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Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, DC 20554

In the Matter of:	)	
	)	
Revision of the Commission's Rules to	)	CC Docket No. <u>94-102</u>
Ensure Compatibility with Enhanced 911	)	
Emergency Calling Systems	)	
	)	
Request for Waiver	)	TRS/Form 499 ID Nos. 808439, 820852

QWEST WIRELESS, LLC AND TW WIRELESS, LLC PETITION FOR EXTENSION  
OF TIME OR WAIVER OF SECTION 20.18 OF THE RULES

Sharon J. Devine  
Kathryn Marie Krause  
Suite 700  
1020 19<sup>th</sup> Street, N.W.  
Washington, DC 20036  
(303) 672-2859

Attorneys for

QWEST WIRELESS, LLC  
TW WIRELESS, LLC

July 23, 2001

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## SUMMARY

Qwest Wireless requests a waiver of the Commission's<sup>1</sup> E911 Phase II rules, specifically portions of 47 C.F.R. Sections 20.18(e) and (g), so that Qwest Wireless can deploy a hybrid AGPS Phase II solution along a timeline different from that currently reflected in the rules. Qwest's request meets the standard for a waiver of the Commission's rules. Its Petition is specific and limited and incorporates the Commission's expected outline of Qwest Wireless' anticipated path to full compliance with the Phase II rules.

Qwest Wireless is confident that its chosen hybrid solution is the only viable option for it to achieve full compliance with the Commission's E911 Phase II rules in a relatively short period of time. It also believes that the AGPS hybrid solution best promotes the public interest through greater protection of public safety than would a network solution.

Upon a grant of the requested waiver, Qwest Wireless would deploy its hybrid solution as follows. For markets served by Lucent switches, the MSC upgrades necessary to support an AGPS solution would be in place by the end of 2001 and should be fully live-network tested by then, ready for commercial operation. For Nortel switches, MSC upgrades are not expected until First or Second Quarter 2002. Because Qwest Wireless will have to test the upgrades in its network to assure feasibility, Qwest Wireless would not anticipate offering Phase II service in Nortel markets until Third Quarter 2002.

As soon as the Lucent upgrades become available, they will be deployed network-wide, regardless of whether a local PSAP has made a valid request for Phase II service. The same deployment practice will be followed as the Nortel upgrades are made available.

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<sup>1</sup> All acronyms or abbreviations used in this Summary are fully defined in the main text.

Since the network component of the hybrid solution will not be available until the end of 2001 at the earliest, and because location-capable handsets will only become commercially available during the Fourth Quarter of 2001, Qwest Wireless would begin selling and activating location capable handsets along the following timeline: the 25% benchmark would be moved from December 31, 2001 to March 31, 2002; the 50% benchmark from June 30, 2002 to December 31, 2002; and the 100% benchmark from December 31, 2002 to March 31, 2003. Qwest Wireless does not anticipate needing relief from the December 31, 2005 95% penetration requirement at this time.

Qwest Wireless has chosen its handset vendor and its vendor for PDE deployment and testing. With the penetration benchmarks changed, Qwest Wireless should be well prepared to deploy E911 Phase II as the MSC upgrades are implemented and tested.

During the time of the granted extension, Qwest Wireless will not be in a holding pattern with respect to Phase II deployment while it awaits the MSC switch upgrades or the handset deliveries. It will be engaged in predicate supporting activities such as installation and testing of the PDE and the MPC, as well as other supporting equipment and recalibrating cell sites. Qwest Wireless will prioritize requests for Phase II service depending on the receipt of valid PSAP requests, but anticipates that if a PSAP has already implemented Phase I in a NCAS environment, it will take only approximately three months to deploy the AGPS network components and test *via* live trials after either the Lucent or Nortel switch upgrades have been accomplished.

As Qwest Wireless demonstrates in this Petition, its solution to reach full Phase II compliance is in the public interest. It promotes public safety to a degree superior to that of a network-based solution and it does so through only a limited deployment delay. Additionally,

allowing the limited extension of time to deploy the AGPS solution on Qwest Wireless' CDMA network assures technology neutrality and increased competition in the development of E911 offerings.

Denial of the waiver request would have no public interest benefit since there is no "proven" network-based Phase II solution at this time. Additionally, the proposed infrastructure for network-based solutions appear to provide less robust public safety benefits than does a hybrid solution. For all these reasons, the Commission should grant Qwest Wireless' Petition.

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To: The Commission

**QWEST WIRELESS, LLC AND TW WIRELESS, LLC PETITION FOR  
EXTENSION OF TIME OR WAIVER OF SECTION 20.18 OF THE RULES**

**I. INTRODUCTION AND BACKGROUND**

Qwest Wireless LLC and TW Wireless, LLC -- collectively "Qwest Wireless"<sup>1</sup> -- request a limited waiver of Section 20.18 of the Federal Communications Commission's ("Commission" or "FCC") rules, so that Qwest Wireless can deploy an assisted global positioning satellite ("GPS") ("AGPS") "hybrid" enhanced 911 ("E911") Phase II solution along a timeline that deviates from the current Commission mandates.<sup>2</sup> Pursuant to Section 1.3 of the Commission's rules, 47 C.F.R. § 1.3, and the guidance provided in the Fourth Memorandum Opinion and

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<sup>1</sup> Qwest Wireless, LLC, together with TW Wireless, LLC, a joint venture in which Qwest Wireless holds a majority equity and sole controlling ownership interest, provides broadband Personal Communications Services ("PCS") in a number of markets.

<sup>2</sup> Qwest Wireless' choice regarding a location information technology "solution" has changed from a "network-based" to a "hybrid" solution. See Qwest Wireless, LLC and TW Wireless, LLC Amended Report on Enhanced 911 Phase II Implementation, CC Docket No. 94-102, filed June 19, 2001 ("June, 2001 Amended Report"). For the Commission's ease of reference, a copy of the Amended Report is attached as Attachment A. All factual references in the Amended Report are incorporated into this filing by this reference.

Order,<sup>3</sup> Qwest Wireless seeks a limited waiver of Sections 20.18(e), which establishes the requirement to provide Phase II service to Public Safety Answering Points (“PSAP”) under certain conditions; the benchmark dates in (g)(1)(i)-(iv), governing the sale and activation of location-capable handsets; and (g)(2) which establishes the E911 Phase II network provisioning obligations associated with a hybrid solution. Overall, Qwest Wireless seeks a limited extension of time to bring itself into full compliance with the Commission’s E911 Phase II rules. The limited relief sought as well as the benefits that will inure to the public from the more accurate hybrid Phase II solution meet the standard for waiver of the Commission’s rules.

Qwest Wireless’ due diligence in pursuing E911 Phase II compliance, its determination to proceed with a quality E911 Phase II solution, and the limited relief sought, warrant granting this Petition. Granting the requested relief also comports with various Commission objectives ranging from providing carriers relief when compliance difficulties stem from matters outside of their control to the promotion of technology neutrality and, most importantly, the protection of public safety. Qwest Wireless demonstrates that granting its Petition not only is in the public interest but also promotes public safety.

A. Qwest Wireless’ E911 Phase II Reports

1. November, 2000 Report and Network-Based Solution Choice

In November, 2000, Qwest Wireless filed a Report outlining its preliminary decision to utilize a network-based solution as its Automatic Location Information (“ALI”) technology to implement E911 Phase II throughout its service territory and its Code Division Multiplexing

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<sup>3</sup> 47 C.F.R. § 1.3; In the Matter of Revision of the Commission’s Rules To Ensure Compatibility with Enhanced 911 Emergency Calling Systems, Fourth Memorandum Opinion and Order, 15 FCC Rcd. 17442, 17457-58 ¶ 44 (2000) (“Fourth MO&O”).

Access (“CDMA”) network.<sup>4</sup> The decision was grounded in the representations of network-based solution vendors regarding the projected availability and suitability of their products in light of the Commission’s E911 Phase II mandates.<sup>5</sup>

At the time the November, 2000 Report was filed, other ALI “solutions,” e.g., “handset” and “hybrid,” awaited considerable product definition, testing and business analysis. Unlike the claims of the network-based solution vendors, handset vendors declined to commit to a manufacturing deployment schedule that would begin to accommodate the Commission’s October 1, 2001 Phase II deployment requirements. Qwest Wireless’ November, 2000 Report, therefore, posed the thorny issue that while a hybrid solution might ultimately prove superior to a network one,<sup>6</sup> Qwest Wireless was compelled to pursue a network-based solution based on then-existing vendor claims. Essentially, the decision to proceed with a network-based solution was grounded in default rather than in a belief in the superiority of such solution.

Qwest Wireless’ Phase I deployment efforts make clear that it takes seriously its E911 deployment obligations.<sup>7</sup> As discussed further below in Section III.E., it also did not take lightly its initial tentative decision to deploy a network-based solution, but rather expended significant time and resources in pursuing such a solution.

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<sup>4</sup> See Qwest Wireless, LLC and TW Wireless, LLC Report on Enhanced 911 Phase II Implementation, CC Docket No. 94-102, filed November 9, 2000 (“November, 2000 Report”).

<sup>5</sup> *Id.* at 3-4.

<sup>6</sup> Qwest Wireless stated that hybrid solutions “may, in fact, serve public safety interests more effectively than a network-based solution, as [a hybrid solution] is expected to provide greater accuracy with higher probability and can more easily be adapted over time to account for technological changes and advances.” *Id.*

<sup>7</sup> Qwest Wireless has deployed Phase I service in Arizona, Colorado and Minnesota, within a majority of counties in its coverage area, covering approximately 459,000 customers or 45% of its customer base. Qwest Wireless is currently working toward deploying Phase I service in Idaho (Ada County), Nebraska, Washington (King County) and Oregon covering an additional 171,000 customers, for a total of 63% of its current customer base covered by Phase I service.

2. June, 2001 Amended Report and Hybrid Choice

When it became clear that Qwest Wireless was not going to be able to secure live network testing from vendors with respect to a pure network-based solution, it aggressively pursued a hybrid solution as a Phase II option. It is now clear that vendors of hybrid solutions are best positioned to partner with Qwest Wireless as it seeks to attain ultimate compliance with the Commission's rules in a manner that best promotes the Commission's larger public safety goals.

As a result, last month Qwest Wireless filed an Amended Report changing its location technology decision from a network-based solution to a hybrid solution. That Amended Report is attached and some of the factual information contained there is repeated in this Petition for ease of review (see Attachment A).

B. Outline Of Relief Necessary

In order to deploy the AGPS hybrid solution Qwest Wireless has chosen, it needs to be able to begin selling and activating location-capable handsets along a timeline different from that currently contained in the Commission's rules at Section 20.18(g)(1)(i)-(iv). At a minimum, Qwest Wireless needs for the October 1, 2001 date to be moved to December 31, 2001. As a result of this first change, then, Qwest Wireless will need the subsequent set of dates moved forward as follows: the 25% benchmark moved from December 31, 2001 to March 31, 2002; the 50% benchmark from June 30, 2002 to December 31, 2002;<sup>8</sup> and the 100% benchmark from

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<sup>8</sup> Unlike the other requests which roll the benchmark dates forward by one quarter, this benchmark date extension involves two quarters because during this time vendors of location-capable handsets will likely be introducing a new model handset, incorporating a more rigorous location capability. Qwest Wireless anticipates promoting that new handset during the vendor conversion process but having two competing handsets in the market will complicate achieving the penetration benchmarks during this time. See note 39, infra.

December 31, 2002 to March 31, 2003. Qwest Wireless does not anticipate needing relief from the December 31, 2005 95% penetration requirement at this time.

Additionally, because a hybrid solution of necessity incorporates a network component, and because Qwest Wireless' network vendors cannot provide the requisite E911 Phase II equipment in line with the Commission's existing Section 20.18(g)(2) requirements, Qwest Wireless seeks a waiver of these requirements. In markets served by Lucent switches, Qwest Wireless requests an extension until the end of December, 2001; and with respect to markets served by Nortel switches until October, 2002. This may seem, at first glance, to involve a lengthy extension with respect to Nortel. However, as discussed below, other components of Phase II implementation will move forward in the interim period. This would position Qwest Wireless to be "prepared to go," as the Lucent and Nortel switch upgrades are accomplished.

C. Waiver Standard For E911 Phase II

1. Basic Contents of the Filing

The totality of circumstances associated with Qwest Wireless' deployment of E911 Phase II has rendered it necessary for it now to seek "specific, focused and limited" relief.<sup>9</sup> As required by the Fourth MO&O, this Petition stresses what Qwest Wireless can and will do to meet the Commission's E911 Phase II requirements, rather than focusing on what it cannot do.<sup>10</sup> The request for relief is combined with an outlined "clear path to full compliance" with the Commission's rules. The Petition, as well as the attached June, 2001 Amended Report, contains dates and milestones, based on current vendor representations, by which to measure Qwest Wireless' progress toward full E911 Phase II compliance.

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<sup>9</sup> Fourth MO&O, 15 FCC Rcd. at 17458 ¶ 44.

Qwest Wireless has exerted substantial good faith efforts in pursuit of E911 Phase II deployment. In accord with the waiver requirements established in the Fourth MO&O, this Petition outlines Qwest Wireless' experiences with vendors of network-based solutions, as well as those associated with Qwest Wireless' current hybrid solution choice. Qwest Wireless' selection of an AGPS hybrid solution is the result of over a year of preparatory activities, including discussions with various vendors, analysis of various solutions and, where accommodated, testing.

Qwest Wireless' relationship with network-based solution vendors has not been as robust as the relationships that other, larger PCS or incumbent cellular providers appear to have enjoyed with such vendors. Perhaps due to Qwest Wireless' regional presence and smaller purchasing power, it has not been able to persuade a single network-based solution vendor of interest to the company to do live testing on the Qwest Wireless network. This was not an experience shared by larger and national carriers. This fact alone caused Qwest Wireless to continue its pursuit of Phase II solutions beyond those that were network-based.

## 2. Public Interest Considerations

As demonstrated by this Petition, Qwest Wireless' request for a limited extension of time to deploy Phase II is in the public interest. The AGPS Phase II solution chosen by Qwest Wireless will allow it to provide more accurate location information to PSAPs than would a network-based solution and to comply with the Commission-imposed accuracy mandates even in non-urban areas. Thus, grant of the instant waiver request will serve the Commission's Section 1 mandate of "promoting safety of life and property through the use of wire and radio

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<sup>10</sup> See Testimony of Thomas J. Sugrue, Chief, Wireless Telecommunications Bureau, Federal Communications Commission, before the Subcommittee on Telecommunications and the Internet of the House Committee on Energy and Commerce, dated June 14, 2001 at 5.

communication . . . .”<sup>11</sup> The record is replete with data underscoring the public safety value of utilizing the most accurate ALI in a cost-effective manner.<sup>12</sup> Grant of Qwest Wireless’ waiver request will promote maximum location accuracy not only in its urban areas but most critically in its substantial rural and suburban areas, comporting with the Commission’s public safety objective of expediting E911 service to rural areas.<sup>13</sup>

Granting Qwest Wireless’ Petition is also consistent with the Commission’s goal of technology neutrality with respect to its E911 rules, such that they not “hamper the development and deployment of the best and most efficient ALI technologies and systems.”<sup>14</sup> The Commission is correct that “there is no single perfect ALI solution. Each has its advantages and limitations. Each may be improved in the future. Under these circumstances, . . . the public interest and public safety will best be served by allowing a broad range of technologies, including handset-based opportunities, a reasonable opportunity to compete in providing 911 ALI.”<sup>15</sup> While some carriers may proceed with E911 Phase II deployment through a GPS stand-alone solution, and others may pursue network-based solutions, allowing Qwest Wireless to pursue its chosen AGPS solution along a slightly modified deployment timeline than currently mandated ensures a rich mix of technical solutions regarding E911 Phase II.

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<sup>11</sup> 47 U.S.C. § 151.

<sup>12</sup> In general, see In the Matter of Revision of the Commission’s Rules To Ensure Compatibility with Enhanced 911 Emergency Calling Systems, Third Report and Order, 14 FCC Rcd. 17388, 17398-416 ¶¶ 19-61 (1999) (“Third R&O”).

<sup>13</sup> See id. at 17398 ¶ 19, 17425 ¶ 82.

<sup>14</sup> In the Matter of Revision of the Commission’s Rules To Ensure Compatibility with Enhanced 911 Emergency Calling Systems, Memorandum Opinion and Order, 12 FCC Rcd. 22665, 22725 ¶ 124 (1997).

<sup>15</sup> Third R&O, 14 FCC Rcd. at 17404-05 ¶ 33.

II. WAIVER OF THE COMMISSION'S RULES WILL ENABLE QWEST WIRELESS TO DEPLOY A HYBRID SOLUTION THAT WILL SERVE THE PUBLIC INTEREST

Below, Qwest Wireless demonstrates that it has pursued E911 Phase II with good faith and due diligence. Through no fault of its own, and largely due to factors outside of its control, Qwest Wireless could not have achieved full compliance with the Commission's Phase II rules and deadlines even if it had continued to pursue a network-based solution. Thus, a waiver request would have been required regardless of the location information technology choice pursued by Qwest Wireless. By implementing the AGPS hybrid solution, however, Qwest Wireless will best promote the public safety of its customers in a reasonable time.

A. The "Readiness" Of Any ALI Technology For Phase II Deployment

Given the information now available on Phase II location technologies,<sup>16</sup> it appears that no Phase II solution -- be it network-based, handset or hybrid -- will be capable of achieving total compliance with the Commission's E911 Phase II rules by October, 2001.<sup>17</sup> However, even if a network-based solution were available that could achieve such compliance, there remains a serious question as to whether the network-based solution is the solution most capable of promoting public safety in the long run.<sup>18</sup>

The Commission's E911 rules were promulgated in anticipation of technical solutions, rather than in the context of technological solutions capable of being implemented through then-

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<sup>16</sup> This information comes from carriers as well as vendors and has been presented through formal filings of carriers seeking relief from the Commission's current rules, as well as *ex parte* communications of carriers and vendors.

<sup>17</sup> Compare Comments of SiRF Technology, Inc., CC Docket No. 01-72, filed Apr. 6, 2001, at 3-4 and n.2 ("SiRF is profoundly concerned that, six months before the implementation of Phase II E911, there is no publicly available data to confirm that anticipated technologies are capable of meeting the accuracy requirements that the Commission has set forth") ("SiRF Comments").

<sup>18</sup> Id. ("For network-based technologies, these standards are very relaxed -- requiring emergency personnel to search up to 2-½ million square feet. Three-hundred meter accuracy precludes such important location services as navigation aids for the disabled, real-time traffic rerouting, dependable child locators, buddy finders").

existing tried-and-true products or services. The rules reflect what can generously be described as overly-optimistic projections by vendors of all kinds regarding the availability of technical solutions. The rules, therefore, must now bend modestly to allow for limited waivers based on the reality of product availability and suitability.

Over the past nine months, carriers have been actively participating with suppliers to provide E911 Phase II solutions. Not surprisingly, these kinds of “real life” negotiations have begun to separate the vendors’ technical competence “wheat” from their marketing “chaff.” “Deployment” discussions with vendors soon revealed that products/capabilities were still in pre-production “design” stages or that carriers would have to fund deployment prototypes and commit to contracts for as-of-yet unproven technology.<sup>19</sup> “Performance” discussions soon become rife with contention between the E911 Phase II service providers and their suppliers as to what testing really showed; how the results might have been or could have been modified; the results of future tests, and so on.<sup>20</sup> This kind of public grouching does nothing to advance the

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<sup>19</sup> See Response of Nextel Communications, Inc. and Nextel Partners, Inc. to Order of the Wireless Telecommunications Bureau, CC Docket No. 94-102, filed May 21, 2001 (“Nextel Response”), at 3, noting that at least one of its potential vendors refused to pursue development of a Phase II solution unless Nextel would (a) fund the development and (b) enter into a firm pre-development purchase agreement at a set per unit cost. Qwest Wireless had a similar “pay up front” demand from one of its vendors, which it declined.

<sup>20</sup> See for example, U.S. Wireless’ Apr. 10, 2001 “rebuttal” in CC Docket No. 94-102 to Nextel’s assertions that its technology did not conform to Commission requirements. (“U.S. Wireless Apr. 10 *Ex Parte*”). (The *Ex Parte* is not called a rebuttal but provides information on a second trial conducted by U.S. Wireless in Seattle, subsequent to that undertaken with Nextel.) And see AT&T Wireless’ submission of its assessment of the U.S. Wireless Seattle trial (as prepared by TechnoCom Corporation), asserting that U.S. Wireless’ Seattle trial failed to demonstrate compliance with the Commission’s 300 meters/95% requirement and, even within the context of that failure, U.S. Wireless utilized a significantly larger number of cell sites that would normally be the case in a carrier’s network. See also TruePosition’s May 30, 2001 *Ex Parte* filing with respect to AT&T’s Waiver Request, disputing the legitimacy of a number of claims made by AT&T in its Waiver Request filing(s); TruePosition’s June 19, 2001 *Ex Parte* and TruePosition’s July 11, 2001 *Ex Parte*, regarding a MNLS trial involving AT&T. And see AT&T Wireless July 2, 2001 *Ex Parte*, rebutting the May 30, 2001 TruePosition *Ex Parte*. And more recently, a joint

Commission's E911 objectives. What it does is confuse those who are not direct parties to the deployment activities, strain relationships between suppliers and their customers and divert resources from the task of product delivery to regulatory lobbying. It also creates a fundamental mistake in focus.

It is the wireless carriers -- not their downstream suppliers or regulatory oversight authorities -- that have front-line responsibility and accountability to the public for the accuracy and ultimate success of E911. Customers will look to those carriers for meaningful emergency protection and shareholders will hold those carriers accountable for sound investments made to achieve that protection. The objective should be to work cooperatively with these carriers to produce the best E911 infrastructure possible within the parameters of the Commission's overall regulatory and public safety objectives. This cooperation requires modest extensions of time to provide better public protection.

From Qwest Wireless' commercial experience, an AGPS hybrid solution is not only the most accurate from a customer location criteria but the solution most compatible with Qwest Wireless' CDMA network. This hybrid solution will best serve the safety interests of Qwest Wireless' customers and the Commission's underlying public safety objectives. Therefore, Qwest Wireless requests a modest waiver of the current rules to accommodate its hybrid AGPS solution choice.

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*Ex Parte* letter on behalf of AT&T Wireless Service and Grayson Wireless, CC Docket No. 94-102, dated June 5, 2001, in which AT&T Wireless and Grayson advised the Commission as to their respective "difference of opinion regarding the results" of a trial in which both participated ("AT&T/Grayson Ex Parte").

**B. The “Hybrid Solution” To Be Deployed By Qwest Wireless**

**1. Description of Technology**

The AGPS hybrid solution uses the CDMA wireless network data and the GPS data to locate the caller through trilaterization methods involving GPS and wireless handsets. Because this system uses a combination of technologies, it works well in all types of environments -- rural, suburban, and urban. This fact is critical for Qwest Wireless, since its service territory contains considerable non-urban terrain.<sup>21</sup> The hybrid solution is also more accurate, more quickly, than a network-based solution. Utilizing a hybrid solution, a handset can be located within 6-12 seconds, before defaulting to providing Phase I information, i.e., cell sector and call back number.<sup>22</sup> Contrast this rapid response with the 5-15 minutes it can take before the GPS satellites can locate the handset in a stand-alone GPS solution.<sup>23</sup> The individual and public safety benefits are clear.

There are five major components involved in a Phase II hybrid solution: (1) existing CDMA technology; (2) Mobile Switching Center (“MSC”) software; (3) Position Determining Equipment (“PDE”); (4) Mobile Positioning Center (“MPC”); and (5) an AGPS chipset that is integrated into a handset. The MSC software is needed in every switch and cell site, so that when a call is set-up or in progress a trigger is passed to the handset without disconnecting the call. The PDE utilizes algorithms that capture satellite reference and timing from GPS and

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<sup>21</sup> See subsection II.B.3 infra.

<sup>22</sup> Nextel Response, Exhibit B.7, Appendix-A, “Nextel’s E9-1-1 Location System Field Evaluation -- Final Report,” prepared by TechnoCom Corporation, dated September 11, 2000 at 8 (noting the performance of the SnapTrack technology and observing that the “delay in delivering the location fix was in the range of 6 to 11 seconds”).

<sup>23</sup> See note 31, infra.

CDMA technology for Round Trip Delay (“RTD”) using advanced forward link trilaterization (“AFLT”).<sup>24</sup>

The MSC requires switch upgrades to accommodate the hybrid solution.<sup>25</sup> Qwest Wireless uses both Lucent- and Nortel-manufactured switches. The actual deployment schedules for these vendors are outlined in more detail below, but generally extend from the Fourth Quarter of 2001 (Lucent) to the Third Quarter of 2002 (Nortel).

The MPC stores the data that is passed from the PDE.<sup>26</sup> The MPC is the communication piece that passes the location data to the PSAP. The MPC is located either at an MSC or at a service bureau location. The AGPS chipset in the handset relays GPS positioning to the satellites and passes the appropriate information to the PDE *via* satellite and on the call set-up in relation to the network trilaterization.

Qwest Wireless is presently reviewing hybrid solution products. It has contracted with Compaq for installation of a PDE and for testing of that equipment. Actual live network testing must await the delivery of the requisite software from the network vendors.

## 2. Accuracy

The record in this proceeding supports the conclusion that the hybrid solution can provide location information within the accuracy requirements of the Commission’s rules -- 50 meters for 67% of calls, 150 meters for 95% of calls. Indeed, some would argue that the hybrid solution

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<sup>24</sup> Typically, carriers will have duplexed PDEs in different MSCs to prevent single point of failure and to create redundancy in the network.

<sup>25</sup> Phase II deployment generally -- regardless of whether a carrier utilizes a network-based or hybrid solution -- requires such upgrades. It is for this reason that a “network delay” will affect the timely deployment of either solution.

<sup>26</sup> This piece of equipment is also duplexed for redundancy purposes.

is far superior to the “very relaxed” accuracy standard established for network-based solutions.<sup>27</sup> On the other hand, the performance of the SnapTrack technology which is embedded in Qwest Wireless’ chosen handset models is a matter of record before the Commission, and just last November QUALCOMM conducted another successful test of the SnapTrack/GPSOne technology in San Diego.<sup>28</sup>

Also, as the Commission is aware, another 1.9 GHz broadband PCS licensee, Sprint PCS, conducted successful testing using prototype mobile devices and a prototype PDE in a variety of environments -- rural, suburban, and urban -- using AGPS technology.<sup>29</sup> More recently, Nextel confirmed the high accuracy of an AGPS solution in comparison to at least one network-based solution.<sup>30</sup>

### 3. Reliable Service to Suburban and Rural Customers

Qwest Wireless’ markets cover geographic areas in 14 states. Only approximately 13% of the area currently covered by Qwest Wireless is classified as urban. In contrast, approximately 37% of the coverage area is suburban and approximately 50% rural. It is critically important that Qwest Wireless’ chosen E911 Phase II solution work well in non-urban settings. Network-based solutions continue to be questionable in non-urban environments.

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<sup>27</sup> See note 18, supra.

<sup>28</sup> See QUALCOMM Incorporated, News Release, “QUALCOMM CDMA Technologies Performs World’s First Over-the-Air CDMA Position Location Demonstration on Commercial Network at the CDG Americas Congress,” rel. Nov. 1, 2000. See also QUALCOMM Incorporated, *Ex Parte*, CC Docket No. 94-102, filed Apr. 24, 2001.

<sup>29</sup> See Joint Sprint PCS Phase II Implementation Report, CC Docket No. 94-102, filed Nov. 9, 2000 at 6.

<sup>30</sup> See Nextel Response at 7-8.

C. **For Qwest Wireless Customers, A Hybrid Solution Best Promotes Public Safety In A More Than Reasonable Time**

A hybrid solution has numerous advantages over a network-based or other handset-based solutions for Qwest Wireless and its customers.<sup>31</sup> No additional antennas will be needed at cell sites. This avoids the delays associated with site leasing and zoning difficulties and enables a more rapid Phase II deployment generally, and quicker responses to specific PSAP requests.<sup>32</sup> Additionally, subscribers in rural areas will not be as much at risk with a hybrid solution as a network-based one with respect to their emergency needs. Where their E911 calls cannot be picked up by 2-3 cell sites, because such sites do not exist in some rural areas, access to the GPS functionality will assure that E911 capabilities are still available. Qwest Wireless will be able to utilize a mixture of AFLT RTD, and Pilot Strength Measurement Messages (“PSMM”) with AGPS to provide Phase II service for such rural area calls.

Another advantage of the hybrid solution for Qwest Wireless customers is that equipment installation will occur at the MSCs. This will simplify the required Phase II deployment activities because only one major piece of equipment will be required -- the PDE (with

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<sup>31</sup> Other location information solutions appear infeasible for Qwest Wireless. Enhanced Observed Time Difference of Arrival (“E-OTD”), as the Commission is aware, is available for carriers using the Global System for Mobile Communications (“GSM”) air interface protocol (such as AT&T Wireless). As a CDMA-based carrier, this solution is currently unavailable for Qwest Wireless.

Qwest Wireless also considered “stand-alone” GPS handsets. However, information currently available indicates that it can take 5-15 minutes for the “first time to fix” when the handset is first powered on or after it loses sight of the GPS satellites. Given the exigencies inherent to an emergency 911 call, Qwest Wireless has determined that such a solution is simply not acceptable for public safety purposes. Indeed, the Commission’s Office of Engineering and Technology (“OET”) Guidelines call for “multiple fixes over a period of as long as 30 seconds . . . .” Fourth MO&O, 15 FCC Rcd. at 17451 ¶ 22. Moreover, in urban settings (of which there are some in Qwest Wireless’ markets), the handset will not always have line-of-sight to the GPS satellites. For these reasons, Qwest Wireless did not actively pursue a stand-alone GPS solution.

<sup>32</sup> The “infirmities” associated with a network-based solution for our network are addressed below at Section III.E.2. These outlined benefits in some respects track those infirmities.

associated facilities).<sup>33</sup> This streamlined E911 Phase II infrastructure and installation will enable Qwest Wireless to respond more quickly to PSAP requests, once switch upgrades are installed.

Power sources should not pose a problem with a hybrid solution, which they can do with a network-based solution.<sup>34</sup> Additional power sources will be necessary at the MSC, but these locations have diesel power generators for backup, rather than batteries.

The redundancy in PDEs provides additional public safety protection. One PDE is capable of taking over traffic from another in the event of a single PDE outage, ensuring greater reliability and better protecting customers' safety.<sup>35</sup>

### **III. QWEST WIRELESS' REQUEST FOR A WAIVER SHOULD BE GRANTED IN THE PUBLIC INTEREST**

As discussed in more detail below at Section III.E., it is clear that Qwest Wireless' decision to move from a network-based solution to an AGPS hybrid solution did not so compromise its ability to comply with the Commission's E911 Phase II requirements to itself account for the need for a waiver. Network vendors simply will not have critical Phase II components available, or proven to Qwest Wireless, to enable Qwest Wireless to comply with the current October 1, 2001 deadline. Even if Qwest Wireless had remained committed to a network solution, it would not have been able to deploy Phase II in many of its markets, *i.e.*, Nortel markets, until Third Quarter, 2002 to allow for both installation and testing opportunities.

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<sup>33</sup> A network-based solution would have required new equipment at each cell site and five pieces of new equipment (the PDE, PDE-associated facilities, antennae multicoupler, drop and insert box, and power facilities), in addition to the MSC software, installed at selected cell sites.

<sup>34</sup> See note 63 and associated text, *infra*.

<sup>35</sup> Incorporating GPS chipsets into handsets may result in battery life shortages in the handsets. Qwest Wireless will inform customers of this fact and advise of the potential need to re-charge batteries more often. Given the offsetting public safety benefits associated with such chipsets, we believe customers will accept this potential shortcoming.

The extensions of time outlined below are limited and temporary and are accompanied by plans to full E911 Phase II compliance.

A. Network And Service Provision Deadlines

MSC software upgrades must be in place to transmit Phase II ALI to PSAPs, regardless of whether carriers opt for a hybrid or a network-based solution. Based on communications from Lucent and Nortel,<sup>36</sup> Qwest Wireless does not anticipate the delivery of necessary switch upgrades until the end of Third Quarter, 2001 (Lucent) and late First Quarter/early Second Quarter, 2002 (Nortel). Once the installation occurs, testing of both the switch upgrades as well as the switch interactions with handsets will be required. Testing activities generally take six-to-eight weeks.

Thus, based on recent information from Lucent, Qwest Wireless seeks a waiver through the end of 2001 to install the necessary Lucent software in the MSC switches. For Nortel markets, Qwest Wireless seeks a waiver through the end of the Third Quarter, 2002 to complete the necessary activities.

Qwest Wireless will not be in a holding pattern with respect to Phase II deployment while it awaits the MSC switch upgrades. Rather, as soon as the Lucent upgrades become available, they will be deployed network-wide, regardless of whether a local PSAP has made a valid request for Phase II service. The same deployment practice will be followed as the Nortel upgrades are made available.

During this time, Qwest Wireless will also be deploying other equipment necessary for a successful Phase II deployment, such as the PDE and the MPC, as well as other supporting equipment and recalibrating cell sites. Phase II will be deployed in Lucent markets, as Qwest

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<sup>36</sup> See Attachment B.

Wireless prepares for the Nortel deployment. Qwest Wireless will prioritize requests for Phase II service depending on the receipt of valid PSAP requests,<sup>37</sup> but anticipates that if a PSAP has already implemented Phase I in a Non-Call Path Associated Signalling (“NCAS”) environment, it will take only approximately three months to deploy the AGPS network components and test *via* live trials after either the Lucent or Nortel switch upgrades have been accomplished.

**B. Handset Deadlines**

When a carrier chooses a handset-based or hybrid location technology, the Commission’s current rules require those carriers to begin selling and activating such handsets by October 1, 2001. Thereafter, carriers must ensure that at least 25% of new handset activations be ALI-capable by December 31, 2001; 50% of such handset activations be ALI-capable by June 30, 2002; 100% of new digital handset activations be ALI-capable by December 31, 2002; and 95% penetration of such handsets among all subscribers be achieved by December 31, 2005.

Qwest Wireless proposes the following selling and activation timeline in *lieu* of that currently contained in Section 20.18(g). Qwest Wireless would begin selling and activating location-capable handsets by December 31, 2001,<sup>38</sup> rather than October 1, 2001; the 25% benchmark would be extended to March 31, 2002; the 50% benchmark would be extended to December 31, 2002;<sup>39</sup> and the 100% benchmark extended to March 31, 2003.

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<sup>37</sup> See 47 C.F.R. § 20.18(g)(2).

<sup>38</sup> Obviously, if the vendor does not have a handset model that would meet the Commission’s requirements by late October to mid-November, 2001, Qwest Wireless would be compelled to seek a further waiver.

<sup>39</sup> Qwest Wireless has been informed that handsets with the MSM3300 QUALCOMM chipset will be offered in a limited supply, as manufacturers look toward producing and distributing the MSM5100 location capable chipset for use in the next generation handsets. The MSM5100 chipset is expected to be released around June 2002. To accommodate handset supply management and the migration of customers from the MSM3300 to the MSM5100, Qwest Wireless requests a two quarter extension of this benchmark penetration requirement.

In deciding on the most qualified handset vendor, Qwest Wireless considered information provided to it directly as well as that made available by other members of the industry, as identified in the June, 2001 Amended Report.<sup>40</sup> Qwest Wireless understands that Kyocera and Samsung will have some location-capable handsets available during Fourth Quarter, 2001. However, the likelihood that the current delivery of the handsets could easily convert to “late Fourth Quarter 2001” or “possibly First Quarter 2002” delivery requires Qwest Wireless to seek this limited waiver of the initial handset deployment requirements. And, since the manufacturers Qwest Wireless has chosen will be upgrading their handsets in mid-2002 to incorporate the MSM5100 chipset, a somewhat lengthier extension of the mid-year 2002 activation deadlines is needed to account for conversions between handsets and the possible migration of customers from one to another.

Of course, Qwest Wireless will begin selling and activating such handsets in advance of the granted waiver dates, depending on vendor availability. And Qwest Wireless intends to competitively price and promote the location capability of such handsets to end users.

C. Qwest Wireless’ Implementation Of An AGPS Hybrid Solution Will Serve The Public Interest

While the Commission’s Phase II rules are premised on a public safety trade-off between handset and network-based solutions -- *i.e.*, flash-cut implementation for network-based versus higher accuracy for handset-based<sup>41</sup> -- the Commission is not confronted with such a choice here. As related in more detail in Section III.E. below, a waiver to support either ALI technology

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<sup>40</sup> See Attachment A at 6-7, where Qwest Wireless discusses information it has gleaned about performance associated with various handset technologies, including SnapTrack and QUALCOMM’s alleged successful commercial deployment of its GPSOne technology in Japan.

<sup>41</sup> See Third R&O, 14 FCC Rcd. at 17406-08 ¶¶ 36-42.

would be required by Qwest Wireless at this time, given the lack of demonstrated proof that a network-based solution would work in Qwest Wireless' CDMA network by October 1, 2001.

Moreover, for markets in which Qwest Wireless utilizes Nortel switches, it will not be able to provide Phase II information to PSAPs until the necessary upgrades are completed, regardless of whether Qwest Wireless selected a handset or network-based solution. Moreover, even for markets in which Qwest Wireless uses Lucent switches, the siting and zoning problems associated with deployment of a network-based solution would ensure that deployment of a network-based solution would extend into 2003 and, at best, would be staggered.<sup>42</sup> In contrast, the network components of a hybrid solution can be implemented more quickly in response to a PSAP request, promoting public safety more expeditiously.

The vendor information and testing data available to Qwest Wireless, as well as the record in this proceeding, support a finding that granting the instant waiver request will enable Qwest Wireless to pursue a E911 Phase II solution it fully expects will work for its CDMA network effectively. Qwest Wireless will conduct testing of the hybrid solution in its own network, establishing increased confidence in both the vendor relationship and the location-information equipment. All of these factors increase the likelihood of successful Phase II deployment and decrease the likelihood that additional vendor changes will require further extensions of time. These facts support the public safety benefit to customers in granting Qwest Wireless' requested relief.<sup>43</sup>

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<sup>42</sup> See Section III.E.2.(b) *infra*.

<sup>43</sup> In the Matter of Telephone Number Portability, Petitions for Extension of the Deployment Schedule for Long-Term Database Methods for Local Number Portability, Phase II, 13 FCC Rcd. 9564, 9568 ¶ 18, 9570 ¶ 25 (1998) (inability of LNP database provider to provide stable platform and need for carriers to terminate contracts "warrants a deviation from the general rule") ("LNP Order").

Grant of the instant waiver request will also help preserve the Commission's policy of promoting competition among technologies, switch and handset vendors, and solution providers.<sup>44</sup> Carriers have embraced this Commission policy, as reflected by the fact that carriers typically purchase equipment and software products from multiple vendors. A denial of the instant waiver request could effectively penalize Qwest Wireless for having selected a particular switch or handset vendor or for selecting CDMA technology, contrary to the Commission's expressed technology neutral policy.<sup>45</sup>

D. The Petition Meets The Requirements Of The Fourth MO&O For A Waiver

The instant Petition comports with the guidance provided in the Commission's Fourth MO&O. This filing, as well as the previously-filed June, 2001 Amended Report, demonstrates that Qwest Wireless has already undertaken numerous "concrete steps necessary to come as close as possible to full compliance."<sup>46</sup> The instant request is not general or open ended but

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<sup>44</sup> See, e.g., In the Matter of 1998 Biennial Regulatory Review -- Amendment of Parts 2, 25 and 68 of the Commission's Rules to Further Streamline the Equipment Authorization Process for Radio Frequency Equipment, Modify the Equipment Authorization Process for Telephone Terminal Equipment, Implement Mutual Recognition Agreements and Begin Implementation of the Global Mobile Personal Communications by Satellite (GMPCS) Arrangements, Report and Order, 13 FCC Rcd. 24687, 24688-89 ¶ 3 (1998) ("Part 68 was enacted more than two decades ago to facilitate competition in the telecommunications equipment industry"); In the Matter of The Development of Operational, Technical and Spectrum Requirements For Meeting Federal, State and Local Public Safety Agency Communication Requirements Through the Year 2010: Establishment of Rules and Requirements For Priority Access Service, First Report and Order and Third Notice of Proposed Rulemaking, 14 FCC Rcd. 152, 163 ¶ 14, 173 ¶ 38 n.99 (1998); In the Matter of 2000 Biennial Regulatory Review of Part 68 of the Commission's Rules and Regulations, Report and Order, 15 FCC Rcd. 24944, 24947 ¶ 7 (2000) ("rules have facilitated a vibrant, competitive market for terminal equipment, reducing prices and resulting in a proliferation of new equipment and capabilities available to consumers").

<sup>45</sup> See notes 14 and 15, *supra*, and accompanying text.

<sup>46</sup> Fourth MO&O, 15 FCC Rcd. at 17457-58 ¶ 44.

“specific, focused and limited in scope, and with a clear path to full compliance.”<sup>47</sup> In Attachment C, Qwest Wireless provides a timetable outlining this path.

Qwest Wireless has already selected a PDE vendor (Compaq) to conduct tests on its network. Compaq’s equipment incorporates the already-tested SnapTrack location information technology. Additional preparatory steps toward full E911 Phase II compliance have also been accomplished or are ongoing. These include a trial contract with Intrado (a 911 database management vendor) for underlying MPC services, as well as a contract with TechnoCom, an engineering consulting firm, to assist with the testing and to verify PDE, MSC and MPC vendor compliance with J-STD-036. In addition to the money and personnel Qwest Wireless has already dedicated to Phase II deployment, a sizeable budget has been earmarked for testing and final implementation activities.

Should the Commission desire periodic updates as to the progress Qwest Wireless is making under the granted extensions of time, Qwest Wireless would provide semi-annual reports similar to those required by the Commission of VoiceStream when it granted VoiceStream’s waiver.<sup>48</sup> Such reports would provide results of all trials and tests of its ALI technology and of actual operational deployment of its ALI technology and results.

E. A Waiver Would Be Necessary Even If Qwest Wireless Had Decided To Continue Pursuit Of A “Network” Solution

1. Prior to Rejecting a Network-Based Solution, Qwest Wireless Spent Time Attempting to Engage in Live Network Testing -- to No Avail

Qwest Wireless made its original decision to pursue a network-based solution only after issuing multiple requests for information (“RFIs”) and requests for proposals (“RFPs”) and considering the responses. Since the filing of the November, 2000 Report describing Qwest

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<sup>47</sup> Id.

Wireless' network-based solution decision, it obtained additional information from various solution providers -- network-based, handset, and hybrid -- some solicited and some not.

Qwest Wireless ultimately narrowed its vendor consideration to five vendors -- three for a network-based solution, two for a hybrid.<sup>49</sup> Qwest Wireless held meetings with these vendors during Fourth Quarter 2000 and First Quarter 2001, where product availability and testing were addressed. Vendors of network-based solutions provided Qwest Wireless the option of testing the technology in their vendor-environments. To the disappointment of Qwest Wireless, they were not willing to do testing on the Qwest Wireless network.

Because Qwest Wireless was unable to convince network-based solution vendors to agree to "live testing," it was compelled to try to determine the feasibility of a Phase II network-based solution for its network using non-Qwest Wireless network facilities and data. And, even non-Qwest Wireless Phase II data has been difficult to come by since vendors of network-based solutions have been unwilling or unable to share CDMA-related test data with Qwest Wireless. While non-disclosure agreements are common in commercial transactions, the inability to secure E911 Phase II data has made it difficult for Qwest Wireless to undertake meaningful technical and commercial analysis of the feasibility of current or future network-based solutions.<sup>50</sup> Information made publicly-available, such as *ex parte* presentations submitted in the Commission's E911 docket, until just recently has provided only high-level information that

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<sup>48</sup> See *id.* at 17464 ¶ 67.

<sup>49</sup> The inclusion of hybrid vendors in the RFP pool was consistent with Qwest Wireless' declaration to continue investigating this avenue of Phase II deployment. November, 2000 Report at 3.

<sup>50</sup> Nextel's recent submission of information to supplement its waiver request underscores the fact that carriers cannot compel solution vendors to do business with them. See Nextel Response at 3-5; see also AT&T/Grayson *Ex Parte* (Grayson notifying AT&T Wireless that it was ceasing participation in a trial.).

failed to demonstrate that any network-based solution would have equipped Qwest Wireless to provide E911 Phase II services over its own network in compliance with the Commission's current rules.<sup>51</sup>

Grayson Testing. After much prodding, in April, 2001, Qwest Wireless finally persuaded Grayson to allow Qwest Wireless to participate in testing of the Grayson network-based solution at Grayson's Northern Virginia field demonstration system.<sup>52</sup> The testing was done in a very controlled environment, using a defined area served by nine cell sites all transmitting toward one another and without network components such as the MSC upgrades and the MPC critical to successful E911 Phase II operation.<sup>53</sup> The cell site configuration alone was not one that would ever be configured in a CDMA live network context.

Under these controlled and artificial circumstances, Grayson's technology performed in compliance with the Phase II rules in the defined area of the field test environment. Additional testing in a live network would be required to verify the results before any commercial deployment could be considered.

When Phase II testing was done utilizing fewer cell sites in range of the caller, test results showed that the caller could not be located. Also, results in certain indoor environments were unpredictable, often with response times to locate the caller at over one minute -- an

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<sup>51</sup> Even if there were evidence that vendors of network-based solutions could deploy their equipment and software in compliance with the Commission's current timeline requirements, Qwest Wireless doubts that such solutions would be commercially available for medium-sized carriers like itself, as opposed to nationwide carriers. Vendors of network-based solutions, for understandable business reasons, could be expected to target their deployment efforts to those carriers with nationwide purchasing power.

<sup>52</sup> According to a Mar. 9, 2001 *Ex Parte* filed by Grayson, the Wireless Telecommunications Bureau staff has visited these offices.

<sup>53</sup> Qwest Wireless understands that Grayson has also conducted testing in Lexington, Kentucky and the Northern Virginia suburbs with CDMA-based Verizon Wireless.

unacceptable outcome for an emergency response scenario. Overall, the results did not demonstrate feasibility with Qwest Wireless' network.

Other network-based vendors generally, including TruePosition and U.S. Wireless, stated their intent to conduct testing with CDMA-based carriers operating only at 800 MHz, rather than those operating at 1900 MHz, like Qwest Wireless. Qwest Wireless sought, without success, to engage these vendors in testing using Qwest Wireless' live network. Despite Qwest Wireless' inability to prove or disprove the viability of a network-based solution through its own network facilities, there is now significant record information demonstrating the sound basis for Qwest Wireless' decision to turn to other technology and to implement a hybrid solution instead of a network-based one.

U.S. Wireless Testing. The ability of U.S. Wireless' network solution to meet the requirements of the Commission's E911 rules is obviously a matter of some debate.<sup>54</sup> For example, Nextel asserts that based on its original testing U.S. Wireless' solution failed to comply with the Commission's rules. U.S. Wireless argues that more current testing demonstrates compliance with those rules.

For purposes of this filing, the significance of the U.S. Wireless Seattle trial to Qwest Wireless is twofold: The trial was not conducted on a live wireless CDMA network and the geography in which the trial was conducted was limited to a dense urban area. These limitations suggest that compliance with the Commission's rules through U.S. Wireless technology is not yet reliable.

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<sup>54</sup> In its Apr. 10, 2001 *Ex Parte* at 2, U.S. Wireless references "[t]he maturity of the technology" and makes the general statement that ALI technologies "are available today." (U.S. Wireless Apr. 10 *Ex Parte*.) However, U.S. Wireless provides no concrete information regarding commercially-available products.

First, the test was not done on a live wireless network,<sup>55</sup> let alone one using CDMA. U.S. Wireless' determination not to test on a live network makes it difficult to measure "first time to fix," without the necessary switch software to verify that the messaging from the handset responded to the switch correctly. A "live network" trial would result in an increased "first time to fix," in Qwest Wireless' opinion, due to messaging that occurs with the GPOSREQ ("geo positioning request") (a message that occurs from the "handset on" function and requires a response from the various network components MSC, PDE and MPC).

Additionally, while U.S. Wireless indicated that it used a digital handset, the information provided indicates that it was used only for the purpose of placing a call to enable the system to measure the location, not to test how messaging in the context of a 911 call from such a handset would work in a live network. Compliance testing *via* a live network is essential to demonstrate that technology works on a network with the interface requirements of J-STD-036. In U.S. Wireless' tests, messaging results were not demonstrated according to the protocols outlined in Office of Engineering and Technology ("OET") Bulletin No. 71 and the CDG Test Plan.<sup>56</sup> These documents establish the critical need for data on completed calls, non-completed calls, latency, first time to fix and accuracy, all factors where the performance can be considerably influenced by live network effects.

Second, the geography associated with the U.S. Wireless trial involved a dense "urban canyon" environment, with 14 antenna sites in a two-square mile area.<sup>57</sup> This geographical

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<sup>55</sup> Id. at 1 (testing done on "our network").

<sup>56</sup> This Group is a consortium of companies that have joined together to help ensure interoperability among different CDMA systems and to develop test methodologies for new capabilities or technologies. See [www.cdg.org](http://www.cdg.org). See also "Guidelines for Testing and Verifying the Accuracy of Wireless E911 Location Systems," Office of Engineering and Technology, Bulletin No. 71 (April 12, 2000).

<sup>57</sup> U.S. Wireless Apr. 10 *Ex Parte*, Attachment at 2, Figure 1.

environment is very rare for a suburban or rural area, the latter of which constitutes the majority of Qwest Wireless' service territory. Results for stationary test points apparently near the edge of but "outside of the designated test region" were deemed "unpredictable" as the network "was designed and optimized for performance within the test region."<sup>58</sup>

TruePosition Testing. TruePosition's network solution compliance with the Commission's rules is also a matter of disagreement.<sup>59</sup> Generally, Qwest Wireless did not rate TruePosition highly in the initial RFP assessment. Qwest Wireless had concerns regarding the compatibility of TruePosition's ALI method for a CDMA-based network. Like other network-based solution vendors, TruePosition was unwilling to conduct testing on Qwest Wireless' live network. It did, however, conduct some testing in late 2000 (which it deems "successful")<sup>60</sup> at 800 MHz with CDMA-based Verizon Wireless in Manhattan.

Qwest Wireless is not in a position to confirm the "success" of the Manhattan trial, since no data has been made publicly available about it. To Qwest Wireless' knowledge, TruePosition has not released test results or engaged in extensive testing for non-urban environments or released any test results for such environments. But, even if the Manhattan trial were "successful" within the context of its limited geography, it would not confirm Phase II compliance beyond a dense urban environment. Most of Qwest Wireless' service coverage is in suburban or rural areas using fewer cell sites. TruePosition itself has acknowledged the shortcomings of its solution for such environments, as discussed immediately below.

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<sup>58</sup> Id. at 4, Figure 2.

<sup>59</sup> See note 20, supra.

<sup>60</sup> See Comments of TruePosition, Inc., WT Docket No. 01-72, filed Apr. 6, 2001 at 2 n.4.

2. Available Information Suggests a Network-Based Solution Would Not Serve Qwest Wireless' or its Customers' Best Interests with Respect to Location Information and Public Safety

(a) It Appears that Qwest Wireless' Suburban/Rural Network Does Not Lend Itself to a Network Solution

Qwest Wireless' network, unlike those of many other carriers, is substantially rural and suburban. The record does not demonstrate that network-based solutions are available and feasible for these geographic areas. Indeed, just last July, TruePosition stated that "it is highly unlikely that network-based technologies in rural areas can satisfy the Commission's existing accuracy requirements for wireless E911 unless carriers are required to undertake very substantial expenditures for this purpose" -- *i.e.*, "additional cell sites, additional antennas, increased use of Angle of Arrival ("AOA"), or changes in the transmission power/length settings." TruePosition essentially acknowledged that carriers pursuing a network-based solution for rural areas would likely need a waiver of the Commission's rules.<sup>61</sup>

Similarly, results from U.S. Wireless' Seattle testing submitted to the Commission in April, 2001, might be held to provide promising test data for an *urban* market, but no information is available regarding accuracy in non-urban markets. And, as noted above, Qwest Wireless is of the opinion that Grayson has not demonstrated Phase II accuracy in compliance with Commission rules for rural areas.

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<sup>61</sup> TruePosition, Inc.'s July 24, 2000 *Ex Parte* at 2-3. TruePosition stated that "the FCC could encourage more rapid deployment of location systems in rural areas by providing flexible deployment standards that are based upon the carrier's existing choices of cell site locations, cell site antennas, etc." *Id.* at 3.

(b) **Additional Facilities and Activities Necessary to Accomplish a Network Solution Would Preclude Qwest Wireless Accomplishing Phase II in Conformity With Commission Deadlines**

Even if Qwest Wireless expeditiously were to enter into an agreement with a vendor of a network-based solution, the additional deployment steps necessary to render a network-based solution in compliance with the Commission's E911 Phase II requirements would preclude it from providing E911 Phase II service to PSAPs until late 2003 in some markets. Based on information provided by network-based solution vendors, Qwest Wireless has determined that significant switching and, in particular, base station upgrades necessary to implement a network-based solution render substantial delays inevitable. For example:

- At the MSC, Qwest Wireless would be required to install at least two processors per switch for every 200 cell sites for redundancy purposes. Qwest Wireless currently has three switches supporting 212 cell sites in the Denver Basic Trading Area ("BTA"). Thus, there are 6 processors in the Denver BTA to support the first 200 cell sites. An additional 6 processors would be required to support any number of cell sites above 200 and below 400, given the infrastructure of Qwest Wireless' CDMA network.
- An "E5" interface would have to be installed between the processor and the MPC, as required under the J-STD-036 standard. In turn, this would require both a Signaling System Seven ("SS7") link and accompanying software at the MSC for interoperability purposes.
- New antennas and equipment -- not just software upgrades -- would be required at a majority of the cell sites in our network. Specifically, for both a Time Differential of Arrival ("TDOA") and AOA network-based solution, Qwest Wireless would need to install equipment and multi-couplers with calibrated antenna arrays at base stations. Qwest Wireless would have to secure additional base station space to accomplish the above because current space is being utilized to provide existing Qwest Wireless products and services and to accommodate growth. Negotiations of existing and new lease agreements would be required to increase the base station space.
- Additional rack space would be necessary to place a PDE at locations in the network that already have ground equipment and structure.
- Special outdoor cabinets would be required at monopole locations. Placement of such cabinets would be extremely problematic because many of Qwest Wireless' sites are placed in easements that encompass only the circumference of the pole.

- A dedicated DS0 circuit would be necessary to transmit location information between the PDE and the processor located at the MSC. Qwest Wireless could either acquire a dedicated DS0 from the wireline service provider (the local exchange carrier or "LEC"), which would be subject to availability from the LEC, or remove bandwidth from existing T1s used for customer voice and data traffic. As to the former alternative, Qwest Wireless anticipates that it would take approximately 60 days to order and install such facilities. And, if there were delays associated with the LEC's provisioning of necessary facilities, the Commission has already acknowledged that a waiver of the E911 rules might be required.<sup>62</sup> As to the latter alternative, Qwest holds no more than 10 MHz of spectrum in any of its markets and all channels are needed for commercial capacity leaving little to no bandwidth to remove.
- Additional power sources are required for the PDE and "Drop and Insert" box necessary for installation of the DS0 circuit.<sup>63</sup> Simply having new power sources installed may cause additional deployment delays. And, in the event of power outages, Qwest Wireless is concerned that on-site batteries necessary to support the service would not last as long during power outages. Qwest Wireless is also concerned that if only two cell sites are available for location determination, a power failure at one site due to a natural disaster, for example (the very type of event that triggers multiple 911 calls), will preclude the transmission of Phase II information.
- Continual maintenance would be required to accommodate new air interface specifications and handsets. While Qwest Wireless can easily deploy software to upgrade its system, it is very concerned that site-by-site hardware upgrades will be necessary, as well, to ensure the ongoing reliability of the E911 service.

The implementation of some of the above-recited changes would require the renegotiation of individual lease agreements which -- entirely separate from the installation of the new antennas themselves -- Qwest Wireless estimates would take approximately 90 days on average. Qwest Wireless has approximately 2,600 sites in its network, each of which has unique attributes and would require special consideration for any modification.<sup>64</sup>

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<sup>62</sup> See, e.g., Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems, Report and Order and Further Notice of Proposed Rulemaking, 11 FCC Rcd. 18676, 18710 ¶ 66 (1996) ("E911 Report and Order"). Given carriers' experience for Phase I deployment, such delays are predictable.

<sup>63</sup> Typically, Qwest Wireless contracts with the local utility to install 100AMPS at each cell site.

<sup>64</sup> Many base stations are mounted on structures such as rooftops, many are mounted on monopoles with ground equipment, and only a few are on monopoles with the equipment mounted on the pole.

Then, only *after* a lease is renegotiated, such upgrades might require the rezoning of cell sites with local governments. Based on Qwest Wireless' experience, the typical processing period for noncontroversial zoning-related applications is approximately six months. During the time, facilities orders are on hold and activities to install new equipment are limited, if not prohibited outright. Controversial zoning applications can take even more time and resources. Thus, to deploy a network-based solution, substantial delays would be a certainty.<sup>65</sup>

Moreover -- again the result of Qwest Wireless' particular service areas -- in the rural areas of its BTA markets, a Qwest Wireless customer's handset will typically see one but not more than two cell sites. This makes Phase II compliance extremely difficult, if not impossible, for a network-based solution. Implementing a network based solution in these areas would effectively require the deployment of additional "E911-only" antenna sites, subject to the same site leasing and zoning difficulties addressed above.

For all of the above reasons, Qwest Wireless determined that ubiquitous deployment of a network-based solution throughout a given market would not be feasible in some instances -- particularly where site lease renegotiations and zoning approvals are required -- until late 2003. Testing and verification activities in accordance with the CDG Test Plan would be necessary for equipment installed at both the MSC and the cell site. While testing at the MSC could perhaps be completed as early as Fourth Quarter 2001, testing at the cell site level could last through

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<sup>65</sup> Indeed, AT&T Wireless and Grayson Wireless recently underscored that siting difficulties can delay even basic testing efforts. AT&T/Grayson *Ex Parte* at 1. The terms and conditions of wireless facilities siting lease arrangements are generally left to the parties themselves, and the Commission has been loath to involve itself in local zoning matters. See "Chairman William E. Kennard Announces Historic Agreement by Local and State Governments and Wireless Industries on Facilities Siting Issues," News Release dated Aug. 5, 1998 (disposing of CTIA petition seeking preemption of local government tower siting moratoria); see also 47 U.S.C. § 332(c)(7).

Second Quarter 2002,<sup>66</sup> given the possible need to obtain zoning approvals. Once testing/verification was completed, the deployment itself could last well over a year, perhaps into late 2003 in particular PSAPs' markets.<sup>67</sup>

Clearly, based on all of the above, even if Qwest Wireless were to have continued to proceed with its initial thoughts of deploying a network-based solution, it would have been compelled to seek a waiver of the Phase II deadlines. Any general Phase II waiver might also have been required to be worked in tandem with numerous waivers on a jurisdiction-by-jurisdiction basis, taking into consideration the vagaries of local zoning processes. Moreover, it appears that Qwest Wireless would have been compelled to obtain a waiver of the Phase II accuracy requirements in suburban and rural areas, given the configuration of its network and service territory.

**F. Compliance With Existing Phase II Deadlines Must Be Tempered By Commercial Availability And Suitability Of Vendor Solutions**

The Commission has acknowledged that "there could be instances where technology-related issues or exceptional circumstances may mean that deployment of E911 Phase II may not be possible by October 1, 2001, and indicated that these cases could be dealt with through

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<sup>66</sup> Testing and verification activities for the MSC include lab software upgrades, ordering of necessary facilities, subsystem verification, system integration, processor table updates, performance verification, and completion of the CDG Test Plan protocol. At the cell site level, numerous time-intensive activities are required, including cell calibration, installation of the Drop and Insert box and antennae coupler, facilities ordering and installation, ordering and installing additional power sources, renegotiating real estate agreements and obtaining necessary zoning approvals.

<sup>67</sup> Deployment activities at the switch level include MSC software upgrades, updating routing assignments, assigning pseudo-ANIs, ordering and installing processors and related facilities. At the cell site level, all of the steps necessary for testing must be repeated on a site-by-site basis, including cell calibration, installation of the Drop and Insert box and antennae coupler, facilities ordering and installation, ordering and installing additional power sources, renegotiating real estate agreements and obtaining necessary zoning approvals, as well as final testing.

individual waivers as these implementation issues are more precisely identified.”<sup>68</sup> The predictable has, indeed, occurred.

As indicated by this Petition, as well as Qwest Wireless’ previously-filed June, 2001 Amended Report, a variety of factors have combined to hinder Qwest Wireless’ ability to deploy E911 Phase II services in conformity with the expected deadlines.<sup>69</sup> Qwest Wireless will be unable to meet Phase II requirements, due to developments beyond Qwest Wireless’ control and in some circumstances beyond the scope of the Commission’s regulatory influence.<sup>70</sup> The Commission is obligated to consider the marketplace developments that have become more apparent in recent months, which warrant grant of Qwest Wireless’ limited waiver request.<sup>71</sup>

The Commission has consistently recognized the need for carriers to test new equipment and software products prior to deployment and launch in their networks.<sup>72</sup> Carriers, like any business, need sufficient assurances and certainty that their vendors’ products will function in their networks so that carriers can bring themselves into compliance with Commission rules. Vendors of network-based solutions did not provide such commercially reasonable assurances to

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<sup>68</sup> Fourth MO&O, 15 FCC Rcd. at 17457 ¶ 43 (citing E911 Report and Order, 11 FCC Rcd. at 18710, 18718).

<sup>69</sup> The Commission’s assumption that “ALI technologies are already, or will soon be available that provide a reasonable prospect for carriers to comply with the E911 Phase II requirements” (id., 15 FCC Rcd. at 17457-58 ¶ 44) has proven to be incorrect.

<sup>70</sup> See id., 15 FCC Rcd. at 17458 ¶ 45.

<sup>71</sup> Telocator Network of America v. FCC, 691 F.2d 525, 550 n.191 (D.C. Cir. 1982); National Ass’n of Theatre Owners v. FCC, 420 F.2d 194, 203 (D.C. Cir. 1969) (“[i]f and when the premises of its regulatory approach change, the Commission can and should consider the issues involved”), citing American Airlines, Inc. v. CAB, 359 F.2d 624, 633, cert. denied, 385 U.S. 843 (1966) (“it is the obligation of an agency to make re-examinations and adjustments in the light of experience”); see also National Broadcasting Co. v. United States, 319 U.S. 190, 225 (1943) (“[i]f time and changing circumstances reveal that the ‘public interest’ is not served by application of the Regulations, it must be assumed that the Commission will act in accordance with its statutory obligations”).

<sup>72</sup> See, e.g., LNP Order, 13 FCC Rcd. at 9571-73 ¶¶ 33-35.

Qwest Wireless. Notwithstanding its efforts to engage various network solution providers to test their products using Qwest Wireless' network, it met with no success. The controlled environment of the Grayson lab was Qwest Wireless' only testing opportunity.

To be sure, nothing can compel a solution provider to do business with a carrier.<sup>73</sup> While vendors supplying E911 Phase II solutions may have had legitimate business reasons for declining Qwest Wireless' requests to engage in live network testing<sup>74</sup> or to share the test results from trials with other carriers,<sup>75</sup> the fact remains that the failure to deal or test or provide test information rendered Qwest Wireless without valuable information necessary to continue a commitment to a network-based solution for Phase II deployment consonant with regulatory objectives, shareholders' fiduciary expectations and the public safety expectations of customers accustomed to 911 dialing.

In contrast, vendors of AGPS solutions have been comparatively forthcoming with respect to test data and have demonstrated a willingness to conduct live tests on Qwest Wireless' CDMA network. Still, even within the context of those discussions, Qwest Wireless continues to encounter vendor "puffery" and claims about Phase II deployment capabilities that later prove unfounded or inaccurate. For this reason, Qwest Wireless has narrowed the field with respect to AGPS testing and deployment from two vendors to one. With respect to that remaining vendor, Compaq, Qwest Wireless has now executed an agreement with Compaq for live network PDE

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<sup>73</sup> See note 50 *supra*.

<sup>74</sup> Qwest Wireless is a regional, rather than a national, wireless carrier. It would not be irrational for vendors to prioritize contacts/testing such that national providers were first in line for such activities.

<sup>75</sup> It would not be irrational for carriers and those vendors with whom they did testing to enter into non-disclosure agreements with respect to their trialing activities.

testing, installed the Compaq PDE for testing purposes, and is merely waiting for software from Lucent before actual testing begins.

The Commission has consistently determined that compliance deadlines applicable to carriers, and the agency's enforcement of those deadlines, must reflect vendors' abilities to provide products that ensure compliance with regulatory mandates.<sup>76</sup> The Commission generally does not regulate manufacturers and software providers. While such a deregulatory policy has many public interest benefits, it also warrants waivers when manufacturers' projections of product availability prove to be overly optimistic. Where, as here, regulations are premised on the Commission's predictive judgment as to manufacturers' capabilities and the subsequent reality of those capabilities jeopardizes a carrier's ability to comply with those regulations, waiver is particularly appropriate.<sup>77</sup>

#### IV. CONCLUSION

Qwest Wireless has demonstrated good cause for the Commission to waive Sections 20.18(e) and (g) of the rules, as the circumstances facing Qwest Wireless warrant a deviation from the rules and grant of the waiver request will serve the public interest.<sup>78</sup> Qwest Wireless'

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<sup>76</sup> See, e.g., Telephone Number Portability, Petitions for Extension of the Deployment Schedule for Long-Term Database Methods for Local Number Portability, Phase II, 13 FCC Rcd. 9564, 9568 ¶ 17 (1998); Roosevelt County Rural Telephone Cooperative, Inc., 13 FCC Rcd. 22, 42-47 ¶¶ 29-36 (1997); Cuba City Telephone Exchange Company, et al., 12 FCC Rcd. 21794, 21805-09 ¶¶ 16-25 (1997); C, C & S Telco, Inc., et al., 6 FCC Rcd. 349-350 ¶¶ 6, 12 (1991); Policies and Rules Concerning Operator Service Providers, 5 FCC Rcd. 4630, 4633 ¶ 22 (1990); see also Implementation of Section 17 of the Cable Television Consumer Protection and Competition Act of 1992 - Compatibility Between Cable Systems and Consumer Electronics Equipment, 9 FCC Rcd. 1981, 1994 ¶¶ 76-77 (1994) (adjusting compliance deadlines for certain cable box devices based on unavailability of products from manufacturers).

<sup>77</sup> See National Rural Telecom Ass'n v. FCC, 988 F.2d 174, 181 (D.C. Cir. 1993).

<sup>78</sup> 47 C.F.R. § 1.3; Northeast Cellular Tel. Co. v. FCC, 897 F.2d 1164, 1166 (D.C. Cir. 1990), (citing WAIT Radio v. FCC, 418 F.2d 1153, 1159 (D.C. Cir. 1969)); Fourth MO&O, 15 FCC Rcd. at 17457 ¶ 43.

compliance with all of the Commission's E911 Phase II deployment rules is impossible at this time, given the current state of Phase II location-information technologies. An AGPS hybrid Phase II solution, however, is technologically superior to others in terms of accuracy and compatibility with Qwest Wireless' CDMA network. Most importantly, however, deployment of an AGPS solution, aligned with a modest waiver, will best serve customers' public safety interests and the Commission's underlying public safety objectives.

The above information fully demonstrates Qwest Wireless' careful and thorough review of various location technologies, as well as its commitment to making a timely decision to deploy a location technology that complies with the accuracy and reliability requirements of the Commission's rules and Phase II deployment requirements. Qwest Wireless' decision to adopt an AGPS solution is calculated to provide emergency location services that will best serve its customers and enable public safety providers to better locate those customers when emergencies strike. For the reasons discussed herein, the Commission should grant Qwest Wireless' instant waiver request.

Respectfully submitted,

QWEST WIRELESS, LLC  
TW WIRELESS, LLC

By: 

Sharon J. Dwyne  
Kathryn Marie Krause  
Suite 700  
1020 19<sup>th</sup> Street, N.W.  
Washington, DC 20036  
(303) 672-2859

Their Attorneys

July 23, 2001