	-	-
	2018	Q1	55.35	60.51	8.06	9.75	7**	-	-	-	-	-
		Q2	231.96	339.61	15.77	23.42	3**	-	-	-	-	-
		Q3	159.69	211.84	9.09	10.80	5**	88.75	69.11	10.32	11.38	116
		Q4	120.24	73.17	13.06	8.65	7**	89.71	58.84	12.24	11.62	48**
	2019	Q1	98.17	42.69	10.51	8.38	4**	85.91	64.33	10.78	6.46	63
		Q2	11.18	11.18	16.01	16.01	2**	88.09	60.16	11.58	11.70	58

Kauai Fixed Wireline Speeds – Quarterly (Mbps)												
Location	Year	Quarter	Wired					WiFi				
			Download		Upload		Sample Count	Download		Upload		Sample Count
			Mean	Median	Mean	Median		Mean	Median	Mean	Median	
Hanamaulu	2016	Q3	69.99	58.51	10.52	5.99	44**	-	-	-	-	-
		Q4	87.03	70.68	14.15	11.91	127	-	-	-	-	-
	2017	Q1	97.10	67.41	13.61	11.42	67	-	-	-	-	-
		Q2	76.43	69.27	11.85	11.70	23**	-	-	-	-	-
		Q3	97.58	49.02	12.77	11.82	77	-	-	-	-	-
		Q4	80.41	58.03	12.34	11.36	118	-	-	-	-	-
	2018	Q1	96.18	70.78	12.73	11.80	187	-	-	-	-	-
		Q2	101.02	70.73	12.83	11.71	111	-	-	-	-	-
		Q3	105.84	71.17	13.08	11.75	186	100.17	70.02	12.35	11.48	272
		Q4	108.53	70.20	13.11	11.44	126	104.36	67.41	11.12	6.34	239
	2019	Q1	94.80	71.57	15.24	11.76	22**	96.26	64.66	9.81	6.16	209
		Q2	113.08	73.44	12.45	11.24	43**	103.77	69.42	10.16	6.17	183
Hanapepe	2016	Q3	96.07	68.81	11.91	11.83	16**	-	-	-	-	-
		Q4	100.38	63.99	11.31	8.63	8**	-	-	-	-	-
	2017	Q1	3.92	2.47	1.20	0.72	8**	-	-	-	-	-
		Q2	13.67	13.67	1.62	1.62	2**	-	-	-	-	-
		Q3	-	-	-	-	-	-	-	-	-	-
		Q4	79.27	70.89	7.31	5.83	4**	-	-	-	-	-
	2018	Q1	122.00	87.07	12.19	11.47	8**	-	-	-	-	-
		Q2	286.62	283.14	26.35	25.19	4**	-	-	-	-	-
		Q3	151.68	105.89	18.85	22.04	19**	99.82	80.65	14.27	11.77	139
		Q4	80.47	66.53	18.78	19.01	25**	80.10	62.76	12.61	11.57	121
	2019	Q1	96.67	7.98	9.96	2.61	8**	90.66	57.66	10.88	11.43	85
		Q2	209.56	178.12	16.84	21.57	4**	117.94	85.18	12.75	11.64	82
Kalaheo	2016	Q3	83.56	58.54	11.83	11.62	232	-	-	-	-	-
		Q4	76.56	57.83	10.55	6.06	256	-	-	-	-	-
	2017	Q1	74.34	66.20	11.58	6.13	280	-	-	-	-	-
		Q2	73.26	65.47	12.41	11.41	216	-	-	-	-	-
		Q3	92.96	67.74	12.72	11.72	228	-	-	-	-	-
		Q4	74.65	53.03	10.51	6.07	217	-	-	-	-	-
	2018	Q1	100.40	70.39	16.66	9.68	168	-	-	-	-	-
		Q2	96.65	70.44	11.98	11.57	246	-	-	-	-	-
		Q3	115.90	71.25	13.19	11.69	250	107.48	69.62	14.38	12.10	210
		Q4	93.30	70.45	13.34	11.50	283	107.27	70.43	13.87	11.71	414
	2019	Q1	104.74	70.81	16.11	11.24	258	123.29	90.13	13.76	11.73	395
		Q2	100.75	71.08	12.09	11.08	283	121.18	84.65	12.03	11.60	353

Kauai Fixed Wireline Speeds – Quarterly (Mbps)												
Location	Year	Quarter	Wired					WiFi				
			Download		Upload		Sample Count	Download		Upload		Sample Count
			Mean	Median	Mean	Median		Mean	Median	Mean	Median	
Kalihiwai	2016	Q3	88.33	82.24	14.99	12.03	63	-	-	-	-	-
		Q4	101.56	66.38	13.98	17.52	84	-	-	-	-	-
	2017	Q1	99.62	70.07	14.49	16.40	61	-	-	-	-	-
		Q2	118.88	88.61	17.32	19.10	28**	-	-	-	-	-
		Q3	74.09	55.63	12.08	11.73	115	-	-	-	-	-
		Q4	45.26	25.13	11.28	11.23	34**	-	-	-	-	-
	2018	Q1	95.95	70.53	10.73	9.02	42**	-	-	-	-	-
		Q2	94.97	70.48	11.85	11.57	43**	-	-	-	-	-
		Q3	91.67	70.47	12.31	10.84	97	72.13	57.18	13.37	11.81	190
		Q4	81.83	83.16	11.49	11.60	82	79.39	59.41	12.27	11.72	338
	2019	Q1	113.06	70.83	12.84	11.58	90	80.59	53.74	10.88	11.17	353
		Q2	141.83	120.61	21.90	11.69	121	97.02	63.35	12.69	11.70	355
Kapaa	2016	Q3	18.92	2.67	8.49	0.68	140	-	-	-	-	-
		Q4	52.06	26.74	9.28	5.89	173	-	-	-	-	-
	2017	Q1	53.60	23.38	9.10	5.80	232	-	-	-	-	-
		Q2	55.52	22.13	9.24	5.91	241	-	-	-	-	-
		Q3	39.99	6.59	6.45	0.96	180	-	-	-	-	-
		Q4	38.16	6.76	5.66	0.96	104	-	-	-	-	-
	2018	Q1	56.16	34.70	9.16	5.84	191	-	-	-	-	-
		Q2	68.14	10.14	11.69	7.47	157	-	-	-	-	-
		Q3	119.54	76.41	26.58	11.66	147	82.74	56.89	12.46	11.72	928
		Q4	120.46	50.19	45.89	9.98	163	105.22	69.42	13.42	11.71	912
	2019	Q1	75.57	16.13	22.97	9.41	180	106.33	66.80	13.36	11.68	836
		Q2	74.70	6.71	12.81	3.58	186	108.00	70.34	13.11	11.67	761
Kaumakani	2016	Q3	-	-	-	-	-	-	-	-	-	-
		Q4	-	-	-	-	-	-	-	-	-	-
	2017	Q1	-	-	-	-	-	-	-	-	-	-
		Q2	-	-	-	-	-	-	-	-	-	-
		Q3	-	-	-	-	-	-	-	-	-	-
		Q4	6.17	6.17	8.14	8.14	1**	-	-	-	-	-
	2018	Q1	-	-	-	-	-	-	-	-	-	-
		Q2	-	-	-	-	-	-	-	-	-	-
		Q3	-	-	-	-	-	167.47	226.97	15.83	12.03	3**
		Q4	-	-	-	-	-	-	-	-	-	-
	2019	Q1	-	-	-	-	-	91.82	69.15	15.15	11.82	3**
		Q2	-	-	-	-	-	105.62	100.10	9.17	11.63	5**

Kauai Fixed Wireline Speeds – Quarterly (Mbps)												
Location	Year	Quarter	Wired					WiFi				
			Download		Upload		Sample Count	Download		Upload		Sample Count
			Mean	Median	Mean	Median		Mean	Median	Mean	Median	
Kekaha	2016	Q3	2.59	2.59	0.73	0.73	1**	-	-	-	-	-
		Q4	-	-	-	-	-	-	-	-	-	-
	2017	Q1	2.56	2.56	0.73	0.73	1**	-	-	-	-	-
		Q2	-	-	-	-	-	-	-	-	-	-
		Q3	10.20	10.20	6.91	6.91	1**	-	-	-	-	-
		Q4	-	-	-	-	-	-	-	-	-	-
	2018	Q1	-	-	-	-	-	-	-	-	-	-
		Q2	-	-	-	-	-	-	-	-	-	-
		Q3	209.87	209.87	22.85	22.85	1**	123.28	78.40	13.59	11.82	127
		Q4	178.11	105.56	19.43	21.28	17**	107.87	70.34	13.20	11.69	136
	2019	Q1	79.71	63.29	43.97	23.54	19**	124.06	73.96	13.22	11.68	109
		Q2	69.55	70.36	50.95	50.27	5**	122.17	73.64	12.19	11.34	149
Kilauea	2016	Q3	46.29	29.73	13.31	6.81	22**	-	-	-	-	-
		Q4	81.39	43.73	11.29	9.79	25**	-	-	-	-	-
	2017	Q1	79.63	69.29	15.29	12.01	45**	-	-	-	-	-
		Q2	61.13	53.02	14.39	11.97	45**	-	-	-	-	-
		Q3	36.88	36.88	5.26	5.26	2**	-	-	-	-	-
		Q4	7.55	6.66	0.82	0.89	4**	-	-	-	-	-
	2018	Q1	96.06	60.63	12.97	11.39	36**	-	-	-	-	-
		Q2	76.97	79.90	15.05	18.46	18**	-	-	-	-	-
		Q3	150.76	195.04	12.76	13.03	7**	95.07	70.46	12.78	11.78	163
		Q4	137.74	125.00	16.08	12.26	30**	109.36	74.46	12.77	11.71	121
	2019	Q1	149.82	116.06	17.61	22.51	17**	115.91	72.19	12.73	11.77	129
		Q2	74.46	56.38	15.14	17.83	9**	131.22	100.37	12.59	11.75	120
Koloa	2016	Q3	78.28	55.66	17.90	11.20	101	-	-	-	-	-
		Q4	80.34	57.35	12.87	6.19	124	-	-	-	-	-
	2017	Q1	60.23	38.95	13.48	6.01	120	-	-	-	-	-
		Q2	68.57	50.79	12.52	8.28	191	-	-	-	-	-
		Q3	82.27	70.76	12.73	11.73	163	-	-	-	-	-
		Q4	90.20	66.70	11.62	9.66	100	-	-	-	-	-
	2018	Q1	97.43	87.58	21.22	16.34	184	-	-	-	-	-
		Q2	128.15	83.59	50.34	12.79	212	-	-	-	-	-
		Q3	113.24	69.18	29.46	11.75	91	79.50	62.03	10.95	9.94	835
		Q4	131.08	71.04	12.93	11.58	87	86.76	66.09	10.67	9.57	1,003
	2019	Q1	141.47	73.15	10.31	7.23	134	90.55	69.00	12.41	8.88	1,067
		Q2	131.04	70.54	13.55	11.46	96	98.47	70.15	11.13	9.62	942

Kauai Fixed Wireline Speeds – Quarterly (Mbps)												
Location	Year	Quarter	Wired					WiFi				
			Download		Upload		Sample Count	Download		Upload		Sample Count
			Mean	Median	Mean	Median		Mean	Median	Mean	Median	
Lawai	2016	Q3	75.05	44.84	10.84	6.02	68	-	-	-	-	-
		Q4	53.62	29.42	8.36	5.93	88	-	-	-	-	-
	2017	Q1	42.22	13.86	7.59	4.65	76	-	-	-	-	-
		Q2	89.11	70.18	12.09	9.88	103	-	-	-	-	-
		Q3	99.41	69.38	11.91	11.64	150	-	-	-	-	-
		Q4	65.74	42.22	9.66	5.98	201	-	-	-	-	-
	2018	Q1	80.55	57.12	14.24	9.21	148	-	-	-	-	-
		Q2	65.95	55.89	8.39	5.86	74	-	-	-	-	-
		Q3	76.54	65.33	11.75	11.62	107	96.27	75.70	13.77	11.74	232
		Q4	113.37	71.03	14.97	11.63	145	108.60	86.27	13.68	11.82	213
	2019	Q1	88.73	65.12	13.25	11.41	115	107.69	70.14	14.35	11.71	180
		Q2	115.58	81.33	12.56	11.32	119	126.39	92.63	12.80	11.67	158
Lihue	2016	Q3	75.54	58.54	12.32	11.86	110	-	-	-	-	-
		Q4	94.09	62.44	14.15	11.97	135	-	-	-	-	-
	2017	Q1	73.60	68.81	13.22	11.88	70	-	-	-	-	-
		Q2	71.25	40.79	10.99	8.94	86	-	-	-	-	-
		Q3	80.81	66.43	10.22	5.97	38**	-	-	-	-	-
		Q4	86.28	47.42	12.81	11.76	126	-	-	-	-	-
	2018	Q1	68.70	45.81	11.64	11.48	66	-	-	-	-	-
		Q2	90.58	38.41	9.68	5.90	115	-	-	-	-	-
		Q3	159.62	177.54	17.23	19.83	121	90.76	59.58	14.98	11.73	579
		Q4	106.73	54.49	18.98	11.76	145	90.01	57.80	13.33	11.48	665
	2019	Q1	80.97	41.67	24.21	5.85	180	101.42	62.58	17.21	11.82	585
		Q2	97.65	52.79	18.69	10.75	127	113.26	70.40	15.69	11.54	604
Pakala Village	2016	Q3	77.70	57.93	11.97	10.94	26**	-	-	-	-	-
		Q4	52.49	52.49	6.02	6.02	2**	-	-	-	-	-
	2017	Q1	71.91	71.16	11.27	8.88	8**	-	-	-	-	-
		Q2	112.01	86.82	13.66	11.77	15**	-	-	-	-	-
		Q3	120.85	76.30	13.64	14.88	9**	-	-	-	-	-
		Q4	-	-	-	-	-	-	-	-	-	-
	2018	Q1	-	-	-	-	-	-	-	-	-	-
		Q2	82.60	70.77	7.62	5.98	10**	-	-	-	-	-
		Q3	-	-	-	-	-	90.25	84.25	9.82	11.73	9**
		Q4	-	-	-	-	-	270.37	303.46	18.71	23.47	16**
	2019	Q1	369.78	478.58	9.34	5.38	6**	146.88	84.85	13.35	11.88	19**
		Q2	-	-	-	-	-	147.12	106.01	10.73	10.27	16**

Kauai Fixed Wireline Speeds – Quarterly (Mbps)												
Location	Year	Quarter	Wired					WiFi				
			Download		Upload		Sample Count	Download		Upload		Sample Count
			Mean	Median	Mean	Median		Mean	Median	Mean	Median	
Princeville	2016	Q3	27.06	14.28	9.33	6.65	25**	-	-	-	-	-
		Q4	10.04	6.65	7.48	6.67	12**	-	-	-	-	-
	2017	Q1	105.20	75.61	13.21	11.61	15**	-	-	-	-	-
		Q2	55.98	25.09	11.13	9.47	125	-	-	-	-	-
		Q3	37.48	27.18	7.43	5.49	13**	-	-	-	-	-
		Q4	54.42	17.62	10.64	6.75	32**	-	-	-	-	-
	2018	Q1	68.08	8.75	7.71	7.13	18**	-	-	-	-	-
		Q2	164.18	117.03	130.43	22.30	27**	-	-	-	-	-
		Q3	141.33	93.69	13.86	11.74	18**	75.04	53.76	11.72	11.52	488
		Q4	81.68	80.68	11.29	11.64	28**	77.41	51.46	11.50	11.35	450
	2019	Q1	80.09	65.62	12.86	11.51	24**	81.68	60.67	11.33	11.08	448
		Q2	188.31	113.15	17.03	15.71	40**	97.16	65.14	12.26	11.54	521
Puhi	2016	Q3	-	-	-	-	-	-	-	-	-	-
		Q4	-	-	-	-	-	-	-	-	-	-
	2017	Q1	-	-	-	-	-	-	-	-	-	-
		Q2	8.03	8.66	1.66	1.62	4**	-	-	-	-	-
		Q3	14.20	16.12	1.47	1.76	3**	-	-	-	-	-
		Q4	-	-	-	-	-	-	-	-	-	-
	2018	Q1	-	-	-	-	-	-	-	-	-	-
		Q2	-	-	-	-	-	-	-	-	-	-
		Q3	-	-	-	-	-	79.05	77.28	19.57	20.68	31**
		Q4	235.93	235.93	18.53	18.53	2**	109.50	76.68	20.05	21.89	22**
	2019	Q1	4.60	4.60	0.39	0.39	1**	174.89	218.10	19.66	22.65	49**
		Q2	88.82	19.10	13.71	2.32	3**	147.77	153.71	16.13	18.22	36**
Wailua	2016	Q3	94.41	58.81	12.52	11.87	70	-	-	-	-	-
		Q4	70.12	47.93	12.23	11.42	102	-	-	-	-	-
	2017	Q1	84.36	64.35	12.42	11.79	151	-	-	-	-	-
		Q2	69.66	52.08	12.96	11.67	96	-	-	-	-	-
		Q3	86.64	57.34	11.72	11.65	102	-	-	-	-	-
		Q4	92.35	70.76	12.70	11.61	75	-	-	-	-	-
	2018	Q1	85.14	70.32	11.39	11.70	31**	-	-	-	-	-
		Q2	110.38	78.77	13.26	11.75	69	-	-	-	-	-
		Q3	102.34	68.60	14.08	11.65	48**	106.71	69.19	16.67	11.87	132
		Q4	137.24	86.92	16.24	11.27	45**	199.75	104.82	22.92	19.04	160
	2019	Q1	129.22	83.41	14.96	11.69	113	140.25	67.65	19.39	12.37	90
		Q2	101.54	70.95	14.68	11.54	100	144.33	93.65	15.55	11.71	92

Kauai Fixed Wireline Speeds – Quarterly (Mbps)												
Location	Year	Quarter	Wired					WiFi				
			Download		Upload		Sample Count	Download		Upload		Sample Count
			Mean	Median	Mean	Median		Mean	Median	Mean	Median	
Wailua Homesteads	2016	Q3	99.55	58.16	13.55	12.30	119	-	-	-	-	-
		Q4	60.28	43.97	9.83	6.07	140	-	-	-	-	-
	2017	Q1	97.33	66.22	13.77	11.94	70	-	-	-	-	-
		Q2	111.40	70.57	16.09	19.07	80	-	-	-	-	-
		Q3	131.41	93.55	15.36	12.02	63	-	-	-	-	-
		Q4	93.05	68.30	14.53	11.94	66	-	-	-	-	-
	2018	Q1	79.21	70.79	11.98	11.69	34**	-	-	-	-	-
		Q2	69.58	74.10	17.62	21.15	10**	-	-	-	-	-
		Q3	105.37	71.53	13.71	11.82	74	94.43	69.19	13.22	11.86	354
		Q4	129.44	78.42	15.57	11.93	99	108.66	78.29	14.82	11.88	368
	2019	Q1	106.50	79.05	14.78	11.88	145	125.02	85.64	15.42	11.95	270
		Q2	109.89	88.42	12.12	11.12	130	117.19	90.05	15.43	11.84	260
Waimea	2016	Q3	3.15	2.53	0.53	0.53	4**	-	-	-	-	-
		Q4	-	-	-	-	-	-	-	-	-	-
	2017	Q1	-	-	-	-	-	-	-	-	-	-
		Q2	-	-	-	-	-	-	-	-	-	-
		Q3	-	-	-	-	-	-	-	-	-	-
		Q4	-	-	-	-	-	-	-	-	-	-
	2018	Q1	-	-	-	-	-	-	-	-	-	-
		Q2	-	-	-	-	-	-	-	-	-	-
		Q3	-	-	-	-	-	88.76	60.74	12.42	11.69	76
		Q4	15.77	1.55	1.94	0.62	4**	87.61	68.10	11.32	11.73	56
	2019	Q1	-	-	-	-	-	83.59	67.28	10.42	11.49	53
		Q2	20.54	20.54	11.62	11.62	1**	116.22	91.29	12.76	11.54	45**

** Directional due to low sample count.

Aggregated Speedtest Results for Cities by Quarter – Maui

Maui Fixed Wireline Speeds – Quarterly (Mbps)												
Location	Year	Quarter	Wired					WiFi				
			Download		Upload		Sample Count	Download		Upload		Sample Count
			Mean	Median	Mean	Median		Mean	Median	Mean	Median	
Haiku-Pauwela	2016	Q3	34.13	4.33	4.25	0.78	212	-	-	-	-	-
		Q4	38.81	11.34	6.85	0.98	244	-	-	-	-	-
	2017	Q1	65.37	18.71	10.01	5.87	65	-	-	-	-	-
		Q2	78.78	48.57	13.45	11.89	146	-	-	-	-	-
		Q3	116.67	81.04	14.98	12.06	185	-	-	-	-	-
		Q4	97.60	70.86	13.17	11.82	199	-	-	-	-	-
	2018	Q1	82.74	54.39	13.04	11.67	289	-	-	-	-	-
		Q2	104.16	70.88	14.25	11.90	218	-	-	-	-	-
		Q3	120.03	70.35	13.24	11.72	159	84.67	60.27	11.69	11.57	643
		Q4	115.26	86.02	13.13	11.63	154	91.71	64.99	12.13	11.66	607
	2019	Q1	97.72	60.68	12.11	11.19	179	103.15	69.48	13.06	11.51	551
		Q2	121.51	78.44	16.76	12.39	190	95.48	66.78	12.25	11.27	549
Haliimaile	2016	Q3	70.58	37.12	10.61	6.06	60	-	-	-	-	-
		Q4	52.96	57.31	9.78	6.12	21**	-	-	-	-	-
	2017	Q1	59.29	49.63	12.49	9.84	90	-	-	-	-	-
		Q2	72.10	77.00	12.76	9.98	14**	-	-	-	-	-
		Q3	97.08	70.68	13.34	11.77	70	-	-	-	-	-
		Q4	68.17	70.65	13.12	11.92	17**	-	-	-	-	-
	2018	Q1	122.24	82.14	13.99	11.87	4**	-	-	-	-	-
		Q2	103.64	80.24	15.20	11.87	41**	-	-	-	-	-
		Q3	128.13	76.61	13.73	11.88	123	109.45	92.09	16.69	12.33	11**
		Q4	98.55	70.79	13.40	11.72	33**	175.86	156.77	16.69	17.49	14**
	2019	Q1	175.18	92.79	16.37	19.67	73	107.06	71.79	13.24	12.01	14**
		Q2	181.38	147.12	14.27	12.86	39**	85.63	94.25	11.13	11.58	32**
Hana	2016	Q3	32.73	25.86	3.87	5.31	9**	-	-	-	-	-
		Q4	32.48	32.96	3.88	5.55	55	-	-	-	-	-
	2017	Q1	24.93	15.87	4.04	5.83	20**	-	-	-	-	-
		Q2	30.91	20.19	4.22	4.91	28**	-	-	-	-	-
		Q3	30.04	13.76	4.45	5.62	49**	-	-	-	-	-
		Q4	34.68	20.10	4.67	5.76	51	-	-	-	-	-
	2018	Q1	35.26	30.63	5.26	5.66	73	-	-	-	-	-
		Q2	29.09	13.20	4.70	5.33	108	-	-	-	-	-
		Q3	28.22	15.04	5.16	5.34	46**	39.03	33.95	6.85	5.87	122
		Q4	37.61	42.50	6.74	5.81	68	46.16	46.98	7.07	5.98	69
	2019	Q1	54.47	59.85	7.88	5.89	26**	49.83	65.18	6.11	5.84	47**
		Q2	44.82	50.77	6.16	5.73	46**	46.55	53.29	6.48	5.99	125

Maui Fixed Wireline Speeds – Quarterly (Mbps)												
Location	Year	Quarter	Wired					WiFi				
			Download		Upload		Sample Count	Download		Upload		Sample Count
			Mean	Median	Mean	Median		Mean	Median	Mean	Median	
Kaanapali	2016	Q3	67.66	50.77	10.65	6.07	560	-	-	-	-	-
		Q4	65.10	52.42	12.29	6.04	718	-	-	-	-	-
	2017	Q1	63.16	51.66	11.00	6.09	727	-	-	-	-	-
		Q2	58.87	47.81	11.38	10.04	508	-	-	-	-	-
		Q3	84.61	62.27	11.98	10.30	604	-	-	-	-	-
		Q4	79.22	54.38	11.18	8.46	707	-	-	-	-	-
	2018	Q1	70.53	54.54	13.09	10.05	853	-	-	-	-	-
		Q2	97.05	69.75	17.73	11.37	735	-	-	-	-	-
		Q3	108.29	70.36	15.37	11.62	758	56.42	43.71	20.35	6.21	769
		Q4	87.93	61.56	13.30	11.03	672	64.07	46.12	18.73	9.85	1,039
	2019	Q1	97.05	65.29	13.96	11.16	714	67.99	48.16	14.46	6.42	1,331
		Q2	98.68	66.19	13.91	11.16	562	79.03	49.70	17.79	9.72	1,214
Kahului	2016	Q3	76.48	43.59	12.29	10.29	1,466	-	-	-	-	-
		Q4	82.19	49.95	13.20	11.43	1,150	-	-	-	-	-
	2017	Q1	70.85	55.00	12.62	11.69	1,556	-	-	-	-	-
		Q2	80.99	61.99	14.11	11.86	1,331	-	-	-	-	-
		Q3	97.12	68.59	13.02	11.79	1,382	-	-	-	-	-
		Q4	87.12	59.39	13.20	11.72	1,426	-	-	-	-	-
	2018	Q1	93.41	66.52	12.58	11.41	1,354	-	-	-	-	-
		Q2	117.36	71.33	14.62	11.77	1,357	-	-	-	-	-
		Q3	131.37	79.89	17.17	11.87	1,571	108.33	73.39	14.35	11.94	1,886
		Q4	132.30	80.68	17.20	11.77	1,042	119.48	88.76	14.52	11.90	1,588
	2019	Q1	124.22	82.94	15.59	11.73	1,105	129.68	94.60	14.90	11.82	1,517
		Q2	144.36	86.78	19.23	11.63	1,089	132.62	92.12	14.16	11.80	1,453
Kapalua	2016	Q3	-	-	-	-	-	-	-	-	-	-
		Q4	-	-	-	-	-	-	-	-	-	-
	2017	Q1	-	-	-	-	-	-	-	-	-	-
		Q2	19.13	20.74	15.75	16.05	8**	-	-	-	-	-
		Q3	2.24	2.24	5.80	5.80	2**	-	-	-	-	-
		Q4	19.47	17.66	18.11	17.99	8**	-	-	-	-	-
	2018	Q1	29.88	17.18	12.26	16.97	9**	-	-	-	-	-
		Q2	51.63	41.67	15.35	14.67	5**	-	-	-	-	-
		Q3	122.46	89.95	13.21	13.73	6**	68.95	51.17	13.90	12.56	209
		Q4	42.50	22.01	14.29	12.94	20**	66.96	53.20	12.15	10.04	219
	2019	Q1	67.84	75.43	13.42	12.62	31**	80.58	60.53	12.36	7.96	284
		Q2	21.19	6.85	8.73	6.66	3**	71.64	59.02	11.89	6.41	251

Maui Fixed Wireline Speeds – Quarterly (Mbps)												
Location	Year	Quarter	Wired					WiFi				
			Download		Upload		Sample Count	Download		Upload		Sample Count
			Mean	Median	Mean	Median		Mean	Median	Mean	Median	
Kihei	2016	Q3	76.35	49.62	11.59	11.05	1,471	-	-	-	-	-
		Q4	69.10	48.84	10.97	7.77	1,503	-	-	-	-	-
	2017	Q1	67.20	52.01	11.00	7.64	1,530	-	-	-	-	-
		Q2	71.96	56.33	12.43	11.53	1,191	-	-	-	-	-
		Q3	86.63	65.28	12.93	11.44	1,363	-	-	-	-	-
		Q4	88.13	67.02	12.50	11.64	1,449	-	-	-	-	-
	2018	Q1	84.06	64.69	11.98	11.49	1,471	-	-	-	-	-
		Q2	117.31	71.15	14.10	11.80	1,387	-	-	-	-	-
		Q3	114.37	79.70	13.34	11.76	1,264	97.37	66.44	14.60	11.76	1,671
		Q4	118.20	71.79	14.87	11.74	1,362	95.82	64.46	13.75	11.54	2,831
	2019	Q1	110.15	70.26	14.13	11.63	1,398	98.54	61.33	13.89	11.25	2,551
		Q2	137.86	85.09	16.72	11.65	1,265	122.07	70.27	14.50	11.61	2,428
Kula	2016	Q3	24.15	2.66	3.73	0.75	14**	-	-	-	-	-
		Q4	76.30	58.43	10.62	6.05	33**	-	-	-	-	-
	2017	Q1	91.44	77.25	18.06	21.59	21**	-	-	-	-	-
		Q2	61.38	61.11	14.61	12.54	78	-	-	-	-	-
		Q3	83.47	49.83	12.93	11.84	32**	-	-	-	-	-
		Q4	81.38	68.38	13.45	11.74	151	-	-	-	-	-
	2018	Q1	68.80	52.38	10.73	10.56	156	-	-	-	-	-
		Q2	161.85	236.52	19.61	23.60	96	-	-	-	-	-
		Q3	138.72	105.00	18.13	22.20	67	106.11	70.17	14.68	12.08	353
		Q4	90.08	56.55	12.48	11.66	70	111.06	75.20	13.66	11.79	471
	2019	Q1	133.69	67.77	11.58	11.41	52	125.41	95.84	14.42	11.98	431
		Q2	138.93	106.78	14.19	11.73	97	127.93	93.83	13.98	11.90	435
Lahaina	2016	Q3	36.39	9.37	6.52	1.02	401	-	-	-	-	-
		Q4	51.59	30.44	14.34	5.88	283	-	-	-	-	-
	2017	Q1	46.41	20.54	8.95	5.71	305	-	-	-	-	-
		Q2	62.32	36.21	13.22	5.97	315	-	-	-	-	-
		Q3	70.12	34.93	9.32	5.87	249	-	-	-	-	-
		Q4	72.63	39.12	10.57	7.55	358	-	-	-	-	-
	2018	Q1	62.52	41.69	11.98	5.94	335	-	-	-	-	-
		Q2	65.06	49.92	14.99	10.09	128	-	-	-	-	-
		Q3	85.94	60.58	13.48	10.81	147	90.07	67.41	14.60	11.52	793
		Q4	95.30	66.47	13.32	11.75	180	103.92	68.88	14.05	11.68	809
	2019	Q1	83.08	52.08	18.25	11.25	117	108.53	67.62	13.30	11.41	742
		Q2	115.71	70.75	20.27	11.73	125	110.45	68.23	13.98	11.30	703

Maui Fixed Wireline Speeds – Quarterly (Mbps)												
Location	Year	Quarter	Wired					WiFi				
			Download		Upload		Sample Count	Download		Upload		Sample Count
			Mean	Median	Mean	Median		Mean	Median	Mean	Median	
Maalaea	2016	Q3	-	-	-	-	-	-	-	-	-	-
		Q4	12.78	12.78	5.18	5.18	2**	-	-	-	-	-
	2017	Q1	-	-	-	-	-	-	-	-	-	-
		Q2	47.00	31.61	10.51	6.43	8**	-	-	-	-	-
		Q3	0.77	0.77	1.65	1.65	1**	-	-	-	-	-
		Q4	107.09	48.66	11.69	5.90	9**	-	-	-	-	-
	2018	Q1	59.48	2.16	7.12	5.66	3**	-	-	-	-	-
		Q2	106.06	31.36	9.76	5.96	7**	-	-	-	-	-
		Q3	44.79	8.08	10.41	1.20	4**	85.02	57.10	8.35	6.25	106
		Q4	81.22	47.71	18.65	10.87	22**	88.18	49.16	9.85	10.91	141
	2019	Q1	91.09	42.46	19.33	4.42	10**	130.50	66.75	9.91	9.90	154
		Q2	55.85	15.84	5.43	1.96	12**	94.38	58.95	10.48	9.95	110
Makawao	2016	Q3	73.02	52.14	12.33	11.73	773	-	-	-	-	-
		Q4	78.15	59.04	13.43	11.83	672	-	-	-	-	-
	2017	Q1	83.45	69.54	15.63	19.00	497	-	-	-	-	-
		Q2	80.48	58.95	15.41	16.37	424	-	-	-	-	-
		Q3	97.87	70.35	13.99	11.86	638	-	-	-	-	-
		Q4	98.60	68.97	13.71	11.85	839	-	-	-	-	-
	2018	Q1	86.74	65.90	12.68	11.74	912	-	-	-	-	-
		Q2	117.12	71.21	14.15	11.81	883	-	-	-	-	-
		Q3	120.46	74.02	13.57	11.73	905	101.10	70.25	14.28	12.10	391
		Q4	121.87	79.76	14.56	11.79	702	122.96	85.93	14.79	12.07	290
	2019	Q1	116.33	71.14	13.05	11.58	644	130.03	97.84	14.95	11.96	326
		Q2	141.21	96.09	14.32	11.73	636	129.13	93.04	13.63	11.97	390
Napili-Honokowai	2016	Q3	81.73	52.55	11.88	6.18	241	-	-	-	-	-
		Q4	60.80	45.62	10.00	6.00	273	-	-	-	-	-
	2017	Q1	61.58	54.26	11.46	9.81	243	-	-	-	-	-
		Q2	64.97	52.51	11.94	11.20	259	-	-	-	-	-
		Q3	71.97	57.28	10.02	6.01	242	-	-	-	-	-
		Q4	67.89	49.31	10.13	6.00	250	-	-	-	-	-
	2018	Q1	56.48	41.94	8.58	5.82	255	-	-	-	-	-
		Q2	93.00	58.81	11.00	11.13	217	-	-	-	-	-
		Q3	89.95	69.39	11.65	11.47	158	70.95	49.65	9.59	6.11	1,129
		Q4	94.82	70.26	12.31	11.22	239	84.65	61.15	9.65	6.28	1,025
	2019	Q1	112.65	70.18	11.91	9.73	153	79.57	57.84	9.57	6.11	1,200
		Q2	116.05	70.36	12.14	9.33	105	93.58	65.25	9.35	6.03	1,050

Maui Fixed Wireline Speeds – Quarterly (Mbps)												
Location	Year	Quarter	Wired					WiFi				
			Download		Upload		Sample Count	Download		Upload		Sample Count
			Mean	Median	Mean	Median		Mean	Median	Mean	Median	
Paia	2016	Q3	13.71	14.98	15.16	18.73	3**	-	-	-	-	-
		Q4	18.53	12.26	3.13	2.86	6**	-	-	-	-	-
	2017	Q1	68.74	39.94	12.85	10.63	17**	-	-	-	-	-
		Q2	97.80	68.72	14.30	11.88	41**	-	-	-	-	-
		Q3	51.65	34.69	8.15	5.86	38**	-	-	-	-	-
		Q4	72.94	52.56	10.86	11.78	60	-	-	-	-	-
	2018	Q1	90.56	35.12	11.17	12.76	33**	-	-	-	-	-
		Q2	128.91	122.26	13.71	11.82	45**	-	-	-	-	-
		Q3	103.69	71.13	12.32	11.47	26**	92.46	45.71	13.63	12.37	160
		Q4	128.83	126.81	14.16	12.05	10**	109.70	63.33	12.08	11.44	141
	2019	Q1	96.33	86.93	12.41	11.51	23**	97.60	54.56	11.83	11.55	172
		Q2	121.39	86.16	17.27	19.54	80	123.53	70.19	14.54	12.64	193
Pukalani	2016	Q3	67.79	56.78	12.37	11.67	255	-	-	-	-	-
		Q4	83.50	59.00	13.26	11.82	353	-	-	-	-	-
	2017	Q1	70.47	62.73	14.39	12.12	310	-	-	-	-	-
		Q2	81.44	69.70	15.02	13.80	153	-	-	-	-	-
		Q3	115.50	75.15	15.35	14.04	303	-	-	-	-	-
		Q4	92.51	70.22	18.48	11.80	301	-	-	-	-	-
	2018	Q1	92.46	70.83	12.83	11.72	332	-	-	-	-	-
		Q2	131.62	92.92	15.07	11.91	215	-	-	-	-	-
		Q3	168.45	94.36	16.35	11.96	202	108.06	70.16	13.42	11.97	353
		Q4	128.00	80.31	15.24	11.84	235	110.84	73.06	13.37	11.92	737
	2019	Q1	128.53	90.12	14.81	11.87	261	113.48	70.32	13.82	11.79	699
		Q2	118.30	81.16	15.18	11.66	360	123.69	78.82	15.04	11.75	709
Waihee-Waiehu	2016	Q3	71.02	59.01	10.94	8.37	17**	-	-	-	-	-
		Q4	29.46	6.64	8.29	0.89	14**	-	-	-	-	-
	2017	Q1	16.00	6.36	2.78	0.77	25**	-	-	-	-	-
		Q2	54.92	42.80	9.53	5.98	21**	-	-	-	-	-
		Q3	33.55	5.95	5.80	1.94	39**	-	-	-	-	-
		Q4	71.80	60.34	43.62	43.79	19**	-	-	-	-	-
	2018	Q1	34.19	14.32	12.89	2.08	33**	-	-	-	-	-
		Q2	75.90	64.12	25.34	7.99	8**	-	-	-	-	-
		Q3	55.02	17.70	10.34	4.04	3**	85.22	66.64	11.40	10.88	223
		Q4	93.15	70.53	12.16	10.63	19**	110.67	82.87	13.61	11.98	222
	2019	Q1	96.68	53.97	13.44	9.11	20**	104.22	69.43	11.55	11.27	288
		Q2	75.10	51.88	22.23	10.50	40**	131.54	84.87	12.61	11.49	256

Maui Fixed Wireline Speeds – Quarterly (Mbps)												
Location	Year	Quarter	Wired					WiFi				
			Download		Upload		Sample Count	Download		Upload		Sample Count
			Mean	Median	Mean	Median		Mean	Median	Mean	Median	
Waikapu	2016	Q3	6.42	6.44	0.76	0.77	9**	-	-	-	-	-
		Q4	4.81	4.81	0.73	0.73	2**	-	-	-	-	-
	2017	Q1	51.68	13.16	6.44	2.54	20**	-	-	-	-	-
		Q2	61.89	51.94	13.69	12.17	37**	-	-	-	-	-
		Q3	13.33	13.33	10.98	10.98	2**	-	-	-	-	-
		Q4	14.06	4.60	1.21	0.75	4**	-	-	-	-	-
	2018	Q1	47.72	6.57	31.68	2.52	21**	-	-	-	-	-
		Q2	119.04	103.56	28.46	21.34	27**	-	-	-	-	-
		Q3	65.70	46.97	15.95	11.22	20**	109.36	78.42	15.53	12.57	174
		Q4	162.29	132.17	42.17	23.63	8**	119.31	72.89	14.60	11.97	138
	2019	Q1	96.05	69.11	12.41	13.67	7**	145.11	110.80	15.01	12.05	161
		Q2	74.11	20.32	23.51	4.74	32**	135.04	97.20	14.85	12.00	146
Wailea-Makena	2016	Q3	50.48	26.83	9.53	6.01	545	-	-	-	-	-
		Q4	57.62	38.90	10.45	5.98	597	-	-	-	-	-
	2017	Q1	52.84	37.34	10.07	6.01	641	-	-	-	-	-
		Q2	62.09	38.93	11.17	7.46	686	-	-	-	-	-
		Q3	76.73	57.73	14.45	11.52	413	-	-	-	-	-
		Q4	93.73	65.79	18.87	11.75	731	-	-	-	-	-
	2018	Q1	82.63	67.20	16.03	11.77	649	-	-	-	-	-
		Q2	96.91	63.46	16.41	11.80	543	-	-	-	-	-
		Q3	114.28	70.13	15.83	11.73	479	101.33	68.18	14.21	11.86	2,506
		Q4	110.02	67.48	14.02	11.74	343	92.84	61.81	13.27	11.63	1,903
	2019	Q1	117.88	71.18	14.20	11.73	279	101.76	63.31	13.21	11.66	1,718
		Q2	141.17	75.68	21.27	12.07	244	100.13	62.18	14.03	11.61	1,517
Wailuku	2016	Q3	62.63	43.83	14.46	10.17	410	-	-	-	-	-
		Q4	76.37	55.17	13.71	11.76	613	-	-	-	-	-
	2017	Q1	81.13	58.11	13.07	11.85	358	-	-	-	-	-
		Q2	81.76	56.11	16.54	11.75	534	-	-	-	-	-
		Q3	92.68	69.92	13.81	11.84	485	-	-	-	-	-
		Q4	112.74	71.08	14.02	11.88	342	-	-	-	-	-
	2018	Q1	92.90	70.77	15.45	11.84	414	-	-	-	-	-
		Q2	121.86	87.68	14.06	11.81	589	-	-	-	-	-
		Q3	110.92	71.36	14.45	11.78	370	116.71	87.07	18.00	12.09	945
		Q4	118.97	70.85	18.19	11.66	575	125.10	85.23	18.10	11.97	1,322
	2019	Q1	94.86	67.13	26.88	11.79	437	119.32	81.68	19.15	12.00	1,277
		Q2	131.36	84.32	38.03	17.04	454	123.07	82.66	21.78	11.93	1,128

** Directional due to low sample count.

Aggregated Speedtest Results for Cities by Quarter – Lanai and Molokai

Lanai and Molokai Fixed Wireline Speeds – Quarterly (Mbps)												
Location (City/Island)	Year	Quarter	Wired					WiFi				
			Download		Upload		Sample Count	Download		Upload		Sample Count
			Mean	Median	Mean	Median		Mean	Median	Mean	Median	
Lanai City Lanai	2016	Q3	48.24	55.84	5.97	6.01	8**	-	-	-	-	-
		Q4	89.72	58.50	9.82	5.97	20**	-	-	-	-	-
	2017	Q1	60.09	59.53	5.57	5.74	3**	-	-	-	-	-
		Q2	50.47	65.29	5.14	5.80	8**	-	-	-	-	-
		Q3	44.55	27.25	8.93	11.05	6**	-	-	-	-	-
		Q4	48.96	49.28	6.54	5.91	40**	-	-	-	-	-
	2018	Q1	86.26	73.41	8.99	9.41	21**	-	-	-	-	-
		Q2	64.93	43.50	6.78	5.88	24**	-	-	-	-	-
		Q3	57.35	60.56	6.45	5.90	27**	44.53	37.10	5.36	5.81	109
		Q4	56.57	70.21	7.15	5.88	13**	70.21	31.38	5.53	5.59	40**
	2019	Q1	113.52	38.09	17.58	8.64	19**	60.49	30.08	6.70	5.47	116
		Q2	91.99	74.66	11.66	9.44	20**	70.45	40.04	9.49	5.39	118
Ho'olehua Molokai	2016	Q3	12.44	13.68	3.10	2.74	6**	-	-	-	-	-
		Q4	56.99	56.99	19.04	19.04	1**	-	-	-	-	-
	2017	Q1	8.91	10.71	1.52	1.43	6**	-	-	-	-	-
		Q2	24.35	12.73	25.89	4.98	15**	-	-	-	-	-
		Q3	21.76	15.80	6.32	3.49	15**	-	-	-	-	-
		Q4	22.94	16.04	8.19	1.80	21**	-	-	-	-	-
	2018	Q1	105.10	156.13	81.07	106.73	23**	-	-	-	-	-
		Q2	-	-	-	-	-	-	-	-	-	-
		Q3	93.33	74.35	7.77	9.47	9**	50.95	10.35	6.76	1.86	56
		Q4	7.04	6.39	1.29	1.33	5**	20.79	6.63	4.74	1.63	54
	2019	Q1	2.30	2.30	1.29	1.29	2**	71.78	11.77	5.98	5.75	15**
		Q2	7.04	8.16	1.61	1.70	3**	41.40	12.35	6.81	6.25	25**
Kalaupapa Molokai	2016	Q3	-	-	-	-	-	-	-	-	-	-
		Q4	-	-	-	-	-	-	-	-	-	-
	2017	Q1	-	-	-	-	-	-	-	-	-	-
		Q2	-	-	-	-	-	-	-	-	-	-
		Q3	-	-	-	-	-	-	-	-	-	-
		Q4	-	-	-	-	-	-	-	-	-	-
	2018	Q1	-	-	-	-	-	-	-	-	-	-
		Q2	-	-	-	-	-	-	-	-	-	-
		Q3	-	-	-	-	-	51.25	63.82	6.72	6.13	11**
		Q4	-	-	-	-	-	69.67	69.76	6.45	6.09	23**
	2019	Q1	-	-	-	-	-	-	-	-	-	-
		Q2	-	-	-	-	-	52.36	52.58	10.88	5.95	3**

Lanai and Molokai Fixed Wireline Speeds – Quarterly (Mbps)												
Location (City/Island)	Year	Quarter	Wired					WiFi				
			Download		Upload		Sample Count	Download		Upload		Sample Count
			Mean	Median	Mean	Median		Mean	Median	Mean	Median	
Kaunakakai Molokai	2016	Q3	43.04	53.49	4.99	5.86	14**	-	-	-	-	-
		Q4	41.54	46.55	5.45	5.89	29**	-	-	-	-	-
	2017	Q1	49.49	53.60	5.63	5.92	39**	-	-	-	-	-
		Q2	38.55	47.69	5.31	5.91	9**	-	-	-	-	-
		Q3	33.09	33.31	5.28	5.93	17**	-	-	-	-	-
		Q4	45.52	49.19	5.28	5.86	24**	-	-	-	-	-
	2018	Q1	65.26	56.02	21.29	5.87	42**	-	-	-	-	-
		Q2	62.89	69.33	5.71	5.86	27**	-	-	-	-	-
		Q3	74.48	42.55	6.97	5.89	32**	59.85	45.16	6.89	6.22	104
		Q4	54.10	59.97	5.70	5.61	23**	71.66	48.68	7.40	6.31	166
	2019	Q1	68.90	65.56	6.46	5.90	22**	86.17	65.25	8.40	10.22	151
		Q2	89.06	55.58	10.76	5.95	15**	114.14	70.26	8.44	10.38	99
Kualapuu Molokai	2016	Q3	14.91	11.32	3.23	1.61	50	-	-	-	-	-
		Q4	32.24	23.47	7.86	5.73	110	-	-	-	-	-
	2017	Q1	33.78	16.09	3.83	2.25	75	-	-	-	-	-
		Q2	35.24	34.04	5.25	5.74	17**	-	-	-	-	-
		Q3	42.54	27.47	23.74	5.86	10**	-	-	-	-	-
		Q4	35.29	27.02	5.17	4.66	68	-	-	-	-	-
	2018	Q1	43.27	16.54	13.47	2.76	74	-	-	-	-	-
		Q2	37.70	16.20	4.25	1.68	25**	-	-	-	-	-
		Q3	54.66	53.43	6.54	5.90	36**	76.38	48.55	11.81	7.74	64
		Q4	72.22	35.30	12.37	6.16	57	42.44	11.46	5.11	3.58	116
	2019	Q1	47.54	30.19	6.42	5.81	49**	56.50	32.04	7.58	7.28	67
		Q2	79.71	53.75	7.74	8.32	84	96.46	52.03	7.86	9.71	71
Maunaloa Molokai	2016	Q3	4.67	4.89	5.23	4.15	6**	-	-	-	-	-
		Q4	-	-	-	-	-	-	-	-	-	-
	2017	Q1	-	-	-	-	-	-	-	-	-	-
		Q2	-	-	-	-	-	-	-	-	-	-
		Q3	-	-	-	-	-	-	-	-	-	-
		Q4	-	-	-	-	-	-	-	-	-	-
	2018	Q1	-	-	-	-	-	-	-	-	-	-
		Q2	5.60	5.60	3.23	3.23	1**	-	-	-	-	-
		Q3	-	-	-	-	-	205.55	151.46	42.28	12.54	6**
		Q4	-	-	-	-	-	207.80	234.45	25.64	12.17	10**
	2019	Q1	-	-	-	-	-	124.39	129.63	9.24	11.40	4**
		Q2	-	-	-	-	-	149.93	214.16	10.75	11.20	15**

** Directional due to low sample count.

