Before the
Federal Communications Commission
Washington, DC 20554

In the Matter of	)	
	)	
Consumer Information and Disclosure	)	CG Docket No. 09-158
	)	
Truth-in-Billing and Billing Format	)	CC Docket No. 98-170
	)	
IP-Enabled Services	)	WC Docket No. 04-36
	)	

To: The Commission

MOBILE FUTURE
COMMENTS – MOBILE BROADBAND MEASUREMENT

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SUMMARY

Mobile Future appreciates the Commission's interest in helping to educate consumers to make informed decisions about their mobile broadband services. However, in considering these issues, the Commission should first identify what information consumers actually want and use. A recent survey indicates that consumer satisfaction does not require specific knowledge about speeds but is instead a function of their practical experiences. Consumers appear to care more about their ability to access the Internet, send e-mails and text-messages, stream video, and determine whether their device will work at their home, workplace, and those areas where they frequently travel.

Service providers and independent third parties have generated a wealth of information to help consumers make informed decisions. And the trend line for future development is positive. The competitive wireless marketplace appears to be working, as it should, to meet the needs of consumers. In fact, a new report from the Pew Internet & American Life Project shows that six out of ten Americans go online wirelessly, an increase of eight percentage points in just one year. Consumers are getting the information they need to help them decide whether to embrace wireless as their on-ramp to the Internet. Government entry is therefore unnecessary and may unintentionally impede the flourishing new marketplace for consumer services and tools.

The Commission should continue to encourage private sector innovation in consumer-focused applications and tools, rather than imposing regulatory mandates at this time. The Commission can best serve the public interest by using its resources to make consumers more aware of the available tools they can use to stay informed, while allowing the competitive marketplace to evolve.

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COMMENTS – MOBILE BROADBAND MEASUREMENT

Mobile Future[1] provides these comments in response to the Commission's Public Notice seeking information about efforts to measure mobile broadband network and service performance.[2] We appreciate the Commission's interest in helping to educate consumers to make informed decisions about their mobile broadband services. However, before the Commission considers any regulatory mandates, it should first answer three key questions: (1) What information do consumers really want and use? (2) Where is the marketplace failing to supply that data? and (3) What is the best and most efficient way to fill any gaps in data?

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[1] Mobile Future is a broad-based coalition of businesses, non-profit organizations and individuals interested in and dedicated to advocating for an environment in which innovations in wireless technology and services are enabled and encouraged. Members include the Asian Business Association, AT&T, National Association of Neighborhoods, National Black Chamber of Commerce, T-Mobile, and the United States Hispanic Chamber of Commerce. Our mission is to educate the public and key decision makers on innovations in the wireless industry that have transformed the way Americans work and play and to promote continued investment in wireless technologies.

[2] FCC Public Notice, "Comment Sought on Measurement of Mobile Broadband Network Performance and Coverage," DA 10-988 (rel. June 1, 2010) ("Public Notice").

The U.S. wireless sector is highly competitive, and consumers increasingly enjoy a wealth of information from diverse sources to help them make informed decisions. Moreover, competition in the sector continues to drive the development of consumer-friendly tools to meet the information needs of consumers. Consequently, the Commission can best use its resources to help educate consumers on the tools, applications, and services increasingly available in the marketplace rather than impose specific requirements on wireless providers.

I. WHAT INFORMATION DO CONSUMERS REALLY WANT AND USE?

In considering mobile broadband measurement issues, the Commission should first identify what information consumers actually want and use. Recently, the Commission released data from a survey studying the consumer broadband experience for home and mobile devices.[3] The survey showed that while an overwhelming 91 percent of Americans are at least somewhat satisfied with their broadband speed, 80 percent do not know the speed of their home broadband connection.[4] The findings indicate that consumer satisfaction does not necessarily require specific knowledge about speeds but is instead a function of practical consumer experiences. Indeed some have

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[3] *See* John Horrigan and Ellen Satterwhite, "Americans' Perspectives on Online Connection Speeds for Home and Mobile Devices," Summary of Findings (rel. June 1, 2010) at 1, http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-298524A1.pdf.

[4] *Id.* The same FCC-commissioned survey showed that 71 percent of cell phone users were very or somewhat satisfied with the speed of accessing the Internet from their handset device with women, African Americans, and Hispanics showing greater levels of satisfaction. *Id*. at 1, 4-5. Overall, 92 percent of cell phone users were at least somewhat satisfied with their cell phone service. *Id*. at 1.

concluded that "[m]ost Americans do not know their connections speeds because it is not of any interest to them."[5]

Once the Commission learns what information consumers want and use, it can then determine whether there is a failure in the marketplace for consumer information. As discussed below, a growing number of third party applications and services are supplying a variety of information in response to consumer demand. These services focus on the ease of accessing the Internet, sending e-mails and text-messages, streaming video, and on simply whether a device will work at and end user's home, workplace, and frequently travelled areas. Based on the results of the Commission's recent survey on consumer broadband satisfaction, the private sector appears to be providing the information that matters most to the large majority of Americans. For those consumers wanting more detailed information on network performance, a growing number of application tools are also available.[6] The competitive wireless marketplace is working, as it should, to meet the informational needs of consumers. These overall points are bolstered by a new report showing continued growth in the use of mobile broadband with

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[5] Douglas A. McIntyre, "Americans Don't Know Their Broadband Speeds And May Not Care," 24/7 WALL ST. (June 2, 2010), http://247wallst.com/2010/06/02/americans-dont-know-their-broadband-speeds-and-may-not-care/; Geoff Duncan, "FCC: 80 Pct of Americans Don't Know their Broadband Speed," DIGITAL TRENDS (June 3, 2010) ("If the results of the survey are any indicators, consumers don't really seem to care."), http://www.digitaltrends.com/computing/fcc-80-pct-of-americans-dont-know-their-broadband-speed/; Amar Toor, "One in Five Americans Know How Fast Their Broadband Is, With Women Most Clueless," SWITCHED (June 2, 2010) ("Most of us probably don't care to know the precise speed of our Internet; we just want it to work, and to work well."), http://www.switched.com/2010/06/02/one-in-five-americans-know-how-fast-their-broadband-is-with-wom?icid=sphere_blogsmith_inpage_engadget.

[6] As discussed in more detail herein, there are a number of application tools available to consumers allowing for the tracking of their signal strength, data transmission speeds, network connection failures and other performance indicators. *See, e.g.*, Sprint, http://www.sprint.com/landings/speedtest/?ECID=vanity:speedtest (last visited July 8, 2010) (allowing users to test their mobile broadband upload and download speeds and latency).

59 percent of Americans going online wirelessly.[7] Clearly, consumers are getting the information they need to help them decide whether to embrace wireless as their on-ramp to the Internet. Government intervention to enshrine a baseline for how companies can offer "better" and "cooler" information tools is unnecessary and potentially harmful to future development and competition.

II. LIKE MANY COMPETITIVE INDUSTRIES, THE WIRELESS MARKETPLACE APPEARS TO SUPPLY THE DATA CONSUMERS WANT.

Wireless providers and other private parties produce a wealth of data about wireless services. As an initial matter, there is substantial evidence that wireless carriers compete intensely on service quality and coverage and interact directly with existing and potential customers on a daily basis.[8] Providers have a substantial incentive to ensure users have a positive experience and are armed with the necessary information to choose their services over those of a competitor. Providers differentiate themselves by how proactively and transparently they meet the consumers' demand for information.[9]

For example, today, all major wireless carriers provide users with tools to check signal coverage to help consumers determine whether their device will work where they need to use it. T-Mobile provides a street-level Personal Coverage Check tool that allows existing and potential customers to check T-Mobile's wireless coverage and indicates

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[7] Aaron Smith, "Mobile Access 2010," Pew Internet & American Life Project (July 7, 21010) at 2-3 ("Pew Report").

[8] *See* Chris Morrison, "Sprint and T-Mobile Seek to Compete With Beefed Up Networks, Handsets," BNET (Mar. 24, 2010), http://industry.bnet.com/technology/10006405/sprint-and-t-mobile-vie-for-customers-with-beefed-up-networks-handsets/; Peter Svensson, "Verizon, AT&T Getting Snippy in Rival Wireless Ads," THE SEATTLE TIMES (Nov. 26, 2009), http://seattletimes.nwsource.com/html/businesstechnology/2010357523_attverizon26.html.

[9] *See* Comments of AT&T Inc., CG Docket No. 09-158 *et al*. (filed Oct. 13, 2009) at 5.

three differing levels of network speed – very fast mobile web, fast mobile web, and mobile web.[10] AT&T lets customers view coverage down to the neighborhood street level and provides estimates on the likelihood of coverage inside a building or a vehicle and outdoors.[11] Sprint's maps show street-level coverage with three layers for quality – best, good, and fair.[12] U.S. Cellular provides a coverage tool showing the quality of the signal that a customer can expect in a car or a building or outdoors, and Boost Mobile's coverage tool shows three layers of service.[13]

Root Wireless and CNET also have teamed up to provide consumers with independent coverage information for the four largest wireless carriers in fifteen metropolitan areas throughout the United States.[14] Five additional markets have been mapped and will soon be publicly available.[15] Launched last year, the tool (known as Root Coverage) helps consumers that are shopping for new mobile phones, or considering a change in carriers, to determine the best carrier for their particular neighborhood, commute route or workplace. The underlying coverage data is developed from a crowd-sourcing network performance application (called Root Mobile) that

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[10] *See* T-Mobile, http://www.t-mobile.com/coverage/pcc.aspx (last visited on July 5, 2010).

[11] Press Release, "AT&T Adds Two More Customer-Friendly Policies" (Oct. 16, 2007), http://www.att.com/gen/press-room?pid=4800&cdvn=news&newsarticleid=24559.

[12] The three layers of quality indicate whether calls can be made indoors, outdoors or in a car. *See* Comments of Sprint Nextel Corporation, CG Docket No. 09-158 *et al*. (filed Oct. 13, 2009) at 13. In addition, "coverage models are tested against collected data to ensure their accuracy." *Id*.

[13] *See* U.S. Cellular, http://www.uscellular.com/uscellular/common/common.jsp?path=/coverage-map/coverage-indicator.html (last visited July 5, 2010); Boost Mobile, http://www.boostmobile.com/coverage/ (last visited July 5, 2010) (indicating whether service is best, good, or fair).

[14] CNET, http://reviews.cnet.com/cell-phone-coverage-map/ (last visited July 6, 2010).

[15] Press Release, "Root Wireless Releases Network Monitoring App for Blackberry," Android SmartphonesRoot Wireless, (Mar. 22, 1010), http://www.rootwireless.com/pr/press_release/2010/03_22_2010.php.

utilizes actual smartphones to monitor the networks of providers at the neighborhood level.[16]

The Root Coverage interactive color-coded maps show signal, data, and network coverage.[17] The signal view "displays the average signal strength and number of signal bars for the selected carrier in a specified area."[18] The data view "enables users to view granular details on data connectivity performance such as 2G and 3G coverage and measured data speeds for the selected carrier and specified area."[19] By clicking on a colored hexagon sector on the map, users can find the upload and download speed for a particular carrier in that area. The network view indicates signal/dead zones, failures to establish a data connection, or areas with potential hand-off errors between phones and cell towers.[20] As more users download the underlying network monitoring application, more data can be gathered. In time, the CNET/Root Wireless mapping tool could conceivably provide consumers with coverage information for a larger number of carriers based on many of the data points being considered by the Commission for geographic areas all across the country.[21]

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[16] *Id*.

[17] CNET, http://reviews.cnet.com/cell-phone-coverage-map/?mode=voice&carrier=att&zoom=3&lon=-97.558594&lat=37.509726&maptype=map&overlay=1 (last visited July 6, 2010).

[18] *Id*.

[19] *Id.*

[20] *Id.*

[21] Additional independent web mapping tools are also being made available consumers. For example, a tool known as SignalMap is available that provides coverage information for nine wireless carriers in the United States based on user-contributed data. *See* SignalMap, http://www.signalmap.com/ (last visited July 6, 2010); *see also* Deadcellzones.com; http://www.deadcellzones.com/ (providing consumer generated coverage maps for outdoor and indoor cell phone reception problem locations for the top four largest carriers and several smaller carriers).

To further help consumers, independent third parties provide users with objective ratings and reviews. Consumer Reports, published by a nonprofit organization aimed at empowering consumers to protect themselves, provides ratings, reviews, and recommendations for mobile services.[22] Ratings based on responses from surveyed subscribers indicate the level of satisfaction with voice, messaging, and web/e-mail services provided by the largest wireless carriers and include satisfaction ratings with the carrier's customer support service.[23] A buying advice guide is also provided to help consumers learn what factors to consider when buying a phone or service. Recommendations for buying handsets that scored high based on performance, features and value are also available.[24]

J.D. Power and Associates ("J.D. Power") also publishes satisfaction ratings for the wireless industry based on responses from consumers and business customers who have used the products and services.[25] The ratings cover wireless call quality and satisfaction with traditional wireless handsets and smartphones.[26] Ratings are released semiannually. The largest providers in six geographic regions are scored looking at

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[22] *See* Consumer Reports, Overall Cell Phone Service Ratings, http://www.consumerreports.org/cro/electronics-computers/phones-mobile-devices/cell-phones-services/cell-phone-service-buying-advice/guide-to-cell-phone-carriers/cell-phone-service-ratings/cell-phone-service-ratings.htm (last visited July 6, 2010).

[23] Scores reflect the percentage of respondents who gave very good to excellent scores for the overall experience with Web access and e-mail from their phones. *See also* Consumer Reports, Smart Phone Ratings, http://www.consumerreports.org/cro/electronics-computers/phones-mobile-devices/cell-phones-services/smart-phone-ratings/ratings-overview.htm (last visited July 6, 2010).

[24] *See* Consumer Reports, Recommended Cell Phones & Services, http://www.consumerreports.org/cro/electronics-computers/phones-mobile-devices/cell-phones-services/cell-phone-service-recommendations/cell-phone.htm (last visited July 6, 2010).

[25] J.D. Power is "a global marketing information firm that conducts independent and unbiased surveys of customer satisfaction, product quality and buyer behavior." J.D. Power, http://www.jdpower.com/about (last visited July 5, 2010).

[26] Ratings are also available for satisfaction with customer care. *See* J.D. Power, 2010 Wireless Customer Care Volume 1, http://www.jdpower.com/telecom/articles/2010-Wireless-Customer-Care-Volume-1.

seven problem areas – dropped calls, static/interference, failed connection on the first try, voice distortion, echoes, no immediate voicemail notification, and no immediate text message notification.[27] In rating handset satisfaction, J.D. Power evaluates operation, physical design, features, and battery function; the operating system is also considered for smartphones.[28]

The American Customer Satisfaction Index ("ACSI") reports customer satisfaction in the wireless industry and produces scores for the causes and consequences of customer satisfaction and their relationships.[29] The ACSI uses customer interviews as input to a cause-and-effect model that evaluates satisfaction based on customer expectations, perceived quality, perceived value, customer complaints and customer loyalty.[30] Scores are provided on a company-level for the major wireless carriers.

CNET and Engadget, along with a host of other websites, provide reviews and comparisons on new handset devices.[31] For example, CNET evaluates the features of available handsets noting the positives and negatives and gives consumers a rating on a

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[27] *See* J.D. Power, 2010 Wireless Call Quality Performance Study Volume 1, http://www.jdpower.com/telecom/articles/2010-Wireless-Call-Quality-Performance-Study-Volume-1.

[28] Press Release, J.D. Power and Associates Reports: Touch Screens Drive Higher Satisfaction with Both Feature-Rich Smartphones and Traditional Mobile Phones, (Apr. 1, 2010), http://businesscenter.jdpower.com/news/pressrelease.aspx?ID=2010039.

[29] Updated each quarter, the ACSI is "a national economic indicator of customer evaluations of the quality of products and services available to household consumers in the United States." *See* Press Release, "ACSI: Customer Satisfaction Rises Again, Now Joined by Other Economic Indicators" (May 19, 2009), www.theacsi.org/images/stories/images/news/0901q_Press_Release.pdf.

[30] ACSI, ACSI Methodology, http://www.theacsi.org/index.php?option=com_content&task=view&id=48&Itemid=41.

[31] *See* CNET, Reviews, http://reviews.cnet.com (last visited July 5, 2010); Mobilitysite, http://www.mobilitysite.com/tag/sections/frontpage-tabs/reviews/ (last visited July 5, 2010); Engadget, http://www.engadget.com/reviews/ (last visited July 6, 2010); Wired, http://www.wired.com/reviews/productlisting/mobile (last visited July 6, 2010).

scale of 1 to 10.[32] Engadget provides similar reviews giving the "good and the bad" on handset devices.[33] Consumers can also obtain objective reviews on network performance from the Web. PC MAGAZINE recently published a story evaluating the data network performance of AT&T, Cricket, Sprint, T-Mobile, and Verizon Wireless in cities across the United States.[34] Findings on average/maximum download and upload speeds and latency were reported. Consumer-generated blogs provide an additional platform for end users to discuss service quality and handset performance issues.[35]

Personal application tools for handset devices and laptops that provide users with more detailed information on throughput, latency and other performance indicators at a particular location are also available.

- The iPhone app store has Checkmytubes – speed test, Speedtest X, Speedtest X Pro, iNetQCheck, iNetQCheck Pro, Open Ping (checks latency), iNetwork Speed Test, and BenchTest (checks device performance).[36]
- Network performance applications on Getjar for Android, iPhone, and Symbian S60 smartphones include Network Speed Test for Mobile (tests speed and latency), iNetwork Speed Test, Speedtest.net Speed Test, Speedy Go, and Speedtest.[37]

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[32] Users are also able to compare service coverage using the Root Coverage tool.

[33] Engadget, http://www.engadget.com/reviews/ (last visited July 6, 2010).

[34] *See* Sascha Segan, "The Fastest Mobile Networks 2010," PC MAGAZINE (June 3, 2010), http://www.pcmag.com/article2/0,2817,2364263,00.asp. While perhaps not available to the ordinary consumer, Nielsen Mobile also tracks network quality for both voice and data services for the global marketplace, providing insight on how mobile customers use their devices and what they think about brands, devices and services. *See* Nielsen Mobile, "Critical Mass: The Worldwide State of the Mobile Web" at 7 (July 2008), www.nielsenmobile.com/documents/CriticalMass.pdf.

[35] Business Exchange, T-Mobile Blog, http://bx.businessweek.com/t-mobile/blogs/ (last visited July 5, 2010).

[36] Apple, http://www.apple.com/iphone/apps-for-iphone/?cid=wwa-naus-seg-iphone10-015&cp=www-seg-iphone10-apps&sr=sem (last visited July 6, 2010).

[37] Getjar, http://www.getjar.com/mobile-all-applications/mobile-broadband-speed/?o=bestmatch (last visited July 6, 2010); NDROID-PPS.com, http://android-apps.com/search/?search=speed (last visited July 6, 2010).

- BlackBerry App World offers the Cisco Global Internet Speed Test (GIST), which allows users to measure connection speeds over their cellular provider based on their location and network access speed at the time of a test.[38]
- The Android app store offers the iNetwork Speed Test.[39]
- Root Mobile, which collects data for the Root Coverage mapping tool, is available for BlackBerry and Android smartphones to monitor network performance.[40]
- Ookla Net Metrics and Measurement Lab have developed applications for iPhone and Android users to test the relative speeds of their mobile broadband connections.[41]

As the above examples demonstrate, there is a wealth of information on service quality and coverage available to consumers from a diverse number of sources. And these tools appear effective. As the recent Pew Report on wireless broadband adoption documents, consumers are embracing wireless broadband in record numbers. Six out of ten Americans are wireless Internet users, representing an eight-point increase from the prior year "with 18-29 year olds and those with a household income of less than $30,000 per year showing the greatest increases."[42] African Americans and Latinos also lead the way in their use of data applications on handheld devices.[43] Consumers are clearly getting the necessary information they need to embrace mobile broadband.

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[38] BlackBerry, http://appworld.blackberry.com/webstore/search/mobile%20broadband%20speed (last visited July 6, 2010).

[39] NDROID-PPS.com, http://android-apps.com/search/?search=speed (last visited July 6, 2010).

[40] Root Wireless expected to release the application for handsets running Windows Mobile operating systems before the end of the second quarter 2010, and the application is being engineered for the iPhone. Press Release, "Root Wireless Releases Network Monitoring App for Blackberry," Android SmartphonesRoot Wireless, (Mar. 22, 1010), http://www.rootwireless.com/pr/press_release/2010/03_22_2010.php. Root Mobile users also have access to a personal website where they can view maps illustrating the performance of their own phone and the performance of their service including network signal strength, upload and download speeds and connection failures.

[41] The FCC has made beta versions of these applications available to iPhone and Android users (called the FCC Mobile Broadband Test app).

[42] Pew Report at 8.

[43] *Id*.

The trend line for the future development of even more innovative tools is positive.[44] With the marketplace clearly incented to empower consumers with the informational tools they need, and innovators working rapidly to deploy new services and tools, any government role beyond helping to educate consumers on the availability of information would be both unnecessary and potentially harmful to the flourishing new marketplace for consumer services and tools.

III. GOVERNMENT-MANDATED PERFORMANCE STANDARDS AND DISCLOSURES MAY UNINTENTIONALLY MISLEAD CONSUMERS AND HINDER DEVELOPMENT.

There are no obvious gaps in the data currently available to consumers on network performance and coverage, nor has the Commission identified any gaps in the Public Notice. Even if a gap existed, it is unclear whether government is best positioned to fill that void. Rather than forcing regulation, the Commission should continue to allow the private sector to develop information tools consistent with the technology developments described above.

The wireless environment is complex and difficult to predict and therefore may not lend itself to a government-created consumer wireless tracking tool. Performance hinges on several factors, *e.g.*, the user's location, cell site capacity, congestion, interference, weather, and the specific mobile device and changes minute-to-minute. Developing one-size-fits-all standards and disclosures that accurately predict the user's experience from a given location at any specific point in time is extremely difficult. For

[44] A number of personal applications have only become available recently with the widespread use of smartphones. The increased activity by application designers indicates a positive trend for future development.

these very reasons, coverage predictions are rightly qualified.[45] Commission-mandated disclosures on a granular or temporal level that fail to take into account the ever-changing wireless environment would end up misleading consumers.

In the absence of any identified harm, government intervention in the innovation economy may have the unintended consequence of actually harming competition. As reviewed above, the marketplace has already developed a number of application tools and services to empower consumers. A duplication of efforts by the Commission could therefore eliminate incentives for the private sector to develop tools that may be even more beneficial to consumers. The Commission should avoid any actions that may impede private investment and innovation in consumer-focused applications and unintentionally derail the positive adoption trend, particularly among low income individuals and other consumers on the wrong side of the digital divide.

The Commission should continue to take positive steps to encourage and support the evolution of this marketplace. It is, and always will be, the private sector and the innovators, scientists, engineers, marketers, and investors who support it, and informed consumers who guide it, rather than the Federal government, which will best be able to engage and serve wireless customers around the world. Indeed, everyday, new tools and information sources are available on mobile devices to help consumers navigate the wireless services offerings of carriers. While relatively non-existent five years ago, the available network performance monitoring applications for smartphones and independent mapping tools such as Root Coverage indicate a positive trend for future development.

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[45] *See* MetroPCS, http://www.metropcs.com/coverage/ ("Coverage is an approximation and can vary depending on terrain, electrical interference and/or atmospheric conditions.") (last visited July 5, 2010).

The Commission can best take these steps by devoting resources to help educate consumers about the information sources and application tools that are already available in the marketplace, not by mandating performance standards and disclosures.

CONCLUSION

For the reasons above, Mobile Future urges the Commission to continue to encourage private sector innovation in consumer-focused applications and tools, rather than imposing regulatory mandates at this time. There is a growing wealth of information available to consumers from a diverse number of sources, including service providers and independent developers, companies, and groups. The Commission can best serve the public interest by educating consumers on the available tools and continuing to allow the competitive marketplace to evolve.

Respectfully submitted,

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