Microsoft Innovation & Policy Center
901 K Street, NW 11th Floor
Washington, DC 20001

Tel 202-263-5900
Fax 202-783-0583
http://www.microsoft.com/

Microsoft

December 5, 2018

VIA ELECTRONIC FILING

Marlene H. Dortch, Secretary
Federal Communications Commission
445 Twelfth Street, S.W.
Washington, DC 20554

Re: Modernizing the FCC Form 477 Data Program
WC Docket No. 11-10

Madam Secretary:

This letter provides notice of an oral ex parte presentation to the Commission in the above-captioned docket. On December 3, 2018, undersigned counsel, along with Paul Garnett, Paula Boyd, John Kahan, and Allen Kim of Microsoft Corporation, met with Travis Litman, Umair Javed, Arielle Roth, and Preston Wise to discuss broadband mapping.

Mr. Kahan shared the results of Microsoft's data sets illustrating broadband usage nationwide based on speeds defined by the Commission (25 Mbps down/3 Mbps up). He compared the FCC's broadband availability data from its Form 477 process and Microsoft's broadband usage data, and shared examples where Internet Service Providers ("ISP") reported significant broadband availability in certain areas, yet Microsoft's usage data suggested that only a small percentage of consumers actually access the Internet at broadband speeds in those areas. He also expressed his interest in sharing the data sets to assist the Commission and the public to improve the Commission's Form 477 data. In addition, Microsoft reiterated its position that the Form 477 instructions should be modified so that the FCC is able to report where fixed broadband connections are actually being provisioned, rather than where broadband could be provided.

Microsoft also discussed how difficult it is to achieve full broadband penetration nationwide using only fixed wireline facilities. To do so will require a combination of wireline and wireless facility deployment. Mr. Kahan noted that improved maps will assist Microsoft in better targeting its resources and collaborating with its telco partners to provide broadband service to rural communities.

Should you have any questions, please contact the undersigned directly.

Sincerely,

MICROSOFT CORPORATION

Paula Boyd, Senior Director
U.S. Government and Regulatory Affairs
901 K Street, N.W., 11th Floor
Washington, DC 20001
202-263-5946

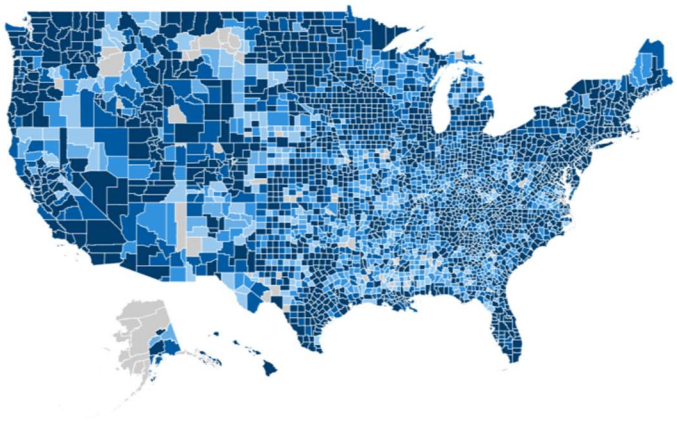
David A. LaFuria
Lukas, LaFuria, Gutierrez & Sachs, LLP
8300 Greensboro Drive, Suite 1200
Tysons, VA 22102
703-584-8678

Counsel to Microsoft Corporation

Enclosure

cc: Travis Litman
Umair Javed
Arielle Roth
Preston Wise
Paul Garnett
Paula Boyd
John Kahan
Allen Kim

FCC indicates broadband is not available to 24.7M people



FCC broadband availability: 0% | >0% to <=20% | >20% to <=40% | >40% to <=60% | >60% to <=80% | >80% to 100%

* FCC broadband has or "could" provide greater than or equal to 25Mbps / 3Mbps

Data sources: FCC 2018 Broadband Report - https://www.fcc.gov/reports-research/reports/broadband-progress-reports/2018-broadband-deployment-report
Form 477 sample data format: 000000000000000,DBAName,0,0,0,0,0,0,0

Microsoft

FCC broadband map

FCC and Microsoft

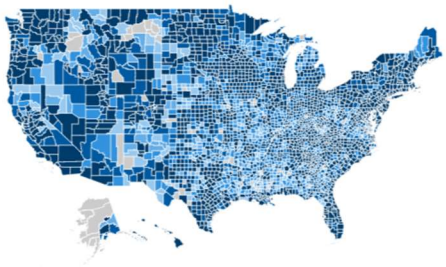
Congressional districts

State - filter

- Select All
- Alabama
- Alaska
- Arizona
- Arkansas
- California
- Colorado
- Connecticut
- Delaware
- District of Columbia
- Florida
- Georgia
- Hawaii
- Idaho
- Illinois
- Indiana
- Iowa
- Kansas
- Kentucky
- Louisiana
- Maine
- Maryland
- Massachusetts

Maps showing FCC fixed broadband availability and broadband usage based on Microsoft data

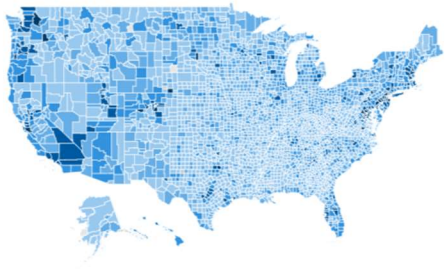
FCC indicates broadband is not available to 24.7M people



* FCC fixed broadband has or "could" provide greater than or equal to 25Mbps / 3Mbps

FCC broadband availability: 0% | >0% to <=20% | >20% to <=40% | >40% to <=60% | >60% to <=80% | >80% to 100%

Microsoft data indicates 162.8M people do not use the internet at broadband speeds



Broadband speed greater than or equal to 25Mbps

Broadband usage: 0% | >0% to <=20% | >20% to <=40% | >40% to <=60% | >60% to <=80% | >80% to 100%

Data sources: FCC 2018 Broadband Report - https://www.fcc.gov/reports-research/reports/broadband-progress-reports/2018-broadband-deployment-report
Form 477 sample data format: 000000000000000,DBAName,0,0,0,0,0,0,0

Microsoft

FCC broadband map

FCC and Microsoft

Congressional districts

State - filter

- Select All
- Alabama
- Alaska
- Arizona
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- Iowa
- Kansas
- Kentucky
- Louisiana
- Maine
- Maryland
- Massachusetts

Counties with the largest gap between FCC broadband availability and broadband usage from Microsoft data

Microsoft

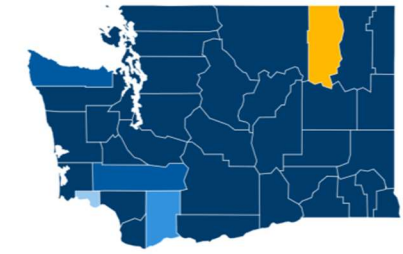
Washington

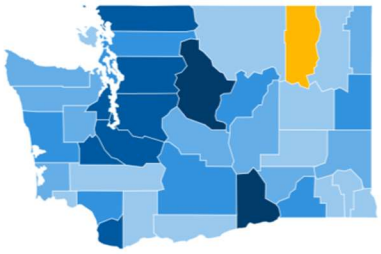
FCC Broadband availability

All counties	Ferry County
98.3%	100.0%

Broadband usage

All counties	Ferry County
65.2%	2.2%





Counties with the largest gap between FCC broadband availability and broadband usage

0% >0% to <=20% >20% to <=40% >40% to <=60% >60% to <=80% >80% to 100%

FCC broadband availability

Counties with the largest gap between FCC broadband availability and broadband usage

0% >0% to <=20% >20% to <=40% >40% to <=60% >60% to <=80% >80% to 100%

Broadband usage

Data sources: FCC 2018 Broadband Report, Bureau of Labor Statistics, and Microsoft data

State filter

- Alabama
- Alaska
- Arizona
- Arkansas
- California
- Colorado
- Connecticut
- Delaware
- District of Columbia
- Florida
- Georgia
- Hawaii
- Idaho
- Illinois
- Indiana
- Iowa
- Kansas
- Kentucky
- Louisiana
- Maine
- Maryland
- Massachusetts
- Michigan

Counties with the largest gap between FCC broadband availability and broadband usage from Microsoft data

Microsoft

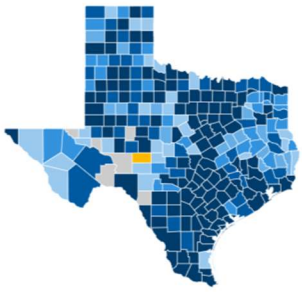
Texas

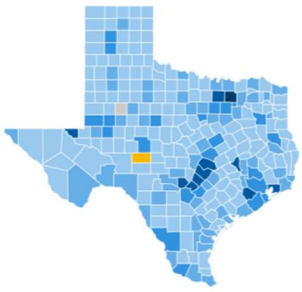
FCC Broadband availability

All counties	Schleicher County
93.4%	100.0%

Broadband usage

All counties	Schleicher County
47.4%	2.5%





Counties with the largest gap between FCC broadband availability and broadband usage

0% >0% to <=20% >20% to <=40% >40% to <=60% >60% to <=80% >80% to 100%

FCC broadband availability

Counties with the largest gap between FCC broadband availability and broadband usage

0% >0% to <=20% >20% to <=40% >40% to <=60% >60% to <=80% >80% to 100%

Broadband usage

Data sources: FCC 2018 Broadband Report, Bureau of Labor Statistics, and Microsoft data

State filter

- Nevada
- New Hampshire
- New Jersey
- New Mexico
- New York
- North Carolina
- North Dakota
- Ohio
- Oklahoma
- Oregon
- Pennsylvania
- Rhode Island
- South Carolina
- South Dakota
- Tennessee
- Texas
- Utah
- Vermont
- Virginia
- Washington
- West Virginia
- Wisconsin
- Wyoming

Counties with the largest gap between FCC broadband availability and broadband usage from Microsoft data

Microsoft

Virginia

FCC Broadband availability

All counties	Charles City County
90.8%	100.0%

Counties with the largest gap between FCC broadband availability and broadband usage

FCC broadband availability

Broadband usage

All counties	Charles City County
60.2%	1.9%

Counties with the largest gap between FCC broadband availability and broadband usage

Broadband usage

State filter

- Nevada
- New Hampshire
- New Jersey
- New Mexico
- New York
- North Carolina
- North Dakota
- Ohio
- Oklahoma
- Oregon
- Pennsylvania
- Rhode Island
- South Carolina
- South Dakota
- Tennessee
- Texas
- Utah
- Vermont
- Virginia
- Washington
- West Virginia
- Wisconsin
- Wyoming

Data sources: FCC 2018 Broadband Report, Bureau of Labor Statistics, and Microsoft data

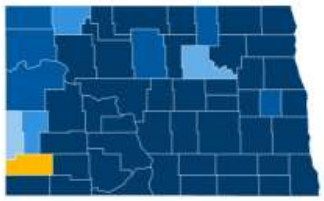
Counties with the largest gap between FCC broadband availability and broadband usage from Microsoft data

Microsoft

North Dakota

FCC Broadband availability

All counties	Slope County
91.2%	98.4%

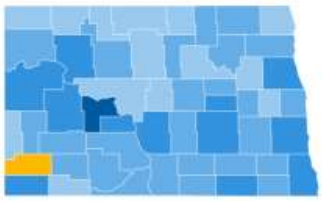


Counties with the largest gap between FCC broadband availability and broadband usage

FCC broadband availability

Broadband usage

All counties	Slope County
42.9%	1.2%



Counties with the largest gap between FCC broadband availability and broadband usage

Broadband usage

State filter

- Nevada
- New Hampshire
- New Jersey
- New Mexico
- New York
- North Carolina
- North Dakota
- Ohio
- Oklahoma
- Oregon
- Pennsylvania
- Rhode Island
- South Carolina
- South Dakota
- Tennessee
- Texas
- Utah
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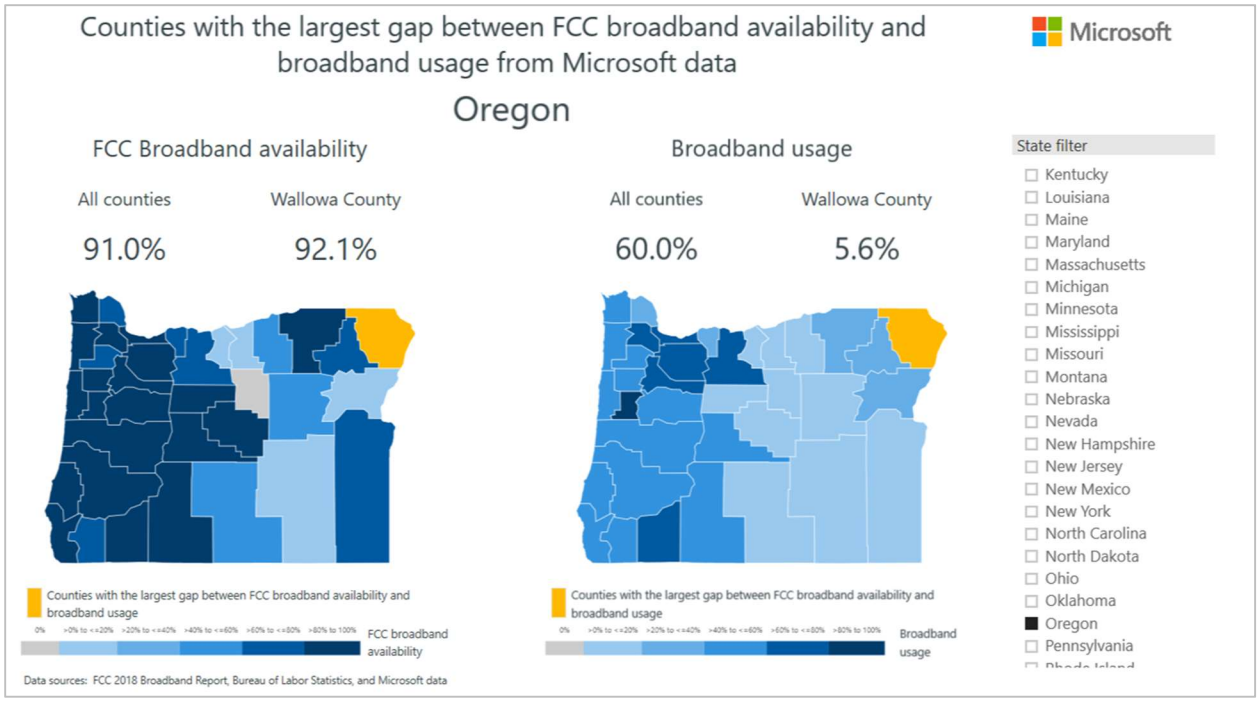
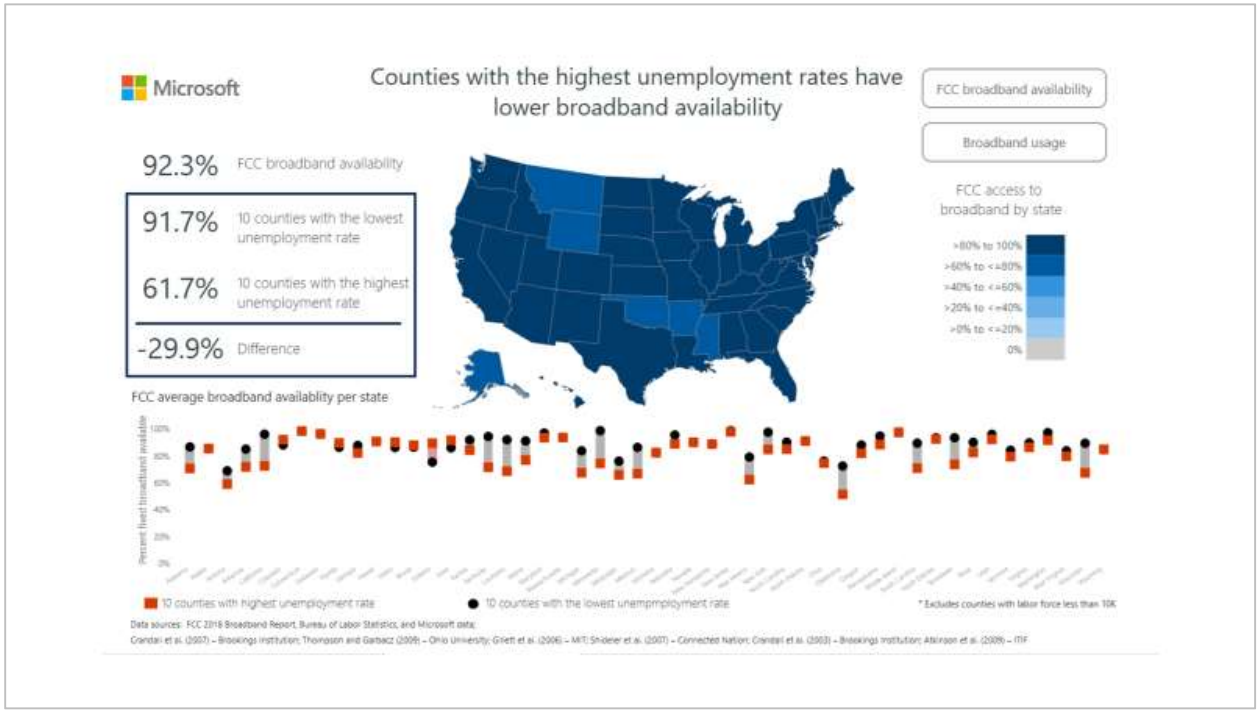
- Virginia
- Washington
- West Virginia
- Wisconsin
- Wyoming

Data sources: FCC 2018 Broadband Report, Bureau of Labor Statistics, and Microsoft data


Counties with the largest gap between FCC broadband availability and broadband usage from Microsoft data
Microsoft
Oregon
FCC Broadband availability
All counties
91.0%
Wallowa County
92.1%
Broadband usage
All counties
60.0%
Wallowa County
5.6%
State filter
Kentucky
Louisiana
Maine
Maryland
Massachusetts
Michigan
Minnesota
Mississippi
Missouri
Montana
Nebraska
Nevada
New Hampshire
New Jersey
New Mexico
New York
North Carolina
North Dakota
Ohio
Oklahoma
Oregon
Pennsylvania
Counties with the largest gap between FCC broadband availability and broadband usage
0%
>0% to <=20%
>20% to <=40%
>40% to <=60%
>60% to <=80%
>80% to 100%
FCC broadband availability
Counties with the largest gap between FCC broadband availability and broadband usage
0%
>0% to <=20%
>20% to <=40%
>40% to <=60%
>60% to <=80%
>80% to 100%
Broadband usage
Data sources: FCC 2018 Broadband Report, Bureau of Labor Statistics, and Microsoft data


Microsoft
Counties with the highest unemployment rates have lower broadband availability
FCC broadband availability
Broadband usage
92.3% FCC broadband availability
91.7% 10 counties with the lowest unemployment rate
61.7% 10 counties with the highest unemployment rate
-29.9% Difference
FCC access to broadband by state
>80% to 100%
>60% to <=80%
>40% to <=60%
>20% to <=40%
>0% to <=20%
0%
FCC average broadband availablity per state
10 counties with highest unemployment rate
10 counties with the lowest unemployment rate
* Excludes counties with labor force less than 10K
Data sources: FCC 2018 Broadband Report, Bureau of Labor Statistics, and Microsoft data;

Microsoft

Counties with the highest unemployment rate have lower broadband usage

FCC broadband availability

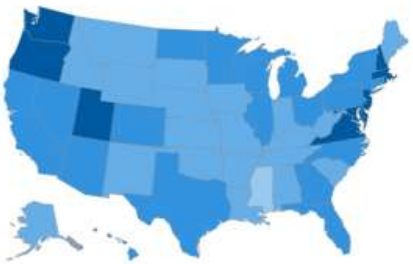
Broadband usage

49.5% Broadband usage

47.6% 10 counties with the lowest unemployment rate

20.2% 10 counties with the highest unemployment rate

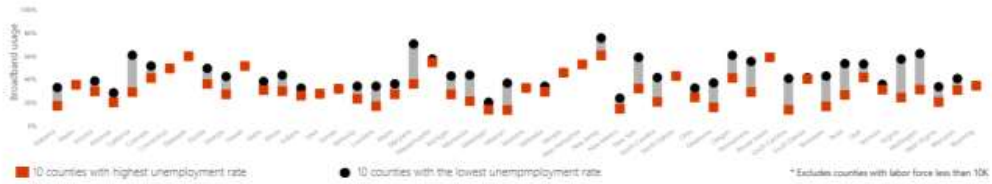
-27.4% Difference



Broadband usage by state

>80% to 100%
>60% to <=80%
>40% to <=60%
>20% to <=40%
>0% to <=20%
0%

Average broadband usage based on Microsoft data



10 counties with highest unemployment rate

10 counties with the lowest unemployment rate

* Excludes counties with labor force less than 10K

Data sources: FCC 2016 Broadband Report, Bureau of Labor Statistics, and Microsoft data;
Crandall et al. (2007) – Brookings Institution; Thompson and Garbacz (2008) – Ohio University; Gillett et al. (2006) – MIT; Shideler et al. (2007) – Connected Nation; Crandall et al. (2005) – Brookings Institution; Atkinson et al. (2008) – ITIF

Microsoft

Technology adoption curves

Adoption rate curves for wireline and wireless technologies

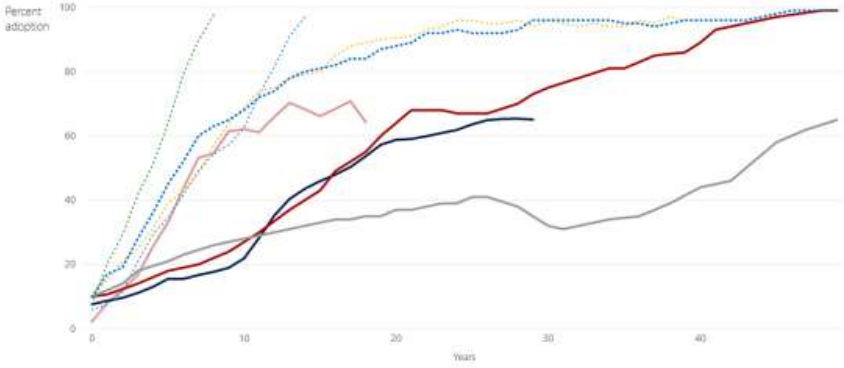
Wireless technology (e.g. radio, television, and cell phone)

Wired technology (e.g. electricity, landline, and cable television)

Technology - filter

- Wired
- Wireless

Technology — Broadband — Cable TV — Cell Phone — Color Broadcast TV — Electricity — Landline — Radio — Smartphone



Technology type - filter

- Broadband
- Cable TV
- Cell Phone
- Color Broadcast TV
- Electricity
- Landline
- Radio
- Smartphone

Data sources: Technology Diffusion (Comin and Hobijn (2004) and others)