



Symmetrical Gigabit Exemption Report



Report to the 2018 Oregon Legislature

February 1, 2018

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Executive Summary

Oregon Revised Statutes (ORS) 308.677 to 308.681 contain a property tax exemption for companies subject to central assessment, in specific circumstances, including when a company builds, maintains and operates a qualified project in Oregon. The Legislature requires the Public Utility Commission of Oregon (Commission) to perform analyses of qualified project applications and to provide an annual report of each company whose property is granted a tax exemption under ORS 308.677. This report is intended to provide data on exemptions granted under ORS 308.677 in a given tax year, of which there were none in tax year 2017-2018.

In 2016, the Commission determined three projects are “qualified projects.” The determinations were made following application by Comcast Corporation & Subsidiaries (Comcast), Frontier Communications Northwest, Inc. (Frontier) and Google Fiber Oregon, LLC (Google Fiber). On November 27, 2017, the Commission received a letter from the Oregon Department of Revenue (Revenue) confirming that Revenue granted no exemptions for the 2017-2018 tax year. To date, no exemptions have been granted for any tax year. The Commission understands that the legislative reporting requirements under ORS 308.681 assume that at least one exemption would be granted and therefore require the Commission to report on the amount of an exemption and specific details regarding the underlying qualified project. Each November, the Commission gathers information concerning projects the Commission has determined to be qualified projects. Though it appears a legislative report may not be required, the Commission submits this report to address two issues: 1) Confirm that no exemptions were granted for tax year 2017-2018, and 2) Offer the information the Commission has available on the qualified projects it had approved in 2016 to the extent that may be helpful in the coming year, or in the event an exemption is granted in any subsequent year.

The Commission requires all Companies receiving a qualified project determination to report certain information to the Commission. Each company with a qualified project filed a report in 2017. Only two companies, Comcast and Frontier, those that offered the qualified service

during the reporting period of calendar year 2016, were required to submit a detailed report. Information provided by both companies is shown below.

1. Comcast and Frontier each provide Broadband Internet Access, Cable Television, and other Telecommunication Services.
2. Comcast newly constructed or installed \$114,846,634¹ of real or tangible personal property constituting communication infrastructure in 2016. For Frontier, the amount was \$2,609,545.
3. Based upon the submissions, the Commission concludes that these service offerings continue to meet the statutory requirements for a qualified project.² Further, at least 75 percent³ of Comcast's residential service customers in Oregon had access to "at least approximately one gigabit per second symmetrical service." For Frontier, the percentage was at least 51 percent.
4. Each company provides the qualified service using broadband Internet access with speeds of up to two (2) gigabits per second symmetrical by utilizing a fiber optic distribution network. The customer is served over a fiber-to-the-home connection, consisting of a fiber optic connection between the company's fiber distribution network and the customer's residence. Comcast offers this service to customers within all ten counties in its service footprint. Frontier offers this service to customers within three counties in its service footprint. As of June 30, 2017, both companies had customers of the qualified service and one percent or less of residential customers subscribed to the Gigabit Pro service and the same was true for Frontier's Simply FiOS One Gigabit Service.⁴
5. Both companies submitted additional information indicating a zero percent denial of service to households to whom Comcast and Frontier offer qualified service and zero complaints regarding denial of access due to income level.⁵

¹ OAR 860-200-0250(2).

² OAR 860-200-0250 Sections (3), (5), (8) and (9).

³ OAR 860-200-0250(5).

⁴ OAR 860-200-0250(4)

⁵ OAR 860-200-0250 Sections (1), (2), (6), (7), (10-11).

Introduction

The 2015 Legislature enacted Senate Bill 611 (SB 611) codified, as relevant here, in Oregon Revised Statutes (ORS) 308.677 to 308.681. Among other exemptions, this bill enacted a property tax exemption for a company, subject to central assessment for property tax purposes, in certain circumstances, including if the company builds, maintains and operates a qualified project in Oregon. The Legislature requires the Public Utility Commission of Oregon (Commission) to perform analyses of qualified project applications and to provide an annual report on or before February 1 to the Legislature of each company whose property is granted a tax exemption under ORS 308.677. This report is intended to provide data on any exemptions granted under ORS 308.677 in a given tax year, of which there were none in tax year 2017-2018 or any previous tax year.

Background

On March 1, 2016, the Commission determined three projects are “qualified projects.” The determinations were made following application by Comcast Corporation & Subsidiaries (Comcast),⁶ Frontier Communications Northwest, Inc. (Frontier),⁷ and Google Fiber Oregon, LLC (Google Fiber).⁸ Comcast was the only applicant to represent it was offering a qualified service under its project at that time. The other two applications concerned planned projects. In making its qualified project determination the Commission applied a four-part test. The full explanation of the Commission’s analysis is contained in the Commission’s Orders. The applicants chose different paths to meet the symmetrical gigabit test. Comcast submitted information to substantiate the service it offered. Frontier and Google Fiber both proposed conceptual projects, validating their claim of symmetrical gigabit capability by each having an Oregon registered engineer verify that each respective proposed project would provide the required capability.

⁶ Commission Order No. 16-085 (UM 1760), available at <http://apps.puc.state.or.us/orders/2016ords/16-085.pdf>.

⁷ Commission Order No. 16-086 (UM 1761), available at <http://apps.puc.state.or.us/orders/2016ords/16-086.pdf>.

⁸ Commission Order No. 16-087 (UM 1762), available at <http://apps.puc.state.or.us/orders/2016ords/16-087.pdf>.

Exemption Status

Under SB 611, on or before December 15 of each year, each assessor of a county in which property granted an exemption under ORS 308.677, must report to the Oregon Department of Revenue (Revenue) the amount of the exemption granted to the property of each company, the amount of property taxes imposed on the property and the amount of property taxes that were not imposed because of the exemption for the current property tax year and an estimate of these amounts for the following property tax year. Revenue is required to compile the county assessor reports and provide a report to the Commission. The impact of the bill's exemption on tax revenues in a given year is identified through this compiled information. On November 27, 2017, the Commission received confirmation from Revenue that no exemption was granted for tax year 2017-2018. Revenue provided a similar confirmation in 2016 for tax year 2016-2017. The Commission understands that the legislative reporting requirements under ORS 308.681 assume that at least one exemption would be granted and therefore require the Commission to report on the amount of an exemption and specific details regarding the underlying qualified project on or before February 1 of each year.

The Commission has gathered information concerning the three projects determined to be qualified projects in 2016. Though it appears a legislative report may not be required under SB 611, the Commission submits this report to address two issues: 1) Confirm that no exemptions were granted for tax year 2017-2018, and 2) Offer the information the Commission has available on the qualified projects it had approved in 2016 to the extent that may be helpful in the coming year, or in the event an exemption is granted in any subsequent year. The Commission does not have independent means to calculate the actual or potential revenue impact of any exemption on tax revenue and relies entirely on Revenue for such determinations.

Qualified Project Company Reporting

The Commission requires all Companies receiving a qualified project determination to report certain information to the Commission by November 1 on an annual basis. Only companies that offered the qualified service during the reporting period of calendar year 2016, which aligns with the period used for calculation of taxes for the 2017-2018 tax year, were required to submit a detailed report.

On October 31, 2017, Comcast timely filed a report with the Commission.⁹ Frontier filed its report on December 6, 2017. These reports are available online, docketed in the Commission's online filing system as Docket RO 10.¹⁰ Commission staff performed the onsite review of Comcast's and Frontier's most recent confidential FCC 477 Broadband report information. This on-site review allows for confirmation of a company's subscribership as reported to the Commission to facilitate this Legislative report.¹¹

One other company besides Comcast and Frontier received a qualified project determination from the Commission: Google Fiber. Unlike Comcast and Frontier, Google Fiber filed annual reports confirming that it did not offer a qualified service during calendar years 2015 and 2016.¹²

Companies are not required to inform the Commission when they begin offering a qualified service. The Commission is only made aware a company has begun offering the qualified service when the Company files the required report.

⁹ As required by OAR 860-200-0200(3).

¹⁰ Available at: <http://apps.puc.state.or.us/edockets/docket.asp?DocketID=20454>.

¹¹ OAR 860-200-0200(5).

¹² Required by OAR 860-200-0200(4).

A benefit of the annual reporting is the year-over-year comparison of broadband speed tiers and other data.

Comcast Qualified Project Information

Comcast reported the following information:

1. The name and business of the reporting Company.

Comcast Corporation and its subsidiaries provide video, high-speed data and phone services in thirty-nine (39) states, including Oregon. Comcast provides communication services in ten Oregon Counties: Benton, Clackamas, Columbia, Lane, Linn, Marion, Multnomah, Polk, Washington and Yamhill. Comcast offers a tier of internet access service delivering download and upload speeds of up to two (2) gigabits per second symmetrical (“Gigabit Pro”) in a number of markets in twenty-seven (27) states, including Oregon. Within Oregon, Comcast began offerings Gigabit Pro service in and around Beaverton, Corvallis, Damascus, Eugene, Forest Grove, Gladstone, Gresham, Happy Valley, Hillsboro, Junction City, Lake Oswego, McMinnville, Milwaukie, Oregon City, Portland, Salem, Tigard, West Linn, and Wilsonville prior to December 31, 2015.¹³

2. The capital investment made by a company in Oregon in newly constructed or installed real or tangible personal property constituting communication infrastructure.

Comcast made a 2016 calendar year capital investment of 114,846,634 dollars¹⁴ in Oregon comprised of newly constructed or installed real or tangible personal property constituting communication infrastructure that enables Comcast to offer the qualified service. After three quarters of 2017 operation Comcast estimates 2017 capital investment at 59,374,427 dollars for the same type of communication infrastructure.

¹³ This information is provided in Comcast’s, October 31, 2017, cover letter to their report to the Commission.

¹⁴ OAR 860-200-0250(2).

3. Whether the company has met the requirements for service capacity and offering service to residential customers.

Comcast's information substantiates its representations that it offers the required service capacity and that it offers the required service to residential customers. A minimum of 75 percent¹⁵ of its residential service customers in Oregon have access to Comcast's Gigabit Pro Service. Comcast offers this service in all ten counties where it has its service footprint. A map showing Comcast's service footprint is provided in Appendix A.

4. Who is served by the communication infrastructure and how they are served.

The Commission assumes for purposes of this report that communication infrastructure refers to facilities that enable the company's communication services that enable the company to offer the qualified service, including Gigabit Pro. Comcast's Appendix-A map shows where it provides its communication services. This helps to describe who is served by the qualified project communication infrastructure.

Residential and business customers are served by Comcast's infrastructure which includes fiber optic and coaxial cable distribution facilities. Customers can receive a variety of services including telephone and broadband internet access service in various tier offerings. The qualified service (Gigabit Pro) is designed to be facilitated by a fiber optic network directly to the residence of customers.¹⁶ Comcast had qualified service customers and one percent or less of Comcast customers subscribe to this service.

5. The compiled information received from the Department of Revenue received from the Counties where property subject to the exemption is located.

¹⁵ OAR 860-200-0250(5).

¹⁶ OAR 860-200-0250(3) Residences must be located with-in reach of order-initiated fiber optic customer connections. These connections would be installed when Gigabit Pro is ordered. Access is understood in terms of how any physical-connection-dependent utility would provide access.

Revenue reported on November 27, 2017 that no company received a tax exemption under ORS 308.677 for the 2017-2018, tax year. No data is currently available for this section because no exemption was granted and the Commission is completely dependent on Revenue for this information.

Frontier Qualified Project Information

Frontier reported the following information:

1. The name and business of the reporting Company.

Frontier provides video, high-speed data and phone services in a number of states, including Oregon. Frontier provides communication services in twelve Oregon Counties: Clackamas, Columbia, Coos, Curry, Douglas, Josephine, Marion, Multnomah, Wallowa, Washington, Union and Yamhill. Frontier offers a tier of internet access service delivering download and upload speeds of up to one (1) gigabit per second symmetrical (“Simply FiOS One Gigabit”) in a number of markets in twenty nine (29) states, including Oregon. Within Oregon, Frontier began offering Simply FiOS One Gigabit service in parts of Multnomah, Washington, and Yamhill Counties, in December 2016.

2. The capital investment made by a company in Oregon in newly constructed or installed real or tangible personal property constituting communication infrastructure.

Frontier made a 2016 calendar year capital investment in Oregon of 2,609,505 dollars,¹⁷ comprised of newly constructed or installed real or tangible personal property constituting communication infrastructure that enables Frontier to offer the qualified service.

¹⁷ OAR 860-200-0250(2).

3. Whether the company has met the requirements for service capacity and offering service to residential customers.

Frontier's information substantiates its representations that it offers the required service capacity and that it offers the required service to residential customers. A minimum of 51 percent¹⁸ of its residential service customers in Oregon have access to Frontier's Simply FiOS One Gigabit Service. Frontier offers this service in three of the twelve counties where it has its service footprint. A map showing Frontier's service footprint is provided in Appendix A.

4. Who is served by the communication infrastructure and how they are served.

The Commission assumes for purposes of this report that communication infrastructure refers to facilities that enable the company's communication services that enable the company to offer the qualified service, including Simply FiOS One Gigabit. Frontier's Appendix-A map shows where it provides its communication services. This helps to describe who is served by the qualified project communication infrastructure.

Residential and business customers are served by Frontier's infrastructure which includes fiber optic distribution facilities. Customers can receive a variety of services including telephone, video and broadband internet access service in various tier offerings. The qualified service (Simply FiOS One Gigabit) is designed to be facilitated by a fiber optic network directly to the residence of customers. Frontier had qualified service customers and one percent or less of Frontier customers subscribe to this service.

5. The compiled information received from the Department of Revenue received from the Counties where property subject to the exemption is located.

Revenue reported on November 27, 2017 that no company received a tax exemption under ORS 308.677 for the 2017-2018, tax year. There is no data to report for this section because no

¹⁸ OAR 860-200-0250(5).

exemption was currently given and the Commission is entirely dependent on Revenue for this information.

Additional Information

This report may include any other information the Commission considers necessary for a thorough analysis of the exemption granted under section 5 of ORS 308.677. Though no exemption was granted for tax year 2016-2017, the Commission believes that this entire report may be helpful to the Legislature. It also provides publically available information on broadband in the state in the attached appendices. The qualified project information provided herein is offered to establish reference points of pertinent information that may become increasingly relevant in future reports.

Both Comcast and Frontier submitted additional information indicating a zero percent denial of service to households to whom Comcast and Frontier offer qualified service and zero complaints regarding denial of access due to income level.¹⁹

Commission staff observes, based on the capacity requirements alone, that other Oregon communication companies might meet statutory requirements for qualified projects.²⁰ Obviously, the Commission does not have information about these other entities that would facilitate any consideration by the appropriate entity of whether the SB 611 tax exemption would be appropriate. As of the date of preparation of this report the Commission has not received inquiries indicating any entities are considering submitting an application to the Commission for a qualified project.²¹ Google Fiber is reportedly²² considering modifying its proposed Fiber to the Home (FTTH) project to use fixed wireless to the home. While wireless technology is advancing it may not be capable of commercially providing the Gigabit speed

¹⁹ OAR 860-200-0250 Sections (1), (2), (6), (7), (10-11).

²⁰ Oregon Broadband Advisory Council, Broadband in Oregon, November 1, 2016, page 14, paragraph 2. <http://www.orinfrastructure.org/Infrastructure-Programs/Telecommunications/OBAC/Reports/BroadbandRpt2016.pdf>.

²¹ The application deadline for qualified project determinations is January 15.

²² Oregon Broadband Advisory Council, Broadband in Oregon, (2016), Page 13. <http://www.orinfrastructure.org/Infrastructure-Programs/Telecommunications/OBAC/Reports/BroadbandRpt2016.pdf>

symmetrically, a key requirement of SB 611. A change from FTTH to Fixed wireless would be a significant departure from the qualified project approved by the Commission, potentially creating uncertainty to whether Google Fiber would need to submit a new project application to the Commission for a new qualified project determination.

Appendix B shows the speed tier information provided by Comcast and Frontier. The table in Appendix B includes annual information that shows the adoption of faster broadband services from each of the reporting companies. This shows how Oregonians are responding to the availability of higher speed broadband internet access services offered by the companies that might receive an exemption.

The FCC prepares an annual report tracking measurements of broadband in the United States. Appendix C provides a data comparison from the 2015 and 2016 reports of state broadband download rates and speed tiers. Some states are not included because they did not have a sufficient sample size.

Appendix D is from the first Quarter 2017 Akamai [State of the Internet](#) report that shows average state download speeds. Following the link at the bottom of Appendix D opens an interactive map that allows the user to select a comparison based on different broadband tier speeds.

The FCC's [Measuring Broadband America 2016](#) report provides a chart comparing internet service provider (ISP) download speeds from 2015 to 2016. This chart is in Appendix E. The 2015 and 2016 data is computed differently but still provides a helpful comparison. Data from both years is from peak megabit per second (Mbps) demand times.

To best compare other state broadband access trends to Oregon's experience, it might be helpful to know how much other states invest in promoting and incentivizing faster broadband-infrastructure. That information would enrich the raw data numbers in Appendix C. To that end, Appendices F and G offer some data on what each state does to invest in broadband. The Strategic Networks Group (SNG) provided [The 50 States Of Broadband](#) report, a starting point in understanding what other states are doing.

Oregon participated in collecting data for the National Broadband map. The last data set reflected service provider submissions as of June 30, 2014 related to that data collection. Appendix H provides some of that information in a report obtained by filtering data for Comcast and Frontier in Oregon. This Appendix also provides the full report which gives some demographic information describing who was served by Comcast and Frontier in their footprints prior to offering Gigabit Pro in 2015 and 2016 respectively. This information is important to establish 2014 pre SB 611 threshold information reference points which is helpful to compare to successive annual data.

Since the FCC did not release its 2017 Measuring Broadband America in time for this report a new comparison of broadband adoption speeds is included in this report that provides more current information collected by a different methodology than the FCC report. Exhibit I uses data sourced from the Akamai Industries website.

Conclusion

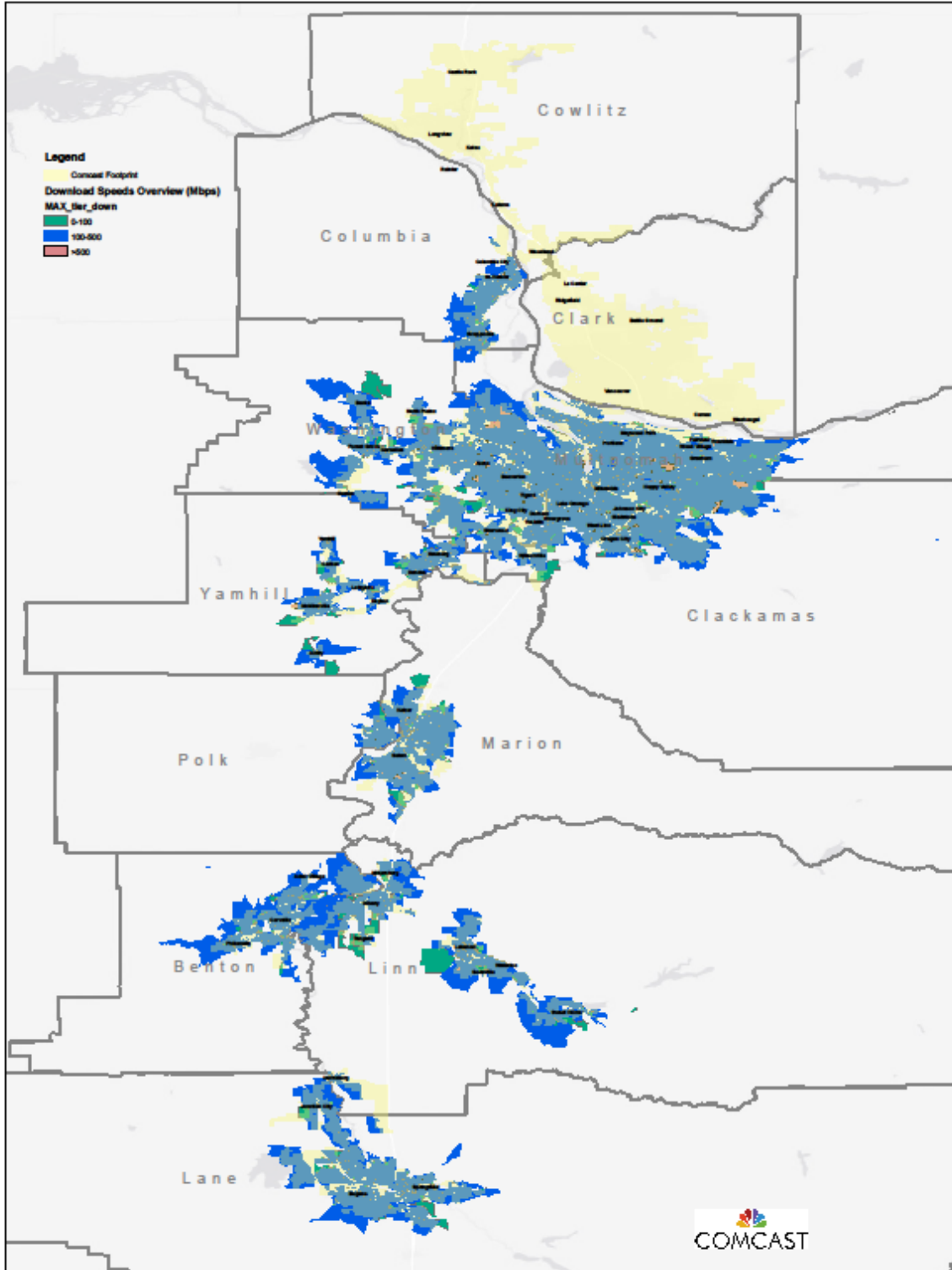
The legislative reporting requirements under ORS 308.681 assume that at least one exemption would be granted in a tax year and require the Commission to report on the amount of an exemption and specific details regarding the underlying qualified project. Revenue has confirmed with the Commission that no exemptions were granted for the 2017-2018 tax year.

The Commission gathered information concerning the three projects determined to be qualified projects in 2016. We set forth above a summary of the information gathered by the Commission. Two companies with a qualified project, Comcast and Frontier, provided a detailed report regarding their projects. That data is reported above to the extent that it may be helpful in the coming year, or in the event a tax exemption is granted in any subsequent year. In addition, we have included some national and statewide data on broadband access trends. The Commission also provides information in the Appendices that it uses in its own evaluations and to memorialize and establish reference points for future reporting.

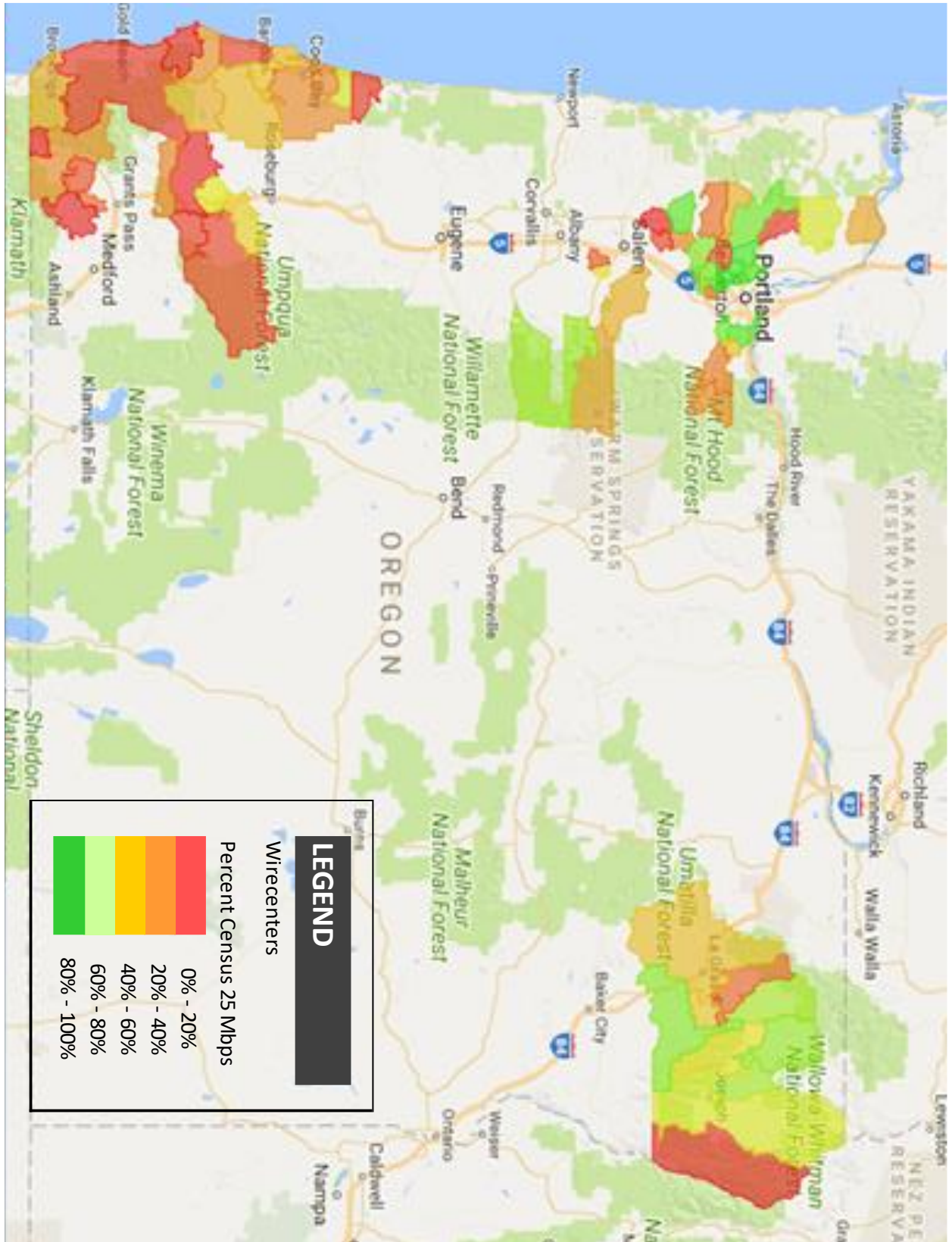
Appendix A

Comcast & Frontier Footprint Maps

Comcast Footprint Map



Frontier Footprint Map



Appendix B

Broadband Speed Tier Information²³

Broadband Speed Tier Information Chart	As of June 30, 2016		As of June 30, 2017			
	Comcast		Comcast		Frontier	
Description	Percent of Total Subscribership	Percent Subscribership w/ Access to Qualified Service	Percent of Total Subscribership	Percent Subscribership w/ Access to Qualified Service	Percent of Total Subscribership	Percent Subscribership w/ Access to Qualified Service
Up to and including 100 Mbps	56%	56%	59%	60%	100%	63%
Greater than 100Mbps up to and including 500 Mbps	44%	44%	41%	41%	1%	29%
Greater than 500Mbps	1%	1%	1%	1%	1%	8%
By rule the speed tier subscribership is rounded up to a whole percent so percentages may add up to more than 100%.						

²³ Information is from both Comcast’s and Frontier’s report to the Commission. Frontier reported that it did not offer the qualified project in 2015 consequently there is no Frontier information as of June 30, 2016. Reports are available for review online by accessing Commission e-dockets, Docket No. RO 10 at the following link; <http://apps.puc.state.or.us/edockets/docket.asp?DocketID=20454>. Commission rule requires the percentage information to be rounded to a whole percentage consequently totals of percentages may equal more than 100%. Commission staff verified that both Comcast and Frontier had qualified service customers by reviewing confidential FCC filings as of June 30, 2017. Consistent with rule the lowest indicated percentage would be 1%.

Appendix C

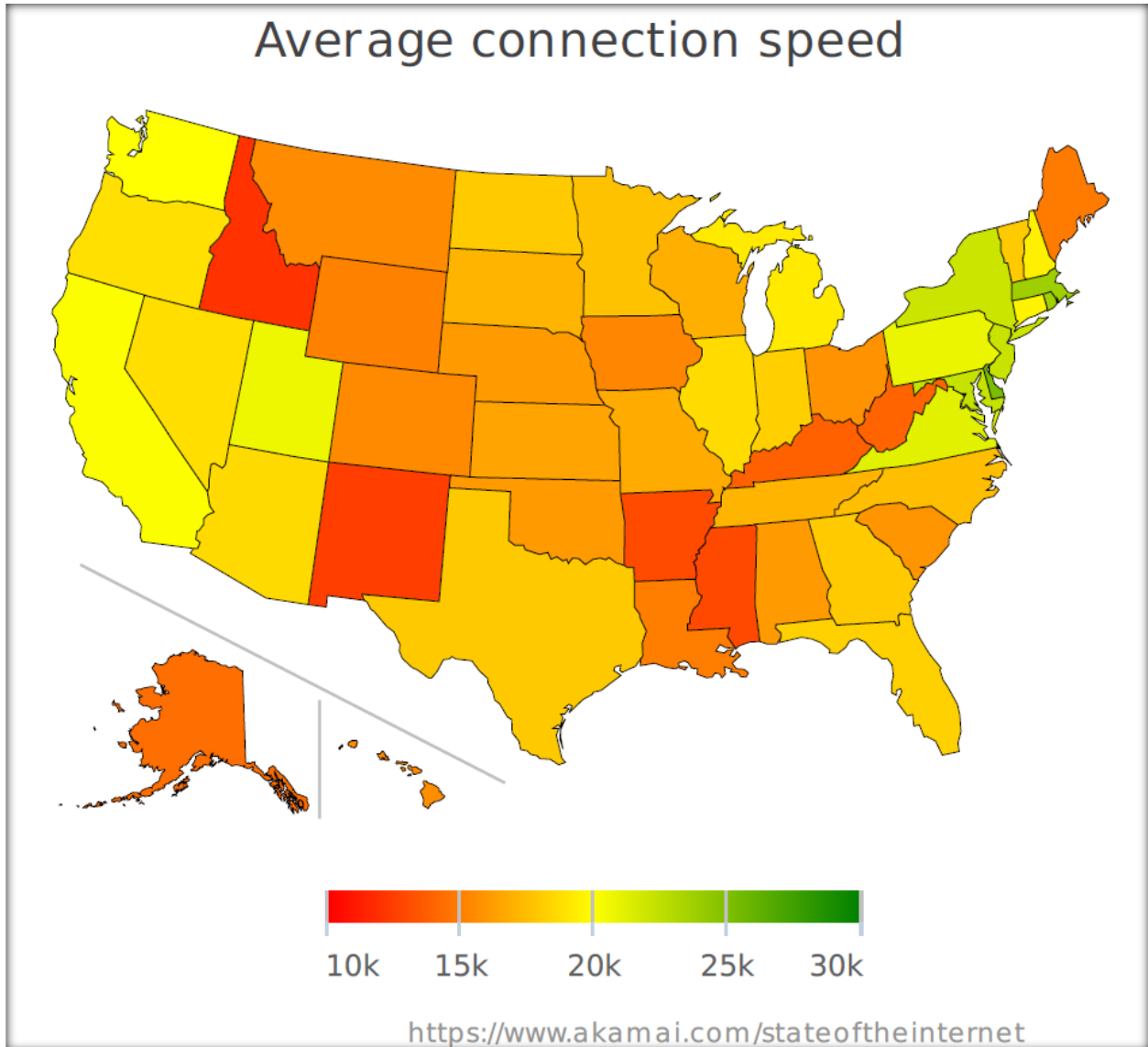
Download Speed Annual Comparison by State²⁴

State	2016			2015			Median Download Speed Change Year over Year
	Median Download Speed (Mbps)	Median Tier Speed (Mbps)	Sample Size	Average Download Speed (Mbps)	Average Tier Speed (Mbps)	Sample Size	
			TOTAL			TOTAL	
AL	26.7	25.8	44	30.0	29.3	51	-3.3
AR	20.3	20.3	35	14.2	14.5	39	6.1
AZ	37.3	39.2	125	37.7	40.0	218	-0.4
CA	41.6	40	411	31.3	30.3	489	10.3
CO	45.9	46.3	114	22.8	22.6	117	23.1
CT	41.9	41.7	66	46.9	44.1	65	-5.0
FL	36.8	37.1	171	26.9	27.9	173	9.9
GA	35	31.6	123	25.3	25.9	155	9.7
IA	33.4	31.8	52	29.3	33.6	172	4.1
IL	42.9	37.5	215	13.9	14.4	29	29.0
IN	35.3	31.1	98	26.0	25.2	185	9.3
KS	24.7	24.1	26	21.5	22.4	88	3.2
KY	21.1	18.9	87	36.8	40.1	33	-15.7
LA	43.4	42.3	37	16.1	17.7	106	27.3
MA	43.2	40.1	107	32.5	31.0	41	10.7
MD	44.6	40.3	64	35.5	32.0	95	9.1
MI	41.9	38.2	174	39.0	36.7	81	2.9
MN	44.8	43.2	102	35.4	33.8	149	9.5
MO	22.3	21.7	61	23.3	23.9	136	-1.0
NC	35.9	32.5	116	38.8	39.6	119	-2.9
NE	29.8	36.3	25	21.4	21.2	190	8.4
NH	43.1	41.4	27	25.1	27.1	49	18.0
NJ	50.3	45.8	134	57.0	52.0	213	-6.7
NM	45.8	49.1	47	21.1	22.0	52	24.7
NV	36.8	35.2	258	35.5	35.3	47	1.3
NY	39.7	36.8	244	41.3	38.7	380	-1.6
OH	21.9	19.6	152	14.2	14.7	224	7.7
OK	25.4	25.2	42	31.8	32.0	62	-6.4
OR	49.1	46.1	77	26.3	26.0	161	22.8
PA	37.1	33.8	124	25.9	24.9	167	11.2
SC	31.1	29.3	54	31.3	30.7	72	-0.2
TN	41.8	38.5	86	26.1	25.8	70	15.7
TX	35	32.9	251	29.6	27.7	203	5.4
UT	51.7	52.2	34	28.5	29.1	40	23.2
VA	43.2	41.1	144	37.1	37.4	210	6.1
WA	48.2	47	147	25.3	24.8	181	22.9
WI	31.3	28.4	118	28.8	28.3	164	2.5

²⁴ Provided from the FCC's 2015 and 2016 [Measuring Broadband America](https://www.fcc.gov/general/measuring-broadband-america) report, Tables 5 and 7. <https://www.fcc.gov/general/measuring-broadband-america>. The 2017 report was not available in time to include in this report. Refer to alternative comparison with 1st Quarter 2017 Data in Appendix I.

Appendix D

U.S. Map Average State Connection Speed

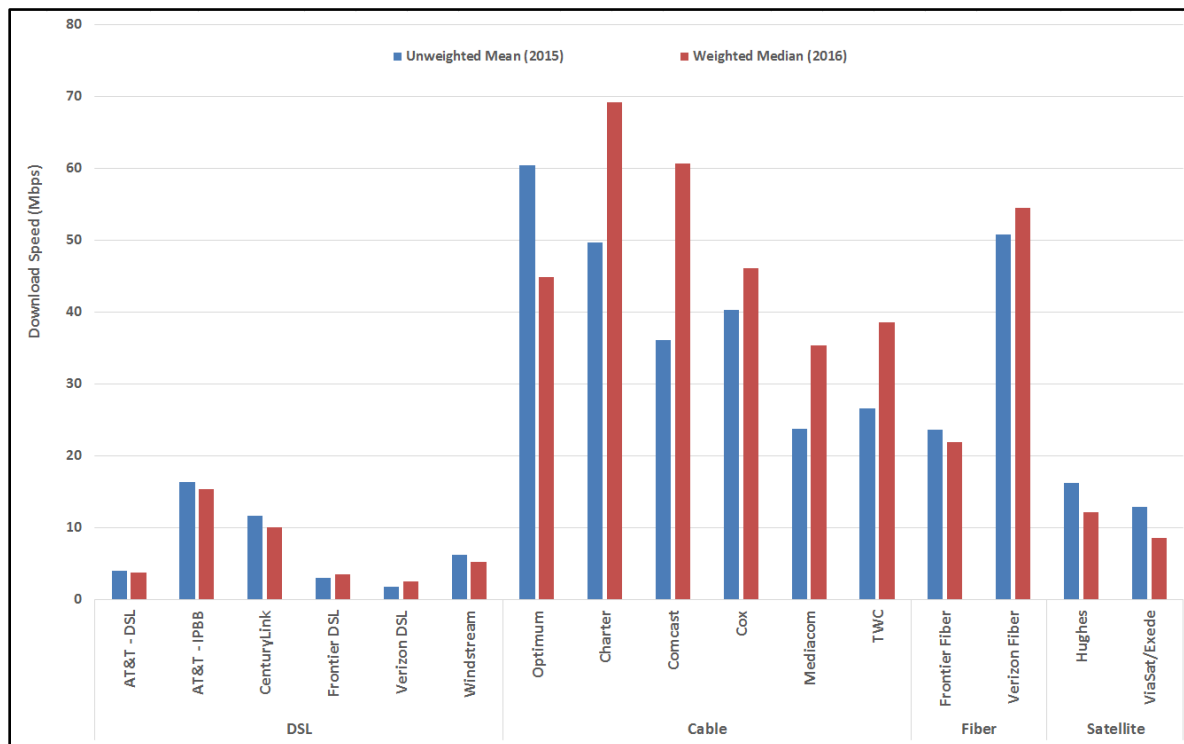


Link to interactive map -

<https://www.akamai.com/us/en/our-thinking/state-of-the-internet-report/state-of-the-internet-connectivity-visualization.jsp>

Appendix E

Comparison of 2015 (Unweighted) and 2016 (Weighted) Download Speed by ISP



FCC Measuring Broadband America Report – Chart A. 5²⁵

This chart provides a comparison of this year's weighted median download speed of each ISP with the previous year's unweighted mean values. The measurements are taken at peak hours in Mbps for all ISPs.

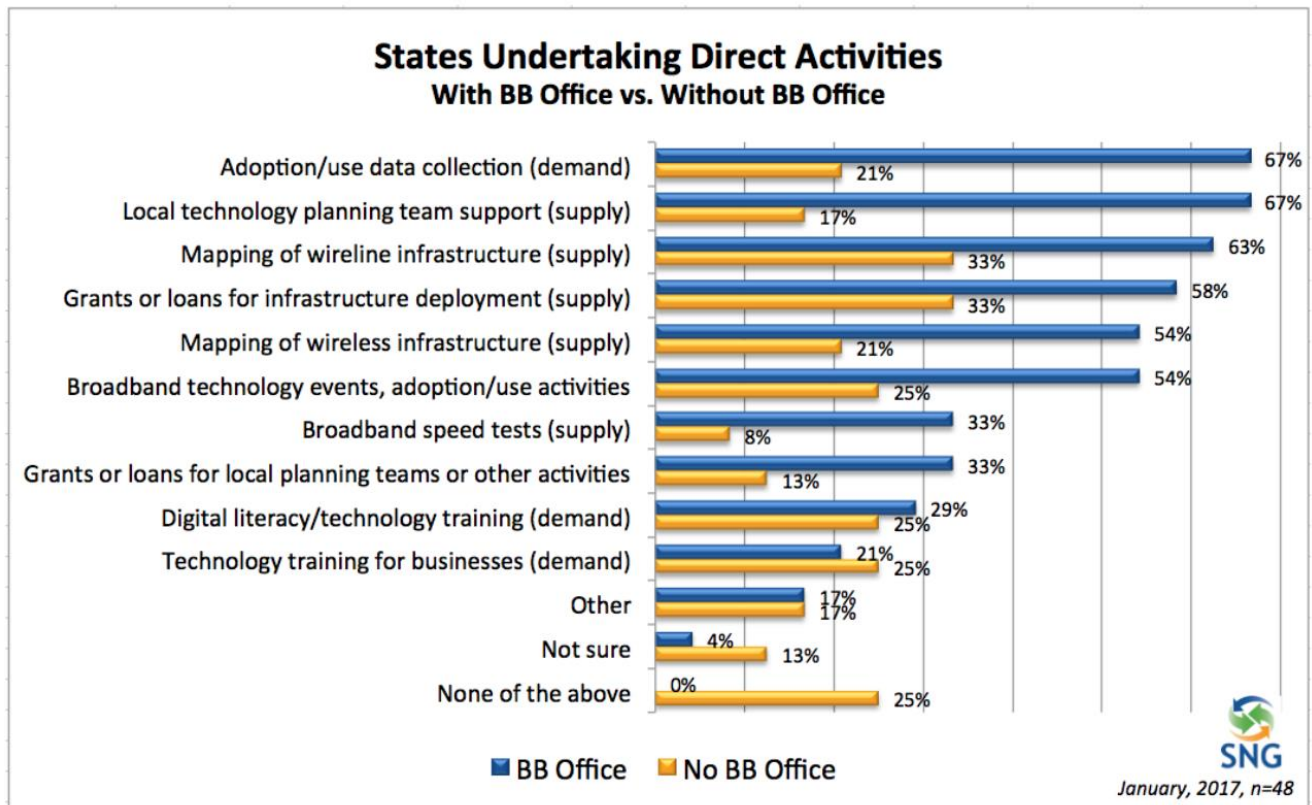
<https://www.fcc.gov/reports-research/reports/measuring-broadband-america/charts-measuring-broadband-america-2016#chartA.5>

²⁵ The FCC 2017 Measuring Broadband America Report was not available for the 2018 Legislative Report.

Appendix F

State Activities Used to Encourage Broadband

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²⁶ <http://sngroup.com/50states/> To obtain the full report use this link and then Download the report.

Appendix G

Broadband Growth Investments by States



SNG – 50 States of Broadband, February 2017 Update

2.4 Growth Investment

The survey looked into ongoing investment in broadband, a critical dimension. Often a sign of investment is whether or not a state has in place a statewide broadband office dedicated to increasing broadband access and use. Additional metrics within this category included whether there are funds dedicated to support broadband initiatives, the amount, and the investment dedicated per capita.

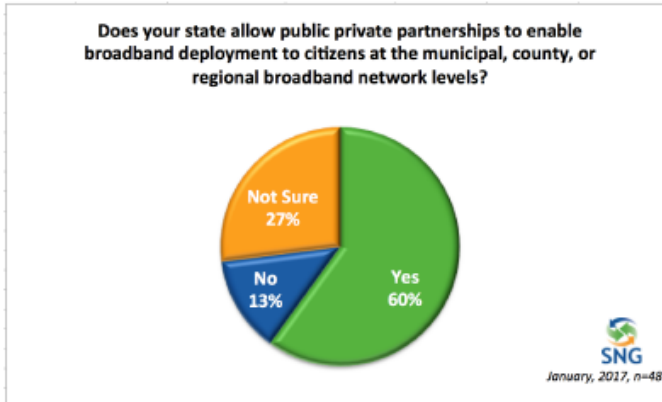
Additionally, the survey tracked whether there are rural broadband programs in place and whether investment on broadband initiatives is expected to increase, stay the same, or decrease.

One popular mechanism to drive investment towards broadband infrastructure is through public/private partnerships – which are permitted by 27% of states surveyed.

Tennessee’s investments are down due large investments in 2016, but \$45 million is pending that should significantly impact future ranking. Pennsylvania is down as there is no longer a broadband office after grants expired this past summer.

States’ answers resulted in a score for “growth investment,” counting as 30% of the overall ranking. Wisconsin and Alabama are the two states in the top 20 that saw the largest rise in investment since last year

1) Wisconsin (+6)	17) Colorado (+1)	32) Oklahoma (+1)
2) New York (-1)	17) Delaware (+1)	32) South Carolina (+1)
3) North Carolina (-1)	19) New Hampshire (-3)	32) South Dakota (+8)
4) Nevada (-2)	20) California (+5)	36) North Dakota
4) New Mexico	20) Nebraska (+6)	37) Alaska (+2)
4) Virginia	22) Mississippi	38) Maryland (+2)
7) Kentucky (-1)	23) Oregon (+6)	38) Michigan (+2)
7) Maine	24) Arizona (-1)	38) Rhode Island
9) Minnesota	24) Iowa (-3)	38) Tennessee (-11)
10) Wyoming (+1)	26) Kansas (+2)	38) Texas (+2)
11) Connecticut (-1)	26) Washington (+10)	43) Florida (+1)
12) Massachusetts (+1)	28) Idaho (+1)	43) Georgia (+1)
13) Vermont (+1)	28) Illinois (+1)	43) Indiana (+1)
14) Ohio (+1)	28) Missouri (+16)	43) Louisiana (-7)
15) Alabama (+5)	31) Montana (+1)	43) Pennsylvania (-20)
15) Arkansas (+1)	32) Hawaii (+1)	43) West Virginia (+1)



Appendix H

Pre-2015 National Broadband Map Comcast Oregon Service Information

The attached file provides a snapshot of Comcast service in Oregon based on data submitted by Comcast for the National Broadband map as of June 30, 2014. This may become helpful to establish reference points prior to the 2015 initial reporting year. This file includes some demographic data that may be helpful to Legislators to establish who Comcast served prior to their offering Gigabit Pro service in 2015. Only the maximum advertised speeds are copied from the file below.



About Provider - Comcast Corporation

Maximum Advertised Speed Summary

Description: The column on the left summarizes the percent of the population, for this provider and in this geography, with access to each maximum advertised download and upload speed tier. The percentages on the right-hand column indicate the total percentage of the population with access to these speeds within the geography.

Wireline Download	Percent Population	State
Down >768k Up >200k	58.6%	98%
Down >3M Up >768k	58.6%	97%
Download > 768k	58.6%	98%
Download > 1.5M	58.6%	98%
Download > 3M	58.6%	97%
Download > 6M	58.6%	97%
Download > 10M	58.6%	95%
Download > 25M	58.6%	92%
Download > 50M	58.6%	90%
Download > 100M	58.6%	87%
Download > 1G	0.0%	61%

Parts of this graphic are unavailable since this provider offers broadband service to less than 0.1% of people in this geography.

Source - API Call

Wireline Upload	Percent Population	State
Upload > 200k	58.6%	98%
Upload > 768k	58.6%	98%
Upload > 1.5M	58.6%	94%
Upload > 3M	58.6%	93%
Upload > 6M	58.6%	87%
Upload > 10M	58.6%	85%
Upload > 25M	0.0%	67%
Upload > 50M	0.0%	64%
Upload > 100M	0.0%	62%
Upload > 1G	0.0%	60%



About Provider - Frontier Communica

Maximum Advertised Speed Summary

Description: The column on the left summarizes the percent of the population, for this provider and in this geography, with access to each maximum advertised download and upload speed tier. The percentages on the right-hand column indicate the total percentage of the population with access to these speeds within the geography.

Wireline Download	Percent Population	State
Down >768k Up >200k	30.2%	98%
Down >3M Up >768k	30.2%	97%
Download > 768k	30.2%	98%
Download > 1.5M	30.2%	98%
Download > 3M	30.2%	97%
Download > 6M	28.7%	97%
Download > 10M	23.6%	95%
Download > 25M	18.7%	92%
Download > 50M	18.7%	90%
Download > 100M	0.0%	87%
Download > 1G	0.0%	61%

Parts of this graphic are unavailable since this provider offers broadband service to less than 0.1% of people in this geography.

Source - API Call

Wireline Upload	Percent Population	State
Upload > 200k	30.2%	98%
Upload > 768k	30.2%	98%
Upload > 1.5M	23.6%	94%
Upload > 3M	22.4%	93%
Upload > 6M	18.7%	87%
Upload > 10M	18.7%	85%
Upload > 25M	0.0%	67%
Upload > 50M	0.0%	64%

Source -

Appendix I

Average Broadband Connection Speeds

