



Federal Communications Commission  
Washington, D.C. 20554

May 7, 2001

Marlys R. Davis  
E-911 Program Manager  
King County E-911 Program Office  
Department of Information and Administrative Services  
7300 Perimeter Road South, Room 128  
Seattle, Washington 98108-3848

Re: King County, Washington Request Concerning E911 Phase I Issues

Dear Ms. Davis:

This letter responds to your letter dated May 25, 2000, in which you request assistance in resolving a conflict concerning implementation of Phase I of Enhanced 911 (E911) service in Washington State. Specifically, you inquire as to “whether the funding of network and database components of Phase I service, and the interface of these components to the existing 911 system [is] the responsibility of the wireless carriers or the [Public Safety Answering Points] PSAPs.”<sup>1</sup>

Based on the language of the Commission’s E911 rules and its E911 orders, discussed below, the Wireless Telecommunications Bureau (Bureau) clarifies the question of cost allocations for Phase I implementation in King County, based on the record before us.<sup>2</sup> Specifically, under the Commission’s rule at section 20.18(d) requiring wireless carriers to provide Phase I service, the Bureau clarifies that the proper demarcation point for allocating costs between the wireless carriers and the PSAPs is the input to the 911 Selective Router maintained by the Incumbent Local Exchange Carrier (ILEC). Thus, under section 20.18(d) of the Commission’s regulations governing Enhanced 911 Service (E911), wireless carriers are responsible for the costs of all hardware and software components and functionalities that precede the 911 Selective Router, including the trunk from the carrier’s Mobile Switching Center (MSC) to the 911 Selective Router, and the particular databases, interface devices, and trunk lines that may be needed to implement the Non-Call Path Associated Signaling and Hybrid Call Path Associated Signaling methodologies for delivering E911 Phase I data to the PSAP. PSAPs, on the other hand, must bear the costs of maintaining and/or upgrading the E911 components and functionalities beyond the input to the 911 Selective Router, including the 911 Selective Router itself, the trunks between the 911 Selective Router and the PSAP, the Automatic Location Identification (ALI) database, and the PSAP customer premises equipment (CPE).

**Background**

*The Commission’s E911 Second Memorandum Opinion and Order.* The cost-allocation question you have raised derives, in part, from the Commission’s decision in the *E911 Second Memorandum Opinion and Order*.<sup>3</sup> There, the Commission decided to eliminate its previous requirement that a carrier cost recovery mechanism be in place before a wireless carrier is obligated to implement E911 services.<sup>4</sup> Following removal of the carrier cost recovery requirement, the prerequisites for a carrier’s E911

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<sup>1</sup> Letter from Marlys R. Davis, E911 Program Manager, King County E-911 Program Office, Department of Information and Administrative Services, to Thomas J. Sugrue, Chief, Wireless Telecommunications Bureau, Federal Communications Commission, dated May 25, 2000 (King County Letter).

<sup>2</sup> See 47 CFR §§ 0.131(a) and 0.331(a). The Bureau has interpreted this request as an inquiry concerning the Commission’s Phase I requirements in section 20.18, and not a request pursuant to paragraphs seven and 92 of the *E911 Second Memorandum Opinion and Order*, concerning which party has authority to select the particular Phase I implementing technology. See Revision of the Commission’s Rules To Ensure Compatibility With Enhanced 911 Emergency Calling Systems, CC Docket No. 94-102, RM-8143, *Second Memorandum Opinion and Order*, 14 FCC Rcd 20850, 20854, 20886 (paras. 7, 92)(1999) (*E911 Second Memorandum Opinion and Order*).

<sup>3</sup> *E911 Second Memorandum Opinion and Order*, 14 FCC Rcd at 20866-67 (paras. 38-40).

<sup>4</sup> The Commission found that the carrier cost recovery requirement had been a source of ambiguity and controversy and had

obligation are: (1) the carrier's receipt of a valid request from a PSAP capable of receiving and utilizing the data elements associated with the service; and (2) the existence of a cost recovery mechanism for recovery of the PSAP's E911 service costs. Accordingly, the Commission's implementing regulation at section 20.18(j) imposes E911 requirements on wireless carriers if the PSAP has requested Phase I services and "is capable of receiving and utilizing the data elements associated with the service."

*Basis for Request.* In the King County Letter, you state that King County and several other counties in Washington State have ordered Phase I service from wireless carriers who offer service within the State. You assert that PSAPs in King County and in the other counties in Washington State are capable of receiving the Phase I information over the existing E911 network, and displaying the information on the existing E911 equipment. Therefore, King County asserts that it has met the requirements in section 20.18(j) for ordering Phase I service and the wireless carriers are obligated to provide that service within six months of the orders.

*Public Notice.* On August 16, 2000, the Bureau issued a *Public Notice* seeking comment on King County's request, including four issues implicated in the inquiry: (1) whether a clear demarcation point exists in the E911 network that distinguishes between carriers' and PSAPs' responsibilities for E911 Phase I implementation; (2) whether that point varies according to the technology employed to provide Phase I services; (3) whether there is a rationale or precedent respecting wireline 911 services that provides guidance in allocating responsibility and costs between wireless carriers and PSAPs; and (4) whether certain costs associated with implementing Phase I technologies should be borne or shared by ILECs.<sup>5</sup>

*Comments.* Eighteen parties filed comments in response to the Public Notice; seven parties filed reply comments. A majority of wireless service providers contend that the PSAP is responsible for any system upgrades necessary to deliver Phase I information in a form compatible with the existing 911 network and, thus, that the appropriate demarcation point is the wireless carrier's MSC. PSAPs and other public safety organizations, on the other hand, assert in their comments that carriers must provide Phase I data in a form usable by the PSAP and, thus, that the appropriate demarcation point for allocating responsibilities and associated costs between wireless carriers and PSAPs is the dedicated 911 Selective Router maintained by the ILEC. For those reasons set forth below, the Bureau views section 20.18(d) as requiring wireless carriers to bear all Phase I costs up to the input of the 911 Selective Router and PSAPs to bear all Phase I costs beyond that point.

### **Discussion**

At the outset, we emphasize that the Commission continues to favor negotiation between the parties as the most efficacious and efficient means for resolving disputes regarding cost allocations for implementing Phase I. Our experience throughout this proceeding reveals that the variety of situations existing in approximately 6,000 PSAPs across the nation, including differences in state laws and regulations governing the provision of 911 services, the configuration of wireless systems, the technical sophistication of existing 911 network components, and existing agreements between carriers and PSAPs, argue against a uniform federal mandate that prevents the relevant stakeholders from reaching other, mutually-acceptable arrangements on how to satisfy the Commission's location accuracy mandates. It was for this reason that the Commission adopted a case-by-case approach in addressing disputes over the locus of authority in selecting the Phase I implementation methodology for a particular jurisdiction.<sup>6</sup> Indeed, the Bureau has spent considerable time in discussions and multiple face-to-face meetings with the parties

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impeded the implementation of Phase I. It further found that, since wireless carrier rates are unregulated, there was no need for a government-mandated carrier cost recovery mechanism, noting that carriers are free to recover these costs in their charges to customers, either through their service rates or through specific surcharges on customer bills. Nevertheless, the Commission emphasized that states are free to have a carrier cost recovery mechanism in place if they so choose. *Id.* See also 47 CFR § 20.18(d)(2000).

<sup>5</sup> Public Notice, DA 00-1875, *Wireless Telecommunications Bureau Seeks Comment on Phase I E911 Implementation Issues*, CC Docket No. 94-102, rel. Aug. 16, 2000. With respect to the fourth question, concerning ILECs, we note our continuing concern, based on numerous reports, over the timely provisioning by ILECs of the necessary network components and associated services for Phase I implementation. While we take no action at this point, we will closely monitor this matter to determine whether the Bureau should recommend that the Commission revisit the issue in the near term.

<sup>6</sup> See n. 2, *supra*.

involved attempting to help them reach agreement. Because they have been unable to resolve this dispute in the period since King County filed its request for assistance almost a year ago, however, the Bureau clarifies the obligations of the parties under section 20.18 as follows.

Section 20.18(d)(1) of the Commission's rules states that wireless carriers must "provide the telephone number of the originator of a 911 call and the location of the cell site or base station receiving a 911 call from any mobile handset accessing their systems to the designated Public Safety Answering Point through the use of ANI and Pseudo ANI."<sup>7</sup> This obligation is contingent on the requesting PSAP's being "capable of receiving and utilizing the data elements associated with the [Phase I] service."<sup>8</sup> The Commission, by this rule, has made carriers responsible for *providing* Phase I information to PSAPs.

Thus, an interpretation of section 20.18(d) must account for the presence of the existing E911 Wireline Network,<sup>9</sup> which is maintained by the ILEC and paid for by PSAPs through tariffs. It includes the 911

Selective Router, which receives 911 calls from the Central Offices of the various LECs (*e.g.*, the regional ILEC and any number of Competitive Local Exchange Carriers) and forwards the calls to the particular PSAP that serves the caller's area. The caller's phone number is transmitted to the PSAP along with the 911 voice call. The PSAP uses that phone number to obtain various information about the caller from the ALI database, *e.g.*, the caller's name and address, *etc.* The E911 Wireline Network thus consists of: the 911 Selective Router; the trunk line between the 911 Selective Router and the PSAP; the ALI database; and the trunk line between the ALI database and the PSAP.

When a wireless 911 call is made, the wireless carrier must bring the wireless call, as well as the information about the caller (*i.e.*, the caller's phone number and location) to the E911 Wireline Network for processing. The E911 Wireline Network processes data received from the wireless carrier with the voice call. Thus, in order for wireless carriers to satisfy their obligation under section 20.18(d) to *provide* Phase I information to the PSAP, carriers must deliver that information to the equipment that analyzes and distributes it – *i.e.*, to the input to the 911 Selective Router. We thus agree with parties who believe that the appropriate demarcation point for allocating responsibilities and costs between wireless carriers and PSAPs is the input to the 911 Selective Router.

As compared with the wireline E911 system, there are additional costs for the transmission of wireless Phase I information to the PSAP that are attributable to certain complexities not involved with the simpler operation of transmitting a wireline caller's eight-digit phone number.<sup>10</sup> These complexities derive from the fact that Phase I information (ANI and p-ANI) contains a total of 20 digits, but that neither 911 Selective Routers, the trunks from 911 Selective Routers to PSAPs, nor PSAPs' CPE were initially designed to handle more than eight digits.<sup>11</sup> Various techniques have been developed to enable the provision of Phase I data to the PSAP. These techniques involve enhancements and/or "add-ons" to the existing 911 Wireline Network. The techniques are referred to as: Non-Call Path Associated Signaling (NCAS); Call Path Associated Signaling (CAS); and Hybrid CAS (HCAS). Having determined that the input to the 911 Selective Router marks the point for allocating Phase I costs between the wireless carriers and the PSAPs, we now provide guidance with respect to the various additional/specific responsibilities carriers and PSAPs will be expected to meet in implementing these signaling techniques.<sup>12</sup>

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<sup>7</sup> The ANI is a caller's 10-digit phone number (including the 3-digit area code). The Pseudo ANI, or p-ANI, is the unique 10-digit number that identifies the cell sector location of the base station handling the call.

<sup>8</sup> See 47 CFR § 20.18(j).

<sup>9</sup> See, *e.g.*, *E911 Second Memorandum Opinion and Order*, 14 FCC Rcd 20886-87 (paras. 92, 94); Revision of the Commission's Rules To Ensure Compatibility With Enhanced 911 Emergency Calling Systems, CC Docket No. 94-102, RM-8143, *Report and Order and Further Notice of Proposed Rulemaking*, 11 FCC Rcd 18676, 18710 (para. 66)(1996).

<sup>10</sup> The wireline caller's phone number, in this context, is the caller's standard seven-digit phone number plus an additional digit to indicate the caller's area code.

<sup>11</sup> These components generally support Centralized Automated Message Accounting signaling, which is an in-band signaling protocol that is designed to transport up to eight digits.

<sup>12</sup> The following discussion of Phase I data transmission techniques contains information provided in Sprint PCS's Comments

NCAS requires the use of a Service Control Point (SCP), which is a database that receives a caller's 20-digit ANI and p-ANI from the carrier's MSC and returns to the MSC a seven or eight-digit routing key.<sup>13</sup> The routing key is then sent to the 911 Selective Router, and thence to the appropriate PSAP via a Centralized Automated Message Accounting (CAMA) trunk. At the same time, the routing key and the caller's ANI and p-ANI are forwarded to the ALI database. The PSAP retrieves the caller's ANI and p-ANI information (*i.e.*, the caller's phone number and cell sector location) from the ALI database by requesting the information that is associated with the routing key it receives from the 911 Selective Router.<sup>14</sup> NCAS thus requires a trunk from the wireless carrier's MSC to the SCP, the SCP itself, and a trunk from the SCP to the ALI database. If a wireless carrier employs NCAS, in addition to being responsible for the trunk from its MSC to the 911 Selective Router, the carrier must implement these additional components in order to meet its obligation to provide Phase I information to the PSAP.

With CAS, the 20 digits of Phase I data are transmitted over the trunk from the wireless carrier's MSC to the 911 Selective Router. These trunks must therefore be capable of effectively transporting this number of digits.<sup>15</sup> The 911 Selective Router contains a database that links the caller's p-ANI to a particular PSAP. Once the appropriate PSAP has been identified, the 911 Selective Router forwards the 20 digits, along with the voice call, to that PSAP. An additional requirement of CAS is that the trunk from the 911 Selective Router to the PSAP, the 911 Selective Router itself, and the PSAP's CPE, must each be capable of handling 20 digits. If CAS is employed, the wireless carrier will be responsible for providing trunks that are capable of handling the 20 digits of Phase I information from its MSC to the 911 Selective Router. The PSAP will be responsible for any required upgrades to the 911 Selective Router itself, the trunk from the 911 Selective Router to the PSAP, and the PSAP CPE.

HCAS contains certain elements found in CAS and NCAS. It employs a Protocol Converter, or Wireless Integration Device (WID), which is located at the 911 Selective Router. This device receives the caller's ANI and p-ANI from the carrier's MSC and converts the 10-digit p-ANI into a seven or eight-digit routing key, which is sent to the 911 Selective Router and then transported to the PSAP on the CAMA trunk that connects the 911 Selective Router to the PSAP. At the same time, the caller's ANI and p-ANI are transmitted from the WID to the ALI database. The routing key performs the same function as the NCAS routing key (*i.e.*, enabling the retrieval of the caller's Phase I information from the ALI database). In order to implement HCAS, the WID and the trunk from the WID to the ALI database must be added to the E911 Wireline Network, and the trunk from the carrier's MSC to the WID must be capable of handling 20 digits. Thus, if HCAS is employed, the carrier will be responsible for the cost of the WID, the trunk from the WID to the ALI database, and the trunk from the carrier's MSC to the WID.

While the costs of installing, maintaining, and upgrading components necessary to deliver Phase I information to the 911 Selective Router are not insubstantial, we believe that these costs properly repose with the wireless carrier rather than with the PSAP. These Phase I costs are directly attributable to the unique nature of the service provided, *i.e.*, the mobility of the wireless caller, which generates costs

associated with identifying the caller's phone number and location. A major reason consumers give for subscribing to wireless services is security and safety, which includes access to 911 services. Thus, it does not seem inappropriate to make the carriers responsible for those expenditures necessary to deliver location information in a usable form to the E911 Network so as to ensure that their customers have access to enhanced 911 services. Moreover, as telecommunications carriers whose rates are not regulated, wireless carriers have the option of covering these Phase I costs through their charges to customers, either through their prices for service or through surcharges on customer bills.

We note that the decision we reach today does not impose the entire cost burden for Phase I implementation on wireless carriers, but places a share of these costs on PSAPs. For example, under the Commission's rules, PSAPs are responsible for any upgrades necessary to the 911 Selective Router, the trunking from the 911 Selective Router to the PSAP, and the trunking from the PSAP to the ALI database, as well as upgrades to PSAP hardware and software necessary to make use of the location information. In

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filed on Sept. 18, 2000 and in the "Enhanced 911 Funding Study for Wireless Telecommunications in Washington State" dated Dec. 31, 1998, and filed on Mar. 30, 1999, by the Washington State Department of Revenue.

<sup>13</sup> The routing key is a seven or eight-digit number that is uniquely associated with a particular 911 call, and is used by the 911 Selective Router to determine the appropriate PSAP to which to send the call.

<sup>14</sup> The ALI database provides to the PSAP, *inter alia*, the caller's phone number and cell sector location, and the name of the caller's wireless carrier.

<sup>15</sup> The 20 digits may be transported on the trunk from the MSC to the 911 Selective Router using either Signaling System 7 or Feature Group D signaling.

any event, whether the wireless carrier or the PSAP initially bears a particular set of Phase I costs, wireless customers will, in all likelihood, eventually bear the bulk of the overall costs of implementing Phase I, since in most jurisdictions, the PSAPs' costs of implementing wireless E911 are recovered through a tax or surcharge imposed on wireless subscribers.

The decision we reach here addresses the issue of where the responsibilities lie between the wireless carrier and the PSAP in terms of the costs of implementing E911 Phase I service, under the facts and circumstances of this case and the record before us. We do not address the issue of which party – PSAP or carrier – may choose the transmission method and technology to be used to provide Phase I. We note that, rather than establishing a rule, the Commission has encouraged PSAPs and carriers to reach agreement on an appropriate method for transmitting E911 information to the PSAP, given the circumstances of each situation. If disputes occur, however, the Commission has identified certain factors, among others, that Commission staff should consider in addressing the issues; for example, the additional costs of the two methodologies to the PSAP and the wireless carrier; and the ability of the transmission technology to accommodate Phase II of wireless E911 and other planned changes in the E911 system.

We encourage the parties in King County and elsewhere to work cooperatively to reach agreement on the technology to be used in each case and note the concerns we would have should any carrier unilaterally select a technology that could not be used by the PSAPs in that jurisdiction or that could not be used to meet its upcoming Phase II obligations, in order to shift costs from itself to the PSAP. We expect carriers to negotiate in good faith with the PSAPs concerning the appropriate Phase I technology, based on the totality of the circumstances before them, including what best serves the PSAP and their own subscribers' interest in having timely access to E911 services.

We trust that we have fully answered your questions and that the guidance offered herein will be helpful. Should you have any questions with respect to any portion of this letter, please do not hesitate to contact the Bureau's Policy Division at (202) 418-1310.

Sincerely,

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Thomas J. Sugrue  
Chief, Wireless Telecommunications Bureau

cc: AT&T Wireless Services, Inc.  
Nextel Communications, Inc.  
Qwest Wireless, LLC  
Sprint PCS  
Verizon Wireless  
VoiceStream Wireless Corporation