

Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of)
)
Inquiry Concerning the Deployment of Advanced)
Telecommunications Capability to All Americans)
in a Reasonable and Timely Fashion, and Possible) GN Docket No. 14-126
Steps to Accelerate Such Deployment Pursuant to)
Section 706 of the Telecommunications Act of)
1996, as Amended by the Broadband Data)
Improvement Act)

COMMENTS OF THE CITY OF BOSTON, MASSACHUSETTS

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I. INTRODUCTION

These comments are made for the City of Boston, Massachusetts,¹ by the City's Department of Innovation and Technology.² The City congratulates the Commission for opening this Inquiry,³ and files these comments to support the Commission's belief that its current definitions or benchmarks for broadband⁴ or "advanced telecommunications capability" must not be fixed like an insect in amber, but grow and respond to market and technology changes as mandated by Congress. The 4 megabits per second (Mbps) download and 1 Mbps upload (4 Mbps/1 Mbps) speed benchmark is no longer current.⁵ As the Commission noted, "consumers increasingly use VoIP, social networking, video conferencing, and streaming video over their

¹ The City, incorporated as a town in 1630 and as a city in 1822, exists under Chapter 486 of the Acts of 1909 and Chapter 452 of the Acts of 1948 of The Commonwealth of Massachusetts (the "Commonwealth") which, as amended, constitute the City's Charter. The Mayor is the chief executive officer of the City. Martin J. "Marty" Walsh is the City's fifty-fourth mayor. He has general supervision of, and control over, the City's boards, commissions, officers, and departments. The City's budget for all departments and operations, except the School Department and the Boston Public Health Commission, is prepared under the Mayor's direction.

² The Department of Innovation and Technology is the City of Boston's enterprise technology organization that provides solutions to empower business and educational partners across City departments and deliver services more efficiently and effectively. DoIT is focused on connecting the City, engaging and empowering citizens, improving business processes, working collaboratively and continuously innovating. For more information about Mayor Martin J. Walsh's vision for Boston in the areas of broadband, technology and education and their role in advancing Boston as a world class city, please visit <https://www.cityofboston.gov/DoIT/>. As a reflection of the Mayor's vision for a long-term education system that provides equity, access, accountability, transparency, and collaboration among all educational platforms in the City, Mayor Walsh announced on September 3, 2014 the appointment Rahn Dorsey as his Chief of Education, a newly-created position. (See <http://www.cityofboston.gov/news/default.aspx?id=14787>)

³ Tenth Broadband Progress Notice of Inquiry, FCC 14-113 (Aug. 5, 2014).

⁴ As noted in footnote 1 of the Notice, the Commission has historically used the terms "broadband" and "advanced telecommunications capability" interchangeably. See, e.g., *Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996, as Amended by the Broadband Data Improvement Act*, GN Docket No. 11-121, Eighth Broadband Progress Report, 27 FCC Rcd 10342, 10344, para. 1 n.2 (2012) (2012 Eighth Broadband Progress Report). Boston will follow this example in this filing.

⁵ Boston also appreciates that the White House has come to the same conclusion. See White House Office of Science and Technology Policy & The National Economic Council, *Four Years of Broadband Growth* (2013) ("White House Report"), available at: http://www.whitehouse.gov/sites/default/files/broadband_report_final.pdf. The report finds that the 4 Mbps/1 Mbps baseline "reflects a growing need for increased bandwidth as more Americans use the Internet for work and to build career skills."

broadband connection.”⁶ Boston supports the Commission’s suggestion of increasing the minimum broadband downstream speed requirement to at least 10 Mbps.

Boston believes that a common set of definitions for all technologies makes sense so long as it does not define fixed services at a level below marketplace needs. For while fixed infrastructure supports faster speeds than mobile infrastructure, most consumers do not make such a distinction when choosing a broadband provider. It also does not help consumer’s make informed choices when they are marketed incessantly with statements that emphasize broadband or high-speed and not necessarily the technology employed to deliver the service. The FCC’s updated definition could assist in helping consumers better understand what they are buying.

In much the same way, while Boston endorses the efforts of the Commission to promote a robust level of services in non-urban and Tribal areas, such efforts should not hold artificially low the definition of broadband in urban areas.

II. THE CITY OF BOSTON IS A STRONG PROPONENT OF BROADBAND DEPLOYMENT

Boston is a world-class city whose major industries include innovative technology, research, healthcare, education and hospitality. These industry sectors demand access to broadband to grow and succeed in their respective fields and their customers expect nothing less. Affordable broadband is critical to economic development, quality of life, and opportunity for the residents and small businesses in our City.

The City of Boston has actively advocated for broadband investment and video competition throughout our city and particularly in under-served and lower-income neighborhoods. We encourage the introduction of new technologies and competition through innovative policies and investments. For example:

⁶ Notice at ¶ 6.

- The City invests over \$9 million annually in the city's fiber network to support broadband for use by constituent services and our public schools and plans to invest an additional \$10 million over the next five years in fiber expansion to connect even more of the city's public buildings including its schools.
- The City developed informal and expedited franchising processes. In Boston, we renew, transfer, amend and dissolve franchises, quickly, as the situation(s) warrant, in order to be responsive to changes in law, regulation and/or market conditions.
- Boston has taken the lead in piloting an affordable wireless solution for our residents through the Boston Wicked Wi-Fi Project. Public Wi-Fi has been rolled out in many of Boston's parks, schools, and downtown locations. The city's fiber network is supporting the internet connection in public areas. Wi-Fi was connected using resources from the City and its' partners, as well as the United States Department of Housing and Urban Development's Choice Neighborhoods program. The largest Wi-Fi installation includes the Choice Neighborhood Grant; connecting the Grove Hall community and neighboring areas in 2013. This location is the most widely accessed, averaging over 7,735 daily users and 89% repeat visitors.
- The City streamlined access for broadband and wireless telecommunications businesses seeking to provide services to Boston's residents and businesses, establishing a single point of entry for telecommunications services applicants.

- Boston has negotiated agreements with providers such as Comcast, RCN, Crown Castle, American Tower and Extenet in order to introduce some measure of competition and new technologies in wireless communications.
- Boston engaged in an aggressive Broadband Technology Opportunity Program projects through programs such as Technology Goes Home⁷ and On-Line Learning Readiness to reach schoolchildren and families in need of technical skills and training, thanks to funding support from the American Recovery and Reinvestment Act.

Collectively, all of these efforts are designed to provide our citizens, neighborhoods and businesses with the broadband and training resources necessary to succeed in a digital economy. Vital to Boston's and the nation's efforts to develop a healthy and competitive market for broadband is a realistic understanding of what speeds and characteristics of service constitute broadband services or advanced telecommunications capability.

III. MANDATES FOR REGULAR UPDATING OF STANDARDS

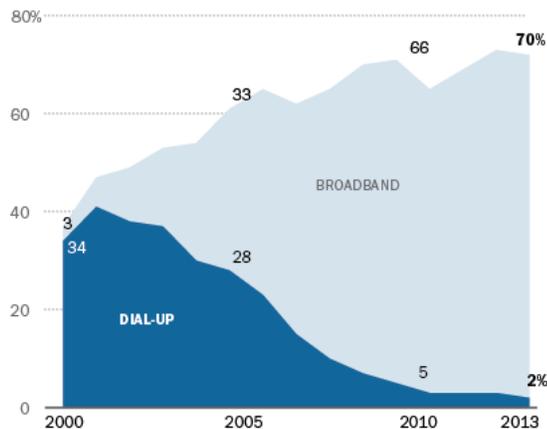
The Commission has three mandates to keep its definition current. First, the Commission must respond technological advances, which alter what should be considered an "advanced service." Second, the Commission must respond to the marketplace, which has changed

⁷ Tech Goes Home ("TGH") was founded in 2000 and has become a national award-winning initiative to successfully provide under-served Boston residents with the opportunity, tools, education, and access required for 21st century skills development. With the support and backing of the City of Boston, TGH focuses on serving the City's most vulnerable populations, including children/youth, adults, seniors, and people with disabilities who are predominantly low-income and/or from challenged neighborhoods. TGH is focused on tackling the entrenched barriers to technology adoption and Internet access in Boston and across the US. 90% of program graduates subscribe to and maintain Internet access in their homes long after program completion. In the last three years, 10,000 participants have completed TGH. Pilot programs have run or are planned in New York City, New Mexico, and Rhode Island. More information about the program may be found at <http://www.techgoeshome.org/home>

dramatically. According to PEW, in “June 2000, when about half of adults were online, only 3% of American households had broadband access.”⁸ PEW’s most recent analysis (September, 2013)

Home Broadband vs. Dial Up, 2000-2013

Percentage of American adults 18 years and older who access the internet via ...



Source: Pew Internet & American Life Project Surveys, March 2000-Sep 2013. Question wording has changed slightly over time. Our method for measuring home internet use changed in 2011, which would contribute to the seeming decline in adoption.

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found that “70% of Americans have broadband connections at home” and now only 3% of folks use a dial up connection.⁹ The third and perhaps most important mandate for updating standards is that imposed by Congress Section 706 of the Telecommunications Act of 1996, as amended (1996 Act) requires the Commission to determine and report annually on “whether advanced telecommunications capability is being deployed to all Americans in a reasonable and timely fashion.”¹⁰ If the reports to Congress are to be meaningful, and if parties are to provide honest

⁸ Broadband Technology Fact Sheet, Pew Research Internet Project, available at: <http://www.pewinternet.org/fact-sheets/broadband-technology-fact-sheet/>.

⁹ Id.

¹⁰ 47 U.S.C. § 1302. Section 706 of the Telecommunications Act of 1996, Pub. L. No. 104-104, § 706, 110 Stat. 56, 153 (1996), as amended by the Broadband Data Improvement Act, Pub. L. No. 110-385, 122 Stat. 4096 (2008), is now codified in Title 47, Chapter 12 of the United States Code. See 47 U.S.C. § 1301 et seq.

answers to the question posed by the Commission as to whether these services are being deployed in a timely manner – we must have a meaningful metric for what constitutes broadband. Furthermore, the Commission must measure what is an advanced telecommunications service on an annual basis, or at least before the FCC makes its report to Congress.

IV. THE COMMISSION MUST INCREASE ITS BROADBAND SPEED BENCHMARK.

The Commission must update the current speed benchmark of 4 Mbps download and 1 Mbps upload. Boston supports the Commission’s suggested standard of increasing the minimum broadband download speed requirement to 10 Mbps.

Section 706 requires the Commission to set a standard for broadband “that enables users to originate and receive high-quality voice, data, graphics, and video telecommunications.”¹¹ The 4/1 Mbps benchmark does not meet this goal. Since the Commission adopted the measure over four years ago,¹² Internet usage has changed dramatically. Americans not only exchange e-mails and pay their bills; they also increasingly generate and watch high-capacity digital content, including video and music. For example, between June 2010 and December 2013, the number of hours that Americans spent watching video over the Internet grew by 70%.¹³ That percentage is only likely to increase. The 4/1 Mbps benchmark does not enable users to utilize the services and applications that they seek today.

¹¹ 47 U.S.C. § 1302(d)(1).

¹² Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996, as Amended by the Broadband Data Improvement Act et al., GN Docket No. 09-137 et al., 25 FCC Rcd. 9556 at ¶ 4 (2010).

¹³In re Protecting and Promoting the Open Internet, 29 FCC Rcd. 5561 ¶ 32 (2014).

The Commission's updated benchmark should also be sufficiently robust to allow every member of a household to use multiple devices simultaneously. Seventy-two (72%) percent of Americans use broadband at home, a number that will only grow.¹⁴ According to the 2010 Census, the average household size in the City of Boston is about 2.3 persons.¹⁵ The common experience of every member of the team assembling these comments is that it is the rare occasion in any of our households when only a single occupant is online. Parents finishing up after dinner work assignments, students on-line for homework, social networking, or entertainment all share network capacity with home security services, VoIP conversations, and smart phones riding Wi-Fi. The Commission is correct that its speed benchmark should be based on a common understanding of shared household broadband use during peak usage times.

The Commission also asks how it should consider whether broadband service is affordable to all Americans.¹⁶ The Commission must look at whether the typical household can obtain high-quality, affordable services. The Commission should also ensure that consumers can better evaluate what is truly a "competitive" broadband option. Boston's belief and experience is that the current benchmark allows providers to claim unaffordable 4G services and unacceptably slow DSL options qualify—even though these options do not work for many households. Increasing the standard is also important because programs for discounted access are often capped at the FCC's benchmarks. Updating the benchmarks would therefore directly benefit Boston residents who use these discounted programs.

¹⁴ OECD Broadband Portal, Table 1d(2). June 2011. Available at <http://www.oecd.org/dataoecd/21/35/39574709.xls>. The *White House Report* at p. 8 further finds that "despite the advances in broadband coverage – particularly considering the United States' size and geography – adoption is lower than in some nations with comparable Gross Domestic Product (GDP) per capita."

¹⁵ USA.com, Boston, MA Historical Household and Family Data, <http://www.usa.com/boston-ma-population-and-races--historical-household-and-family-data.htm>

¹⁶ Notice at ¶ 45.

Boston appreciates that defining broadband speed poses unique problems. For example, the FCC’s Broadband Speed Guide offers examples based on application,¹⁷ yet the usages and speeds that it identifies vary widely from those that the Commission offers here.¹⁸

Activity	Minimum Download Speed (Mbps)
Email	0.5
Web browsing	
Job searching, navigating government websites	0.5
Interactive pages and short educational videos	1
Streaming radio	Less than 0.5
Phone calls (VoIP)	Less than 0.5
Watching video	
Standard streaming videos	0.7
Streaming feature movies	1.5
HD-quality streaming movie or university lecture	4
Video conferencing	
Basic video conferencing	1
HD video conference and telelearning	4
Gaming	
Game console connecting to the Internet	1
Two-way online gaming in HD	4

Further, the wireless industry now sells mobile wireless broadband access on volume/usage basis, whereas facilities-based broadband pricing is predominantly based on speed.¹⁹ Wireless

¹⁷ <http://www.fcc.gov/guides/broadband-speed-guide>

¹⁸ Notice at ¶ 12.

¹⁹ See, e.g., <http://mobile-broadband-services-review.toptenreviews.com/> or <http://consumerist.com/2014/04/24/dont-believe-comcast-mobile-broadband-is-not-competition-for-cable-internet/>

carriers advertising 100MB to 1GN wireless plans for 4G and LTE are not advertising speeds of 100 Mbps to 1Gb, but rather, total consumption per month at speeds of between 3 – 18 Mbps.

Broadband Technology and Speeds²⁰

Broadband Technology	Download Speed Range	Connection
Dial-up	Up to 56kbps	Phone Line
DSL	768 Kbps - 6 Mbps	Phone Line
Satellite	400 Kbps - 2 Mbps	Wireless Satellite
3G	50 Kbps - 1.5 Mbps	Wireless
Cable Modem	1 Mbps - 1 Gbps	Coaxial Cable
WiMax	up to 128 Mbps	Wireless
Fiber	up to 1 Gbps	Fiber optics
4G / LTE	currently up to 10 Mbps	Mobile Wireless

Nevertheless, the City supports the Commission’s proposal to increase the download speed to at least 10 Mbps. Four years ago, the National Broadband Plan set a goal that 100 million U.S. homes would have affordable access to actual speeds of 50 Mbps/20 Mbps by 2015.²¹ Setting any benchmark *below* 10 Mbps would therefore be a serious step in the wrong direction. If the Commission is unwilling to set a benchmark significantly higher than 10 Mbps, it should couple a 10 Mbps benchmark with more aggressive “forward-looking” benchmarks that push the industry to increase speeds more quickly. Boston believes that the Commission should apply these benchmarks to all technologies.

²⁰ <http://broadband.about.com/od/speedissues/a/Broadband-Internet-Speeds-Explained.htm>

²¹ Federal Communications Commission, *Connecting America: The National Broadband Plan*, GN Docket No. 09-51 135 (2010) at 9, available at: <http://download.broadband.gov/plan/national-broadband-plan.pdf>. GOAL No. 1: At least 100 million U.S. homes should have affordable access to actual download speeds of at least 100 megabits per second and actual upload speeds of at least 50 megabits per second.

VI. MEASURING BROADBAND SPEEDS IN SCHOOLS

The Commission seeks comment on how to improve its analysis concerning broadband availability at elementary and secondary schools.²² Congress emphasized that the Commission must not only encourage deployment generally but “in particular” in “elementary schools and classrooms.”²³ Boston congratulates the Commission on its recent action to make available funding for inside wired and wireless connections in the schools. As Boston stated in that proceeding, the emphasis needs to be on connecting users, not buildings.²⁴ We think that the Commission’s decision will lead to an increased number of users gaining access to high-speed broadband. The Commission should now take steps to ensure that schools benefit from updated benchmarks, including upload and download speeds. The speed of services to libraries and schools is so important to the City that it is engaged in an RFP process and expects to invest more than \$10 million to provide fiber-based broadband to Boston schools.²⁵

²² Notice at ¶ 36.

²³ 47 U.S.C. § 1302(a).

²⁴ Comments of the City of Boston, Massachusetts, WC Docket No. 13-184, at 5 (Sept. 16, 2013); Reply Comments of the City of Boston, Massachusetts, WC Docket No. 13-184, at 3-4 (Nov. 7, 2013).

²⁵ On July 16, 2014 The City of Boston’s Department of Innovation and Technology (DoIT) released a Request for Information (RFI) on **Expansion of Boston Fiber Network**, and solicited comments to help the City determine the interest of fiber and wireless network providers to partner with the City on a \$10 million expansion of its fiber backbone network infrastructure, a project that will vastly expand broadband connectivity to the City’s public schools and public safety sites. A copy of the RFI for the Boston Fiber Network Expansion for Schools and Public Safety is available on the city procurement portal at: <http://www.cityofboston.gov/procurement/events/>

VII. CONCLUSION

The City supports the Commission's efforts to update its broadband benchmarks, and to encourage broadband deployment. The Commission should increase the minimum broadband downstream speed requirement to at least 10 Mbps and establish for periodic review and comment on this standard..

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