

**ENSURING COMPATIBILITY WITH ENHANCED 911
EMERGENCY CALLING SYSTEMS: A PROGRESS
REPORT**

HEARING
BEFORE THE
SUBCOMMITTEE ON TELECOMMUNICATIONS AND
THE INTERNET
OF THE
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COMMERCE
HOUSE OF REPRESENTATIVES
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ENSURING COMPATIBILITY WITH ENHANCED 911 EMERGENCY CALLING SYSTEMS: A PROGRESS REPORT

THURSDAY, JUNE 14, 2001

HOUSE OF REPRESENTATIVES,
COMMITTEE ON ENERGY AND COMMERCE,
SUBCOMMITTEE ON TELECOMMUNICATIONS
AND THE INTERNET
Washington, DC.

The subcommittee met, pursuant to notice, at 10 a.m., in room 2123, Rayburn House Office Building, Hon. Fred Upton (chairman) presiding.

Members present: Representatives Upton, Largent, Shimkus, Pickering, Terry, Markey, Eshoo, Green, McCarthy, Luther, Harman, and Sawyer.

Staff present: Howard Waltzman, majority counsel; Yong Choe, legislative Clerk; and Brendan Kelsay, minority professional staff.

Mr. UPTON. Good morning, everyone. Welcome. Before we proceed with opening statements I want to show a brief newsclip from the Fox News which shows a real life example of a 911 emergency. Why don't you turn off the lights. It's about 2 minutes long.

[TV replay of newsclip.]

Mr. UPTON. Again, good morning. As subcommittee chair, I've made one of my top priorities finding ways to improve people's lives through technology and E911 technology is certainly a class example of this.

The topic of today's hearing is one of the most compelling to come before the subcommittee this year. This is a topic that certainly hits home as I've used my cell phone to call 911 three times, most recently in April. While traveling through a rural part of my District, I witnessed a terrible car accident involving seven people. Everyone did survive the crash, although a number of them are still recovering, but I can tell you one thing for sure. Because I knew exactly where I was the County Emergency Services people were able to respond quickly, thereby increasing the survival rate of those involved.

But what if I wasn't able to pinpoint the location of that accident? There's a very dangerous false notion among many in America that when you call 911 from your cell phone, the operator on the other end of the line knows exactly where you're calling from. With cellular technology becoming more and more available, nearly 60 percent of the calls made to 911 centers are made from cell phones.

While preparing for today's hearing, I've come across many sad stories from my State where people have died of heart attacks, other accidents, while snowmobiling, even though they called 911. And like many others, they assumed that because they called 911, the operator, in fact, would be able to locate them. Well, they were wrong. Tragically, there are hundreds of stories just like this. The bright spot on the horizon is that technology exists to pinpoint a caller's location, but unlike wire line phones, automatic location identification is not yet widely transmitted to the 911 dispatch center. But thanks to the Wireless Communications and Public Service Act, we are getting closer to the day when this will be the standard.

Today, we'll find out just how close we are to that day. We know that the FCC has set October 1 of this year as the day when wireless carriers are required to begin providing automatic location identification as part of Phase 2 E911 implementation. What will all of this mean once it's up and running? Based on the required Phase 2 accuracy standards, handset solutions should be able to provide location information within 50 meters for 67 percent of the calls and 150 meters for 95 percent of the calls. For network based solutions it should be within 100 meters for 67 percent of calls and 300 meters for 95 percent of the calls. To those observing outside of Washington, at first blush today's hearing may seem technical and abstract, but it's not. As we go forward today I would like to put the panel's testimony in context. I want to put a face on the issue. It's the face of the loved ones who might be saved when E911 is there to assist emergency services personnel in finding those in trouble.

I should note that this is an ambitious plan. The U.S. is a leader in this area and it's absolutely the right thing to do. Adding E911 to our arsenal of rescue capabilities will even further distinguish our country in that regard. I understand that there are financial burdens on both carriers and local governments, not to mention significant long-term planning which factors into all of this. For sure, the technology is complex and evolving and the complexity is compounded by the variety of options which wireless carriers are mulling over as they plan for the next generation of services, making the tangled web of decision all the more daunting with October rapidly approaching.

We cannot ignore those realities and we cannot let the realities take our eye off the ball either. We know that some carriers have already requested waivers. Some have not. Some still may and I would imagine that a number of our 911 emergency centers at home will be ready to roll much quicker than perhaps some others. But today we want to get a status check on all of that to find out where we are today and what, if anything, needs to be done to ensure what we are doing to reach the goal line and save lives in as timely a manner as possible.

I look forward to the testimony today and I yield to the ranking member, Mr. Markey.

Mr. MARKEY. Thank you, Mr. Chairman, and I want to commend you for holding this hearing today. The Federal Communications Commission first adopted wireless E911 rules 5 years ago. This government-driven effort was intended to spur the deployment of

life saving technology, technology that would help locate wireless callers during emergencies.

In 1995, when the rules were first adopted, there were roughly 30 million wireless consumers in the United States. Today, there are well over 100 million wireless consumers. While the Commission's rules are in place, the end of the first 5 year developmental period is coming to a close and the phase in of E911 technology is due to commence on October 1, 2001. The FCC and Congress have used these 5 years wisely, in my view. The Commission adjusted its rules as technology evolved to permit not only the use of network based location technology, but also handset based technology which typically employ use of global positioning system technology in the wireless device.

Congress, meanwhile, moved to enact legislation that designated 911 as the national number for wireless emergency calls promoted limited liability protection for carriers and establish privacy protection for consumers. Without question, there are challenges involved in deploying any new technology in a timely fashion across a market base of tens of millions of consumers. A number of carriers have sought waivers from the October 1 deadline and at least one carrier has received a limited waiver. When there are truly compelling reasons to grant such waivers, I am confident that the Commission will give such requests all due consideration. I would suggest, however, that the industry should not seek nor should the Commission grant waivers to the rule merely for corporate convenience. We should not allow such an important policy effort to be undermined by a *mañana* syndrome. I have no doubt many carriers would prefer not to expend resources now if they can postpone it to another quarter. That is understandable, from a corporate perspective, yet we need to keep this issue in context.

The wireless industry often markets their phones as safety devices. Millions of consumers become subscribers with safety as a leading rationale for their purpose. There are many cases already where wireless phones have enhanced public safety and saved lives. We've already heard about some of those instances this morning. We want to build on that record. It is important for the industry which every day endeavors to become an indispensable agent of the new economy and a fungible substitute for traditional wire line technology to deliver on the promise of what this technology can do to save lives.

Second, the wireless technology requires to make location of callers available to public safety officials already exists. There are a number of companies that took the FCC's initiative and deadlined seriously and began to develop products and to innovate. These companies have already expended millions of dollars to develop these products based upon the FCC's rules. We have witnesses today from a couple of such companies to testify to this fact this morning. In addition, while some in the industry seem to wring their hands over costs and the technological impediments to deployment of E911 systems, they seemingly have no such concerns when it comes to the costs of technological impediments to mass market deployment of new technology when it comes to 3-G, a so-called third generation wireless technology. The wireless industry doesn't want the government to wait for *mañana* when it comes to 3G.

They want spectrum today. They stipulate that it is a national priority. It is such a priority that they want the government to take spectrum allocated to other users away and move other users in order to reallocate it for 3G services. That's some request and the government is prepared to move on that request. I am supportive of obtaining more spectrum for 3G. I would simply like to see the same alacrity and aggressiveness in deployment of public safety enhancing technology that I see in their 3G efforts.

As a final point, I want to make two statements to commend the FCC and the industry. First, the wireless industry needs to be commended for the way in which they have handled the thorny issues surrounding privacy and the new wireless location technology. I offer the amendment to the E911 legislation that required carriers to obtain prior express authorization of the consumer before location data on wireless consumers could be collected used or disclosed. The wireless industry has embraced this policy and has worked diligently, in my view to make it work.

I look forward to the FCC's implementation of the statute and my provision and to working with the wireless industry subsequently at the Federal Trade Commission to ensure that all marketplace participants operate under equitable and pro-consumer privacy rules.

Finally, I would like to commend the FCC and the Wireless Bureau, in particular, for their proactive efforts to make E911 a reality for the nation. Next Tuesday, this committee will be holding a hearing on the Ford Explorer Firestone tire issues. What became evident to many of us last year was that the Federal agency responsible for this industry failed to adequately protect the public and was woefully deficient in proactively promoting public safety. Such has not been the case at the Federal Communications Commission. There are few areas in telecommunications policy where we can see a direct causal connection between policy decisions we make and the benefit to individual Americans. This is one of those areas. The FCC initiative, without question will save lives. It will help police and fire officials to do their job better. I encourage the FCC to stay the course and to keep moving forward on this issue. Again, Mr. Chairman, I want to thank you for holding this hearing today.

Mr. UPTON. Thank you, Mr. Markey. Mr. Terry from Nebraska.

Mr. TERRY. Thank you. I'll make my remarks succinct, hopefully. I will start with a conclusion and that conclusion is that cell phones have been adopted by our society as a basic safety tool. I'll give two experiences to back that up. I come from a City Council, Omaha, Nebraska City Council. I spent 8 years to help develop our 911 Center. As I was putting that together, going to a unified approach, 800 megahertz and all of that, one of the interesting things I found out is what happens when an accident occurs in the city. We get about 30 calls all at one time. What that means to me is that people travel with their cell phones with the intention of using them as a safety device. Fred, you mentioned the experience you had on three occasions using it. Likewise, I had an experience coming from our family cabin in Colorado. I'm on I-70 in the middle of nowhere in the middle of the night and up ahead of me you have that gut wrenching experience of all of a sudden seeing headlights

go up and then sideways in clouds of dust, right in front of you. I didn't know exact location. This happened about four summers ago, by the way. I had our cell phone. I dialed 911. It was a bizarre experience. Because what I got was a county operator who grew frustrated that I didn't know where I was other than saying I think I'm about 45 minutes outside of Denver maybe an hour, traveling east. Well, that isn't our jurisdiction. You have to either call this number, not a 911 number, but started reading a series of phone numbers that I was supposed to call until I hit the right jurisdiction and that was the best that they could do for me. In the meantime, my cell phone battery is getting that little bleep in there and I could not connect to the right jurisdiction at that time. While there are bodies laying on the highway, literally, I'm not exaggerating, people unconscious laying in the highway in front of me and I had to go through a miserable process of trying to get them help. Fortunately, someone else had a cell phone at the same time and they were able to go through the correct litany and finally help arrived, helicopters, the whole nine yards. But it told me that not only again reinforcing that cell phones are a basic tool and integral part of safety tool in our society today, but that we have to encourage the advancement of technology so that we can locate people, that we can more helpful in making sure that in the middle of nowhere, whether it's a car accident on I-70 in eastern Colorado or the hills of Michigan when you're snowmobiling that you can get help there in a timely manner and they know where to go.

In that regard, how we transition this technology, waivers, whatever, I will always keep in mind that this is public safety that we're looking at and the technology in order to improve public safety. Sure, there can be give and take and yes, there can be compromise, but you've always got to keep in mind those people laying on the side of the road or by their snowmobile tragically hurt that need help. So that will be my focal point as we discuss this important issue today and I yield back.

Mr. UPTON. Thank you. Mr. Sawyer.

Mr. SAWYER. Thank you, Mr. Chairman. I will submit my opening statement for the record, but I would like to make a couple of observations. I think it's important to recognize that 911 has been with us for a relatively brief period of time. It was marginally within the last 20 years that most of this has been implemented across the United States. That technology has improved markedly the ability to in many, particularly urban jurisdictions to develop appropriate jurisdictional identifiers, to transfer responsibility for answering calls or implementing mutual assistance arrangements among jurisdictions, all have been on the human side of going toward making this technology a useful tool in public safety and law enforcement for that matter.

The technology that we're talking about in terms of whether it's triangulation of geopositioning technology, you have to remember is an imperfect technology applied to an imperfect technology. How many of us have had the frustration of sitting there talking on the phone and someone on the other end saying I simply can't hear you. The real concern that I have is that in implementing the technology that people understand that the simple dialing of a number may not make the connection that you need and that if you are in

a particularly dire circumstance, that you may actually have to go through and make a personal connection in order to carry out the kind of contact that the technology suggests ought to be easy. That's not to argue against timely implementation of this, but it is rather to recognize that all of us have an obligation to make users of cell phones who seek to implement 911 contact aware that it may not have been a success and that they need to verify it's completion.

With that, Mr. Chairman, I yield back.

Mr. UPTON. Thank you. Ms. Eshoo.

Ms. ESHOO. Thank you, Mr. Chairman, and first I want to thank you for having the hearing and second for the goals that you set forth as Chairman of our subcommittee. It's refreshing to hear that the applications of technology, as you stated them for the betterment of the people of our country. I mean we say we want that and today's hearing is really all about that, so I want to thank you for both.

It's really of the utmost importance that we examine why the American public may be forced to wait even longer for access to the lifesaving technology that we've seen demonstrated, both on the screen this morning, that's been referenced by my colleagues.

Wire communications have been a boon for safety and to safety and if there are two things that we're responsible for in this country in the public sector it's public health and public safety, certainly in Congress, the defense of our nation, but these two principles we really need to make good on. And I'm afraid that we're lagging on both fronts. Today, we talk about minutes. We have made progress because it wasn't all that long ago that we talked about hours. It's pretty clear that wireless technologies can and do save lives.

By now, we've heard numerous stories about people's lives that have been saved and I know that the Wireless Foundation honored heroes from all over the country, all 50 States for their use of cell phones and getting emergency service to those in need very recently, so I want to point that out because I think it's very important that they do it and that it highlights both the technology and how people are using it.

However, with the significant increase in emergency calls made from cell phones we also hear about the unfortunate people and the unfortunate stories made from cell phones where they didn't work or they didn't make the connection that they needed to make in the time that was at hand. So oftentimes the accident area is known, as my colleague just talked about, but the specific location is not and that can mean life or death, so the need for location technology is really immense.

The need is also not new. Five years ago, as a new member of this committee, I introduced legislation to require location monitoring in every cell phone. The FCC decided to act. They established October of this year as the deadline when mobile phone carriers must provide automatic location information to at least 50 percent of the population served by the Emergency Call Center, so goals were set, legislation was introduced that nudged and the FCC picked up on that and I was thrilled. Every time the FCC came be-

fore the committee, regardless of the issue, I would ask them on an update in this effort.

So as we approach the deadline, I don't think we're seeing compliance, but rather waivers and we know that waivers equal delay. The FCC has received waiver requests from companies asking for extensions of time. I think today we want to examine why. Is it simply delay, not enough resources put into this? Is it, as I would have said to my kids, is this an excuse? How far along are we? If you put X number of dollars of resources into this, how close do we come, by when to this 50 percent goal in October 2001?

I think that my colleagues have stated the case very well so far. I hope you think that I have. I want to hear back from you how many of you are requesting waivers and why? how close are you and by when? Do you think that we'll ever have to hearing on this again, given what you tell us?

I think people in the country are awaiting the good news. None of us know when we are the ones that will have to be reliant on this and I dare say that women especially have bought into the wireless industry so that they have that security in their hand, to dial 911 and to receive the help that they're looking for. So that's what I hope you'll address today, and if you don't, I'm going to ask you, but I hope you'll volunteer the information before the question is asked and I thank the Chairman again for holding this hearing. It's an all time important one.

[The prepared statement of Hon. Anna G. Eshoo follows:]

PREPARED STATEMENT OF HON. ANNA G. ESHOO, A REPRESENTATIVE IN CONGRESS
FROM THE STATE OF CALIFORNIA

Thank you Mr. Chairman for calling this essential hearing. It is of the utmost importance that we examine why the American public may be forced to wait even longer for access to important life saving technology.

Wireless communications have been a boon to safety. Because of wireless, the call for help comes far sooner than a decade ago. Today we talk about minutes... we used to talk about hours. Its pretty clear, wireless technologies can and do save lives.

By now we have heard numerous stories of people saved by the use of their cell phones. In fact, just last week the Wireless Foundation honored heroes from all fifty states for their use of cell phones in getting emergency services to those in need. I applaud the wireless industry for improving our nation's safety and I look forward to this partnership continuing for years to come.

However, with the significant increase in emergency calls made from cell phones we also hear about those unfortunate situations in which someone calls for emergency personnel and is not reached in time, mainly because he or she could not be located. Often times, the accident area is known, but the specific location is not. Clearly, the need for this location technology is immense.

The need is also not new. Five years ago, after I introduced legislation to require location monitoring in every cell phone, the FCC decided to act. They established October of 2001 as the deadline when mobile phone carriers must provide automatic location information to at least 50 percent of the population served by the emergency call center.

As we approach that deadline, we're not seeing compliance, but rather waivers which equal delay.

The FCC has received waiver requests from companies asking for extensions of time. To its credit, it's required the submission of specific information such as timelines for compliance before granting the request. But what we need to find out is why these waivers are necessary in the first place. So today I'd like to hear from our witnesses how much they've actually spent over five years for deployment.

The response of some may be that the FCC established a deadline that was too ambitious. When I hear that some technologies are simply awaiting use by the carriers, I can only conclude that it may be the carriers whose efforts haven't been ambitious enough. We've certainly heard quite a bit about the resources devoted to up-

grading mobile systems to bring about the wonders of 3G devices, but for some reason the idea that lives can be saved through technology has not been a strong enough incentive.

We are here today because the future of our nation's public safety and security systems are inevitably linked to wireless. And like wireless, we know the call for help can come at anytime from anywhere. There are 140,000 emergency wireless calls made every day. For the individual caller, it is the single most important call they will make and it is made with the expectation that it will be successful in bringing help. With so much weighing on that call, we cannot fail.

Mr. UPTON. Thank you. Mr. Largent.

Mr. LARGENT. I yield.

Mr. UPTON. Mr. Shimkus.

Mr. SHIMKUS. Thank you, Mr. Chairman. Just briefly, the E911 legislation we passed, I think was a significant piece of legislation that promoted good public policy and I was really pleased to be part of that. I've actually used 911 numerous, as many times we're on the road and it's just been amazing how it can help save life and limb.

My colleagues have gone over some of the FCC deadlines and where we're at and we don't want to have another hearing to keep following up. We'd like to see how far we're progressing and inquire about the Phase II standards.

I would also like to use this opportunity to thank the cellular industry for the donate a phone program which I am heavily involved in and encourage my colleagues, if they haven't been involved with the donate a phone program. My colleagues, Ms. Eshoo mentioned about women being invested in life saving technology, well, the cellular industry helps us recycle phones and I do that in my office and we do that during our office hours and we collect, and you'd be shocked how many old cellular phones are out there and they recondition them and they give them back to abuse shelters and they reprogram about maybe three numbers, they speed down 911, maybe the housing shelter, maybe the local police, direct line call. I probably in my office, have probably donated hundreds of phones through my constituents back to the industry. I want to thank you. That kind of ties into this whole 911 issue. If we get to Phase II and we can do some location, then these women that are using it, mostly women in the abuse shelter, not only have the security of having something that they have from the time they leave their work to the time they get home, but also they know they can be easily identifiable in their location which is just added protection.

So again, thank you all. I wanted to use that opportunity to plug that program and E911 is a good piece of legislation. Let's help us all get to Phase II as soon as possible and I yield back my time.

Thank you.

Mr. UPTON. Thank you. Ms. McCarthy.

Ms. MCCARTHY. Thank you, Mr. Chairman. I'm going to put my formal remarks in the record and just reflect on a point or two so we can get going and hearing from our panelists today and I'm very grateful that they're here.

We, in Kansas City, have a unique challenge because we are metropolitan in two States, Kansas and Missouri come together there along the State line and road and a river. Neither of the General Assemblies, not in Kansas nor Missouri, have stepped up to the plate and been able to pass a bill to figure out how to pay for

this unfunded Federal mandate that we set down. I am a big supporter of the bill and the effort. I think it's essential, but the costs are daunting. In our metropolitan area, we have 39 emergency dispatch centers in 8 counties that make up the metropolitan area and I'm very concerned. We do have a company in our metropolitan area, Sprint, that looks like it's going to be ready to go on the deadline. They've stepped up to the plate, but we haven't figured out how to upgrade and make it possible to use this service and when the Kansas City Star did an article reflecting on this dilemma, it pointed out that wireless carriers fought legislation in both States because they did not get the share of revenue that they wanted from the tax, said Greg Balentine, E911 manager for the Regional Planning Council. The FCC repeatedly has ruled to its credit that wireless service providers are not entitled to government cost recovery. "Simply in both States, this is a matter of corporate profits winning out against public safety," Balentine said.

I commend the FCC for trying to enforce the law we passed. If we need to give them more tools, Mr. Chairman, I hope we will look into that. I do not want to delay implementation, but I do think that this is a very serious issue and I'm so glad you're having the hearing today.

Mr. LUTHER?

Mr. LUTHER. Thank you, Mr. Chairman, and certainly appreciate the comments that have been made by other committee members. I'll be very brief as well. As has been stated this is a very serious public safety issue. I think the entire country is aware of the amount of resources the cell industry puts into marketing and certainly we are very well aware of the resources that are put into legislative efforts to get competitive advantages against other players in this arena. I think the Committee will want to be assured that the same level of resources commitment is being made on this key public safety issue and so I'll be looking forward to hearing and reviewing testimony of the witnesses and the other evidence presented in making this decision.

Thank you, Mr. Chairman.

Mr. UPTON. Ms. Harman.

Ms. HARMAN. Thank you, Mr. Chairman. I have a statement for the record, too, but would only make several points.

First of all, I was not a member of this subcommittee or even a Member of Congress when the underlying legislation passed, although I think it was, is a very valuable piece of legislation.

Second of all, I have two young daughters myself, and I believe that most of the people sitting before us have young daughters or mothers or whomever who need access to this 911 service and I would just point out that these emergencies can't wait and that there is no excuse, as far as I'm concerned, good enough to justify letting these emergencies wait. And if it were your daughter or your mother or someone who could not get relief, you would be very upset. Apply that to all of our constituents and to the whole country out there that we are trying to serve.

I come to this with the basic attitude that you have to make this work. There are issues about unfunded mandates. There are issues about competitive advantage. There are bureaucratic issues at the FCC. There are one hundred excuses, but I don't think as a basic

point of view that any excuse is good enough to make this wait and I, as one member of this committee, stand ready to help you achieve the requirements in the law.

Thank you, Mr. Chairman.

Mr. UPTON. I would just note for the record that there are a number of subcommittees that are meeting all at the same time, so by unanimous consent I will ask that all members of the subcommittee will be able to put in the record their opening statement.

[Additional statements submitted for the record follow:]

PREPARED STATEMENT OF HON. W.J. "BILLY" TAUZIN, CHAIRMAN, COMMITTEE ON ENERGY AND COMMERCE

Mr. Chairman, thank you for holding this important hearing today. 911 services in this country have saved many lives. And enhanced or E911 services offered by wireless carriers present us with the opportunity to save even more lives. So I commend you, Mr. Chairman, for conducting this progress report on wireless carriers' implementation of E911 requirements, especially so-called Phase II requirements.

During the 106th Congress, this subcommittee and this committee worked very hard to enact the Wireless Communications and Public Safety Act. That legislation designated 911 as the universal emergency number for wireline and wireless services in the United States for reporting an emergency and requesting assistance. That legislation set the framework for providing consumers with rapid access to emergency personnel regardless of whether a consumer was in his or her home, driving down the street, or on the other side of the country.

In addition, the FCC has been crafting E911 rules for the past five years. E911 services are particularly important because such services provide public safety answering points (PSAPs) with the telephone number of an emergency caller as well as an idea of the caller's location.

It is the rules governing how accurately and how reliably a wireless carrier must pinpoint someone's location that bring us here today. These rules are ambitious. Phase II location accuracy and reliability rules require handset-based solutions to locate a caller within 50 meters for 67 percent of all calls, and 150 meters for 95 percent of such calls. And, for network-based solutions, a wireless carrier must locate a caller within 100 meters for 67 percent of the calls, and within 300 meters for 95 percent of such calls.

While these requirements are phased in, they nonetheless present carriers with a daunting task. The goal of these rules is to save as many lives as possible by enabling PSAPs to pinpoint the location of callers. But we need to make sure that these rules do not get ahead of both technology and common sense.

We will hear today from several different sides whether the technology exists to meet the FCC's ambitious accuracy and reliability standards. But I also hope that today's testimony will shed light on the costs and feasibility of meeting these standards. The wireless industry has been one of the primary drivers of the growth of our economy, and it continues to grow at a phenomenal pace.

But the wireless industry is also in the midst of significant change. Carriers are beginning to focus on the next generation of services, and the technology they will need to deploy the next generation of services. We need to be cognizant of the fact that the short-term goals of the FCC's E911 rules have an impact on the long-term planning undertaken by carriers to prepare for advanced services. We must ensure that the E911 rules are not implemented at the expense of, but rather in conjunction with, potential upgrades of our nation's wireless services and infrastructure.

I want to end my comments where I began: implementation of E911 services will save countless lives. I commend all of the parties, the carriers, the PSAPs, the manufacturers, and the FCC, for years of effort to make wireless E911 a reality. And I encourage you to continue to work together to ensure that all Americans have access to E911 services as quickly as possible.

Mr. Chairman, thank you again for holding this hearing. I look forward to our witnesses' testimony and the light that they can shed on our progress in implementing the FCC's E911 rules.

PREPARED STATEMENT OF HON. ELIOT ENGEL, A REPRESENTATIVE IN CONGRESS FROM
THE STATE OF NEW YORK

Thank you Mr. Chairman: The wireless revolution never ceases to amaze me. From the shrinking size of the phones to the rapidly expanding areas of coverage of service, this is a great American industry. It has a great deal to be of which to be proud.

I want to thank our witnesses for their time and efforts and look forward to their testimony. I also look forward to speaking with Mr. Amarosa, who spent more than two decades working for the New York City 911 center. I would like to work with him to bring his company to New York, so that he can return to his true home!

Today we are looking into the development and deployment of the E911 system. I do understand that there are concerns about the use of a network system versus a handset based system. Though, the network system is more readily available, I do know the handset equipment is being manufactured. In reviewing the two systems, I think it is obvious that the handset system is the better way to go—not that it is technologically better, but it deals with one of this Congress' major challenges—Privacy.

Many of my constituents have expressed concerns about having their movements monitored at all times—yet we all recognize the great benefits of this technology. Thus, as with many other parts of the technology revolution we must figure out how to balance these competing issues.

As I understand the present two systems, the network system tracks a person's location at all times, whereas the handset system instead only activates when 911 is dialed if the chip is on the cell phone mother board, or if a button is pressed for units that are attached to an older hand set. At first glance, from privacy point of view, I believe the handset technology will be preferred by consumers.

I want to take a minute to acknowledge the efforts of the wireless community. I have been very impressed by the Wireless Foundation's Heroes Awards programs—recognizing the efforts of ordinary people who used their cell phones to call for emergency medical aid, report a crime, or just help a neighbor. When the E911 system is fully deployed, these stories will become far more dramatic and far more numerous.

I think of my daughter, who attends a school in upstate New York, driving back to the Bronx. What if she we to get lost and have a flat tire—out in the middle of no where—well compared to the Bronx anyway. With one simple call, she could get help from the police who would instantly know where she is. As a parent, I know it would provide a sense of comfort to me.

So Mr. Chairman, I am excited about this latest development in the wireless industry. I can only say, we must deploy with all due haste!

PREPARED STATEMENT OF HON. JOHN D. DINGELL, A REPRESENTATIVE IN CONGRESS
FROM THE STATE OF MICHIGAN

Mr. Chairman, I commend you for holding a hearing on an issue that directly affects the health and safety of all Americans.

This Committee held its last hearing on the rollout of "Enhanced 911" (E-911) systems nearly two years ago. Since that time, public safety agencies and wireless companies have made great progress toward deploying this life-saving service. But we are now less than four months away from the date wireless carriers are obligated to begin providing this service, and there is still much work to be done. Unfortunately, every day these systems are delayed, lives are jeopardized.

Wireless phones have become an integral part of our lives. More than 100 million Americans own a wireless phone, and a growing number of those are actually giving up their wired phone entirely. While convenience certainly plays a role, research shows that the reason most often cited for purchasing a wireless phone is safety.

In fact, today, one-third of all emergency 911 calls are made from wireless phones. Unlike traditional wireline 911 calls, these calls do not include essential information such as the location of the caller or, in many cases, a telephone number to call back in case of a hang-up or dropped call. The absence of this critical information wastes time. Wasted time costs lives.

Medical professionals refer to the hour immediately following an accident as the "golden hour." It is during this period that emergency personnel are most able to prevent permanent injury or death. Being able to pinpoint the location of a 911 call is, therefore, absolutely vital.

I understand that many public safety agencies have expended a great deal of effort and capital to complete system upgrades in anticipation of the FCC's October

1st deadline, and many more are in the process of doing so. These investments are certainly in the public interest, and I commend them for their diligent work.

On the carrier side, however, the situation is a bit more complicated. When the FCC issued its first E-911 order in 1996, the agency assumed the only way to locate a wireless phone was through a network-based system. But today, due to advances in Global Positioning Systems, it is possible to gather location information through the handset itself. The FCC has modified its compliance deadlines and standards to account for these changes in technology.

While it certainly makes sense to adapt rules to conform to new technology, there is an inherent danger that final action will continually be postponed. In fact, the deadline for E-911 implementation was delayed once before, and additional waivers are currently before the Commission.

A balance must be struck between the need for speed, which saves lives, and the need for efficiency, which saves money. I urge the industry and the Commission to redouble their efforts to find the point at which both of these goals are properly maximized.

Thank you again, Mr. Chairman, for holding this hearing, and I also express my appreciation to each of the witnesses for appearing today.

Mr. UPTON. You heard the buzzer sound. We have a series of votes, two of them, I understand, so we're going to take a brief recess and we will begin then with your opening statements on the panel and my guess is it will be about 5 minutes after 11 when we start that period. So we'll stand adjourned until then.

[Brief recess.]

Mr. UPTON. I suspect that we're going to have a vote in another hour or so, but we've got a little time and I want to say too from all of us on the dais, we appreciate you sending up your testimony within the rules. It makes it a lot better for all of us to take that testimony the night before and begin to look at it.

Your full statements are made as part of the record. We'd like to limit your remarks to 5 minutes so you can go through your statement, summarize it, whatever you want to make your case.

We're delighted to have as part of our panel Mr. Michael Amarosa, Vice President, Public Affairs of TruePosition; Mr. Steve Clark, Vice President of Network Operations, U.S. Cellular; Mr. James Nixon, Senior Manager, Regulatory Affairs, VoiceStream Wireless; Mr. Andrew Rimkus, Vice President of Airbiquity; Mr. Steve Souder, Administrator of the 9-1-1 Emergency Communications Center in Arlington, Virginia; and Mr. Thomas Sugrue, Chief of the Wireless Telecommunications Bureau of the FCC.

Mr. Amarosa, we'll start with you. And because of the cameras and the folks that are close in the audience, if you can make sure that that mike is close. That will be terrific. Thank you.

STATEMENTS OF MICHAEL AMAROSA, VICE PRESIDENT, PUBLIC AFFAIRS, TRUEPOSITION; STEVE CLARK, VICE PRESIDENT, NETWORK OPERATIONS, U.S. CELLULAR; ANDREW J. RIMKUS, VICE PRESIDENT, AIRBIQUITY, INC.; JAMES A. NIXON, SENIOR MANAGER, REGULATORY AFFAIRS, VOICESTREAM WIRELESS; STEVE SOUDER, ADMINISTRATOR, ARLINGTON COUNTY 9-1-1 EMERGENCY COMMUNICATIONS CENTER; AND THOMAS J. SUGRUE, CHIEF, WIRELESS TELECOMMUNICATIONS BUREAU

Mr. AMAROSA. Mr. Chairman and members of the committee, good morning. I am Michael Amarosa, the Vice President of Public Affairs for TruePosition. It is a privilege to appear before you this morning. Everyone here would agree that Enhanced 911 is a much

needed and critical public safety tool. It is the technology that ensures the expedited delivery of emergency services to those in need.

Mr. Chairman, TruePosition has a wireless location system for Enhanced 911 that has been developed and tested over many years and I am proud to say it works. TruePosition is a company that has committed its very existence to the wireless location technology and E911 services. We have made a substantial investment to develop and provide commercially available location technology that meets the standards established by the Federal Communications Commission.

After years of research, development and real world testing, we stand ready to continue to work with public safety communities and with the carriers, both large and small, to make E911 a reality and to meet the FCC deadline for Phase II implementation.

The core of TruePosition's business is providing location information of a wireless phone to the public safety agencies. TruePosition believes that 911 services already available on the wireline side should be available to the growing number of wireless phone users. TruePosition holds 14 United States patents encompassing the methods, processes and apparatus for calibrating a wireless location system that yields extremely accurate measurements.

We've tested more than 400 cell sites in a variety of environments. The substantial investment TruePosition has made in developing and implementing our technology demonstrates that accurate and reliable location information is not a future dream, it's available now.

From a personal perspective, I spent 24 years in public safety. As the Deputy Commissioner for Technological Development in the New York City Police Department it was my responsibility to deploy a range of technologies that helped police officers, fire fighters and emergency service technicians do their jobs. I can personally attest to the critical role location information plays in saving a life and stopping a crime. The child who knows only enough to dial 911, the victim who is not sufficiently coherent to remain on the line, or the traveler who does not know where he is at all, can be found and help can be dispatched.

TruePosition's technology allows all existing cellular and PCS phones to be located. No adjustment needs to be made to a consumer's existing handset. TruePosition's architecture supports technologies currently used by more than 95 percent of the wireless phones worldwide. We developed and tested our system in all types of geographic areas and RF environments. Our technology encompasses the four major air interfaces. TruePosition's wireless location system operates as an overlay to the carrier's network. It requires minimal changes to the existing network infrastructure and has a negligible effect on the cell sites and does not create any additional traffic on the network.

Rigorous testing has been a critical part of TruePosition's development of its products and its service. Testing is an integral part of every system, varied geography, innate character of radio signals and other conditions require that each system be adapted specifically for a carrier and to the environment in which the carrier operates.

As early as 1997, we tested our system's integration with the 911 call centers. A test was a cooperative effort with New Jersey, several county governments and wireless carriers and at that point it showed that our system was able to deliver information to the public safety answering points and enabled them to locate the wireless callers.

More recently, we've conducted extensive tests of our system in Philadelphia, Wilmington, Delaware and in New York City. The New York City involved the most challenging environment for radio propagation. Almost half of the test calls were made inside of multi-story buildings in midtown Manhattan. Standard mobile phones were used to make more than 30,000 test calls in an area covered by 30 cell sites. The system demonstrated sub-100 meter location results in a variety of indoor, outdoor, pedestrian and moving vehicle scenarios. The test results demonstrated compliance with the FCC requirements.

Mr. Chairman, the technology is ready. TruePosition stands ready to serve the industry and the public's need and I thank you. [The prepared statement of Michael Amarosa follows:]

PREPARED STATEMENT OF MICHAEL AMAROSA, VICE PRESIDENT, TRUEPOSITION, INC.

On behalf of TruePosition, Inc., it is a privilege to appear before the Subcommittee to discuss the implementation of E911 Emergency Calling Systems. I believe and hope, that everyone in this committee room today would agree that Enhanced 911 is a much needed and critical public safety tool. It is a technology that ensures the expedited delivery of emergency services to those in need.

Our company, TruePosition, is a company that has committed its very existence to wireless location technology. We have made a substantial investment to develop and provide commercially available location technology that complies fully with standards established by the Federal Communications Commission (FCC). After years of research, development and real world testing, we stand ready to continue to work with the public safety community and with carriers, both large and small, to make E911 a reality and to meet the FCC deadline. TruePosition commends the Subcommittee for holding this hearing and for once again focusing public attention on this important public safety issue.

The need for Enhanced 911 or E911 has been recognized for several years. It originates from the dichotomy that when a person calls 911 from a traditional phone, public safety agencies can automatically determine the individual's location; yet if the same person calls from a wireless phone, a public safety agency must rely on the caller to provide an accurate location. As more than 43 million wireless calls to 911 are made annually from existing wireless phones, the need to implement E911 is critical. With the impending FCC deadline of October 1, 2001, the Nation is at the threshold of a tremendous upgrade in how fast public safety agencies can respond to individuals in need. The leadership of the Subcommittee, and of the FCC, has been a critical part of the progress that has been made.

TruePosition, founded in 1992, and headquartered in King of Prussia, Pennsylvania, is a leading provider of integrated wireless location products and services to both U.S. and international wireless carriers. Providing the location information of a wireless phone to public safety agencies is the core of TruePosition. It is fundamental to our investment and business plan.

TruePosition centers on the premise that information, readily available on the wireline side, should be available to the growing number of wireless phone users. TruePosition holds 14 U.S. patents in the technology, encompassing methods, processes and apparatus for calibrating a wireless location system that yields extremely accurate measurements. We have completed system testing of more than 400 cell sites in a variety of environments. The substantial investment TruePosition has made in developing the technology and implementing it demonstrates that accurate and reliable location information is not in the future. It is now. The TruePosition system has been tested in a range of areas and conditions and complies with the standards set by the FCC.

From a personal perspective, I spent 24 years working in public safety. It was my honor to manage the largest 911 center in the Nation, that of the New York City

Police Department, as Deputy Commissioner for Technological Development. It was my responsibility to bring to public safety a range of technologies that helped police officers, firemen and emergency service workers do their job more effectively and efficiently. I can attest to the tangible and critical role location information has in saving lives. The child who knows enough, and perhaps only enough, to dial 911, the victim who is not sufficiently coherent to remain on the line, the traveler who does not know where he is, can be located and police, fire or emergency services dispatched. The precious time in obtaining information from the caller can now be spent assisting the individual in need of help.

THE FCC'S OCTOBER 1, 2001 DEADLINE

Under FCC rules, wireless telephone carriers are required to provide Automatic Location Identification (ALI) beginning October 1, 2001, as part of the Phase II E911 implementation schedule. Under the FCC's rules there are separate accuracy requirements and deployment schedules for network-based and handset-based technologies. Appendix A sets forth the details of the FCC's rules.

Since 1996, the FCC has pursued diligently efforts that will improve the quality and reliability of 911 emergency services for wireless phone users. Throughout, it has demonstrated substantial judgment, encompassing engineering, economics and law. It has examined and analyzed technical information of various systems, including that of TruePosition. It has comprehended the investment that must be made and the evolving technology. It has resolved difficult issues and struck a careful balance between the critical need for location information by the American public, while affording carriers and providers adequate time to come into compliance.

The FCC has made clear how critical its deadline is. Wireless location information is more than a valuable addition to the large investment already made to emergency response capability by state and local public safety agencies throughout the Nation. It can literally be the difference as to whether assistance can arrive in time.

TruePosition has committed substantial investment to develop and implement a workable technology enabling public safety agencies to locate and reach persons in danger. TruePosition's technology has been tested in real life settings. Our commercially available technology complies with the FCC's requirements.

TRUEPOSITION'S LOCATION TECHNOLOGY

TruePosition's 14 U.S. patents in location technology allow all existing cellular and PCS phones to be located so that no adjustment need be made to the consumer's handset. Our system performs within the standards set by the FCC. TruePosition's architecture supports technologies currently used by more than 95% of the 650,000,000 wireless phones worldwide. We developed and tested our system in all types of geographic areas, RF environments and other conditions. Our technology encompasses the four major air interfaces: automatic message processing system (AMPS), code-division multiple access (CDMA), time-division multiple access (TDMA) and most recently, Global System for Mobile communications (GSM).

TruePosition's Wireless Location System (WLS) is an end-to-end hardware, software, and services platform that offers a single system for collecting, managing and distributing location data and an integrated user interface to facilitate installing, managing, and operating the system. The WLS operates as an overlay to a carrier's network, requiring minimal changes to the existing network infrastructure. The system has a negligible impact on cell sites and does not create additional traffic for the network. The WLS is network-based, and as stated, there is no modification necessary to consumer handsets.

The TruePosition system determines a wireless phone's geographical location by collecting and processing the RF signals transmitted by the phone. When a signal is transmitted—when a phone call is placed—the system gathers information about the signal from nearby mobile base stations. The data are transmitted to a processor that analyzes the information and computes the position of the caller by using TruePosition's patented Time Difference of Arrival (TDOA) and Angle of Arrival (AOA) algorithms. For a 911 call, the TruePosition system then determines the appropriate public safety answering point (PSAP), and routes the call to this 911-call center, which then can dispatch assistance to the caller.

TESTING AND IMPLEMENTING THE TRUEPOSITION SYSTEM

Over many years, TruePosition's substantial investment in research and development has been directed toward providing a commercially available operational system that complies with the FCC's requirements. It has been a lengthy process that has encompassed many environments, which in turn have varied conditions. As

noted, the TruePosition WLS is compatible with all major interfaces used by wireless phones, AMPS, CDMA, TDMA, and GSM.

Since its initial commitment to location technology, testing has been a critical part of TruePosition's development of its product and service. We have completed system testing of more than 400 cell sites in a variety of environments.

Iterative testing is common with developing technologies and allowed us to address learning curve issues that arose during the early stages of development. Moreover, testing is an integral part of every system installed as varied geography, the innate character of radio signals and other conditions require that each system be adapted to the carrier and the environment the carrier operates in. It is the rigor and pervasiveness of our testing regime that underlies our confidence in TruePosition's technology.

Beyond demonstrating compliance with the FCC's requirements, our testing serves several purposes. It has taught us an understanding of the logistics posed by installation, maintenance, and other requirements of our system, including costs. Our testing regime allows us to adjust the system. Our underlying premise is that each environment where location technology operates must be examined and adjustments made prior to the system becoming fully operational.

TruePosition's extensive testing and experience has allowed us to improve substantially our pre-installation tools used to evaluate designated areas as well as our ability to fine-tune the system once it is deployed.

As early as 1997, we tested how our system integrated with the 911 call centers, the PSAPs. The test was a cooperative effort with the State of New Jersey, several county governments and wireless carriers. The test findings showed that the system was able to deliver location information to the PSAPs and enable them to pinpoint the wireless callers. New Jersey authorities characterized the test as having an immediate impact on improving public safety and represented significant progress in efforts to quickly locate emergencies.

Most recently, we have conducted extensive tests of our system in the Philadelphia, Pennsylvania, Wilmington, Delaware and New York City metropolitan areas.

The New York City test involved a challenging environment for radio propagation as almost half of the test calls were made inside of multi-story buildings in midtown Manhattan. Standard CDMA mobile phones were used to make more than 30,000 test calls in an area covered by 30 cell sites. A rigorous test plan published by the CDMA Development Group (CDG) to determine the performance of TruePosition's technology was employed. The system demonstrated sub-100 meter location results in a variety of indoor, outdoor, pedestrian, and moving vehicle scenarios. The test results demonstrated compliance with FCC requirements.

COOPERATIVE EFFORTS WITH PUBLIC SAFETY AGENCIES AND WIRELESS CARRIERS

TruePosition has worked closely with large and small public safety agencies and the dedicated associations and individuals that represent them in developing our technology, particularly in how best to integrate our system into the PSAPs, which receive the emergency calls. These agencies and their representatives have also worked closely with the FCC to advocate the need for wireless location information and to convey the capabilities of their own system. In this latter regard, public safety agencies have been forceful advocates in their own areas to obtain the resources necessary to implement location information into their own system.

Similarly, we have worked closely with wireless carriers in understanding how to meet carrier needs and requirements. This has entailed understanding a carrier's system and the environment it operates in. The testing we have completed demonstrates a close working relationship with the carriers. Our experience has shown a pervasive commitment to bring E911 to reality. We believe that deployment of E911 will become an important element of the competitive marketplace, leading to a broad and expedited deployment throughout the nation.

In summary, providing location information for wireless callers, so important to the individual faced with an emergency, is upon us. The Subcommittee's involvement in bringing the United States to the threshold of effective nationwide Enhanced 911 systems is to be commended. Just as the Subcommittee was the force behind Congress' enactment of the Wireless Communications and Public Safety Act of 1999, which played a significant part in the continued effort to upgrade the nation's emergency response systems, your interest and oversight of the availability of location information for wireless callers, demonstrates a similar commitment. Thank you.

APPENDIX A

HISTORY AND SUMMARY OF REGULATORY REQUIREMENTS

Through several actions since 1996, the FCC's wireless 911 rules have sought to improve the reliability of wireless 911 services and to provide emergency services personnel with location information. The wireless 911 rules apply to all cellular licensees, broadband Personal Communications Service (PCS) licensees, and certain Specialized Mobile Radio (SMR) licensees.

PHASE I E911 REQUIREMENTS (FCC Order June 1996)

As of April 1, 1998, or within six months of a request by the designated PSAP, whichever is later, covered carriers are required to provide to the PSAP the telephone number of the originator of a 911 call and the location of the cell site or base station receiving a 911 call.

PHASE II E911 REQUIREMENTS (FCC Orders September 1999, minor adjustments August 2000)

Wireless carriers are required to provide Automatic Location Identification (ALI) as part of Phase II E911 implementation beginning October 1, 2001. The FCC has established separate accuracy requirements and deployment schedules for network-based and handset-based technologies. The E911 Phase II requirements are as follows:

- **Handset-Based ALI Technology:** Wireless carriers who employ a Phase II location technology that requires new, modified or upgraded handsets (such as GPS-based technology) may phase-in deployment of Phase II subject to the following requirements:

Without respect to any PSAP request for Phase II deployment, the carrier shall:

1. Begin selling and activating ALI-capable handsets no later than October 1, 2001;
2. Ensure that at least 25 percent of all new handsets activated are ALI-capable no later than December 31, 2001;
3. Ensure that at least 50 percent of all new handsets activated are ALI-capable no later than June 30, 2002; and
4. Ensure that 100 percent of all new digital handset activated are ALI-capable no later than December 31, 2002 and thereafter.
5. By December 31, 2005, achieve 95 percent penetration of ALI-capable handsets among its subscribers.

Once a PSAP request is received, the carrier shall, in the area served by the PSAP, within 6 months or by October 1, 2001, whichever is later:

1. Install any hardware and/or software in the CMRS network and/or other fixed infrastructure, as needed, to enable the provision of Phase II E911 service; and
2. Begin delivering Phase II E911 service to the PSAP.

- **Network-Based ALI Technology:** As of October 1, 2001, within 6 months of a PSAP request, carriers employing network-based location technologies must provide Phase II information for at least 50 percent of the PSAP's coverage area or population.

Within 18 months of a PSAP request, carriers must provide Phase II information for 100 percent of the PSAP's coverage area or population.

The FCC has adopted the following standards for Phase II location accuracy and reliability:

- For handset-based solutions: 50 meters for 67 percent of calls, 150 meters for 95 percent of calls;
- For network-based solutions: 100 meters for 67 percent of calls, 300 meters for 95 percent of calls.

PUBLIC SAFETY ANSWERING POINT REQUIREMENTS (FCC Order November 1999)

The E911 Phase I requirements, and certain of the Phase II requirements, are applicable to wireless carriers only if the designated PSAP has requested the service and is capable of receiving and using the information provided. There is no prerequisite that a cost recovery mechanism for wireless carriers be in place before carriers are obligated to provide E911 service in response to a PSAP request. The PSAP, however, must have the means of covering the costs of receiving and using the E911 information to make a valid request for E911 service. The FCC's rules do not mandate any specific state action nor specify any particular mechanism for

funding the technology and service capabilities necessary to enable the PSAP to make a valid service request.

Mr. UPTON. Thank you.
Mr. Clark.

STATEMENT OF STEVE CLARK

Mr. CLARK. Good morning, Mr. Chairman. My name is Steve Clark, Vice President of Network Operations.

Mr. UPTON. If you could just pull that mike a little closer or speak a little louder, either way.

Mr. CLARK. As I said, my name is Steve Clark, Vice President of Network Operations for U.S. Cellular. Since the record with respect to Phase II compliance on E911 is already filled with comments addressing policy and economic issues as such, I'm here as an engineer and ultimately the implementer to make this happen. More specifically, I'll speak on the issues of implementation and incremental challenges in rural America with respect to the October 1 deadline.

U.S. Cellular is committed to public safety and the nationwide rollout of E911. Our goal is to provide ubiquitous availability of reliable, enhanced public safety to our rural customers. U.S. Cellular wants to give E911 to our customers and is committed to deliver it to them expeditiously, accurately and cost effectively.

That is why U.S. Cellular contributed to and supported the original consensus agreement between the public safety and wireless industries in 1996 which set out challenging, yet what we believed at the time to be achievable goals to meet the expectations of our rural customers and their need for E911.

The original consensus agreement, however, is not what the FCC is forcing us to implement today. Instead, we have seen a virtual elimination of all the original mutual commitments between public safety and wireless carriers beginning with the elimination of cost recovery in 1999. Carrier cost recovery, as the FCC noted, in its first report and order was a fundamental prerequisite to E911 deployment. The fundamental prerequisite was abandoned by the FCC despite the fact that all parties with one exception advocated the necessity of keeping carrier cost recovery.

Recently, the FCC took a further step and imposed a new financial burden on wireless carriers that now requires us to pay for a portion of the PSAP's E911 network in addition to the cost to convert antiquated PSAP equipment to today's technology. The FCC has also eliminated original PSAP commitments with the exception of one and that one is now pending before the FCC.

Given that the FCC since 1996 has never once ruled in favor of the wireless carriers, we expect this one remaining PSAP requirement will be removed as well.

The FCC has completely abandoned the original acknowledgment that cost and complexities of meeting location requirements would be higher in rural America. This causes great concern, since it likely will have the effect of driving rural implementation into the line. Until such time these issues can be dealt with rationally, it effectively abandons rural America in the short term.

U.S. Cellular and smaller rural carriers do not do their own research and development on telecommunications equipment. The

bottom line is those wireless carriers which have the most to spend drive development. With this in mind we begin the engineering implementation which brings us to the current debate over network versus handset and hybrid solutions.

The network based solution uses a cell site infrastructure in concert with the supplemental location system, the most widely discussed message will require a minimum of three sites to be able to reach or see the mobile you want to locate. Certainly in the more populated areas this will meet the required performance level, however, in rural areas, there simply are not enough cell sites to get the job done.

For rural carriers, this solution requires very large numbers of sites to be built simply from a location capability. Building this number of sites in this manner puts the rural carriers in a predicament which threatens their very existence. Further, switch software applications required for network solution will not be available for either rural or urban applications until late fourth quarter of 2001 with production implementation in first quarter of 2002. This lack of switch application software makes the network solution not possible to meet the October deadline.

An alternative to network based solution is the handset solution which is to locate a GPS transceiver in a handset which will work independently of or in concert with the network solution. Although the solution was not originally contemplated in the 1996 order, it has recently grown in popularity. Although it sounds good, the fact is rural carriers have yet to get good solid dates from the handset manufacturers which identify the timeline for availability, model supported or the production quantities on which it will be a supported capability.

And again, availability of the switch application software to support the handset solution is not available until late fourth quarter of this year. This is further complicated by recent decisions by large carriers to abandon the growth in TDMA markets. Current plans for evolution to 3G by other larger carriers in the industry have effectively sunsetted TDMA as an air interface.

In closing, we're concerned about what we're able to provide to our customers. And I would say to those that would say that we're dragging our feet on the implementation. If it could be done, U.S. Cellular would have done it.

Thank you, Mr. Chairman. I look forward to answering any questions you may have.

[The prepared statement of Steve Clark follows:]

PREPARED STATEMENT OF STEVE CLARK, VICE PRESIDENT OF NETWORK OPERATIONS,
UNITED STATES CELLULAR CORPORATION

Mr. Chairman, I am Steve Clark, Vice President of Network Operations for United States Cellular Corporation, and I am here today to discuss the progress and problems in the implementation of wireless enhanced 911 capabilities, particularly for carriers serving rural communities. Rural carriers support the roll-out of E911 and improved safety for our customers. What rural carriers object to, however, is the method the FCC has chosen to roll-out wireless E911. Without action by the FCC or Congress, rural wireless carriers face an October 1, 2001 deadline to provide so-called phase II location information without a viable, cost effective solution. There are currently no phase II compliant handsets available and the only other phase II solution—a network based solution—will be so expensive that it will, at a minimum, displace a large number of cost-sensitive rural wireless customers who will be unable or unwilling to pay the per customer costs of phase II E911 service.

My testimony today will highlight the problems specifically faced by rural carriers that stem from the FCC's phase II deadlines and its decision in 1999 to eliminate carrier cost recovery. In so doing, I will briefly review the history of the FCC's wireless E911 proceeding that created the problem referenced above and describe how wireline E911 works. My testimony will then illustrate how the Commission's decision to eliminate carrier cost recovery abandoned the sound legislative and regulatory policy of competitive neutrality between rural and urban telecommunications providers and completely undermined the FCC's policy of promoting competitive parity between rural wireline and wireless telephony providers. I will conclude my testimony by urging this Committee to reinstate carrier cost recovery to ensure that phase II E911 service becomes available to all areas and all ranges of customers in the United States.

I. THE IMPACT OF THE FCC'S DEADLINES ON RURAL WIRELESS CARRIERS

Without action by the FCC or Congress to change the October 1, 2001 deadline to provide phase II E911 location information, rural wireless carriers are literally stuck between a rock and a hard place. The costs to deploy a network solution that satisfies the FCC's location accuracy requirements are astronomical—costs that could easily double the imbedded network investment of many rural carriers. The only other solution—a handset based solution using a GPS (or equivalent) chip—is not yet available. The unavailability of compliant, cost-effective handsets will force carriers into a network solution that will displace thousands of cost sensitive customers in many parts of rural America and could well force some wireless carriers into bankruptcy.

By way of background, there are basically two technological options to help locate wireless 911 callers—a network solution and a handset solution. In the network solution, which is the only solution currently available, the wireless carrier—and the corresponding LEC and PSAPs—performs various upgrades to each cell site in its network. These cell sites are then employed to triangulate an incoming signal from a wireless phone—i.e., three cell sites receive the signal emitted by the handset and allow the network to pinpoint the exact location of the caller within that triangle. Using the so-called angle of arrival method, only two cell sites are needed to determine the location of a caller.

At best, the network solution is prohibitively expensive for rural wireless carriers; at worst, it will not work at all. Besides requiring upgrades at each cell site to provide accurate location data, the FCC itself recognized that rural carriers will be required to build additional, location-only cell sites in order to properly triangulate a signal to meet the FCC's phase II location accuracy requirements. This is because in rural areas, cell sites tend to be aligned in a straight path along major interstates or through the populated areas—the so-called “string of pearls”—in order to maximize the coverage of each cell site. This configuration, however, makes it impossible to triangulate a signal to determine the location of the handset because only one cell site actually receives a signal from the handset.

Western Wireless recently conducted a series of tests with a network solution vendor that dramatically illustrated those problems. While the vendor's network solution performed well in an urban environment, where the average cell site density is between 5-6 miles, the network solution failed when tested in rural areas where the average cell site density is often 40 miles or more. Thus, in order to employ a network based solution, rural carriers must build additional location-only cell sites throughout their networks, at an estimated cost of \$500,000 per cell site. USCC's current network has approximately 2500 cell sites. The costs to upgrade these sites alone using True Position technology was recently estimated at \$90 million. The costs of doubling or tripling this number of sites are astronomical and would inevitably require USCC to cut back on the area it serves in order to preserve scarce resources.

In the handset solution, first accepted by the Commission as an acceptable E911 location solution in 1999, special functionality is built into the handset itself to allow, for example, GPS satellites to track the precise location of the handset. While requiring some network upgrades to accommodate the additional location information, this solution appeared to be the economically rational alternative for the majority of rural wireless carriers because the cost of the solution would be tied proportionately to the number of customers served by the wireless carrier.

The only problem with the handset-based solution is that it does not exist yet. There are currently no vendors with the ability to provide a GPS-equipped handset that would satisfy the Commission's location accuracy requirements for any digital emission wireless phone. Current estimates are that some type of GPS-equipped phone may be available in the 4th quarter of 2001 for use in TDMA systems. GPS-

capable phones are not expected to be available until 4th quarter of 2002 for use in CDMA systems.

There are numerous other problems with a potential handset solution. Only limited information is available on the cost per phone of such a solution. The little information that is available suggests that the incremental cost per phone of providing phase II service could be as high as \$100-\$350. There appears to be a very limited selection of phase II-compliant handsets and there is considerable uncertainty whether these phones will provide other functionality demanded by consumers (i.e., voice messaging, 3G services). It is also unclear whether CDMA or TDMA E911 compliant phones will work if the user roams to a system using a different technology.

The problems deploying phase II E911 compliant solutions are not unique to rural wireless carriers. One major national cellular carrier (VoiceStream) has already received a waiver, two more major, national carriers (AT&T and Nextel) have waiver requests pending and at least one more national carrier (Cingular) has indicated that a phase II compliant waiver will be filed shortly. As demonstrated below, however, the burdens of complying with phase II will disproportionately burden rural wireless carriers.

II. THE FCC'S WIRELESS E911 PROCEEDING

My testimony now attempts to describe how rural carriers got into this difficult predicament by reviewing the history of the FCC's wireless E911 proceeding. In 1994, the FCC initiated a rulemaking proceeding to explore ways to encourage the wireless industry, in conjunction with the states and public safety organizations, to implement E911 capabilities. The Commission sought to impose specific caller location requirements on the wireless industry so that ultimately the same information provided to a PSAP in a wireline 911 call would be provided to a PSAP in a wireless call.

In the wireline context, when a caller dials 911, the local exchange carrier recognizes the emergency nature of the call and routes that call to the Public Safety Answering Point ("PSAP"). A PSAP is the state or local governmental agency responsible for coordinating a given locality's response to emergency calls. In the United States, PSAPs come in various shapes and sizes ranging from sophisticated, modern emergency call centers in urban areas to a local sheriff or the state police in rural areas.

Where enhanced 911 services are available to wireline telephone users, detailed location information is transmitted to the PSAP to help identify the location of the emergency caller. The LEC identifies the telephone number from which the 911 call was made and queries a database to determine the address associated with that number. This information is then transmitted to the appropriate PSAP, which can immediately dispatch the appropriate emergency response. The advantages of this location technology are uncontroverted: the ability to locate an emergency caller exists even if the caller does not know her location, is unable to communicate with emergency personnel, or becomes disconnected.

In the wireline context, the PSAP pays the LEC for the E911 services it provides. The costs paid for by the PSAP include the upgraded hardware and software needed to transmit location information as well as the cost of creating and maintaining the location database. These upgrades are paid for by the PSAPs who are properly treated as the wireline carrier's customers in this context because they order and then utilize the new location information. The costs caused by the PSAPs are typically paid for out of a state or local governmentally administered fund that collects the proceeds of 911 surcharges imposed on all wireline customers in the relevant jurisdiction.

Wireline 911 has taken many years to achieve widespread accessibility. The first 911 call was made in 1968, and it took more than 30 years after that for wireline 911 service to reach 93 percent of the population. As of the middle of 1999, wireline 911 was available in only 50 percent of the geographic area of this country.

The application of E911 to wireless telephones is no simple task. In fact, wireless E911 service is far more challenging. Wireless telephones by their very nature are mobile and therefore not associated with a particular address or location. When an E911 call is received, the carrier does not automatically know which PSAP is closest to the emergency caller and thus cannot ensure that the call is appropriately routed to the appropriate PSAP.

In 1996, the FCC issued its first order in its wireless E911 proceeding. While acknowledging that the implementation of E911 in the wireless context faced enormous technological hurdles and that there did not yet exist an efficient and workable system that could actually perform the E911 functions required, the FCC none-

theless decided to intervene in the market and mandate the implementation of E911 capabilities according to FCC-established deadlines. Before carriers' obligations under these deadlines were triggered, however, two conditions had to be met: (1) a PSAP had to request the services from the carrier and be capable of receiving and utilizing the information requested, and (2) a mechanism had to be in place to compensate carriers for the costs of providing E911 capabilities to the PSAPs. This cost recovery prerequisite—in addition to the other rules for E911 implementation adopted by the FCC in the First Order—was drawn from a broad-based consensus agreement between the wireless industry and the various public safety entities and was unanimously supported by commenting parties.

Following the release of the First E911 Report & Order, wireless carriers, PSAPs and LECs made significant progress toward the implementation of wireless E911—especially given the enormous complexity involved in the task. By June 30, 1999, only three years after the FCC's order, 27 states had enacted legislation to facilitate the funding of the first phase of the E911 roll-out. There were also a number of difficult, complex issues that inevitably slowed the roll-out of wireless E911. These issues included the age and incompatibility of PSAP equipment with wireless networks, the wide variety of technical sophistication and political organization of the PSAPs and differences in liability protection provided to wireline carriers vs. wireless carriers when providing E911 service.

By 1999, the FCC expressed dissatisfaction with the pace of the wireless E911 roll-out. Following a series of public notices, the FCC eliminated the requirement that a carrier cost recovery mechanism exist before the carriers could be obligated to provide E911 services. Despite the numerous thorny, difficult issues that were inhibiting the roll-out of wireless E911 noted above, the Commission chose only to eliminate the carrier cost recovery requirement in an attempt to speed the roll-out. To rationalize this about-face, the Commission asserted that since wireless carriers' rates are not regulated, wireless carriers were free to raise their rates in order to recover the costs of E911 implementation from their customers.

Of course, what the Commission failed to recognize in eliminating the carrier cost recovery prerequisite is the disproportionate and potentially ruinous impact this action would have on rural carriers. All other things being equal, the cost per customer of rolling out wireless E911 (like all other telecommunications services) will be disproportionately higher in rural areas. Despite this, rural wireless carriers were protected under the Commission's initial E911 order because PSAPs were required to pay rural wireless carriers for the costs they caused in ordering E911 services. If the costs to provide rural E911 service were too high, a rational PSAP could be relied upon to refrain from ordering that service.

Unfortunately, the Commission's decision to eliminate carrier cost recovery changed that equation. Under the Commission's new rules, PSAPs have essentially been given a blank check to order phase II E911 service regardless of the costs. Moreover, the FCC recently made it clear that if a wireless carrier's preferred E911 phase II solution were not available and the alternative phase II solution were available, the carrier would be expected to deploy the alternative solution in response to a valid PSAP request. The result of this decision could force rural carriers into cost prohibitive network solutions and will inevitably result in the displacement of thousands of rural wireless customers who will be unable to pay for E911 services ordered by the PSAP.

III. THE COMMISSION'S DECISION TO ELIMINATE CARRIER COST RECOVERY VIOLATES SEVERAL OF ITS OWN WELL-ESTABLISHED POLICIES.

The Commission's decision to eliminate carrier cost recovery also violates several of its own well-established telecommunications policies. First, it is universally recognized that the costs of providing telecommunications services in rural areas are higher than those in urban areas. Congress recognized this basic concept when it established the universal service provisions of the Telecommunications Act of 1996 and again is considering various actions this session to provide subsidies and incentives for telecommunications providers to deploy broadband service to rural areas. There is no valid explanation for the Commission's refusal to recognize these same principles in the roll-out of wireless E911 service. Rural carriers are here, today, asking only that Congress require the Commission to give the same consideration to wireless carriers that it gives to other telecommunications providers serving rural areas receive.

Without action to reinstate carrier cost recovery, the FCC's wireless E911 rules threaten the provision of cellular service in rural portions of this country. Because the wireless marketplace is extremely competitive and because consumer demand for wireless service is extremely price elastic, wireless carriers will only be able to

increase their rates on a per customer basis to the extent that its competitors do the same. If all wireless carriers had similar service areas, there would be competitive neutrality among them. Unfortunately, there are wide disparities between the service areas of wireless carriers. By adopting a one-size-fits-all approach and forcing all carriers to incur the substantial costs of providing E911 capabilities and passing them on to their customers, the Commission has impaired the ability of predominantly rural carriers to compete against larger wireless carriers with geographically more diverse service areas that include both urban and rural customers. Such carriers have a larger customer base over which to spread the costs of providing E911 service. These carriers are in a position to charge their rural customers less for the same service and have thus been given a competitive advantage over smaller, rural carriers who have no such customer base over which to spread these costs. It is important to recognize that this competitive advantage comes not from one carrier's more efficient operations or business savvy but instead by virtue of the FCC's E911 requirements.

The FCC's decision to eliminate carrier cost recovery will also likely result in less overall service in the rural areas, areas in which E911 is arguably most needed. The wireless industry has grown dramatically in recent years due in significant part to the continuous drops in the costs of handsets as well as the costs of using the service. Given the prohibitive costs of complying with the FCC's E911 mandate, especially if rural wireless carriers are required to deploy network solutions, the FCC's rules will cause many cost-sensitive rural customers to drop the service to avoid the disproportionately high per customer costs of E911 phase II compliance. Rural carriers, faced with the prospect of a diminished customer base and the enormous costs to deploy E911, will be forced to cut back on their service areas or even into bankruptcy. Should this occur, larger carriers are unlikely to venture into less populated territories that are not profitable, and entire areas of the country could be disenfranchised from any wireless service, let alone wireless 911 service.

Finally, the FCC's decision to eliminate carrier cost recovery also violates the long-standing goal of both Congress and the Commission to make wireless service a viable competitor to the wireline LEC for telephone service, especially in rural areas. Throughout the E911 proceeding and in other contexts, the FCC asserted as one of its goals that wireless and wireline service truly be viewed as substitute services by American consumers. Under the FCC's current E911 rules, however, wireless carriers cannot be effective competitors with wireline carriers.

First, and most importantly, wireline carriers are being paid for their provision of E911 services while wireless carriers are left to recover the substantial costs of providing the exact same service directly from their customers. Second, a significant portion of the costs paid by rural wireless carriers to deploy E911 service are LEC-imposed charges to connect the wireless network to the existing wireline-based E911 network. The costs paid by wireless carriers to LECs to provide E911 include not only the actual costs to provide the service, but also a regulatory approved profit margin. Thus, through the FCC's existing E911 regime, rural wireless carriers are forced to subsidize the operations of the same wireline carriers the FCC has identified as their competitors.

IV. CONCLUSION

Given the disproportionately high costs faced by rural wireless carriers to provide phase II E911 service, USCC urges this Committee to pass legislation to reinstate the carrier cost recovery mechanism eliminated by the FCC in 1999. If E911 service is truly a national priority, this Committee should enact rules that will help pay for the deployment of this service. While this step alone will not ensure a rapid roll-out of E911, it will eliminate the dramatic marketplace distortions the Commission's current rules will inevitably produce in rural areas. Such a payment mechanism would also help offset the E911 cost imbalance between rural and urban carriers and ensure that E911 service is available to all portions of this country.

If this Committee is unwilling to reinstate carrier cost recovery, USCC requests that the Committee pass legislation that delays the deadline for phase II deployment for rural wireless carriers until a viable, economically rational and commercially acceptable phase II solution develops. Drawing upon countless telecommunications examples, USCC urges the Committee to permit rural wireless carriers to delay deployment until the service has been provided and accepted commercially by wireless consumers in large urban markets.

In addition to these policy issues, there are also a myriad of difficult, often complex technical issues that have impacted and delayed the roll-out of wireless E911. These technical issues do not lend themselves to easy written explanation. However, I am prepared to answer any questions you may have regarding these technical

issues and United States Cellular Corporation is willing to supplement my written testimony to address these issues if it would be of interest to the Committee.

Thank you for the opportunity to appear before you today. I would be happy to answer any questions you may have or identify additional steps this Committee could take that would facilitate the rapid deployment of wireless E911 across the country.

Mr. UPTON. Thank you.
Mr. Rimkus.

STATEMENT OF ANDREW J. RIMKUS

Mr. RIMKUS. Thank you. Mr. Chairman, distinguished members, and guests, my name is Andrew Rimkus, Vice President of Airbiquity, Incorporated. Airbiquity is a privately held company located in Bainbridge Island, Washington. Airbiquity is a location technology company that delivers GPS data to any wireless network, worldwide.

Previously known to the public safety and wireless community as Integrated Data Communications (IDC), we changed our name to Airbiquity in November of 2000. Our company and our employees are active members of related professional organizations in wireless and public safety, including the Cellular Telecommunications and Internet Association, the National Emergency Number Association, the Association of Public Safety Communications Officials, and the COMCARE Alliance. Airbiquity appreciates the opportunity to testify before the subcommittee today.

We believe Airbiquity is uniquely qualified to discuss technology preparedness for E911 mobile phone location. As the FCC has stated in its Docket 94-102 proceeding, there are two major technology choices for the carrier and public safety to achieve compliance. These alternatives essentially place the location determining technology either in the wireless handset itself or in the wireless network. Airbiquity has chosen to produce a handset-based solution, specifically those with GPS, due to GPS's worldwide deployment and inherently high accuracy. These high accuracy standards are reflected in the existing FCC proceeding for handset-based location technology.

In November 200, Airbiquity announced the development of a GPS Accessory product that attaches to Nokia-brand wireless phones in the form a battery pack containing a GPS receiver and software to send the information. This implementation of Airbiquity's patented core technology transports data through any wireless network and attaches to 25 different Nokia phone models without retrofits or reprogramming of those phones that operate over all of the major air interface standards including TDMA, CDMA, GSM and AMPS. Also our solution does not require changes to the network itself.

This means that our GPS Accessory can operate over any wireless network using any one of these air interfaces, including and just as examples those of AT&T Wireless, Verizon Wireless, Cingular Wireless and VoiceStream. In March of this year, we announced the commercial availability of this product at the CTIA 2001 show.

On Monday of this week, AAA, the nation's largest motoring and travel services organization and RESPONSE Services Center, who is owned by AAA announced a North American pilot using our GPS

Accessory. This pilot program's breadth includes 11 major metropolitan areas, 18 different Nokia phone models, 4 different air interface standards and 7 distinct wireless carriers that distribute these handsets. This means that today we are moving GPS data from our GPS Accessory attached to these phones with calling locations spanning from Maine to California, through the wireless network and to the call center equipped with our call center product. As we speak today, we are placing handset locations on mapping terminals with live operators, as commercial applications are being tested. Here in my hand is this product, attached to a phone that I bought at a wireless retail store the other day. It is fully functional and available for mass distribution today. Airbiquity's Ex Parte filing with the FCC detailed our successful demonstration of this product in December 2000, during which we located our product in the FCC Portals building courtyard.

In addition to our GPS Accessory product, our technology has been adopted by other major companies in this business. For example, in May of this year we announced the adoption of our technology by Wingcast, a Ford Motor Company and Qualcomm Incorporated joint venture. Our technology is expected to be incorporated into model 2003 automobiles for their inaugural telematics offering which is planned to combined features such as vehicle location, automatic crash notification and other location-based services focused on making driving safe and more enjoyable. Our wireless technology is already incorporated or "ported" into several DSPs or Digital Signalling Processings including those offered by Texas Instruments and Agere Systems. Our technology is also capable of being integrated directly into the wireless handsets in addition to a GPS Accessory.

We believe that we offer a viable Phase II solution for wireless carriers to obtain the location of wireless handsets. Our GPS Accessory is retrofittable to an estimated 15 million wireless handsets in service today. The GPS Accessory is compatible with phone models that have been in commercial sale since 1998 and these phone models are available through distributors today. We know we are not alone since companies such as Qualcomm Incorporated and True Position currently have technological offerings that can serve as alternatives for this compliance. We expect the market for this technology will be competitive and well served with product offerings from the beginning.

We at Airbiquity believe that the state of our products and technologies being piloted and adopted by major commercial providers of location-based services, such as AA and Wingcast which expects to offer telematics service with some of its vehicle lines, demonstrates the appropriateness and readiness of our solutions for public safety applications. We urge the subcommittee to continue its efforts to communicate with and educate the public regarding viable alternatives to support this location mandate today.

Thank you and I'm happy to answer questions the subcommittee might have.

[The prepared statement of Andrew J. Rimkus follows:]

PREPARED STATEMENT OF ANDREW J. RIMKUS, VICE PRESIDENT, MARKETING,
AIRBIQUITY INCORPORATED

Mr. Chairman, distinguished Members, and guests, my name is Andrew Rimkus, Vice President of Airbiquity Incorporated. Airbiquity is a privately-held company located in Bainbridge Island, Washington. Airbiquity is a location technology company that delivers Global Positioning System (GPS) data to any wireless network, worldwide.

Previously known to the public safety and wireless community as Integrated Data Communications (IDC), we changed our name to Airbiquity in November of 2000. Our company and our employees are active members of related professional organizations in wireless and public safety, including the Cellular Telecommunications and Internet Association, the National Emergency Number Association, the Association of Public Safety Communications Officials, and the COMCARE Alliance. Airbiquity appreciates the opportunity to testify before the Committee today.

We believe Airbiquity is uniquely qualified to discuss technology preparedness for E911 mobile phone location. As the FCC has stated in its Docket 94-102 proceeding, there are two major technology choices for the carrier and public safety to achieve E911 Phase II compliance. These alternatives essentially place the location determining technology either in the wireless handset itself or in the wireless network. Airbiquity has chosen to produce a handset-based solution, specifically those with GPS, due to GPS's worldwide deployment and inherently high accuracy. These high standards for accuracy are reflected in the existing FCC 94-102 proceeding for handset-based, Phase II location technology.

In November of 2000, Airbiquity announced the development of a GPS Accessory product that attaches to Nokia-brand wireless phones in the form of a battery pack containing a GPS receiver and software to send the GPS information. This implementation of Airbiquity's core technology transports data through any wireless network and attaches to 25 different Nokia phone models—without retrofits or re-programming of the phones—that operate over all of the major network air interface standards, including TDMA, CDMA, GSM, and AMPS. Our solution does not require changes to these wireless networks.

This means that our GPS Accessory can operate over any wireless network using any one of these air interfaces, including but not limited to those of AT&T Wireless, Verizon Wireless, Cingular Wireless, and VoiceStream. In March of this year, we announced the commercial availability of our GPS Accessory product at the CTIA 2001 show in Las Vegas.

On Monday of this week, AAA—the nation's largest motoring and travel services organization—and RESPONSE Services Center, a wholly owned subsidiary of AAA, announced a North American pilot program using Airbiquity's GPS Accessory. The pilot program's breadth includes 11 major metropolitan areas, 18 different Nokia wireless phone models, 4 different air interface standards, and seven distinct wireless carriers that distribute Nokia-brand handsets. This means that—today—we are moving highly-accurate GPS data from our GPS Accessory attached to these phones with calling locations spanning from Maine to California, through the wireless network, and to the RESPONSE call center equipped with our call center product, the aqServer. As we speak today, we are placing handset locations on mapping terminal with live operators, as commercial applications are being tested. Here in my hand is the GPS Accessory product, attached to a phone I bought at a wireless retail store the other day. It is fully functional and available for mass distribution today. Airbiquity's Ex Parte filing with the FCC detailed our successful demonstration of the GPS Accessory in December 2000, during which we located our product in the Federal Communications Commission Portals building courtyard.

In addition to our GPS Accessory product, our technology has been adopted by other major companies in the wireless location business. For example, in May of this year we announced the adoption of our technology by Wingcast, a Ford Motor Company and Qualcomm Incorporated joint venture. Our technology is expected to be incorporated into model 2003 automobiles for Wingcast's inaugural telematics offering—which is planned to combine features such as vehicle location, automatic crash notification, and other location-based services focused on making driving safer and more enjoyable. Our wireless technology is already incorporated, or "ported", into several Digital Signal Processors, or DSPs, including those offered by Texas Instruments and Agere Systems, formerly Lucent Microelectronics. Our technology is capable of being integrated directly into wireless handsets.

We believe Airbiquity can offer a viable Phase II solution for wireless carriers to obtain the location of wireless handsets. Our GPS Accessory is retrofittable to an estimated 15 million wireless handsets in service today. The GPS Accessory is compatible with phone models have been for commercial sale since 1998, and these

phone models that are available through distributors throughout the United States today. We know we are not alone, since companies such as Qualcomm Incorporated and TruePosition currently have technological offerings that can serve as alternatives for Phase II E911 compliance. We expect the market for this technology will be competitive and well served with product offerings from the beginning.

We at Airbiquity believe that the state of our products and technologies—being piloted and adopted by major commercial providers of location-based services, such as AAA (which has 44 million active members) and Wingcast, which expects to offer telematics service with some of its model 2003 vehicle lines—demonstrates the appropriateness and readiness of our solutions for public safety applications. We urge the Committee to continue its efforts to communicate with and educate the public regarding viable, commercial alternatives to support the Phase II E911 location mandate today. Thank you, and I am happy to answer questions the Subcommittee might have.

Mr. UPTON. Thank you.

Mr. Nixon.

STATEMENT OF JAMES A. NIXON

Mr. NIXON. Good morning, Mr. Chairman, members of the committee. I'm Jim Nixon from VoiceStream Wireless. I've been involved in 911 for over 7 years beginning as a 911 Center Supervisor in Nevada and answering 911 calls, many of them from wireless handsets. Later was a 911 coordinator for the State of Maryland and for the past 3 years have been working 911 issues for VoiceStream Wireless.

My unique background kind of puts me on both sides of the fence and it gives me a little bit of insight into both camps, I hope.

I've been asked to address the feasibility of the wireless Phase II deadline which is October 1 as has been mentioned before. We believe there have been great strides made in the technology, particularly over the last 2 years, but we don't believe that the equipment is ready for widespread deployment yet for a number of reasons I'll discuss later. And we've also heard that a number of 911 centers are trying to get their readiness together. We hope we can work to match the two capabilities up at the right time and the right place.

We have a fear that a rush deployment would waste hundreds of millions of dollars on all sides of this issue and yet perhaps not provide an ultimately satisfactory system. We think there is a need for some real world carrier tests with public safety, with the carriers, with the local exchange carriers who play a key role in this whole process to make sure that the systems and solutions under trial today are viable for large scale deployments.

Assuming these trials were successful we think that the wide scale deployment will be available at the end of 2002 or the beginning of 2003.

We think a thoughtfully planned national implementation schedule and procedure is probably the best way to go. Our basic problem with the current requirements is that the accuracy in deployment requirements were established before the technology was developed or identified to meet those requirements. The case is one of acting in absolutely the best interest of consumers, but maybe a little bit ahead of what was warranted by technology at the time.

The primary challenge as we've heard, and I'm sure Mr. Souder will tell us a little bit more about this later is to provide landline 911 call takers with the same type of information that they get on

landline calls when they get wireless calls. Typically, you'll get a telephone number and an address. It's extremely helpful in trying to assess the situation and marshal the appropriate resources and get them underway quickly. The mandate provides that the carriers deliver the callback number as they've done in landline. The big difference is that the location is sent in a latitude and longitude format which is generally unfamiliar to many of us and we need to help the 911 center call takers in their very tough job to equate that location to an address or a landmark that they're commonly used to using so they can efficiently do their jobs.

We believe that there's a number of steps involved in making this kind of an improvement in any kind of a service, particularly as important as 911 and we think that as we said with the accuracy and deployment requirements being set first, we see this as kind of backwards from what's normally done in a technology environment where you identify what the requirements are, but then you go into building standards to which equipment can be designed and tested so that you can pick the best, most likely candidate for further development. Vendors can produce these things, test them adequately and thoroughly as Mr. Amarosa mentioned in the systems to make sure they don't cause additional problems. And here we've got somewhat of a reverse of that with the finite requirements being defined before there was a roadway built to get to that capability. We think this is possible to do. We think that the industry is poised to begin working cooperatively with all the other parties including public safety as a critical element to this whole issue.

We think that it's time for us to build on the experience we gained in the Phase I deployment process, to build a very solid and achievable Phase II plan. We would think that we can solve issues and make progress much more quickly if we work cooperatively, rather than trying to put Mr. Sugrue and his time at the Wireless Bureau through the process of deciding issues on filings and we look forward, very much to working with APCO and Public Safety and Project Locate. We think that's an absolutely wonderful forum to get the subject matter through experts together so that we can make some real progress and get some meaningful service out as quickly as possible.

Thank you for the opportunity to speak and I'd be happy to answer questions.

[The prepared statement of James A. Nixon follows:]

PREPARED STATEMENT OF JAMES A. NIXON, SENIOR MANAGER OF REGULATORY AFFAIRS, VOICESTREAM WIRELESS CORPORATION

Good morning, Mr. Chairman and members of the Committee. I am Jim Nixon of VoiceStream Wireless. I have been involved with 911 emergency services for the past seven years, initially as a supervisor for a 911 call center in Nevada; later as the E911 Coordinator for the State of Maryland; and for the past three years, working on 911 implementation for VoiceStream. I have direct, "hands-on" experience with 911 implementation, both from the perspective of public safety/law enforcement agencies and from the perspective of wireless carriers.

VoiceStream is the fastest growing provider of broadband Personal Communications Services (PCS) in the United States. Currently serving over 5 million subscribers, VoiceStream is the only U.S. wireless carrier that owns and operates a near-nationwide network using the GSM standard—the world's most widely used digital wireless standard. Through recent mergers and license purchases, VoiceStream has a licensed U.S. footprint of over 272 million American consumers.

VoiceStream initiated its first service in 1996, when it was part of a predecessor company.

The Committee has asked me to address whether the current wireless E911 Phase II deadline of October 1, 2001, only three and a half months from now, is feasible. While great strides in technology have been made, especially over the past two years, the technology is not yet ready for full national commercial deployment, and the vast majority of public safety agencies and their 911 networks are not close to being ready to receive and use wireless E911 information. A rushed deployment could waste hundreds of millions of dollars, without actually delivering a workable wireless E911 system. What is needed are “real world” carrier-public safety trials of the various location technologies under development. Assuming these trials are successful, commercial deployment may be able to begin in late 2002 or early 2003. A thoughtfully planned national implementation schedule, then, will be needed to deploy E911 successfully.

It bears remembering that it took more than 20 years before “land-line” 911 service was even available to half of all Americans. It is simply not realistic to expect that far more sophisticated wireless location technologies can be deployed ubiquitously within the 12 month schedule mandated by the Federal Communications Commission (FCC)—especially since the vast majority of public safety equipment and 911 networks continue to use 1950s-era technology. VoiceStream, like other wireless carriers, is committed to meeting the needs of public safety, and it believes these needs can be met. However, meeting these needs will be extremely challenging under the current time frames.

We have a newly reconstituted FCC, with a new Chairman and three new Commissioners having been confirmed only a few weeks ago. VoiceStream fully expects that bringing order to the current issues regarding Phase II deployment will be one of the first tasks that the new FCC will tackle.

I. HISTORY OF 911 SERVICE AND DEPLOYMENT IN LAND-LINE NETWORKS

Emergency 911 services were implemented in land-line telephone networks over decades, without any FCC involvement.

The heart of any 911 system is the Public Answering Safety Point (collectively, PSAPs). PSAPs are the agencies that answer 911 calls and then dispatch appropriate medical, fire, or police resources to the scene. PSAPs may be part of a local police or sheriff’s department; they may be a regional agency with responsibility over a community of interest; or, they may be managed at the state level. Some PSAPs are funded from the general tax base; others have authority to assess monthly surcharges on carrier bills to customers.

Basic 911. In 1967, the President’s Commission on Law Enforcement and Justice recommended that a “single number should be established” nationwide for reporting emergency situations. The next year, the then-administrator of telephone numbers (AT&T) set aside the digits 9-1-1 for emergency services. With “basic 911” service, the telephone company—or local exchange carrier (LEC)—translates the dialed 911 into the seven digit telephone number assigned to the PSAP call takers. Except for this number translation function, a “basic 911” call is processed like an ordinary telephone call.

Enhanced 911. One of the problems with basic 911 service was that LEC telephone exchanges may not match PSAP serving boundaries. To address this routing problem, the LEC industry began introducing *selective routing* in the 1970s to help ensure that 911 calls were forwarded to the correct PSAP. This selective routing feature later became known as Enhanced 911 (E911) service. Over time, additional capabilities were added to E911 service, including:

- *Caller Identification:* The telephone number of the person dialing 911 is forwarded to the PSAP, so the call taker can return the call if the caller is disconnected.
- *Caller Location:* Addresses associated with land-line telephone numbers are stored in an Automatic Location Identification (ALI) database. Upon receiving the caller’s telephone number, a query is made to the ALI database to retrieve the caller’s address, so the PSAP can send emergency personnel to the land-line caller’s location.

The E911 Network. Advanced features, such as selective routing, caller ID and land-line location, information required the deployment of a specialized E911 network. A PSAP’s E911 network consists of a selective router, trunks connecting PSAP call taker equipment to the centralized selective router and then to the LEC’s end office switches, and the ALI database. The E911 network is used exclusively for 911 calls, PSAPs maintain control of their network (e.g., determine how many trunks are needed, implementing technology upgrades) and, while they often have the LEC operate the network, PSAPs direct and pay the LEC for these services. Because a

state may have dozens (or hundreds) of PSAPs, LECs historically tariffed the various components of the E911 network so each PSAP could easily order the functionalities it desired.

Land-line 911/E911 Deployment. It took more than 20 years (1987) before 50 percent of the U.S. population had access to 911 or E911 service. Today, nearly 93 percent of the population has access to some type of 911 service from their land-line telephone.

II. WIRELESS E911—GENERALLY

Cellular service was introduced in the mid-1980s and it is my understanding that most cellular carriers provided basic 911 service to their customers. In California, for example, cellular 911 calls were forwarded to the state highway patrol because at the time cellular service was principally used in vehicles.

In 1994, shortly after setting aside spectrum for Personal Communications Services (PCS), the FCC commenced a proceeding to determine whether it should impose 911 obligations on wireless carriers. In its seminal 1996 Wireless E911 Order, the FCC decided that wireless carriers should implement E911 service in two phases:¹

- With *Phase I*, wireless carriers must transmit the handset's phone number and the location of the cell site (or cell sector) serving the E911 caller, thereby providing call back capability and the caller's general location.
- With *Phase II*, wireless carriers were ordered additionally to provide within five years more precise location information (latitude and longitude) within a radius of 125 meters 67 percent of the time.

Although it recognized that Phase II location technology did not exist at the time, the FCC nevertheless determined that its five-year (October 2001) implementation schedule was achievable. In response to estimates that Phase II would cost up to \$7.5 billion, the FCC stated only that these costs would decrease over time.

The FCC has also substantially changed virtually all of its original wireless E911 requirements and, in most instances, it has made them more onerous.² For example:

- PSAPs were initially required to pay carriers the costs incurred in upgrading mobile networks to support wireless E911. The FCC eliminated this requirement in December 1999. In May 2001, the FCC went further and imposed a financial burden on wireless carriers not imposed on incumbent LECs. Specifically, the Wireless Bureau has now required wireless carriers to pay for a portion of the PSAP's own E911 network and, apparently, to incur the costs needed to convert 21st century wireless data into a form that can be used by the antiquated equipment that many PSAPs continue to use.
- A PSAP request for E911 services historically was not acted upon unless the PSAP had installed the capability to use the service. This requirement prevents wireless carriers from having to build an E911 highway to nowhere. Nonetheless, the FCC is currently considering a PSAP proposal to require wireless carriers to begin implementation before PSAPs have upgraded their equipment and E911 network.
- In October 1999, the FCC increased its Phase II accuracy requirements to 100 meters 67 percent of the time and 300 meters 95 percent of the time for "networked-based" solutions. However, it imposed even more stringent accuracy requirements—50 meters 67 percent of the time and 150 meters 95 percent of the time—for carriers using a "handset" solution.

Phase I Implementation Status. Wireless carriers must provide Phase I cell site information within six months of a PSAP request, and VoiceStream has received Phase I requests from approximately six percent of all PSAPs (450 of approximately 7,000 total PSAPs). Although Phase I implementation is reasonably straightforward (and far simpler than Phase II), experience has proven that Phase I generally can-

¹ See *Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems*, CC Docket No. 94-102, Report and Order and Further Notice of Proposed Rulemaking, 11 FCC Rcd 18676 (July 26, 1996).

² See, e.g., *Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems*, CC Docket No. 94-102, *Memorandum Opinion and Order*, 12 FCC Rcd 22665 (Dec. 23, 1997); *California Declaratory Order*, 14 FCC Rcd 1969 (Dec. 18, 1999); *Second Report and Order*, 14 FCC Rcd 10954 (June 9, 1999); *Third Report and Order*, 14 FCC Rcd 17388 (Oct. 6, 1999); *Memorandum Opinion and Order*, 14 FCC Rcd 20850 (Dec. 8, 1999); *Third Memorandum Opinion and Order*, 15 FCC Rcd 1144 (Jan. 13, 2000); *California Declaratory Reconsideration Order*, 15 FCC Rcd 1997 (Feb. 1, 2000); *Fourth Memorandum Opinion and Order*, 15 FCC Rcd 17442 (Sept. 8, 2000); *Fifth Memorandum Opinion and Order*, 15 FCC Rcd 22810 (Nov. 22, 2000); *Fourth Report and Order*, 15 FCC Rcd 25216 (Dec. 14, 2000); *King County Clarification Letter* (May 9, 2001); *Non-Initialized Phone Further Notice of Proposed Rulemaking*, FCC 01-175 (May 25, 2001).

not be implemented within six months of a request. In most cases this “delay” is due to a combination of factors relating to the technology upgrades or “patches” needed to allow the PSAP’s 911 network to accept the additional data necessary for wireless E911. Many PSAPs have little interest in Phase I, but we have found they often do not understand that they need Phase I capabilities in order to use Phase II capabilities and that, by waiting to implement both at once, they make implementation within six months virtually impossible.

III. THE CHALLENGE OF PHASE II WIRELESS LOCATION

The successful implementation of Phase II location capabilities requires modifications by and the cooperation of wireless carriers, vendors that supply needed technology to carriers, the PSAPs, and the operator of the E911 network (generally, the incumbent LEC).

A. *Wireless Carriers.* The provision of location information for land-line 911 calls is straightforward: the telephone number is associated with a fixed address and that fixed address can be stored in an ALI database. How can a wireless carrier provide location information for a customer that is mobile—and whose location may change during the 911 call?

In 1996, at the time of the initial FCC Order, everyone expected that the Phase II requirements would be implemented by a “network solution,” and the FCC’s initial rules permitted only a network solution. With a network solution, location is determined using triangulation of nearby cell sites (calculating distance by the time consumed for cell site-to-handset signal transmissions). Under current FCC rules, a carrier using the network solution must provide a level of accuracy within 100 meters 67 percent of the time and within 300 meters 95 percent of the time.

Later, following additional developmental work, some vendors proposed use of “handset solutions.” The handset solution often (but not necessarily) includes a Global Positioning Satellite (GPS) receiver, with triangulation performed using the GPS satellite data in conjunction with data derived from the wireless network. Carriers like VoiceStream using GSM technology proposed a hybrid handset solution involving network and handset upgrades. In 1999, the FCC revised its rules to permit use of the handset solutions, but it also imposed more rigorous requirements on users of this alternative—carriers must provide a level of accuracy within 50 meters 67 percent of the time and within 150 meters 95 percent of the time.

There are inherent weaknesses with each solution. The network/triangulation approach does not work well in rural areas where there are fewer cell sites. The GPS approach does not work well in buildings and urban areas where the satellite signal may be blocked. The solution pursued by a given carrier is often dictated by the particular network air interface it uses (*e.g.*, AMPS, CDMA, GSM, iDEN, TDMA). In reality, most carriers plan on using a hybrid approach—a combination of the network and handset solutions that work best for their network air interfaces.

VoiceStream, which uses the GSM system prevalent throughout the world, is deploying Enhanced Observed Time Difference (E-OTD), a hybrid handset solution that requires upgrades to handsets as well as to its network. GSM carriers in Europe and elsewhere are observing the results of VoiceStream’s testing and deployment before they commit to large scale deployments of high accuracy location capabilities within their networks. VoiceStream has effectively become a test bed for the world’s GSM carriers because of the FCC regulatory initiative.

For the past year, VoiceStream has been testing the E-OTD solution in Houston, and it has already expended millions of dollars on Phase II development. We currently have the equivalent of 10 people committed full time to this effort and this commitment will increase steadily as we work toward large scale deployments. While progress has been made, the technology is not yet ready for full national deployment, as discussed further below.

B. *Vendors.* Carriers provide services to the public, but they remain dependent on their vendors—of both network equipment and handsets—to implement a new capability. VoiceStream, like most wireless carriers, requires major upgrades to both its network equipment and to the handsets provided to customers in order to provision Phase II location accuracy. In the end, a carrier’s ability to meet a regulatory mandate like E911 is determined by the ability of vendors to develop and deliver large quantities of commercial-grade equipment and handsets to the carrier in a timely fashion. Even before this new equipment can be built, however, a set of industry wide standards must be developed so the equipment can be designed to meet consistent operating specifications. Typically, the standards development process for new capabilities take over two years and vendors then need an additional 18 months or so to design and produce new equipment based on these standards. While VoiceStream can urge its vendors to develop solutions quickly, it is the vendor that

must, in the end, be able to create a viable and reliable solution. Since the E911 initiative is being driven, worldwide, by the FCC location mandate, vendors are proceeding with care. Their care is also influenced by the economic slowdown and by carriers—less aggressive capital investment plans. Now is not an ideal time for vendors to be expected to invest in expensive research, development and production work for equipment that is mandated, not by the marketplace, but rather by the U.S. regulator.

C. *PSAPs*. Most PSAPs cover small areas, have limited resources and have limited understanding of the technology required for E911 (e.g., they will need to obtain sophisticated mapping software so they can convert latitude and longitude data into recognizable street addresses, required telecommunications software development and improvements). Many PSAPs still use equipment which is based on 1950s-era technology that is not sufficiently robust to handle Phase I service, much less the additional data required for Phase II precision. When mobile service was introduced in the 1980s, PSAPs decided to have wireless 911 calls delivered to basic telephones, which lacked the ability to display 911 data, rather than make the 911 network and equipment upgrades necessary to provide wireless callers enhanced 911 service. While PSAPs may now be anxious to acquire modern equipment and networks, others (e.g., city council, county commission) often determine funding. Further, individual PSAPs (and especially small PSAPs) often find it difficult to convince the incumbent LEC managing their E911 network to upgrade the network without the PSAP securing significant additional funding.

D. *The LEC Bottleneck*. Most PSAPs use the local incumbent LEC services to provision their E911 network, and the majority of current 911 networks rely on 1950s-era signaling technology. This combination of LEC services and PSAP technology simply cannot support wireless E911 services, whether Phase I or Phase II. For example, the PSAP-to-selective router trunks routinely handle only eight digits, and 20 digits are in fact needed for Phase I implementation and additional digits will be needed to depict Phase II latitude and longitude calculations. The LECs have unfortunately been slow to modernize the E911 networks to accommodate this additional data. One significant issue today is the readiness of the LECs to receive wireless carrier location data using the industry standard (TIA J-STD-036) that was cooperatively developed by the LECs, PSAPs and wireless carriers specifically for wireless E911. If they have not yet installed this capability on their 911 networks, additional development time may be required to accommodate the non-compliant interfaces being used. Given that each PSAP installation is to a large degree custom built, considerable work and time may be necessary to address the multiple configurations existing today.

E. *Coordination Issue*. Coordination is difficult given the sheer number of parties involved. Take, for instance, the Phase I deployment undertaken by the Texas Commission on State Emergency Communications. TX-CSEC expected that Phase I could be deployed in six months—even though the deployment involved over 360 PSAPs, 24 Regional Planning Commissions, over 40 wireless carriers, several LECs, and an independent Phase I database vendor. Significant delays were encountered due to signaling incompatibility between the LEC selective routers and wireless switches, signaling incompatibility between wireless networks and some database systems, insufficient time to complete the huge number of database record updates required, insufficient time for the PSAPs to complete the routing analysis and address verifications necessary to correctly identify cell site locations, errors in some of the numerous trunk orders needed to connect wireless switches to the selective routers and insufficient capacity in some selective routers to accommodate the additional trunking. The Phase I conversion in Texas is now nearing completion, after two years. The Phase II deployment will be even more challenging—and unless significant changes are made to the process and better planning is undertaken—even more complicated.

IV. WIDESPREAD PHASE II WIRELESS E911 DEPLOYMENT WILL BE EXTREMELY CHALLENGING UNDER CURRENT FCC REQUIREMENTS

Under current FCC rules, carriers must provide Phase II E911 service by October 1, 2001 or within six months of a PSAP request, whichever is later. The Committee has asked whether this deadline is feasible. VoiceStream believes that widespread deployment under this mandate will be daunting for all parties involved.

The FCC established the October 2001 deadline and its accuracy requirements five years ago when there was no known method of meeting the accuracy requirements established. Given that both the deadline and the accuracy requirements were established based on limited data, it should not be surprising to anyone that we find ourselves in the current situation.

VoiceStream's situation illustrates the challenges posed by these issues. VoiceStream uses GSM, the most mature digital air interface technology serving over 400 million subscribers worldwide. The FCC's 911 rules are the most aggressive requirements in the world. VoiceStream, being the largest GSM operator in the U.S., took the lead and, with its vendors, developed the GSM E911 solution, E-OTD. Because E-OTD initially did not appear to meet the more stringent FCC handset requirement, the FCC granted VoiceStream a limited Phase II waiver. But in granting this waiver, the FCC imposed new requirements on VoiceStream, including:

- VoiceStream must deploy by the end of this year a second, less precise Phase II solution (known as Network Software Solution (NSS)), and VoiceStream must deploy this NSS solution nationally.
- The E-OTD solution requires modified handsets, and the FCC required that beginning October 1, 2001 50 percent of all new VoiceStream handsets sold must be E-OTD capable, and 100 percent of all handsets sold by March 31, 2002 must be E-OTD capable.
- Two years after the initial rollout, on October 1, 2003, VoiceStream must satisfy the more rigorous handset accuracy requirements of 50 meter accuracy 67 percent of the time and 150 meters 95 percent of the time.

The FCC Phase II deadline is only 3.5 months away. Even if VoiceStream could complete a far-reaching installation of its E-OTD solution by October 1, based on Phase II requests received thus far there are only a handful of PSAPs across the country capable of actually accommodating Phase II service. And even if PSAP equipment and the E911 network were Phase II compatible, it appears there still will be insufficient quantities of Phase II handsets available in the market for customers to purchase. The economic slowdown has slowed consumers discretionary purchasing dramatically since the waiver was granted.

In summary, the October 1, 2001 deadline will present problems for a number of reasons. And even while VoiceStream, and other carriers, will be in a position to conduct tests with a handful of PSAPs during 2002, I believe that the PSAPs, LECs and carriers will have trouble achieving a nationwide availability deadline of October 2002. Phase II location capability holds great promise for public safety and for commercial applications "but turning that promise into reality has proven to be much more complicated than anyone could have foreseen five or even two years ago.

Industry and governmental technological predictions frequently miss their targets. E911 is a case in point.

V. OTHER IMPLEMENTATION PROBLEMS

The Committee asked to be apprised of other problems with Phase II implementation. I below highlight some of the numerous problems that threaten this effort.

A. Zoning and permitting. Many of the available wireless location options require additional equipment at the cell site and these additions could require zoning and building permitting actions depending on local laws and rules. Equipment added inside existing cell site enclosures may cause concern for electrical load capacity, heating and cooling, or structural weight limits (especially on towers). Antennas and other equipment added to the exterior of the cell site enclosure or on a tower structure could easily raise new zoning issues. In either case, adding equipment to a cell site very often forces renegotiation of the site lease. If all of these issues are not successfully resolved, it may be impossible to deploy the location equipment in a manner capable of meeting the FCC accuracy requirements. Obviously, the time needed to resolve these sometimes highly contentious and political issues could easily prevent carriers from meeting the 6 month deployment deadlines.

B. Telephone number exhaust concerns. As you know, telephone numbers are in extremely short supply and several number optimization measures are being implemented to conserve telephone numbers in the U.S. today. Unfortunately, this number exhaust problem is being made worse because wireless carriers are being forced to use their otherwise dialable public switched telephone numbers in order to interface with existing 911 networks. The pseudo-ANI (Automatic Number Identification) is the "key" number used for selective routing and to identify a specific record in the 911 database, thereby allowing wireless 911 calls to be delivered on the existing 911 networks. However, due to limitations of existing selective routing equipment, in many instances dialable telephone numbers instead of non-dialable, true "pseudo"-ANI numbers are required. Once a dialable telephone number is assigned as a pseudo-ANI number, the telephone number cannot be assigned to a subscriber and used in the public telephone system for fear of creating confusion during a 911 emergency. This wasteful use of a critically limited resource must be corrected. For this solution to work, changes must be made to LEC switches and selective routers

to allow them to recognize and use non-dialable, true “pseudo”-ANI numbers for 911 purposes.

Discriminatory Funding of the E911 Network. PSAPs pay the full cost of the E911 network, up to an incumbent LEC’s end office switch. However, last month the FCC ruled that wireless carriers must fund a portion of the E911 network—the new elements between the existing selective router and the mobile switch which are required to retrofit modern wireless systems to support the antiquated 911 networks which are so prevalent. This discriminatory arrangement is inconsistent with long-standing cost causation principles and inconsistent with the parity objective that Congress has established for 911 service. See Wireless Communications and Public Safety Act of 1999 (Congress expressed its intention that wireless carriers be treated in generally the same manner as land-line carriers on 911 issues).

D. *PSAPs Are Discouraged from Modernizing Their Networks.* Wireless carriers have modern networks and PSAPs largely use 1950s-era technology. There are two ways that Phase II service can be provided in this environment: (1) PSAPs can upgrade their equipment and networks to more current technology such as Feature Group D, ISDN, SS7, TCP/IP; or (2) they can use various work around techniques so Phase I and II data can be handled by their antiquated networks. Until last month, each PSAP was required as a prerequisite to making a valid Phase I or Phase II request to make an individual choice between these two options based on its unique circumstances. However, now that the FCC has required wireless carriers to fund the new “wireless portion” of the E911 network, PSAPs can effectively require carriers to undertake (and pay for) the conversion function.

In this environment, PSAPs have no incentive to upgrade their equipment and networks to 21st century technology. Wireless carriers are faced with a double whammy—not only must they upgrade their own networks to Phase I/Phase II, they must then spend additional sums to convert this 21st century technology so it can be used by 1950s-era public safety technology. This situation is particularly ironic because the FCC deleted carrier cost recovery as a prerequisite for service based in part on claims from public safety that if this change was not made, the carriers would “gold plate” their 911 systems. Yet under the new rule, gold plating now appears to be a valid PSAP option.

E. *The Current Implementation Plan Is Backwards.* Ordinarily, carriers first test a new technology before they install it anywhere in their network. Once bugs have been identified and fixed, they can begin installing the feature in their switches. It may be six months (or a year) before a carrier completes installation of the feature throughout its network. Forcing deployment of incompletely tested systems actually increases the danger to the public by creating an environment in which the wireless system may crash—effectively preventing completion of the very 911 calls this program is designed to enhance.

With E911, however, the implementation schedule is instead determined by each of the 7,000 PSAPs. If 1,000 PSAPs request Phase II service in a short period of time, by rule, the carrier must then process and completely install 1,000 orders over the following six months. The problem with this approach, besides the sheer quantities involved, is its haphazardness. Rather than being able to use resources efficiently, by converting PSAPs on a market-by-market basis, carriers must be prepared to convert an untold number of PSAPs simultaneously across the country. This strategy totally defeats public safety and FCC arguments that carriers will recoup their location technology costs through commercial service. A revenue generating service simply cannot be built when the required location capability hardware is installed in geographically dispersed small islands across the nation.

F. *A Pending Proposal Would Result in Chaos.* VoiceStream has already received over 90 Phase II requests from PSAPs in 48 states. No carrier has the resources to implement this many diversely located PSAPs simultaneously. Carriers must therefore ration their resources using a reasonable strategy. (While it took more than 20 years before 911/E911 service was available to 50 percent of Americans, the FCC Order requires wireless carriers to achieve this result in five years while concurrently developing a new technology.)

Today, by FCC rule, PSAPs must complete their upgrades before they may even make a valid E911 request. This requirement helps ensure that finite carrier resources are focused on PSAPs that have the capability actually to use wireless E911 service. However, PSAPs have recently asked the FCC to require carriers to begin their implementation efforts based on a promise that they will be ready when the carrier is ready. The problem with this approach is that while PSAPs may truly believe they will be Phase II capable on a certain date in the future, they may have significant difficulty meeting this date because anticipated funding is not approved or because of delays in the delivery of their new equipment or network upgrades. The Texas CSEC example cited earlier demonstrates the complexity of wireless

E911 implementation in a real world environment. This latest PSAP proposal will certainly increase the quantity of E911 requests made, but, if adopted this proposal will result in fewer PSAPs converted—as carriers convert PSAPs that are not ready as promised, PSAPs that already are Phase II capable will wait in line. Thus, unless there is certainty the PSAP can use the Phase II data, we are certain to miss the opportunity to improve public safety in some PSAPs that have completed the considerable effort necessary to be truly Phase II capable.

G. *E911 Service for non-Customers*. In 1997, the FCC decided that carriers should forward all 911 calls to PSAPs, including 911 calls made by persons who are not customers and, therefore, do not have a phone number associated with their handset. Carriers expressed concern because features such as a “call back” capability would not be available from such “non-initialized” handsets. The land-line 911 equivalent—requiring that every telephone in America can not only call 911 but also can be called back by the PSAP—is not a requirement. PSAPs have now begun to complain about the unavailability of call back from these phones and, while carriers are busy implementing Phase I and preparing for Phase II, the FCC has asked whether industry should now be required to expend additional millions providing additional capabilities to non-initialized handsets.

VI. RECOMMENDATIONS

Wireless E911 is an instance where the federal government, acting with the best of intentions, moved faster than the state of technology warranted. Having worked in the 911 field and managed 911 operations, I applaud the FCC’s willingness to reach for the stars in its efforts to help America’s thousands of dedicated 911 professionals by improving the usefulness of wireless E911. President Kennedy took a similarly bold stance in 1960 when he decided that the United States could send a man to the moon within a decade. Kennedy’s goal was achieved because the necessary resources and coordination efforts were committed to the project. Unfortunately, the resources and coordination necessary for wireless 911 improvement have increasingly been placed on only one of the many necessary participants. Ironically, the wireless industry is being asked to retrofit its modern communications technology to support technology developed prior to the Kennedy Administration.

It is now time for us to work together to build on the knowledge we have gained since the 1996 FCC Order by establishing a realistic strategy for Phase II deployment. We have new FCC Commissioners and I believe that these new Commissioners should be given an opportunity to review past orders and requirements based on the substantial experience of the Phase I implementation and recent developments in Phase II technologies. I would like to believe that a new FCC would:

- Reexamine all wireless E911 obligations and deadlines based on the knowledge learned;
- Encourage carriers, vendors, LECs and PSAPs to engage in “real world” trials of various Phase II technologies in order to ascertain areas in need of further improvement and to develop realistic operational parameters;
- Consider in its new approach the impact zoning and permitting issues may have on deployment timelines and include reasonable accommodations in the schedule for such potential delays;
- Review the current and future problems arising from the inappropriate use of our limited telephone number resources as 911 data keys and develop a workable alternative;
- Establish an implementation schedule that is efficient, considers the aforementioned issues, and meets the needs of both industry and the public safety community, and
- Be guided by both the long-term, as well as short-term, best interests of the Public’s need for a sound and nationally consistent 911 service. Let’s do it right, rather than just fast.

Thank you for the opportunity to address the Subcommittee today. I am happy to address any questions that you may have.

Mr. UPTON. Thank you.

Mr. Souder, we want to congratulate you and your group here locally for the job that they did that was displayed in the video at the start. We will not take that 2 minutes away from your time.

STATEMENT OF STEVE SOUDER

Mr. SOUDER. Thank you, Mr. Chairman, and good morning to you and members of the committee. My name is Steve Souder. I am

the Administrator of the Arlington County, Virginia 911 Emergency Communications Center and my comments this morning are offered on behalf of three associations. One is the Association of Public Safety Communications Officials, the other is the National Emergency Number Association and the third is the National Association of State 911 Administrators. These three organizations represent 20,000 911 professionals throughout the United States.

In the 1980's, cellular or as we call it wireless communications and telephones were introduced commercially in the United States and have had a profound and mostly positive impact on society and our quality of life. Each day, there are approximately 320,000 911 calls made in the United States. Of those 320,000 911 calls, approximately 110,000 calls a day are made from wireless telephones. As Mr. Terry mentioned earlier, more than 90 percent of the citizens surveyed indicate that the No. 1 reason that they purchased a wireless telephone is for their safety and for their security.

Wireless 911 calls constitute between 40 to 60 percent of 911 calls received and do not provide any automatic location, identification or ALI information. ALI information is what is meant by intense 911. Consequently 911 call takers do not where 40 to 60 percent of all 911 calls are calling from or where the callers are at and often the callers do not know where they are at, nor do they know their telephone number, nor do they many times know the provider of the telephone service to that telephone number.

If I could draw your attention to the exhibit on the easel, if you were to call 911 on a wireline telephone as I hold before you from your office, your business or from a coin telephone, the call taker would know exactly where you were calling from. However, if you call up 911 on a wireless telephone without moving one inch, the call taker would have no idea where you're calling from. As you can see, there is more telephones to which call 911 and more 911 calls being made, most of them from wireless telephones. Because the location of the caller is unknown we are regressing in our ability to provide quality service to the community, rather than progressing.

Wireline 911 calls are usually received and entered in the dispatch center within 40 seconds due to the availability of the ALI information providing the call location. However, wireless 911 calls may cause up to more than 4 minutes of additional delay in entering those calls into the system because without the caller knowing where they are and the call taker knowing where they are, there is a tremendous amount of dialog that has to go between the two in order to enter the information that will allow for a speedy response.

In 1994, the Public Safety Communications organizations petitioned the FCC for assistance. As a result, in 1996, the FCC issued rules. Included in those rules were Phase II which is what we're speaking about today and that by October 1, 2001, the location of wireless 911 callers be provided to the public safety answering point or PSAP, commonly referred to as the 911 Center within a radius of between 164 feet and 328 feet and I deliberately mention feet as opposed to meters which is often referred to because it gives us a context in which to view that distance. Remember the 320 feet is slightly longer than a football field. That is a far cry from the information that we saw presented on the ALI screen earlier.

In the interim, wireless telephones have been improved to include the ability to page, send and receive e-mail, access the internet, vibrate instead of ring and ring in many different tones and styles and become smaller and come in every color of the rainbow. Recently, in fact, I saw an advertisement advertising a telephone that could provide video. As Mr. Markey said earlier, now 5 years after the rules have been issued and 4 months before the technology is required to be provided, October 1, 2001, some carriers have requested a waiver of that requirement and others are expected to do so. The single most important reason that people use phones is for their safety and security and yet the ability to provide location technology to locate those people when they call 911 has not been provided and waivers to providing it are being requested. Again, as Mr. Terry mentioned earlier, it is not unusual for PSAP to receive as many 70 wireless 911 calls reporting one accident. Each call must be answered to ensure that a different emergency is not being reported. If the location of the caller were known, the speed and the manner in which these multiple calls were handled could be improved dramatically.

There are many news accounts of wireless 911 calls that result in fatalities because the 911 call taker and the 911 caller did not know the location of the emergency. A highly publicized case several months wherein a car went off the road in Southern Florida resulted in a fatality and a lot of media attention. The caller's call sank beneath the water as the call taker talked to the victim for 3½ minutes as the call taker tried in vain to obtain the location that the car was located at. Meanwhile, emergency vehicles were speeding up and down the road looking in vain for the location of the car. When the car was finally located, it was totally submerged in water and its passenger had succumbed. That victim could have been any one in this room, your family members, your loved ones, co-workers, business associates, it could be a wireless telephone service provider, it could be a Member of Congress or it could be a 911 call taker. This type of tragedy can strike anyone.

In my own jurisdiction, as mentioned earlier in the video, within the last year there have been three high profile incidents involving reports by people using cellular telephones to report emergencies that have gained both national and international attention: abduction and car jacking which we saw on the video; and abduction and rape; and a person threatening suicide. It was only through professionalism, luck and persistence that they were positively resolved and in one case it took almost an hour and another almost 30 minutes for something that should have taken less than 1 minute.

It is unconscionable that in 1987 when 100 percent of the enhanced 911 calls received were provided with location technology and yet in the year 2001 60 percent of those calls received are not provided with location technology.

In closing, in 1958, the Congress of the United States endorsed the concept of the three digit number 911 for use in summoning law enforcement, fire, rescue and emergency medical services. Ten years later, in 1968, the first 911 call was made from a small town of Haileysville, Alabama. Since that time, 911 has become synonymous to Americans as the best way to request emergency assistance. Millions of citizens owe their life to 911 and with the advent

of wireless telephones, 911 service now is available from locations that it was never available from before.

On behalf of APCO, NENA and NASNA, I urge the Congress to do whatever is within your power to ensure that those ever increasing number of American citizens who call 911 from their wireless telephone are assured that their location is made available and that the 911 emergency communication center is able to process those calls in the same manner that occurs with a 911 call made from a wireline telephone. Americans deserve that, expect that and need that.

Thank you.

[The prepared statement of Steve Souder follows:]

PREPARED STATEMENT OF STEVE SOUDER, ADMINISTRATOR, ARLINGTON COUNTY, VIRGINIA 9-1-1 EMERGENCY COMMUNICATIONS CENTER ON BEHALF OF THE ASSOCIATION OF PUBLIC-SAFETY COMMUNICATIONS OFFICIALS-INTERNATIONAL, INC., THE NATIONAL EMERGENCY NUMBER ASSOCIATION AND THE NATIONAL ASSOCIATION OF STATE NINE ONE ONE ADMINISTRATORS

Mr. Chairman, members of the Committee, thank you very much for providing me with this opportunity to appear before you today. My name is Steve Souder, and I am the Administrator of the Arlington County 9-1-1 Emergency Communication Center. I am here today on behalf of the Association of Public-Safety Communications Officials-International, Inc. (APCO), the National Emergency Number Association (NENA), and the National Association of State Nine One One Administrators (NASNA). These associations represent state and local government emergency 9-1-1 communications centers (also known as "Public Safety Answering Points" or "PSAPs"). APCO, NENA, and NASNA have worked tirelessly to promote wireless enhanced 9-1-1 capability, and I am proud to be here today on their behalf and the approximately 6,000 PSAPs across the United States.

Until approximately ten years ago, nearly all incoming 9-1-1 calls to PSAPs were from wireline telephones, and most provided the call-taker with automatic number identification (ANI) and automatic location information (ALI) for the caller. The provision of ANI and ALI is known as Enhanced 9-1-1 or E9-1-1. Attached to copies of my testimony is an illustration of a typical data screen that a call-taker sees immediately upon receiving a wireline E9-1-1 call. Armed with this information, the 9-1-1 call-taker can quickly and accurately dispatch police, fire, ambulance and other appropriate public safety agency personnel to emergency locations.

Today, unfortunately, close to half of all 9-1-1 calls provide LESS information than what we had ten years ago for most wireline calls. The reason is simple. The explosive growth of wireless telephones has occurred without E9-1-1 capability, leaving PSAPs in the dark regarding the location of 40-50% of their 9-1-1 callers.

There are approximately 110 million wireless telephones in use in the United States, a majority of which were probably acquired to provide the subscriber with a greater sense of security and the ability to seek emergency assistance anywhere, anytime. Those 110 million wireless telephones generate approximately 120,000 9-1-1 calls every day. However, unlike the typical wireline call of even ten years ago, virtually none of those 120,000 daily wireless calls provide Enhanced 9-1-1 information. The data screen that the 9-1-1 call taker sees in those instances has none of the essential location and call back information that has long been available for most wireline calls.

Without accurate location information for wireless calls, the 9-1-1 call-taker must make a verbal inquiry regarding the caller's location, adding to the time that must be spent on each call, and slowing down response time by several precious minutes. Wireless 9-1-1 callers also often do not know exactly where they are, or they are unable to describe their location with any clarity or accuracy. In some cases, callers may even hang up, or their wireless calls are "dropped" before they can provide necessary information regarding the emergency or its location. These problems are every day occurrences in PSAPs across the nation.

Mr. Chairman, as you know, there have been highly publicized emergencies where the absence of wireless location information led directly to the loss of life, or at least imposed far greater danger to than would otherwise have occurred. For example, members of the Committee may be familiar with an incident in my own jurisdiction in Northern Virginia where a woman was hijacked and placed in the trunk of her car while it sped away. While she had a portable cell phone with her, and could

call 9-1-1 to report her predicament, she obviously could not identify her changing location.

In a recent highly publicized event in Florida, a woman's vehicle went off the road and landed in a drainage canal. She immediately called 9-1-1 from her cell phone as her car slowly sank into the water. However, because she could only identify the name of the road she was on, and not the actual scene of the accident (which was not visible from the road itself), emergency personnel were unable to find her in time, and the women drowned.

I mention these cases because they tend to highlight the nature of the problem. However, I want to emphasize that the lack of wireless E9-1-1 is a daily threat throughout the United States.

Even when a wireless 9-1-1 caller can provide accurate verbal descriptions of their location, the absence of automatic location information can still wreak havoc with a PSAP's ability to respond efficiently to emergencies. For example, it is not at all unusual for my agency to receive up to 70 calls reporting the same automobile accident. Finding such an emergency is not the problem. The problem is that we don't know in advance that those 70 calls are all about the same event, and we therefore need to spend scarce resources to answer each and every call. In the meantime, the PSAP's incoming lines become clogged and we run the risk that there may be another caller waiting in line to report an entirely different emergency. In contrast, with automatic location information for wireless calls, our systems could be set up to prioritize calls such that after the first report, all other calls from the immediate vicinity would be placed in queue behind calls from other locations.

Fortunately, major efforts are underway to address these serious problems, though much more is still to be done. Nearly ten years ago, APCO, NENA, and others identified wireless E9-1-1 as a critical issue and brought it to the FCC's attention. The Commission responded with a proceeding that began in 1994, and resulted in rules adopted in 1996. However, as of today, we still do not have wireless E9-1-1. Admittedly, providing accurate location information for a wireless call is not a simple matter, and it is not without substantial costs. I note, however, that in the five year period since 1996, a plethora of other new wireless telephone enhancements have been developed and marketed to the public. Examples include e-mail, instant messaging, Internet access, hands-free operation, and a shrinkage in the size and cost of handsets. I only wish the wireless industry and equipment manufacturers had developed E9-1-1 at the same pace as these convenience features.

Now, we are facing an important deadline. On October 1, 2001, assuming that there has been a valid request from a PSAP, a wireless carrier must begin implementation of Phase II of the rules. Phase II requires delivery of location information within accuracy levels of 50-100 meters (164-328 feet), depending upon the choice of location technology. Only then will PSAPs begin to see the real benefits of wireless E9-1-1.

Some wireless carriers are proceeding on schedule to meet the October 1 deadline, and I applaud their commitment. Others, however, have fallen behind and are either seeking waivers, or are expected to do so in the near future. I and the public safety organizations that I am representing here today are deeply troubled by these waivers. We recognize that the carriers face significant costs and technical challenges. However, the fact that some carriers are on schedule, and that both network-based and handset-based location technologies are available and proven in the field, suggests that some carriers have simply not devoted sufficient attention or resources to this issue. These proven location technologies may not be perfect, but they have demonstrated the capability to meet the FCC's standards. Something better will always come along tomorrow. But we in public safety are seriously concerned that if we keep delaying present performance based on future promise, we will never have anything workable to improve on. We simply cannot allow the perfect to be the enemy of the good.

The issues facing carriers are complex, and I know that APCO, NENA and NASNA are undertaking a serious review of the documentation submitted in support of various waivers, and will be making appropriate recommendations to the Commission. I also recognize that there may be some factors beyond the control of carriers which may cause delay in Phase II implementation in some situations. Nevertheless, the public safety community urges that the Commission be firm and, to the extent possible, hold the carriers to the existing deadlines, because lives are at stake. Every day of delay is another day that the public is at risk because of the inability to quickly and accurately locate emergencies reported on wireless telephones.

Of course PSAPs also have a responsibility for making E9-1-1 a reality. Many PSAPs are now or will soon be ready to receive and process Phase II information from wireless carriers. Frankly, others are not so far along, either because of fund-

ing constraints, the need for LEC network upgrades, or perhaps a reluctance to expend scarce resources for Phase II readiness until the carriers are themselves proceeding towards Phase II deployment. The public safety community is working hard, however, to improve E9-1-1 readiness on the part of PSAPs. For example, I am part of APCO's Project Locate which is working, with participation from NENA, to educate PSAPs and assist them in becoming Phase II ready as soon as possible. APCO and NENA have also sponsored seminars and other educational programs across the county to educate PSAPs, some of which are quite small and have limited funding and technical expertise.

The challenges before us are great. However, I am confident that a united effort between the wireless industry, equipment manufacturers, technology providers, PSAPs, and the FCC will allow the United States to continue to have state-of-art methods for receiving and processing calls for emergency assistance. In the end, our common goal must be the ability to locate every 9-1-1 call, regardless of the type of telephone placing the call. I am sure that this Committee agrees with that goal, and we welcome your support and encouragement in that regard.

Thank you

Mr. UPTON. Thank you.

Mr. Sugrue.

STATEMENT OF THOMAS J. SUGRUE

Mr. SUGRUE. Good morning, Mr. Chairman and members of the committee and subcommittee. A little over 2 years ago in my second week on the job as the new chief of the Wireless Bureau, I appeared before the subcommittee to testify on E911 matters. And Ms. Eshoo's comment about the importance of this technology to women reminded me that morning I told the subcommittee that I personally became a wireless subscriber when a number of important women in my life reached a critical stage and that was when my daughters became drivers and when my first daughter turned 16 we got our first cell phone and when her younger sister became 16 and started driving, we got the second. Then my wife said hey, what about me, and I said that's right, we got the third and I was the last one to get a cell phone in the family, although now we're all enthusiastic wireless users.

Well, in the intervening 2 years, both Congress and the Commission have continued to focus on wireless 911 and taken important steps toward our mutual goal of a nationwide ubiquitous reliable wireless E911 system. And one of the cornerstones of this progress was the passage of the Wireless Communications and Public Safety Act in October 1999 under the auspices of this subcommittee and the leadership of the subcommittee Chairman Tauzin and many of the current subcommittee members, Mr. Shimkus was the sponsor, Ms. Eshoo, I know was the co-sponsor, Ms. McCarthy I know was very involved as well. So I commend the subcommittee and its members for those efforts in this regard and that legislation has been very helpful in moving us along to realize our goals for E911.

On the FCC side, we too have been actively engaged in 911 matters during the last 2 years. Among other things, we have increased the range of options available to carriers by permitting the use of new handset based technologies such as those using the GPS satellite system and so-called hybrid technologies, those that combine elements of both handset and network based approaches. Our decision in that regard was based, in part, on arguments from rural carriers that these technologies were needed for them to be able to implement E911 and their operating areas.

We adjusted and clarified our rules concerning certain operational issues affecting E911 implementation including cost recovery by carriers and PSAP. We convened several multi-party meetings, including carriers, vendors, manufacturers and members of the public safety community to exchange information on the state of location technology development. And we performed extensive outreach, speaking at numerous, numerous conferences, meetings and other events aimed at informing and educating interested parties including State and local public safety agencies and carriers on our 911 rules and policies.

Now in 2001, the beginning of phased in deployment of Phase II is almost here. As has already been noted many times, carriers are begin the process of rolling out Phase II on October 1 of this year. This October 1 deployment timeframe dates back to a consensus agreement between the wireless carrier community and the public safety community which was filed with the Commission in 1996 and formed the basis of our E911 rules.

Now I should add that Phase II implementation is not a flash cut process. Under the Commission's rules, it will take several years for Phase II to be ubiquitously deployed. For example, with handset based technologies, the rules require carriers to hit progressively higher penetration levels for location capable handsets until they achieve a 95 percent penetration by the end of 2005. Carriers choosing network based technologies must incorporate the necessary hardware and software in their networks over a 6 to 18 month period after receiving a request from a PSAP for service. These PSAP requests are expected to come in over the next few years as the PSAPs become ready to utilize Phase II services at different points in time.

Well, where does wireless E911 stand now? I agree with Jim Nixon that it seems clear that parties have come a long way since their original agreement in 1996 and from the information provided to us, it appears that a number of carriers are well on their way to deploying Phase II and a number of call centers have requested Phase II and are preparing themselves to use this new location information effectively.

We recognize that there are always challenges involved in deploying any major new technology on a mass market basis for the first time and wireless location technologies are no different. To make the promise of wireless E911 a reality, much work remains to be done by call centers, vendors and carriers to meet the challenges involved in deploying these life-saving technologies.

We at the FCC will continue our efforts to make this happen. We are committed to working with the stakeholders to resolve problems and speed deployment, but we are also committed to enforcement of our rules, if for example, parties simply ignore their obligations or fail to make good faith efforts to comply.

At the same time we will be flexible and practical in applying the E911 rules. Last year, the Commission set out specific standards for Phase II waivers in an order granting a specific limited waiver to VoiceStream. Those standards, fundamentally, require carriers to show the Commission what they can and will do to provide Phase II location information, not simply what they cannot do.

We are currently considering several waiver requests and will address those based on the specific showings and facts presented to us. Our focus will remain on the most practical and realistic means of achieving the objectives of promoting public safety and implementing Phase II as soon as possible.

Finally, I am reassured by factual information indicating that there is wireless location technology available, capable of locating 911 callers much more accurately than is the case today. In my view, it is time to begin the deployment process. And as that deployment proceeds, I expect that the technology and system-wide performance will improve as we learn and get experience with it. I also expect as customers increasingly understand how location capability makes their life safer, they will insist on having it available and will come to rely on it in the same way they rely on air bags, seat belts and cars.

I am confident that the future of this technology is strong once it is actually deployed and this virtual cycle begins to kick in. But to get to that future all of us involved in this process will have to redouble our efforts to see that the promise of this life saving technology is fulfilled.

Again, I'd like to thank the subcommittee for this opportunity to provide you with this information on our program and I look forward to working with you over the next few months and years as we go forward on this and answer any questions, of course, this morning.

[The prepared statement of Thomas J. Sugrue follows:]

PREPARED STATEMENT OF THOMAS J. SUGRUE, CHIEF, WIRELESS
TELECOMMUNICATIONS BUREAU, FEDERAL COMMUNICATIONS COMMISSION

I. INTRODUCTION

Good morning Mr. Chairman and Members of the Subcommittee. Thank you for this opportunity to report to you on the Commission's policies and rules aimed at improving the quality and delivery of wireless 911 services throughout the Nation and, in particular, at implementing wireless Enhanced 911.

II. IMPORTANCE OF WIRELESS ENHANCED 911 SERVICE

Almost exactly five years ago today, the FCC adopted the first wireless Enhanced 911 rules, as a vital step in applying wireless technology to improving public safety. A wireless phone is a valuable emergency tool that can be taken almost anywhere. For many Americans, the ability to call for help in an emergency is the principal reason they own a wireless phone. But that help may never arrive, or may be too late, if the 911 call does not get through or if emergency response teams cannot locate you quickly. Our wireless 911 rules require that wireless carriers deliver 911 calls and implement the technology that provides the 911 call center with information about the caller's location.

We based those first rules in large measure on an agreement reached between the wireless industry and the public safety community back in 1996. Both recognized the importance of improving wireless 911 and, especially, of locating wireless 911 calls. To reach these goals, these parties developed, and filed with the Commission, a Consensus Agreement that proposed a transition plan to allow the wireless industry and technology vendors to develop and begin to deploy the capability to accurately locate 911 calls. This consensus transition plan included both scheduling and accuracy requirements. The goals it set were very challenging—they required the development of sophisticated location technologies for all of the various transmission standards used by wireless carriers. It also required effective, cooperative efforts among wireless carriers, technology vendors, equipment manufacturers, local telephone companies, and state and local public safety organizations and governments. The Commission adopted E911 rules based on the schedule and the accuracy standards proposed in the parties' Consensus Agreement.

The Commission has recognized, however, that new technologies often develop in unexpected ways, both good and bad, and that we should be ready to adjust our rules both to take advantage of the opportunities, and to ameliorate the problems, presented by such developments. Accordingly, over the course of the intervening years, we have made revisions to our rules with the goal of facilitating the deployment of wireless E911. In particular, we have adjusted our program in several ways to reflect technological change and to allow carriers more choices to meet our standards. For example, when technology was developed to put GPS location capability in wireless handsets, we revised our rules to permit this promising new technology to compete with network-based solutions in providing location information. We also revised the methodology for assessing accuracy to make it more workable and tightened the accuracy requirements somewhat to better reflect technological developments and to further enhance public safety. And last year we granted a temporary, limited waiver of the accuracy requirements to VoiceStream, to permit use of a new hybrid location technology; i.e., one that combines elements of the handset- and network-based approaches. Other Commission orders have addressed a range of obstacles to E911 deployment, including funding and disputes over the division of responsibilities between carriers and public safety call centers.

Now, in 2001, the end of the scheduled 5-year development period and the beginning of phased-in deployment are almost here. Under the Commission's rules, carriers are to begin the process of rolling out E911 Phase II on October 1, 2001, less than four months from now. When Phase II is implemented, it will generally enable the reporting of the location of 911 calls within 100 meters or better. However, I should add that this is not a flash-cut process—it will take several years for Phase II to be ubiquitously deployed. For example, with handset-based technologies, the rules require carriers to hit progressively higher penetration levels for location capable handsets, until they achieve 95 percent penetration by the end of 2005. Similarly, carriers choosing network-based technologies must incorporate the necessary hardware and software into their networks over a 6- to 18-month period after receiving a request from a PSAP for E911 service. These requests are expected to come in over the next few years as PSAPs become ready to utilize Phase II services at different points in time.

As we approach this benchmark, the need for wireless E911 is clearer and greater than ever. In 1995, there were 34 million wireless subscribers, who, according to the Cellular Telecommunications and Internet Association, made 20 million 911 calls a year. Today, there are more than 116 million wireless subscribers and the number of wireless 911 calls has more than doubled, to over 50 million a year. About 30 percent of all 911 calls nationwide are now made from wireless phones, and this percentage is growing. This dramatic increase in wireless 911 calls places increasing burdens on call takers at 911 call centers, particularly since accurate location information is not provided for any of those calls. E911 Phase II is needed more than ever to help police, fire and emergency medical teams locate emergencies more quickly and do their life-saving work more effectively and efficiently.

III. CURRENT STATUS OF WIRELESS E911

Where does wireless E911 stand now—and how near are the original Consensus Agreement parties to meeting the pledge made to begin accurately locating wireless 911 calls within five years? In my view, they are close to hitting that target. They certainly have come a long way. Promising location technologies have been developed and field tested. Necessary software is being developed and infrastructure equipment and handsets are being manufactured. Many carriers appear well on the way to deploying Phase II, and many call centers have requested Phase II and are preparing themselves to use this new location information effectively. But there are always challenges involved in deploying any major new technology on a mass market basis for the first time, and wireless location technologies are no different. To make the promise of wireless E911 a reality, much work remains to be done by call centers, vendors, and carriers to meet the challenges involved in deploying these lifesaving technologies.

We at the Commission will continue our work to make this happen, and to achieve complete deployment of Phase II location information across the nation as quickly as possible. Progress to date has been spurred, in large part, by the Commission's rules and decisions. Those rules have been definite in requiring that carriers implement E911, but flexible and practical in the means by which they do so. This approach requires cooperation and good faith effort on all sides to ensure successful deployment. We are committed to working with the stakeholders to resolve problems and speed deployment. But we are also committed to enforcement of our rules if, for example, parties simply ignore their obligations or fail to make good

faith efforts to comply. Thus, it is important for all parties to work diligently to achieve the goals they agreed to five years ago, which are now reflected in the wireless E911 rules.

We share Congress' vision, embodied in the Wireless Telecommunications and Public Safety Act of 1999, of a seamless, ubiquitous, and reliable wireless telecommunications system that plays a critical, life-saving role in emergency communications. The specific provisions of the 911 Act—declaring 911 the national emergency number, protecting the privacy of location information while providing for its effective use in emergencies, and promoting liability protection—have significantly advanced those goals, and we commend this Subcommittee for its leadership in getting this important legislation enacted. We strongly support the vision of the 911 Act and remain determined to monitor and enforce the E911 rules to help achieve that vision.

At the same time, we will continue to be flexible and practical in applying the E911 rules, when the circumstances warrant that approach. Last year, in granting the VoiceStream waiver, the Commission set out specific standards for Phase II waivers. Those standards, fundamentally, require carriers to show the Commission what they can and will do to provide Phase II location information, not simply what they cannot do. The Commission expects wireless carriers to take concrete steps toward achieving Phase II, while recognizing that difficulties may arise. Different carriers may face different problems and opportunities, because of the technology they use or the geographic areas they serve. We are currently considering several waiver requests and have heard reports that other carriers are preparing additional requests. We plan to address these requests based on the specific showings and facts presented to us, with our focus on the most practical and realistic means of achieving the objectives of promoting public safety and implementing Phase II as soon and as fully as possible.

In fashioning this program, we are reassured by factual information indicating that there is wireless location technology available capable of locating 911 callers much more accurately than is in place today and think that it is time to begin deployment. As that deployment proceeds, we expect that the technology and system-wide performance will improve, and as customers increasingly understand how location capability makes their lives safer, they will insist on having it available. They will come to rely on automatic wireless location identification in the same way they rely on air bags and seatbelts in their cars. And once customers begin to use wireless location technology, competition and experience will help make it not only more accurate and reliable, but more useful for other purposes as well. The future of this technology is, I am confident, strong, once it is actually deployed and this "virtuous cycle" begins to kick in. But to get to that future, all of us involved in this process will have to redouble our efforts to see that the promise of this life-saving technology is fulfilled.

IV. CONCLUSION

I would like to thank the Subcommittee for this opportunity to provide information on the Commission's wireless E911 program. I look forward to updating this information as wireless E911 advances and to answering any of your questions.

Mr. UPTON. Thank you, all of you. I think like most of the Panel, I have myself a ton of questions and my sense is we'll probably go two rounds, perhaps, for those of us able to stay.

Very enlightening testimony for sure and going back to the opening statements as well, and thinking about the first time that our family went out and got a cell phone was exactly the reasons Mr. Sugrue that you talked about. I have a 13-year-old, but she's already asking for a phone, so we'll see if she gets it before she gets her driver's license.

Mr. Rimkus, why in your opinion haven't more carriers embraced Airbiquity's GPS Accessory product?

Mr. RIMKUS. I think that the technology out there is reasonably new, this kind of GPS technology, particularly in this form factor. On the issue of cost, it is very much a volume driven type of product.

Mr. UPTON. Tell us again what the cost is per handset.

Mr. RIMKUS. Our product in low volumes, we expect it to sell in the range up to \$99 which again in low volumes. As volumes increase, we expect that cost as any kind of technology comes about to go down. Just as when analog phones were then replaced with digital phones several years ago as the new features came forward, those phones were also initially pricey and then going forward with additional type of demand, price went down.

Also, with our particular product and implementation, it is limited to a specific handset manufacturer that would, in this case it's a Nokia handset manufacturer and those carriers again would need to be distributors of that product.

Mr. UPTON. Mr. Nixon and Mr. Clark, why wouldn't TruePositions 911 solution be right for your company. Mr. Amarosa talked extensively about the testing that they've done in a number of areas, I think it was what, 400 places around the country, I imagine a pretty good blend of rural and urban areas.

Mr. NIXON. Actually, VoiceStream has expended a lot of effort with a number of vendors. In fact, all the vendors that we identified as potential solutions to our particular situation. We worked very extensively with TruePosition before we actually received our waiver from the FCC. And we found that in our particular situation because—not being an engineer, I'm going to speak rather generally, each one of the radio technologies that is used and there are 4 or 5 major ones out there at least, there are different characteristics that would either enhance or degrade the performance of any given location technology.

Mr. UPTON. Let me just interrupt you for 1 second. I'm from Southwest Michigan and as I have talked to my 911 folks, we're across the lake from Chicago and particularly with the network base solution where you have to do the triangulation which you see the towers primarily for me it's I-94, connecting Detroit and Chicago. We actually heard from some of our folks that if there's an accident on the Dan Ryan Expressway in Chicago, sometimes that signal is forward along the cell is filled up and it's literally forwarded along to 65 miles across Lake Michigan in Bering County that gets the accident results for what's happening in downtown Chicago. You're not able to, particularly in rural areas, to put those towers up and do the triangulation which means it may be something along the lines of the GPS system which most sailors again in Western Michigan, we've got a lot of boat owners, we've got the GPS there and people know where they are.

Mr. CLARK. Let me add a little bit to what Jim is saying. First of all, from an engineering perspective, radio frequencies are an imprecise science in that they are affected by many, many anomalies, topographic anomalies, atmospheric anomalies, a lot of things can cause the radio waves to do different things. A case in point is you can be in the middle of downtown Chicago and to the extent that you get into a radio anomaly where the system interferes with itself, it creates what's called a fernel zone, you won't have service.

Mr. UPTON. Mr. Amarosa, when you tested it, I know you're from New York, New York has got to be the worse case scenario for that type of situation.

Mr. AMAROSA. We were successful in the testing in New York based on the number of cell sites that were deployed which was

over 30, based on the configuration which was basically in the midtown Manhattan area at that given point in time.

There are other environments that present challenges and some of those challenges have to be met on a day to day basis. That's why it's so very important to understand the particular area that you're in, like you've talked about, southern Michigan and the lake problems and the proximity—

Mr. UPTON. You tested in both rural and urban.

Mr. AMAROSA. We tested in rural and we had some successes in rural areas with TDOA. We had better success with an angle of arrival capability that exists and we will continue to test. We have test systems that are going on right now in rural counties in Wilmington, Delaware as well.

Mr. UPTON. I know my—

Mr. CLARK. Mr. Chairman, may I finish my comment?

Mr. UPTON. You can. It's my time and I won't yield it back yet. Go ahead.

Mr. CLARK. Thank you. I didn't want to cast disparaging comments against TruePosition. They truly have a product that works. My comments were in the context of trying to understand the anomalies that can happen with radio frequencies. Cellular, notwithstanding, that's just—that's the quantum physics of radio. But the one thing that I would like to do is make sure that we understand there is a clear distinction between an area as Chicago or Michigan where you have cell density that provides you enough reference points to accurately locate a subscriber, versus rural America, like southeastern Oregon where we don't have enough cell sites to be able to accurately triangulate and find those customers we'll locate on a network technology.

Mr. UPTON. But just to follow up on that for a second, wouldn't the GPS system be a far better way in rural Oregon than having the—the towers, from what I understand, one of you testified, the full testimony indicated that the cost per tower was along the lines of as much as a half a million a tower. Is that right?

Mr. CLARK. That's correct.

Mr. UPTON. To do those triangulation towers, that's a lot of money, a lot of millions.

Mr. CLARK. In the record you'll find that U.S. Cellular has selected handset based GPS as the solution for our rural customers.

Mr. UPTON. I know my time has expired. Mr. Sawyer?

Mr. SAWYER. Thank you, Mr. Chairman. Let me turn to the human side, Mr. Sugrue talked about the adaptation in the emergency and law enforcement communities and Mr. Souder, you're here speaking to that. Could you talk to me for a moment about how ready services are across the country to respond to the technology when it gets here and what remains to be done, what level of preparation do they have right now?

Mr. SUGRUE. I'd be happy, but I think he'd be the better of the two to respond.

Mr. SAWYER. Either one of you.

Mr. SOUDER. The 911 public safety community is in the process of being ready. Many communications centers are ready today. They could accept whatever was provided in the way of Phase II

technology. Others are installing that equipment and preparing for that.

In my own jurisdiction, just yesterday, I was in the capital of Virginia, Richmond, at a hearing of its newly appointed 911 Board, knowing that it's only several years old and the purpose of that meeting was to participate in a dialog as to how the Commonwealth of Virginia was going to support the PSAP community in preparing them financially for the investment of new technology that would allow us to receive those calls. They are on the verge of voting affirmatively to fund mapping technology for the entire State of Virginia that would afford us the opportunity to do that. Those kinds of efforts are occurring in many places of the United States.

Mr. SAWYER. Is that mapping that would superimpose latitude and longitude over ordinary street descriptions?

Mr. SOUDER. That is correct. It would literally be an icon on a map that would allow you to identify physically where the call is being made from.

Obviously, the technology is expensive for some jurisdictions. Unfortunately, not all States have developed cost recovery mechanisms for Enhanced 911 via wireless. Approximately half of the Nation has. The other half are considering it and the three associations that I represent are available to assist them in any way possible to help them craft the legislation that would allow for cost recovery to be in place and they could help to underwrite the cost in their particular States.

Mr. SAWYER. We've heard some references to cross jurisdictional problems and questions of messages that are received in a location that could not possibly render service. Are the protocols in place for dealing with either mutual assistance or cross jurisdictional reference, rapid reference?

Mr. SOUDER. Yes, they are and in the context that if a wireless 911 call was received from a caller from downtown Chicago to a constituent of Mr. Upton's in southeastern—

Mr. UPTON. Southwestern.

Mr. SOUDER. Southwestern.

Mr. UPTON. We're doing redistricting now. We don't want to go quite that far. It once went that far, but before me.

Mr. SOUDER. Thank you, Mr. Upton. There are procedures in place that would allow the call taker receiving the call to then transfer the call back to where it was originated from. Obviously, one could not expect that call to go across several States and a call taker sitting in Iowa to get that call and know where to transfer it back to, but the mechanisms are very similar to those that have been in place for years as it relates to wire 911 calls. Now those networks are network-based and they are selectively routed and consequently it is only infrequently that a 911 center would receive a call that didn't originate within that center. But in the wireless environment, indeed that does happen. We received a call very recently from suburban Maryland and downtown Arlington, but we had the procedure in place wherein we understood why it was received, because the comment made earlier about cell sites being business and forwarding it along until you hit, if you will, a PSAP that can answer your call, but very quickly we were able to route

that call back to the PSAP that was responsible for that jurisdiction.

Mr. SAWYER. Thank you. Thank you, Mr. Chairman.

Mr. UPTON. Mr. Terry.

Mr. TERRY. I want to just clarify, follow the same line of questioning, and go back a little bit. How many 911 centers around the country are even capable of handling this technology today. I heard 100 percent and 50 percent and I need that clarified in my mind.

Mr. SOUDER. I cannot give you an exact percent. The APCO organization that I am speaking on behalf of has initiated a project called Project Locate. The purpose of that project is to both elevate attention to the issue as well as to identify within each State a jurisdiction or perhaps a region and in some cases an entire State that indeed will be the model community or the model jurisdiction for the deployment of Phase II wireless in that particular State. We have participants throughout the United States. All of those participants are ready to receive those calls. That was a requirement, if you will, to participate in that.

Mr. TERRY. All right, so my opening statement when I talk about being in the Badlands of eastern Colorado, I can't even be sure today that once we have the cell phone technology to locate that, whether or not that 911 center who would receive the call has the technology to locate?

Mr. SOUDER. That's correct.

Mr. TERRY. So we're talking about two rails here, first of all is the—one rail is the cell phone provider and service provider, the other is our 911 centers have to use, catch up and use that technology.

I say that because when I mentioned my experience on the Omaha City Council and we upgraded to the Enhanced 911 Center and merged several government entities into one package, we had a specific discussion about cell phone technology and making sure that the product that we bought was capable of doing that and I remember, I can't remember the exact added expense of that, but I just couldn't imagine that smaller communities could afford to even do it. So I'm just kind of wondering, maybe you have a better handle on this.

Do you know how many communities are able to use the technology today and how far behind—maybe that's the wrong question. How far do they have to go to catch up to what we're requesting the cell service providers do?

Mr. SUGRUE. The information we have comes from the public safety organizations like APCO and NENA. NENA which is the National Emergency Number Association, sort of the association of PSAPs is doing a national report card study that they commissioned and which I think they're aiming to release soon, within the next month perhaps, as soon as the end of the month at their annual convention and I would hope there would be some data on that in there.

Our information, first of all, the Phase I which we haven't talked much about today, but is cell location to the cell site or cell sector, is I think finally reached a point that it's starting to roll out pretty steadily across the country. Right now again the data we've been

provided indicates about 20 to 30 percent of the PSAPs have that and that provides a stage then to go to Phase II.

We also believe that there are about, we've been told it's about 60 to 100 Phase II requests. That would include the Project Locate 48, but there are others as well. But out of 6,000 PSAPs, that's still obviously a small number.

I should also add that our rules don't require a carrier to implement Phase II until the PSAP is ready. Now there is a present dispute before that was alluded to as to when one assesses readiness at the time of the request or at the time the service is to be turned on and as I said that is before us, but in general principle, if the PSAP isn't ready, the carrier doesn't have the obligation to put it in place then.

Mr. TERRY. One follow-up, generally, in my last few seconds here, what's the congressional role in this labor? Isn't it basically your call, you, the FCC's call?

Mr. SUGRUE. The congressional role is, it's really basically the FCC's call, but we're always interested in input from this subcommittee.

Mr. TERRY. Thank you.

Mr. UPTON. Ms. Eshoo.

Ms. ESHOO. Thank you, Mr. Chairman. My first question is for Mr. Sugrue. To your knowledge, are there any carriers who are on schedule to comply with the October deadline?

Mr. SUGRUE. I believe so. Ms. McCarthy alluded to Sprint and they've filed a plan. We required all carriers to file plans in November announcing what technology they were going to use and so on. As far as we know, they're on track. We haven't heard anything to the contrary from Verizon, for example, biggest carrier in the country.

Now I should say we've heard from Sprint with one particular switch manufacturer, there may be an issue, there may be a delay in—there's mobile switching centers that use that particular supplier, but that would be a short delay and something like that. And these are the sort of the fine tuning tweaks that in any implementation of new technology one would anticipate. I don't get the sense the public safety community would have a major objection to sort of practical adjustments as someone was actually implementing to take care of issues like that.

Ms. ESHOO. So Sprint is the one that you feel the most confident about? There isn't anyone else that you can name?

Mr. SUGRUE. Verizon, which is the second one. We have—until this morning, I would add VoiceStream in that. VoiceStream received a temporary waiver of the accuracy requirement, a deferral. They could hit a somewhat less precise accuracy requirement. It was not a delay waiver. It wasn't a waiver that pushed back their deployment schedule. Indeed, it accelerated their deployment schedule to a certain degree.

Ms. ESHOO. In November of last year, you required the wireless carriers to report their plans for implementing E911 Phase II including which technology they planned to use to provide the caller location. Did everyone comply?

Mr. SUGRUE. Everyone did comply. Some required some phone calls from us to draw their attention to it.

Ms. ESHOO. They complied?

Mr. SUGRUE. They complied, yes.

Ms. ESHOO. So you didn't have to take any action?

Mr. SUGRUE. No.

Ms. ESHOO. Did you have the authority to take any action?

Mr. SUGRUE. I believe so. That was in an order the Commission adopted and then was delegated to the Bureau.

Ms. ESHOO. Now with the panel that's here today, how many have applied for waivers? Two? How many have been granted waivers? Three. So of the companies, we have what, 5 companies, 4 companies?

Mr. SUGRUE. Just two.

Ms. ESHOO. Two carriers—

Mr. SUGRUE. Two applied, one received, I believe is the—

Ms. ESHOO. This is somewhat of an obvious, but a little bit of a tricky question. The more that apply and receive, do you think the others are going to fall into line, it will become a pattern, so that by the time we get to this deadline, it really doesn't mean anything, doesn't mean that much or it will have been watered down?

Mr. SUGRUE. I'll take a crack at that first and then the others—

Ms. ESHOO. I wanted someone else to take a crack at it, but anyway, go ahead. They're relieved that you are.

Mr. SUGRUE. The Commission granted a waiver to VoiceStream last September and we did that on the basis that they had made a convincing case that with their particular technology which is GSM which is at the present time a relatively small share of the U.S. market as represented by GSM carriers, they're trying to change that. The available location options meant that they couldn't satisfy the standard in terms of the accuracy, they said as of October 1, but they could hit the network standards, the 100 meters, with a handset solution and within 2 years they could be fully compliant on the handset standard.

Ms. ESHOO. Two years from when?

Mr. SUGRUE. Two years from October 1. So in other words, they'd locate to 100 meters for 2 years and then 50 meters starting in 2003 and they would speed up deployment of handsets because you don't need a GPS receiver as you do with Andy's technology. It's a software change to the phone for their system.

So we thought that was a reasonable case. It's what we've been telling carriers to do which is tell us what you can do, provide an implementation schedule and they've put in their waiver request specific dates and sort of roll out plans and we thought that was a good model.

Ms. ESHOO. My time is just about running out.

Mr. SUGRUE. I'm sorry.

Ms. ESHOO. No, thank you for your answer. I just want to get as much as I can in. Did you want to say something, Mr. Nixon?

Mr. NIXON. I think there are a couple of different ways to answer every one of these questions. As Mr. Sugrue suggested and mentioned in his comments, our waiver was based on a unique situation for our technology, GSM. So certainly other GSM carriers may apply to tag on to our waiver because they're in the same situation,

but I don't think that necessarily means that other carriers with other technologies are more inclined to apply.

Ms. ESHOO. In your view, well, of course, it would be your view, because that's what you've already expressed. What I'm trying to separate out is what is kind of a company excuse thing because there's a deadline, we haven't gotten everything together, so let's put in the waiver just to cover ourselves. That's one and I'm not trying to diminish anyone. We have the public interest to look after. You have your company to look after and maybe you just haven't done enough soon enough and all of a sudden the deadline is upon you, but I think that what we've done here is to express really how overwhelmingly important and critical this is. So I'm trying to separate the wheat from the shaft. I think that the FCC is going to grant a waiver where really is necessary and it's kind of the grays of what you just explained, I find somewhat acceptable and understandable. But what is it that we need to do to get at the excuses? How's the FCC—I don't know what other word to use, I don't mean to offend anyway, but it's probably the best word to describe it, how are we going to separate the wheat from the chaff here?

Mr. NIXON. I think the excuse, I'm glad you recognize it. Maybe it's not the best word for it, but the situation actually, as I mentioned in my comments, we set a very, very aggressive schedule to do some new things. I think everybody in the wireless industry has been working very hard for it and doing very well to meet that aggressive time line.

Ms. ESHOO. So why can't everyone else come up with—or is too much to ask for that even though we don't hit the 1000 percent target, that the FCC just described, that you have an interim target on the way to the fullness of the technology that you're seeking.

See, what I'm afraid of is the more waivers that are granted, the more companies are going to come in and way well, if they did that, then why should we get out of the market? I mean there's a pattern that establishes itself and people thing well, why should we expend our resources if the others are on hold. I'd like it to go the other way.

Mr. NIXON. Yes ma'am. One of the fine points that Mr. Sugrue suggested about our waiver is that we, technically our implementation is a handset solution so we have more stringent requirements of 50 meters to meet. Our waiver simply allows us to meet the same accuracy initially that the network based systems would have to meet so I think it was well put it really wasn't a compliance waiver, it was a fine tuning waiver more to allow us time to develop and mature this technology, so it's getting more and more effective.

Ms. ESHOO. And what is that time?

Mr. NIXON. Within 2 years.

Ms. ESHOO. Two years.

Mr. NIXON. That's within our waiver.

Ms. ESHOO. Thank you, gentlemen. Are there any women that head up any of these industries? I can't help but—no, there aren't?

Mr. SOUDER. I would offer that there are many female com. center directors throughout the United States.

Mr. UPTON. I would note that we have a very able or it wouldn't have happened in Bering County without—

Ms. ESHOO. Is the FCC considering a waiver?

Mr. UPTON. Mr. Shimkus.

Mr. SHIMKUS. Thank you, Mr. Chairman and thank you, Mr. Sugrue for—I do remember your testimony a couple of years ago and thank you for talking about the last E911 legislation because I would refer to Mr. Souder's second chart. There was a time when you wouldn't even get, that call wouldn't be brought up because as we know, many States had different numbers. We've had some successes and this is just the iterative process of moving forward and trying to create more benefits through a great technology.

What do I tell my—this is what I tell my anti-government big anti-government big brother critics. If they don't want the GPS or the triangulation or the hybrid system, turn their set off. Is that correct?

Mr. NIXON. I'm sorry, could you—the privacy issue?

Mr. SHIMKUS. Yes.

Mr. NIXON. That's obviously one of our biggest concerns is we want to make our service more attractive and useful to people, certainly in public safety, but we want them to have control over their rights and their privacy.

Mr. SHIMKUS. By turning it off, does that do that?

Mr. NIXON. Well, I'm not—that's not my core part of the business, but I can tell you for sure that we are very, very closely looking at every one of our options and we don't intend to offer something that is going to violate anybody's rights. We're going to do everything we can to make them have a choice to select what they want to use, what they want to use the location for, therefore input on their privacy and control of the privacy information.

Mr. SHIMKUS. So turning it off, does that help?

Mr. NIXON. You can—and frankly, one of the requirements here is that in 911, you're presumed to be asking for assistance, therefore, you're presumed to be waiving your privacy in order to allow the 911 center and emergency resources to reach you, so—

Mr. SHIMKUS. But if I have my phone off, am I being tracked?

Mr. NIXON. If you have your phone off, no, but even with your—

Mr. SHIMKUS. That was my question.

Mr. NIXON. Even with your phone on, you can disable everything except—

Mr. SHIMKUS. Is there any of these triangulations. I'm referring to a battery process by which is igniting some transmission of identification of location?

Mr. RIMKUS. Perhaps if I could talk about that, Congressman. With our particular implementation as you're asking, the location can be determined within the handset and only when that specific opt-in, as it were, is really a different subject altogether in the discussion today, is offered. That information is forwarded then, on to the PSAP or the call center and of this case. So just speaking for our specific implementation, it's actually the very defined act that takes place. You actually push a button and sends that information so it offers that kind of privacy. There are multiple implementations, but I think all of us that are in the technology industry

would liken it to Caller ID today which is to have some sort of capability of enabling or disabling that, but if it goes to the PSAP it overrides that and that's included in the 1999 Wireless Act, as a matter of fact.

Mr. MARKEY. Would the gentleman yield? I think everyone in the audience wants to know if there's some nationality correlation between the name Rimkus and Shimkus.

Mr. RIMKUS. Perhaps we could share some potato pancakes some time. Just to throw in, we did have a good football coach from Houston named Rimkus.

Mr. SHIMKUS. It's really a Lithuanian month for me, having NATO expansion and traveling over there, so any time I can press the cause of the Baltic Nations, I do that. Thank you for giving me this forum.

Let me just finish up with my last question because I've been trying to sort out, I was not a member in 1996, so I was uncertain about this 1996 agreement that we're all talking about.

And so what I've gleaned from the testimony is that there was an agreement in 1996 through the industry and the FCC and all one happy family and that then the FCC decided to stop because recovery mechanism in 1999 of the 1996 agreement. If that is the case, Mr. Sugrue, why? Because obviously this is cost recovery to provide—I'm from a rural district. It's expensive to cover in rural areas because we just don't have the mass of people and can you explain that process to me?

Mr. SUGRUE. Sure, there was a cost recovery requirement in the consensus agreement that was incorporated in the Commission's rules, that the cost recovery mechanism. The exact meaning was somewhat ambiguous, but it was certainly subject to a reading and subject to interpretation by carriers as requiring public safety agencies to pay the full costs of the carrier's deployment of 911, either Phase I or Phase II. And as Mr. Souder indicated, about half the States have cost recovery, so half the States seem to be not eligible to go forward with E911 from wireless phones. And even in the half that had cost recovery, there were continual disputes about whether it was real cost recovery or adequate cost recovery and this was just at Phase I. And we could see with the greater cost of Phase II that these disputes were only multiplied and so we asked for a recommendation from the consensus group again, the carrier community and one of the public safety agencies said we think cost recovery should stay and another public safety group said no, we think it should be eliminated. We ended up eliminating it as a separate requirement for carriers and keeping it for the public safety agencies. And so each entity bears its own costs now. The carrier doesn't have to pay for the upgrades to its network and can recover those costs through its charges to its customers and the public safety agency has to pay for the upgrades for its equipment and network.

Mr. CLARK. Mr. Chairman.

Mr. PICKERING [presiding]. Yes.

Mr. CLARK. If I could add a couple of comments to Mr. Sugrue's comments? First of all, one thing that I'd like to point out from earlier, Mr. Terry was particularly wise in his comments, trying to understand the elements that it takes to fully have a working E911

location system. First of all, we selected, we being U.S. Cellular, we selected handsets. Handsets have a rollout that has no tie to PSAP compliant, so U.S. Cellular has put themselves on a path that we will literally over the next 5 years replace all of our handsets. We've made that commitment, but there's nothing in the record as it currently stands that will put all the rest of the elements in place, so that the public will get the service that we're talking about today. That's the first point I'd like to make.

The second point is the original—from an engineering and from a policy standpoint, the original thinking associated with cost recovery is we already have an infrastructure in place on the wireline environment that's been there for decades and that's very much the model that we saw today in terms of the information that's delivered and how it's delivered and received. The economics associated with that in cost recovery were to emulate that same environment, so we had a model that we started with and now what we've got is that model has in many respects been abandoned, so that the onus of the costs associated with all these systems including the upgrade of the PSAP systems is on the wireless carriers and I would pose that that's an inequity given the original philosophic position we started with.

If we are in any way able to work through this issue and get back to the original consensus on cost recovery, I would submit things would actually speed up, because if you look at the record, the first 2 years under Phase I, we had a tremendous amount of success. We had all of the people associated with different organizations focused on implementation. However, when cost recovery changed, the energies of all those bodies went into conflict in trying to determine who was going to pay for it, rather than getting it done and that's where we're at today.

Mr. PICKERING. Mr. Sugrue.

Mr. SUGRUE. Yes, I'd like to respond. I had sort of two points in there. One is on the handset deployment schedule, there are two elements to a handset approach. One is that subscribers have to get a new ALI capable/location capable handset. The other is typically an assisted GPS, perhaps the most predominant implementation of this technology, there has to be upgrades to the network.

With respect to the handsets, we proposed, and indeed the proponents of the technology and the carriers who are interested in it, have proposed and agreed to that there be a start on rolling out the handsets, even before you had a PSAP request, because that was going to take 4 or 5 years to replace all the handsets in your incumbent base. Those handsets are out there. You have to depend on people coming in, trading them in, and so forth.

As compared with the network solution, Mike Amarosa referred to that, that once you turn on Mike's system, everyone in the area is covered. You can locate everyone on that network. So the trade-off was you need to start that process so if 2 years down the road, only about 50 percent of your customers will have location capable handsets, so when you get a PSAP request, you're not starting from ground zero and that was, I think, a reasonable requirement and one that at least most of the carriers seemed to recognize as reasonable.

Second, on cost recovery, the wireless ILECs live in a rate regulated world. They needed a cost recovery requirement because they don't have a means just to pass costs on to their customers. They need permission from a regulator, either from us or a State regulator. Wireless carriers, the FCC lifted its rate regulation and Congress directed us to lift State regulation of rates. There is no regulatory limit on a carrier's ability to recover these costs in its rates, in surcharges and line items on bills. We haven't attempted to regulate that at all. The position that the public safety agencies, who are strapped for cash, who have to incur substantial expense to upgrade their own systems should also incur the expense of putting in the equipment in the carrier's network just didn't seem to us to be reasonable.

Mr. UPTON. Mr. Markey.

Mr. MARKEY. Thank you, Mr. Chairman very much. I'm going to be directing my questions toward Mr. Sugrue whose name I know to be Irish.

And a distinguished Boston College graduate.

Mr. SUGRUE. Absolutely.

Mr. MARKEY. So first of all, let me point out that the law which we passed does require that the cell phone industry provide privacy protections to consumers. Thankfully, they have embraced that and opt in, that is, getting the permission of the consumer, the norm within the industry. I think what people have to understand though is that the protection only applies when a carrier that is one of the cell phone companies, Verizon or any other, is interacting with the consumer. If the consumer decides to call Zaguts to get some information about a restaurant, then they don't have the same protections as if they were talking over one of the Verizon lines on a service that Verizon would have control over. There is a no protection check that had been built in and that's why the Federal Trade Commission has to take as its responsibility in order to fill in that gap in the protections which consumers need in order to ensure that their privacy is protected.

Can you elaborate a little bit on that, Mr. Sugrue?

Mr. SUGRUE. Sure. In addition to retailers, for example, there are location providers who are not deemed to be common carriers and the privacy protections were put into Title II of the Communications Act and that section only applies to carriers. For example, the OnStar system, which is a wonderful system that has been very popular and is now moving out, started out in Cadillac and into a broad range of GM cars, but at least we don't view them as a common carrier of the service they're providing. The location information they obtain is not subject to the provisions in the legislation you referred to, Mr. Markey. So I know the cellular industry is very concerned about that because they feel when it comes time to roll out commercial services that they'll be subject to some restrictions and limitations that some of their competitors will not be subject to. And so, for example, when you're driving down the street, one of the examples is always and there's a sale from a store on the next block, there will be limitations if you get that information from a cell phone compared to, let's say, through a car-based location system.

Mr. MARKEY. Let me get a few facts out here on the table that might help the Committee in its deliberations. A lot of carriers are moving toward GSM technology and just about every one of these companies talks about the dream of moving to third generation technology as well. I think it's important for us to know the state of the industry today, however.

What percentage of American consumers are still served by analog only technology?

Mr. SUGRUE. The percent of consumers is, last year it dipped below—the year before, excuse me, by the end of 1999, below 50 percent for the first time. It was like 50 percent, 49. I don't have—I believe it's about 41, 42 percent this year of customers who are still on analog phones.

Mr. MARKEY. I think it's important for the consumer and the policymaker to understand that, that even though there's a vision out there in the industry that still have of the consumers in America are stuck in the analog era and that the corporate strategies that these companies have yet to catch up with the obvious digital revolution that should be benefiting all consumers. So our speed should reflect that speed as well.

And I understand that the Federal Government as well as the Congress is looking at issues that deal with perhaps reclaiming more spectrum from the Pentagon, from educational institutions, including the Catholic Church, which is relevant to our own backgrounds, and what I'm wondering is whether or not it's time for us to start to look at mobile satellite services. There was a vision back in 1993 that Iridium, Global Star, other companies would be using all of this, that spectrum, at this point in time. They're not. Obviously, most of them are in bankruptcy, coming out of bankruptcy, not all of them, I want to make that clear, that's not the case. But a lot of them are. Is it time for us to revisit that issue and that spectrum as an alternative to first visiting the Catholic Church and the Pentagon as a place where we can find spectrum that can be used for third generation technology?

Mr. SUGRUE. As I know you are aware, it's never easy to take spectrum from anyone, whether it's the Catholic Church, the Pentagon or satellite licensees. That issue has been teed up by CTIA. They sent us a petition asking us to look at precisely that issue on our 3-G efforts and it's being actively considered within the Commission right now.

Mr. MARKEY. Is there a time table that you've established for making a determination as to whether or not this spectrum is actually going to be utilized by these companies or just sit there, warehoused for an indefinite period of time. We might be talking decades in terms of the corporate strategy.

Mr. SUGRUE. In the mobile satellite world, they do have rules, they call them milestone requirements, but which licensees have to do certain things in order to keep their licenses. It's a progressive thing. You sign a contract, build a prototype and so forth. So it's not completely wide open like that, but again, the issue has been squarely raised and I certainly hope that we can address it one way or the other pretty promptly because it is a pressing issue.

Mr. MARKEY. Finally, let's take a look at Iridium, Motorola's idea, name about Mendeleev's 77th element, 77 satellites, 77th element

and Mendeleev was tired of elements he went down to 66 satellites, they decided not to change the name as they moved down the elements, but I think they're down to considerably fewer satellites now.

So give us a very brief overview of what the status of that spectrum is, how much of it is being used, what your conversations are with them with regard to the use of it and what the chances are that we might be able to reclaim some of it?

Mr. SUGRUE. Iridium went through bankruptcy as you know. Came out of bankruptcy within the past year. I believe the company sold for about \$25 million. They have a contract now with the Defense Department that I guess is sufficient to keep them operational and I know their new management is looking at options to re-enter the commercial world again with sort of a reconstructed business plan.

I don't think anything is on the table now about doing something with the spectrum they're presently in. But they are one of the applicants for this two gigahertz for another license.

Mr. MARKEY. I think we should raise some questions about the use of the old spectrum.

And finally, Japan and Europe, how successful has the 3-G technology been in those markets?

Mr. SUGRUE. Not terribly yet, but they do have strong imperative, sort of in the way they do business which is more sort of an industrial policy sort of base to move forward. They have already allocated substantially more spectrum though for these services than we have, almost double in most cases.

Mr. MARKEY. How many customers are using 3-G?

Mr. SUGRUE. 3-G?

Mr. MARKEY. In the—

Mr. SUGRUE. Just about zero, but they're transitioning up to 3-Gs by so called 2.5-G services and I don't have those figures either, but it's just starting. They just did their allocation and licensing last year and they're moving gradually.

Japan was going to turn—I correct myself, they have about 3,000 3-G customers on a trial basis now, in Tokyo, and they're hoping for commercial rollout in the fall.

Mr. MARKEY. Thank you very much for that excellent Jesuit-based testimony.

Thank you, Mr. Chairman.

Mr. UPTON. Mr. Pickering?

Mr. PICKERING. Thank you, Mr. Chairman, and let me just add or first address some of the questions raised by Mr. Markey from Massachusetts concerning 3-G. We are looking at legislative options to get to 3-G. As we go down that road, I look forward to working with Chairman Upton and Chairman Tauzin and Mr. Markey to find the solution and I would agree with him, we need to put everything on the table, from satellite spectrum to the Pentagon to commercial, except educational and Catholic.

Mr. UPTON. Don't forget the Congregationalists.

Mr. PICKERING. But as we try to find the solutions to meet the objectives and the targets on E911, we need to remember that it has been a tremendous success story and I know we have probably called attention to that today as we looked at the type of responses

we've had over the last 2, 3 years in crime reduction, crime patrols, the domestic abuse, the types of things that cellular phones, wireless phones can be used for in public safety and for personal safety have been tremendous. I know in my own family I have five sons, the youngest of which is 2½ and when he was about 1½ in the midst of our daily morning chaos where we're trying to get four children to school and pre-school and I have the children in the bathtub and my wife is getting their clothes and their breakfast we had my 1½ year old son slip out the door with my dog and we didn't know he was missing until someone had called E911 and a friendly police officer returned him to us. For about 10 minutes there our youngest son, the prodigal son was on the wrong path in life.

Because of wireless and E911, he has come home. So it is a tremendous success story that we need to put into context of what we're discussing and debating.

To that end, let me just ask a couple of quick questions.

Mr. SUGRUE, by the October 2001 deadline, what would you say would be the projected compliance among the industry of meeting that targeted deadline without the waivers? How much of the industry would be in compliance by that deadline?

Mr. SUGRUE. That's hard to say. Let me try to answer it by—and let me note, I'm very impressed that you do the bath routine in the morning. We've never pulled that one off. That was always an evening ritual in our household.

We do anticipate getting more waivers as get closer to the date. What we've told carriers are that we don't want to see a waiver that just says I can't do it, off the hook, go home, I'll see you in a couple of years. Waivers under the framework the Commission set up in approving the VoiceStream waiver are really carrier specific implementation plans. We want to see a plan that says look, I can't meet the literal terms of your requirements, but here's what I can do and here's what I will do and here's how I'll do it.

Under that scenario we are pushing very hard to get the big 6 carriers focused on all having implementation plans in place, along those lines, the big 6 nationwide or near nationwide carriers. We're not forgetting our friends like U.S. Cellular. I think they wish we would sometimes, but—who are important players in the rural areas in smaller communities, but those six carriers serve 75 percent of the customers in the U.S. They have the most resources and we thought it was in terms of just our resources to focus attention on public safety, that's sort of the initial point and we certainly hope that all six of those will have plans in place to go forward.

Mr. PICKERING. And that would represent how many of the subscribers in the country?

Mr. SUGRUE. About three quarters.

Mr. PICKERING. Mr. Clark, as you know, I represent a rural district. What would your three recommendations be of what the FCC should do in taking into consideration the unique circumstances of rural Mississippi or rural America in meeting the regulatory objectives? You had mentioned cost recovery. Expand on that or sum up your recommendations of how we can have a regulatory framework sensitive to your unique circumstances as well as getting the services to rural America as quickly as possible?

Mr. CLARK. I think the first one would be cost recovery and a return back to the original consensus agreement. With that, I would add that we would also need to add handsets to the original agreement because that was added later. As a matter of fact, that was added just about a year ago. So that would put in place the structure so that there's incentive for all parties, especially in rural America where you have smaller carriers in terms of their economic power, you have smaller PSAPs in terms of their economic power. It would give them an ability to work together and everybody share in putting the service together, not putting the cost on a particular member of that team.

I think the other thing that we need to do is we need a rural exemption and that's not something that I say lightly because there are competitive connotations to that as well, but U.S. Cellular filed a waiver, a request for a waiver in June of last year and we were denied. And the reason that we filed the waiver is we had no handset manufacturer that would sit down and talk to us, tell us what handsets were going to be available, which GPS technology, and even take an order from us to buy them.

As of this date, we're still in that predicament. Rural America has a unique requirement in that you don't have the cell density to be able to use true position types of network solutions to be able to accurately locate a customer that dials Enhanced 911 and absent a handset solution, there literally is no answer.

Mr. PICKERING. But what would the consequence of an exemption be for rural areas? Would that service then be delayed in those areas?

Mr. CLARK. It's my belief that that service is going to be delayed under the current policy. If you think about the logistics of the way we're going to roll this out, whether you do network or handset base and the compliance and the metrics associated with compliance, there's a high probability that the urban areas will be the first covered, so there's at least one more dimension to your question and that is take the current policy and look at how it's to be implemented to meet the performance criteria of implementation and I think you'll find out that the rural carriers have been left out. Rural America has been left out.

Now the other side of this and the direct technical answer to where you're going to try to go with rural America because see, I live in East Tennessee, I'm sitting next to a guy from New York. I don't know if you guys have figured that out or not, but you know, in East Tennessee we've got the mountains, we've got valleys, we've got Smoky Mountain National Park. You can lose yourself in nature in East Tennessee, you can lose yourself from E911 in East Tennessee. So the technical solution for those areas has got to be handset-based. There is not now nor will there ever be in my opinion enough cell density around the area like the Smoky Mountain National Park where you're going to be able to see enough cell sites to be able to say I know that person is between Merrville, Tennessee and the park entrance.

So let me go back and kind of sum up what I've said, if I've got a little bit of time here. First, I think we need to go back to the original consensus order. Let's get back on solid ground where we can focus on implementation and not argue and try to figure out

who is going to pay for what and that, I think, takes us back to a paradigm that everybody is comfortable with. That takes the big issue off the table.

The second issue for rural America that I'd recommend is there is today no technical solution that works in rural America, so the time line is not going to work. And looking at the technologies that are available today, it doesn't matter whether it's U.S. Cellular. It doesn't matter whether it's Verizon, AT&T or VoiceStream, this is an urban-rural problem. It's not endemic to a carrier. It's endemic to rural versus urban America. So we've got to acknowledge there are complexities and costs associated with rural America that you don't have if you're in the middle of Washington, DC.

Mr. PICKERING. Mr. Chairman, I thank you. I would like to follow up on those questions at a later time or in writing or continue to work with FCC to address this very important and critical issue for rural.

Mr. UPTON. I'd be happy to work with you on that.

Mr. PICKERING. Thank you.

Mr. UPTON. Ms. McCarthy.

Ms. MCCARTHY. Thank you, Mr. Chairman. I want to ask Mr. Sugrue a practical question and it may come across as somewhat naive, but it was sparked by something Mr. Clark just talked about with regard to working together and sharing revenues and so forth. Because the technology, it seems like every company is doing their own thing, and yet we know the technology exists in other forms. I was at a meeting regarding the Kyoto protocol a few years back and the taxis have the ability to show a map instantly on the car where they are and I guess my question to you is, or my first question is, what's keeping the companies from sharing technology so that they're not all out there struggling all by themselves to accomplish this?

Mr. SUGRUE. I don't know that anything is preventing the sharing of technology. Certainly, this process, I mean I referred to the consensus agreement back in 1996 in part to make the point that the October 1 date was a proposal from the carrier community of 5 years ago, not something we made up on our own. But also, in part, to emphasize the genesis of this is in consensus among carriers and public safety entities and in manufacturers and vendors. We called this series of forums to bring everyone together because I'm sure you've had the experience too but when you meet seriatim with parties involved in a dispute, you would think you were listening to two very different things, two realities or more in this case because there were 3 or 4 parties involved. And so we wanted to say well, look, he just said this doesn't work and you just said it does work. Where is it and so forth?

We just required that test data from anyone, well, from the two carriers, two major carriers that have a waiver before us now be publicly disclosed. That was subject to confidentiality agreements. It was so hard, though to deal with it under that confidentiality, we issued an order lifting that and indeed the parties have agreed to make it public so there can be a more public sharing of information about how the systems are performing or not performing and under what conditions.

This is not an area where—this is a very competitive industry, but we can't let each carrier trying to get an edge on the other slow down the rollout of this. This is where information should be shared, I think, in the public interest.

Ms. MCCARTHY. Well, then let me ask the interested parties at the table about this same question and your thoughts on sharing so that this can move along rapidly and perhaps end some of the frustrations that you're experiencing with the technology.

Would anybody like to respond?

Mr. NIXON. Certainly. We commented earlier from VoiceStream's perspective that we think the Project Locate that's being sponsored by ABCO and the other public safety agencies is an excellent forum for us to have these types of discussions. Early on, Mr. Sugrue mentioned the WEIA which is Wireless E911 Implementation Ad Hoc Group which was the forums which—my degree of trivial knowledge is astounding sometimes and then on other things I confuse myself, but that was a forum very much like what I envision and hope Project Locate environment can be where we can identify what we can do today, where we can identify locations where 911 centers are ready to take and test the equipment. We can identify areas where the local telephone carriers have the capability to handle the additional data required for wireless compared to land line 911. If we can focus together on a few of those places and do tests to verify that the systems are ready, the solutions are ready to No. 1 talk to each other, to No. 2 handle the information and data delivery, etcetera, to achieve the goal of giving the call takers additional information for wireless similar to what they get for landline, and No. 3, if they're ready for widespread, more broad based deployment, I think we need a few of those real-life labs, if you will, where all the equipment and capabilities come together to test the final step in our very rapid and successful, I think, development of this capability.

Ms. MCCARTHY. I appreciate that. Did anybody else want to comment on that?

Mr. CLARK. I'd make one comment. If you look at the history and the record on this and again, speaking from an engineer's perspective, in engineering you begin with a plan and then you build a prototype and then you do alpha and beta testing and then you do a production roll out and the record that we got on this with respect to some of these solutions are in the prototypical or in the alpha stages or proof of concept and they do, in fact, work. But there's a big change from trying to take these types of solutions to this problem on the time line that we have today from an alpha stage into a production rollout of sufficient quantity to satisfy the industry requirement for performance. So in my opening statements, the software that my company needs to be able to do this for both a network and an assisted GPS handset solution aren't available until fourth quarter of this year.

So not to make excuses, but the fact is if you look into the details in this, there are critical elements that are absolute prerequisites technically for the whole thing to work. I think it would be a travesty for us to go down a path of policy, have everything that we need except for one element for sake of speed and have more situa-

tions where we have to listen to these tragedies in the public because we can't give that to the public.

Ms. MCCARTHY. I guess I'm still a little bit confused, not by your answer, but perhaps I didn't pose my question quite accurately.

If in the end all of this has to work together, and it must, whether I'm on a Sprint phone or your product or in your territory or in Sprint territory, it all has to work together. It all has to come together, so why then if Sprint says they're going to be able to meet the deadline, but you aren't because of the technology that's missing and need more time, how come there isn't some sharing of that?

Mr. CLARK. Thank you for qualifying your question. That is a different question than I answered. I will tell you people from Tennessee, you have to talk slowly to us so we can keep up with you.

You've posed a great question and that is one of the things that we scratch our head about and try to understand what has Sprint done? They seem to be on a path that looks like they're going to make it. And I hope they do. But we don't know what they're doing. And I think that's your point and—

Ms. MCCARTHY. Listening to you all, I'm struggling with you because we all know, we all agree, we want this to happen as soon as possible because it's going to save lives, so that was my concern.

Mr. SUGRUE, because you mentioned competition, is it because of competition that these kinds of things can't be known by everybody? Because in the end when you have all systems in place including the local components, it's all got to work together.

Mr. SUGRUE. I don't know and indeed whether U.S. Cellular has talked to Sprint about sharing information, for example, on their system and how it works.

Ms. MCCARTHY. Don't they have to at some point? If I'm in their territory and on a Sprint or vice versa, it all has to work.

Mr. SUGRUE. If what you're asking is if a Sprint subscriber is roaming into U.S. Cellular's area and they have a roaming unit, I don't know whether that's the case, but if they do, yes, it should work one on the other.

Ms. MCCARTHY. I'm trying to figure out how they can all work together to get it done by the deadline we imposed, or if not, then we have to genuinely have discussions.

Mr. SAWYER. Would the gentle lady yield?

Ms. MCCARTHY. yes.

Mr. SAWYER. If, in fact, in some parts of the country it's necessary to use a geopositioning technology and my subscription for my instrument, my carrier, is in an area that's based on triangulation and I go on vacation to Eastern Tennessee, then I am all of a sudden no longer equipped. Is it not reasonable to think that at some point all instruments will have to be equipped for both systems?

Mr. SUGRUE. We require in our rules, if you're doing a handset based approach that you have to use the best available means of locating people, for example, who are roaming on to your system from another system, precisely for that reason.

VoiceStream in its waiver request proposed a system that, for example, even though it's a handset based, they have sort of a safety net system that will locate all people, albeit to a less precise degree

of accuracy, but provide much better, still better location information than Phase I.

As a fallback, we say you absolutely have to provide Phase I information which is at least to the cell site or the cell sector, but it is, to be honest with you, on the handset based approach, it is one of these sort of, I don't know if it's a flaw or a gap, but it is one element of it that caused us at the FCC a lot of concern, just that issue.

Ms. MCCARTHY. Mr. Chairman, I know I yielded my time, but may I pursue? I guess I can.

Thank you, Mr. Chairman. The other bugaboo seems to be this whole question of who pays cost sharing, etcetera, etcetera and I know that no time line, no deadline was placed on the PSAPs probably for good reason, but give them time after you guys finish to figure this all out, but I note in the article that I quoted from earlier in the day that 32 States have approved state-wide E911, but only four States, according to the National Conference of State Legislatures which we called, only four States have passed cost recovery mechanisms, looks like it's Indiana, Oklahoma, Rhode Island and Virginia. Many other States are giving that authority to figure out who pays to their public utility commissions to work on.

I guess my question is what do you—how do you anticipate like what happened out in Kansas, according to this Lisa Duran, Director of Johnson County's Emergency Communications Department, again speaking in this article said, "efforts last year reached an agreement with major wireless companies on an E911 system for Kansas fell apart." She said the companies insisted that part of the state-imposed surcharge be used to pay for their new equipment. Do you have a sense, Mr. Sugrue, of how States are coping with this part of the responsibility, that unfunded Federal mandate we sent them to pay for all of this. Are they sharing part of the surcharge that's going to be imposed? Is anybody—I worry about, they'll do their job and then all of a sudden it will fall apart at the State level.

Mr. SUGRUE. I may be missing something in your question, but the issue about which we've had somewhat of a robust debate here at the panel on cost recovery revolves around the fact that the Commission removed the requirement that State agencies pay for the carriers' costs of implementing 911. They still have to pay for the PSAPs cost of implementing 911 and that's not trivial and some States have not addressed that or stepped up to the plate, at least to a sufficient degree.

However, we did leave that to the States. Some States had successful, at least programs were in place. This was not an attempt to fix it when it ain't broke. So we said any State that wants to—they have a surcharge on a wireless bill and they have a pool and they share it among carriers and PSAPs, that's fine. You just keep going ahead and doing what you're doing. All we were trying to do was remove our Federal requirement, that as you put it, imposed this unfunded mandate on State and local governments to pay carriers' costs of implementing this technology.

Ms. MCCARTHY. Well, I guess Mr. Chairman our next concern and hearing may be down the road on States and how they can

best implement this because there is a cost factor involved and that seems to be holding up the second portion of this project.

Mr. UPTON. There is and we need to know exactly where the PSAPs are, as well, the 911 centers. It's obviously an interlocking—

Mr. SUGRUE. I would add on the earlier version of the 1999 act we referred to previously that was in the previous Congress, there was a funding mechanism introduced and the source of the funds was leases on Federal lands for cell phone towers and it was, I thought, a nice little thing because we got towers built, we got the revenues, they were directed to the States to fund 911 deployment. It turned out, I gather that in the Congress, tower location is very controversial. It was deemed to be an intrusion on local interests, even when located on Federal lands, just applied to Federal lands.

Mr. UPTON. Rock Creek Parkway.

Mr. SUGRUE. Exactly. And it was deleted from the legislation. That deleted the revenues. That deleted the funding and so that part of it was—

Ms. MCCARTHY. I don't remember, Mr. Chairman, why it was deleted, but maybe that's something we can revisit because with the rural situation as you spoke to so eloquently throughout the country, this could be a real impediment.

Thank you, Mr. Chairman. You've been very gracious with your time.

Mr. CLARK. Mr. Chairman, if I could for a minute, Ms. McCarthy, we've compiled State by State status of cost recovery. If you'd like to, we'd share that with you.

Ms. MCCARTHY. I would like that. I'm sure the Committee would like that.

Mr. CLARK. We can provide that for the record as well.

Mr. UPTON. Mr. Green.

Mr. GREEN. Thank you, Mr. Chairman, and just so there's no confusion, I'm sitting in Mr. Markey's place, but you can tell from our accent that Mr. Markey and I don't come from the same part of the country.

Let me just express because I wasn't here, there was another hearing going on downstairs on health care on the frustration. I was a State Representative in 1984 in Texas when we passed the 911 network for Harris County, city of Houston. In the late 1980's, the State came in and with some effort and we created a funding mechanism for it for our telephones in Harris County, hardline. The State did the same thing. Now we didn't get to rural areas immediately, just because you couldn't do it and for hardline, but they're almost there. I don't know if they're there now because having left there in 1992, but in seeing what's happening and I was happy moving to this Committee in 1997 to see what we were doing on a national basis for E911. And my concern is we're going to be flooded with waivers and I'm glad the FCC is being very specific because I would like to see the enhanced coverage starting in urban areas just like we had to start with hardline and moving to the rural areas as we develop that funding base because it is more expensive.

Let me overlay that with my last weekend in Houston, Texas when we had people on the top of their cars on I-10. Their cell

phone was the only way they could reach out to anyone, so it is an emergency that we do this. And that happens whether it's running off the road on the way to Gatlinburg, Tennessee or not, so that's why the frustration that we do not need to see an extension. We could see specific waivers, but we need to start in the urban areas in the build out so that we can cover all our folks. And that's my concern.

Let me first talk about the FCC and I want to go back to the idea of the total E911 coverage. And again, Houston, Texas is a very urban area. We can do the triangulation, but we do have rural areas, not a lot of mountains in my part of the country, but we do have problems with the siting and just outside of the tower range. It seems to me that there needs to be an FCC mandate that all cell phones at a certain time should have dual capability for GPS and triangular service, so I would be covered when I was, some day I'm going to get back to Gatlinburg, but also in West Texas. Is that something the FCC has talked about or discussed?

Mr. SUGRUE. We haven't considered it. It's occasionally discussed in the industry or in the people who filed this, but more as something that some observers believe is likely to be the market-driven outcome, once this technology gets out there. Now I don't know whether that's the case or not. There are some who are very gungho on the GPS system and believe, in time, it will be built—

Mr. GREEN. I share the concern about it and I'd like to have it market driven, but we didn't have the hardline 911 market driven and I know that Mr. Amarosa, you were here 4 years ago and having seen the technology develop, so it is available in urban areas and yet we're still not seeing it, so as much as I'd like to see it market driven, there are some things you just can't do. We wouldn't have color TV if it wasn't required back in the 1950's so all of us would have, not color TV, UHF and VHF, unless it was somewhere along the way because that wouldn't have been market driven unless we said that has to be done for the consumers. I think we are looking at the same situation with E911.

When do you think we will see the best guess when we can have a—if not a 95 percent penetration in American market, maybe a 75 percent because again, I know in the rural areas, it will be the next step, but in the urban areas and the suburban areas, when do you think we'll see that kind of E911 penetration?

Mr. SUGRUE. That depends, in part, on what Steve and his group does in terms of PSAP readiness as well as what the carriers do. So it's hard to predict that.

I can say the timeframe we talked about, for example, on our handset rollout, as I mentioned in my testimony goes to the, through the end of 2005, so for the next 4½ years. It was certainly our expectation at the FCC that was the approximate timeframe by which we would see this deployed through the majority of the units.

Mr. GREEN. And the specific waivers you're talking about would not delay that estimate in 2005?

Mr. SUGRUE. No waiver before us, I believe, delays the end date. Every waiver that has come in says we can hit it at the end. We have trouble up front. The ones who ask for a delay in time.

Mr. GREEN. And again, I want to encourage the FCC to be as reasonable as you can, and yet don't delay it because we are seeing that and we made that argument for hardline years ago. The funding base can be there because I did get complaints from folks in the city of Houston about that small charge. It wasn't much. The biggest complaint was folks from the city of Houston and Harris County complaining about the state-wide charge to buy equipment for some of our areas that couldn't generate it, but I also explained to them next time you go on that hunting trip out to Mason, Texas, you might like to have that coverage out there, that they couldn't afford and I didn't get any response, negative back on that.

Mr. UPTON. Does anyone else have—

Mr. SUGRUE. I just want to add that greater Harris County continues to be a leader in this area, so the work—

Mr. GREEN. In fact, in future panels we'll have and they've been here before us, so Mr. Chairman, that's all I have unless someone has some response.

Mr. SOUDER. If I could comment on that, Mr. Green, in the industry, 911 is considered to be a religion in the State of Texas and the chief practitioner is a constituent of yours in the form of Mr. John Melcher, a name that I'm sure—

Mr. GREEN. I know John very well, since 1984.

Mr. SOUDER. But an absolute leader in this industry and we're very gratified to have him be one of the principal officers of the NENA Association at this time.

While I have the microphone and commenting on a very insightful comment by Mr. Upton a moment ago about an inventory, one of the goals of the goals of the NENA Report Card to the Nation which is a report card to the industry and to the Congress to be expected some time later this year is to do that, just assess in the entire nation who is where and what do they need to get to be where they need to be?

Mr. UPTON. I think that's a very important piece of documentation that we need and particularly for the FCC to understand and work with to get this thing done, because as I think about all the members that ask questions here relating, I think every single person here had a personal experience with a 911 situation and as we go back to your opening statement, Mr. Sugrue about trying to get this implemented as fast as we can, you said that we're well on our way and we want to have good faith estimates in terms of exactly the reasons when a waiver is given, to find out what that implementation timeframe will be for them to get a waiver. In fact, you've denied it when that's occurred and when you hear about some of the costs and obviously you look at the volume, you look at the different situations, whether it would be in Eastern Tennessee or in the Upper Peninsula of Michigan, Chicago, the Golden Mile in Chicago, the loop and everything else, obviously, but as we all travel, we all take our phones and last night I got a call from my carrier wanting to upgrade the phone and made the comment that it doesn't work in Michigan. Well, it does now. And there's going to be a roaming charge with it as well, so that 911, when you hit that in St. Joe or Benton Harbor or Kalamazoo, it's going to work just like it does here in Virginia or DC or Arlington, where I live when I'm here. So this is an important issue. Yes, it does

save lives. That technology that all of us have, even for our teenagers is here and we want to make sure that it works and——

Mr. GREEN. Mr. Chairman, if you would just yield. I know, in fact, one of the reasons seemed like I have to sign a new plan any time to get a new phone anyway.

Mr. UPTON. They sent me a letter, but they followed it up with a phone call, so I'm glad——

Mr. GREEN. It's all part of the negotiation because thank goodness we do have 4 or 5 carriers in most urban areas, but we do have the technology and I have a phone that I take with me everywhere. I just wish that it would also work in Mexico. But that's our next goal. But we have it and I think it's provided in that coverage that 10 years ago we didn't have or 5 years ago, but by doing E911 we'll make that happen.

Thank you.

Mr. UPTON. Again, I appreciate all your testimony. We may follow up with some questions for the record, but we will now adjourn the hearing. Thank you.

[Whereupon, at 1:10 p.m., the hearing was adjourned.]