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

In the Matter of	)	GN Docket No. 09-51
A National Broadband Plan for Our Future	)	

COMMENTS OF BROADBANDCENSUS.COM

IN RESPONSE TO THE NOTICE OF INQUIRY

BroadbandCensus.com respectfully submits these comments in response to the Notice of Inquiry ("NOI")[1], released April 8, 2009, in the above-captioned proceeding of the Federal Communications Commission ("Commission").

Following some introductory remarks, noted as Section I, these comments are organized as follows: Section II, about the origin and mission of BroadbandCensus.com; Section III, about why basic broadband data is not proprietary information and should not be considered confidential; Section IV, about why any data provided by broadband carriers must also be independently verified by internet users, and why carrier identification is essential to promoting the adoption and use of broadband services; and a conclusion in Section V.

I. INTRODUCTION: THE IMPORTANCE OF BROADBAND DATA AND PUBLIC DISPLAY

[1] In the Matter of A National Broadband Plan for Our Future, FCC 09-31, April 8, 2009.

Many commentators have noted that a broadband connection is no longer a luxury. More and more Americans depend on high-speed internet service for education, commerce and entertainment. Broadband is the gateway to the information superhighway. Without broadband, it is almost impossible to take advantage of the Internet. Websites have evolved into flash-driven endeavors. No one wants to wait half an hour to see the day's weather on a dial-up connection. All parties acknowledge that sound broadband data is essential to understand the competitive landscape and use of broadband. Good-quality data – data that is transparent and freely accessible – must be the foundation of any successful national broadband strategy.

"Mapping is the essential first step because it helps policymakers, industry, and the public identify gaps in broadband penetration," writes the Chamber of Commerce.[2] Without an advanced database about broadband, the Commission "risks launching an effort that is not cost-effective."[3] A detailed and granular map will be the foundation of "[s]ound policymaking."[4]

BroadbandCensus.com agrees that detailed and granular dataset must be the foundation of the national broadband plan. Currently, the Commission releases data semi-annually from its Form 477 database, currently conducted at the ZIP code level.

As the Commission notes:

> We note that the Commission recently revised its Form 477 collection of data regarding broadband subscribership. In particular, the Commission is beginning to collect broadband subscribership data at the Census Tract level, including data on the number of subscribers using different technologies, and at various upload and download speeds. We seek comment on how the Commission can use these data to report on the status of broadband deployment, including any benefits and limitations inherent in these data.[5]

[2] Chamber of Commerce Comments at 6. FCC Docket GC 09-51.
[3] The AdHoc Telecommunications Users Committee Comments at 7-8. FCC Docket GC 09-51.
[4] Telecommunications Industry Association Comments at 14. FCC Docket GC 09-51.
[5] In the Matter of a National Broadband Plan for Our Future, FCC 09-31, para. 61.

As the Commission further notes:

> We also seek comment on how additional measures, such as broadband availability data and mapping, would help the Commission to accurately assess the status of broadband deployment. For example, does measurement by Census Tract adequately capture deployment on tribal lands, or in rural areas? Also with regard to availability, to what extent have local exchange carriers comprehensively inventoried their loop plant to the service address level to know whether their lines are capable of providing acceptable DSL service? Likewise, we seek comment on other types of data, including pricing data that could further assist the Commission in reporting to the public on the availability of broadband services. Further, we seek comment on whether the Commission should collect data on broadband use supported through universal service programs. If so, how should these data be collected and used? How would the availability of additional data improve efforts to accomplish our broadband goals?[6]

BroadbandCensus.com is designed to serve three constituencies: policymakers, internet consumers, and broadband carriers focused on customer satisfaction. In the long term, we believe that the interests of carriers are aligned with those of their customers and their potential customers.

Unfortunately, the Commission's June 2008 order[7] revising its Form 477 was inadequate to help policy-makers, consumers, or broadband carriers. This is so for two reasons. First, the Census Tract unit is only marginally smaller than the average ZIP codes. In fact, it can be significantly larger within rural areas. Second, the FCC has done nothing to facilitate consumers' access to knowledge about broadband providers.

First, with regard to the new information that will be required on Form 477 beginning with the data collection beginning on March 2009,[8] the Commission has required broadband service providers to include information about the Census Tracts in which they offer service, and the technology types

[6] *Id.*
[7] *See* Development of Nationwide Broadband Data to Evaluate Reasonable and Timely Deployment of Advanced Services to All Americans, Improvement of Wireless Broadband Subscribership Data, and Development of Data on Interconnected Voice over Internet Protocol (VoIP Subscribership), *Report and Order*, 23 FCC Rcd 9691 (2008).
[8] In re: Development of Nationwide Broadband Data to Evaluate Reasonable and Timely Deployment of Advanced Services to All Americans, Improvement of Wireless Broadband Subscribership Data, and Development of Data on Interconnected Voice over Internet Protocol (VoIP) Subscribership, WC Docket No. 07-38, Report and Order and Further Notice of Proposed Rulemaking, FCC 08-89 (June 12, 2008) ("Further Notice"). ¶ 14.

deployed within each Census Tract, as they were previously required to do at the ZIP code level. The size of an average Census Tract is not extraordinarily different from the size of the average ZIP code. There are an estimated 41,000 ZIP codes in the United States, with about 10,000 of these non-spatial ZIP codes.[9] There are an estimated 61,000 Census Tracts in the United States.[10] That compares to approximately 200,000 Census Block Groups,[11] approximately 8 million Census Blocks[12] and approximately 30 million ZIP+4 codes.[13] The Commission also proposes to collect speed information.[14]

Second, even after the changes, the Commission still has not released basic public information about where broadband providers operate. The Commission continues to publicly release large amounts of data about cable, television and radio companies that serve their communities, but has failed to follow the same course for broadband, even though broadband is of far greater consequence.[15]

Fortunately, there exist two opportunities to rectify this situation. First, the Commission may decide that the creation of a comprehensive national broadband policy warrants the release of Form 477 data. Just as the establishment of the interstate highway systems required the development of a sophisticated set of consumer road maps, a national policy promoting broadband infrastructure might likewise require more detailed consumer "road maps" of broadband internet options. Second, whether or not the Commission decides to take an open and transparent approach with regard to carrier-provided data, the agency should encourage other private sector entities, other government agencies, and could itself begin to collect and publish information about the specific locations (at a Census Block or household level), the actual speeds,

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[9] *See* Ex Parte Filing of Eric N. Einhorn, Windstream, to Marlene H. Dorch, Secretary, FCC, WC Docket No. 07-38, at 2, filed March 11, 2008 ("Windstream Ex Parte").
[10] *Id.*
[11] Wikipedia, "Census Block Group," http://en.wikipedia.org/wiki/Census_block_group.
[12] Wikipedia, "Census Block," http://en.wikipedia.org/wiki/Census_block.
[13] *See* notes 11 and 12, *supra*.
[14] In the view of BroadbandCensus.com, a speed test divorced from the carrier that offered the connection has little meaning.
[15] http://broadbandcensus.com/2008/06/broadbandcensuscom-issues-statement-criticizing-fcc-ruling-on-broadband-data

and the prices at which specific broadband providers offer high-speed internet service. Both of these approaches – the carrier-focused approach in Section III and the consumer-focused approach Section IV – will be considered within this comment.

We urge the Commission not to stop its broadband data collection efforts with the metrics of *availability* at the *Census Tract level*. As others have suggested, the map must be more granular, and contain more data, such as "cost of service, infrastructure deployment... and take rates."[16] Efforts at broadband data collection and display need to take place at the household or Census Block level. This is important since blocks are "more closely related to the number of people in the unit than other geographic factors."[17]

The locations that broadband carriers serve must be publicly identified if the resulting map is to have utility for promoting broadband adoption and use within a national broadband strategy. Whether or not the Commission is able or willing to make such data freely available based on the Form 477 data, however, BroadbandCensus.com believes that carrier-supplied data must be cross-checked against a multiplicity of sources that are independent of broadband carriers. Hence the need for granularity, for carrier specificity, and for public and freely available datasets. A National Broadband Plan must be accompanied by a National Broadband Mashup.

II. WHAT IS BROADBANDCENSUS.COM?

BroadbandCensus.com is an independent provider of news, information and events about broadband technology and internet policy. You can read more about us and our team at http://BroadbandCensus.com/about-us.

[16] National Tribal Telecommunications Association Comments at 7. FCC Docket GC 09-51.
[17] National States Geographic Information Council Comments at 4. FCC Docket GC 09-51.

BroadbandCensus.com is produced by Broadband Census LLC, a Limited Liability Company organized in the Commonwealth of Virginia in December 2007. A for-profit company, Broadband Census LLC is dedicated to providing independent reporting, insightful analysis, objective data and enlightening events about the role and status of broadband in the economy and in society. Drew Clark, Editor and Executive Director of BroadbandCensus.com, is the sole member of Broadband Census LLC.

BroadbandCensus.com is at the forefront of understanding and explaining the implementation of the $7.2 billion broadband stimulus package on the federal, state and local level. In March 2009, the company launched BroadbandCensus.com Weekly Report, a subscription-based weekly newsletter, and BroadbandCensus.com continues to offer a FREE daily e-mail alert. BroadbandCensus.com has posted more than 360 news stories and other items on its web site. All of the news and information on the BroadbandCensus.com web site is made available under a Creative Commons Attribution Noncommercial License. More about the purpose of the Creative Commons license will be explained in Section IV.

In its reporting, BroadbandCensus.com builds upon its foundation of data-driven journalism. Since January 2008, BroadbandCensus.com has offered a public, transparent and freely accessible database of local broadband speeds, prices, availability, reliability and competition. BroadbandCensus.com believes that this basic broadband data should be extremely granular and publicly available.

BroadbandCensus.com calls this focus the Broadband SPARC: Speeds, Prices, Availability, Reliability and Competition. The combination of elements within a particular geographic entity creates a local Broadband SPARC Score. The Broadband SPARC, the Broadband SPARC Score, and more information about these elements will be discussed in Section IV of these comments.

BroadbandCensus.com is also responsible for organizing and hosting the Broadband Breakfast Club, an on-the-record discussion forum that meets at Clyde's of Gallery Place on the second Tuesday of each month, from 8 a.m. to 10 a.m., except for the month of August.[18] A wide range of industry, non-profit and governmental officials have spoken at the Broadband Breakfast Club, including House Energy and Commerce Communications Subcommittee Chairman Rick Boucher, D-Va.; Karen Jackson, Office of Telework Promotion and Broadband Assistance, Commonwealth of Virginia; D.C. Public Service Commission Chairman Betty Anne Kane, Sue A. Suleski, Technology Investment Specialist and Program Manager for the Pennsylvania Broadband Initiative, and many others.[19] Archives of previous Broadband Breakfast Club events are available for purchase.[20]

As part of BroadbandCensus.com's efforts to survey the state of broadband data and broadband deployment, BroadbandCensus.com last summer launched a series of articles, "Broadband Census in the States."[21] Additionally, BroadbandCensus.com organized a conference, "Broadband Census for America," on September 26, 2008. Called the "Broadband Census for America" conference and co-sponsored by BroadbandCensus.com, Carnegie Mellon University, University of Texas and Austin, and Virginia Tech, the event brought together a wide degree of academic, governmental and industry stake-holders on the subject of broadband data collection and analysis.[22]

More recently, BroadbandCensus.com has co-produced two broadband stimulus town hall webcasts in conjunction with our video partner, TV Worldwide. The first, on April 3, 2009, took place in Boston, Mass. The second, on June 4, 2009, took place outside Washington, D.C. A third, a broadband stimulus

[18] Registration and sponsorship information is available at http://breakfastclub.eventbrite.com.
[19] http://broadbandcensus.com/2009/01/webcasts-of-broadband-breakfast-club-now-available-online
[20] http://www.tvmainstream.com/series/bbclub
[21] http://broadbandcensus.com/category/states
[22] http://broadbandcensus.com/conference

workshop after the release of federal funding rules, is scheduled for Thursday, July 9, 2009, from 2 p.m. to 4:30 p.m. ET.

In addition to speaking widely and moderating panel discussions on a range of broadband and technology policy matters (including the summit on broadband data hosted by the Commission and the National Association of Regulatory Utility Commissioners[23]), BroadbandCensus.com Editor and Executive Director Drew Clark also serves as co-chairman of the U.S. Broadband Coalition's Metrics Working Group.[24] He co-chairs the working group with Robert Atkinson, President of the Information Technology and Innovation Foundation. As such, Clark has been engaged in an array of conversations and dialogues concerned the most important metrics to be considered as part of data-driven broadband policy within the United States. The views and observations contained within this comment are the opinion of BroadbandCensus.com, and not that of the U.S. Broadband Coalition, nor of its Metrics Working Group.

An important additional note: As a news organization, BroadbandCensus.com takes no position on substantive telecommunications policy controversies. We have no stake in the issues or outcomes concerning such matters as network neutrality, universal service, video franchising, or media and spectrum concentration, for example. BroadbandCensus.com does, however, firmly believe in the value of transparency, both as a means to oversee the government, and to provide consumers with recourse vis-à-vis their broadband carriers. As with other journalistic entities, such as the Associated Press (which often seeks to obtain the release of government information under the Freedom of Information Act), BroadbandCensus.com believes that the public is served by the greatest possible disclosure. For this reason, we offer these comments for your consideration.

[23] http://broadbandcensus.com/2008/11/broadband-census-executive-director-to-speak-at-federal-communications-commission-summit/
[24] http://bb4us.net/id19.html

III. THE PUBLIC IS SERVED BY PUBLIC DISCLOSURE OF CARRIER BROADBAND DATA

There are two basic sources from which to collect broadband data. One can collect data from broadband providers directly, or from government entities that obtain it directly from the providers. Alternatively, one can collect data from broadband consumers. We call this later approach – collecting information from users – "crowdsourcing" broadband data. Crowdsourcing can be done either by inviting citizens to a website, like BroadbandCensus.com, to participate in a series of questions about their broadband service and take a speed test collecting actual broadband connection information. Alternatively, consumers and internet users may be polled directly over the telephone, or in person. There are pros and cons to both the provider-focused and the consumer-focused approach to broadband data collection.

Broadband Census' crowdsourcing approach is a natural extension of the ability of individuals to collaborate about the Internet by using the Internet. One of the most important functions of the Internet is to cast sunlight upon the operations of government and other entities. BroadbandCensus.com is an exercise this: bringing disparate individuals together to engage online in a common purpose. That purpose is to learn and share information about their internet options.

Understanding the availability of broadband within a particular ZIP code, Census Block or household address is one important purpose for this information-sharing. But there are other vitally important purposes, too: understanding competition in the broadband marketplace, understanding the speeds and service quality of broadband providers, and understanding and comparing internet prices. In the realm of broadband policy, attention is increasingly focusing not only on broadband penetration, but on available speeds, bandwidth caps, and cost per Megabit or Gigabit of data.[25]

[25] *See also* Comments of BroadbandCensus.com in Response to the Future Notice of Proposed Rulemaking, Development of Nationwide Broadband Data to Evaluate Reasonable and Timely Deployment of Advanced Services to All Americans, Improvement of Wireless Broadband Subscribership Data, and Development of Data on Interconnected Voice over Internet Protocol (VoIP) Subscribership, WC Docket No. 07-38, (July 17, 2008), at 3-5.

To achieve this goal, BroadbandCensus.com created a census-type methodology that allows the consumer to enter their ZIP+4 codes, identify their carriers and the type of broadband that they receive, rate their services, and conduct a free broadband speed test. Doing so enables them to compare their actual internet speed against what is promised by their broadband carrier.[26] Consumers are also invited to make comments, which are posted on the web site of BroadbandCensus.com, about the service quality of their broadband provider.

BroadbandCensus.com collects data from other sources, too.[27] For example, the limited information that the Commission releases from its Form 477, and on the Commission's web page, "Local Telephone Competition and Broadband Deployment," is incorporated into BroadbandCensus.com.[28] Additionally, BroadbandCensus.com utilizes other publicly-available sources of information, both from private sector entities and from states and local government, to supplement the Commission's data. For example, BroadbandCensus.com and the National Association of Telecommunications Officers and Advisors have developed an online system allowing NATOA members to record detailed information about local broadband deployment for the the public to view. This information is vital to transparent, competitive and universally accessible internet.[29] BroadbandCensus.com also uses publicly available information from a variety of state governments. Finally, dozens of carriers have "opted in" to the Broadband Census, and voluntarily provide information about the areas, speeds and technologies in which they offer service to BroadbandCensus.com.

[26] BroadbandCensus.com currently uses the Network Diagnostic Tool (NDT), open-source software under active development by the research consortium Internet2, as our beta speed test. Different speed tests yield different results, and BroadbandCensus.com seeks the maximum possible disclosure about the methodologies deployed in the use of internet speed tests.
[27] See http://broadbandcensus.com/home/datapolicy
[28] See http://www.fcc.gov/wcb/iatd/comp.html
[29] See http://broadbandcensus.com/2008/07/broadbandcensuscom-partners-with-national-association-of-telecommunications-officers-and-advisors

In order for the federal government to have an effective policy with regard to broadband data, it needs to know with a high degree of specificity who is providing broadband now, what technologies are being employed and at what speeds.[30]

Why is information about speeds, prices, reliability and competitors necessary? Why do we need any more information than simply the presence or absence of broadband in a particular area?

The definition of broadband is going to be constantly changing. The Commission raised the standard for its definition of broadband, from 200 Kilobits per second (Kbps) in one direction to 768 Kbps in one direction, in June 2008. That will not be its last readjustment. In a few years – indeed, if not now – 768 Kbps is already creakingly slow.

We are entering a phase in broadband deployment in this nation in which there will be a high variability of speeds throughout the United States over the next several years. Speeds and quality will depend upon the carriers and the types of technologies (fiber, co-axial, DSL, fixed wireless, mobile wireless) that they deploy.

Because of this variability, it is essential that the United States measure speeds and technologies deployed in both a comprehensive and a granular fashion merely to understand the state of this country's broadband. This must be done in order to fairly compare the United States to other nations, or to compare one state to another, or one city to another, or one neighborhood to another.

[30] See http://bits.blogs.nytimes.com/2009/02/11/why-spend-350-million-to-map-broadband

But there are additional reasons to track price, quality and customer service. These additional ingredients become essential in order to provide vital information about the applications that will be deployed by the users of broadband – be they government, business or consumers.

The only way to intelligibly and verifiably coordinate all of these essential points of data – speed, price, reliability, quality – is by identifying the carrier at issue, the locations in which they serve, the speeds at which they offer service, and the quality rating that consumers give to their broadband service provider.

One attempt to obtain data from carriers under the Freedom of Information Act was undertaken in August 2006 by the Center for Public Integrity.[31] The goal was to obtain basic broadband data for the public, including citizen-consumers, businesses, and local policy-makers.[32] At the time, the Form 477 database including the name of the carrier and type of broadband technology deployed within a particular ZIP code.

The Center for Public Integrity had obtained and displayed similar location information about broadcasters and cable operators from the Commission. Even though every consumer who buys broadband knows the name of the company that provides him or her with service, the telecom companies argued that compiling this information into a single location would reveal "proprietary" data. Under the previous chairman, the Commission agreed. The Commission argued that releasing the data would lead to competition in communications—which was why it couldn't release the data! "Disclosure could allow competitors to free ride on the efforts of the first new entrant to identify areas where competition is more likely to be successful," the agency told the federal district court in Washington.[33]

[31] Drew Clark, "U.S. Broadband Infrastructure Investments Need Transparency," Ars Technica, February 9, 2009, at http://arstechnica.com/tech-policy/news/2009/02/infrastructure-investment-decisions-need-transparency.ars.
[32] http://projects.publicintegrity.org/telecom/report.aspx?aid=886
[33] http://projects.publicintegrity.org/docs/telecom/telecomfoia/35-0_FCC%27sOpptoXMot.pdf

Judge Ellen Segal Huvelle in the federal district court in Washington sided with the Commission and the incumbents, ruling in *Center for Public Integrity v. FCC* on August 27, 2007, [34] and again on October 18, 2007. [35] The Center did not appeal the decision.

In the Center's case, the Court held for the Commission on two grounds: first, if publicly available, a competitor could analyze a ZIP code over time to "reveal significant information about a filer's business strategy. This data would show where customers had been acquired or lost and could provide information about a company's marketing strategy and overall financial health,"[36] and, second, making such data publicly available "would alert competitors already servicing particular markets to new entrants and could help other competitors identify areas where competition is more likely to be successful."[37]

It is not clear how the prior Commission's refusal to disclose basic broadband data under a Freedom of Information Act request would fare in light of the Obama administration's new policy shifting the burden of proof to grant FOIA requests. It seems nonsensical to hold that government-held data about a publicly known fact – the fact that a particular carrier offers broadband, to a particular address, at a particular speed and price – could be considered either proprietary, confidential, or likely to cause competitive harm. This is particularly so when an individual may go to a variety of web sites, enter in an address, and obtain information about the carriers, speeds, and prices at which broadband is offered to them. Further troubling was the D.C. District Court's holding that such an action would create *too much* facilities-based competition, given that such competition was the key goal of telecommunications policy since the 1996 Telecommunications Act.[38]

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[34] http://projects.publicintegrity.org/about/release.aspx?aid=115
[35] Center For Public Integrity v. F.C.C., 505 F.Supp.2d 106 (D.D.C. August 27, 2007), *aff'd* 515 F.Supp.2d 167 (D.D.C. October 17, 2007).
[36] Center For Public Integrity v. F.C.C., 515 F.Supp.2d 167 at 169.
[37] *Id.*
[38] *See Generally*, Telecommunications Act of 1996, Pub. L. No. 104-104, 110 Stat. 56 (1996 Act) (amending the Communications Act of 1934).

Art Brodsky, Communications Director of the non-profit group Public Knowledge, explained the nature of the problem at the March 23 Broadband Mapping Roundtable of the National Telecommunications and Information Administration and the Rural Utilities Service:

> "Carriers... have cloaked their data submissions in existing mapping projects in the veils of proprietary and confidential information. It's not information on future business plans, upgrades or deployments being sought. Around the country, states want to know what is in the ground now. How fast it is, and how much it costs."[39]

BroadbandCensus.com believes that one of the most useful steps that the Commission can undertake to provide information to various federal, state and private broadband initiatives is to publicly release the information that it currently collects on the existing Form 477, and that is currently being collected on the revisions to Form 477. If this data were to be made public, it could be redeployed and repurposed for use by a range of public and private organizations, including the various state-level and federal-level bodies currently seeking to implement broadband policies.

Further, if the Commission were to decide to collect address-by-address broadband information – because, under this hypothetica, the Commission felt that a public purpose were to be served by its collection – BroadbandCensus.com would respectfully request that the Commission also make this data publicly available. As with information about the location of broadband service by ZIP code (and by Census Tract), the technology types deployed within the carriers' respective service areas and the carriers' promised upload and download speeds are publicly discoverable on an address-by-address basis. Because of the virtues of crowdsourcing, all of this information will be far more valuable to individual internet users than it will be to the Commission alone. We therefore urge the public disclosure of all such broadband information.

[39] Testimony of Art Brodsky, NTIA/RUS Roundtable on Broadband Mapping. March 23, 2009. *See* http://www.publicknowledge.org/pdf/abrodsky-statement-20090323.pdf

IV. AN ALTERNATIVE APPROACH: A CONSUMER-FOCUSED APPROACH TO COLLECTING AND PUBLISHING BROADBAND DATA

Even if the Commission were unable or unwilling to release publicly discoverable information about broadband providers, an alternative approach exists.[40] This approach is built around BroadbandCensus.com's notion of the Broadband SPARC: Speeds, Prices, Availability and Adoption, Reliability and Competition.

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[40] Consider this exchange, at "Implementing the Broadband Stimulus: Maximizing Benefits and Monitoring Performance," The Columbia Institute for Tele-Information, Columbia Business School, and the Georgetown Center for Business & Public Policy, McDonough School of Business, February 19, 2009, National Press Club.

> *Drew Clark, Executive Director, BroadbandCensus.com:*
> My name is Drew Clark, with BroadbandCensus.com. I have been trying to get data about broadband for some years now, and BroadbandCensus.com is collecting and publicly making available information about broadband speeds, prices, availability, reliability and competition.
>
> My question for Blair and Jessica concerns: Right now, and for perhaps the next short period of time, the carriers insist that the information about where they offer service on a ZIP code and ZIP+4 level information is confidential and proprietary information. I don't think that makes sense, but be that what it may.
>
> There are then two approaches to go about broadband mapping, one is to buy into the carriers' argument, sign non-disclosure agreements with them, and get a map that has availability, but it doesn't have information about speeds, prices, competition, etc.
>
> The other way is to put some resources behind an effort to crowdsource, or to get questionnaires, or to get some third party independent source collecting information, aggregating it, so that you do have those other elements in the mix.
>
> Could each of you comment on the relative merits of the confidentiality approach, versus the crowdsourcing, independent approach?
>
> *Jessica Rosenworscel, Senior Communications Counsel, Senate Commerce Committee:*
> I don't think that all of these methods should be mutually exclusive. I think we are in an environment now where we have an especially sharp broadband challenge, because we have had such poor data, both at the aggregated government level, and as private citizens, we have so little information from which to comparison shop, because we have had the luxury of having multiple providers.
>
> So I think under the circumstances, we should be pursuing every avenue we can to improve our data because I think, in the end, that is the single thing that is guaranteed to improve our public policy.
>
> *Blair Levin, Managing Director, Stifel Nicolaus:*
> I agree.

BroadbandCensus.com was started in January 2008 with some modest seed funding from the Pew Internet and American Life Project and from the Benton Foundation. BroadbandCensus.com went live on January 31, 2008, with its broadband census form.[41] The questions in the "Take the Broadband Census" are: (1) Where are you taking the Census, (2) What is your ZIP code, (3) Which carrier do you use? (we require individuals to select from a drop-down menu, rather than a free form box, to ensure standardization), (4) What type of service?, (5) What are your promised speeds, (6) How do you rate the service? (on a scale of 1-5 stars), and (7) Comments?

Home users are required to pick select from among the carriers; office and university users are not. Everyone taking the Broadband Census is required to include their ZIP code, or their ZIP+4 code, and to rate the service quality of their connection.

Very soon after the Take the Broadband Census page was launched, BroadbandCensus.com launched its Speed Test in February 2008. We use the open-source NDT test, or the Network Diagnostic Tool, developed by Internet2. It was also used previously by Virginia Tech's eCorridors Program, which pioneered this "bottom-up" approach to broadband information collection and also collects user-generated speed data using NDT. Both Internet2 and Virginia Tech have been key technical supporters of BroadbandCensus.com.

BroadbandCensus.com does not host any NDT servers. Rather, we direct our traffic to between four and eight public NDT servers around the country. The modifications that we made to the NDT code-base allow BroadbandCensus.com to collect and publish data, on BroadbandCensus.com, even though the data and speed test results are obtained from the network of NDT servers around the country. Using the programming language Java, the applet we deploy harvests the results of the NDT test, copies those

[41] See http://broadbandcensus.com/census/form

results to BroadbandCensus.com, and publicly displays the results of the upstream and downstream speeds. We have plans to expand the number of NDT servers that we utilize, as it becomes necessary.

BroadbandCensus.com is made available under a Creative Commons Attribution-Noncommercial License. That means that all the contents of the site are available, for free, for all to view, copy, redistribute and reuse, provided that attribution is made to BroadbandCensus.com, and that such use is done for non-commercial purposes. This is more than just legalese. It means that government agencies – federal, state and local – as well as university researchers can benefit from our platform showcasing publicly available broadband data. State, county and regional development agencies, for example, may republish our data-sets – free of charge – on their own websites, providing that they attribute them to BroadbandCensus.com.

The combination of the Broadband Census questionnaire and the NDT speed test allows important observations to be realized. Are users getting the speeds that they are promised? Is there a correlation between promised and delivered speeds, and the rankings that consumers give to their service quality? Which carriers are the fastest, and are they faster in some parts of the country than in others?

Obviously, the value of the analysis will depend upon both the quantity and quality of the observations. BroadbandCensus.com made an interim report about the progress and use of the NDT speed test in July 2008 at the Joint Techs Conference in Lincoln, Neb.[42]

In addition to collecting data about speed, price and competition, the public and transparent crowdsourcing approach to collecting broadband data enjoys several additional benefits. The

[42] See http://broadbandcensus.com/blog/2008/07/broadbandcensuscom%E2%80%99s-experience-using-the-network-diagnostic-tool-as-a-beta-speed-test

BroadbandCensus SPARC Score is a metric evaluating the Speeds, Prices, Availability, Reliability and Competition within any particular geography. The Broadband SPARC Score becomes a tool for comparing broadband deployment between states, between counties, between cities, between ZIP codes, or between even finer degrees of geography. The Broadband SPARC Score allows public and private entities seeking to utilize federal broadband stimulus funds to compare the state of their geographies – and the impact that their stimulus-funded efforts have on broadband. Does a particular Census Block, Census Block Group, or Census Tract have a low Broadband SPARC Score before stimulus funding? Measuring the SPARC Score after the deployment of new stimulus funding – either for broadband networks ("supply side") or for broadband applications and education campaigns ("demand side") – would tangible, quantitative evidence of an impact for the government's broadband investments.

Think of broadband data in two dimensions: geographic and topical.

Geographic Units:

National
State
County
City
ZIP
Census Tract
Census Block Group
Census Block
ZIP+4
Household

Data Elements (Broadband SPARC):

Speed
- Promised
- Delivered
- Capacity (e.g. fiber, cable modem, DSL)

Price
Availability & **A**doption
Reliability
- Quality
- Usage

Competition

Knowing whether "broadband," in the abstract, is available is of little use in assessing whether a geographic unit is truly served, or underserved. To get a complete picture of this information, applicants for federal broadband stimulus funds must understand the speeds, prices, reliability and competitive state of broadband. A 100 Megabit per second (100 Mbps) fiber-optic connection is qualitatively different from a boosted cable modem service (around 8 Mbps), which is different from convention DSL service (around 1.5 Mbps), which differs from mobile wireless services, of around 500-700 Kilobits per second (Kbps).

It is essential for entities seeking to apply for broadband stimulus dollars to collect broadband data in both dimensions – geographic, as well as the Broadband SPARC. BroadbandCensus.com is collecting data about the Broadband SPARC on the Census Block level. This provides a barometer of the social and economic case necessary for better broadband within the region. We are actively engaged in projects to do this with a variety of players – non-profit, governmental, university and for-profit.

The advantage of the consumer-focused approach to collecting and publishing broadband data is that it allows the consumer information from the Broadband Census to be incorporated into a publicly available repository of information – into which carrier information may also be added. The interactive map generated by the publicly-available data will be layered in all of its dimensions: Speed (including broadband technology, like DSL, cable, wireless), Price, Availability, Reliability, Competition (including individual carriers). Consumers will be able to click on and click off those variables most pertinent to their situation. Equally significant is that carriers will have the opportunity to "opt-in" to the public display of data about the areas in which they provide broadband service, as well as to their promised speeds and prices. Because the consumer data on BroadbandCensus.com is constantly being updated through individual broadband census entries and through individual speed tests, the "map" generated by the underlying data will likewise be constantly refreshed.

Additionally, the public, transparent and transcendent display broadband data becomes an open-source vehicle and a "wiki" for individual and community interaction around local broadband options. New data-sets about new opportunities for utilizing broadband – for example, the availability of television white spaces within a particular region – can easily be layered on top of this public information repository.

Most fundamentally and crucially, one cannot conduct a consumer data-collection effort without making information about broadband carriers central to the data-collection operation. Once the information is collected from consumers about their carriers, there is no legitimate purpose served by "scrubbing" or "deleting" such data from the public dataset. In all likelihood, broadband carriers will voluntarily choose to participate in such an effort, particularly if it is supported by the Commission. In all likelihood, broadband providers will not want to be left out of the Broadband Census, just as they did not want to be left off the map in Ireland.

V. CONCLUSION

Other countries, particularly Ireland[43], have built a very consumer-friendly portal to broadband competition, including the names of broadband providers, their contact information, their promised Internet speeds and the latency of their Internet connections. This is the “Broadband Information” web site of the Department of Communications, Energy and Natural Resources of the Government of Ireland.

Eamonn Confrey, the First Secretary for Information and Communications Policy at the Embassy of Ireland, discussed Ireland’s experience in building this site as the keynote speaker at the “Broadband Census for America” conference in September 2008.[44] These efforts to collect data on broadband service in Ireland through a comprehensive web site with availability, pricing and speed data about carriers is an example to which the Federal Communications Commission should look.

BroadbandCensus.com adds to the Irish model with the ability for users to conduct actual speed tests, and to offer comments and ratings of broadband providers, including the ability to see how their particular broadband provider stacks up against others within their ZIP code. The Irish government web site also

[43] *See* http://broadband.gov.ie
[44] *See* http://broadbandcensus.com/conference

includes a listing, in Ireland, of all available broadband services, promised download and upload speeds, contention ratios, and monthly subscription fees. The site includes a fully searchable map and includes a web site and e-mail contact for each carrier.[45]

The FCC should follow the example of other nations that have taken a public and transparent approach to broadband data. The Commission should facilitate this first by publicly releasing the Form 477 data that it currently collects from broadband providers. Whether or not the Commission agrees to do this, it should also encourage and support public efforts to conduct a comprehensive "crowdsourcing" effort that will generate detailed Broadband SPARC Scores through the United States.

Respectfully submitted,

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[45] The site notes: "Welcome to Broadband.gov.ie. This website is for information purposes only. It is intended to provide information on broadband to the general public. You will find information on what broadband is, its benefits, where it is available, and how much it costs. The information on broadband availability and pricing on this website is provided by the broadband operators. The Department compiles this information in order to enhance public awareness of broadband services."