

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

In the Matter of)	
)	
Report on Technical and Operational)	CC Docket No. 02-46
Issues Impacting The Provision of)	
Wireless Enhanced 911 Services)	

COMMENTS OF T-MOBILE USA, INC.

T-Mobile USA, Inc. (“T-Mobile,” formerly VoiceStream Wireless Corporation) welcomes the opportunity to comment on the *Report on Technical and Operational Issues Impacting the Provision of Wireless Enhanced Services* prepared by Dale Hatfield,¹ and it commends the Commission for seeking an independent, outside analysis of these issues. The Report does an admirable job of identifying and addressing many of the obstacles T-Mobile has encountered in its deployment of Phase I and Phase II E911 services.

The Commission has indicated that its intent in commissioning the report was to focus on the future of wireless E911 deployment, and to consider methods to overcome existing obstacles and accelerate deployment. With these goals in mind, T-Mobile directs its comments toward the universal obstacles T-Mobile has encountered in implementing hundreds of Phase I and Phase II requests to date. Some of these obstacles may be resolved through further clarification of the respective obligations of the parties. Others need accommodation in the timetables established for implementation, such as through recognition of equitable tolling.

¹ Dale N. Hatfield, *Report on Technical and Operational Issues Impacting the Provision of Wireless Enhanced Services*, WT Dkt. No. 02-46, filed October 15, 2002 (“Report”).

The *Report* also raises questions about technical requirements that exceed the obligations imposed by the existing rules, as well as possible future technical developments. However worthy these issues are of additional attention, the Commission must recognize a clear distinction between those mandates wireless carriers and manufacturers have arduously labored for seven years to achieve, and any modifications or additions to those requirements that the Commission may wish to explore in the future. With the deployment of Phase I and Phase II fully underway, it is critical that all parties – PSAPs, carriers, LECs, manufacturers *and* the Commission – keep their eyes on the ultimate and immediate objective: the availability of E911 service to subscribers nationwide. The addition of new obligations related to testing, routing or uncertainty factors at this late stage in the game would significantly disrupt deployment and further delay delivery of E911 service to the public.

I. THE HATFIELD REPORT CORRECTLY RECOGNIZES THE COMPLEXITY OF THE TASK AND THE CRITICAL INTERDEPENDENCE OF THE PARTIES IN ACHIEVING SUCCESSFUL E911 DEPLOYMENT

T-Mobile applauds the *Report's* clear recognition of the complexity of the task at hand and the interrelated, and interdependent, roles of the many entities involved in making E911 a national reality. “[F]or a successful rollout to occur, all three of the major players in the delivery must be ready: the wireless carrier, the wireline E911 service provider (usually the ILEC), and the requesting PSAP.”² The timeliness of each party’s actions is critical if carriers are to meet the very aggressive six-month deadline

² *Report* at 28.

from the date of initial PSAP request to the delivery of live service. For example, after a PSAP makes an initial “valid” request within the meaning of *Richardson*,³ the PSAP and LEC must upgrade the facilities on the PSAP's side of the demarcation point. Frequently this involves the PSAP purchasing new CPE, and the LEC provisioning additional trunking facilities as well as upgrading the ALI database. The PSAP must provide all necessary information – such as selective router location and routing instructions – to the mobile carrier. Additional implementation steps, such as testing, usually require the cooperation of all parties to facilitate scheduling.

To date, the Commission’s rules and orders have failed to account sufficiently for the responsibilities of other essential parties in the successful implementation of E911, and have focused almost exclusively on the wireless carrier. But the wireless carrier cannot do it alone, as the *Report* points out. If the Commission wishes to facilitate deployment and to implement and enforce legally sustainable rules, it must (1) hold *all* parties accountable for meeting their respective roles; (2) recognize that wireless carriers cannot be held strictly liable for the action or inaction of other essential parties; and (3) incorporate some flexibility for carriers to respond to delays beyond their control.

³ *Review of the Carrier’s Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems – Petition of City of Richardson, Texas*, Order, 16 FCC Rcd 18982 (2001), *recon. pending* (“*Richardson*”). In *Richardson* the Commission amended its rules in an attempt to clarify what constitutes a “valid” Public Safety Answering Point (“PSAP”) request sufficient to trigger a wireless carrier’s obligation to provide E911 service to that PSAP. Previously the Commission held that a wireless carrier’s obligation to provide E911 service arises “only if the administrator of a designated Public Service Answering Point has requested the services . . . and is capable of receiving and utilizing the data elements associated with the service.” 47 C.F.R. § 20.18(f) (1996). *Richardson* held that a PSAP will be “deemed capable” if it can “demonstrate that it has ordered the necessary equipment and has commitments from suppliers to have it installed and operational within the six-month period specified [in the rule], and can demonstrate that it has made a timely request to the appropriate local exchange carrier for the necessary trunking and other facilities.” *Richardson* at Appendix B; 47 U.S.C. 20.18(j). The PSAP also must be able to demonstrate that it has a funding mechanism in place to recover its costs. If the PSAP makes this showing at the time of its request, the rule indicates that the wireless carrier must begin delivering the requested service to the PSAP within six months. See 47 C.F.R. §§ 20.18(d)(1), (f), (g)(2).

T-Mobile comments below on the challenges it has encountered with PSAP and LEC readiness and discusses and augments the *Report's* recommendations to help address these problems.

A. PSAP Readiness

After initiating a request, PSAPs are not always able to complete their requirements in a timely manner. As emphasized by the *Report*, this does not mean that the original request for service was made in bad faith. Rather, and quite understandably, many PSAPs simply do not anticipate the technical complexity or costs of implementing E911 when they request service.⁴ But simply making a request is straightforward enough, and for some PSAPs only after they initiate a request do technical or funding challenges become fully apparent. Ironically, many PSAPs are requesting service in order to qualify for the state funding that they need to support their readiness under *Richardson*. It is almost impossible for them to negotiate the checks and balances processes, which protect public monies, let alone physically complete the necessary preparations to receive and use wireless E911 data, within the six-month deployment window. These well-intended but ultimately invalid requests deplete the available deployment resources of all parties.

T-Mobile has found it extremely challenging to obtain sufficient information from PSAPs in response to *Richardson* requests. PSAPs often are reluctant to provide the documentation of CPE purchases or upgrade orders, or may be uncertain as to what should be provided. The *Richardson* rules inadequately address this situation. As the petitions for reconsideration of the *Richardson* decision indicate, the Commission set no

⁴ Hatfield notes “During my inquiry, I was constantly reminded of the disparity among PSAPs in terms of their size, funding and level of sophistication.” *Report* at 29.

deadline for the PSAP's response to a carrier's *Richardson* inquiry. As a result, carriers face the prospect that they will receive information documenting validation, but only after too much time has passed to allow the wireless carrier to complete the deployment in the time remaining before the end of the 180 day implementation period. This puts T-Mobile to a difficult choice: either await documentation (to which it is entitled under the rules) in an effort to maximize deployment resources, or begin a deployment that may not be able to be completed and thereby delay fully achievable requests by squandering deployment capacity.

Frequently the result has been that T-Mobile initiates implementation – and incurs substantial costs, such as for trunking between its facilities and the selective router or the ALI database – only to learn subsequently that there is an issue as to the validity of the request. The *Report* suggests that one remedy may be to move to a process of independent third party certification. Alternatively, T-Mobile has approached the Association of Public Safety Communications Officials (“APCO”) and the National Emergency Numbering Association (“NENA”), through the Emergency Services Interconnection Forum (“ESIF”), with the suggestion that they provide guidance on the documentation PSAPs can provide to meet the *Richardson* requirements. An ESIF study group is developing a simplified process by which a PSAP can verify its Phase II readiness and a finished product is expected within weeks of this filing. In addition, it would be helpful if PSAP equipment vendors could develop a standard vendor letter verifying PSAP CPE readiness.

Even when T-Mobile promptly receives information from a PSAP indicating compliance with *Richardson*, frequently there are subsequent delays on the PSAP's side

of the demarcation point. For example, T-Mobile has in several instances received an explicit request from a PSAP to delay or indefinitely place on hold an earlier request for service. More commonly, a PSAP informs T-Mobile of a problem with deployment on its end – funding or CPE delays, for example – that renders completion of the request impossible. T-Mobile has found, however, that even when a request becomes technically invalid, many PSAPs are unwilling to withdraw the request and resubmit it at a later date when they are truly ready.

PSAPs also have information that is necessary for T-Mobile to complete its responsibilities on T-Mobile's side of the demarcation point, without which a deployment cannot proceed. PSAPs must, for example, provide information regarding the selective router, and they must provide instructions on how E911 calls should be routed. Without the selective router information, T-Mobile cannot order trunks. Without the routing instructions, T-Mobile cannot perform the database translations that are necessary to complete deployment. When PSAPs do not return this information quickly (*i.e.* within 30 days of a request), it becomes highly unlikely that a wireless carrier can complete a deployment within six months of the date of the request, because of the time required to complete all remaining steps.

Testing can be yet another source of delay. Understandably, PSAPs want to schedule testing for times when it will be least disruptive to critical, ongoing 911 operations. In some cases, this means testing is limited to the middle of the night, and test call volumes are also constrained. At times, this means that testing will push completion beyond the six-month implementation period.

Further Commission guidance is clearly necessary, whether through formal rules or through written enforcement guidelines. Wireless carriers cannot be held responsible for PSAP delays. Setting forth written guidance of the circumstances that will cause the six-month deadline to be tolled would help promote accountability on the part of all parties, including the wireless carrier, the PSAP and the LEC.

B. LEC Readiness

The *Report* makes three critical observations about the LECs' role in wireless E911 implementation. First, the LEC "essentially stands between the wireless carrier and the PSAP,"⁵ and thus can play the role either of facilitator or of bottleneck in the deployment process.⁶ Second, the regulatory requirements of the LECs have not been well defined by the Commission. And third, *Richardson* effectively puts the PSAP "in the position of certifying that the ILEC will be ready but without having any real control over the performance of the wireline carrier."⁷

It is important to recognize that there are at least three critical junctures at which LEC action or inaction may affect an E911 deployment. First, the LEC must provision the trunks that connect the wireless carrier to the selective router. This means that the LEC must not only have trunk facilities, but also be able to connect those trunks to facilities on both ends. If there are insufficient ports on the selective router, T-Mobile will not be able to order trunks because there will be no place for those trunks to go.

⁵ *Report* at 32.

⁶ For example, the LEC "directly or indirectly controls the Selective Routers, ALI databases, trunks and other facilities necessary to deliver the wireless emergency call and associated callback number and location information . . . [I]nterface standards must be agreed upon, upgrades to the Selective Routers, ALI databases, and trunks made, facilities provisioned and tested, and tariff and/or contractual business relationships put into place." *Id.* at 32.

⁷ *Id.* at 31 n. 49.

Second, the LEC must provision the T-1s that connect T-Mobile's data network to the LEC data network supporting the ALI database. Although the T-1 itself falls on T-Mobile's side of the demarcation point, like the trunk to the selective router, T-Mobile cannot put this facility in place until the LEC is able and willing to do so. Third, the LEC must upgrade facilities supporting the ALI database to support receipt of E2 IP-based data from the wireless carrier, a matter falling on the PSAP's side of the demarcation point. Regardless of on whose side of the demarcation a particular LEC facility or service falls, the wireless carrier has no definitive control over the LECs' provision of that service or facility, and thus can miss the six-month implementation deadline through no fault of its own.

The Commission is well aware of LEC delays in upgrading the ALI database to the E2 interface, which is necessary for Phase II deployment. A recent ruling by the Wireless Telecommunications Bureau ("Bureau") – clarifying that costs incurred for the E2 upgrade to the ALI database are the responsibility of the PSAP – should mitigate some of these delays but will not resolve them entirely.⁸ (In fact, some PSAPs may decide to withdraw their requests or delay making a request until the financial impact of these necessary upgrades is determined and funded in their operating budgets.) In T-Mobile's experience, Qwest, SBC's Ameritech region and BellSouth are not yet routinely activating upgraded E2 services on the PSAP's side of the demarcation point to support the ALI database.⁹

⁸ Letter from Thomas J. Sugrue to Katherine B. Levitz, Luisa Lancetti and John T. Scott, III, *Responsibility for Costs of E911 Phase II ALI Database Upgrades*, CC Dkt. 94-102, October 28, 2002.

⁹ Although there are some pilot or trial activations, these limited activations do not mean that ALI database service has been upgraded for all PSAPs served by a particular LEC.

In SBC's Ameritech region, the problems appear to be close to resolution. After substantial work by T-Mobile and Ameritech, T-Mobile and Ameritech are now testing the upgrade to the ALI database to use an E2-Plus interface. In getting to this point, it was discovered that Intrado, which runs the ALI databases for Ameritech, had designed its systems for ten digit call-back numbers. However, T-Mobile's GSM system was designed to be capable of transmitting call-back numbers even for foreign phone numbers, which requires transmitting up to 15 digits. In order to accommodate Intrado's limitations, T-Mobile was forced to re-design and limit its call-back number transmission to 10 digits, which means that call-back numbers are no longer transmitted for foreign phones. T-Mobile should not have been required to reduce functionality to make these systems work, but it did so to facilitate overall deployments. In the Ameritech region, T-Mobile expects soon to have both Phase II and Phase I NCAS supported through use of the E2-Plus interface. Ameritech appears to be willing to turn up upgraded ALI database service in its region once testing is completed.

Qwest, on the other hand, continues to erect roadblocks to both Phase I NCAS and Phase II E911 deployment. T-Mobile has had physical connections established between its network and the Qwest data network for months, yet Qwest has still not turned up NCAS Phase I or Phase II ALI database service for PSAPs on its network. Earlier this week, even though T-Mobile and Qwest have conferred about ALI connectivity issues for over a year, Qwest informed T-Mobile that it "cannot and will not support wireless carriers deploying Phase I using the E2 Plus interface unless in the future the necessary alterations and redesign can be made to the E2 Plus software and these changes are tested, proven effective and accepted by Qwest's PSAP customers(s)."

This notice is mystifying and bewildering because Qwest uses the same ALI database operator – Intrado – as does SBC’s Ameritech region, and Ameritech is implementing the E2-Plus interface. In addition to these technical issues, Qwest has indicated to T-Mobile that it will not activate NCAS Phase I or Phase II service to a particular PSAP without an affirmative request from that PSAP specifically requesting such service from Qwest for its E911 service for T-Mobile callers. In Washington State, Qwest has said that it will not turn up Phase II service until its state tariff goes through, and in Minnesota, Qwest is insisting that every PSAP needs to enter into an individual contract with Qwest for Phase II service. In the meantime, these deployments cannot be completed, and Phase I deployments can only be completed using CAS – a dead-end solution that cannot be upgraded to Phase II service and that is wholly unavailable in some areas because of number exhaust problems.

BellSouth had been attempting to impose a “per dip” charge on wireless carriers to recover the costs of Phase II upgrades to the ALI database, which the Bureau has rejected. Nonetheless, BellSouth’s attempt caused E911 deployment delays because TCS was unwilling even to order the data connections to the LEC data network out of concern that such orders might be interpreted as acquiescence in BellSouth’s unlawful scheme. Now that BellSouth has dropped the “per dip” fee for wireless carriers, both TCS and T-Mobile have ordered data connections to establish physical connectivity. Once physical connectivity is established, T-Mobile can pursue getting BellSouth to upgrade its ALI database service to use the E2-Plus interface to receive Phase I and Phase II data. T-Mobile believes that by that time, technical issues should have been resolved in the

Ameritech deployments. BellSouth's recent letter to Mr. Sugrue indicates that it will have E2-Plus service in place by the end of November.

T-Mobile also had to go through protracted negotiations and discussions with Qwest, Ameritech and BellSouth simply to obtain the data T-1s installed between T-Mobile's network and the data networks those LECs use to serve the PSAP ALI databases. Of course, these trunks cannot actually be used to provide service until the LEC activates E2 service to the PSAP, but establishing physical connectivity is an essential deployment step.

T-Mobile also encounters difficulties obtaining voice trunks between its facilities and the Selective Router. Even though T-Mobile budgets 45 days in its process for the deployment of trunks, frequently the date of delivery exceeds three months. In order to minimize the potential for delay in the ultimate delivery of E911 service to the requesting PSAP, T-Mobile now routinely orders trunks even before the PSAP provides the routing instructions necessary to complete the deployment and, in some cases, before it is clear that the LEC will be able to receive the data that T-Mobile will transmit to the ALI database over those trunks. Although the result has been to accelerate trunk deliveries to the extent T-Mobile can do so, T-Mobile now bears the considerable risk that the PSAP will not respond in a timely manner with remaining information, or that the PSAP (or its LEC) will encounter implementation problems and T-Mobile will be left paying for a trunk that cannot be used. At present, T-Mobile is paying for trunks installed for more than 100 requests where deployment cannot be completed due to problems on the PSAP's side of the demarcation point.

The LEC issues raised here and in the *Report* should not come as a surprise, as they have been raised throughout the Commission’s E911 docket (CC Dkt. 94-102). In *King County*, for example, the Wireless Telecommunications Bureau remarked on its “continuing concern, based on numerous reports, over the timely provisioning by the ILECs of the necessary network components and associated services for Phase I implementation.”¹⁰ For T-Mobile, the LECs’ performance of their essential role in E911 implementation has been not only a cause for concern, but also a cause of significant delay in completing deployments. The *Report* notes that the Commission has recently increased its scrutiny of the LECs’ implementation efforts; whether additional monitoring will be sufficient remains to be seen.

C. Custom Solutions

The *Report* correctly observes that because of the sheer size, scope and complexity of wireless E911 deployment, as well as the existence of approximately 8,000 PSAPs potentially requesting service, requests for custom configurations have the likely effect of delaying the delivery of service to other PSAPs. This is a noteworthy problem. Some PSAPs have sought customized interfaces or data displays. As a general principle, T-Mobile supports affording carriers and PSAPs the flexibility to reach agreement concerning special accommodations as warranted by unique circumstances. However, wherever the parties agree to changes on a “one-off” basis, the Commission must recognize that additional time for deployment will be required. Custom solutions require development time, and the six-month implementation period envisioned by the rules is

¹⁰ Letter from Thomas J. Sugrue to Marlys R. Davis, *King County, Washington Request Concerning E911 Phase I Issues*, CC Dkt. 94-102, May 9, 2001, at 2 n. 5.

too short to contain any time for the development and testing of new features. The six-month implementation period is only appropriate for standard, "cookie-cutter" deployments, and even then the six-month deadline can only be met when all parties – the wireless carrier, the PSAP, and the LEC – act promptly and diligently. The Commission should exclude customized requests from the six-month implementation deadline, or alternatively toll the running of the six-month period for any deployment seeking customized features.

D. Other Obstacles to Deployment

With the number of networks, technologies and parties involved, the Commission cannot precisely identify every potential obstacle to deployment. What the Commission can and should do, however, is acknowledge that when impediments arise, the wireless carrier can be held accountable only for those delays over which it truly had control. As an example, Qwest and Intrado have recently insisted that T-Mobile demonstrate how it will provide Phase I "fallback" data if Phase II data is not successfully supplied. This demand causes confusion with the PSAPs, and results in delays while T-Mobile explains to all parties why the request is ill-founded. The request for Phase I fallback betrays a misunderstanding of both GSM networks and the location technologies implemented by T-Mobile, and how GSM networks make Phase I "fallback" data unnecessary.¹¹ While

¹¹ Because of the IS-41 network configuration, and the fact that IS-41 networks have used overlay position description equipment, (x,y) location yield will not always be 100 percent. When the Phase II location identification fails, the cell site location is available in the mobile positioning center and the IS-41 system will "fallback" to Phase I data. Where (x,y) information is unavailable, the Commission's rules require this solution. In T-Mobile's GSM network, the use of a hybrid system means that should E-OTD not render usable (x,y) data, the interim Phase II NSS-derived (x,y) position will be available. Accordingly, Phase II yield will always be 100 percent. (Indeed, J-STD-036 does not provide for Phase I fallback, but does provide for fallback to NSS). In this context, the regulatory prerequisites for a Phase I fallback are never met, and thus it would

T-Mobile is confident that it can resolve this issue, deployment to some PSAPs has been unavoidably delayed because of another party's lack of technical understanding of the variations in mobile air interfaces and location technologies. The Commission must take this type of delay into account as it continues to refine its rules and enforcement policies with respect to E911.

E. Recommendation to Clarify the Application of Sections 20.18(d) and 20.18(j)

The existing regulatory framework is incomplete because it overlooks the interdependence of the various entities for successful implementation, as described above. For example, Section 20.18(j) as amended by *Richardson* presumes that so long as a PSAP has made “a timely request to the appropriate local exchange carrier for the necessary trunking and other facilities,” those facilities will be timely provisioned and the PSAP accordingly will be “capable of receiving and utilizing” the data when the carrier's obligation becomes due. However, there is no evidence to support the assumption that those facilities will always be provisioned on a timely basis. As documented above, delays are common because the Commission has not imposed timetables on the LECs for their provisioning of E911-related services and facilities. Similarly, although the rule requires a PSAP to demonstrate that it has a “commitment” from suppliers that CPE will be installed and operational within the six-month period, that commitment may not be fulfilled. And while the PSAP may have contractual remedies in such cases, that does not assist the mobile carrier in meeting its regulatory obligations.

be superfluous and simply cause delay to require GSM carriers to engineer a never-used Phase I fallback.

The same Commission omission exists with regard to a wireless carrier's deployment on its side of the demarcation point. T-Mobile cannot complete its deployment without essential inputs from the PSAP (selective router information and routing instructions) and the LEC (trunks and IP connections). When those essential inputs are not forthcoming in a timely manner, neither T-Mobile nor any other wireless carrier can reasonably be expected to complete an E911 deployment within the six months called for under Section 20.18(d).

Because the Commission's orders generally have assumed that parties other than the wireless carriers carry out their responsibilities in a prompt and timely manner once the PSAP makes its initial request, they have not addressed the effect of the LEC's or the PSAP's failure to do so. The Commission's orders, Section 20.18(d), and Section 20.18(j) all fail to consider how subsequent actions by a PSAP – including even a PSAP requested “hold” on implementation – or developments on the PSAP's side of the demarcation point involving the LEC may affect the validity of a request and the wireless carrier's corresponding obligation. As an example, in *Richardson*, the Commission specified what information the PSAP must provide to the wireless carrier to establish that it had made a “valid” request. Yet it imposed no deadline on the PSAP for supplying its documentation, and further failed to indicate the wireless carrier's responsibilities when the requested *Richardson* documentation is not supplied, or is only partly supplied, by the PSAP.

T-Mobile believes that this lack of clarity is a significant obstacle to deployment because carriers frequently are forced to devote resources to stay within the letter of the

rule, even though a PSAP may not be capable of receiving and utilizing the E911 data.¹²

This serves no one's interest and diverts resources from other, valid requests.

Accordingly, T-Mobile requests that the Commission clarify that where a carrier's ability to fulfill a PSAP request is impeded by the PSAP, LEC, or other party acting on behalf of a PSAP, equitable tolling will apply, and the wireless carrier will be allowed a sufficient amount of time to complete its implementation once the condition impeding the carrier's ability to implement the PSAP's request is removed. The Commission also should clarify that some implementations may require additional time, especially those implementations which require the development, testing and deployment of unique solutions to accommodate legacy LEC and PSAP equipment.

II. TECHNICAL AND OPERATIONAL ISSUES SHOULD BE RESOLVED BY CARRIERS OR BY INDUSTRY FORA

A. Testing Compliance

The *Report* indicates that there is no standardized method for verifying compliance with the Commission's accuracy requirements and observes that "various stakeholders" suggested that "the lack of accepted, standardized test procedures could delay the rollout of wireless E911 location systems."¹³ T-Mobile believes that the issue of standardized compliance testing is something of a red herring. Furthermore, requiring carriers to abandon their existing test procedures at this late date would have precisely the opposite effect of injecting additional delay.

¹² As written, the rules may be read (arbitrarily and capriciously) to impose strict liability on the wireless carrier to deliver service within the six-month timeframe, with no acknowledgment of the reality that at least three separate parties have interrelated responsibilities that must be met before service can be delivered.

¹³ *Report* at 35. Although those making this comment are not identified, certain stakeholders could have an interest in seeing a new test procedure mandated.

When the Commission adopted Section 20.18, and subsequently when it amended the rule to accommodate handset-based solutions, it specified an accuracy requirement.¹⁴ It did not specify how carriers should validate their network's performance or require independent certification. OET-71, issued in April 2000, was prepared in order to assist carriers with verifying the accuracy of their systems, but it specifically notes that it "is not intended to establish mandatory procedures. Other methods and procedures may be acceptable if based on sound engineering and statistical practice."¹⁵

Having made the decision six years ago not to provide specific, mandatory guidance on how wireless carriers should validate the accuracy of their systems, the Commission should not do so now. It is quite likely that doing so would be more harmful than useful. Wireless carriers, for example, are rolling out Phase II services in response to PSAP requests. This can mean that only part of a metropolitan area is covered initially, and the remainder will be covered later. For triangulation technologies such as E-OTD, edge effects can significantly affect accuracy measurements. As more deployments are rolled out, edge effects will be reduced. A carrier's testing and validation methodology has to take account of these effects, or it will generate false negatives. Further, requiring formal testing and certification of accuracy at the PSAP level would be prohibitively expensive and time consuming. Critically, there has been no indication or even allegation that wireless carriers and technology providers are acting in

¹⁴ *In the Matter of 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 (1996); *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 (1999).

¹⁵ OET Bulletin No. 71, *Guidelines for Testing and Verifying the Accuracy of Wireless E911 Location Systems*, April 12, 2000, p. 2.

bad faith, or using unsound practices, such as would warrant Commission intervention in internal testing procedures.

T-Mobile took the guidance of OET-71 as a starting point for general testing principles and developed its own testing procedures based on the unique characteristics of its network layout and technology, and its chosen location technologies. With time, it has incorporated its practical experience to modify and improve its procedures. This testing program has been fully incorporated in its standard deployment practices, so any push to a different testing procedure through “standardization” would only divert resources from actual deployment and inject uncertainty, with attendant delay. Before the Commission considers promoting standardization, whether by regulation or through an industry-wide testing program, it should clearly establish whether there is, in fact, a compliance testing problem, whether a single, standardized testing regime is even feasible given the variety of networks and technologies actually deployed,¹⁶ and whether any potential benefits would outweigh the certain disruption and delay caused by imposition of a new requirement.

B. Confidence and Uncertainty Factors

The *Report* suggests the possibility, but does not conclude, that a PSAP “could possibly benefit” from an estimated accuracy of the location data delivered during a call. The Commission has never addressed the value of uncertainty factors, let alone defined what they are, how they are calculated, or required that they be calculated by the carrier

¹⁶ Notably, the *Report* does not conclude that either of these conditions prevails.

and provided to the PSAP on a call-by-call basis. The *Report* indicates that there is, in fact, no consensus on these issues.¹⁷

Consideration of uncertainty factors derives from the allowance for uncertainty factors to be included in the J-STD-036 interface. Importantly, the Commission has never mandated use of that particular feature of J-STD-036, and consideration of a new requirement to include uncertainty factors is precisely the kind of “requirements creep” that the *Report* cautions against.

It is not at all clear what uncertainty information is supposed to be communicated, how the uncertainty estimate is to be calculated, calibrated or verified, or the myriad other questions of what the confidence interval is, measures or means. J-STD-036 simply provides a vehicle whereby, if such information is ever defined and agreed upon, it could be transmitted (*i.e.* J-STD-036 defines the transmission layer, but not the application layer). Additionally, the value and interpretation of uncertainty and confidence data by the PSAP has not been established. Spending time and resources to define data points with no practical application would unnecessarily delay deployment. At a minimum, the uncertainty about the relevance and use of this data suggests that the Commission should move extremely cautiously in this area. ESIF Study Group C is in the initial stages of a study to gather additional information on uncertainty factors. T-Mobile believes that discussion of uncertainty factors is best left to informal and voluntary fora like ESIF.

¹⁷ Nor have a host of subsidiary issues been considered. For example, would it even be possible to develop a method for rendering uncertainty factors that would be consistent across location technologies? How easily could this data, which is itself an estimate, be misinterpreted? And, because an estimate is not a guarantee, what issues of legal liability for either the PSAP or the carrier might arise?

C. Routing Issues

Because location information is first used to route the call to the correct PSAP, the *Report* notes that a tradeoff arises: “should the call be routed immediately based upon Phase I information to shorten the call setup time but risking that the call may be misrouted? Or, should the call be held (*i.e.*, not routed) until the more accurate Phase II information is available?” The *Report* indicates that “neither [OET-71] nor subsequent Commission actions have specifically addressed the issue.”¹⁸

In fact, a careful reading of text of the rule and the *King County Recon*¹⁹ indicates that delivery of the location data to the selective router – and hence decisions about how to route that data to the selective router – are firmly within the responsibility of the wireless carrier. On the other hand, designing the capability for, and bearing the costs of, routing the call once it has reached the selective router is the responsibility of the PSAP. The rule requires wireless carriers to deliver the location of the call by base station (Phase I) or by latitude and longitude of the handset (Phase II). The guidance provided by OET-71 indicates that this data should be delivered to the PSAP within 30 seconds of the origination of the call, which the *Report* concludes, “implicitly suggests that there is no requirement that that routing be based on Phase II information.”²⁰

When routing a call, T-Mobile collects location data and compares it to the maps provided to the PSAPs in order to identify which trunk should be used to send the call to the appropriate selective router. The identification of the correct PSAP is then made at

¹⁸ *Report* at 39.

¹⁹ *Revision of the Commission’s Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems, Request of King County, Washington, Order on Reconsideration, 17 FCC Rcd. 14789, ¶ 20 (2002) (“King County Recon”).*

²⁰ *Report* at 39.

the selective router by the PSAP's equipment. In the *King County Recon*, the Commission identified the selective router as the demarcation point between which costs should be allocated to the wireless carrier and which should be allocated to the PSAP. The Commission affirmed a decision by the Wireless Telecommunications Bureau, noting that the Bureau “correctly interpreted [Sections 20.18(d) and 20.18(j)] . . . by determining that the analysis of the Phase I data to determine which PSAP should respond to the call and the distribution of the call to the proper PSAP are central to a wireless carrier’s obligation to “provide” emergency 911 services.”²¹ This language is unambiguous: decisions about routing that precede the selective router are the responsibility of the wireless carrier. The language also clearly presumes that routing decisions may be based on Phase I data.

T-Mobile’s practice has been to consult with PSAPs on this issue and, like the Commission, T-Mobile supports flexibility for carriers and PSAPs to negotiate individual solutions where warranted. Indeed, T-Mobile expects to route calls based on some form of Phase II data once Phase II is fully deployed because its hybrid E-OTD/NSS Phase II system will always yield Phase II data. However, this routing will likely not be based on the final, most accurate position determination because of the time required to make those calculations (which may ultimately entail more than one measurement). The trade-off of speed in call set-up for accuracy of measurement will likely dictate that some more preliminary measurement be used. It is important to recognize, however, that legally, if the carrier and the PSAP cannot agree, decisions on routing *to* the selective router are and should be in the hands of the entity responsible for gathering the data and for the proper

²¹ *King County Recon* at ¶ 8.

functioning of the network components up to the input to the selective router – the carrier. If the Commission wishes to give the PSAPs greater control over routing to the selective router, then logically it also should shift the demarcation point to the point where routing to the selective router is determined and require the PSAPs to bear the costs of the choice of such routing.

D. Market Structure Factors Encourage “Requirements Creep”

T-Mobile is concerned that certain aspects of the market structure in E911-related support services may promote “requirements creep.” In particular, the Commission must be cognizant of the fact that Intrado, which operates ALI databases for all the large LECs, also is an E911 service bureau provider for AT&T Wireless, Sprint, Nextel and half of Verizon Wireless. The fact that Intrado stands on both the wireless carrier and the LEC/PSAP side of an E911 call can create an incentive for requirements to be created that then necessitate systems modifications.

III. E-OTD HAS BEEN SUBJECTED TO UNWARRANTED CRITICISM BY COMPETITIVE COMMERCIAL INTERESTS

The *Report* indicates that implementation of wireless E911 has moved beyond technology development and selection to actual deployment. This is certainly true for T-Mobile's E-OTD deployments. In November 2001, T-Mobile acquired and installed its Gateway Mobile Location Center (“GMLC”), the piece of equipment that GSM networks use to prepare location information for transmission to the ALI database.²² Mobile Switching Center (“MSC”) and Base Station Controller (“BSC”) software has been upgraded nationwide (including full NSS capability), and T-Mobile has begun delivering

Phase II NSS service to a number of PSAPs, with more turning up weekly. In addition, nearly 500 Location Measurement Units (“LMUs”) have been installed and another 3600 are undergoing software installation and deployment. An additional 3000 LMUs have been ordered and will be delivered before year-end. Further, T-Mobile has begun commercial distribution of E-OTD capable handsets. Most significantly, T-Mobile already has successfully deployed E-OTD service in the state of Rhode Island, and will be completing other deployments in the near future.

Despite this active deployment of both Phase I and Phase II, the *Report* references (but does not substantiate) certain allegations about the ability of E-OTD systems to achieve the Commission’s accuracy requirements.²³ Recently, though subsequent to the *Report’s* release, T-Mobile and members of the E-OTD Industry Forum (“Forum”) met with members of the Commission staff to update the Commission on the unprecedented cooperation and progress achieved by the Forum in recent months.²⁴ As indicated in those meetings, E-OTD is already meeting the Commission’s initial Phase II accuracy requirements pursuant to OET-71 guidelines. Trials conducted during September and October 2002 in several major cities have yielded results satisfying the Commission’s currently-applicable 100 meter/300 meter accuracy requirements. Furthermore, based on

²² As discussed above, T-Mobile has encountered substantial difficulty with several major LECs in establishing necessary data connections, and in some instances LECs have not yet initiated the ALI database upgrades necessary for the databases to be capable of receiving the Phase II data.

²³ The Commission has required an initial accuracy level of 100 meters for 67 percent of calls and 300 meters for 95 percent of calls, for the first two years of deployment. All new E-OTD handsets activated on or after October 1, 2003 must meet a standard of 50 meters for 67 percent of calls and 150 meters for 95 percent of calls

²⁴ Letter from Karen L. Gulick to Marlene Dortch, Secretary, FCC, CC Dkt. 94-102, October 28, 2002; Letter from Karen L. Gulick to Marlene Dortch, Secretary, FCC, CC Dkt. 94-102, October 25, 2002.

those results and a concrete work plan for 2003, the E-OTD Industry believes that E-OTD should meet the Commission's 2003 requirements.

Recent advances have resolved issues concerning antenna placement and speed of deployment. LMU deployments are now essentially "plug and play." Additional accuracy improvements are planned through increased yield, improving BTS clock stability and mitigating interference – *all* of which are network implementation issues and do not reflect fundamental limitations in E-OTD technology. The Forum is also exploring options for increasing the number of visible base stations that E-OTD can utilize, which may significantly improve accuracy in rural environments. T-Mobile intends to keep the Commission apprised of developments as this work progresses.

The Commission has, to date, embraced technological neutrality, and it should continue to do so. Even the report notes that "no doubt some of these allegations regarding the ultimate ability for the E-OTD technology to meet the Commission's accuracy requirements were motivated by intense commercial rivalry in a market that has some characteristics of a 'winner takes all' situation."²⁵ A carrier must make an informed decision about what location technology best operates with its network infrastructure and air interface and best serves its subscribers. No technology has yet established that it has fully satisfied the 2003 accuracy requirements, and no carrier can make such a guarantee because the accuracy mandates were imposed absent a known technical solution. Setting aside commercial rivalries, the focus now should be on the recent significant achievements and continuing improvements. Ultimately, the Joint E-OTD Industry Group continues to believe that "the EOTD community, with focused efforts from

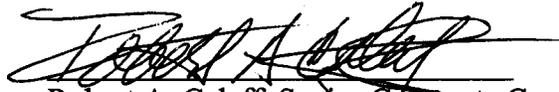
²⁵ *Report* at 13.

infrastructure vendors, terminal vendors and carriers, should meet the FCC's 2003 requirements."²⁶

IV. CONCLUSION

Like the Commission, T-Mobile is firmly committed to making wireless E911 a reality. Implementation of the recommendations offered above, grounded in both the observations of the *Hatfield Report* and T-Mobile's experience, should assist all of the parties in achieving the speediest deployment possible.

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²⁶ *Joint E-OTD Industry Group Statement*, July 25, 2002, appended to T-Mobile USA, Inc. October 2002 Semi-Annual Report on E911 Phase II Implementation Plan, CC Dkt. No. 94-102, filed October 3, 2002.