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

In the Matter of	)	
	)	
Implementation of the NET 911	)	WC Docket No. 08-171
Improvement Act of 2008	)	

REPORT AND ORDER

Adopted: October 21, 2008 **Released: October 21, 2008**

By the Commission: Chairman Martin and Commissioners Copps, Adelstein, Tate, and McDowell issuing separate statements.

TABLE OF CONTENTS

I. INTRODUCTION

1. In this Order, we adopt rules implementing certain key provisions of the New and Emerging Technologies 911 Improvement Act of 2008 (NET 911 Act), which was enacted on July 23, 2008.[1] Congress directed the Commission to issue rules implementing certain key provisions of the NET

[1] New and Emerging Technologies 911 Improvement Act of 2008, Pub. L. No. 110-283, 122 Stat. 2620 (2008) (NET 911 Act) (amending Wireless Communications and Public Safety Act of 1999, Pub. L. No. 106-81, 113 Stat. 1286 (1999) (Wireless 911 Act)).

911 Act no later than October 21, 2008.[2] In particular, to effectuate the statutory requirement that providers of interconnected voice over Internet Protocol (interconnected VoIP) service provide 911 and enhanced 911 (E911) service in full compliance with our rules, Congress mandated that the Commission issue regulations in this time frame that, among other things, ensure that interconnected VoIP providers have access to any and all capabilities they need to satisfy that requirement.[3] Today, we fulfill that duty and take steps to ensure that interconnected VoIP providers will, in fact, use the capabilities they gain as a result of this Order to provide 911 and E911 service without exception. Specifically, we issue rules that give interconnected VoIP providers rights of access to any and all capabilities necessary to provide 911 and E911 service from entities that own or control those capabilities. We also take steps to ensure that the nation's E911 network remains secure as an expanded number of entities are granted rights to access this system.

II. BACKGROUND

2. As communications technology develops, new challenges and opportunities emerge for the E911 system. Congress recognized this in 1999 when it passed the Wireless 911 Act, which encouraged the construction and operation of seamless, ubiquitous, and reliable 911 networks for wireless devices.[4] On July 23, 2008, the President signed into law the NET 911 Act, which amends the Wireless 911 Act, to promote and enhance public safety by facilitating the rapid deployment of interconnected VoIP 911 and E911 services, encourage the Nation's transition to a national IP-enabled emergency network, and improve 911 and E911 access to those with disabilities.[5]

A. NET 911 Act

3. The NET 911 Act explicitly imposes on each interconnected VoIP provider the obligation to provide 911 and E911 service in accordance with Commission existing requirements.[6] The NET 911 Act also grants each interconnected VoIP provider rights with respect to "capabilities" to provide 911 and E911 services.[7] Specifically, section 101 of the NET 911 Act adds a new section 6 to the Wireless 911 Act that states in relevant part:

> (a) DUTIES. – It shall be the duty of each IP-enabled voice service provider to provide 9–1–1 service and enhanced 9–1–1 service to its subscribers in accordance with the requirements of the Federal Communications Commission, as in effect on the date of enactment of the New and Emerging Technologies 911 Improvement Act of 2008 and as such requirements may be modified by the Commission from time to time.

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[2] The NET 911 Act requires the Commission to issue regulations implementing certain provisions of the NET 911 Act within 90 days after its enactment date. The Commission therefore must issue regulations no later than October 21, 2008. *See* NET 911 Act § 101(2); Wireless 911 Act § 6(c)(1).

[3] The NET 911 Act uses the term "IP-enabled voice service," which is given the same meaning as "interconnected VoIP service" as defined by section 9.3 of the Commission's rules. *See* NET 911 Act § 101(3); Wireless 911 Act § 7(8). For the purposes of this Order, the terms "IP-enabled voice services" and "interconnected VoIP" are used synonymously. An interconnected VoIP service is a service that: (1) enables real-time, two-way voice communications; (2) requires a broadband connection from the user's location; (3) requires IP-compatible customer premises equipment; and (4) permits users generally to receive calls that originate on the public switched telephone network (PSTN) and to terminate calls to the PSTN. *See* 47 C.F.R. § 9.3.

[4] Wireless 911 Act, Preamble.

[5] NET 911 Act, Preamble.

[6] *See* NET 911 Act § 101(2); Wireless 911 Act § 6(a). The Commission regulations imposing 911 and E911 service obligations on interconnected VoIP providers are codified at 47 C.F.R. §§ 9.1 *et seq*.

[7] *See* NET 911 Act § 101(2); Wireless 911 Act §§ 6(b), 6(c)(1)(C).

(b) PARITY FOR IP-ENABLED VOICE SERVICE PROVIDERS.—An IP-enabled voice service provider that seeks capabilities to provide 9–1–1 and enhanced 9–1–1 service from an entity with ownership or control over such capabilities, to comply with its obligations under subsection (a), shall, for the exclusive purpose of complying with such obligations, have a right of access to such capabilities, including interconnection, to provide 9–1–1 and enhanced 9–1–1 service on the same rates, terms, and conditions that are provided to a provider of commercial mobile service . . . , subject to such regulations as the Commission prescribes under subsection (c).

(c) REGULATIONS.—The Commission—

(1) within 90 days after the date of enactment of the [NET 911 Act] shall issue regulations implementing such Act, including regulations that—

(A) ensure that IP-enabled voice service providers have the ability to exercise their rights under subsection (b);

(B) take into account any technical, network security, or information privacy requirements that are specific to IP-enabled voice services; and

(C) provide, with respect to any capabilities that are not required to be made available to a commercial mobile service provider but that the Commission determines under subparagraph (B) of this paragraph or paragraph (3)[8] are necessary for an IP-enabled voice service provider to comply with its obligations under subsection (a), that such capabilities shall be available at the same rates, terms, and conditions as would apply if such capabilities were made available to a commercial mobile service provider.

(2) shall require IP-enabled voice service providers to which the regulations apply to register with the Commission and to establish a point of contact for public safety and government officials relative to 9–1–1 and enhanced 9–1–1 service and access; and

(3) may modify such regulations from time to time, as necessitated by changes in the market or technology, to ensure the ability of an IP-enabled voice service provider to comply with its obligations under subsection (a) and to exercise its rights under subsection (b).[9]

4. The "requirements of the Federal Communications Commission, as in effect on the date of enactment of the [NET 911 Act]"[10] referenced in the legislation are set forth in Part 9 of the

[8] On October 8, 2008, Public Law 110-368 was enacted, which brings section 6(c)(3) of the Net 911 Act within the scope of the 90-day rulemaking requirement, rather than section 6(c)(2). *See also* H.R. 6946, 110th Cong. § 1 (2008) ("Section 6(c)(1)(C) of [the Wireless 911 Act] is amended by striking 'paragraph (2)' and inserting 'paragraph (3)'."). We have made that correction in the text of the act quoted above.

[9] NET 911 Act § 101(2); Wireless 911 Act §§ 6(a)–(c). For purposes of the NET 911 Act, Congress specifically defined "commercial mobile service" or "CMS" by reference to section 332(d)(1) of the Communications Act of 1934, as amended (Communications Act), 47 U.S.C. § 332(d)(1) (stating that the term "commercial mobile service" means any mobile service that is provided for profit and makes interconnected service available to the public or to such classes of eligible users as to be effectively available to a substantial portion of the public, as specified by regulation by the Commission). *See also* NET 911 Act § 101(2); Wireless 911 Act § 6(b). In this Order, we use the terms "CMS," "commercial mobile radio service" or "CMRS," and "wireless service" interchangeably.

[10] NET 911 Act § 101(2); Wireless 911 Act § 6(a).

Commission's rules and the Commission's *VoIP 911 Order*.[11] In that order, the Commission required providers of "interconnected VoIP service" – referred to as "IP-enabled voice services" in the NET 911 Act – to provide E911 service using the existing wireline 911 infrastructure. Congress has specified that "[n]othing in the [NET 911 Act] shall be construed as altering, delaying, or otherwise limiting the ability of the Commission to enforce the Federal actions taken or rules adopted obligating an IP-enabled voice service provider to provide 9–1–1 or enhanced 9–1–1 service as of the date of the enactment of the [NET 911 Act]."[12]

B. NET 911 Notice

5. We released a notice of proposed rulemaking on August 25, 2008 seeking comment regarding the specific duties imposed by the NET 911 Act and the regulations that we are required to adopt.[13] We sought comment, for example, on what 911 and E911 capabilities must be made available to interconnected VoIP providers, and how such capabilities could be made available on the same rates, terms, and conditions afforded to wireless providers.[14] We also sought comment on what technical, network security, or information privacy requirements regarding 911 and E911 calls are specific to interconnected VoIP service.[15]

C. 911 and E911 Network Architectures

6. We begin by describing the nation's 911 network architecture with particular focus on interconnected VoIP services. As the design and operation of 911 architectures have developed on a localized basis, there is substantial variation in how these systems are built and operated.[16] Throughout this Order, we attempt to describe typical network architectures in broad enough fashion so as to include these many variations, but we recognize that there may be local variations not included by our descriptions. We nonetheless intend for our rules to address those variations, as explained in more detail below.[17]

7. As the Commission indicated in the *VoIP 911 Order*, 911 service generally falls into two categories – basic and enhanced. Basic 911 service delivers 911 calls to an appropriate PSAP or public safety agency without the information regarding the caller's location or, in some cases, a call back number.[18] E911 service expands basic 911 service by not only delivering 911 calls to an appropriate PSAP, or public safety agency, but also providing the call taker with the caller's call back number, referred to as Automatic Numbering Identification (ANI), and location information — a capability

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[11] 47 C.F.R. Part 9; *IP-Enabled Services; E911 Requirements for IP-Enabled Service Providers*, WC Docket Nos. 04-36, 05-196, First Report and Order and Notice of Proposed Rulemaking, 20 FCC Rcd 10245 (2005) (*VoIP 911 Order*), *aff'd sub nom. Nuvio Corp. v. FCC*, 473 F.3d 302 (D.C. Cir. 2006).

[12] NET 911 Act § 101(2); Wireless 911 Act § 6(i).

[13] *Implementation of the NET 911 Improvement Act of 2008*, WC Docket No. 08-171, Notice of Proposed Rulemaking, FCC 08-195 (rel. Aug. 25, 2008) (*NET 911 Notice*).

[14] *Id.* at paras. 6-10.

[15] *Id.* at para. 11.

[16] As the Commission has noted previously, there are a variety of situations existing in the more than 6,000 public safety answering points (PSAPs) across the nation, including differences in state and local laws and regulations governing the provision of 911 services, the configuration of wireless systems, the technical sophistication of 911 network components, and the nature of agreements between service providers and PSAPs. *See, e.g.*, *VoIP 911 Order*, 20 FCC Rcd at 10251, para. 14 n.34.

[17] *See infra* part III.

[18] *See VoIP 911 Order,* 20 FCC Rcd at 10250-51, para. 12.

referred to as Automatic Location Identification (ALI).[19] Most areas of the country have now implemented E911 service.[20] 911 calls and E911 service are processed and delivered over a dedicated network architecture that is separate from but interconnected with the PSTN. Below, we describe the typical Wireline, Wireless, and interconnected VoIP E911 networks.

8. *Wireline E911 Network*. The core of the nation's 911 system is a dedicated, redundant, highly reliable wireline network (Wireline E911 Network).[21] The Wireline E911 Network generally has been constructed, operated, and maintained by a subset of incumbent local exchange carriers (LECs).[22] Network designs vary from carrier to carrier and jurisdiction to jurisdiction.[23] The Wireline E911 Network includes Selective Routers, which receive 911 calls transmitted over dedicated trunks from competitive and incumbent LEC central offices.[24] The Selective Router in turn queries a Selective Router Database (SR Database), which typically is owned and operated by the incumbent LEC, to determine which PSAP serves the caller's geographic area.[25] The Selective Router will then forward the 911 call along with the caller's phone number (*i.e.*, ANI) to that PSAP. The PSAP in turn then forwards the caller's ANI over dedicated circuits to an Automatic Location Identification database (ALI Database),[26] again typically under control of the incumbent LEC. The ALI Database returns to the PSAP the caller's street address (that previously has been verified by comparison to a separate database known as the MSAG as part of an initial data entry process).[27] The Wireline E911 Network also includes a Database Management System (DBMS), which provides a method for competitive and incumbent LECs to enter customer data into both the SR Database and the ALI Database.[28] The Wireline E911 Network thus typically includes: the Selective Router; the trunk line(s) between the Selective Router and the PSAP(s); the ALI Database; the SR Database; the DBMS; ESNs; the MSAG; the data circuits connecting these elements; and the network elements, features, processes, and agreements necessary to enable the use of these elements.[29]

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[19] *See id*. at 10251, para. 13.

[20] *See id.* at 10251, para. 12.

[21] *See id*. at 10251, para. 14.

[22] *See id.*

[23] *See id.* at 10252, para. 14.

[24] *See id*. at 10252, para. 15 n.37 (stating that "[t]he presence of and functionality provided by the Selective Router is the key characteristic that distinguishes basic 911 from E911 service").

[25] Specifically, the SR Database identifies the Emergency Service Number (ESN) that corresponds to the caller's location. ESNs are typically three to five digit numbers that represent a unique combination of emergency service agencies (Law Enforcement, Fire, and Emergency Medical Service) designated to serve a specific range of addresses within a particular geographical area, called an Emergency Service Zone (ESZ). The ESN itself is derived from the Master Street Address Guide (MSAG), which is a separate database of street addresses and corresponding ESNs. Some PSAPs require the use of ESNs to facilitate selective routing and selective transfer to the appropriate PSAP. Thus, the ESN essentially is a standardized identifier for the PSAP serving a specific area. *See*, *e.g.*, Vonage Comments at 12-14.

[26] *See VoIP 911 Order,* 20 FCC Rcd at 10252, para. 15.

[27] The ALI Database may also return additional information, such as the name of the individual who is billed for telephone service at that address.

[28] The DBMS is typically under the control of the Emergency Services Network Provider, which is often but not always the incumbent LEC.

[29] *See VoIP 911 Order,* 20 FCC Rcd at 10252, para. 15.

9. *Wireless E911 Network.* Under the Commission's wireless E911 rules, wireless carriers must provide the telephone number of the originator of a 911 call (*i.e.*, ANI) and information regarding the caller's location (*i.e.*, ALI) to any PSAP that has requested that such information be delivered with 911 calls.[30] As explained in the *VoIP 911 Order*, the mobile nature of wireless technology and service presents significant obstacles to making E911 effective – in particular, the provision to PSAPs of accurate ALI.[31] Specifically, the mobility of wireless service precludes the use of permanent street addresses as a location indicator and may require the provision of real-time location updates to the PSAP. In addition, the caller's phone number (*i.e.*, the ANI information) may be not be usable by the Selective Router for PSAP routing purposes within the specific geographic region in which the mobile 911 call was placed. To overcome this mobility problem, wireless carriers have developed various techniques to provision ANI and ALI to the PSAP that involve enhancements or "add-ons" to the existing Wireline E911 Network.[32]

10. In a typical wireless E911 network construct, the wireless 911 call is received by a base station, which in turn sends the call to a Mobile Switching Center (MSC). The MSC essentially serves the same function as the competitive and incumbent LEC central office described above for wireline E911 calls.[33] The MSC sends the call record information associated with the call (*e.g.*, the actual call back number) as well as the cell site or sector to a Mobile Positioning Center (MPC). The MPC in turn sends back to the MSC a "pseudo-ANI" or "p-ANI" number. The term "p-ANI" refers to a number consisting of the same number of digits as ANI, that, unlike standard ANI, is not a North American Numbering Plan telephone number but may be used in place of ANI to convey special meaning to the Selective Router, PSAP, and other elements of the 911 system.[34] Wireless 911 systems use p-ANI because Selective Routers are not generally capable of properly routing calls from telephone numbers that are not local, or "native" to the geographic area that they service.

11. The MPC then simultaneously takes the call record information, along with location information, and populates a "shell record"[35] associated with that p-ANI, which has been previously

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[30] *See id*. at 10252, at para. 16; 47 C.F.R. §§ 20.18(d)-(h). The Commission's requirements to provide location information (*i.e.*, ALI) are comprised of two phases. Pursuant to the Phase I rules, wireless carriers are required to provide a call back number for the handset placing the 911 call and report the locations of the cell tower that received the call. *See* 47 C.F.R. § 20.18(d). Under the Phase II rules, wireless carriers are required to provide more accurate 911 call location information that includes longitude and latitude. *See* 47 C.F.R. § 20.18(e). For a PSAP request to be valid, the PSAP must be "capable of receiving and utilizing the data elements associated with" either E911 Phase I or Phase II service. *See* 47 C.F.R. § 20.18(j).

[31] *See VoIP 911 Order,* 20 FCC Rcd at 10252, para. 17. The Commission currently is considering improved location accuracy standards for wireless E911. *See Comment Sought on Proposals Regarding Service Rules for Wireless Enhanced 911 Phase II Location Accuracy and Reliability*, PS Docket No. 07-114, Public Notice, DA 08-2129 (PSHSB rel. Sept. 22, 2008).

[32] *See VoIP 911 Order*, 20 FCC Rcd at 10252-53, para. 17.

[33] *See supra* para. 8.

[34] *See VoIP 911 Order*, 20 FCC Rcd at 10253, para. 17. The special meaning assigned to the p-ANI is determined by agreements, as necessary, between the system originating the call, intermediate systems handling and routing the call, and the destination system. *See id.* at 10253, para. 17 n.45. Forms of p-ANI are also known as "Emergency Services Routing Key" (ESRKs), "Emergency Services Query Keys" (ESQKs), and "Emergency Services Routing Digits" (ESRDs). *See id*. at 10253, para. 17.

[35] Shell records are established in the ALI Database and associated with a given p-ANI. Shell records are created by the MPC in a manual process and entered into the ALI Database outside the DBMS system. The ALI Database administrator defines and controls this entry process. As explained herein, they have a generic field that is updated during a 911 call to provide call-specific ALI data and the call back number. *See, e.g.*, http://www.nena.org/media/files/VoIPPolicyPositions3.20.06.doc (visited Sept. 29, 2008).

provisioned within ALI Database. Based on the p-ANI provided, the MSC then routes the call along with the p-ANI to the appropriate Selective Router. The Selective Router queries the SR Database to determine the ESN, which in turn identifies the PSAP that serves the wireless 911 caller's location based upon the p-ANI number,[36] and routes the call accordingly. The PSAP accesses the ALI Database using the p-ANI and is provided with the information in the shell record associated with that p-ANI.[37] Thus, the elements of the wireless 911 systems that are additional to the Wireline E911 Network are p-ANI, mobile switching center capabilities, mobile positioning center capabilities, and shell records. The wireless 911 systems also may include additional data circuits, network elements, features, processes, and agreements necessary to enable the use of these additional elements.

12. *Interconnected VoIP E911 Network.* Under the Commission's rules, interconnected VoIP providers must provide E911 service to their customers.[38] As with wireless technology and services, interconnected VoIP technology and service present challenges in making E911 effective. Interconnected VoIP service may enable customers to place calls from various geographic locations which, as explained above,[39] may necessitate the use of p-ANI for routing 911 calls. Furthermore, given the state of current technology to determine automatically the location from which an interconnected VoIP call is made, the Commission required providers of interconnected VoIP services to obtain location information, called "Registered Location," from their customers.[40]

13. Under the Commission's rules, interconnected VoIP providers must forward all 911 calls made over their interconnected VoIP service, as well as a call back number and the caller's Registered Location for each call, to the appropriate PSAP.[41] These calls must be routed through the use of ANI and,

[36] Typically, the MPC will assign p-ANI numbers to cell sites or sectors, and the ESNs that correspond to those static locations are known. The p-ANI typically will reside in the ALI Database along with a shell record that already identifies the ESN. When the base station assigned to that p-ANI receives a 911 call, the MPC populates the shell record with the caller's actual call back number, location, and other information.

[37] The shell record also will be updated with location coordinates in accordance with the Commission's CMRS location accuracy standard, which track the caller's location as opposed to the cell site or sector location, although not all PSAPs are capable of receiving and processing such information.

[38] 47 C.F.R. §§ 9.1 *et seq*. We note that an interconnected VoIP provider need only provide such call back and location information as a PSAP, designated statewide default answering point, or appropriate local emergency authority is capable of receiving and utilizing. 47 C.F.R. § 9.5(c). Even where the PSAP is not capable of receiving and utilizing this information, interconnected VoIP providers must transmit all 911 calls to the appropriate PSAP via the Wireline E911 Network. *Id.*; *VoIP 911 Order,* 20 FCC Rcd at 10269-70, para. 42.

[39] *See supra* para. 12.

[40] *VoIP 911 Order,* 20 FCC Rcd at 10271, para. 46 (stating that "providers of interconnected VoIP services that can be utilized from more than one physical location must provide their end users one or more methods of updating information regarding their user's physical location"). The Commission has sought comment on whether it should require interconnected VoIP services to provide location information automatically. *See id.* at 10276-77, para. 57. We note that in the *Location Accuracy Notice*, 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." *See Wireless E911 Location Accuracy Requirements; Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems; 911 Requirements for IP-Enabled Service Providers*, PS Docket No. 07-114, CC Docket No. 94-102, WC Docket No. 05-196, Notice of Proposed Rulemaking, 22 FCC Rcd 10609, 10615, para. 18 (2007) (*Location Accuracy Notice*); *see also supra* note 31.

[41] 47 C.F.R. § 9.5(b)(2); *see also VoIP 911 Order*, 20 FCC Rcd at 10266, para. 37.

if necessary, and similar to wireless carriers, p-ANI,[42] via the dedicated Wireline E911 Network, and the caller's Registered Location must be available from or through the ALI Database.[43] Interconnected VoIP providers may comply with the Commission's rules by interconnecting indirectly through a third party such as a competitive LEC, interconnecting directly with the Wireline E911 Network, or through any other solution that allows the provider to offer E911 service.[44]

D. Entities That Own or Control Interconnected VoIP 911 or E911 Capabilities

14. As discussed in the *VoIP 911 Order*, E911 capabilities vary from network to network and location to location. A variety of entities own or control these capabilities.[45] Some capabilities used to provide E911 service are owned by different types of entities in different areas of the country.[46]

15. *Incumbent LECs*. As described above, it is common for several of the capabilities of the E911 system to be owned or controlled by the incumbent LEC serving the area. These capabilities include interconnection to the Selective Router.[47] Often, incumbent LECs control p-ANI.[48] Incumbent LECs also sometimes own or control certain of the databases described above, such as the ALI Database, the SR Database, and the DBMS.[49] Incumbent LECs also frequently control certain E911 processes, such as providing access to ESNs and shell records.[50]

16. *CMRS Providers*. Mobile wireless providers own or control several of the capabilities described above, including those held at MSCs and MPCs.

17. *States, Localities, and PSAPs*. States, localities, or PSAPs often own or control other E911 capabilities. The MSAG, for example, is frequently owned by local authorities.[51] Other databases, such as the ALI Database, also may be sometimes owned or controlled by local authorities.[52] And localities or PSAPs maintain control over certain processes, such as "certifying" providers to send 911 calls to a particular PSAP, testing that capability, and sometimes entering into agreements that address how 911 calls are handled in a particular locality.[53]

18. *Third-Party Commercial Providers*. Certain third-party commercial providers of communications services also own or control capabilities. For example, Intrado and TCS are major providers of VoIP positioning center (VPC) services – these are essentially the same services provided by

[42] Most commenters agree that ANI and p-ANI are common core capabilities for any interconnected VoIP 911 Network. *See, e.g.*, Illinois Commission Comments at 3; NENA Comments at 7-8; Vonage Comments at 7-9; VON Coalition Comments at 8-10.

[43] *VoIP 911 Order*, 20 FCC Rcd at 10266, para. 37.

[44] *Id.* at 10246, para. 1.

[45] *See id.* at 10250-54, paras. 11-18.

[46] *See supra* note 16; *see also* NENA Comments at 10 (stating that the 911 system is operated in different ways depending on the service providers and 911 authorities involved).

[47] *See, e.g.*, AT&T Comments at 6.

[48] *See, e.g.*, TCS Comments at 8.

[49] *See, e.g.*, AT&T Comments, Attach. § 3.4; Vonage Comments at 18; VON Coalition Comments at 11.

[50] *See, e.g.*, Vonage Comments at 12; VON Coalition Comments at 12-13; AT&T Reply at 5.

[51] *See, e.g.*, Oklahoma City Comments at 5.

[52] *See, e.g.*, Sprint Comments at 4 n.8; Vonage Comments at 18; Von Coalition Comments at 11.

[53] *See, e.g.*, Oklahoma Municipal League Comments at 2.

an MPC in the wireless E911 context, only here they are provided in the VoIP context – which route E911 calls to the appropriate PSAP based on the interconnected VoIP customers' Registered Locations and often include elements such as transport and p-ANI.[54] Some competitive LECs provide interconnection to Selective Routers, access to p-ANI, and other E911 capabilities on a wholesale basis to interconnected VoIP providers.[55]

19. *Interim RNA*. The Interim Routing Number Authority (Interim RNA), a contractor to the Commission, controls some p-ANI.[56]

III. DISCUSSION

20. In this part, we turn first to our obligation under section 6(c)(1) of the Wireless 911 Act to issue regulations ensuring that interconnected VoIP providers can exercise their rights of access to any and all "capabilities" they need to be able to provide 911 and E911 service in full compliance with our rules from "an entity with ownership or control over such capabilities."[57] Congress did not define key terms of these provisions, such as the "capabilities" to which interconnected VoIP providers have a right of access, or an "entity" with ownership or control over capabilities, but left the elucidation of these terms to the Commission. We interpret these terms, examining the statutory language itself, its legislative history, and the record. We next discuss the "rates, terms and conditions" that apply to that access. Then, we impose certain security requirements to protect the integrity of the 911 system.

A. Access to 911 and E911 Capabilities

21. *Need for Rules in General.* We turn first to the scope of the Commission's obligation to "issue regulations implementing the [NET 911] Act, including regulations that . . . ensure that IP-enabled voice service providers have the ability to exercise their rights [to access]."[58] We conclude that having rules establishing standards for access to capabilities best fulfills the Commission's obligations and the goals of the NET 911 Act. Congress clearly intended for the Commission to implement regulations more specific than the statutory language itself. In section 6(c), Congress specifically directed the Commission to conduct this rulemaking to assure interconnected VoIP providers' rights under section (6)(b), taking into account specific factors, such as "any technical, network security, or information privacy requirements that are specific to IP-enabled voice services."[59] If Congress had not intended the Commission to implement rules more detailed than the statute itself, it would not have instructed the Commission to take certain things into account; it would have left the statutory language as sufficient and

[54] *See* Intrado Comments at 2; TCS Comments at 7-8; Vixxi Reply at 1. Intrado offers a comprehensive solution for delivering E911 for VoIP providers. *See* http://www.intrado.com/main/company/government/voipdeployment/whatisintradosrole/ (visited Sept. 26, 2008).

[55] *See, e.g.*, AT&T Comments at 6.

[56] *See* Letter from Thomas J. Navin, Chief, Wireline Competition Bureau, FCC, to Thomas M. Koutsky, Chair, North American Numbering Council, and Ms. Amy L. Putnam, Director, Numbering Pooling Services, NeuStar, Inc., at 2 (Sept. 8, 2006) (p-ANI Administration Letter) (assigning NeuStar, Inc. to be the Interim RNA for the p-ANI codes used for routing emergency calls); *see also* Letter from Thomas J. Navin, Chief, Wireline Competition Bureau, FCC, to Thomas M. Koutsky, Chair, North American Numbering Council, at 1 (June 28, 2007) (designating the entity serving as the pooling administrator also to serve as the Routing Number Authority).

[57] NET 911 Act § 101(2); Wireless 911 Act §§ 6(b), 6(c)(1)(A).

[58] NET 911 Act § 101(2); Wireless 911 Act § 6(c)(1).

[59] NET 911 Act § 101(2); Wireless 911 Act § 6(c)(1)(B).

self-effectuating.[60] We therefore disagree with commenters that suggest that no specific rules are needed, or that any rules can simply parrot the statutory language.[61]

22. We also decline to issue highly detailed rules listing capabilities or entities with ownership or control of those capabilities.[62] As recognized above and explained further in this part, the nation's 911 system varies from locality to locality, and overly specific rules would fail to reflect these local variations.[63] Furthermore, as Congress recognized, the nation's 911 system is evolving from its origins in the circuit-switched world into an IP-based network.[64] Our rules should be sufficiently flexible to accommodate this ongoing process. Indeed, Congress specifically prohibited the Commission from "issu[ing] regulations that require or impose a specific technology or technological standard,"[65] which specific, invariable rules could do. We therefore adopt rules that establish standards for determining to what capabilities interconnected VoIP providers have a right of access and from which entities, and we explain in this Order what capabilities and entities would typically (but not necessarily) be encompassed in today's architecture.

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[60] *See* Vonage Reply at 2 (arguing that it would be inadequate for the Commission to simply state that entities that provide 911 capabilities to CMRS carriers must make such capabilities available to interconnected VoIP providers on the same, rates, terms, and conditions, as urged by USTelecom, AT&T, Verizon, Qwest and Sprint).

[61] *See, e.g.*, AT&T Comments at 5 (stating that, "the Commission's role in implementing the NET 911 Act is not to reinvent the wheel by establishing a lengthy new list of Commission-prescribed capabilities that must be offered to VoIP providers"); USTelecom Comments at 5 (stating that there is no need for detailed regulations to effectuate the purposes of the NET 911 Act); Verizon Comments at 3 (stating that VoIP providers are already providing E911 service to their customers, and given the very short deadline for Commission action imposed by the NET 911 Act, the Commission should not attempt to develop detailed and prescriptive rules defining 911 capabilities).

[62] *See, e.g.*, Vonage Comments at 5-6 (stating the Commission must establish "a clear, non-exhaustive, and prospective definition of capabilities in order to allow [interconnected VoIP providers] the ability to exercise their rights under the legislation"); Illinois Commission at 2 (stating that the Commission should define capabilities in its rule); Oklahoma Municipal League Comments at 2 (stating that the Commission should define capabilities in a rule, to a level of detail such that state commissions, 911 districts and agencies, and PSAPs who have capacity to utilize such capabilities are given clear authority to ensure that IP-enabled voice service providers comply with state and local standards related to routing, documentation, data formatting, carrier identification, and other established procedures); Texas 911 Alliance Comments at 4 (stating that any adopted rule should list certain core elements of the current 911 system); Vonage Reply at 13 (stating that the Commission should broadly define the parties that own or control the E911 capabilities).

[63] As the VON Coalition explains:

> [The E911 system] utilizes a variety of legacy technologies. Equipment, network elements, databases, selective routers, interfaces and facilities are unique in each region. New service offerings, like VoIP, have been forced to retrofit their technologies to be backward compatible with this legacy technology that often varies PSAP to PSAP. . . . Network elements and database access necessary in one region may not be in another. Given the existence of over 6000 independently operated public safety answering points (PSAPs) and over 1000 independent incumbent local exchange carriers (ILECs), it is impossible to create an exhaustive list of necessary 9-1-1 components.

VON Coalition Comments at 8.

[64] *See* NET 911 Act, Preamble ("[t]o encourage the Nation's transition to a national IP-enabled emergency network"); NET 911 Act § 102 (requiring the National Telecommunications and Information Administration's E911 Implementation Coordination Office to "develop and report to Congress on a national plan for migrating to a national IP-enabled emergency network capable of receiving and responding to all citizen-activated emergency communications").

[65] NET 911 Act § 101(2); Wireless 911 Act § 6(e)(1).

23. *Standard for Right of Access to Capabilities.* Consistent with the approach just described, here we adopt rules establishing a standard for determining to what capabilities interconnected VoIP providers have a right of access, and also providing examples of the capabilities that will typically be required in most local 911 and E911 architectures.[66] We explain in later parts of this Order that capabilities may only be used for the provision of 911 and E911 service.[67]

24. First, we begin with the statutory language. While the statute does not define the term "capabilities," it does provide that interconnected VoIP providers have a right of access to capabilities on the same "rates, terms, and conditions that are provided to a provider of commercial mobile service."[68] Pursuant to our authority under the NET 911 Act, we issue rules to grant interconnected VoIP providers a right of access to the capabilities CMRS providers use to provide E911 service equal to the access rights made available to CMRS providers.[69] Congress clearly recognized a commonality between the capabilities needed by interconnected VoIP providers and those already used by CMRS providers. Indeed, if an owner or controller of a capability used to provide E911 service made it available to a CMRS provider at a certain rate but refused to grant interconnected VoIP providers access to that same capability, that interconnected VoIP provider would not "*have a right of access to such capabilities* . . . to provide [E911] service on the same rates, terms, and conditions that are provided to a provider of [CMRS]."[70] We also find support for this position in the context in which this legislation was enacted.[71] As explained above,[72] the capabilities used by interconnected VoIP providers – particularly those providing a nomadic or mobile service – to provide E911 service are similar to those used by CMRS providers; interpreting the statute to mean that interconnected VoIP providers have a right of access to those capabilities used by CMRS providers furthers Congress's goal of "ensur[ing] that consumers using Voice over Internet Protocol (VoIP) service can access enhanced 911 (E-911) emergency services by giving VoIP providers access to the emergency services infrastructure."[73]

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[66] We decline to expand the applicability of the rights granted in the NET 911 Act to entities beyond those encompassed within that statute as some commenters have suggested. In this Order, therefore, we do not address whether we should modify or waive section 52.15(g)(2)(i) of the Commission's rules to allow VPC providers that are neither carriers nor interconnected VoIP providers to obtain numbering resources. *See* TCS Comments at 4 (requesting that the Commission address issues raised in a TCS petition for waiver that is pending in CC Docket No. 99-200). Our determination that such providers are not granted access rights under the NET 911 Act does not prejudice the Commission's ultimate decision on any pending petitions for waiver.

[67] *See infra* para. 26.

[68] NET 911 Act § 101(2); Wireless 911 Act § 6(b).

[69] *E.g.,* AT&T Comments at 2 (stating that the NET 911 Act instructs the Commission to adopt regulations that ensure that VoIP providers have the ability to access 911 capabilities provided to CMRS providers); USTelecom Comments at 2 (arguing that Congress intended the existing commercial mobile service E911 system to serve as the template for VoIP E911 access).

[70] NET 911 Act § 101(2); Wireless 911 Act § 6(b) (emphasis added).

[71] The House Report supports this interpretation, noting that "subsection 6(b) would give VoIP providers, when they seek access to the capabilities needed to provide 911 and E-911 service from any entity with ownership or control over those capabilities, *the same rights*, including rights of interconnection, and on the same rates, terms, and conditions as would be applicable to providers of commercial mobile service (also referred to herein as wireless service), subject to regulations promulgated by the Commission under new subsection 6(c)." H.R. Rep. No. 110-442 at 13 (emphasis added).

[72] *See supra* paras. 9-11.

[73] H.R. Rep. No. 110-442 at 5.

25. Second, with respect to any capabilities that are not provided to CMRS providers for their provision of E911 service, we interpret the NET 911 Act as granting interconnected VoIP providers a right of access if the capability is necessary for the interconnected VoIP provider to provide E911 service in compliance with the Commission's rules. For reasons similar to those outlined in the previous paragraph, we believe that the right of an interconnected VoIP provider to certain rates, terms, and conditions necessarily includes a right of access to such capability.[74] Section 6(c)(1)(C) of the Wireless 911 Act provides that "with respect to any capabilities that are not required to be made available to a [CMRS] provider but that the Commission determines . . . are *necessary* for an [interconnected VoIP] provider to comply with its obligations [to provide E911 service in accordance with the Commission's rules], that such capabilities shall be available at the same rates, terms, and conditions as would apply if such capabilities were made available to a [CMRS] provider."[75] We also find that this text limits interconnected VoIP providers' right of access to such capabilities to those that are *necessary* to provide E911 service in compliance with the Commission's rules.

26. Third, regardless whether a capability is used by a CMRS provider or not, for any capability an interconnected VoIP provider gets pursuant to rights granted in the NET 911 Act and our implementing rules, such capability may be used by that provider *only* for the purpose of providing E911 service in accordance with the Commission's rules.[76] The NET 911 Act explicitly mandates this limit on interconnected VoIP providers' statutory access rights with respect to capabilities CMRS providers use to provide E911 service.[77] We recognize that the statute does not expressly contain a similar limitation in section 6(c)(1)(C), which grants interconnected VoIP providers a right to access the capabilities they need to provide E911 service even if they are not capabilities CMRS providers use to provide E911 service.[78] Nevertheless, our interpretation of the NET 911 Act is informed by the legislative history[79] as well as Congress's overarching purpose in enacting the provisions at issue here. Both with respect to capabilities that are used by CMRS providers and those that are not, the NET 911 Act is clear that its purpose is to facilitate interconnected VoIP providers' ability to provide E911 service in compliance with the Commission's rules, without granting access rights to additional capabilities. This overarching purpose indicates that Congress intended that *any* capabilities to which access is gained pursuant to the NET 911 Act may be used exclusively for the purpose of providing E911 service. In addition, the record indicates that CMRS providers use most of the capabilities interconnected VoIP providers need to provide E911 service.[80] We do not find any reason to believe that Congress would have granted interconnected VoIP

[74] Thus, interconnected VoIP providers have a right to access capabilities necessary for the provision of 911 and E911 service.

[75] NET 911 Act § 101(2); Wireless 911 Act § 6(c)(1)(C) (emphasis added).

[76] Thus, we reject any claims that interconnected VoIP providers could access capabilities pursuant to the Net 911 Act and our implementing rules for purposes other than providing E911 service. *See, e.g.*, USTelecom Comments at 4.

[77] *See, e.g.*, NET 911 Act § 101(2); Wireless 911 Act § 6(b) (providing that interconnected VoIP providers' right to capabilities, including interconnection, to comply with that provider's E911 obligations under the Commission's rules, shall be "for the exclusive purpose of complying with its obligations").

[78] NET 911 Act § 101(2); Wireless 911 Act § 6(c)(1)(C).

[79] The House Report states that any regulations issued under section 6(c) should "adhere to the basic tenet established in new subsection 6(b) that the rights given to VoIP providers in [the NET 911 Act] are the for the sole purpose of transmitting, delivering, and completing 911 and E-911 calls and associated E-911 information and do not extend beyond a right of access only to the 911 infrastructure needed to transmit, deliver, and complete 911 and E-911 calls and associated E-911 information." H.R. Rep. No. 110-442 at 14.

[80] *See, e.g.*, Illinois Commission Comments at 3; AT&T Reply at 2.

providers more expansive rights with respect to the relatively small subset of capabilities that are not used by CMRS providers to provide E911 service than those capabilities that are. Therefore, we believe it is reasonable to require that interconnected VoIP providers use all capabilities that they obtain pursuant to the NET 911 Act and this Order exclusively for the provision of E911 service in compliance with our rules.[81]

27. *Typical Capabilities.* The record reflects general consensus as to what capabilities are used by CMRS providers today and what capabilities are not used by CMRS providers but are "necessary" for interconnected VoIP providers to comply with our rules.[82] As AT&T explains, CMRS providers have been offering E911 services for many years and even interconnected VoIP providers have been providing such services since 2005.[83] We therefore interpret "capabilities" to include all those items described in part II of this Order that are used by wireless providers today or that are not used by wireless providers but are necessary to interconnected VoIP providers' compliance with our rules. Thus, in a typical local architecture, "capabilities" will include: the Selective Router; the trunk line(s) between the Selective Router and the PSAP(s); the ALI Database; the SR Database; the DBMS, the MSAG; p-ANIs;[84] ESNs; mobile switching center capabilities; mobile positioning center capabilities; shell records; the data circuits connecting these elements; and the network elements, features, processes, and agreements necessary to enable the use of these elements.

28. *Entities with Ownership or Control of Capabilities*. We conclude that interconnected VoIP providers are entitled to access to capabilities from *any* entity that owns or controls such capabilities. Again, we find this interpretation to be the most natural reading of the statutory language. Section 6(b) grants interconnected VoIP providers a right to access "such capabilities,"[85] with "such" referring back to the "capabilities [an interconnected VoIP seeks] to provide 9-1-1 and enhanced 9-1-1 service from an entity with ownership or control over such capabilities."[86] Congress's use of the term "an entity" instead of "the entity" strongly suggests that Congress understood that capabilities might be available from multiple sources and intended a broad interpretation of the scope of "entities" obligated to provide access to capabilities. We therefore interpret the NET 911 Act to impose obligations of access on each of the entities described in part II.D of this Order, including in typical E911 architectures: incumbent LECs, PSAPs and local authorities, VPCs, CMRS providers, competitive carriers, and the Interim RNA to the extent any of these entities has "ownership or control" over any capabilities to which interconnected VoIP providers have a right of access.

29. We recognize that in some instances, multiple entities may have ownership or control of similar capabilities in the same local area. We see nothing in the NET 911 Act to suggest that only certain of those entities would have the obligation to provide access. Indeed, if some but not all entities had that obligation, disputes would certainly arise over which entities were subject to the Act, causing delays in granting interconnected VoIP providers access and thwarting Congress's ultimate goal of

[81] *See, e.g.*, USTelecom Comments at 4.

[82] *See, e.g.*, Comcast Comments at 4-5; Illinois Commission Comments at 2-3; NENA Comments at 7; Vonage Comments at 6-17; AT&T Reply at 2; RNK Reply at 4; T-Mobile Reply at 2.

[83] AT&T Reply at 2.

[84] As a result of today's Order, interconnected VoIP providers now have access to p-ANIs. This includes all forms of p-ANI, such as ESRKs, ESQKs, or ESRDs, as described above. *See supra* note 34. Because we find that p-ANIs are capabilities under the NET 911 Act and our implementing rules, this decision requires changes to the current p-ANI administration system. *See* p-ANI Administration Letter at 3. The Wireline Competition Bureau will provide conforming instructions to the Interim RNA.

[85] NET 911 Act § 101(2); Wireless 911 Act § 6(b).

[86] *See id*.

"facilitating the rapid deployment of IP-enabled 911 and E911 services."[87] Finally, we recognize that we do not normally regulate some of the entities we describe in this part, such as PSAPs and VPCs. Yet Congress has imposed a duty on them and instructed this Commission to issue regulations to "ensure that IP-enabled voice service providers have the ability to exercise their rights under subsection (b)."[88] As Congress has instructed the Commission to take these actions, it has also given the Commission the authority it needs to do so.[89]

B. Rates, Terms, and Conditions

30. The NET 911 Act also mandates that the rates, terms, and conditions under which access to 911 and E911 capabilities is provided are to be the same as made available to CMRS providers. Under the rules we issue today, interconnected VoIP providers may exercise these rights to fulfill their obligation to provide 911 and E911 in full compliance with our rules.

31. As a threshold matter, we find that issuing rules of general applicability regarding rates, terms, and conditions best fulfills the goals of the NET 911 Act. The rules we adopt today are specific enough to bring market certainty and clear direction while also being flexible enough to ensure that Congress's aims are met in a wide variety of circumstances. Contrary to the approach advocated by some commenters, we find no indication that Congress intended the Commission to issue detailed regulations regarding the pricing methodology under which E911 capabilities must be made available.[90] Instead, we find it sufficient to specify that those rates, terms, and conditions must *in all instances be reasonable*.[91] One indicia of reasonableness will be whether the rates, terms, and conditions under which E911 capabilities are made available to interconnected VoIP providers are the same as the rates, terms, and conditions made available to CMRS providers.[92]

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[87] *See* NET 911 Act, Preamble.

[88] NET 911 Act § 101(2); Wireless 911 Act § 6(c)(1)(A); *see also* Verizon Reply at 3 (explaining that entities other than incumbent LECs own or control various 911 capabilities, such as state or local governments, PSAPs, and VPC providers, and the Commission "should make clear that any entity that owns or controls 911 capabilities – and not just incumbent LECs – must make them available to [interconnected VoIP providers.]").

[89] NET 911 Act § 101(2).

[90] We therefore reject the request of certain commenters that we establish a specific pricing standard for access to E911 capabilities, such as requiring that such access must be based on forward-looking costs under the Commission's total element long run incremental cost (TELRIC) standard. *See, e.g.*, Comcast Comments at 8 (asserting that that the Commission should obtain a reasonable proxy for long-run incremental costs for E911 elements); Vonage Comments at 22 (asserting that the Commission should establish cost-based pricing standards for E911 elements); Comcast Reply at 7.

[91] *See, e.g.*, NENA Comments at 3-4 (stating that interconnected VoIP providers should be granted access to all capabilities that are necessary for E911 services and "such access should be provided at rates that are just, reasonable and non-discriminatory"); Letter from Patrick Halley, Government Affairs Director, NENA, and Robert Gurss, Director, Legal and Government Affairs, APCO, to Marlene H. Dortch, Secretary, FCC, WC Docket No. 08-171 at 1 (filed Oct. 2, 2008) (same).

[92] We decline to address in this order whether the rates, terms, and conditions currently provided to CMRS providers are competitive. As an initial matter the statutory provisions at issue here do not call for such an evaluation. Even if they did, the record in this proceeding does not contain detailed information about the market conditions in which E911 capabilities are provided to CMRS providers or interconnected VoIP providers, nor could we complete such a review within the 90-day statutory deadline. *See, e.g.*, Intrado Comments at 3 ("ILECS have retained their monopolies in their individual operating territories for the purposes of 911/E911 services to PSAPs"); Vonage Comments at 4 (stating that, in contrast to wireline and wireless carriers, interconnected VoIP providers "are dependent on a small handful of subcontractors to provide E911 services to their customers"). *But see, e.g.*, (continued….)

32. First, we consider the case where a capability is in fact provided to CMRS carriers, such that the owner or controller of that capability must grant interconnected VoIP providers access to that capability. In that case, the statute is clear on its face that the capability must be made available "on the same rates, terms, and conditions that are provided to" a CMRS provider.[93] We interpret the term "provided" as used in this provision as encompassing not only those capabilities that are actually provisioned to a CMRS provider as well as the rates, terms, and conditions under which they are provisioned, but also those capabilities that are currently offered to a CMRS provider as well as the rates, terms, and conditions under which they are offered. We interpret "provided" broadly to ensure that interconnected VoIP providers are able to access the same capabilities that CMRS providers may access on the same rates, terms, and conditions that are available to CMRS providers.

33. In addition, if an owner or controller of a capability does not provide a capability to CMRS providers but is required under part III.A above to grant interconnected VoIP providers access to such capability, such access must be provided on the rates, terms, and conditions that would be offered to a CMRS provider.[94] We do not believe that Congress intended for us, within the 90-day timeframe we have to adopt rules implementing the NET 911 Act, to conduct detailed pricing proceedings to determine, for each such capability offered by each type of provider in various localities around the country, what the exact price for each capability would be if it were offered to CMRS providers. Congress clearly did intend, however, for this Commission to provide guidance as to how the rates, terms, and conditions for these capabilities should be determined.[95] To further that intent, minimize disputes over these rates, terms, and conditions, and help achieve Congress's ultimate goal "[t]o promote and enhance public safety by facilitating the rapid deployment of IP-enabled 911 and E-911 services,"[96] we provide further guidance.[97] Specifically, if an owner or controller does not provide a capability to CMRS providers but is required under part III.A of this Order to give interconnected VoIP providers access to such capability, such access must be made available on the same rates, terms, and conditions that are offered to other telecommunications carriers or any other entities. We believe such rates, terms, and conditions are a

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USTelecom Comments at 4 (the Commission need not regulate prices as commercially negotiated agreements are made freely in the marketplace).

[93] NET 911 Act § 101(2), Wireless 911 Act § 6(b).

[94] *See* NET 911 Act § 101(2); Wireless 911 Act §§ 6(b), (c)(1)(C) (instructing the Commission to issue regulations that "provide, with respect to any capabilities that are not required to be made available to a commercial mobile service provider but that the Commission determines . . . are necessary for an IP-enabled voice service provider to comply with its [E911] obligations . . . that such capabilities shall be available at the same rates, terms, and conditions as would apply if such capabilities were made available to a commercial mobile service provider"). The record indicates that the industry already is moving in this direction and that many agreements with interconnected VoIP providers for E911 capabilities are patterned after existing agreements with CMRS providers. *See, e.g.*, AT&T Comments at 4-5; Verizon Comments at 4; Verizon Reply at 5-6.

[95] *See* NET 911 Act § 101(2); Wireless 911 Act § 6(c) ("The Commission . . . *shall issue regulations* . . . that . . . provide, with respect to any capabilities that are not required to be made available to a commercial mobile service provider but that the Commission determines . . . are necessary for an IP-enabled voice service provider to comply with its [E911] obligations . . . that such capabilities shall be available at the same rates, terms, and conditions *as would apply if* such capabilities were made available to a commercial mobile service provider.") (emphasis added).

[96] NET 911 Act, Preamble.

[97] *See* NET 911 Act § 101(2); Wireless 911 Act § 6(c)(1)(C). Comcast Comments at 4; Vonage Comments at 17. *But see* AT&T Comments at 6 ("AT&T would expect that there should be few (if any) additional 911/E911 capabilities that are not currently offered to CMS providers in the marketplace today for which the Commission would find it necessary to address pursuant to section 6(c) of the NET 911 Act.").

reasonable proxy for the rates, terms and conditions that would be provided to a CMRS provider.[98] To the extent an owner or controller of a capability used to provide E911 service provides a single capability to more than one CMRS provider or other entity, an interconnected VoIP provider that requests access to such capability is entitled to the rates, terms and conditions provided to any such single other provider.[99]

34. If an owner or controller of a capability required to be made available does not currently make that capability available to any other entities, the rates, terms and conditions under which that owner or controller must provide access to a requesting interconnected VoIP provider must be reasonable, and should be reached through commercial negotiation.[100] Given the industry's track record in working diligently and on an accelerated time table to implement the *VoIP 911 Order* and the importance all industry participants attach to having a reliable and effective 911 and E911 network,[101] we believe that the capability owner or controller and the interconnected VoIP provider will be able to expeditiously negotiate reasonable rates, terms, and conditions for that capability. We clarify that in granting interconnected VoIP providers new contractual rights, we do not abrogate any existing commercial agreements that interconnected VoIP providers may already have reached for access to capabilities for the provision of E911 service.[102] Finally, we emphasize that all rights to capabilities that the NET 911 Act

[98] *See* AT&T Comments at 6 (arguing that the Commission should rely upon market-based, commercial arrangements to the extent that the Commission identifies capabilities needed by interconnected VoIP providers that are not currently offered to CMRS providers).

[99] We require that interconnected VoIP providers get the benefits and burdens associated with all of the applicable rates, terms, and conditions of agreements for access to the capabilities they need to provide E911 service, rather than getting to "pick and choose" the best terms from each such agreement. *Cf., e.g.*, *Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers*, CC Docket No. 01-338, Second Report and Order, 19 FCC Rcd 13494 (2004)), *aff'd*, *New Edge Network, Inc. v. FCC*, 461 F.3d 1105 (D.C. Cir. 2006) (replacing the "pick and choose" rule with an "all or nothing" rule). We recognize, however, that many such agreements will address matters other than access to E911 capabilities. Our requirement that the rates, terms, and conditions under which E911 capabilities are made available to interconnected VoIP providers be reasonable ensures that those providers are able to meet their obligations to provide E911 service to their customers, consistent with Congress's intent.

[100] To facilitate compliance with the requirements adopted in this Order, we require the owners and controllers of capabilities to ensure that interconnected VoIP providers have ready access to the rates, terms, and conditions upon which their rights are based. *See, e.g.*, Comcast Comments at 7 (arguing that an ability to determine existing rates, terms, and conditions is essential to ensuring compliance with the NET 911 Act); Intrado Comments at 5 (urging the public filing of such agreements for similar reasons); Oklahoma City Comments at 8; Vonage Comments at 22; NCTA Reply Comments at 3. As the Commission previously has found, competition is facilitated if customers can easily find information on the rates, terms, and conditions for services. *See, e.g.*, *Policy and Rules Concerning the Interstate, Interexchange Marketplace*, *Implementation of Section 254(g) of the Communications Act of 1934*, CC Docket No. 96-61, Second Order on Reconsideration and Erratum, 14 FCC Rcd 6004, 6009, para. 9 (citing *Policy and Rules Concerning the Interstate, Interexchange Marketplace*, CC Docket No. 96-61, Second Report and Order, 11 FCC Rcd 20730, 20745-46, para. 25 (1996)). Nevertheless, we decline at this time to require parties to publish their rates, terms, and conditions or file them with the Commission to comply with the NET 911 Act. *See* Verizon Comments at 4 (arguing that such rates, terms, and conditions are readily ascertainable from public documents). In the absence of any record of abuse, we believe requiring ready access is sufficient to ensure that the goals of the NET 911 Act are met without imposing any undue burdens.

[101] *See, e.g.*, Verizon Comments at 4; Vonage Comments at 2-3; VON Coalition Comments at 3 (referring to "the incredible efforts of [i]nterconnected VoIP providers and their 911 partners" in implementing the *VoIP 911 Order*); *see also* Washington State 911 Program Comments at 1 (urging that the Commission encourage collaboration between public safety and service suppliers).

[102] *See* H.R. Rep. No. 110-442 at 13 (stating that the prior, similar version of this legislation "is not intended to abrogate existing commercial arrangements relating to the provision of 911 and E-911 service entered into by VoIP providers prior to the enactment of [the legislation]); *see also, e.g.*, AT&T Comments at 5. Of course, any change of (continued….)

grants to an interconnected VoIP provider are "for the exclusive purpose of complying with . . . its obligations under subsection (a) [*i.e.* the Commission's existing E911 rules]."[103] The NET 911 Act does not grant, and our rules do not grant, access to capabilities beyond what interconnected VoIP providers need to provide 911 and E-911 service, nor does the statute or our rules grant access to capabilities for any purpose other than compliance with our 911 and E911 rules.

C. Technical, Network Security, and Information Privacy Requirements

35. To protect the security and reliability of the E911 network, interconnected VoIP providers may obtain access to E911 capabilities only in compliance with the specific criteria set forth below. The safety of our nation's citizens vitally depends upon protecting the emergency services network from security threats. In this Order, as required by the NET 911 Act, we grant interconnected VoIP providers access to E911 capabilities.[104] Expanding the range of entities that have access to the E911 network raises new challenges. As NENA has said, VoIP technology "presents new challenges and security issues [for 911 service] as it breaks the bond between access and service provider characteristics of legacy networks and at this time lacks the legislative and regulatory requirements that apply to more conventional telephone services."[105]

36. Although Congress has granted interconnected VoIP providers additional rights to access E911 capabilities, in most cases, we do not anticipate significant deviation from current practices. Commenters agree that interconnected VoIP providers today are successfully using numbering partners and other 911 service providers to deliver E911 calls to the appropriate PSAP.[106] For example, Vonage reports that for "98.45% of its customers, Vonage [currently] provides the full suite of E911 service" pursuant to NENA's standard and is in the process of obtaining the capabilities it needs to provide E911 service for most of the remainder of its customers.[107]

37. NENA has developed national VoIP E911 requirements, referred to as NENA's i2 standard, that are "designed to ensure that VoIP 9-1-1 calls are routed and presented in a wireline

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law provision in an existing agreement should be given the effect intended by the parties to the agreement. In addition, nothing in this Order is intended to alter the cost allocation for services between the PSAP and the interconnected VoIP provider. *See* Intrado Comments at 13; *VoIP 911 Order*, 20 FCC Rcd at 10253, para. 18.

[103] *See* NET 911 Act § 101(2); Wireless 911 Act § 6(b).

[104] *See supra* part III.

[105] *See* Interim VoIP Architecture For Enhanced 9-1-1 Services, NENA 08-001, Issue 1 at 58 (December 6, 2005) (NENA's i2 Standard), *available at* http://www.nena.org/media/File/08-001_20051205.pdf (visited Oct. 14, 2008) ("These security threats present themselves in a number of forms and have varying degrees of severity should they be exploited to their full potential. . . . This section does not in itself provide solutions to these concerns."); Oklahoma City Comments at 9 (stating that "IP-enabled voice services provide new opportunity for intentional penetration and disruption of 911 services" and offering examples of "denial of service attacks generated by hackers or cyber terrorists who may penetrate the IP network at various points" – the risks of which are magnified to the extent an interconnected VoIP provider has access to the 911 and E911 network).

[106] *See, e.g.*, AT&T Comments at 4-5 (arguing that given the success of interconnected VoIP providers in currently providing E911 service, only limited rule changes are necessary); Verizon Comments at 1 (noting interconnected VoIP providers success in providing E911 service); VON Coalition Comments at 2-3 (reporting that "interconnected VoIP services now provide basic or enhanced 911 to more than 97 percent of their subscribers – the fastest and broadest onetime implementation of E911 in the history of public safety" (footnote omitted)).

[107] Vonage Comments at 3.

equivalent manner."[108] We believe that any interconnected VoIP provider that is in compliance with this standard already is coordinating its efforts with the other organizational entities responsible for providing E911 service.

38. We require interconnected VoIP providers to comply with all applicable industry network security standards to the same extent as traditional telecommunications carriers when they access capabilities traditionally used by carriers. We recognize the security of the nation's emergency services network depends on many interlocking measures that collectively preserve the integrity of the 911 system from unauthorized access and use. For instance, in addition to the security concerns discussed above, the network elements used to provide 911 service must be kept physically secure. The E911 network must also be kept secure against unauthorized electronic access, such as through hacking. NENA reports that "[t]he existing Emergency services network provides a relatively high degree of security for correctness of information, integrity, and authorization of access, authenticity/secrecy, and accuracy of information."[109] By requiring interconnected VoIP providers to comply with the same standards as carriers, we are able to expand access to the E911 system without compromising network security.[110]

39. Finally, our rules contemplate that incumbent LECs and other owners or controllers of 911 or E911 infrastructure will acquire information regarding interconnected VoIP providers and their customers for use in the provision of emergency services. We fully expect that these entities will use this information only for the provision of E911 service. To be clear, no entity may use customer information obtained as a result of the provision of 911 or E911 services for marketing purposes.[111]

IV. PROCEDURAL MATTERS

A. Final Regulatory Flexibility Act Analysis

40. As required by the Regulatory Flexibility Act of 1980 ("RFA"),[112] the Commission has prepared a Final Regulatory Flexibility Analysis ("FRFA") relating to this Report and Order. The FRFA is set forth in Appendix C.

B. Paperwork Reduction Act Analysis

41. This document contains new information collection requirements subject to the Paperwork Reduction Act of 1995 (PRA), Public Law 104-13. It will be submitted to the Office of Management and Budget (OMB) for review under section 3507(d) of the PRA. OMB, the general public, and other Federal agencies are invited to comment on the new or modified information collection requirements adopted in this Order.

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[108] NENA Comments at 5; King County Reply at 2 (stating that NENA's i2 "standards are developed through an extensive process of discussion and review, with participation from all parties involved in the provision of E911 service"); *see also* NENA's i2 Standard.

[109] *See* NENA's i2 Standard at 57-58.

[110] *See, e.g.*, Intrado Comments at 11 (stating that any entity that connects to 911 network needs to comply with "industry recommended standards that ensure interoperability between service providers and the 911/E911 network"); Sprint Nextel Comments at 8 ("Sprint is not aware of any technical, network security or information privacy requirements that are unique to IP-enabled services."); Verizon Reply at 6.

[111] *See* Sprint Nextel Comments at 8; Texas 911 Alliance Comments at 9.

[112] *See* 5 U.S.C. § 604. The RFA, *see* 5 U.S.C. § 601-612, has been amended by the Small Business Regulatory Enforcement Fairness Act of 1996 ("SBREFA"), Pub. L. No. 104-121, Title II, 110 Stat. 847 (1996). The SBREFA was enacted as Title II of the Contract With America Advancement Act of 1996 ("CWAAA").

C. Congressional Review Act

42. The Commission will include a copy of this Report and Order in a report to be sent to Congress and the Government Accountability Office pursuant to the Congressional Review Act, *see* 5 U.S.C. 801(a)(1)(A).

D. Accessible Formats

43. To request information in accessible formats (computer diskettes, large print, audio recording, and Braille), send an e-mail to fcc504@fcc.gov or call the Commission's Consumer and Governmental Affairs Bureau at (202) 418-0530 (voice), (202) 418-0432 (TTY). This document can also be downloaded in Word and Portable Document Format ("PDF") at: http://www.fcc.gov.

V. ORDERING CLAUSES

44. Accordingly, IT IS ORDERED that pursuant to sections 1, 4(i)–(j), 251(e) and 303(r) of the Communications Act of 1934, as amended, 47 U.S.C. §§ 151, 154(i)–(j), 251(e), 303(r), and section 101 of the NET 911 Act, the Report and Order in WC Docket No. 08-171 IS ADOPTED, and that Part 9 of the Commission's Rules, 47 C.F.R. Part 9, IS AMENDED as set forth in Appendix B. The Order shall become effective 30 days after notice of it is published in the Federal Register subject to OMB approval for new information collection requirements.

45. IT IS FURTHER ORDERED that the Commission's Consumer and Governmental Affairs Bureau, Reference Information Center, SHALL SEND a copy of this Report and Order, including the Final Regulatory Flexibility Analysis, to the Chief Counsel for Advocacy of the Small Business Administration.

FEDERAL COMMUNICATIONS COMMISSION

Marlene H. Dortch
Secretary

APPENDIX A

List of Commenters

Comments in WC Docket No. 08-171

Comments	Abbreviation
9-1-1 Association of Central Oklahoma Governments	911 Association of Central Oklahoma Governments
AT&T Inc.	AT&T
Comcast Corporation	Comcast
City of Oklahoma City	Oklahoma City
District of Columbia Office of Unified Communications	D.C. Office of Unified Communications
Illinois Commerce Commission	Illinois Commission
Intrado Inc. and Intrado Communications	Intrado
National Emergency Numbering Association and Association of Public-Safety Communications Officials-International	NENA
Oklahoma Municipal League	Oklahoma Municipal League
Oklahoma Statewide 911 Advisory Board	Oklahoma Statewide 911 Advisory Board
Qwest Communications International Inc.	Qwest
Sprint Nextel Corporation	Sprint
T-Mobile USA, Inc.	T-Mobile
TeleCommunication Systems, Inc.	TCS
The Texas 9-1-1 Alliance and Texas Commission on State Emergency Communications	Texas 911 Alliance
The VON Coalition	The VON Coalition
United States Telecom Association	USTelecom
Verizon	Verizon
Vonage Holdings Corp.	Vonage
Washington State E911 Program	Washington State E911 Program

Reply Comments in WC Docket No. 08-171

Reply Comments	Abbreviation
AT&T Inc.	AT&T
Cincinnati Bell Wireless LLC	Cincinnati Bell Wireless
Comcast Corporation	Comcast
CTIA – The Wireless Association	CTIA
Intrado Inc. and Intrado Communications	Intrado
King County E911 Program	King County
Level 3 Communications LLC	Level 3
National Emergency Numbering Association and Association of Public-Safety Communications Officials-International	NENA
National Cable & Telecommunications Association	NCTA
People of the State of California and California Public Utilities Commission	California Commission
RNK Communications	RNK

T-Mobile USA, Inc.	T-Mobile
TeleCommunication Systems, Inc.	TCS
United States Telecom Association	USTelecom
Verizon	Verizon
Verizon Wireless	Verizon Wireless
Vixxi Solutions Inc.	Vixxi
Vonage Holdings Corp.	Vonage

APPENDIX B

Final Rules

Part 9 of Title 47 of the Code of Federal Regulations is amended to read as follows:

PART 9 – INTERCONNECTED VOICE OVER INTERNET PROTOCOL SERVICES

1. The authority citation for Part 9 is amended to read as follows:

Authority: 47 U.S.C. 151, 154(i)-(j), 251(e), 303(r), and 615a-1 unless otherwise noted.

2. § 9.1 is amended to read as follows.

§ 9.1 Purposes.

The purposes of this part are to set forth the 911 and E911 service requirements and conditions applicable to interconnected Voice over Internet Protocol service providers, and to ensure that those providers have access to any and all 911 and E911 capabilities they need to comply with those 911 and E911 service requirements and conditions.

3. § 9.3 is amended by adding in alphabetical order definitions of "ALI" and "CMRS" to read as follows.

§ 9.3 Definitions.

Automatic Location Information (ALI). Information transmitted while providing E911 service that permits emergency service providers to identify the geographic location of the calling party.

CMRS. Commercial Mobile Radio Service, as defined in § 20.9 of this chapter.

4. § 9.7 is added to read as follows.

§ 9.7 Access to 911 and E911 Service Capabilities.

(a) Access. Subject to the other requirements of this part, an owner or controller of a capability that can be used for 911 or E911 service shall make that capability available to a requesting interconnected VoIP provider as set forth in paragraphs (a)(1) and (a)(2) of this section.

(1) If the owner or controller makes the requested capability available to a CMRS provider, the owner or controller must make that capability available to the interconnected VoIP provider. An owner or controller makes a capability available to a CMRS provider if the owner or controller offers that capability to any CMRS provider.

(2) If the owner of controller does not make the requested capability available to a CMRS provider within the meaning of paragraph (a)(1) of this section, the owner or controller must make that capability available to a requesting interconnected VoIP provider only if that capability is necessary to enable the interconnected VoIP provider to provide 911 or E911 service in compliance with the Commission's rules.

(b) Rates, Terms, and Conditions. The rates, terms, and conditions on which a capability is provided to an interconnected VoIP provider under paragraph (a) of this section shall be reasonable. For purposes of this paragraph, it is evidence that rates, terms, and conditions are reasonable if they are: (1) the same as the rates, terms, and conditions that are made available to CMRS providers, or (2) in the event such capability is not made available to CMRS providers, the same rates, terms, and conditions that are made available to any telecommunications carrier or other entity for the provision of 911 or E911 service.

(c) Permissible Use. An interconnected VoIP provider that obtains access to a capability pursuant to this section may use that capability only for the purpose of providing 911 or E911 service in accordance with the Commission's rules.

APPENDIX C

Final Regulatory Flexibility Analysis

1. As required by the Regulatory Flexibility Act of 1980, as amended (RFA),[1] an Initial Regulatory Flexibility Analysis (IRFA) was incorporated in the *NET 911 Notice* in WC Docket 08-171.[2] The Commission sought written public comment on the proposals in the *Net 911 Notice*, including comment on the IRFA.[3] We received no comments on the IRFA. This Final Regulatory Flexibility Analysis (FRFA) conforms to the RFA.[4]

A. Need for, and Objectives of, the Rules

2. In this Report and Order (Order), we adopt rules implementing certain key provisions of the New and Emerging Technologies 911 Improvement Act of 2008 (NET 911 Act). The NET 911 Act, signed into law on July 23, 2008, is designed to "promote and enhance public safety by facilitating the rapid deployment of IP-enabled 911 and E911 services, encourage the Nation's transition to a national IP-enabled emergency network, and improve 911 and enhanced 911 (E911) access to those with disabilities." Congress directed the Commission to issue rules implementing certain key provisions of the NET 911 Act no later than October 21, 2008. In particular, to effectuate the requirement that providers of interconnected voice over Internet Protocol (interconnected VoIP) service provide 911 and enhanced 911 (E911) service without exception, Congress mandated that the Commission issue regulations in this time frame that, among other things, ensure that interconnected VoIP providers have access to any capabilities they need to satisfy that requirement. Today, we fulfill that duty and take steps to ensure that interconnected VoIP providers will use the capabilities they gain as a result of this Order to provide 911 and E911 in complete accord with our rules.

3. Specifically, in this Order we issue rules that give interconnected VoIP providers rights of access to any and all capabilities necessary to provide E911 from any entity that owns or controls those capabilities. We establish a standard to determine the rates, terms, and conditions that will apply to that access and also restrict interconnected VoIP provider's access to capabilities for the sole purpose of providing 911 or E911 service. Finally, interconnected VoIP providers must comply with all applicable industry network security standards to the same extent as traditional telecommunications carriers when they access capabilities traditionally used by carriers.

B. Summary of Significant Issues Raised by Public Comments in Response to the IRFA

4. No comments were submitted specifically in response to the IRFA.

C. Description and Estimate of the Number of Small Entities to Which Rules Will Apply

5. The RFA directs agencies to provide a description of and, where feasible, an estimate of the number of small entities that may be affected by the rules adopted herein.[5] The RFA generally

[1] *See* 5 U.S.C. § 603. The RFA, *see* 5 U.S.C. §§ 601-12, has been amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), Pub. L. No. 104-121, Title II, 110 Stat. 857 (1996).

[2] *See Implementation of the NET 911 Improvement Act of 2008*, WC Docket No. 08-171, Notice of Proposed Rulemaking, FCC 08-195, para. 18 & Appendix (2008) (*NET 911 Notice*).

[3] *See id*.

[4] *See* 5 U.S.C. § 604.

[5] 5 U.S.C. §§ 603(b)(3), 604(a)(3).

defines the term "small entity" as having the same meaning as the terms "small business," "small organization," and "small governmental jurisdiction."[6] In addition, the term "small business" has the same meaning as the term "small business concern" under the Small Business Act.[7] A small business concern is one which: (1) is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the SBA.[8]

6. *Small Businesses*. Nationwide, there are a total of approximately 22.4 million small businesses according to SBA data.[9]

7. *Small Organizations*. Nationwide, there are approximately 1.6 million small organizations.[10]

8. *Small Governmental Jurisdictions*. The term "small governmental jurisdiction" is defined generally as "governments of cities, towns, townships, villages, school districts, or special districts, with a population of less than fifty thousand."[11] Census Bureau data for 2002 indicate that there were 87,525 local governmental jurisdictions in the United States.[12] We estimate that, of this total, 84,377 entities were "small governmental jurisdictions."[13] Thus, we estimate that most governmental jurisdictions are small.

1. Telecommunications Service Entities

a. Wireline Carriers and Service Providers

9. We have included small incumbent local exchange carriers (LECs) in this present RFA analysis. As noted above, a "small business" under the RFA is one that, *inter alia*, meets the pertinent small business size standard (*e.g.*, a telephone communications business having 1,500 or fewer employees) and "is not dominant in its field of operation."[14] The SBA's Office of Advocacy contends that, for RFA purposes, small incumbent LECs are not dominant in their field of operation because any such dominance is not "national" in scope.[15] We have therefore included small incumbent LECs in this

[6] 5 U.S.C. § 601(6).

[7] 5 U.S.C. § 601(3) (incorporating by reference the definition of "small business concern" in the Small Business Act, 15 U.S.C. § 632). Pursuant to 5 U.S.C. § 601(3), the statutory definition of a small business applies "unless an agency, after consultation with the Office of Advocacy of the Small Business Administration and after opportunity for public comment, establishes one or more definitions of such terms which are appropriate to the activities of the agency and publishes such definitions(s) in the Federal Register."

[8] 15 U.S.C. § 632.

[9] *See* SBA, Programs and Services, SBA Pamphlet No. CO-0028, at page 40 (July 2002).

[10] Independent Sector, The New Nonprofit Almanac & Desk Reference (2002).

[11] 5 U.S.C. § 601(5).

[12] U.S. Census Bureau, Statistical Abstract of the United States: 2006, Section 8, page 272, Table 415.

[13] We assume that the villages, school districts, and special districts are small, and total 48,558. *See* U.S. Census Bureau, Statistical Abstract of the United States: 2006, section 8, page 273, Table 417. For 2002, Census Bureau data indicate that the total number of county, municipal, and township governments nationwide was 38,967, of which 35,819 were small. *Id.*

[14] 15 U.S.C. § 632.

[15] Letter from Jere W. Glover, Chief Counsel for Advocacy, SBA, to William E. Kennard, Chairman, FCC (May 27, 1999). The Small Business Act contains a definition of "small-business concern," which the RFA incorporates into its own definition of "small business." *See* 15 U.S.C. § 632(a) (Small Business Act); 5 U.S.C. § 601(3) (RFA). (continued….)

RFA analysis, although we emphasize that this RFA action has no effect on Commission analyses and determinations in other, non-RFA contexts.

10. *Incumbent LECs.* Neither the Commission nor the SBA has developed a small business size standard specifically for incumbent LECs. The appropriate size standard under SBA rules is for the category Wired Telecommunications Carriers. Under that size standard, such a business is small if it has 1,500 or fewer employees.[16] According to Commission data,[17] 1,311 carriers have reported that they are engaged in the provision of incumbent local exchange services. Of these 1,311 carriers, an estimated 1,024 have 1,500 or fewer employees and 287 have more than 1,500 employees. Consequently, the Commission estimates that most providers of incumbent local exchange service are small businesses that may be affected by our action.

11. *Competitive LECs, Competitive Access Providers (CAPs), "Shared-Tenant Service Providers," and "Other Local Service Providers."* Neither the Commission nor the SBA has developed a small business size standard specifically for these service providers. The appropriate size standard under SBA rules is for the category Wired Telecommunications Carriers. Under that size standard, such a business is small if it has 1,500 or fewer employees.[18] According to Commission data,[19] 1,005 carriers have reported that they are engaged in the provision of either competitive access provider services or competitive LEC services. Of these 1,005 carriers, an estimated 918 have 1,500 or fewer employees and 87 have more than 1,500 employees. In addition, 16 carriers have reported that they are "Shared-Tenant Service Providers," and all 16 are estimated to have 1,500 or fewer employees. In addition, 89 carriers have reported that they are "Other Local Service Providers," and all 89, have 1,500 or fewer employees. Consequently, the Commission estimates that most providers of competitive local exchange service, competitive access providers, "Shared-Tenant Service Providers," and "Other Local Service Providers" are small entities.

12. *Local Resellers.* The SBA has developed a small business size standard for the category of Telecommunications Resellers. Under that size standard, such a business is small if it has 1,500 or fewer employees.[20] According to Commission data,[21] 151 carriers have reported that they are engaged in the provision of local resale services. Of these, an estimated 149 have 1,500 or fewer employees and two have more than 1,500 employees. Consequently, the Commission estimates that the majority of local resellers are small entities that may be affected by our action.

13. *Toll Resellers.* The SBA has developed a small business size standard for the category of Telecommunications Resellers. Under that size standard, such a business is small if it has 1,500 or fewer employees.[22] According to Commission data,[23] 815 carriers have reported that they are engaged in the

(Continued from previous page)
SBA regulations interpret "small business concern" to include the concept of dominance on a national basis. *See* 13 C.F.R. § 121.102(b).

[16] 13 C.F.R. § 121.201, NAICS code 517110.

[17] FCC, Wireline Competition Bureau, Industry Analysis and Technology Division, *Trends in Telephone Service* at Table 5.3, page 5-5 (Aug. 2008) (*Trends in Telephone Service*). This source uses data that are current as of November 1, 2006.

[18] 13 C.F.R. § 121.201, NAICS code 517110.

[19] *Trends in Telephone Service* at Table 5.3.

[20] 13 C.F.R. § 121.201, NAICS code 517911.

[21] *Trends in Telephone Service* at Table 5.3.

[22] 13 C.F.R. § 121.201, NAICS code 517911.

provision of toll resale services. Of these, an estimated 787 have 1,500 or fewer employees and 28 have more than 1,500 employees. Consequently, the Commission estimates that the majority of toll resellers are small entities that may be affected by our action.

14. *Payphone Service Providers (PSPs)*. Neither the Commission nor the SBA has developed a small business size standard specifically for payphone services providers. The appropriate size standard under SBA rules is for the category Wired Telecommunications Carriers. Under that size standard, such a business is small if it has 1,500 or fewer employees.[24] According to Commission data,[25] 526 carriers have reported that they are engaged in the provision of payphone services. Of these, an estimated 524 have 1,500 or fewer employees and two have more than 1,500 employees. Consequently, the Commission estimates that the majority of payphone service providers are small entities that may be affected by our action.

15. *Interexchange Carriers (IXCs)*. Neither the Commission nor the SBA has developed a small business size standard specifically for providers of interexchange services. The appropriate size standard under SBA rules is for the category Wired Telecommunications Carriers. Under that size standard, such a business is small if it has 1,500 or fewer employees.[26] According to Commission data,[27] 300 carriers have reported that they are engaged in the provision of interexchange service. Of these, an estimated 268 have 1,500 or fewer employees and 32 have more than 1,500 employees. Consequently, the Commission estimates that the majority of IXCs are small entities that may be affected by our action.

16. *Operator Service Providers (OSPs)*. Neither the Commission nor the SBA has developed a small business size standard specifically for operator service providers. The appropriate size standard under SBA rules is for the category Wired Telecommunications Carriers. Under that size standard, such a business is small if it has 1,500 or fewer employees.[28] According to Commission data,[29] 28 carriers have reported that they are engaged in the provision of operator services. Of these, an estimated 27 have 1,500 or fewer employees and one has more than 1,500 employees. Consequently, the Commission estimates that the majority of OSPs are small entities that may be affected by our action.

17. *Prepaid Calling Card Providers.* Neither the Commission nor the SBA has developed a small business size standard specifically for prepaid calling card providers. The appropriate size standard under SBA rules is for the category Telecommunications Resellers. Under that size standard, such a business is small if it has 1,500 or fewer employees.[30] According to Commission data,[31] 88 carriers have reported that they are engaged in the provision of prepaid calling cards. Of these, 85 are estimated to have 1,500 or fewer employees and three have more than 1,500 employees. Consequently, the Commission estimates that all or the majority of prepaid calling card providers are small entities that may be affected by our action.

(Continued from previous page)

[23] *Trends in Telephone Service* at Table 5.3.

[24] 13 C.F.R. § 121.201, NAICS code 517110.

[25] *Trends in Telephone Service* at Table 5.3.

[26] 13 C.F.R. § 121.201, NAICS code 517110.

[27] *Trends in Telephone Service* at Table 5.3.

[28] 13 C.F.R. § 121.201, NAICS code 517110.

[29] *Trends in Telephone Service* at Table 5.3.

[30] 13 C.F.R. § 121.201, NAICS code 517911.

[31] *Trends in Telephone Service* at Table 5.3.

18. *800 and 800-Like Service Subscribers.*[32] These toll-free services fall within the broad economic census category of Telecommunications Resellers. This category "comprises establishments engaged in purchasing access and network capacity from owners and operators of telecommunications networks and reselling wired and wireless telecommunications services (except satellite) to businesses and households. Establishments in this industry resell telecommunications; they do not operate transmission facilities and infrastructure."[33] The SBA has developed a small business size standard for this category, which is: all such firms having 1,500 or fewer employees.[34] Census Bureau data for 2002 show that there were 1,646 firms in this category that operated for the entire year.[35] Of this total, 1,642 firms had employment of 999 or fewer employees, and four firms had employment of 1,000 employees or more.[36] Thus, the majority of these firms can be considered small. Additionally, it may be helpful to know the total numbers of telephone numbers assigned in these services. Commission data show that, as of December 2007, the total number of 800 numbers assigned was 7,860,000, the total number of 888 numbers assigned was 5,210,184, the total number of 877 numbers assigned was 4,388,682, and the total number of 866 numbers assigned was 7,029,116.[37]

b. International Service Providers

19. 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."

20. The first category of Satellite Telecommunications "comprises establishments primarily engaged in providing point-to-point 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."[38] For this category, a business is small if it has $15.0 million or less in average annual receipts. Census Bureau data for 2002 show that there were a total of 371 firms under this category that operated for the entire year.[39] Of this total, 307 firms had annual receipts of under $10 million, and 26 firms had receipts of $10 million to $24,999,999.[40] Consequently, we estimate that the majority of Satellite Telecommunications firms are small entities that might be affected by our action.

21. The second category of All Other Telecommunications "comprises establishments primarily engaged in (1) providing specialized telecommunications applications, such as satellite tracking,

[32] We include all toll-free number subscribers in this category, including those for 888 numbers.

[33] U.S. Census Bureau, 2007 NAICS Definitions, "517911 Telecommunications Resellers" (partial definition); http://www.census.gov/naics/2007/def/ND517911.HTM#N517911.

[34] 13 C.F.R. § 121.201, NAICS code 517911.

[35] U.S. Census Bureau, 2002 Economic Census, Subject Series: Information, "Establishment and Firm Size (Including Legal Form of Organization," Table 5, NAICS code 517310 (issued Nov. 2005). Prior to 2007, the subject category was numbered 517310.

[36] *Id.* The census data do not provide a more precise estimate of the number of firms that have employment of 1,500 or fewer employees; the largest category provided is for firms with "1000 employees or more."

[37] *Trends in Telephone Service* at Tables 18.4-18.8.

[38] U.S. Census Bureau, "2002 NAICS Definitions: 517410 Satellite Telecommunications," *available at* http://www.census.gov/epcd/naics02/def/ND517410.HTM (visited Oct. 16, 2007).

[39] U.S. Census Bureau, 2002 Economic Census, Subject Series: Information, "Establishment and Firm Size (Including Legal Form of Organization)," Table 4, NAICS code 517410 (issued Nov. 2005).

[40] *Id*. An additional 38 firms had annual receipts of $25 million or more.

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."[41] For this category, a business is small if it has $25.0 million or less in average annual receipts. Census Bureau data for 2002 show that for this category there were a total of 332 firms that operated for the entire year.[42] Of this total, 259 firms had annual receipts of under $10 million and 15 firms had annual receipts of $10 million to $24,999,999.[43] Consequently, we estimate that the majority of All Other Telecommunications firms are small entities that might be affected by our action.

c. Wireless Telecommunications Service Providers

22. Below, for those services subject to auctions, we note that, as a general matter, the number of winning bidders that qualify as small businesses at the close of an auction does not necessarily represent the number of small businesses currently in service. Also, the Commission does not generally track subsequent business size unless, in the context of assignments or transfers, unjust enrichment issues are implicated.

23. *Wireless Telecommunications Carriers (except Satellite)*. The SBA has developed a small business size standard for wireless firms under the broad category of "Wireless Telecommunications Carriers (except Satellite)."[44] Under this category, a wireless business is small if it has 1,500 or fewer employees. Because the data currently available were gathered under previous NAICS codes, the discussion in the remainder of this section tracks these formerly used categories.

24. Under its prior categories, the SBA categorized wireless firms within the two broad economic census categories of "Paging"[45] and "Cellular and Other Wireless Telecommunications."[46] For the former census category of Paging, Census Bureau data for 2002 show that there were 807 firms in this category that operated for the entire year.[47] Of this total, 804 firms had employment of 999 or fewer employees, and three firms had employment of 1,000 employees or more.[48] Thus, under this category and associated small business size standard, the majority of firms can be considered small. For the former census category of Cellular and Other Wireless Telecommunications, Census Bureau data for 2002 show that there were 1,397 firms in this category that operated for the entire year.[49] Of this total, 1,378 firms

[41] U.S. Census Bureau, "2002 NAICS Definitions: 517910 Other Telecommunications," *available at* http://www.census.gov/epcd/naics02/def/ND517910.HTM (visited Oct. 16, 2007).

[42] 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).

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

[44] 13 C.F.R. § 121.201, NAICS code 517210.

[45] 13 C.F.R. § 121.201, NAICS code 517211 (changed from 513321 in Oct. 2002).

[46] 13 C.F.R. § 121.201, NAICS code 517212 (changed from 513322 in Oct. 2002).

[47] U.S. Census Bureau, 2002 Economic Census, Subject Series: Information, "Establishment and Firm Size (Including Legal Form of Organization)," Table 5, NAICS code 517211 (issued Nov. 2005).

[48] *Id.* The census data do not provide a more precise estimate of the number of firms that have employment of 1,500 or fewer employees; the largest category provided is firms with "1000 employees or more."

[49] U.S. Census Bureau, 2002 Economic Census, Subject Series: Information, "Establishment and Firm Size (Including Legal Form of Organization)," Table 5, NAICS code 517212 (issued Nov. 2005).

had employment of 999 or fewer employees, and 19 firms had employment of 1,000 employees or more.[50] Thus, under this second category and size standard, the majority of firms can, again, be considered small.

25. *Cellular Licensees.* The SBA has developed a small business size standard for wireless firms within the broad economic census category "Cellular and Other Wireless Telecommunications."[51] Under this SBA category, a wireless business is small if it has 1,500 or fewer employees. For the census category of Cellular and Other Wireless Telecommunications, Census Bureau data for 2002 show that there were 1,397 firms in this category that operated for the entire year.[52] Of this total, 1,378 firms had employment of 999 or fewer employees, and 19 firms had employment of 1,000 employees or more.[53] Thus, under this category and size standard, the majority of firms can be considered small. Also, according to Commission data, 434 carriers reported that they were engaged in the provision of cellular service, Personal Communications Service (PCS), or Specialized Mobile Radio (SMR) Telephony services, which are placed together in the data.[54] We have estimated that 222 of these are small under the SBA small business size standard.[55]

26. *Paging.* The SBA has developed a small business size standard for the broad economic census category of "Paging."[56] Under this category, the SBA deems a wireless business to be small if it has 1,500 or fewer employees. Census Bureau data for 2002 show that there were 807 firms in this category that operated for the entire year.[57] Of this total, 804 firms had employment of 999 or fewer employees, and three firms had employment of 1,000 employees or more.[58] In addition, according to Commission data,[59] 281 carriers have reported that they are engaged in the provision of "Paging and Messaging Service." Of this total, we estimate that 279 have 1,500 or fewer employees, and two have more than 1,500 employees. Thus, in this category the majority of firms can be considered small.

27. We also note that, in the *Paging Second Report and Order*, the Commission adopted a size standard for "small businesses" for purposes of determining their eligibility for special provisions such as bidding credits and installment payments.[60] In this context, a small business is an entity that,

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[50] *Id.* The census data do not provide a more precise estimate of the number of firms that have employment of 1,500 or fewer employees; the largest category provided is firms with "1000 employees or more."

[51] 13 C.F.R. § 121.201, NAICS code 517212.

[52] U.S. Census Bureau, 2002 Economic Census, Subject Series: Information, "Establishment and Firm Size (Including Legal Form of Organization)," Table 5, NAICS code 517212 (issued Nov. 2005).

[53] *Id.* The census data do not provide a more precise estimate of the number of firms that have employment of 1,500 or fewer employees; the largest category provided is firms with "1000 employees or more."

[54] *Trends in Telephone Service* at Table 5.3.

[55] *Id.*

[56] 13 C.F.R. § 121.201, NAICS code 517211.

[57] U.S. Census Bureau, 2002 Economic Census, Subject Series: Information, "Establishment and Firm Size (Including Legal Form of Organization)," Table 5, NAICS code 517211 (issued Nov. 2005).

[58] *Id.* The census data do not provide a more precise estimate of the number of firms that have employment of 1,500 or fewer employees; the largest category provided is for firms with "1000 employees or more."

[59] *Trends in Telephone Service*, Table 5.3.

[60] *Revision of Part 22 and Part 90 of the Commission's Rules to Facilitate Future Development of Paging Systems*, WT Docket No. 96-18, PP Docket No. 93-235, Second Report and Order, 12 FCC Rcd 2732, 2811-2812, paras. 178-181 (*Paging Second Report and Order*); *see also Revision of Part 22 and Part 90 of the Commission's Rules to Facilitate Future Development of Paging Systems*, WT Docket No. 96-18, PP Docket No. 93-235, Memorandum Opinion and Order on Reconsideration, 14 FCC Rcd 10030, 10085-10088, paras. 98-107 (1999).

together with its affiliates and controlling principals, has average gross revenues not exceeding $15 million for the preceding three years.[61] The SBA has approved this definition.[62] An auction of Metropolitan Economic Area (MEA) licenses commenced on February 24, 2000, and closed on March 2, 2000. Of the 2,499 licenses auctioned, 985 were sold.[63] Fifty-seven companies claiming small business status won 440 licenses.[64] An auction of MEA and Economic Area (EA) licenses commenced on October 30, 2001, and closed on December 5, 2001. Of the 15,514 licenses auctioned, 5,323 were sold.[65] One hundred thirty-two companies claiming small business status purchased 3,724 licenses. A third auction, consisting of 8,874 licenses in each of 175 EAs and 1,328 licenses in all but three of the 51 MEAs commenced on May 13, 2003, and closed on May 28, 2003. Seventy-seven bidders claiming small or very small business status won 2,093 licenses.[66] We also note that, currently, there are approximately 74,000 Common Carrier Paging licenses.

28. *Wireless Communications Services*. This service can be used for fixed, mobile, radiolocation, and digital audio broadcasting satellite uses. The Commission established small business size standards for the wireless communications services (WCS) auction. A "small business" is an entity with average gross revenues of $40 million or less for each of the three preceding years, and a "very small business" is an entity with average gross revenues of $15 million or less for each of the three preceding years. The SBA has approved these small business size standards.[67] The Commission auctioned geographic area licenses in the WCS service. In the auction, there were seven winning bidders that qualified as "very small business" entities, and one that qualified as a "small business" entity.

29. *Wireless Telephony*. Wireless telephony includes cellular, personal communications services (PCS), and specialized mobile radio (SMR) telephony carriers. As noted earlier, the SBA has developed a small business size standard for "Cellular and Other Wireless Telecommunications" services.[68] Under that SBA small business size standard, a business is small if it has 1,500 or fewer employees.[69] According to Commission data, 434 carriers reported that they were engaged in the provision of wireless telephony.[70] We have estimated that 222 of these are small under the SBA small business size standard.

30. *Broadband Personal Communications Service*. The broadband Personal Communications Service (PCS) spectrum is divided into six frequency blocks designated A through F, and the Commission has held auctions for each block. The Commission defined "small entity" for Blocks C and F as an entity that has average gross revenues of $40 million or less in the three previous calendar

[61] *Paging Second Report and Order*, 12 FCC Rcd at 2811, para. 179.

[62] *See* Letter from Aida Alvarez, Administrator, Small Business Administration, to Amy Zoslov, Chief, Auctions and Industry Analysis Division, Wireless Telecommunications Bureau (Dec. 2, 1998) (*SBA Dec. 2, 1998 Letter*).

[63] *See 929 and 931 MHz Paging Auction Closes*, Public Notice, 15 FCC Rcd 4858 (WTB 2000).

[64] *Id.*

[65] *See Lower and Upper Paging Band Auction Closes*, Public Notice, 16 FCC Rcd 21821 (WTB 2002).

[66] *See Lower and Upper Paging Bands Auction Closes*, Public Notice, 18 FCC Rcd 11154 (WTB 2003).

[67] *SBA Dec. 2, 1998 Letter*.

[68] 13 C.F.R. § 121.201, NAICS code 517212.

[69] *Id.*

[70] *Trends in Telephone Service* at Table 5.3.

years.[71] For Block F, an additional classification for "very small business" was added and is defined as an entity that, together with its affiliates, has average gross revenues of not more than $15 million for the preceding three calendar years.[72] These standards defining "small entity" in the context of broadband PCS auctions have been approved by the SBA.[73] No small businesses, within the SBA-approved small business size standards bid successfully for licenses in Blocks A and B. There were 90 winning bidders that qualified as small entities in the Block C auctions. A total of 93 small and very small business bidders won approximately 40 percent of the 1,479 licenses for Blocks D, E, and F.[74] On March 23, 1999, the Commission re-auctioned 347 C, D, E, and F Block licenses. There were 48 small business winning bidders. On January 26, 2001, the Commission completed the auction of 422 C and F Broadband PCS licenses in Auction No. 35. Of the 35 winning bidders in this auction, 29 qualified as "small" or "very small" businesses. Subsequent events, concerning Auction 35, including judicial and agency determinations, resulted in a total of 163 C and F Block licenses being available for grant.

31. *Narrowband Personal Communications Services.* The Commission held an auction for Narrowband PCS licenses that commenced on July 25, 1994, and closed on July 29, 1994. A second auction commenced on October 26, 1994 and closed on November 8, 1994. For purposes of the first two Narrowband PCS auctions, "small businesses" were entities with average gross revenues for the prior three calendar years of $40 million or less.[75] Through these auctions, the Commission awarded a total of 41 licenses, 11 of which were obtained by four small businesses.[76] To ensure meaningful participation by small business entities in future auctions, the Commission adopted a two-tiered small business size standard in the Narrowband PCS Second Report and Order.[77] A "small business" is an entity that, together with affiliates and controlling interests, has average gross revenues for the three preceding years of not more than $40 million.[78] A "very small business" is an entity that, together with affiliates and controlling interests, has average gross revenues for the three preceding years of not more than $15 million.[79] The SBA has approved these small business size standards.[80] A third auction commenced on

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[71] *See Amendment of Parts 20 and 24 of the Commission's Rules – Broadband PCS Competitive Bidding and the Commercial Mobile Radio Service Spectrum Cap*, WT Docket No. 96-59, Report and Order, 11 FCC Rcd 7824, 61 Fed. Reg. 33859 (July 1, 1996) (*PCS Order*); *see also* 47 C.F.R. § 24.720(b).

[72] *See PCS Order*, 11 FCC Rcd 7824.

[73] *See, e.g.*, *Implementation of Section 309(j) of the Communications Act – Competitive Bidding*, PP Docket No. 93-253, Fifth Report and Order, 9 FCC Rcd 5332, 59 Fed. Reg. 37566 (July 22, 1994).

[74] FCC News, Broadband PCS, D, E and F Block Auction Closes, No. 71744 (rel. Jan. 14, 1997); *see also Amendment of the Commission's Rules Regarding Installment Payment Financing for Personal Communications Services (PCS) Licenses*, WT Docket No. 97-82, Second Report and Order, 12 FCC Rcd 16436, 62 Fed. Reg. 55348 (Oct. 24, 1997).

[75] *Implementation of Section 309(j) of the Communications Act – Competitive Bidding Narrowband PCS*, Third Memorandum Opinion and Order and Further Notice of Proposed Rulemaking, 10 FCC Rcd 175, 196, para. 46 (1994).

[76] *See Announcing the High Bidders in the Auction of ten Nationwide Narrowband PCS Licenses, Winning Bids Total $617,006,674*, Public Notice, PNWL 94-004 (rel. Aug. 2, 1994); *Announcing the High Bidders in the Auction of 30 Regional Narrowband PCS Licenses; Winning Bids Total $490,901,787*, Public Notice, PNWL 94-27 (rel. Nov. 9, 1994).

[77] *Amendment of the Commission's Rules to Establish New Personal Communications Services, Narrowband PCS*, ET Docket No. 92-100, PP Docket No. 93-253, Second Report and Order and Second Further Notice of Proposed Rule Making, 15 FCC Rcd 10456, 10476, para. 40 (2000).

[78] *Id*.

[79] *Id*.

October 3, 2001 and closed on October 16, 2001. Here, five bidders won 317 (Metropolitan Trading Areas and nationwide) licenses.[81] Three of these claimed status as a small or very small entity and won 311 licenses.

32. *220 MHz Radio Service – Phase I Licensees.* The 220 MHz service has both Phase I and Phase II licenses. Phase I licensing was conducted by lotteries in 1992 and 1993. There are approximately 1,515 such non-nationwide licensees and four nationwide licensees currently authorized to operate in the 220 MHz band. The Commission has not developed a small business size standard for small entities specifically applicable to such incumbent 220 MHz Phase I licensees. To estimate the number of such licensees that are small businesses, we apply the small business size standard under the SBA rules applicable to "Cellular and Other Wireless Telecommunications" companies. This category provides that a small business is a wireless company employing no more than 1,500 persons.[82] For the census category Cellular and Other Wireless Telecommunications, Census Bureau data for 1997 show that there were 977 firms in this category, total, that operated for the entire year.[83] Of this total, 965 firms had employment of 999 or fewer employees, and an additional 12 firms had employment of 1,000 employees or more.[84] Thus, under this second category and size standard, the majority of firms can, again, be considered small. Assuming this general ratio continues in the context of Phase I 220 MHz licensees, the Commission estimates that nearly all such licensees are small businesses under the SBA's small business size standard. In addition, limited preliminary census data for 2002 indicate that the total number of cellular and other wireless telecommunications carriers increased approximately 321 percent from 1997 to 2002.[85]

33. *220 MHz Radio Service – Phase II Licensees.* The 220 MHz service has both Phase I and Phase II licenses. The Phase II 220 MHz service is a new service and is subject to spectrum auctions. In the *220 MHz Third Report and Order*, we adopted a small business size standard for "small" and "very small" businesses for purposes of determining their eligibility for special provisions such as bidding credits and installment payments.[86] This small business size standard indicates that a "small business" is an entity that, together with its affiliates and controlling principals, has average gross revenues not exceeding $15 million for the preceding three years.[87] A "very small business" is an entity that, together with its affiliates and controlling principals, has average gross revenues that do not exceed $3 million for

(Continued from previous page)

[80] *See SBA Dec. 2, 1998 Letter*, *supra* note 62.

[81] *See Narrowband PCS Auction Closes*, Public Notice, 16 FCC Rcd 18663 (WTB 2001).

[82] 13 C.F.R. § 121.201, NAICS code 517212.

[83] U.S. Census Bureau, 1997 Economic Census, Subject Series: "Information," Table 5, Employment Size of Firms Subject to Federal Income Tax: 1997, NAICS code 513322 (issued Oct. 2000).

[84] *Id.* The census data do not provide a more precise estimate of the number of firms that have employment of 1,500 or fewer employees; the largest category provided is "Firms with 1000 employees or more."

[85] *See* U.S. Census Bureau, 2002 Economic Census, Industry Series: "Information," Table 2, Comparative Statistics for the United States (1997 NAICS Basis): 2002 and 1997, NAICS code 513322 (issued Nov. 2004). The preliminary data indicate that the total number of "establishments" increased from 2,959 to 9,511. In this context, the number of establishments is a less helpful indicator of small business prevalence than is the number of "firms," because the latter number takes into account the concept of common ownership or control. The more helpful 2002 census data on firms, including employment and receipts numbers, will be issued in late 2005.

[86] *220 MHz Third Report and Order*, 12 FCC Rcd 10943, 11068-70, paras. 291-95 (1997).

[87] *Id.* at 11068, para. 291.

the preceding three years. The SBA has approved these small business size standards.[88] Auctions of Phase II licenses commenced on September 15, 1998, and closed on October 22, 1998.[89] In the first auction, 908 licenses were auctioned in three different-sized geographic areas: three nationwide licenses, 30 Regional Economic Area Group (EAG) Licenses, and 875 Economic Area (EA) Licenses. Of the 908 licenses auctioned, 693 were sold.[90] Thirty-nine small businesses won licenses in the first 220 MHz auction. The second auction included 225 licenses: 216 EA licenses and 9 EAG licenses. Fourteen companies claiming small business status won 158 licenses.[91]

34. *800 MHz and 900 MHz Specialized Mobile Radio Licenses*. The Commission awards "small entity" and "very small entity" bidding credits in auctions for Specialized Mobile Radio (SMR) geographic area licenses in the 800 MHz and 900 MHz bands to firms that had revenues of no more than $15 million in each of the three previous calendar years, or that had revenues of no more than $3 million in each of the previous calendar years, respectively.[92] These bidding credits apply to SMR providers in the 800 MHz and 900 MHz bands that either hold geographic area licenses or have obtained extended implementation authorizations. The Commission does not know how many firms provide 800 MHz or 900 MHz geographic area SMR service pursuant to extended implementation authorizations, nor how many of these providers have annual revenues of no more than $15 million. One firm has over $15 million in revenues. The Commission assumes, for purposes here, that all of the remaining existing extended implementation authorizations are held by small entities, as that term is defined by the SBA. The Commission has held auctions for geographic area licenses in the 800 MHz and 900 MHz SMR bands. There were 60 winning bidders that qualified as small or very small entities in the 900 MHz SMR auctions. Of the 1,020 licenses won in the 900 MHz auction, bidders qualifying as small or very small entities won 263 licenses. In the 800 MHz auction, 38 of the 524 licenses won were won by small and very small entities.

35. *700 MHz Guard Band Licensees*. In the *700 MHz Guard Band Order*, we adopted a small business size standard for "small businesses" and "very small businesses" for purposes of determining their eligibility for special provisions such as bidding credits and installment payments.[93] A "small business" as an entity that, together with its affiliates and controlling principals, has average gross revenues not exceeding $15 million for the preceding three years. Additionally, a "very small business" is an entity that, together with its affiliates and controlling principals, has average gross revenues that are not more than $3 million for the preceding three years. An auction of 52 Major Economic Area (MEA) licenses commenced on September 6, 2000, and closed on September 21, 2000.[94] Of the 104 licenses auctioned, 96 licenses were sold to nine bidders. Five of these bidders were small businesses that won a total of 26 licenses. A second auction of 700 MHz Guard Band licenses commenced on February 13,

[88] *See* Letter from A. Alvarez, Administrator, SBA, to D. Phythyon, Chief, Wireless Telecommunications Bureau, FCC (Jan. 6, 1998).

[89] *See generally 220 MHz Service Auction Closes*, Public Notice, 14 FCC Rcd 605 (1998).

[90] *See, e.g.*, *FCC Announces It is Prepared to Grant 654 Phase II 220 MHz Licenses After Final Payment is Made*, Public Notice, 14 FCC Rcd 1085 (1999).

[91] *Phase II 220 MHz Service Spectrum Auction Closes*, Public Notice, 14 FCC Rcd 11218 (1999).

[92] 47 C.F.R. § 90.814(b)(1).

[93] *See Service Rules for the 746-764 MHz Bands, and Revisions to part 27 of the Commission's Rules*, WT Docket No. 99-168, Second Report and Order, 15 FCC Rcd 5299, 65 Fed. Reg. 17594 (2000).

[94] *See generally 220 MHz Service Auction Closes*, Public Notice, 14 FCC Rcd 605 (1998).

2001 and closed on February 21, 2001. All eight of the licenses auctioned were sold to three bidders. One of these bidders was a small business that won a total of two licenses.[95]

36. *Rural Radiotelephone Service.* The Commission has not adopted a size standard for small businesses specific to the Rural Radiotelephone Service.[96] A significant subset of the Rural Radiotelephone Service is the Basic Exchange Telephone Radio System (BETRS).[97] The Commission uses the SBA's small business size standard applicable to "Cellular and Other Wireless Telecommunications," *i.e.*, an entity employing no more than 1,500 persons.[98] 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.

37. *Air-Ground Radiotelephone Service.* The Commission has not adopted a small business size standard specific to the Air-Ground Radiotelephone Service.[99] We will use SBA's small business size standard applicable to "Cellular and Other Wireless Telecommunications," *i.e.*, an entity employing no more than 1,500 persons.[100] There are approximately 100 licensees in the Air-Ground Radiotelephone Service, and we estimate that almost all of them qualify as small under the SBA small business size standard.

38. *Aviation and Marine Radio Services.* Small businesses in the aviation and marine radio services use a very high frequency (VHF) marine or aircraft radio and, as appropriate, an emergency position-indicating radio beacon (and/or radar) or an emergency locator transmitter. The Commission has not developed a small business size standard specifically applicable to these small businesses. For purposes of this analysis, the Commission uses the SBA small business size standard for the category "Cellular and Other Telecommunications," which is 1,500 or fewer employees.[101] Most applicants for recreational licenses are individuals. Approximately 581,000 ship station licensees and 131,000 aircraft station licensees operate domestically and are not subject to the radio carriage requirements of any statute or treaty. For purposes of our evaluations in this analysis, we estimate that there are up to approximately 712,000 licensees that are small businesses (or individuals) under the SBA standard. In addition, between December 3, 1998 and December 14, 1998, the Commission held an auction of 42 VHF Public Coast licenses in the 157.1875-157.4500 MHz (ship transmit) and 161.775-162.0125 MHz (coast transmit) bands. For purposes of the auction, the Commission defined a "small" business as an entity that, together with controlling interests and affiliates, had average gross revenues for the preceding three years not to exceed $15 million dollars. In addition, a "very small" business is one that, together with controlling interests and affiliates, had average gross revenues for the preceding three years not to exceed $3 million dollars.[102] There are approximately 10,672 licensees in the Marine Coast Service, and the Commission estimates that almost all of them qualify as "small" businesses under the above special small business size standards.

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[95] *700 MHz Guard Band Auction Closes*, Public Notice, 16 FCC Rcd 4590 (2001).

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

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

[98] 13 C.F.R. § 121.201, NAICS code 517212.

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

[100] 13 C.F.R. § 121.201, NAICS code 517212.

[101] *Id.*

[102] *Amendment of the Commission's Rules Concerning Maritime Communications*, PR Docket No. 92-257, Third Report and Order and Memorandum Opinion and Order, 13 FCC Rcd 19853 (1998).

39. *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 Gulf of Mexico.[103] There are presently approximately 55 licensees in this service. We are unable to estimate at this time the number of licensees that would qualify as small under the SBA's small business size standard for "Cellular and Other Wireless Telecommunications" services.[104] Under that SBA small business size standard, a business is small if it has 1,500 or fewer employees.[105]

40. *39 GHz Service.* The Commission created a special small business size standard for 39 GHz licenses – an entity that has average gross revenues of $40 million or less in the three previous calendar years.[106] An additional size standard for "very small business" is: an entity that, together with affiliates, has average gross revenues of not more than $15 million for the preceding three calendar years.[107] The SBA has approved these small business size standards.[108] The auction of the 2,173 39 GHz licenses began on April 12, 2000 and closed on May 8, 2000. The 18 bidders who claimed small business status won 849 licenses. Consequently, the Commission estimates that 18 or fewer 39 GHz licensees are small entities that may be affected by the rules and polices adopted herein.

41. *Wireless Cable Systems.* Wireless cable systems use 2 GHz band frequencies of the Broadband Radio Service ("BRS"), formerly Multipoint Distribution Service ("MDS"),[109] and the Educational Broadband Service ("EBS"), formerly Instructional Television Fixed Service ("ITFS"),[110] to transmit video programming and provide broadband services to residential subscribers.[111] These services were originally designed for the delivery of multichannel video programming, similar to that of traditional cable systems, but over the past several years licensees have focused their operations instead on providing

[103] This service is governed by Subpart I of Part 22 of the Commission's rules. *See* 47 C.F.R. §§ 22.1001-.1037.

[104] 13 C.F.R. § 121.201, NAICS code 517212.

[105] *Id*.

[106] *See Amendment of the Commission's Rules Regarding the 37.0-38.6 GHz and 38.6-40.0 GHz Bands*, ET Docket No. 95-183, Report and Order and Notice of Proposed Rulemaking, 12 FCC Rcd 18600, 63 Fed. Reg. 6079 (Feb. 6, 1998).

[107] *Id.*

[108] *See* Letter from Aida Alvarez, Administrator, SBA, to Kathleen O'Brien Ham, Chief, Auctions and Industry Analysis Division, Wireless Telecommunications Bureau, FCC (Feb. 4, 1998).

[109] MDS, also known as Multichannel Multipoint Distribution Service ("MMDS"), is regulated by Part 21 of the Commission's rules, *see* 47 C.F.R. Part 21, subpart K, and has been renamed the Broadband Radio Service (BRS). S*ee Amendment of Parts 1, 21, 73, 74 and 101 of the Commission's Rules to Facilitate the Provision of Fixed and Mobile Broadband Access, Educational and Other Advanced Services in the 2150-2162 and 2500-2690 MHz Bands; Part 1 of the Commission's Rules - Further Competitive Bidding Procedures; Amendment of Parts 21 and 74 to Enable Multipoint Distribution Service and the Instructional Television Fixed Service Amendment of Parts 21 and 74 to Engage in Fixed Two-Way Transmissions; Amendment of Parts 21 and 74 of the Commission's Rules With Regard to Licensing in the Multipoint Distribution Service and in the Instructional Television Fixed Service for the Gulf of Mexico; Promoting Efficient Use of Spectrum Through Elimination of Barriers to the Development of Secondary Markets*, WT Docket Nos. 03-66, 03-67, 02-68, and 00-230, MM Docket No. 97-217, RM-10586, RM-9718, Report and Order and Further Notice of Proposed Rulemaking, 19 FCC Rcd 14165 (2004) (*MDS/ITFS Order*).

[110] ITFS systems are regulated by Part 74 of the Commission's rules; *see* 47 C.F.R. Part 74, subpart I. ITFS, an educational service, has been renamed the Educational Broadband Service (EBS). S*ee MDS/ITFS Order*, 19 FCC Rcd 14165. ITFS licensees, however, are permitted to lease spectrum for MDS operation.

[111] *See Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming, Eleventh Annual Report,* 20 FCC Rcd 2507, 2565, para. 131 (2006) (*2006 Cable Competition Report*).

two-way high-speed Internet access services.[112] We estimate that the number of wireless cable subscribers is approximately 100,000, as of March 2005. Local Multipoint Distribution Service ("LMDS") is a fixed broadband point-to-multipoint microwave service that provides for two-way video telecommunications.[113] As described below, the SBA small business size standard for the broad census category of Cable and Other Program Distribution, which consists of such entities generating $13.5 million or less in annual receipts, appears applicable to MDS, ITFS and LMDS.[114] Other standards also apply, as described.

42. The Commission has defined small MDS (now BRS) and LMDS entities in the context of Commission license auctions. In the 1996 MDS auction,[115] the Commission defined a small business as an entity that had annual average gross revenues of less than $40 million in the previous three calendar years.[116] This definition of a small entity in the context of MDS auctions has been approved by the SBA.[117] In the MDS auction, 67 bidders won 493 licenses. Of the 67 auction winners, 61 claimed status as a small business. At this time, the Commission estimates that of the 61 small business MDS auction winners, 48 remain small business licensees. In addition to the 48 small businesses that hold BTA authorizations, there are approximately 392 incumbent MDS licensees that have gross revenues that are not more than $40 million and are thus considered small entities.[118] MDS licensees and wireless cable operators that did not receive their licenses as a result of the MDS auction fall under the SBA small business size standard for Cable and Other Program Distribution. Information available to us indicates that there are approximately 850 of these licensees and operators that do not generate revenue in excess of $13.5 million annually. Therefore, we estimate that there are approximately 850 small entity MDS (or BRS) providers, as defined by the SBA and the Commission's auction rules.

43. Educational institutions are included in this analysis as small entities; however, the Commission has not created a specific small business size standard for ITFS (now EBS).[119] We estimate that there are currently 2,032 ITFS (or EBS) licensees, and all but 100 of the licenses are held by educational institutions. Thus, we estimate that at least 1,932 ITFS licensees are small entities.

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[112] *Id*.

[113] *See Rulemaking to Amend Parts 1, 2, 21, and 25 of the Commission's Rules to Redesignate the 27.5-29.5 GHz Frequency Band, to Reallocate the 29.5-30.0 GHz Frequency Band, to Establish Rules and Policies for Local Multipoint Distribution Service and for Fix Satellite Services*, CC Docket No. 92-297, Second Report and Order, Order on Reconsideration, and Fifth Notice of Proposed Rulemaking, 12 FCC Rcd 12545 (1997) (*Local Multipoint Distribution Service Order*).

[114] 13 C.F.R. § 121.201, NAICS code 517510.

[115] MDS Auction No. 6 began on November 13, 1995, and closed on March 28, 1996. (67 bidders won 493 licenses.)

[116] 47 C.F.R. § 21.961(b)(1).

[117] *See Amendment of Parts 21 and 74 of the Commission's Rules With Regard to Filing Procedures in the Multipoint Distribution Service & in the Instructional Television Fixed Service*, MM Docket No. 94-131, PP Docket No. 93-253, Report and Order, 10 FCC Rcd 9589 (1995).

[118] 47 U.S.C. § 309(j). Hundreds of stations were licensed to incumbent MDS licensees prior to implementation of Section 309(j) of the Communications Act of 1934, 47 U.S.C. § 309(j). For these pre-auction licenses, the applicable standard is SBA's small business size standards for "other telecommunications" (annual receipts of $13.5 million or less). *See* 13 C.F.R. § 121.201, NAICS code 517910.

[119] In addition, the term "small entity" under SBREFA applies to small organizations (nonprofits) and to small governmental jurisdictions (cities, counties, towns, townships, villages, school districts, and special districts with populations of less than 50,000). 5 U.S.C. §§ 601(4)-(6). We do not collect annual revenue data on ITFS licensees.

44. In the 1998 and 1999 LMDS auctions,[120] the Commission defined a small business as an entity that has annual average gross revenues of less than $40 million in the previous three calendar years.[121] Moreover, the Commission added an additional classification for a "very small business," which was defined as an entity that had annual average gross revenues of less than $15 million in the previous three calendar years.[122] These definitions of "small business" and "very small business" in the context of the LMDS auctions have been approved by the SBA.[123] In the first LMDS auction, 104 bidders won 864 licenses. Of the 104 auction winners, 93 claimed status as small or very small businesses. In the LMDS re-auction, 40 bidders won 161 licenses. Based on this information, we believe that the number of small LMDS licenses will include the 93 winning bidders in the first auction and the 40 winning bidders in the re-auction, for a total of 133 small entity LMDS providers as defined by the SBA and the Commission's auction rules.

45. *Local Multipoint Distribution Service.* Local Multipoint Distribution Service (LMDS) is a fixed broadband point-to-multipoint microwave service that provides for two-way video telecommunications.[124] The auction of the 1,030 LMDS licenses began on February 18, 1998 and closed on March 25, 1998. The Commission established a small business size standard for LMDS licensees as an entity that has average gross revenues of less than $40 million in the three previous calendar years.[125] An additional small business size standard for "very small business" was added as an entity that, together with its affiliates, has average gross revenues of not more than $15 million for the preceding three calendar years.[126] The SBA has approved these small business size standards in the context of LMDS auctions.[127] There were 93 winning bidders that qualified as small entities in the LMDS auctions. A total of 93 small and very small business bidders won approximately 277 A Block licenses and 387 B Block licenses. On March 27, 1999, the Commission re-auctioned 161 licenses; there were 40 winning bidders. Based on this information, we conclude that the number of small LMDS licenses consists of the 93 winning bidders in the first auction and the 40 winning bidders in the re-auction, for a total of 133 small entity LMDS providers.

46. *218-219 MHz Service.* The first auction of 218-219 MHz spectrum resulted in 170 entities winning licenses for 594 Metropolitan Statistical Area (MSA) licenses. Of the 594 licenses, 557 were won by entities qualifying as a small business. For that auction, the small business size standard was an entity that, together with its affiliates, has no more than a $6 million net worth and, after federal income taxes (excluding any carry over losses), has no more than $2 million in annual profits each year for the previous two years.[128] In the *218-219 MHz Report and Order and Memorandum Opinion and*

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[120] The Commission has held two LMDS auctions: Auction 17 and Auction 23. Auction No. 17, the first LMDS auction, began on February 18, 1998, and closed on March 25, 1998. (104 bidders won 864 licenses.) Auction No. 23, the LMDS re-auction, began on April 27, 1999, and closed on May 12, 1999. (40 bidders won 161 licenses.)

[121] *See Local Multipoint Distribution Service Order*, 12 FCC Rcd at 12545.

[122] *Id.*

[123] *See* Letter from A. Alvarez, Administrator, SBA, to Daniel Phythyon, Chief, Wireless Telecommunications Bureau, FCC (January 6, 1998).

[124] *See Local Multipoint Distribution Service Order*, 12 FCC Rcd 12545.

[125] *Id.*

[126] *See id*.

[127] *See* Letter from Aida Alvarez, Administrator, SBA, from Dan Phythyon, Chief, Wireless Telecommunications Bureau, FCC (Jan. 6, 1998).

[128] *Implementation of Section 309(j) of the Communications Act – Competitive Bidding*, PP Docket No. 93-253, Fourth Report and Order, 9 FCC Rcd 2330, 59 Fed. Reg. 24947 (May 13, 1994).

Order, we established a small business size standard for a "small business" as an entity that, together with its affiliates and persons or entities that hold interests in such an entity and their affiliates, has average annual gross revenues not to exceed $15 million for the preceding three years.[129] A "very small business" is defined as an entity that, together with its affiliates and persons or entities that hold interests in such an entity and its affiliates, has average annual gross revenues not to exceed $3 million for the preceding three years.[130] We cannot estimate, however, the number of licenses that will be won by entities qualifying as small or very small businesses under our rules in future auctions of 218-219 MHz spectrum.

47. *24 GHz – Incumbent Licensees.* This analysis may affect incumbent licensees who were relocated to the 24 GHz band from the 18 GHz band and applicants who wish to provide services in the 24 GHz band. The applicable SBA small business size standard is that of "Cellular and Other Wireless Telecommunications" companies. This category provides that such a company is small if it employs no more than 1,500 persons.[131] According to Census Bureau data for 1997, there were 977 firms in this category, total, that operated for the entire year.[132] Of this total, 965 firms had employment of 999 or fewer employees, and an additional 12 firms had employment of 1,000 employees or more.[133] Thus, under this size standard, the great majority of firms can be considered small. These broader census data notwithstanding, we believe that there are only two licensees in the 24 GHz band that were relocated from the 18 GHz band, Teligent[134] and TRW, Inc. It is our understanding that Teligent and its related companies have less than 1,500 employees, though this may change in the future. TRW is not a small entity. Thus, only one incumbent licensee in the 24 GHz band is a small business entity.

48. *24 GHz – Future Licensees.* With respect to new applicants in the 24 GHz band, the small business size standard for "small business" is an entity that, together with controlling interests and affiliates, has average annual gross revenues for the three preceding years not in excess of $15 million.[135] "Very small business" in the 24 GHz band is an entity that, together with controlling interests and affiliates, has average gross revenues not exceeding $3 million for the preceding three years.[136] The SBA has approved these small business size standards.[137] These size standards will apply to the future auction, if held.

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[129] *Amendment of Part 95 of the Commission's Rules to Provide Regulatory Flexibility in the 218-219 MHz Service*, WT Docket No. 98-169, Report and Order and Memorandum Opinion and Order, 15 FCC Rcd 1497, 64 Fed. Reg. 59656 (Nov. 3, 1999).

[130] *Id.*

[131] 13 C.F.R. § 121.201, NAICS code 517212.

[132] U.S. Census Bureau, 1997 Economic Census, Subject Series: Information, "Employment Size of Firms Subject to Federal Income Tax: 1997," Table 5, NAICS code 513322 (issued Oct. 2000).

[133] *Id.* The census data do not provide a more precise estimate of the number of firms that have employment of 1,500 or fewer employees; the largest category provided is "Firms with 1,000 employees or more."

[134] Teligent acquired the DEMS licenses of FirstMark, the only licensee other than TRW in the 24 GHz band whose license has been modified to require relocation to the 24 GHz band.

[135] *Amendments to Parts 1,2, 87 and 101 of the Commission's Rules to License Fixed Services at 24 GHz*, WT Docket No. 99-327, Report and Order, 15 FCC Rcd 16934, 16967, para. 77 (2000); *see also* 47 C.F.R. § 101.538(a)(2).

[136] *Amendments to Parts 1,2, 87 and 101 of the Commission's Rules to License Fixed Services at 24 GHz*, WT Docket No. 99-327, Report and Order, 15 FCC Rcd 16934, 16967, para. 77 (2000); *see also* 47 C.F.R. § 101.538(a)(1).

[137] *See* Letter from Gary M. Jackson, Assistant Administrator, SBA, to Margaret W. Wiener, Deputy Chief, Auctions and Industry Analysis Division, Wireless Telecommunications Bureau, FCC (July 28, 2000).

2. Cable and OVS Operators

49. *Cable Television Distribution Services.* Since 2007, these services have been defined within the broad economic census category of Wired Telecommunications Carriers; that category is defined as follows: "This industry comprises establishments primarily engaged in operating and/or providing access to transmission facilities and infrastructure that they own and/or lease for the transmission of voice, data, text, sound, and video using wired telecommunications networks. Transmission facilities may be based on a single technology or a combination of technologies."[138] The SBA has developed a small business size standard for this category, which is: all such firms having 1,500 or fewer employees. To gauge small business prevalence for these cable services we must, however, use current census data that are based on the previous category of Cable and Other Program Distribution and its associated size standard; that size standard was: all such firms having $13.5 million or less in annual receipts.[139] According to Census Bureau data for 2002, there were a total of 1,191 firms in this previous category that operated for the entire year.[140] Of this total, 1,087 firms had annual receipts of under $10 million, and 43 firms had receipts of $10 million or more but less than $25 million.[141] Thus, the majority of these firms can be considered small.

50. *Cable Companies and Systems.* The Commission has also developed its own small business size standards, for the purpose of cable rate regulation. Under the Commission's rules, a "small cable company" is one serving 400,000 or fewer subscribers, nationwide.[142] Industry data indicate that, of 1,076 cable operators nationwide, all but eleven are small under this size standard.[143] In addition, under the Commission's rules, a "small system" is a cable system serving 15,000 or fewer subscribers.[144] Industry data indicate that, of 7,208 systems nationwide, 6,139 systems have under 10,000 subscribers, and an additional 379 systems have 10,000-19,999 subscribers.[145] Thus, under this second size standard, most cable systems are small

51. *Cable System Operators*. The Communications Act of 1934, as amended, also contains a size standard for small cable system operators, which is "a cable operator that, directly or through an affiliate, serves in the aggregate fewer than 1 percent of all subscribers in the United States and is not affiliated with any entity or entities whose gross annual revenues in the aggregate exceed

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[138] U.S. Census Bureau, 2007 NAICS Definitions, "517110 Wired Telecommunications Carriers" (partial definition); http://www.census.gov/naics/2007/def/ND517110.HTM#N517110.

[139] 13 C.F.R. § 121.201, NAICS code 517110.

[140] U.S. Census Bureau, 2002 Economic Census, Subject Series: Information, Table 4, Receipts Size of Firms for the United States: 2002, NAICS code 517510 (issued November 2005).

[141] *Id*. An additional 61 firms had annual receipts of $25 million or more.

[142] 47 C.F.R. § 76.901(e). The Commission determined that this size standard equates approximately to a size standard of $100 million or less in annual revenues. *Implementation of Sections of the 1992 Cable Act: Rate Regulation,* Sixth Report and Order and Eleventh Order on Reconsideration, MM Docket Nos. 92-266, 93-215, 10 FCC Rcd 7393, 7408 (1995).

[143] These data are derived from: R.R. Bowker, *Broadcasting & Cable Yearbook 2006*, "Top 25 Cable/Satellite Operators," pages A-8 & C-2 (data current as of June 30, 2005); Warren Communications News, *Television & Cable Factbook 2006*, "Ownership of Cable Systems in the United States," pages D-1805 to D-1857.

[144] 47 C.F.R. § 76.901(c).

[145] Warren Communications News, *Television & Cable Factbook 2006*, "U.S. Cable Systems by Subscriber Size," page F-2 (data current as of Oct. 2005). The data do not include 718 systems for which classifying data were not available.

$250,000,000."[146] The Commission has determined that an operator serving fewer than 677,000 subscribers shall be deemed a small operator, if its annual revenues, when combined with the total annual revenues of all its affiliates, do not exceed $250 million in the aggregate.[147] Industry data indicate that, of 1,076 cable operators nationwide, all but ten are small under this size standard.[148] We note that the Commission neither requests nor collects information on whether cable system operators are affiliated with entities whose gross annual revenues exceed $250 million,[149] and therefore we are unable to estimate more accurately the number of cable system operators that would qualify as small under this size standard.

52. *Open Video Systems (OVS)*. In 1996, Congress established the open video system (OVS) framework, one of four statutorily recognized options for the provision of video programming services by local exchange carriers (LECs).[150] The OVS framework provides opportunities for the distribution of video programming other than through cable systems. Because OVS operators provide subscription services,[151] OVS falls within the SBA small business size standard of Cable and Other Program Distribution Services, which consists of such entities having $13.5 million or less in annual receipts.[152] The Commission has certified 25 OVS operators, with some now providing service. Broadband service providers (BSPs) are currently the only significant holders of OVS certifications or local OVS franchises.[153] As of June, 2005, BSPs served approximately 1.4 million subscribers, representing 1.5 percent of all MVPD households.[154] Affiliates of Residential Communications Network, Inc. (RCN), which serves about 371,000 subscribers as of June, 2005, is currently the largest BSP and 14th largest MVPD.[155] RCN received approval to operate OVS systems in New York City, Boston, Washington, D.C. and other areas. The Commission does not have financial information regarding the entities authorized to provide OVS, some of which may not yet be operational. We thus believe that at least some of the OVS operators may qualify as small entities.

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[146] 47 U.S.C. § 543(m)(2); *see* 47 C.F.R. § 76.901(f) & nn. 1-3.

[147] 47 C.F.R. § 76.901(f); *see FCC Announces New Subscriber Count for the Definition of Small Cable Operator*, Public Notice, DA 01-158, 16 FCC Rcd 2225 (CSB 2001).

[148] These data are derived from: R.R. Bowker, *Broadcasting & Cable Yearbook 2006*, "Top 25 Cable/Satellite Operators," pages A-8 & C-2 (data current as of June 30, 2005); Warren Communications News, *Television & Cable Factbook 2006*, "Ownership of Cable Systems in the United States," pages D-1805 to D-1857.

[149] The Commission does receive such information on a case-by-case basis if a cable operator appeals a local franchise authority's finding that the operator does not qualify as a small cable operator pursuant to § 76.901(f) of the Commission's rules. *See* 47 C.F.R. § 76.909(b).

[150] 47 U.S.C. § 571(a)(3)-(4). *See Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming, Eleventh Annual Report,* 20 FCC Rcd 2507, 2549, para. 88 (2006) (*2006 Cable Competition Report*).

[151] *See* 47 U.S.C. § 573.

[152] 13 C.F.R. § 121.201, NAICS code 517510.

[153] *See 2006 Cable Competition Report*, 20 FCC Rcd at 2549, para. 88. BSPs are newer firms that are building state-of-the-art, facilities-based networks to provide video, voice, and data services over a single network.

[154] *See id*. at 2507, para. 14.

[155] *See 2006 Cable Competition Report*, 20 FCC Rcd at 2549, para. 89. WideOpenWest is the second largest BSP and 16th largest MVPD, with cable systems serving about 292,000 subscribers as of June, 2005. The third largest BSP is Knology, serving approximately 170,800 subscribers as of June 2005. *Id*.

3. Internet Service Providers

53. *Internet Service Providers.* The SBA has developed a small business size standard for Internet Service Providers (ISPs). ISPs "provide clients access to the Internet and generally provide related services such as web hosting, web page designing, and hardware or software consulting related to Internet connectivity."[156] Under the SBA size standard, such a business is small if it has average annual receipts of $23 million or less.[157] According to Census Bureau data for 2002, there were 2,529 firms in this category that operated for the entire year.[158] Of these, 2,437 firms had annual receipts of under $10 million, and an additional 47 firms had receipts of between $10 million and $24, 999,999. Consequently, we estimate that the majority of these firms are small entities that may be affected by our action.

4. Other Internet-Related Entities

54. *Web Search Portals.* Our action pertains to VoIP services, which could be provided by entities that provide other services such as email, online gaming, web browsing, video conferencing, instant messaging, and other, similar IP-enabled services. The Commission has not adopted a size standard for entities that create or provide these types of services or applications. However, the Census Bureau has identified firms that "operate web sites that use a search engine to generate and maintain extensive databases of Internet addresses and content in an easily searchable format. Web search portals often provide additional Internet services, such as e-mail, connections to other web sites, auctions, news, and other limited content, and serve as a home base for Internet users."[159] The SBA has developed a small business size standard for this category; that size standard is $6.5 million or less in average annual receipts.[160] According to Census Bureau data for 2002, there were 342 firms in this category that operated for the entire year.[161] Of these, 303 had annual receipts of under $5 million, and an additional 15 firms had receipts of between $5 million and $9,999,999. Consequently, we estimate that the majority of these firms are small entities that may be affected by our action.

55. *Data Processing, Hosting, and Related Services*. Entities in this category "primarily . . . provid[e] infrastructure for hosting or data processing services."[162] The SBA has developed a small business size standard for this category; that size standard is $23 million or less in average annual receipts.[163] According to Census Bureau data for 2002, there were 6,877 firms in this category that operated for the entire year.[164] Of these, 6,418 had annual receipts of under $10 million, and an additional

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[156] U.S. Census Bureau, "2002 NAICS Definitions: 518111 Internet Service Providers," *available at* http://www.census.gov/epcd/naics02/def/NDEF518.HTM.

[157] 13 C.F.R. § 121.201, NAICS code 518111.

[158] U.S. Census Bureau, 2002 Economic Census, Subject Series: Information, "Establishment and Firm Size (Including Legal Form of Organization)," Table 4, NAICS code 518111 (issued Nov. 2005).

[159] U.S. Census Bureau, "2002 NAICS Definitions: 518112 Web Search Portals," *available at* http://www.census.gov/epcd/naics02/def/NDEF518.HTM.

[160] 13 C.F.R. § 121.201, NAICS code 518112.

[161] U.S. Census Bureau, 2002 Economic Census, Subject Series: Information, "Establishment and Firm Size (Including Legal Form of Organization)," Table 4, NAICS code 518112 (issued Nov. 2005).

[162] U.S. Census Bureau, "2002 NAICS Definitions: 518210 Data Processing, Hosting, and Related Services," *available at* http://www.census.gov/epcd/naics02/def/NDEF518.HTM.

[163] 13 C.F.R. § 121.201, NAICS code 518210.

[164] U.S. Census Bureau, 2002 Economic Census, Subject Series: Information, "Establishment and Firm Size (Including Legal Form of Organization)," Table 4, NAICS code 518210 (issued Nov. 2005).

251 firms had receipts of between $10 million and $24,999,999. Consequently, we estimate that the majority of these firms are small entities that may be affected by our action.

56. *All Other Information Services*. "This industry comprises establishments primarily engaged in providing other information services (except new syndicates and libraries and archives)."[165] Our action pertains to VoIP services, which could be provided by entities that provide other services such as email, online gaming, web browsing, video conferencing, instant messaging, and other, similar IP-enabled services. The SBA has developed a small business size standard for this category; that size standard is $6.5 million or less in average annual receipts.[166] According to Census Bureau data for 2002, there were 155 firms in this category that operated for the entire year.[167] Of these, 138 had annual receipts of under $5 million, and an additional four firms had receipts of between $5 million and $9,999,999. Consequently, we estimate that the majority of these firms are small entities that may be affected by our action.

57. *Internet Publishing and Broadcasting.* "This industry comprises establishments engaged in publishing and/or broadcasting content on the Internet exclusively. These establishments do not provide traditional (non-Internet) versions of the content that they publish or broadcast."[168] The SBA has developed a small business size standard for this census category; that size standard is 500 or fewer employees.[169] According to Census Bureau data for 2002, there were 1,362 firms in this category that operated for the entire year.[170] Of these, 1,351 had employment of 499 or fewer employees, and six firms had employment of between 500 and 999. Consequently, we estimate that the majority of these firms small entities that may be affected by our action.

58. *Software Publishers.* These companies may design, develop or publish software and may provide other support services to software purchasers, such as providing documentation or assisting in installation. The companies may also design software to meet the needs of specific users.[171] The SBA has developed a small business size standard of $25 million or less in average annual receipts for all of the following pertinent categories: Software Publishers, Custom Computer Programming Services, and Other Computer Related Services.[172] For Software Publishers, Census Bureau data for 2002 indicate that there were 6,155 firms in the category that operated for the entire year.[173] Of these, 7,633 had annual receipts of under $10 million, and an additional 403 firms had receipts of between $10 million and $24, 999,999. For providers of Custom Computer Programming Services, the Census Bureau data indicate

[165] U.S. Census Bureau, "2002 NAICS Definitions: 519190 All Other Information Services," *available at* http://www.census.gov/epcd/naics02/def/NDEF519.HTM.

[166] 13 C.F.R. § 121.201, NAICS code 519190.

[167] U.S. Census Bureau, 1997 Economic Census, Subject Series: Information, "Establishment and Firm Size (Including Legal Form of Organization)," Table 4, NAICS code 519190 (issued Nov. 2005).

[168] U.S. Census Bureau, "2002 NAICS Definitions: 516110 Internet Publishing and Broadcasting," *available at* http://www.census.gov/epcd/naics02/def/NDEF516.HTM.

[169] 13 C.F.R. § 121.201, NAICS code 516110.

[170] U.S. Census Bureau, 2002 Economic Census, Subject Series: Information, "Establishment and Firm Size (Including Legal Form of Organization)," Table 5, NAICS code 516110 (issued Nov. 2005).

[171] *See* U.S. Census Bureau, "2002 NAICS Definitions: 511210 Software Publishers," *available at* http://www.census.gov/epcd/naics02/def/NDEF511.HTM.

[172] 13 C.F.R. § 121.201, NAICS codes 511210, 541511, and 541519.

[173] U.S. Census Bureau, 2002 Economic Census, Subject Series: Information, "Establishment and Firm Size (Including Legal Form of Organization)," Table 4, NAICS code 511210 (issued Nov. 2005).

that there were 32,269 firms that operated for the entire year.[174] Of these, 31,416 had annual receipts of under $10 million, and an additional 565 firms had receipts of between $10 million and $24,999,999. For providers of Other Computer Related Services, the Census Bureau data indicate that there were 6,357 firms that operated for the entire year.[175] Of these, 6,187 had annual receipts of under $10 million, and an additional 101 firms had receipts of between $10 million and $24,999,999. Consequently, we estimate that the majority of the firms in each of these three categories are small entities that may be affected by our action.

5. Equipment Manufacturers

59. SBA small business size standards are given in terms of "firms." Census Bureau data concerning computer manufacturers, on the other hand, are given in terms of "establishments." We note that 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 census numbers provided below may reflect inflated numbers of businesses in the given category, including the numbers of small businesses.

60. *Electronic Computer Manufacturing*. This category "comprises establishments primarily engaged in manufacturing and/or assembling electronic computers, such as mainframes, personal computers, workstations, laptops, and computer servers."[176] The SBA has developed a small business size standard for this category of manufacturing; that size standard is 1,000 or fewer employees.[177] According to Census Bureau data, there were 485 establishments in this category that operated with payroll during 2002.[178] Of these, 476 had employment of under 1,000, and an additional four establishments had employment of 1,000 to 2,499. Consequently, we estimate that the majority of these establishments are small entities.

61. *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."[179] The SBA has developed a small business size standard for this category of manufacturing; that size standard is 1,000 or fewer employees.[180] According to Census Bureau data, there were 170 establishments in this category that operated with payroll during 2002.[181] Of these, 164 had

[174] U.S. Census Bureau, 2002 Economic Census, Subject Series: Professional, Scientific, and Technical Services, "Establishment and Firm Size (Including Legal Form of Organization)," Table 4, NAICS code 541511 (issued Nov. 2005).

[175] U.S. Census Bureau, 2002 Economic Census, Subject Series: Professional, Scientific, and Technical Services, "Establishment and Firm Size (Including Legal Form of Organization)," Table 4, NAICS code 541519 (issued Nov. 2005).

[176] U.S. Census Bureau, 2002 NAICS Definitions, "334111 Electronic Computer Manufacturing," *available at* http://www.census.gov/epcd/naics02/def/ND334111.HTM#N334111.

[177] 13 C.F.R. § 121.201, NAICS code 334111.

[178] U.S. Census Bureau, 2002 Economic Census, Industry Series: Manufacturing, "Electronic Computer Manufacturing," Table 4, NAICS code 334111 (issued Dec. 2004).

[179] U.S. Census Bureau, 2002 NAICS Definitions, "334112 Computer Storage Device Manufacturing," *available at* http://www.census.gov/epcd/naics02/def/ND334112.HTM#N334112.

[180] 13 C.F.R. § 121.201, NAICS code 334112.

[181] U.S. Census Bureau, 2002 Economic Census, Industry Series: Manufacturing, "Computer Storage Device Manufacturing," Table 4, NAICS code 334112 (issued Dec. 2004).

employment of under 500, and five establishments had employment of 500 to 999. Consequently, we estimate that the majority of these establishments are small entities

62. *Computer Terminal Manufacturing*. "Computer terminals are input/output devices that connect with a central computer for processing."[182] The SBA has developed a small business size standard for this category of manufacturing; that size standard is 1,000 or fewer employees.[183] According to Census Bureau data, there were 71 establishments in this category that operated with payroll during 2002, and all of the establishments had employment of under 1,000.[184] Consequently, we estimate that all of these establishments are small entities.

63. *Other Computer Peripheral Equipment Manufacturing.* Examples of peripheral equipment in this category include keyboards, mouse devices, monitors, and scanners.[185] The SBA has developed a small business size standard for this category of manufacturing; that size standard is 1,000 or fewer employees.[186] According to Census Bureau data, there were 860 establishments in this category that operated with payroll during 2002.[187] Of these, 851 had employment of under 1,000, and an additional five establishments had employment of 1,000 to 2,499. Consequently, we estimate that the majority of these establishments are small entities.

64. *Audio and Video Equipment Manufacturing.* These establishments manufacture "electronic audio and video equipment for home entertainment, motor vehicle, public address and musical instrument amplifications."[188] The SBA has developed a small business size standard for this category of manufacturing; that size standard is 750 or fewer employees.[189] According to Census Bureau data, there were 571 establishments in this category that operated with payroll during 2002.[190] Of these, 560 had employment of under 500, and ten establishments had employment of 500 to 999. Consequently, we estimate that the majority of these establishments are small entities.

65. *Electron Tube Manufacturing.* These establishments are "primarily engaged in manufacturing electron tubes and parts (except glass blanks)."[191] The SBA has developed a small business size standard for this category of manufacturing; that size standard is 750 or fewer employees.[192]

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[182] U.S. Census Bureau, 2002 NAICS Definitions, "334113 Computer Terminal Manufacturing," *available at* http://www.census.gov/epcd/naics02/def/ND334113.HTM#N334113.

[183] 13 C.F.R. § 121.201, NAICS code 334113.

[184] U.S. Census Bureau, 2002 Economic Census, Industry Series: Manufacturing, "Computer Terminal Manufacturing," Table 4, NAICS code 334113 (issued Dec. 2004). In fact, all had employment of under 500.

[185] U.S. Census Bureau, 2002 NAICS Definitions, "334119 Other Computer Peripheral Equipment Manufacturing," *available at* http://www.census.gov/epcd/naics02/def/ND334119.HTM#N334119.

[186] 13 C.F.R. § 121.201, NAICS code 334119.

[187] U.S. Census Bureau, 2002 Economic Census, Industry Series: Manufacturing, "Other Computer Peripheral Equipment Manufacturing," Table 4, NAICS code 334119 (issued Dec. 2004).

[188] U.S. Census Bureau, 2002 NAICS Definitions, "334310 Audio and Video Equipment Manufacturing," *available at* http://www.census.gov/epcd/naics02/def/ND334310.HTM#N334310.

[189] 13 C.F.R. § 121.201, NAICS code 334310.

[190] U.S. Census Bureau, 2002 Economic Census, Industry Series: Manufacturing, "Audio and Video Equipment Manufacturing," Table 4, NAICS code 334310 (issued Dec. 2004).

[191] U.S. Census Bureau, 2002 NAICS Definitions, "334411 Electron Tube Manufacturing," *available at* http://www.census.gov/epcd/naics02/def/ND334411.HTM#N334411.

[192] 13 C.F.R. § 121.201, NAICS code 334411.

According to Census Bureau data, there were 102 establishments in this category that operated with payroll during 2002.[193] Of these, 97 had employment of under 500, and one establishment had employment of 500 to 999. Consequently, we estimate that the majority of these establishments are small entities.

66. *Bare Printed Circuit Board Manufacturing.* These establishments are "primarily engaged in manufacturing bare (i.e., rigid or flexible) printed circuit boards without mounted electronic components."[194] The SBA has developed a small business size standard for this category of manufacturing; that size standard is 500 or fewer employees.[195] According to Census Bureau data, there were 936 establishments in this category that operated with payroll during 2002.[196] Of these, 922 had employment of under 500, and 12 establishments had employment of 500 to 999. Consequently, we estimate that the majority of these establishments are small entities.

67. *Semiconductor and Related Device Manufacturing.* Examples of manufactured devices in this category include "integrated circuits, memory chips, microprocessors, diodes, transistors, solar cells and other optoelectronic devices."[197] The SBA has developed a small business size standard for this category of manufacturing; that size standard is 500 or fewer employees.[198] According to Census Bureau data, there were 1,032 establishments in this category that operated with payroll during 2002.[199] Of these, 950 had employment of under 500, and 42 establishments had employment of 500 to 999. Consequently, we estimate that the majority of these establishments are small entities.

68. *Electronic Capacitor Manufacturing.* These establishments manufacture "electronic fixed and variable capacitors and condensers."[200] The SBA has developed a small business size standard for this category of manufacturing; that size standard is 500 or fewer employees.[201] According to Census Bureau data, there were 104 establishments in this category that operated with payroll during 2002.[202] Of these, 101 had employment of under 500, and two establishments had employment of 500 to 999. Consequently, we estimate that the majority of these establishments are small entities.

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[193] U.S. Census Bureau, 2002 Economic Census, Industry Series: Manufacturing, "Electron Tube Manufacturing," Table 4, NAICS code 334411 (issued Dec. 2004).

[194] U.S. Census Bureau, 2002 NAICS Definitions, "334412 Bare Printed Circuit Board Manufacturing," *available at* http://www.census.gov/epcd/naics02/def/ND334412.HTM#N334412.

[195] 13 C.F.R. § 121.201, NAICS code 334412.

[196] U.S. Census Bureau, 2002 Economic Census, Industry Series: Manufacturing, "Bare Printed Circuit Board Manufacturing," Table 4, NAICS code 334412 (issued Jan. 2005).

[197] U.S. Census Bureau, 2002 NAICS Definitions, "334413 Semiconductor and Related Device Manufacturing," *available at* http://www.census.gov/epcd/naics02/def/ND334413.HTM#N334413.

[198] 13 C.F.R. § 121.201, NAICS code 334413.

[199] U.S. Census Bureau, 2002 Economic Census, Industry Series: Manufacturing, "Semiconductor and Related Device Manufacturing ," Table 4, NAICS code 334413 (issued Jan. 2005).

[200] U.S. Census Bureau, 2002 NAICS Definitions, "334414 Electronic Capacitor Manufacturing," *available at* http://www.census.gov/epcd/naics02/def/ND334414.HTM#N334414.

[201] 13 C.F.R. § 121.201, NAICS code 334414.

[202] U.S. Census Bureau, 2002 Economic Census, Industry Series: Manufacturing, "Electronic Capacitor Manufacturing," Table 4, NAICS code 334414 (issued Jan. 2005).

69. *Electronic Resistor Manufacturing.* These establishments manufacture "electronic resistors, such as fixed and variable resistors, resistor networks, thermistors, and varistors."[203] The SBA has developed a small business size standard for this category of manufacturing; that size standard is 500 or fewer employees.[204] According to Census Bureau data, there were 79 establishments in this category that operated with payroll during 2002.[205] All of these establishments had employment of under 500. Consequently, we estimate that all of these establishments are small entities.

70. *Electronic Coil, Transformer, and Other Inductor Manufacturing.* These establishments manufacture "electronic inductors, such as coils and transformers."[206] The SBA has developed a small business size standard for this category of manufacturing; that size standard is 500 or fewer employees.[207] According to Census Bureau data, there were 365 establishments in this category that operated with payroll during 2002.[208] All of these establishments had employment of under 500. Consequently, we estimate that all of these establishments are small entities.

71. *Electronic Connector Manufacturing.* These establishments manufacture "electronic connectors, such as coaxial, cylindrical, rack and panel, pin and sleeve, printed circuit and fiber optic."[209] The SBA has developed a small business size standard for this category of manufacturing; that size standard is 500 or fewer employees.[210] According to Census Bureau data, there were 321 establishments in this category that operated with payroll during 2002.[211] Of these, 315 had employment of under 500, and three establishments had employment of 500 to 999. Consequently, we estimate that the majority of these establishments are small entities.

72. *Printed Circuit Assembly (Electronic Assembly) Manufacturing.* These are establishments "primarily engaged in loading components onto printed circuit boards or who manufacture and ship loaded printed circuit boards."[212] The SBA has developed a small business size standard for this category of manufacturing; that size standard is 500 or fewer employees.[213] According to Census Bureau data, there were 868 establishments in this category that operated with payroll during 2002.[214] Of these,

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[203] U.S. Census Bureau, 2002 NAICS Definitions, "334415 Electronic Resistor Manufacturing," *available at* http://www.census.gov/epcd/naics02/def/ND334415.HTM#N334415.

[204] 13 C.F.R. § 121.201, NAICS code 334415.

[205] U.S. Census Bureau, 2002 Economic Census, Industry Series: Manufacturing, "Electronic Resistor Manufacturing," Table 4, NAICS code 334415 (issued Jan. 2005).

[206] U.S. Census Bureau, 2002 NAICS Definitions, "334416 Electronic Coil, Transformer, and Other Inductor Manufacturing," *available at* http://www.census.gov/epcd/naics02/def/ND334416.HTM#N334416.

[207] 13 C.F.R. § 121.201, NAICS code 334416.

[208] U.S. Census Bureau, 2002 Economic Census, Industry Series: Manufacturing, "Electronic Coil, Transformer, and Other Inductor Manufacturing," Table 4, NAICS code 334416 (issued Jan. 2005).

[209] U.S. Census Bureau, 2002 NAICS Definitions, "334417 Electronic Connector Manufacturing," *available at* http://www.census.gov/epcd/naics02/def/ND334417.HTM#N334417.

[210] 13 C.F.R. § 121.201, NAICS code 334417.

[211] U.S. Census Bureau, 2002 Economic Census, Industry Series: Manufacturing, "Electronic Connector Manufacturing," Table 4, NAICS code 334417 (issued Jan. 2005).

[212] U.S. Census Bureau, 2002 NAICS Definitions, "334418 Printed Circuit Assembly (Electronic Assembly) Manufacturing," *available at* http://www.census.gov/epcd/naics02/def/ND334418.HTM#N334418.

[213] 13 C.F.R. § 121.201, NAICS code 334418.

[214] U.S. Census Bureau, 2002 Economic Census, Industry Series: Manufacturing, "Printed Circuit Assembly (Electronic Assembly) Manufacturing," Table 4, NAICS code 334418 (issued Jan. 2005).

839 had employment of under 500, and 18 establishments had employment of 500 to 999. Consequently, we estimate that the majority of these establishments are small entities.

73. *Other Electronic Component Manufacturing.*[215] The SBA has developed a small business size standard for this category of manufacturing; that size standard is 500 or fewer employees.[216] According to Census Bureau data, there were 1,627 establishments in this category that operated with pay roll during 2002.[217] Of these, 1,616 had employment of under 500, and eight establishments had employment of 500 to 999. Consequently, we estimate that the majority of these establishments are small entities.

74. *Fiber Optic Cable Manufacturing.* These establishments manufacture "insulated fiber-optic cable from purchased fiber-optic strand."[218] The SBA has developed a small business size standard for this category of manufacturing; that size standard is 1,000 or fewer employees.[219] According to Census Bureau data, there were 96 establishments in this category that operated with payroll during 2002.[220] Of these, 95 had employment of under 1,000, and one establishment had employment of 1,000 to 2,499. Consequently, we estimate that the majority or all of these establishments are small entities.

75. *Other Communication and Energy Wire Manufacturing.* These establishments manufacture "insulated wire and cable of nonferrous metals from purchased wire."[221] The SBA has developed a small business size standard for this category of manufacturing; that size standard is 1,000 or fewer employees.[222] According to Census Bureau data, there were 356 establishments in this category that operated with payroll during 2002.[223] Of these, 353 had employment of under 1,000, and three establishments had employment of 1,000 to 2,499. Consequently, we estimate that the majority or all of these establishments are small entities.

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

76. Although we grant interconnected VoIP providers additional rights to access E911 capabilities in the Order, in most cases, we do not anticipate significant deviation from current practices. In the Commission's *VoIP 911 Order*, the Commission required interconnected VoIP providers to provide E911 service using the existing wireline 911 infrastructure.[224] Under our VoIP rules, many

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[215] U.S. Census Bureau, 2002 NAICS Definitions, "334419 Other Electronic Component Manufacturing," *available at* http://www.census.gov/epcd/naics02/def/ND334419.HTM#N334419.

[216] 13 C.F.R. § 121.201, NAICS code 334419.

[217] U.S. Census Bureau, 2002 Economic Census, Industry Series: Manufacturing, "Other Electronic Component Manufacturing," Table 4, NAICS code 334419 (issued Jan. 2005).

[218] U.S. Census Bureau, 2002 NAICS Definitions, "335921 Fiber Optic Cable Manufacturing," *available at* http://www.census.gov/epcd/naics02/def/ND335921.HTM#N335921.

[219] 13 C.F.R. § 121.201, NAICS code 335921.

[220] U.S. Census Bureau, 2002 Economic Census, Industry Series: Manufacturing, "Fiber Optic Cable Manufacturing," Table 4, NAICS code 335921 (issued Dec. 2004).

[221] U.S. Census Bureau, 2002 NAICS Definitions, "335929 Other Communication and Energy Wire Manufacturing," *available at* http://www.census.gov/epcd/naics02/def/ND335929.HTM#N335929.

[222] 13 C.F.R. § 121.201, NAICS code 335929.

[223] U.S. Census Bureau, 2002 Economic Census, Industry Series: Manufacturing, "Other Communication and Energy Wire Manufacturing," Table 4, NAICS code 335929 (issued Dec. 2004).

[224] *See* Report and Order, *supra*, at para. 4.

interconnected VoIP providers today are successfully using numbering partners and other 911 service providers to deliver 911 or E911 calls to the appropriate PSAP, designated statewide default answering point, or appropriate local emergency authority.[225]

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

77. The RFA requires an agency to describe any significant alternatives that it has considered in reaching its proposed approach, which may include (among others) the following four alternatives: (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) an exemption from coverage of the rule, or any part thereof, for small entities.[226]

78. The *NET 911 Notice* sought comment regarding the specific duties imposed by the NET 911 Act and the regulations that we are required to adopt.[227] Specifically, in the *NET 911 Notice*, we invited comment on what costs and burdens any new rules might impose upon small entities and how they could be ameliorated.[228] For instance, we specifically sought comment as to whether there are any issues or significant alternatives that the Commission should consider to ease the burden on small entities.[229] We emphasize that we must assess the interests of small businesses in light of the NET 911 Act's goal of ensuring that interconnected VoIP providers have access to any and all capabilities they need to provide 911 and E911 service.

79. While, like the Net 911 Act, the rules we adopt today apply to all providers of interconnected VoIP service and any entity that owns or controls 911 or E911 capabilities, we attempted to minimize the impact of the new rules on small entities to the extent consistent with Congress's intent. The Commission considered several alternatives, and in today's Order, imposes minimal regulation on small entities to the extent possible. As an initial matter, as noted above, many interconnected VoIP providers today are successfully delivering E911 calls to the appropriate PSAP and we do not anticipate significant deviation from current practices, particularly from small entities.[230] As they have done in the past, small interconnected VoIP providers may still offer E911 service indirectly through a third party, such as a competitive LEC, or through any other solution that allows the provider to offer E911 service in compliance with the Commission's rules.[231]

80. Furthermore, the Commission considered but declined to issue highly detailed rules listing specific capabilities or entities with ownership or control of those capabilities.[232] As recognized above, the nation's 911 system varies from locality to locality, and overly specific rules would fail to reflect these local variations, thereby placing undue burdens on all entities, including any small entities, involved in providing E911 service. Small interconnected VoIP providers and small entities that own or

[225] *Id.* at para. 43.

[226] 5 U.S.C. § 603(c).

[227] *See NET 911 Notice*, at para. 5.

[228] *Id*. at para. 12.

[229] *Id.*

[230] *See* Report and Order*, supra*, para. 36.

[231] *See id*. at para. 13.

[232] *See id*. at para. 22.

control those capabilities will benefit from the flexibility of our rules, which, as noted above, will accommodate the local variations as well as the various technologies necessary for 911 and E911 service.

81. The Commission also considered but declined to issue highly detailed rules setting forth the pricing methodology under which a capability would be provided to an interconnected VoIP provider. Our rules require that the rates, terms, and conditions shall be: (1) the same as the rates, terms, and conditions that are made available to CMRS providers, or (2) in the event such capability is not made available to CMRS providers, the same rates, terms, and conditions that are made available to any telecommunications carrier or other entity for the provision of 911 or E911 service; or (3) otherwise on the rates, terms, and conditions reached through commercial agreement; and (4) in any case, reasonable. The Commission concluded that it was important that the rates, terms, and conditions be consistent with Congress' intent and in all instances be reasonable. Thus, those small entities that seek to access capabilities directly will be assured they have access to capabilities under reasonable rates, terms, and conditions, thereby minimizing significant economic impact on small entities.

82. **Report to Congress:** The Commission will send a copy of the Order, including this FRFA, in a report to be sent to Congress and the Government Accountability Office pursuant to the Congressional Review Act.[233] In addition, the Commission will send a copy of the Order, including this FRFA, to the Chief Counsel for Advocacy of the SBA. A copy of the Order and FRFA (or summaries thereof) will also be published in the Federal Register.[234]

[233] *See* 5 U.S.C. § 801(a)(1)(A).

[234] *See* 5 U.S.C. § 604(b).

STATEMENT OF
CHAIRMAN KEVIN J. MARTIN

Re: ***Implementation of the NET 911 Improvement Act of 2008*****, WC Docket No. 08-171**

Today, we implement the New and Emerging Technologies 911 Improvement Act of 2008 (NET 911 Act). I am pleased that we further refine our rules to support the safety of the public and the needs of our first responders. I am concerned, however, that today's Order does not go far enough to ensure that mobile VoIP providers comply with our rules.

As I have said before, everyone who dials 911 expects that he or she will be connected to the local emergency operator. This reasonable expectation exists whether that person is dialing 911 from a traditional wireline phone, a wireless phone, or a VoIP phone. Moreover, we need to ensure that our enhanced 911 (E911) rules provide meaningful automatic location information that permits first responders to reliably find callers, even when they are using mobile wireless or VoIP phones.

I am troubled that today's decision could leave mobile VoIP customers without adequate 911 service when they roam outside their service providers' footprint. In these instances, the service providers do not have access to "last known cell" information that they may need to deliver the call to the appropriate local emergency operator and to provide accurate location information to the appropriate public safety officials. Consistent with the rest of the Order, I would have gone further, giving mobile VoIP providers access to "last known cell" information so that they could comply with our rules without exception. I am concerned that failing to require that this information be provided to mobile VoIP providers will lead to some 911 calls not being delivered to the appropriate local emergency operator and/or the use of call centers that require VoIP customers to provide their exact location and then forward the call to the local emergency operator losing precious response time. Such a result is inconsistent with public safety's encouragement that the Commission "grant VoIP providers reasonable and non-discriminatory access to all capabilities that are necessary for the deployment of E9-1-1 services." See attached letter from NENA and APCO. For example, NENA stated that it "believes that having the ability to route calls based on the last known location of a caller roaming on another provider's network would provide public safety benefits. NENA would support the Commission taking steps to address this issue." Letter from NENA to FCC, WC Docket Nos. 04-36 and 05-196 (filed Aug. 21, 2008).

I am confused by some of my colleagues who claim that they both wish we had addressed this issue already and that it is too early to address it now. They claim that there is a right way and a wrong way to address these issues and that we should have both addressed the issue already and that we should not be locking ourselves into a particular solution.

Specifically, they claim not to "know if 'last known cell' or some other technology (or perhaps some combination of approaches) will best protect American consumers." They go on to conclude that "we should not be locking carriers (and their customers) in to a particular technology over the long run until we know it is the correct technology."

At the same time they claim to advocate that we should have already addressed this issue before the mobile VoIP products were even developed. Specifically, they argue that the Commission should "have addressed this question long ago, before mobile VoIP became a marketplace reality."

I am not sure how we were to have achieved these two inconsistent goals: both (1) addressing the issue fully "before mobile VoIP became a reality," and (2) refusing to adopt any technical solution today

because of a desire to preserve the development of some future technology tomorrow. That is not advocating a right way or a wrong way – but trying to have it both ways.

In any event, I do not understand why some of my colleagues would deny mobile VoIP providers access to a capability they need to provide adequate 911 service to the public today. Congress gave us the opportunity and obligation to ensure that VoIP providers have any and all of the tools they may need to provide E911 service.

Importantly, VoIP providers are not required to take advantage of any particular capability we make available to them. Indeed, far from "lock[ing] in a particular technology or approach," providing "last known cell" information expands VoIP providers' options for providing E911.

We may determine, as technology changes, that providers should have access to even more capabilities. But by taking "last known cell" information off the table until we study every option and even whether there are additional options, we deny mobile VoIP providers the ability to provide adequate 911 service to their customers today. And we deny mobile VoIP customers access to full E911 capability.

I do not think we should jeopardize public safety for any amount of time when a capability that could be used to ensure 911 service is available now.

To delay only because we want to study – "develop[] a body of learning" – other technologies that may one day be available, would leave customers without adequate 911 service.

If a technology that can help save lives is available today, we should enable it. If future technologies develop that improve safety, we should enable them as well. But failure to do so today because of an uncertain promise about tomorrow certainly does not "address mobile/nomadic VoIP as soon as possible."

October 2, 2008

Honorable Kevin J. Martin Chairman
Federal Communications Commission
445 12th Street, S.W. Washington, D.C.
20554

RE: WC Docket No. 08-171, ex parte communication Pursuant to Section 1.1206 of the Rules

Dear Chairman Martin,

On September 9, 2008 NENA and APCO jointly filed comments in response to a Notice of Proposed Rulemaking (NPRM) which sought comments concerning regulations implementing the requirements of the *New and Emerging Technologies 911 Improvement Act of 2008 ("NET 911 Act")*. As we stated in our comments, NENA and APCO believe that VoIP providers should be granted reasonable and non-discriminatory access to all capabilities that are necessary for the deployment of E9-1-1 services and such access should be provided at rates that are just, reasonable and non-discriminatory. We also stated that in return for such access, VoIP providers should commit to deploying fixed and nomadic VoIP service in accordance with national VoIP E9-1-1 standards, such as the NENA Interim VoIP Architecture for Enhanced 9-1-1 Services standard (known in short as "i2").

NENA, APCO and the VoIP industry advocated for the passage of the *NET 911 Improvement Act* because it provides needed tools to ensure E9-1-1 service for VoIP will be effectively deployed in all areas of the country. The regulations the Commission has been directed to implement by Congress are intended to ensure that VoIP providers have access to elements of the E9-1-1 system that they need to deploy E9-1-1 in all areas. Therefore, as stated in our September 9th filing, NENA and APCO encourage the commission to grant VoIP providers reasonable and non-discriminatory access to all capabilities that are necessary for the deployment of E9-1-1 services. Importantly, by granting access to such capabilities, we also encourage the Commission to make clear that VoIP providers are expected to comply with VoIP E9-1-1 rules in all circumstances where such capabilities have been made available.

Sincerely,

/s/
Patrick Halley
Government Affairs Director
NENA

/s/
Robert Gurss
Director, Legal and Government Affairs
APCO

cc: Commissioner Michael Copps
Commissioner Jonathan Adelstein
Commissioner Deborah Taylor Tate
Commissioner Robert McDowell

STATEMENT OF
COMMISSIONER MICHAEL J. COPPS

Re: ***Implementation of the NET 911 Improvement Act of 2008*, WC Docket No. 08-171**

I am glad we establish rules today that implement the Net 911 Act. Today's decision continues the process we began several years ago with our first order on VoIP and E911. It improves the safety of VoIP customers by granting their providers adequate access to E911 resources. I especially appreciate the willingness of my colleagues to ensure that we do not impose burdensome requirements such as certification that would have the perverse effect of ***reducing*** VoIP providers' access to E911 resources.

I also think it is important we do not codify a "last known cell" approach before the public safety community and the FCC have looked at the full range of options for automatically identifying the location of mobile VoIP calls. Make no mistake, I am no friend of unnecessary delay. As I have stated before, I wish we had addressed this question long ago, before mobile VoIP became a marketplace reality. And I certainly look forward to addressing it as soon as possible. But there is a right way and a wrong way to proceed. The truth remains that today we do not know if "last known cell" or some other technology (or perhaps some combination of approaches) will best protect American consumers. We should not be locking carriers (and their customers) in to a particular technology over the long run until we know it is the correct technology.

Finally, I must respectfully disagree with the view that there is some inconsistency between my decision on the "last known cell" issue (discussed above) and my desire to address mobile/nomadic VoIP as soon as possible. The facts are these:

Back in 2005, when mobile VoIP was just on the horizon, the FCC teed up questions about how to automatically transmit caller location to 911 operators. I believed that the public safety community and the FCC were ready to move forward at that time—even before such products were in the marketplace—because of our long, shared experience with E911 for traditional mobile telephones (which are also small handheld, battery-powered devices that consumers use to call for help). And I agree 100% with all my colleagues that every caller should have an expectation of reaching help when they dial 911. That is why, when in 2006 I listed the top priorities for the FCC's new Public Safety and Homeland Security Bureau, I stated that "[o]n the VoIP front, we need to move forward with our ongoing rulemaking regarding automatic location sensing technologies."

Unfortunately, as today's item reflects, the FCC has not developed a body of learning on the pros and cons of different approaches to mobile VoIP autolocation. And for the reasons I've given above, until we meet this critical prerequisite, I don't think it serves the cause of public safety to lock in a particular technology or approach. The public safety community does not disagree with this view—while the leading organizations support (as do I) addressing these issues in an appropriate proceeding, they have not suggested it must be done in the context of the NET 911 Act.

The NET 911 Act reflects this approach and, in particular, the conclusion that we haven't yet gathered the appropriate information. Specifically, the Act requires other branches of the federal government to study "location technology for nomadic devices" and issue a report on the subject within a fixed period of time. While I certainly believe that the FCC is capable of investigating this issue itself (and has been capable of doing so for some time), Congress's decision strongly implies that ***right now*** we don't have all the information we need. I hope we remedy this expeditiously. In any event, while I certainly recognize that reasonable minds may disagree on the difficult issue of how to move forward here, I must join the majority in concluding that adding "last known cell" to the list of items covered by the NET 911 Act was

not Congress's intent and would not serve the interests of American consumers.

STATEMENT OF
COMMISSIONER JONATHAN S. ADELSTEIN

Re: ***Implementation of the NET 911 Improvement Act of 2008*****, WC Docket No. 08-171**

With the passage of the "NET 911 Improvement Act of 2008" (NET 911 Act), Congress made clear that consumers of interconnected VoIP services deserve access to life saving 911 and E911 services and charged this Commission with an active role in transitioning to an IP-enabled emergency communications network.

In this Order we take up the Net 911 Act's directive that providers of IP-enabled voice services comply with 911 and E911 obligations and that these providers have access to the capabilities necessary to provide 911 and E911 services. The Order adopts a reasonable approach in its implementation of the Net 911 Act's requirements. Consistent with the Act, it sets out broad standards for access to E911 capabilities, and makes clear that providers are entitled to access capabilities from any entity that owns or controls those capabilities. I note that a number of E911 compliance and policy questions have been raised with respect to dual-mode mobile commercial mobile radio service/VoIP handsets that use Wi-Fi technology. Given the tight Congressional deadline for implementing the Act, and wide concern about limiting the development of more robust E911 solutions, it is appropriate for the Commission to resolve those issues in a separate proceeding.

Finally, I would like to thank the public safety community, carriers, VoIP providers, and all interested stakeholders who have helped us to implement this Act quickly and ensure that E911 services remain robust and reliable. We must remain committed to making E911 a success for these increasingly important services and for the consumers who reach for that critical lifeline in their time of need.

STATEMENT OF
COMMISSIONER DEBORAH TAYLOR TATE

Re: ***Implementation of the NET 911 Improvement Act of 2008*****, WC Docket No. 08-171**

With this item, the Commission establishes rules to ensure that service providers have the access they need to enable 911 and E911 service, which Congress has required in the New and Emerging Technologies 911 Improvement Act of 2008. Whether we are considering rules for use of the 700 MHz D block spectrum, location accuracy for 911 calls, or service providers' access to 911 capabilities, the Commission continues to take steps to ensure that our citizens and public safety service providers have the tools they need to ensure world-class emergency communications capabilities.

I especially want to recognize Congressman Bart Gordon, Congressman Chip Pickering, and Senator Bill Nelson for their longstanding leadership on this issue. It is important that the Commission's implementation of all rules in response to statutory requirements reflect the intent of Congress and the plain language of the laws directing our activities. I believe this item faithfully implements Congress' requirements with regard to 911 and E911 access rules.

STATEMENT OF
COMMISSIONER ROBERT M. McDOWELL

Re: ***Implementation of the NET 911 Improvement Act of 2008*****, WC Docket No. 08-171**

I am pleased to join my colleagues in implementing key provisions of the New and Emerging Technologies 911 Improvement Act of 2008 (NET 911 Act). This Order faithfully reflects the plain language and intent of the NET 911 Act, and will further the abilities of our nation's emergency response providers for the benefit of all Americans.

I would like to thank the Senate Commerce and House Energy and Commerce Committees for their guidance and hard work on this issue. I also would like to commend my colleagues and the staff for their diligence and cooperation in ensuring that we successfully met the tight deadlines established by the NET 911 Act.