a small business size standard for Wireless Telecommunications Carriers (except Satellite).[139] Under the SBA small business size standard, a business is small if it has 1,500 or fewer employees.[140] According to *Trends in Telephone Service* data, 434 carriers reported that they were engaged in wireless telephony.[141] Of these, an estimated 222 have 1,500 or fewer employees and 212 have more than 1,500 employees.[142] We have estimated that 222 of these are small under the SBA small business size standard.

22. *Rural Radiotelephone Service.* The Commission has not adopted a size standard for small businesses specific to the Rural Radiotelephone Service.[143] A significant subset of the Rural Radiotelephone Service is the Basic Exchange Telephone Radio System ("BETRS").[144] In the present context, we will use the SBA's small business size standard applicable to Wireless Telecommunications Carriers (except Satellite), *i.e.*, an entity employing no more than 1,500 persons.[145] There are approximately 1,000 licensees in the Rural Radiotelephone Service, and the Commission estimates that there are 1,000 or fewer small entity licensees in the Rural Radiotelephone Service that may be affected by the rules and policies adopted herein.

23. *Air-Ground Radiotelephone Service.* The Commission has previously used the SBA's small business definition applicable to Wireless Telecommunications Carriers (except Satellite), *i.e.*, an entity employing no more than 1,500 persons.[146] There are approximately 100 licensees in the Air-Ground Radiotelephone Service, and under that definition, we estimate that almost all of them qualify as small entities under the SBA definition. For purposes of assigning Air-Ground Radiotelephone Service licenses through competitive bidding, the Commission has defined "small business" as an entity that, together with controlling interests and affiliates, has average annual gross revenues for the preceding three years not exceeding $40 million.[147] A "very small business" is defined as an entity that, together with controlling interests and affiliates, has average annual gross revenues for the preceding three years not exceeding $15 million.[148] These definitions were approved by the SBA.[149] In 2006, the Commission completed an auction of nationwide commercial Air-Ground Radiotelephone Service licenses in the 800 MHz band (Auction 65). Later in 2006, the auction closed with two winning bidders winning two Air-Ground Radiotelephone Services licenses. Neither of the winning bidders claimed small business status.

24. *Offshore Radiotelephone Service.* This service operates on several UHF television broadcast channels that are not used for television broadcasting in the coastal areas of states bordering the

[139] 13 C.F.R. § 121.201, NAICS code 517210.

[140] *Id.*

[141] "Trends in Telephone Service" at Table 5.3.

[142] "Trends in Telephone Service" at Table 5.3.

[143] The service is defined in § 22.99 of the Commission's Rules, 47 C.F.R. § 22.99.

[144] BETRS is defined in §§ 22.757 and 22.759 of the Commission's Rules, 47 C.F.R. §§ 22.757 and 22.759.

[145] 13 C.F.R. § 121.201, NAICS code 517210.

[146] 13 C.F.R. § 121.201, NAICS codes 517210.

[147] Amendment of Part 22 of the Commission's Rules to Benefit the Consumers of Air-Ground Telecommunications Services, Biennial Regulatory Review—Amendment of Parts 1, 22, and 90 of the Commission's Rules, Amendment of Parts 1 and 22 of the Commission's Rules to Adopt Competitive Bidding Rules for Commercial and General Aviation Air-Ground Radiotelephone Service, WT Docket Nos. 03-103, 05-42, *Order on Reconsideration and Report and Order*, 20 FCC Rcd 19663, paras. 28–42 (2005).

[148] *Id.*

[149] *See* Letter from Hector V. Barreto, Administrator, SBA, to Gary D. Michaels, Deputy Chief, Auctions and Spectrum Access Division, Wireless Telecommunications Bureau, FCC (filed Sept. 19, 2005).

Gulf of Mexico.[150] There is presently 1 licensee in this service. We do not have information whether that licensee would qualify as small under the SBA's small business size standard for Wireless Telecommunications Carriers (except Satellite) services.[151] Under that SBA small business size standard, a business is small if it has 1,500 or fewer employees.[152]

25. The Commission has not developed a small business size standard specifically for providers of international service. The appropriate size standards under SBA rules are for the two broad census categories of "Satellite Telecommunications" and "All Other Telecommunications." Under both categories, such a business is small if it has $13.5 million or less in average annual receipts.[153]

26. *Satellite Telecommunications and All Other Telecommunications.* These two economic census categories address the satellite industry. The first category has a small business size standard of $13.5 million or less in average annual receipts, under SBA rules. The second has a size standard of $23.5 million or less in annual receipts. The most current Census Bureau data in this context, however, are from the (last) economic census of 2002, and we will use those figures to gauge the prevalence of small businesses in these categories.

27. The category of Satellite Telecommunications "comprises establishments primarily engaged in providing telecommunications services to other establishments in the telecommunications and broadcasting industries by forwarding and receiving communications signals via a system of satellites or reselling satellite telecommunications." For this category, Census Bureau data for 2002 show that there were a total of 371 firms that operated for the entire year. Of this total, 307 firms had annual receipts of under $10 million, and 26 firms had receipts of $10 million to $24,999,999. Consequently, we estimate that the majority of Satellite Telecommunications firms are small entities that might be affected by our action.

28. The second category of Other Telecommunications "comprises establishments primarily engaged in (1) providing specialized telecommunications applications, such as satellite tracking, communications telemetry, and radar station operations; or (2) providing satellite terminal stations and associated facilities operationally connected with one or more terrestrial communications systems and capable of transmitting telecommunications to or receiving telecommunications from satellite systems."[154] For this category, Census Bureau data for 2002 show that there were a total of 332 firms that operated for the entire year.[155] Of this total, 303 firms had annual receipts of under $10 million and 15 firms had annual receipts of $10 million to $24,999,999.[156] Consequently, we estimate that the majority of Other Telecommunications firms are small entities that might be affected by our action.

b. Equipment Manufacturers

29. *Wireless Communications Equipment Manufacturing.* The Census Bureau defines this category as follows: "This industry comprises establishments primarily engaged in manufacturing radio and television broadcast and wireless communications equipment. Examples of products made by these

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[150] This service is governed by Subpart I of Part 22 of the Commission's rules. *See* 47 C.F.R. §§ 22.1001-22.1037.

[151] 13 C.F.R. § 121.201, NAICS code 517210.

[152] *Id.*

[153] 13 C.F.R. § 121.201, NAICS codes 517410 and 517910.

[154] U.S. Census Bureau, 2002 NAICS Definitions, "517910 Other Telecommunications"; http://www.census.gov/epcd/naics02/def/NDEF517.HTM.

[155] U.S. Census Bureau, 2002 Economic Census, Subject Series: Information, "Establishment and Firm Size (Including Legal Form of Organization)," Table 4, NAICS code 517910 (issued Nov. 2005).

[156] *Id.* An additional 14 firms had annual receipts of $25 million or more.

establishments are: transmitting and receiving antennas, cable television equipment, GPS equipment, pagers, cellular phones, mobile communications equipment, and radio and television studio and broadcasting equipment."[157] The SBA has developed a small business size standard for Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing, which is: all such firms having 750 or fewer employees.[158] According to Census Bureau data for 2002, there were a total of 1,041 establishments in this category that operated for the entire year.[159] Of this total, 1,010 had employment of under 500, and an additional 13 had employment of 500 to 999.[160] Thus, under this size standard, the majority of firms can be considered small.

30. *Semiconductor and Related Device Manufacturing.* These establishments manufacture "computer storage devices that allow the storage and retrieval of data from a phase change, magnetic, optical, or magnetic/optical media."[161] The SBA has developed a small business size standard for this category of manufacturing; that size standard is 500 or fewer employees.[162] According to Census Bureau data for 1997, there were 1,082 establishments in this category that operated for the entire year.[163] Of these, 987 had employment of under 500, and 52 establishments had employment of 500 to 999.

31. *Computer Storage Device Manufacturing.* These establishments manufacture "computer storage devices that allow the storage and retrieval of data from a phase change, magnetic, optical, or magnetic/optical media."[164] The SBA has developed a small business size standard for this category of manufacturing; that size standard is 1,000 or fewer employees.[165] According to Census Bureau data for 1997, there were 209 establishments in this category that operated for the entire year.[166] Of these, 197 had employment of under 500, and eight establishments had employment of 500 to 999.

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[157] U.S. Census Bureau, 2002 NAICS Definitions, "334220 Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing"; http://www.census.gov/epcd/naics02/def/NDEF334.HTM#N3342.

[158] 13 C.F.R. § 121.201, NAICS code 334220.

[159] U.S. Census Bureau, American FactFinder, 2002 Economic Census, Industry Series, Industry Statistics by Employment Size, NAICS code 334220 (released May 26, 2005); http://factfinder.census.gov. The number of "establishments" is a less helpful indicator of small business prevalence in this context than would be the number of "firms" or "companies," because the latter take into account the concept of common ownership or control. Any single physical location for an entity is an establishment, even though that location may be owned by a different establishment. Thus, the numbers given may reflect inflated numbers of businesses in this category, including the numbers of small businesses. In this category, the Census breaks-out data for firms or companies only to give the total number of such entities for 2002, which was 929.

[160] *Id.* An additional 18 establishments had employment of 1,000 or more.

[161] U.S. Census Bureau, "2002 NAICS Definitions: 334413 Semiconductor and Related Device Manufacturing" (Feb. 2004) <www.census.gov>.

[162] 13 C.F.R. § 121.201, NAICS code 334413.

[163] U.S. Census Bureau, 1997 Economic Census, Industry Series: Manufacturing, "Semiconductor and Related Device Manufacturing ," Table 4, NAICS code 334413 (issued July 1999).

[164] U.S. Census Bureau, "2002 NAICS Definitions: 334112 Computer Storage Device Manufacturing" (Feb. 2004) <www.census.gov>.

[165] 13 C.F.R. § 121.201, NAICS code 334112.

[166] U.S. Census Bureau, 1997 Economic Census, Industry Series: Manufacturing, "Computer Storage Device Manufacturing," Table 4, NAICS code 334112 (issued July 1999).

D. Description of Projected Reporting, Recordkeeping, and Other Compliance Requirements for Small Entities

32. The Further Notice of Proposed Rulemaking and Notice of Inquiry seeks comment broadly on certain modifications to the compliance levels set forth in rules section 20.18(h).

E. Steps Taken to Minimize Significant Economic Impact on Small Entities, and Significant Alternatives Considered

33. The RFA requires an agency to describe any significant, specifically small business alternatives that it has considered in reaching its proposed approach, which may include the following four alternatives (among others): "(1) the establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities; (2) the clarification, consolidation, or simplification of compliance or reporting requirements under the rule for small entities; (3) the use of performance, rather than design, standards; and (4) and exemption from coverage of the rule, or any part thereof, for small entities."[167]

34. The Further Notice of Proposed Rulemaking and Notice of Inquiry seeks comment on various proposed changes to location accuracy standards. To assist in the analysis, commenters are requested to provide information regarding how small entities would be affected if the Commission were to adopt its proposed changes or any alternative proposals offered by other commenters.

35. With regard to accuracy testing, we tentatively concluded that we should adopt a mandatory testing regime. We seek comments both as to the parameters of this testing regime and any alternative testing regimes that may assist small business in complying with the requirements. Should we require testing every two years or would a different schedule be more appropriate? We seek comment on various alternatives for tracking compliance with the location accuracy requirements.

36. With regard to interconnected VoIP, the Commission tentatively concluded that "to the extent that an interconnected VoIP service may be used in more than one location, providers must employ an automatic location technology that meets the same accuracy standards that apply to those CMRS services." Should interconnected VoIP providers be subject to the Commission's CMRS E911 location requirements? Should the Commission consider first appointing an advisory committee to examine the technological and economic impacts of such a requirement? We seek comment on this and any other alternative proposals.

F. Federal Rules that May Duplicate, Overlap, or Conflict with the Proposed Rules

37. <None.>

[167] 5 U.S.C. §§ 603(c)(1)-(c)(4).

STATEMENT OF CHAIRMAN JULIUS GENACHOWSKI

RE: *Wireless E911 Location Accuracy Requirements, E911 Requirements for IP-Enabled Service Providers, Further Notice of Proposed Rulemaking and Notice of Inquiry*, PS Docket No. 07-114, WC Docket No. 05-196.

When Americans call 9-1-1- from their landlines, first responders receive location information that's accurate more than 98% of the time. When Americans call 9-1-1 from their mobile phones, first responders are about 50% less likely to receive precise information about your location. Fifty percent.

The inaccuracy is not just a few feet, but up to one or two miles—and sometimes no location information at all.

Meanwhile, more and more 9-1-1- calls are being made from mobile phones – over 425,000 mobile 9-1-1- calls every day, and rising.

What does that mean in practical terms?

Yesterday, I had a chance to visit with the men and women who answer 9-1-1 calls at the McConnell Public Safety Operations Center in Fairfax, Virginia – and I saw, up close, the challenge of dealing with increasingly mobile 9-1-1- calls.

The Officers I met with said that when they don't receive accurate location data as part of a wireless 9-1-1 call, it can cost the first responders six minutes in delay trying to locate the caller. Sometimes more. Precious minutes that can be the difference between life and death.

Now, mobile telephones play a vital and positive role in our emergency safety system. Mobile phones let people call 9-1-1- from places where there are no landlines readily available, enhancing public safety.

And like any new technology, they create new issues, like distracted driving and the location-accuracy issue we are tackling today.

The order we adopt today makes location-accuracy requirements more stringent for wireless service providers. This will give first responders a better chance at locating callers much faster. It will enhance the public's safety.

And we have more work to do. Our *Further Notice* launches an inquiry on how to improve *indoor* location accuracy, and our *NOI* accelerates our work on how new and developing broadband technologies can help Americans reach 9-1-1 wherever they may be.

Our actions today fulfill another recommendation of the National Broadband Plan.

One final point on mobile 9-1-1 location accuracy. When I was in Fairfax yesterday, the public safety officers described ways that people can help first responders, and themselves, when they are making 9-1-1 calls from mobile phones.

Try to pay attention to landmarks, and mile markers on highways for example; remember the floor you're on in a tall building.

I have instructed our Public Safety and Consumer Bureaus to develop, together with the public

safety community, a fact sheet for consumers with helpful information on mobile 9-1-1 calls. We will soon have this on our website and work together with the public safety community on ways to pursue this education initiative – to help mobile 9-1-1 callers better and more quickly locate them in times of emergency.

I thank the staff for its great and ongoing work in this area. I look forward to continuing to work very closely with the public safety community, wireless service providers, and consumer advocates to continue to harness technology to improve the 9-1-1 service.

STATEMENT OF COMMISSIONER MICHAEL J. COPPS

RE: *Wireless E911 Location Accuracy Requirements, E911 Requirements for IP-Enabled Service Providers, Further Notice of Proposed Rulemaking and Notice of Inquiry*, PS Docket No. 07-114, WC Docket No. 05-196.

I welcome these steps forward as we work to enhance the safety of the American people—always Job One for the FCC. Enhanced 911 saves lives. Experience has shown us that. The steps we take today will further improve the ability of first responders accurately to locate wireless E911 callers in emergencies. We do so based on a solid record and with a practical approach that relies on currently available technologies. More importantly, our actions reflect a general consensus among important E911 stakeholders—including the Association of Public-Safety Communications Officials and the National Emergency Number Association—on how to get this job done. So it's action time and today we take action.

We have come a good long distance since I came to the agency in 2001. I arrived at a time when carriers were regularly missing deadlines for deploying E911, manufacturers were failing to make equipment and software available quickly enough, and technology was still pretty basic. The Commission has been generally aggressive in recent years in encouraging all stakeholders and players to push the envelope and accomplish what needs to be accomplished to make Enhanced E911 a reality. With life-critical technology like E911, we must always do better than "business as usual." We must make the extra effort, expend the necessary resources and keep the objective front-and-center. With the consensus adopted in today's Order, I think we are clearly on the right road.

While I support today's decision, including its recognition of the unique challenges facing rural and remote communities, I remain worried. We allow, for example, network-based carriers to exclude from location accuracy compliance those counties where triangulation is not technically feasible. I understand that the technology and infrastructure in a given area today may not allow a carrier to comply with the specific location accuracy targets we require. That said, locating emergency callers living in rural America is no less important than locating emergency callers in other parts of the country. I expect carriers, even in those areas excluded from location accuracy compliance, to take every step technologically possible to maximize location accuracy for E911 calls and to do it with the sense of urgency that the safety of the people compels. We must never lose sight of this particular challenge as we move forward with implementation of the National Broadband Plan and work to expand wireless infrastructure in rural America. More towers mean not only more broadband, but can also mean more accurate E911 . . . and more lives saved. I am pleased we recognize that rural Americans cannot be left in the lurch going forward. By setting a sunset date for the location accuracy exclusion, we encourage carriers and manufacturers to expand A-GPS handsets in their subscriber base, which will make the network-based exclusion unnecessary in the long term.

Today we also launch a separate and much-needed examination into the next phase of wireless E911 location accuracy and reliability. With the explosion of wireless usage, devices and applications, including those encompassing voice over Internet Protocol (VoIP), we seek comment on the ongoing evolution of wireless technologies and the implications for location accuracy. Consistent with the National Broadband Plan, we look at the impact of Next Generation 911 (NG911) deployment and its potential for location accuracy. The FCC should always be looking for ways to harness the benefits of technology advances to improve accuracy and speed of response in emergencies, and to provide more interoperable and integrated emergency response capabilities for PSAPs, hospitals and first responders.

The Chairman is to be commended for bringing this important item to the full Commission for consideration. I particularly want to thank the staff of the Public Safety and Homeland Security for their

hard work and thorough analysis. I look forward to working with my colleagues, with the staff and with all E911 stakeholders as we continue to strengthen E911 requirements and capabilities.

STATEMENT OF COMMISSIONER ROBERT M. McDOWELL

RE: *Wireless E911 Location Accuracy Requirements, E911 Requirements for IP-Enabled Service Providers, Further Notice of Proposed Rulemaking and Notice of Inquiry*, PS Docket No. 07-114, WC Docket No. 05-196.

For some time now, I have strongly encouraged efforts to forge consensus on the technological challenges to improving the accuracy of locating wireless callers who face an emergency. I am delighted, therefore, that we have reached this day and I am pleased to support today's Report and Order. We are unanimously adopting rules that will satisfy the current needs of public safety personnel and the expectations of America's wireless consumers. I thank all the participants for sharing your expertise and knowledge on the complex issues discussed in this proceeding.

Given the great consumer demand for and constant technology upgrades to wireless services, the companion Further Notice of Proposed Rulemaking and Notice of Inquiry is the more important of the two documents we adopt today. We have an ongoing duty to ensure that consumers, industry and first responders will all benefit as more powerful products are developed and deployed.

I am pleased that the Commission is promoting a meaningful discussion on the longer term requirements for 911 capabilities. We are posing tough questions on the effect of location accuracy and automatic location identification improvements, including indoor testing capabilities, as well as the applicability of E911 requirements to additional wireless communications services, devices and applications, among other issues. As is reflected in the order we adopt today, harnessing the expertise of all interested stakeholders will serve the public interest and move all of us ahead to understand and solve these technological challenges in a straightforward, comprehensive and transparent manner.

Thank you to Jeff Cohen and Patrick Donovan for their leadership, as well as to the entire team in the Public Safety and Homeland Security Bureau for its important work.

STATEMENT OF COMMISSIONER MIGNON L. CLYBURN

RE: *Wireless E911 Location Accuracy Requirements, E911 Requirements for IP-Enabled Service Providers, Further Notice of Proposed Rulemaking and Notice of Inquiry*, PS Docket No. 07-114, WC Docket No. 05-196.

As I have mentioned before, one of the top priorities of this agency should be the safety of consumers. The accuracy of wireless E-9-1-1 location services, has become an increasingly important public safety concern, because our citizens have become more dependent on their mobile wireless devices. This surge in the demand for mobile wireless services reflects, in large part, an increased demand for innovative broadband applications. But as the Fourteenth Report on Mobile Services highlights, this increased demand for mobile services, is also a result of more people opting to rely solely on their mobile wireless service for their communications needs. As the percentage of citizens who only rely on mobile services increases, so should our focus on improving the location accuracy of E-9-1-1 for emergency services.

The Order and Notices we adopt today, send important messages about the direction our communications industry should take with regard to improving E-9-1-1 services. As the history leading up to the Second Report and Order suggests, consensus by all stakeholders is a more effective way to make our citizens safer than litigation. I congratulate APCO, NENA, AT&T, Sprint, T-Mobile, and Verizon Wireless, for reaching a workable compromise on location accuracy standards, and for putting the safety of our citizens ahead of other interests.

The Further Notice of Proposed Rulemaking and Notice of Inquiry, demonstrate a comprehensive and balanced approach to promoting more accurate E-9-1-1 services. I was particularly pleased to see the Further Notice address the different problems that service providers face in challenging environments, such as certain rural areas. It may be the case, that all service providers, large and small, face technical challenges in providing E-9-1-1 services. It is also true however, that these problems are more acute in hard to serve areas, where 3G networks are not currently deployed. Therefore, we should promote improved location accuracy standards, while recognizing that different areas may require different approaches to achieving those standards. I was also pleased to see that both Notices recognize the importance of considering the interests of persons living with disabilities. I commend the parties, such as AT&T and CTIA, who urged all stakeholders to account for those interests in developing E-9-1-1 technical solutions.

The Notice of Inquiry properly asks about the feasibility of extending location accuracy requirements to the many new wireless devices and applications, that provide the equivalent of mobile telephony but because of technical classifications, are not subject to our E-9-1-1 rules. Consumers have come to expect, that they can make VoIP phone calls from their computers as well as from their iPhones and other smart phones. It is reasonable for them to expect that they can access E-9-1-1 services when using VoIP technology. The Commission should ensure that its E-9-1-1 rules adapt to keep pace with consumer expectations. I encourage large carriers, smaller service providers, and other stakeholders, to provide us with the relevant information we need to take a proper, thorough, look at this issue. I thank the staff of the Public Safety and Homeland Security Bureau for their hard work on these items.

STATEMENT OF COMMISSIONER MEREDITH A. BAKER

RE: *Wireless E911 Location Accuracy Requirements, E911 Requirements for IP-Enabled Service Providers, Further Notice of Proposed Rulemaking and Notice of Inquiry*, PS Docket No. 07-114, WC Docket No. 05-196.

I am pleased to support today's *Second Report and Order, Further Notice of Proposed Rulemaking*, and *Notice of Inquiry*. More than a decade ago, one of the first bills I ever worked on in Washington made 911 the national emergency number for mobile as well as fixed numbers. Fast forward to today when one of every four American homes has *only* wireless telephone service and standardizing access to emergency response services has become even more critical.[168] And, even in households that have both fixed and wireless service, one in seven receives all or nearly all calls on wireless telephones.[169]

Americans aren't just *receiving* calls on their wireless phones, either. Comments in our record reveal that in states such as Virginia and Texas, large majorities of 911 calls were *placed* on wireless phones. Those consumers, and countless others in emergency situations, will be safer and more secure as we require heightened standards for wireless carriers to ensure effective location of 911 callers.

I applaud the industry-wide cooperation in making these standards a reality. I also support the Commission's practical approach in allowing a carrier to blend network-based location data with A-GPS handset-based accuracy data to achieve the new Phase II network-based benchmarks.

However, it is important to note that these standards apply only to calls made outdoors. Today's *FNPRM* rightly inquires about the state of location-based technology and whether the FCC should consider enhancing E911 services for consumers placing 911 calls from indoor and in-building locations. Heightened standards for locating emergency indoor callers could materially enhance the ability of first responders to provide assistance and save lives.

Today's *Notice of Inquiry* also asks whether to extend 911 and E911 requirements beyond interconnected VoIP services, as defined by the Commission, to portable VoIP services and additional IP-based devices, services and applications. While these are important questions, I am cautious about the extent of the Commission's jurisdiction in this area.

I want to thank the staff of the Public Safety and Homeland Security Bureau for its work on this item. I look forward to working with my Commission colleagues on continuing to improve E911 public safety initiatives.

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[168] Stephen J. Blumberg & Julian V. Luke, *Wireless Substitution: Early Release of Estimates from the National Health Interview Survey, July-December 2009*, at 1 (May 12, 2010) National Center for Health Statistics, Centers for Disease Control and Prevention. (available at: http://www.cdc.gov/nchs/data/nhis/earlyrelease/wireless200905.pdf) (Last visited September 22, 2010).

[169] *Wireless Substitution: Early Release of Estimates from the National Health Interview Study, supra*, at 5.