S. HRG. 107–1152

# WIRELESS E–911 COMPLIANCE

## HEARING

BEFORE THE

SUBCOMMITTEE ON COMMUNICATIONS

OF THE

## COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION UNITED STATES SENATE

ONE HUNDRED SEVENTH CONGRESS

FIRST SESSION

OCTOBER 16, 2001

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ONE HUNDRED SEVENTH CONGRESS

FIRST SESSION

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APPENDIX

# WIRELESS E–911 COMPLIANCE

**TUESDAY, OCTOBER 16, 2001**

U.S. SENATE,
SUBCOMMITTEE ON COMMUNICATIONS,
COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION,
*Washington, DC.*

The Subcommittee met, pursuant to notice, at 10:30 a.m. in room SR–253, Russell Senate Office Building, Hon. Ron Wyden, presiding.

## OPENING STATEMENT OF HON. RON WYDEN, U.S. SENATOR FROM OREGON

Senator WYDEN. The Subcommittee will come to order. Per the direction of Chairman Inouye, who is tied up in a security briefing, the Chairman has indicated that Senator Burns and I should begin the proceedings. We expect the Chairman—who has a long interest in these kinds of matters, as does Senator Burns—he will be joining us very shortly, but we do want to begin. I will have a very short opening statement, then I do want to recognize my friend Senator Burns, who has a long history of involvement in this important issue.

Certainly, when tragedy strikes, such as the tragedy that befell this country on September 11, it is absolutely critical for 911 operators to pinpoint the location of a person calling 911 from a mobile phone. But for millions of Americans today it is not possible to get that kind of service, in spite of the fact that with this technology it is possible to get within about 100 meters of where the individual actually is.

I am of the view that our whole country has been forced to reorder its priorities after 9/11. The industry has been working with the Government, but today, and I do this on a personal basis, I want to call on the wireless industry to reorder its priorities to set its sights higher, and not just meet the required deadlines, but to actually beat those deadlines, because this is so important to the security of this country and to millions of Americans. If companies can accelerate and come in ahead of schedule, the public interest in this country will be well-served.

We are asking many Americans to go the extra mile right now, and I want to make it clear, and I am again speaking just for myself on this point, that I am anxious to work very, very closely with the wireless industry in a partnership with them so that they can beat these deadlines and this country can get that added measure of security that is so important after September 11.

More than 5 years ago, the wireless industry, the public safety community and the FCC came together to develop a consensus plan and schedule to implement wireless 911. That deadline for deployment of E 911 was just 15 days ago, October 1. Unfortunately, many in the industry felt that they could not meet the deadline, and so that deadline has been moved back, but I think the Government needs to do everything possible to avoid lowering the bar again and again when this service is so important.

We have been anxious to work with the wireless industry. Many in the wireless sector have been very constructive and have moved to try to accelerate the schedule, but that is why I am making the appeal this morning. One last point that I would make, and I want to recognize Senator Burns, is that I think we learned a lot from 9/11 about emergency communications, but one other area that we absolutely must look at is a capability of getting there more quickly to repair and recreate damaged communications systems. On 9/11 virtually everything went down. Virtually everything went down—wireless services, hard-wired systems—except for the global satellites. I proposed essentially a volunteer effort from the nation's technology companies that I call the technology equivalent of the National Guard. Senator Allen and others on a bipartisan basis have been interested in that, and I expect to ask folks in the wireless industry some questions about that.

Let me recognize Senator Burns, and in doing so, Senator Burns has been at this 911 issue for an awful long time. I know when I came to the Senate Senator Burns had already been at it, and Conrad, we just appreciate all your good leadership on this and so many other communications issues.

**STATEMENT OF HON. CONRAD BURNS,**
**U.S. SENATOR FROM MONTANA**

Senator BURNS. Thank you very much, Mr. Chairman, and Ron, you know, it was—Senator Wyden and I that had the digital dozen, and we worked on those way back in the 106th Congress, and this was a part of that. We set that as a priority and completed that, and now we are in the follow-up, and just because we passed the legislation and the wireless companies have made certain commitments, our work is yet to be done on this project.

I want to welcome Jenny Hansen. She heads up our 911 effort in the State of Montana. This is one of her passions, and once you talk to her and get to sit down and visit a while, you will find out why we are making, I think, great strides. You know, the plans are made, and the investments are in place.

Mr. Chairman, I want to ask that my full statement be made a part of the record——

Senator WYDEN. Without objection, so ordered.

Senator BURNS [continuing]. So that we can hear our witnesses this morning. Senator Inouye is in a meeting right now. They are dealing with the security of receiving mail up here on the Hill. I think you know we have to get on with our business and carry out the country's work.

I just want to congratulate the wireless industry. Back in 1996, when we passed the Telco Act, the forecast of the number of users in the wireless industry was way, way underestimated, and today

the use of wireless, of course, has just absolutely gone beyond anybody's expectation.

When we passed the 1996 Act, nobody knew how much investment capital or risk capital was available to be invested in the communications industry, and they always wondered how come our economic cycle that we went through in the nineties, that that cycle was actually extended.

I will tell you I think the 1996 Act probably did as much to extend that cycle as anything that we did in this Congress, so I want to applaud the wireless folks and basically when we had that disaster in New York, wireless did work, and they did have remote units in there as fast as any other part of the communications effort, and so I want to congratulate them on that also, and I think it is a tribute to the industry, an industry basically that is in its infancy. We really have not found out the real potential of this communications technology, and it will be a vital part of our total makeup of the infrastructure of the future, I just know it will.

So thank you, Mr. Chairman. I want to thank Senator Inouye, too, because way back in the first part of September he committed to have this hearing. It was scheduled for 9/11, and we did hold a press conference, and I think we said that we had a new mission for wireless out there, because we were in a changing world, and boy, it only took us about an hour and a half to figure out what that new mission really is.

I appreciate all the witnesses coming back, and I appreciate—really the way America and the United States reacted to that day, so I would yield, Mr. Chairman. I am looking forward to the witnesses this morning, and I thank them for coming.

[The prepared statement of Senator Burns follows:]

PREPARED STATEMENT OF HON. CONRAD BURNS, U.S. SENATOR FROM MONTANA

I would like to thaink the Chairman for holding today's hearing, which was originally scheduled to take place on September 11. In the wake of the tragedy that befell this nation on that day, I am more convinced than ever of the need to continue strengthening our nation's emergency communications capabilities. At the very heart of our public safety communications infrastructure is the 911 network, which performed admirably during last month's terrorist attacks. However, we must maintain our focus on building out the next generation of wireless enhanced 911 services.

I would like to welcome Jenny Hansen, the 911 Program Manager for Montana, who traveled from Helena to testify before this Subcommittee. Montana is incredibly fortunate to have such a passionate advocate for E–911 services at the helm of its public safety infrastructure. On August 28 in Helena, we held a very productive and informative State summit on E–911 which was attended by the Governor, Rep. Rehberg, numerous public safety officials and experts from the ComCARE Alliance. The focus of both the Montana 911 summit and today's hearing is on how to utilize the tremendous advances being made in wireless technologies to make sure that our citizens have access to the best public safety network possible. More and more, wireless communications form the critical link that can help get emergency medical care to those in the "golden hour" when timely care can mean the difference between life and death.

At the beginning of the 106th Congress in January of 1999, I chose to focus on twelve high-tech bills which comprised the "Digital Dozen." At the very top of this agenda was the E–911 bill. The E–911 bill was necessary to correct an unacceptable situation: the country had no universal emergency number for wireless phones. The E–911 bill corrected this situation by directing the Federal Communications Commission to designate 911 as the universal emergency telephone number for both wireline and wireless phones. The bill also directed the FCC to encourage the wireless carriers to work with the states, localities and public safety officials to help implement a comprehensive, end-to-end emergency communications infrastructure. Thanks to the hard work and vision of many of my colleagues on the Committee,

the Senate unanimously passed the E–911 bill and the House overwhelmingly passed it and it was signed into law by the President on October 26, 1999.

With the passage of the E–911 bill, however, our work was not finished. In fact, much remains to be done. While the carriers have made some progress on building out E–911, their efforts need to be expanded and accelerated. I was disappointed that they were not able to meet the initial deadline of October 1, which required them only to begin the process of providing automatic location identification. However, Chairman Powell has assured me that the FCC is currently working with the carriers to make sure that no further delays take place in getting this lifesaving information to our public safety officials.

On the fateful morning of September 11, the National Emergency Number Association (NENA) released its first ever "Report Card to the Nation" on 911. The good news is wireless didn't get a failing grade. The bad news is that wireless 911 received an incomplete. Fifty million 911 calls each year are made from wireless phones—nearly 30 percent of all 911 calls are wireless. Yet wireless 911 services received an incomplete grade on the report card because wireless-enhanced 911 technology is not in place. Our No. 1 priority going forward must be successfully implementing wireless-enhanced 911 across the United States.

Public safety officials need to be able to locate people who dial 911, whether they call from a home phone, an office phone, or a cell phone. This is especially true in rural settings where it often takes longer to get help to people anyway. The National Highway Traffic Safety Administration has conducted studies showing that crash-to-care time for accidents is about a half hour in urban areas. In rural areas that crash-to-care time almost doubles to just shy of an hour to get emergency attention to crash victims. Almost half of the serious crash victims who do not receive care in that first hour die at the scene of the accident. This issue is more than a discussion about technology upgrades—lives are at stake every day.

Clearly, E–911 is a major undertaking. Creating a 21st century, digital 911 network will require constant effort and oversight. I believe that hearings such as the one the Chairman is holding today are vital to this nation reaching its goal. To finish this project we have to start sometime and somewhere. The time is clearly now.

I remain committed to working with my colleagues, the wireless industry and the public safety community to make sure that this nation leads the way in using advances in communications technology to save lives. I look forward to the testimony of the witnesses on today's critical topic. Thank you, Mr. Chairman.

Senator WYDEN. Thank you, Senator Burns, for a statement that I very much agree with as well, and I think the reason that I am making this appeal today to the wireless industry to try to accelerate and to get over the bar more quickly is because I share your view about the fact that this industry has so much potential.

There are many, many, good, caring, decent and patriotic Americans in this field, and I think if we work with them we can get people to get this important service on line more quickly. We can get the timetable accelerated. That is why I am interested in working with you and the industry to do that. And finally, your point about Chairman Inouye, you and he have been our leaders on this matter, just so that the record shows that the senior members of this Committee have been strong supporters of this effort, and we are all interested in working with the industry to get this up and going.

Mr. Sugrue, welcome. You are Chief of the Wireless Telecommunications Bureau. Why don't you go ahead and make your opening statement.

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

Mr. SUGRUE. Thank you, Mr. Chairman. Good morning, Mr. Chairman. Good morning, Senator Burns. I thank you for this opportunity to appear before you and report on the FCC's policies to

improve wireless service 911 throughout the nation and in particular in implementing enhanced 911.

Since it was first designated as 911 emergency number day in 1987, September 11 has come to symbolize our national reliance on 911 infrastructure as a lifeline for help in emergencies. That symbol is now more meaningful than ever. The tragic events of September 11 forcefully reminded us of the importance of the nation's emergency response system, and of the men and women of our police, fire, and emergency medical teams who go into emergencies to bring the rest of us out.

They also reminded us of the importance of wireless communications and the Commission's wireless E–911 program is aimed at helping emergency response personnel do their jobs better and more quickly.

If I could, I would like at the outset to make a brief personal observation and note that wireless E–911 is important to me not just as Chief of the Wireless Bureau, but in my longer term job as a father of two daughters. My wife and I first decided to join the ranks of wireless subscribers when our oldest daughter celebrated her 16th birthday, got her driver's license, and headed for the beltway. The Sugrue family doubled our wireless holdings when our second daughter turned 16 and also became a more mobile member of the household. Then my wife said, "What about me," and she got a phone, and I was the last in the Sugrue family to get a wireless phone.

But like many families, we first became wireless subscribers in large part because of concerns about our children's safety. As a dad worrying about my kids, I understand the importance of being able to get through to emergency help on your wireless phone. Our family has been fortunate in not having to face such emergencies, but I take great comfort that if a serious emergency were to occur, my children would be able to reach help by using their phones, and I want to speed the day when, if that emergency occurs, the carrier will automatically report where my children are to response teams.

Well, 5 years ago, the FCC set October 1, 2001 as the date for wireless carriers to begin the process of applying this new and vital technology. Since the original schedule was set, both Congress and the Commission have continued to focus on wireless 911 issues and have taken important steps toward the goal of a nationwide, ubiquitous, reliable 911 system.

One of the cornerstones of this progress was the passage in October 1999 of S. 800, the Wireless Communications and Public Safety Act of 1999—sponsored by Senator Burns and cosponsored by many members of the Subcommittee, including Senator Wyden. That Act mandated 911 as the universal number for emergency calling, and cleared the way for full implementation of wireless E–911 by, for example, addressing carrier liability protection and privacy concerns.

On the FCC side, we, too, have been actively engaged on E–911 matters for the past 2 years. Among other things, we have: increased the range of options to carriers by permitting the use of handset-based technologies; adjusted and clarified our rules by eliminating the requirement that public safety agencies must pay wireless carriers for their costs of complying with the mandate, and

instead requiring that each party pay its own costs; and also performed extensive outreach, speaking at dozens of conferences and other events aimed at informing and educating interested parties.

Today, there are more than 120 million wireless subscribers, and most PSAPs now receive about 30 to 50 percent of their 911 calls from wireless phones.

So with the deployment of Phase II E–911 now beginning, it is appropriate to ask how far have we come—and how far do we have to go? Frankly, we at the FCC are disappointed that the process of making wireless E–911 a reality is not further along, although we also realize that there are always challenges involved in deploying any new technology on a mass market basis for the first time, and that some important progress has been made.

Specifically, on the technology and manufacturing front, network equipment and handsets have been developed that will locate 911 calls accurately and reliably. Although the delivery of some of this technology and equipment lags behind what we originally contemplated, the equipment is now in production, and we expect near-term delays in equipment and technology to be resolved soon.

You will be hearing from two of the leading technology developers in this field, Mike Amarosa of TruePosition, a leading developer of network-based technologies, and Brett Sewell of Qualcomm, which has developed an assisted GPS approach, on the next panel. These companies are supplying the guts of the systems that are going to be deployed in wireless networks across the country over the coming months.

On the public safety front, this community also has made substantial strides toward being able to receive and use wireless E–911 location information. My friend John Melcher of Houston, Texas, a widely respected leader of public safety's efforts to implement wireless E–911, and Jenny Hansen, the E–911 program manager in Montana, will be able to bring you up to date on progress in their home areas as well as in other communities.

And on the carrier front, progress in deploying Phase II has been made, though again, efforts to reach full compliance must be redoubled, and Tom Wheeler, the long-time and distinguished head of CTIA, is here on the next panel to address those efforts.

Now, on October 5, the Commission approved, with conditions and certain modifications, the revised implementation plans of five major national wireless carriers—Nextel, Sprint, Verizon, and the GSM portion of AT&T and Cingular. Each of those carriers, in addition to the sixth national wireless carrier, VoiceStream, which was the subject of a Commission order last year, will be subject to clear, detailed, and enforceable plans to phase in location capability. Taken together, these six carriers serve more than 75 percent of wireless subscribers in the United States

It bears emphasizing that these plans involve only modifications of the initial deployment schedules or temporary delays in meeting the accuracy standard, rather than any kind of wholesale lifting of the rules. Under the plans, these major carriers will be required to be providing Phase II information next year, so that they will be caught up with all their valid PSAP requests at the end of the year.

These carriers will achieve complete deployment of Phase II with full compliance with the Commission's rules by the end date in those rules. That is, no later than December 31, 2005.

Why did the Commission accept these plans? It did so because it believes they are the best way to move rapidly to full implementation of accurate and reliable E–911 capability. We examined each request carefully with the continuing objective of implementing Phase II as soon as possible, and granting relief only where justified, and only to the extent that carrier presented a specific and focused plan leading to full compliance. To monitor that compliance, each carrier must file quarterly reports, beginning February 1 of next year, on its progress. Any carrier failure to comply with its plan will be referred to the Commission's Enforcement Bureau.

We also know that smaller and rural carriers may face special challenges in deploying Phase II. However, it is also clear that wireless E–911 has great potential to save lives in rural areas, and simply giving rural or smaller carriers a pass or indefinite extension would not serve the public interest. For these reasons, the Commission established a brief additional period until November 30 for smaller carriers to file requests for relief if they have not already done so, and the FCC will evaluate these filings to decide how best to address E–911 implementation by these carriers as soon as possible.

What, then, is the bottom line for wireless E–911? In important ways, Phase II will be deployed largely according to the schedule we have planned. Sprint on October 1 began offering handsets with assisted-GPS located technology and other carriers will also begin providing handsets and network equipment soon.

As deployment proceeds, I expect that technology and system-wide performance will improve. I also expect that as customers increasingly understand how location capability makes their lives safer, they will insist on having it available. They will come to rely on wireless location in the same way they rely on airbags and seat belts in their cars.

I am confident the future of this technology is strong, once it is actually deployed and this "virtual cycle" kicks in. But to get to this cycle, 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. As Chairman Powell recently stated, it is not good enough for a gentleman's C. This test requires an A-plus effort.

I would like to thank the Subcommittee for this opportunity to report on our wireless E–911 program, and I look forward to updating you as we go forward, and to answer any questions this morning.

[The prepared statement of Mr. 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. Since it was first designated as "911 Emergency Number Day" in 1987, September 11th has come to symbolize our national reliance on the E–911 infrastructure as a lifeline for help in emergencies. That symbol is now more meaningful than ever. The tragic events of September 11, 2001 may have delayed this hearing. But they also forcefully reminded us of the importance of this nation's emergency response system, and

of the men and women of our police, fire and medical teams who go into emergencies to bring the rest of us out.

The Commission's wireless Enhanced 911 program ("E–911") is one effort to help public safety and other emergency response personnel do their jobs faster and more effectively. I thank you for this opportunity to report to you on the Commission's policies and rules aimed at improving wireless E–911 services throughout the nation and, in particular, at implementing wireless E–911. Let me emphasize for the record that the Commission is serious about ensuring the deployment of wireless E–911. We recognize all too well that every second delayed in responding to an emergency call is a second lost in critical life-saving efforts. For that reason, the Commission has issued orders with very specific benchmarks and milestones, and we will be keeping a close and watchful eye on compliance with these requirements. We have put the carriers on notice that if they fail to adhere to the orders, they certainly will be subject to our enforcement authority.

## II. IMPORTANCE OF WIRELESS ENHANCED 911 SERVICE

Five years ago, the FCC set October 1, 2001 as the date for wireless carriers to begin the process of deploying a new and vital technology—the technology to accurately report the location of wireless 911 calls. That process was based on a Consensus Agreement reached in 1996 between the wireless carrier community and the public safety community. The 5-year development period, the specified accuracy standards, and the October 1, 2001 start date represented the parties' best estimate of an appropriate timetable and performance standards for development and initial deployment of Enhanced 911. In this regard, I think it is important to note that it was never contemplated that deployment would be a flash-cut process. Under the Commission's rules, it will take four or so 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, with network-based solutions, a carrier is not required to deploy its network-based solution in a particular area until 6 months after it receives a valid request from the PSAP serving that area, or to complete that deployment until 18 months after such a request. Since the pace of PSAP requests and readiness for Phase II will vary substantially in different communities across the country, deployment on a nationwide basis will be on a graduated, incremental basis.

Since the original schedule was set, both Congress and the Commission have continued to focus on wireless 911 issues and, in my view, taken important steps toward the goal of a nationwide, ubiquitous, reliable E–911 system. One of the cornerstones of this progress was the passage in October 1999 of S. 800, the Wireless Communications and Public Safety Act of 1999. That Act mandated 911 as the universal number for emergency calling and cleared the way for full implementation of wireless E–911 by, for example, addressing carrier liability protection and privacy issues. It also directed the Commission to work with all of the stakeholders in their efforts to make wireless 911 a reality.

On the FCC side, we have been actively engaged on E–911 matters, particularly in encouraging new location technologies, addressing questions that have arisen in the course of deployment, and removing obstacles to implementation of E–911. Among other things, we have:

- Increased the range of options available to carriers by permitting the use of new handset-based technologies, such as network-assisted GPS; and a "so-called" hybrid technology—one that combines elements of both handset- and network-based approaches.
- Adjusted and clarified our rules concerning certain operational issues affecting E–911 implementation, for example, by eliminating a requirement that public safety agencies must pay wireless carriers for their costs of complying with the E–911 mandate, and instead requiring that each party—carrier and PSAP—pay its own costs for implementation.
- Convened several multi-party meetings—including wireless carriers, technology vendors, equipment manufacturers, and members of the public safety community—to review the State of wireless location technology development.
- Performed extensive outreach, speaking at dozens of conferences and other events aimed at informing and educating interested parties, including State and local public safety agencies and carriers on our E–911 rules and policies.

Today, there are more than 120 million wireless subscribers, and most PSAPs now receive about 30 to 50 percent of their 911 calls from wireless phones. This situation places increasing burdens on call takers at 911 call centers, particularly since accurate location information is not now provided for those calls. E–911 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 E–911

With the deployment of Phase II E–911 now beginning, it is appropriate to ask how far have we come—and how far we have to go?

Frankly, we are disappointed that the process of making wireless E–911 a reality is not further along. It goes without saying that there is a new sense of urgency around using mobile phones as important safety devices. 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, but we must push forward aggressively with a renewed commitment. To make the promise of wireless E–911 a reality, much work remains to be done by PSAPs, equipment vendors, carriers, and government to meet the challenges involved in deploying these lifesaving technologies.

While we at the Commission are dissatisfied with the progress we have made thus far, we should recognize that some progress has been made. On the technology and manufacturing front, location technologies have been developed and, while none is perfect, a number are now available or on the way that will locate wireless 911 calls accurately and reliably, consistent with the goals of the Commission's E–911 rules. Under Phase II, the location of 911 calls will be reported in most instances with an accuracy of 100 meters or less. Network equipment and handsets with location capability are now being manufactured and sold to meet and exceed this benchmark. Although the development and delivery of some of this equipment lags behind what we originally contemplated, the equipment is now in production. We expect near-term delays in E–911 equipment and technology needed by wireless carriers to be resolved soon in most cases.

On the public safety front, this community also has made substantial strides toward being able to receive and use wireless E–911 location information. Many states have adopted legislation to provide funds to upgrade 911 dispatcher work stations with new technology, such as mapping software. Although relatively few 911 PSAPs apparently are currently ready to receive Phase II data, or have requested Phase II from carriers, they serve communities that would benefit from E–911. In addition, many PSAPs and other public safety organizations have been active in developing and testing upgraded systems needed for Phase II. APCO's Project Locate is one example of the public safety community's efforts to solve the problems of integrating Phase II with existing E–911 systems.

And on the carrier front, substantial progress in deploying Phase II has been made, though, again, efforts to reach full compliance must be redoubled. In short, carriers have made strides but not quickly enough. On October 5, the Commission announced decisions addressing requests from national wireless carriers and one public safety agency regarding the deployment of Phase II. The Commission accepted, with conditions and certain modifications, the revised implementation plans of five major national wireless carriers—Nextel, Sprint, Verizon and the GSM portion of the AT&T Wireless and Cingular networks. Each of those carriers, in addition to the sixth national wireless carrier, VoiceStream, the subject of a Commission order last year, will be subject to clear, detailed, and enforceable plans to phase in location capability. Taken together, these carriers serve more than 75 percent of wireless subscribers in the United States.

It bears emphasizing that these plans permit only limited, temporary departures from the Phase II rules. All carriers are required to achieve full compliance with the accuracy and reliability requirements in the rules. The compliance plans involve only modifications of the deployment schedule or temporary delays in meeting the accuracy standard, rather than any kind of a wholesale lifting of the rules. Under the plans, with limited exceptions, these major carriers will be required to be providing Phase II information to public safety answering points next year and to honor all valid PSAP requests by the end of the year. Under the plans, these carriers will achieve complete deployment of Phase II, in full compliance with the Commission's accuracy standards. This will occur in all areas across the nation where 911 call centers are ready and able to use this information, by the end dates in the existing Commission rules, that is, no later than December 31, 2005.

While accepting the plans means carriers will not be required to meet our previous October 1, 2001 benchmark, the Commission believes that these plans are the best way to move rapidly to full implementation of accurate and reliable location capability for E–911 calling. We examined each carrier request carefully, with the continuing objective of implementing Phase II as soon as possible and granting re-

lief only when justified and necessary, and only to the extent the carrier presented a specific, focused, limited plan leading to full compliance.

Specifically, the Commission has taken the following actions, approving plans to implement E–911 Phase II for five nationwide wireless carriers:

• With respect to three companies (Nextel, Sprint, and Verizon) that had met FCC requirements to provide a clear, detailed and enforceable plan to phase in its ALI capabilities, the Commission agreed to take into account the companies' showings about equipment availability, and allow them to implement Phase II E–911 according to a modified schedule for some of the initial 2001 and 2002 deployment milestones. It said it would strictly adhere to enforcement of these modified plans for meeting these alternative intermediate milestones and for completing E–911 deployment by 2005.

• With respect to two companies, (AT&T and Cingular) that submitted E–911 compliance plans for the GSM portion of their wireless networks, the Commission provided similar relief, also conditioned on strict FCC enforcement of their new schedules.

• The Commission noted that while AT&T and Cingular had submitted compliance plans for the TDMA portion of their networks, the timing of those submissions did not permit Commission consideration. Accordingly, discussions have been initiated between these carriers and FCC Enforcement Bureau staff concerning possible consent decrees with the Commission to resolve this compliance issue.

The Commission stated that it expects wireless carriers to make E–911 a corporate priority and to work aggressively to implement Phase II and to achieve full compliance as soon as possible. To monitor and enforce the compliance plans, the Commission required that each carrier file Quarterly Reports on its E–911 deployment beginning February 1, 2002 through February 1, 2006, including reporting whether the carrier has met the terms of its compliance plan. The Commission indicated that any carrier failing to comply with its plan, or applicable provisions of the E–911 rules, will be referred to the Commission's Enforcement Bureau.

We know that smaller and rural carriers may face special challenges in deploying Phase II location technology. We have received many waiver requests from smaller wireless carriers, and it is likely that others of the 1000 or so local and regional carriers face similar questions and difficulties. However, it is also clear that wireless E–911 has great potential to save lives in rural areas and simply giving smaller or rural carriers a "pass" or indefinite extension for deploying these technologies would not serve the public interest. For these reasons, the Commission established a brief additional period, until November 30, for those smaller carriers to file requests for relief, if they have not already done so. The FCC will evaluate these filings to decide how best to address E–911 implementation by these carriers as soon as possible. During this extended filing and evaluation period, the Commission will not initiate enforcement action under the Phase II rules against these carriers.

We at the FCC recognize the importance of Phase II deployment to public safety. I want to assure the Subcommittee that we are committed to taking whatever steps are necessary to ensure that Phase II proceeds to full compliance as soon as possible. To that end, the Commission took other steps to help clear the way for Phase II deployment:

• In response to a request by the city of Richardson, Texas, the Commission amended its rules to clarify the steps that 911 call centers should take to make a valid request for E–911 service; and

• The Commission indicated it would conduct an ongoing inquiry on E–911 technical issues, including technology standards issues, development of hardware and software, and supply conditions.

What, then is the bottom line for wireless E–911? In important ways, Phase II will be deployed largely according to the schedule we had planned. Sprint announced on October 1 the offering of handsets with Assisted-GPS location technology. Other wireless carriers will also begin providing location-capable handsets and network equipment soon, and I expect customers, in many areas where PSAPs are ready to use this location information, will begin to shop for carriers and handsets that include this important safety feature. Under the approved plans, all the nationwide carriers will have completed implementation of Phase II by the end of the year 2005, as our rules provide. By that time, I also expect that public safety organizations will have made substantial progress in actually using wireless E–911 location information to find people in emergencies in communities across America.

Because of the localized nature of 911 service, the number of different transmission standards in the U.S., and the number of parties who must all do their part, this implementation process will be complex. It will, for example, involve several location technologies that are deployed on schedules that vary for different carriers and different communities. Small, rural carriers may face circumstances that

warrant special consideration. Successful deployment will certainly require continued FCC oversight to ensure that carriers live up to their responsibilities and achieve full compliance with the Phase II requirements.

I am reassured by factual information indicating that wireless location technology is available, is being deployed in networks and handsets, and is capable of accurately locating 911 callers. As deployment proceeds, I expect that technology and system-wide performance will improve. I also expect that, 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 in the same way that they rely on air bags and seatbelts in their cars. I am confident that the future of this technology is 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

To sum up, the beginning of E–911 Phase II deployment is now underway. Working with the public safety community, the carriers, their suppliers, Congress and other governmental agencies, the FCC will continue its efforts to ensure that the E–911 rollout process continues as rapidly as possible, so that by "911 Day" in the year 2005 we will be able to report that full deployment, as required by the Phase II rules, has been achieved on the scale envisioned by the Commission and by the Congress.

I would like to thank the Subcommittee for this opportunity to provide information on the Commission's wireless E–911 program. I look forward to updating this information as wireless E–911 advances and to answering any of your questions.

Senator WYDEN. Mr. Sugrue, thank you, and we do have some questions. In your view, what are the major obstacles this morning to getting this done? You heard me say that I want to work with this industry to speed things up. I think after September 11 this country wants everybody to reorder their priorities, if you would, and I think this is the key question. Tell us what the key obstacles are, and in your view what it is going to take to speed things up.

Mr. SUGRUE. The plans that the carriers filed indicate that the issues or problems they claim they are having have shifted somewhat from the original technology development of location technology, whether it be assisted-GPS or network-based triangulation approaches, to actual equipment supply issues—upgrades in their mobile switches, the time period in which the equipment can be phased in, and implemented on an end-to-end basis. I think that is the first thing.

Second, there are also issues on the public safety side. There are a number of public safety agencies that have the capability right now to use this information, but a majority do not. It takes some time and money, to a certain degree technical sophistication to do that, and that side of it would need to be addressed as well.

So an end-to-end solution in terms of equipment supply, and then interaction with the public safety agencies, I think would be the two things.

Senator WYDEN. In your opinion, to what extent is the speed of wireless E–911 deployment within a carrier's control?

Mr. SUGRUE. I think it is to a certain degree within a carrier's control. Senator Wyden, you mentioned making it the number 1 priority for wireless carriers. I think it has been a priority. I can't tell you it has been the number 1 versus number 3 or 4 on the list. I think it does need to be put on the top of the list.

One thing we at the Commission are somewhat frustrated with is what appears to be a gating factor. Now, as I said, in some of these network upgrade and supply conditions, switch upgrades and

things like that, the manufacturing community is not subject to our jurisdiction under the Communications Act, carriers are. These orders and these rules do not apply to manufacturers, so the Commission also announced we are going to be instituting an inquiry into the supply conditions that seem to be the gating factor in effecting the roll-out of this technology.

We are hearing things about standards issues that need to be worked out, that the software that was first developed in terms of the mobile switches needs to be updated. We need to take a look at that, because that seems to be a factor that is controlling the progress to some degree right now.

Senator WYDEN. Let me ask you about a related matter. It is clear that technology is always advancing, and we want that, that relentless progress in technology. If you buy a personal computer, you could always argue if you waited another few months you are going to be able to get a better and even faster machine, but if you keep saying that, you are never actually going to get a computer out there, and my question is, why not have a policy that says, "You are going to deploy the technology that is available?"

In other words, millions of Americans are going to benefit by having this advancement and to be able to get within 100 meters, and when we can upgrade it as you are suggesting with various manufacturer refinements, absolutely, but why not get out there what we have got?

Mr. SUGRUE. I agree with you, Senator, I think we are past the point where the problem is the accuracy requirements in the Commission's rules. The leading developers of both the network and the handset approaches, the test results we have seen submitted indicate they are both coming in within their applicable accuracy standards. It really is now an equipment supply issue.

Now, those accuracy benchmarks will have to be verified in the field, and working in the testbed is not always the same as working in the real world, but these test results are a very positive development over the last 2 years. Two years ago there was significant doubt about whether the accuracy the Commission was requiring in its rules was realistic. Companies like the two who will be on the next panel can report on their own, but others as well have spent a lot of time and effort to improve their technology, and I think we are still very much on the curve of improvement. I think we will get better yet as we go along, I think that 100 meters over time, will get down to 50 and 25, and maybe even better, but we are not holding up to wait for it.

Senator WYDEN. I want the record to show that Chairman Inouye did invite the major manufacturers that you referred to, and that I touched on with respect to how technology advances, but the manufacturers declined to come, and hopefully we will hear from them, in this effort to accelerate the availability of this technology. We have got to get them, like everybody else in this country, to reorder their priorities after September 11.

I have only a couple more questions, then I will recognize Senator Burns, and we have been joined by my friend, Senator Smith of Oregon, who has a longstanding interest in these communications issues as well.

An article in last week's *Washington Post*, Mr. Sugrue, stated that in an emergency crisis like that which occurred on September 11, fewer than 1 in 20 wireless calls actually get through. Apparently the executive branch has been seeking a wireless system much like the priority access system that already exists for wireline phone calls. Such a system obviously would give governmental officials at the Federal, State and local level access to vital communications technologies during crises.

You all have been working on this issue again, and I come back to the point that I am not interested in coming in with a Federal hammer and some one-size-fits-all, run-from-Washington telecommunications policy, but we have got to have something that gives priority access to critical government workers in times of crisis, so how do we proceed, in your view, at this point on this issue?

Mr. SUGRUE. Last year, the Commission at the request of the National Communications System, which is comprised of over 20 executive branch agencies that actually run and manage the priority access system, both wireline and wireless in this country, adopted an order amending its rules to permit carriers to work with NCS on developing and deploying a priority access system. In the ensuing year, and Tom Wheeler could probably report on this in more detail, but wireless priority access did not appear to be much of a priority. That is, there was not much done on that front, some preliminary work between the carrier community and the NCS. Those efforts I understand have intensified quite a bit. We have had discussions with NCS and the carrier community, and certainly at the FCC we stand ready, and we have talked about how our rules may need to be amended or waivers may need to be granted in the short term, and we are certainly open to do that.

Senator WYDEN. You are open to actually amending the rules in this area?

Mr. SUGRUE. Yes, if necessary.

Senator WYDEN. Because my bottom line is, I do not want this to be the longest running battle since the Trojan War. We have got to get this done. It has got to get done, and as I have indicated to the carriers, we are going to meet them more than halfway. Senator Burns has been doing that for years, but it absolutely has to get done.

One last question, and then I will turn to my colleagues. In granting the waiver requests, I have a question with respect to how the implementation is going to work, and I am concerned that the messages at best are kind of murky here. Sprint and Cingular have committed to making the new phone handsets E–911 compliant 2 years before Nextel, so at a minimum we are going to have some discrepancy with respect to the roll-out schedules, and it just seems to me it is going to get pretty confusing with respect to what the Government's policy is in this wireless 911 area, and maybe you can enlighten us with respect to how this decisionmaking process is being reached, and how we send the right message to industry.

Mr. SUGRUE. Sure, I understand. That does look strange.

One of the complicating factors in this area is that our wireless industry across the country uses five different standards, all of which are incompatible one with the other. One could have a great debate about whether the Government, the FCC, or someone else

should have specified a single standard. In Europe they did, and it is called GSM. It is a single European line standard.

We tend not to do that in the United States. We rely on market-driven standards, and that has a tremendous, I think, benefit in terms of innovation. We have seen things being developed in the United States. A new standard called CDMA was developed in the nineties which has formed the basis for the next generation for all wireless phones in Europe and here. If we had specified a standard back in the early nineties we might have missed that, probably would have missed that, because CDMA was not well-developed then.

But there are costs, and among the costs are, of the six carriers I mentioned, all five of those standards are represented. The standard that is probably the most sort of problematic in terms of the breadth of its deployment is the Nextel standard, which is a proprietary unique standard called iDEN. No other carrier—well, almost no other carrier in the country uses it.

Nextel accounts for about 95 percent of the subscribers on iDEN, and very few carriers around the world use it. iDEN was developed by Motorola for a particular use, the frequencies Nextel uses, and it was very valuable for that purpose, but it is a little bit standing by itself, so in terms of the development of that technology vendors and others were willing to put in, iDEN stood by itself.

There is also just a sole supplier situation. No one else makes the network equipment. No one else makes the handsets.

Having said all that, Senator Wyden, I think Nextel was the toughest case, and I am just speaking as someone who had to look at all of these, but they made a strong case that they needed more time than the others. Public safety actually, in the comments they filed, gave qualified support to that. They did not challenge that they needed more time. They were disappointed that they were not doing somewhat more up front. We tried to address that with various requirements for Phase I.

Senator WYDEN. Senator Burns.

Senator BURNS. Thank you very much, and I am sorry that the manufacturers are not here today, because I have the same feeling that Senator Wyden does, that technologies will continue to evolve and change. That is still no excuse for nondeployment. I think we have to deploy the cutting edge technologies that are there today, and then be able to adjust later on. If we continue to wait for the next generation to come, we will still be lacking in any kind of public service presently.

Increase in use, as you know, is much greater than was forecast back in 1996, which also is causing demands for increased spectrum. We will have to deal with that on this Committee, and I was wondering, and I am especially concerned about rural America, that granting the waivers to the industry that is responsible for 75 percent of the business is a big waiver, and it goes out there a long time and I am concerned about that, and I would just like to go a little bit further on the questioning of Senator Wyden.

Was it technology, or is this an investment problem? Is this a cost problem?

Mr. SUGRUE. I think technology and cost are to some degree interchangeable. That is, if you could say to a carrier, "If you had

spent $1 billion on this 2 years ago, would we be further along," I think that is undoubtedly the case.

I will say this. When we adopted those rules back 5 years ago, this technology did not exist, or at least did not exist in any commercially deployable form in a wireless network. There were certainly ideas, and I think again both the companies you will hear from were working on various approaches, but we sort of set the bar beyond where reality was and we said, "You guys have got to catch up with it," and I think those technology developers have done an excellent job in doing that.

When we looked at the record, though, it seemed verifiable that the exact dates in our schedule in the original rules, which were adopted 5 years ago, were not possible, given where we are now. What we needed to do, at least our approach to this, was to say to the carriers, "Well, that does not get you off the hook. That does not mean you can get a pass and come back in a year or two. Do not tell us just what you cannot do, tell us what you can do, and we want to see specific plans."

You say you cannot hit October 1. What can you hit, December 31, March 1, and then we even got further into the details with specific interim benchmarks along the way.

So the idea was not to let people off the hook, but to keep them on the hook, perhaps a different hook, but with specific commitments.

Senator BURNS. We know that from the hearing we had in Montana—we had a terrific turnout, between 150 to 200 people, including law enforcement people, first responder people, and our military. We had representatives from just about every corner of Montana, and I think the major question there was regarding the moneys that are appropriated to help our public service answering points, PSAPs. We try on this Committee to help those areas of law enforcement, or whoever fields this 911 call and dispatches accordingly.

We have to watch that those funds are not diverted to do other things. We have to ride that very carefully, and I think we have done a fairly good job. I know we have in the State of Montana. Generally, did you find any diversion of funds that was going for something else that was originally designed to upgrade the PSAPs?

Mr. SUGRUE. Well, I certainly understand that many of the carriers feel that is the case. I am a native of New York City, and I know it has become an issue in the race for mayor there, in which the 911 funds go to a State agency in spite of the fact that the city and Nassau County run their own 911 systems. There has become a debate about their access to those funds and whether they are getting fair access or whether they are being used to upgrade radio systems for State police and so forth.

I think it varies. It depends on the State law, and that to some degree, if those funds are dedicated for wireless E–911, I am sure they are being used for that. If in other cases they are more generally available for public safety purposes, I mean, we all work with budgets. You may say, "Well, rather than wireless 911 I need a new radio system to keep my cops on the street safer."

I would just say—and this is not an official Commission position, this is me talking—from having interacted with this community for

a while, access to funds at local level for upgrades in radio systems, including wireless E–911, but also the police and fire radio systems themselves, is a critical need.

I know Congress is looking at various things that would increase our security here at home, and upgrades to public safety radio systems is very important in that context. Another side of my shop, in addition to dealing with commercial services, deals with the licenses and allocation of spectrum for public safety uses such as police and fire, and we know public safety faces challenges all the time, and a limited budget, and you have got personnel you have got to take care of.

Sometimes we get intense on putting the extra cop on the street, but then we put them out with a walkie-talkie that you can buy at Radio Shack that is not much better than a kid's toy. We are trying to do our part to make extra spectrum available for new systems, but it takes money to implement at the local level.

Senator BURNS. Well, I thought the length of the waiver was a little too liberal, and I personally think there are a lot of us on this Committee that are going to take a very personal interest in this, in the deployment of it, and to make sure that it is accelerated. Under the circumstances that we are encountering now and the challenges that we have in public safety that is in front of us, I just think we have to do that.

So I appreciate your acknowledging that we have certainly got some things to be done that can be done, and we should be going that way, and I thank you for coming before this Committee today.

Mr. SUGRUE. Thank you, Senator.

Senator BURNS. The Chairman is here now, and I want to publicly thank him for calling this hearing, because I think under the circumstances there is probably not a more important hearing in this body today.

Senator INOUYE [presiding]. Senator Smith.

**STATEMENT OF HON. GORDON H. SMITH,**
**U.S. SENATOR FROM OREGON**

Senator SMITH. Thank you, Mr. Chairman. Welcome, Mr. Sugrue. I wonder if you could share with me what are the standards the FCC uses to determine the E–911 waiver request? What are the standards?

Mr. SUGRUE. Well, the Commission set out the standards in an order last summer about a year ago for a carrier called VoiceStream, and those standards are that you have to show with some specificity what you have been doing to try to bring yourself into compliance, what testing you have been doing, why you need extra time, whether it is supply conditions, accuracy standards, whatever. Then you need to show that the relief you are asking is specific, focused, and limited to the problems you identified. Most importantly, you have to show that you have a clear path to full compliance in as quick a time as possible so that these waivers are deferrals, really, of initial implementation dates and not deferrals of ultimate implementation dates.

Senator SMITH. What, then, needs to happen, do you believe, for full deployment? Is it a technology problem? Is it a hardware problem? At what level does there need to be a development that they

can just go ahead? Is this something private capital exists to do, or is this something the Government needs to get involved in in helping to facilitate?

Mr. SUGRUE. Well, I think on the carrier side my own view is that it is not a need for the Government to get involved in terms of funding. I think this is a robust industry, $50 to $60 billion in revenues last year.

That does not mean one can impose costs on them willy nilly and be indifferent to it. I do not mean to suggest that, but we did have a requirement in our rules earlier that required that there be a cost recovery mechanism in place for carriers, that the carriers at least interpreted it as that State and local governments had to pay their cost of putting this technology in, and that was just leading to disputes. We did not think it was an appropriate standard, and as I said in my testimony we changed that rule to say, "PSAPs, you have to pay your cost, and carriers, you have to pay your costs," and we get into little disputes now about where that boundary is, but the principle I think is fairly clear.

On the PSAP side, I do think there are funding issues from communities. I think John Melcher will probably tell you about the State of Texas. They have a fund set up. Through that fund, he has access to funds that he can use to upgrade the systems, and he has done that.

So I think right now the funding issue is handled as a State and local matter, and not as a Federal matter, and if Congress wanted to help them out, I am sure they would welcome it.

Senator SMITH. I just think we are becoming more impatient to see this happen for obvious public safety reasons, and 21st century technologies, we want to know what the technologies are and how quickly they can be deployed, because there is a manifest need.

Thank you, Mr. Chairman.

## STATEMENT OF HON. DANIEL K. INOUYE, U.S. SENATOR FROM HAWAII

Senator INOUYE. Thank you very much.

First, I would like to apologize to you, Mr. Sugrue, and to the people assembled here, but as you know there was a special meeting called to discuss the problems of this day. I believe the special meeting highlights the importance of what we are discussing at this moment.

I would like to first make certain that my opening statement be made a part of the record.

[The prepared statement of Senator Inouye follows:]

PREPARED STATEMENT OF HON. DANIEL K. INOUYE, U.S. SENATOR FROM HAWAII

Good morning. Today the Communications Subcommittee examines the important issue of enhanced, or "E" 911 services in the wireless industry. In light of recent tragic events, issues of public safety are particularly on the minds of all Americans, Senators included. As such, today we examine the steps that can and must be taken to maximize public safety in an increasingly wireless world.

When a citizen calls 911 from a wireline phone, the operator almost always knows the caller's address and the identity of the owner of that phone. This enables almost immediate dispatch of emergency aid, even when the caller is too injured or disoriented to provide his or her exact location. On a wireless phone, however, the operator must rely almost entirely on the caller, who may not know where he or she is, or who may be incapacitated or unable to call for help. Let me not understate

the significance of this distinction. People perish because of this disparity in 911 service.

Tragically, this problem will get worse before it gets better. Of the roughly 190 million calls made to 911 each year, over 50 million are made from wireless phones—calls in which the 911 operator has to rely on the caller in distress to identify the place to send help.

Nearly 6 years ago, the wireless and public safety industries, to their credit, agreed upon a plan to help provide location information to operators receiving 911 calls from a wireless phone. The FCC took that plan and crafted a sensible timeline for compliance.

Specifically, by October 1 of this year, wireless carriers were required to update their networks to provide location information to 911 centers—or PSAPs—within 6 months of a PSAP request. Moreover, carriers were required to begin deployment of wireless phones that include handset location technology, to enable the identification of a caller's location utilizing global positioning technology. By December 31, 2005, 95 percent of subscriber handsets must include location technology.

The approach taken by the FCC was reasonable, balanced, and appropriately prioritized public safety, while granting industry ample time to plan to meet the requirements that were imposed.

Today, however, I am dismayed to report that not a single major carrier has met the initial deadlines imposed by the FCC for service availability. Instead, they have sought waivers from these obligations. I appreciate that there are technological and financial hurdles accompanying the transition to wireless E–911, that equipment manufacturers bear some responsibility to make compliant phones, and that the public safety community must increase their readiness to receive wireless location information. Granted this is a complex problem, but the wireless industry was not unaware of these facts when it proposed its plan in 1996. Moreover, as we shall hear, both network and handset technologies are currently available today.

If location technology companies can invest millions to promote wireless E–911 and public safety, we should expect no less from our wireless carriers, particularly when these same companies recently engaged in speculative bids of $17 billion in the C block spectrum auctions. In that same vein, when wireless companies argue that the lack of available spectrum is a matter of national priority, they should also remember that public safety is a national priority too.

In particular, I am concerned by the E–911 waivers recently granted by the FCC to five of the six major wireless carriers. My view of the FCC waiver process is simple. The waiver process should not be used to reward carrier inaction. The FCC should only grant waivers where there are compelling reasons for doing so; where the compromise to public safety will be minimized; and where the carrier seeking the waiver has outlined a clear plan for implementation of E–911 technology on a timetable as close as possible to the existing framework set forth by the FCC. Additionally, my message to wireless carriers is clear. I expect you to meet the milestones you set.

I look forward to the testimony of the witnesses and to making the promise of E–911 technology a reality.

Senator INOUYE. I have just one question. The time line, or the deadline was established at the request of the industry, and in fact the deadline was suggested by the industry.

Now we find that circumstances one way or the other made it not quite possible to meet this deadline, but let us assume that the justification is there, and I do not want to suggest that industry is doing this just for profit motives or anything like that. As the man in charge, when do you think we will have the technology to meet the demands of this moment?

Mr. SUGRUE. This technology—and by the way, Senator, when I talk sometimes to my friends in the industry they seem to suggest we came up with this date sort of out of whole cloth, and that 5 years ago we did not know what we were doing. Indeed, you are quite right that date and those accuracy standards for the most part were in that consensus agreement reached 5 years ago between industry and public safety that the Commission then took and put in the rules.

But I agree with you, things change over 5 years, and I think we all realize that those schedules and those standards were ambitious, but with our best estimate at the time it was feasible. As to what is feasible now, all six carriers under their plan are required to be taking active steps in deploying this technology, and you can look through the various orders for benchmarks as to when switches have to be upgraded of various types, handset benchmarks, a certain percentage of your handsets have to be—if you are doing a handset approach, that is—have to be location-capable, if you are doing a network approach, the number of network location units you are going to be putting in. And virtually all these carriers, with some minor exceptions, are to be up to date with all of their PSAP requests by the end of next year. That is, within 15 months of October 1.

That does not mean they start in 15 months. That means they are up to speed with requests they have under the Commission's rules, and then going forward from that, then the schedule in the Commission's rules would be the one that would govern.

So in order to get from here to where the rules require them to be in 15 months, this is not a case where they can be sitting on their hands and dilly dallying. There needs to be aggressive expenditures of funds and devotion of management resources.

Senator INOUYE. In your opinion, has industry been sufficiently aggressive, as you put it, up until now?

Mr. SUGRUE. I think the view of what is sufficiently aggressive has changed since September 11, perhaps in the industry and elsewhere. I think in some areas they were not sufficiently aggressive before. That varies among carriers. Everyone is not the same, and I do not mean to suggest I am picking people out, but some seemed to be more proactive on this than others.

Some came along later in the game. Some seemed to have a deathbed conversion, sort of very late in the game, but I am a good Catholic boy, and deathbed conversions count, you know, but we need to keep everyone on the right path now.

Senator INOUYE. So all of them are now very aggressive?

Mr. SUGRUE. They had better be. That is the direction from the Commission. They have got schedules they have got to hit, and I think the Commission has signaled that it is going to take those deadlines very seriously.

Senator INOUYE. Before the deadlines came about and before the waiver requests came in, I presume that your office was aware that some of the members were sitting on their hands.

Mr. SUGRUE. Well, let us put it this way. The carriers have been talking for at least 2 years that the requirements in the rules were unrealistic and could not be achieved. We at the Bureau took the strategy of saying, of sort of constructive engagement and constructive confrontation—that is, that is not good enough, we need to do better—but at the same time not sort of taking an all-or-nothing approach.

That is because we felt that if we said "Well, if you cannot hit every jot and tittle of the rule, then you are in trouble," then we just have a bunch of litigation on our hands rather than implementation. So we have been engaging with them as to what the prob-

lems are, but not letting them off the hook on the grounds that this just will not work, or the technology is not ready yet.

Senator INOUYE. About a year ago you made a statement saying that if carriers did not take their obligations seriously, appropriate penalties would be assessed. Have any of the carriers been penalized?

Mr. SUGRUE. Well, two of the carriers are in enforcement proceedings right now. The Commission announced with AT&T and Cingular it was instituting consent decree negotiations, because their requests for relief that were filed, the ones that are before us now, were filed late in the day.

AT&T had put a plan on the table back in April that over time we found was not a viable plan, and they ended up withdrawing it in September, but there was not enough time to pass on the substitute they offered.

Cingular similarly put a plan on the table in the summer. Frankly, we found that plan to be inadequate. We were moving to deny it. We had an order drafted to that effect, and they withdrew their plan about a day before we were about to issue the order, but they came back in with a plan that I think is much more responsive. I do not want to say it is perfect or anything like that, but I think public safety also would agree a much more realistic and responsive plan to what we have, and that is what I sort of was alluding to by deathbed conversions.

It is late in the day, so that is why it is in the enforcement context, but we also want those plans to go forward, because that is how we are going to get this technology out there so it can save lives.

Senator INOUYE. Under the applicable rules and regulations, what sort of penalties can you assess, or impose?

Mr. SUGRUE. It certainly could include fines and forfeitures under the Communications Act. It could include revocation of the waivers, and an order to implement another technology they may find less hospitable and more expensive. If a carrier were really acting in bad faith, it conceivably could lead to revocation of licenses, which is another possibility, although that would be a fairly extreme remedy, but in an extreme case that could be utilized.

Senator INOUYE. Have you considered imposing any of those?

Mr. SUGRUE. The carriers that received waivers have an alternative plan to implement, and what the Commission said was, "Compliance with that plan will constitute compliance, but now you have to hit those deadlines."

For the two carriers that are in the middle of consent decree negotiations, I cannot comment on the substance of those, but all I can say is, that is a matter for the Enforcement Bureau, not my Bureau, and they are working on that right now.

Senator INOUYE. Mr. Sugrue, I thank you very much. All of us recognize over one-third of the 911 calls are made through wireless, and September 11 demonstrated to us how important 911 was. I hope that you will be able to bring out your big whip and get the troops in line.

Senator Wyden.

Senator WYDEN. Thank you very much, Mr. Chairman. I will be really brief, and I thought your questions were really key. I had just one follow-up.

Mr. Sugrue, what is going to happen if a carrier does not meet its new deployment schedule? Chairman Inouye asked the question about the various things that are in the process now with respect to enforcement actions, but what is going to happen if they do not meet their new deployment schedules?

Mr. SUGRUE. Well, the waiver orders indicate they will be referred for enforcement to the Enforcement Bureau.

Senator WYDEN. Automatically? To me what is nonnegotiable here is just coming back year after year after year, and what you are telling me now is, if they do not meet the new deployment schedule, it is going off for an enforcement action.

Mr. SUGRUE. That is what the Commission waiver orders say. I cannot stop a carrier under the law from filing another waiver and saying, "I have this very particular problem, my supplier just went bankrupt or something, or whatever that is, and I need special relief because I have got a switch"—I can tell you what the Commission indicated, though, in those orders it just adopted 10 days ago, which is that these are the benchmarks now, and it intends for them to be followed, and noncompliance will result in a referral to enforcement.

Senator WYDEN. Thank you, Mr. Chairman.

Senator INOUYE. One final question, sir. The goal that we are pursuing is attainable is it not?

Mr. SUGRUE. Yes, it is, Senator.

Senator INOUYE. So it is not unreasonable?

Mr. SUGRUE. This technology will save lives. The technology has been developed, and it is a matter now of getting the equipment made, getting it deployed, getting it installed on an end-to-end basis, and starting to use it.

Senator INOUYE. And you are satisfied that the waivers that have been granted are reasonable, and they will be complied with?

Mr. SUGRUE. I am satisfied they are reasonable, and compliance is not in my hands, but we intend to enforce them as I indicated in my answers to you and Senator Wyden just now.

Senator INOUYE. On behalf of the Committee, I thank you, sir.

Mr. SUGRUE. Thank you, Senator.

Senator INOUYE. Now, may I call on the next panel, the vice president of public affairs of TruePosition, Mr. Michael Amarosa, the 911 program manager of the State of Montana, Ms. Jenny Hansen, the first vice president and wireless industry liaison of the National Emergency Number Association, Mr. John Melcher, the president of SnapTrack, Mr. Brett Sewell, and the president and CEO of Cellular Telecommunications & Internet Association, Mr. Thomas Wheeler.

May I first call upon Mr. Amarosa.

## STATEMENT OF MICHAEL AMAROSA, VICE PRESIDENT, PUBLIC AFFAIRS, TRUEPOSITION, INC.

Mr. AMAROSA. Good morning, Mr. Chairman, members of the Subcommittee. My name is Michael Amarosa, and I am the vice president of TruePosition. Before joining the company, I spent 24

years of my life working in public safety. As a deputy police commissioner, I was responsible for the largest center in the nation, New York City's.

If I may take a moment on a personal note, I am a New Yorker, and I am very proud of my city and the way it handled the tragedy on September 11. I am also proud in a professional way of how 911 responded on that day. The calls almost doubled in New York City that day through 911, and during that period of time the city was able to handle all of those calls and never failed, and I take pride in that, because I had a hand in designing the redundant systems that enabled that to happen.

I am also proud of the cellular industry. The cellular industry allowed so many people to call their loved ones and say goodbye at that time, and also to find out how they were doing and locate them, and on a personal note, I had a daughter that worked across the street, and during that period of time, as soon as the first plane had hit the tower, we were very concerned, my wife and I, for her safety, and I thank God that we had a cellular phone.

After many hours we were able to locate her and find out that she was able to escape the building before it collapsed. I am so thankful for the cellular industry, and owning a cellular phone and the ability to give us peace of mind.

Since September 11, we have become much more attuned to the issues of public security and safety. We have known the technology for improving personal security and safety for years, and I am referring to enhanced 911, or E–911 services. When you call 911 from a traditional phone at home, or a phone booth, the police or fire department or EMS can automatically determine where you are and dispatch help, but if you call 911 from a wireless phone, you have to tell them exactly where you are, and this is so unfortunate.

If you are in a strange place or city under duress, or afraid, disoriented, it is not always easy or possible to determine where you are. The difference in our ability to locate wireless emergency calls is important. Each year, 43 million wireless calls are placed to 911, and that number continues to grow.

TruePosition has worked diligently with the Commission since it first took up the issue of E–911 in 1994, and our wireless location technology predated the Commission's interest by several years. We have actively participated in the formulation of the FCC rules. We have structured our technology on real-life settings, and based on those rules.

We have worked with carriers and public safety agencies to improve our technology and demonstrate its compliance with the FCC's policies and rules, and we invested more than $150 million to develop and deploy that technology since the FCC first considered E–911.

We all recognize that the FCC has tremendous responsibilities that have grown exponentially during this digital age. We were concerned about the early press reports that the FCC was not placing a higher priority on public safety and personal security, but now that we have had the opportunity to review the details of their orders, we are cautiously optimistic.

We are ready to begin as a company providing E–911 services today if the regulatory environment permits it. We have agree-

ments with the nation's second-largest carrier, Cingular Wireless, and with MoviStar, an innovative carrier in Puerto Rico to provide location information for their customers. Cingular and MoviStar should both be commended for moving this issue forward.

Mr. Chairman, our technology works. It has been tested in more than 500 cell sites nationwide, including a New York City test that involved a difficult environment where almost half of those calls were made from multiple-story buildings in midtown Manhattan.

Mr. Chairman, our technology will vastly increase the personal safety and security the moment it is deployed. Consumers will not be in a situation where they need to buy new phones with our technology. They can be located and meet all the requirements of all existing analog and digital phones.

There are 120 million wireless phones in the United States, and TruePosition's architecture supports the technology used by 95 percent of them. The technology will work on the digital systems, on the analog systems, and address all roamers.

On September 12, a TruePosition crew entered 2 World Financial Center, adjacent to the World Trade Center, and we employed our technology in an effort to assist the rescue efforts. I do not want to mislead the Committee. The devastation and large number of cell signals from so many sources in the area greatly reduced our ability to help, but we were able to offer pertinent information to rescue teams, and we gained valuable experience, and a disturbing yet hopeful picture of how and where our technology might save lives in the future.

We remain optimistic that the Commission will reaffirm its longstanding commitment to E–911. The Commission and Congress have shown that they recognize the value of these services. Further changes and revisions of the FCC's deadlines will only delay the time by which the public can receive the benefits of E–911 services.

My personal commitment to public safety brought me to TruePosition. My colleagues and I at TruePosition are eager to put E–911 into action as soon as we possibly can.

Mr. Chairman, I thank you for this time.

[The prepared statement of Mr. Amarosa follows:]

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

Good morning Mr. Chairman and Members of the Subcommittee. My name is Michael Amarosa and I am Vice President of TruePosition, Inc.

It is a privilege to appear before the Subcommittee to discuss the implementation of E 911 and Public Safety. The originally scheduled hearing date, September 11, 9/11, was symbolic. It reflected how important 911 is to public safety and how citizens facing an emergency can get help faster. Sadly, September 11 now stands for a great deal more. Among a great many consequences, the attack of September 11th on the World Trade Center and the Pentagon makes public safety technologies, such as enhanced 911 services for mobile phones, even more important to our country.

Our company, TruePosition, has committed its very existence to wireless location technology. We began working on wireless location technology years before the Federal Communications Commission considered wireless E 911, and have invested more than $150 million following issuance of the FCC's mandate in 1996. This investment has produced a commercially available location technology that complies fully with requirements established by the FCC. After years of research, development and real world testing, we are working with the public safety community and with carriers, both large and small, to make E 911 a reality and to meet the FCC deadline.

E 911 has been at the center of my professional career. I spent 24 years working in public safety. Among other things, I was responsible for the largest 911 center in the nation, that of the New York City Police Department, as Deputy Commissioner for Technological Development. The NYPD today receives more than 11.3 million 911 calls annually—that breaks down to more than 30,000 911 calls per day, 25%–30% of which are made from wireless phones.

It was my responsibility to bring to public safety a range of technologies that helped police officers, firefighters and emergency service workers do their jobs more effectively and efficiently. Location information is fundamental to this effort and saving lives. Summoning help from a wireless phone frequently takes place in circumstances where callers are simply unable to describe their location. Regrettably this often leads to tragic results. But with wireless E 911, the child who knows only enough to dial 911, the traumatized victim who cannot remain on the line, and the traveler who cannot convey where he is, can be located and police, fire or emergency services dispatched.

In early September, when a vehicle containing four young men driving on the winding roads near Bear Mountain, New York crashed and toppled down a deep slope, their wireless call for help was made. Yet, it was hours, after an extensive search, before they could be located. This tragedy conveys clearly that E 911 is more than expediting assistance to the individual in need of help, it may be the only way an individual can be located.

## AGREEMENTS WITH CARRIERS

I am here today to tell you that wireless location technology works and that TruePosition is ready to deploy its system. On August 30, 2001, TruePosition entered into an agreement with Cingular Wireless LLC that represents the most definitive and extensive commitment to the rollout of E 911 to date. I also am pleased to tell you that we have additional deployment agreements with MoviStar Puerto Rico, a joint venture between ClearComm and Telefonica Moviles of Spain.

The comprehensive agreement with Cingular Wireless LLC to provide TruePosition's network-based technology in Cingular's digital TDMA/analog AMPS markets will bring location information to the nation's second largest wireless carrier. We anticipate deploying our technology on at least two thousand of Cingular's digital TDMA/analog AMPS cell sites by the end of 2002. TruePosition understands that this will permit Cingular to address all presently outstanding requests from 911 Centers (referred to as public safety answering points or so-called PSAPs) for location information that meets the FCC's rules ("Phase II" information). From that point forward, Cingular will be capable of deploying TruePosition's Phase II solution in its digital TDMA/analog AMPS networks dependent on the PSAP requests, consistent with the FCC's requirements. TruePosition's technology will supply location information for digital TDMA subscribers, analog subscribers and roamers. The commitment by Cingular and TruePosition is a distinct and tangible demonstration that E 911 is a reality.

The same is true for the PCS digital CDMA subscribers of MoviStar Puerto Rico. The commercial rollout will provide FCC-compliant location coverage wherever TruePosition's system is deployed in this region with a population of over 3.8 million people. This agreement will also ensure that MoviStar's digital CDMA subscribers have access to Enhanced 911. Additionally, we are in active discussions with several other carriers to deploy our network based solution.

## WIRELESS ENHANCED E–911 TECHNOLOGY

The need for Enhanced 911 or E 911 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 E 911 is critical. The nation should be at the threshold of a tremendous upgrade in how fast public safety agencies can respond to individuals in need.

As I mentioned, TruePosition has made substantial investments in developing the technology and implementing it. 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 500 cell sites in a variety of environments. 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 digital 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. Accurate and reliable location information is not in the future. It is now.

TRUEPOSITION'S LOCATION TECHNOLOGY

TruePosition's technology allows all existing cellular (digital and analog) and PCS phones to be located without any adjustment to the consumer's handset. All existing phone sets can be located on our system, within the requirements 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: analog AMPS, digital CDMA, digital TDMA and most recently, 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. Millions of subscribers can now be covered.

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 location of the call and delivers the information so that the appropriate PSAP can dispatch assistance to the caller.

One fundamental of TruePosition's network based system is that upon implementation, location information can be transmitted to the appropriate 911 center by all wireless phones using the network, not simply those that have been recently purchased. Customers do not have to purchase new handsets nor is any retrofitting needed for location information to be transmitted. The challenge of legacy equipment, the millions of phones in use throughout the country, is resolved through the network solution.

THE FCC'S OCTOBER 1, 2001 DEADLINE

Under FCC rules, wireless telephone carriers were required to provide Automatic Location Identification (ALI) beginning October 1, 2001, as part of the Phase II E 911 implementation schedule. There are separate accuracy requirements and deployment schedules for network-based and handset-based technologies. The Appendix sets forth the FCC's rules and the apparent changes approved in the FCC's recent waiver decisions.

TruePosition has followed the FCC's actions attentively since the Commission took up E 911. We have participated actively during the FCC's formulation of its E–911 rules. We have provided our views on the policy and technical issues at stake. TruePosition has structured its technology's implementation on real life settings that are drawn from the FCC's rules. Substantial investment has been directed to complying with the FCC's rules regarding accuracy requirements and the implementation deadlines that were established. We have worked at length with carriers and public safety agencies to improve our technology and to show that it complies with the FCC's policies and rules. This is an important reason why TruePosition's technology works.

Last week, the FCC announced that it had reached decisions on petitions seeking waivers of its E–911 rules. Those decisions provide several carriers additional time and other relief from the FCC's rules. In any environment where investment responds to a regulatory mandate, where resources and expertise is committed to meet deadlines and specifications, clarity and consistency are vital. If rules are changed facilely, let alone unnecessarily, investment is disrupted, competition distorted and, most significantly, the policy pursued undermined.

The nation's experience in wireline 911, where location information of the caller is simultaneously available to the 911 center, demonstrates plainly the enormous benefits that accrue. Individuals needing help can be located, help can arrive faster, and the overall ability of public safety agencies to respond more effectively is enhanced significantly. Moreover, the experience with wireline E–911 has proven to be an effective and important law enforcement instrument. As the nation confronts the challenges that have been become all too clear since September 11, 2001, E 911 will have an even more critical role. If our country is going to have a satisfactory level of E 911 service, carriers, the Congress, the FCC, and other relevant parts of our government must make it happen.

SUMMARY

Bringing E 911 to all Americans will require the full cooperation of government, carriers, and technology providers and public safety agencies. The result will be more efficient and effective emergency services, property and lives saved, and a greater sense of security for all of our citizens.

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APPENDIX

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 911services 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 E 911 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 E 911 Requirements* (FCC Orders September 1999, minor adjustments August 2000)

Wireless carriers are required to provide Automatic Location Identification (ALI) as part of Phase II E 911 implementation beginning October 1, 2001. The FCC has established separate accuracy requirements and deployment schedules for network-based and handset-based technologies. The E 911 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 E 911 service; and
2. Begin delivering Phase II E 911 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 PSAPs coverage area or population.

Within 18 months of a PSAP request, carriers must provide Phase II information for 100 percent of the PSAPs 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 E 911 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 E 911 service in response to a PSAP request. The PSAP, however, must have the means of covering the costs of receiving and using the E 911 information to make a valid request for E 911 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.

## Comparison of FCC Handset Requirements and the Waiver Requirements

| Fcc Rules | Verizon Waiver | Sprint Waiver | AT&T (GSM) Waiver | Cingular (GSM) Waiver | Nextel Waiver |
|---|---|---|---|---|---|
| Begin selling ALI-capable handsets by October 1, 2001. | No October 1, 2001 requirement | Begin selling ALI-capable handsets by October 1, 2001 (same as rule). | AT&T must follow the handset deployment schedule, but has reduced accuracy requirements for 2 years.. | Begin selling ALI-capable handsets by October 1, 2001 (same as rule). | Begin selling ALI-capable handsets by October 1, 2002 (one year after rule) |
| 25% of all new handsets must be ALI-capable by December 31, 2001. | Begin selling ALI-capable handsets by December 31, 2001 (three months after rule). | 25% of all new handsets must be ALI-capable by July 31, 2002 (six months after rule). | ..... | 25% of all new handsets must be ALI-capable by December 31, 2001 (same as rule). | 10% of all new handsets must be ALI-capable by December 31, 2002 (one year after rule, 15% less) |
| 50% of all new handsets activated must be ALI-capable by than June 30, 2002. | 25% of all new handsets must be ALI-capable by July 31, 2002 (six months after rule). | No 50% benchmark ..... | ..... | 40% of all new handsets activated must be ALI-capable by than March 31, 65% by June 30, 2002 (June requirement exceeds rule by 15%. | 50% of all new handsets activated must be ALI-capable by than December 1, 2003 (18 months after rule) |
| 100% of all new handsets must be ALI-capable by December 31, 2002. | 50% of all new handsets activated must be ALI-capable by than March 31, 2003 (nine months after rule). | 100% of all new handsets must be ALI-capable by December 31, 2002 (same as rule). | ..... | 100% of all new handsets must be ALI-capable by September 30, 2002 (three months earlier than rule). | 100% of all new handsets must be ALI-capable by December 1, 2004 (two years after rule) |
| By December 31, 2005, achieve 95 percent penetration of ALI-capable handsets. | 100% of all new handsets must be ALI-capable by December 31, 2003 (one year after rule). | By December 31, 2005, achieve 95 percent penetration of ALI-capable handsets (same as rule). | ..... | By December 31, 2005, achieve 95 percent penetration of ALI-capable handsets (same as rule). | By December 31, 2005, achieve 95 percent penetration of ALI-capable handsets (same as rule) |

Source: FCC Fact Sheet

Senator INOUYE. Thank you very much, Mr. Amarosa.
May I now recognize Ms. Hansen.

**STATEMENT OF JENNY HANSEN, 911 PROGRAM MANAGER, STATE OF MONTANA**

Ms. HANSEN. Thank you, Mr. Chairman, members of the Committee, Senator Burns, thank you very much for this opportunity to speak before you today. My name is Jenny Hansen. I have worked in public safety for over 20 years. The duties and scope of my career include dispatcher, ambulance driver, 911 director, academy instructor, FEMA urban search and rescue logistics team member, hazardous materials instructor, among others.

The geographic areas in my experience covers everywhere from Metropolitan San Francisco to suburban California, and now rural America, the last best place, the State of Montana. Initially hired as a 911 director in Bozeman, Montana, I most recently now am serving as a 911 program manager for the State.

I would like to extend a special thank you to Senator Burns and the United States Senate for the leadership on these critical issues, especially as of late. As Senator Burns reminded us, this was originally scheduled to take place on September 11. Billed as 911 day, this hearing was to be an honest and frank discussion about wireless-enhanced 911. Instead, we watched, listened, and learned about the heroes that responded, putting their lives on the line under the most trying of circumstances. The combined efforts of the human spirit and modern technology proved heroic.

Mr. Chairman, I would also like to thank Senator Burns for his leadership on the issue in Montana and in the nation. For his leadership in sponsoring the Wireless Communications and Public Safety Act in 1999, it is an important road map for improving emergency communications and for specifically deploying wireless 911 efforts.

In late August, the Senator facilitated a conference starting down that road, hosting the Montana statewide summit on a statewide response. As a contrast to some of my colleagues here today, the State of Montana's population is a little over 900,000 people, yet plays host to millions and millions of visitors each year, covering a little over 147,00 square miles of land. In rural settings, where distances are great between victims and help, victims and hospitals, delayed responses can literally be a matter of life and death.

Wireless technologies have dramatically improved personal safety and security, as we have heard mentioned today in earlier testimony. Emergency response times have fallen. As stated earlier, nationwide 40 percent of the calls from 911 are from wireless devices. As we have learned, both the public safety answering points, or PSAPs and wireless networks can easily be overloaded. In answering a call for help, it is information that saves lives. One of the biggest challenges to PSAPs and emergency responders is that, unlike many wireline systems, wireless systems do not provide location information.

On September 11, the first call for help to a loved one and a warning to those of us in the path of destruction came from wireless telephone, and now, as the nation girds for a national extended effort, wireless communications is a centerpiece to our safety and

security. We have an early warning system of 120 million wireless subscribers.

Following September 11, people have asked us, what is the relationship between wireless enhanced 911 and terrorism events? I am not an expert on terrorism, but here is what my colleagues are saying. 911 is the public's link to emergency response. Simply, wireless 911 could be one of our greatest civil defense weapons, and E–911 is a key part of that defense.

Locating hoax wireless callers, finding those who report an incident, locating victims in the event of a catastrophic diaster, all are dependent in whole or part on wireless 911.

A lot has been said and done to make the FCC waivers a complicated issue. I am not an expert on the waiver process, either. NENA and APCO have ably represented our point of view to the FCC, but it appears clear that with the exception of Cingular and AT&T, where we do not really know yet the outcome, the FCC has essentially given the wireless carriers whatever waivers they have asked for.

I will leave it to others to determine whether that was right or wrong, but no one has yet to suggest to me how these waivers might serve public safety concerns. In any case, it is done. Having essentially given the wireless carriers what they have asked for, the message now must be very clear: You must now deliver. No more excuses, no more waiver requests.

I plead with you to ensure that this is the last time enhanced 911 rules get changed. Let us not let the debate on waivers become an excuse to do nothing, and let us not use rural PSAPs ability to receive location information as an excuse, either. PSAP readiness has been raised as a concern, and I could not agree more that it is terribly important, but let us understand why it is important.

There are two relatively separate issues here. First, what PSAPs are now ready, and what technologies and upgrades are necessary for the PSAPs to be ready in order to trigger wireless carrier responsibilities to deploy E–911. Second, what technology upgrades are necessary for a 21st century response system.

For starters, let us keep in mind that PSAPs representing tens of millions of Americans are ready to use location information, and requested Phase II from carriers in a timely manner. These include full States like New Jersey and Minnesota, and big cities like San Francisco, Los Angeles, Dallas, Fort Worth, St. Louis, Chicago, Orlando, Houston, Hampton Roads, and Kansas City. They include smaller communities like Bozeman, Montana, and Winchester, Virginia.

So what about all the rest? The FCC was careful not to prescribe what is necessary for PSAPs to use location information to trigger carrier E–911 responsibilities. The information wonders of the world come to me because I have a telephone line and a computer, so it should not be hard to make sure that latitude, longitude, and other E–911 information is displayed on an electronic map to which any PSAP in my State can have access.

With such a system, any PSAP with a telephone line and a terminal would be able to see the location of a 911 caller. Others will have alternative ideas, but the question of what is necessary to trigger carrier E–911 responsibilities is quite different from what

our goals should be for a modern emergency communication system. We need the most modern information tools, not the cheapest and easiest ones. We need to be able to integrate E–911 data into our systems, and it is necessary that that visionary process we have launched in our State, with the help of Senator Burns and others, is going to happen. That is a process that needs all the parties involved.

Today, we have an opportunity to address the many challenges facing public safety by improving the emergency response infrastructure throughout the nation. The foundation of the emergency management system is the men and women in public safety who are links in the chain of survival. We share a common ethic that we will do whatever it takes to save a life. I am encouraged by the President's echoing those very words about doing whatever it takes. We need the tools and training to do that.

As a State leader, I am asked to respond to the big picture. We in Montana do not need to replicate New York City, but the golden hour of a medical emergency is the same 60 minutes in New York City as it is in Montana. It is all about saving lives. We in public safety need 21st century tools and technologies, and we need you to support and encourage the rapid deployment of these technologies to save lives.

I thank you for your time and your commitment to doing the right thing, and your support of the public safety community and citizens at large. Thank you.

[The prepared statement of Ms. Hansen follows:]

PREPARED STATEMENT OF JENNY HANSEN, 911 PROGRAM MANAGER, STATE OF MONTANA

Mr. Chairman, members of the Committee, Senator Burns, thank you very much for providing me with this opportunity to appear before you today. Let me extend a special thank you to the Committee and the U.S. Senate for your leadership on these critical issues. As you may recall, this hearing was scheduled to take place on the afternoon of September 11. Billed as "911" day, the hearing was to be an honest and frank discussion of wireless enhanced 911. Instead, we watched, listened and learned about the heroes that responded, putting their lives on the line under the most trying of circumstances. The efforts of the dispatchers, fire, medical, law enforcement services and countless volunteers in metropolitan New York, Washington DC and Pennsylvania were nothing short of outstanding. The combined efforts of the human spirit and modern technology proved heroic. The events that unfolded that day not only dealt with wireless 911, but highlighted the many technology challenges facing our nation's emergency communications system. Today, we have an opportunity to address these challenges by improving the emergency response infrastructure throughout the nation.

My name is Jenny Hansen, and I have worked in Public Safety for over 20 years. The duties and scope of my career include Dispatcher, Ambulance Driver, 911 Director, Academy Instructor, FEMA Urban Search and Rescue Team Member and Logistics Specialist to name a few. The geographic areas covered in my specific experiences range from metropolitan San Francisco to suburban California and now rural America, the last best place, the State of Montana. Initially, hired as the 911 Director of Bozeman, Montana, I now serve as the 911 Director for the State. As a contrast to some of my colleagues here today, the State of Montana serves a population of just over 900,000 people, yet plays host to millions and millions of visitors each year, covering a land area of over 147,000 square miles. Regardless of where we work and we are from, public safety professionals share the same objective in our jobs, saving lives. It is the reason we are here, and the answer we give when we're asked why we do what we do, answering every call for help on the worst if not last day of someone's life.

A SPECIAL THANKS

Mr. Chairman, I would like to thank Senator Conrad Burns for his leadership on this issue in Montana and throughout the nation. In 1999, Senator Burns sponsored the Wireless Communications and Public Safety Act, an important roadmap for improving emergency communications, and specifically for deploying wireless 911. In late August, starting down that road, Senator Burns hosted a Montana statewide summit on emergency response, bringing together leaders from government, emergency response, medicine and industry to grapple with the challenges facing both our State and nation in deploying modern emergency response technologies. We were honored to participate in that program with Senator Burns, Governor Martz, Congressman Rehberg, leaders from around the State and the ComCARE Alliance. The summit was a tremendous success; however, it was just the first step in an integrated approach to emergency response for Montana. We know we have a great deal of work ahead of us and believe Montana could be a model for the rest of the nation as we address new challenges, threats and risks.

THE "FACES" OF PHASED-IN WIRELESS

Public Safety technologies have been the result of public and private partnerships, improved over time through the process of trial and error. Simply, the 911 system would have not been possible without a high level of cooperation. Wireless technologies have dramatically improved personal safety and security. Emergency response times have improved. nationwide, 40 percent of the calls to 911 are from wireless devices. These numbers are expected to grow.

On September 11, the first call for help, to a loved one, and a warning to those of us in the path of destruction came from wireless phones. And now, as the nation girds for an extended effort, wireless communications is a centerpiece to our safety and security.

Wireless technologies, however, present their own unique challenges. Instead of one call, 911 now often receives multiple calls for the same event. As we have learned, both Public Safety Answering Points (PSAPs) and the wireless networks can easily be overloaded. In answering a call for help it is information that saves lives. One of the biggest challenges to PSAPs and emergency responders is that, unlike many wireline calls to 911, wireless calls do not provide location information. In a rural setting where distances are great between victims and help, victims and hospitals, delayed response can be a matter of life and death.

Following September 11, people have asked us to explain the relationship between wireless E–911 and terrorist events. I am not an expert on terrorism, but here is what my colleagues are saying. 911 is the public's link to emergency response. We now have an "early warning system" of 120 million wireless subscribers. We provide a vital service to both the public and safety professionals, moving responders with the "what and where" of an emergency, ensuring that the appropriate help is dispatched. The "what and where" are equally important to protecting responder safety, and appropriately allocating responder resources. Locating hoax wireless callers, finding those who report an incident, locating victims in the event of a catastrophic disaster—all are dependent in whole or in part on wireless 911. Simply, wireless 911 could be one of our greatest civil defense weapons, and E–911 is a key part of that defense.

WIRELESS E–911 WAIVERS

Chairman Powell's recent statement on October 5 may have said it best:

> "I am disappointed and unsatisfied with the progress we have made, thus far, on Phase II E–911 rules . . . It goes without saying that there is a new sense of urgency around using mobile phones as important safety devices . . . It is not good enough to go for a gentleman's 'C.' This test requires an 'A+' effort."

A lot has been said and done to make this a complicated issue. I am not an expert on the E–911 waiver process. NENA and APCO have ably represented our point of view to the FCC. Like others, I have only seen the press release and statements, not the actual orders. But it appears clear that, with the exception of Cingular and AT&T (where we don't know the outcome), the FCC has essentially given the wireless carriers whatever waivers they asked for.

I will leave it to others to determine whether that was right or wrong. But no one has yet suggested to me how these waivers might serve public safety concerns by advancing deployment of E–911. In any case, it is done. Having essentially given the carriers what they asked for, the message now must be very clear: "You must

now deliver. No more excuses and waiver requests." I plead with you to ensure this is the last time the E–911 rules get changed.

Unfortunately, there is a lot of revisionist history, and even greater confusion regarding the spirit of the original wireless E–911 agreements. The rule in 1996 stated 2001–2002 as the end date. Both the handset and network technologies have proven viable by the wireless industry and public safety professionals. What is not working is the public policy. Now we have dates that reach well into the next decade. Making matters worse, a "safety divide" looms on the horizon.

A large number of wireless networks in rural America are traditional cellular-not covered by the waivers. Simply, these "legacy" subscribers will not be located. Cell phones in glove boxes will not be located. Travelers passing through Montana will not be located. At best, wireless E–911 will come at much later date.

"READINESS"

Let's not let the debate on waivers become an excuse to do nothing. And let's not use rural PSAPs ability to receive location information as an excuse either. PSAP readiness has been raised as a concern, and I could not agree more that it is terribly important. But let us understand why it is important. There are two relatively separate issues here. First, what PSAPs are now "ready", and what technology upgrades are necessary for PSAPs to be "ready" in order to trigger wireless carrier responsibility to deploy E–911. Second, what technology upgrades are necessary for a 21st century response system?

For starters, let's keep in mind that PSAPs representing tens of millions of Americans are ready to use location information, and requested Phase II from carriers in a timely manner. These include full states like New Jersey and Minnesota, and big cities like San Francisco, Los Angeles, Dallas/Fort Worth, St. Louis, Chicago, Orlando, Houston, Hampton Roads, Kansas City. They include smaller communities like Bozeman, Montana, and Winchester, Virginia.

So what about all the rest? The FCC was careful not to prescribe what is necessary for PSAPs to be ready to use location information to trigger carrier E–911 responsibilities. The information wonders of the world come to me because I have a telephone line and a computer. So it should not be hard to make sure latitude, longitude and other E–911 information is displayed on an electronic map to which any PSAP in my State can have access. With such a system, any PSAP with a telephone line and terminal would be able to see the location of a wireless 911 caller. Others will have alternative ideas.

But the question of what is necessary to trigger carrier E–911 responsibilities is quite different from what our goal should be for a modern emergency communications system. We need the most modern information tools, not the cheapest and easiest ones; we need to be able to integrate E–911 data into our systems. It is that visionary process that we have launched in our State with the help of Senator Burns and others. That is a process that needs all the parties involved.

The one thing we've learned from the technology revolution is that innovation comes faster, better and at a more reasonable price when technology is made accessible to all. We need to bring the existing technologies that are readily available to government and business to the world of emergency response. The foundation of the emergency management system are the men and women in Public Safety who are links in the "Chain of Survival." We share a common ethic that we will do "whatever it takes" to save a life. We need the tools and training to do that.

THINKING OUTSIDE OF THE BOX

We need to become innovative, thinking outside of the box in our protocols, on the telephone, at the radio consoles, in the field, to the transportation leaders and throughout the emergency medical and hospital network. We introduce new ways of thinking, asking the right questions in the right order, sparing no time in delivering life-saving instructions, in such a perfect, synchronized fashion that most scientists and magicians would find remarkable. This reminds me of the wherewithal of a certain 911 call-taker. This is a story of a lone driver in an unfamiliar, rural area that gets stung by a bee. You may have heard about it. Without her bee-sting kit, and immediate assistance, the caller will die. The call-taker asks the question of the day, "Where are you?" The request for a location was delivered to no avail. Without skipping a beat, the call-taker pulls an idea out of a hat and instructs the caller to pull into the driveway of a residence and recite the license plate number over the phone. The location was positively identified, the driver instructed to wait for the next link in the of the Chain of Survival, her life was saved.

Industry leaders, carriers and vendors have also offered work-around solutions to their various works in progress. A simple solution to press only the number "9" on

the keypad to deploy a 911 call on your cell phone comes to mind. Shaving seconds and defying demolition derby driving habits behind the wheel with diverting the caller's attention to the palm-sized keypad was a great idea. The caller is more quickly routed to the PSAP, just to hear the question of the day, "where are you?" Striving for perfection in technology has gotten in the way of our goal, and so we wait.

Each of these solutions, however, generates its own set of problems. The bee-sting incident was fortunate that the owner of the vehicle had an updated registration and was the actual homeowner, not a guest from two counties away. As for the industry's work around 911 as a speed function, this presents a problem for the PSAPs in receiving accidental calls.

It's about public safety, but not just 911. There are many stakeholders and constituencies who care and depend on these services everyday. We've developed a successful foundation. Now is the time to connect the dots; training, seamless networks, modern computer systems, public and private partnerships and coalitions, long term stable funding, and shared resources.

As aptly stated in the finding of the Wireless Public Safety Act of 1999 (6):

> "The construction and operation of seamless, ubiquitous and reliable wireless telecommunications systems promote public safety and provide immediate and critical communications links among members of the public; emergency medical service providers and emergency dispatch providers; public safety, fire service and law enforcement officials; transportation officials, and hospital emergency and trauma care facilities."

Simply, the stakeholders are the vast community of public and private service providers, that benefits not just 911, but all of us. It is all about saving lives.

Last month a fellow Montanan, Steve Albert, Director of the Western Transportation Institute and President, Rocky Mountain Chapter of ITS America testified on behalf of Intelligent Transportation Systems before the Subcommittee on Transportation, Infrastructure and Nuclear Safety. His testimony also discussed the need for cooperation and integration of vital public services for improved emergency response. Working together, we can overcome great obstacles, share resources and help reduce the many "stovepipes" that have kept innovation and life-saving technologies from being deployed. I look forward to working with him and sharing projects and ideas in the future.

## BACK TO BASICS

As a State leader, I am asked to respond to "the big picture." In this case, the big picture is quite simple, that all counties, cities, townships and villages should be given equal access to the basic services that are available everywhere else in this country. We in Montana don't need to replicate New York City, but the golden hour of a medical emergency is the same 60-minutes in New York as it is in Montana.

Bridging the gap to covering great distances, with limited personnel, equipment and financial resources is hinged on technology. The focus on wireless technology is natural, all public safety responders depend on seamless networks. All too often, especially in rural America, we have dead-zones, where there is no wireless coverage, for responders and good Samaritans alike.

Wireless is just one piece of the puzzle. All the links in the Chain of Survival must be fully developed and supported. Equally important are E–911 technologies in wireline and PBX systems, training for 911 dispatchers, coordinating mapping and support of integrated communications systems for all groups represented in the Chain of Survival.

## ENHANCED 911

We use the term E–911 so freely now that I think we've lost the meaning. Or, perhaps we've just come to know it as the public's expectation as the minimum standard of care in this country.

Attached to my testimony is an overview of Enhanced 911, what it is, how it is funded, etc. A piece of particular interest involves my own state. "Montana Facts About 911". We have 58 PSAPs in the state, yet only 10 of them have Enhanced wireline services. While we're reaching for wireless and even satellite imagery in some areas, it is important to provide equal access to all areas of this country.

In 22 years of Public Service, I am reminded of one of the most heart-wrenching moments in my career. Amongst all the war-stories we keep inside as pieces of unfinished business, I can still see the man in the doorway of my office marked "911 Director" in rural Montana not even 2 years ago. He is not much older than I and there was a sadness in his eyes that was eclipsed only by his will to accomplish his mission that day. "I just came by to say thank you to the dispatchers for working

so hard to help me with my wife. " The 911-call came exactly 7 days earlier, his wife was in full-arrest (she wasn't breathing and did not have a heart beat). The dispatchers alerted the volunteer firefighters and began delivering pre-arrival CPR instructions to the shrieking caller. The dispatchers worked together like a well-oiled machine through cycle after cycle of CPR, while emergency vehicles traveled miles and miles of rural roads echoing the question of the day with each passing mile marker. "They did such a professional job and were so kind. You gave me help when I needed it. I don't know how you do what you do." His wife died in his arms that day.

I came from Montana, a State very typical of rural America, to ask for your help. We in Public Safety need 21st century tools and technologies, and we need you to support and encourage the rapid deployment of these technologies to save lives.

I thank you for your time, your commitment to "doing the right thing" and your support of the public safety community and the citizens at-large.

Senator INOUYE. Thank you very much, Ms. Hansen, and I thank you for recognizing the leadership of our colleague from Montana in this area as the author of S. 800. That is why we are here, and we are most grateful to the gentleman from Montana.

May I now call upon Mr. Melcher.

**STATEMENT OF JOHN R. MELCHER, DEPUTY EXECUTIVE DIRECTOR, GREATER HARRIS COUNTY EMERGENCY 911 NETWORK**

Mr. MELCHER. Thank you, Mr. Chairman, members of the Committee. I would also like to remind you that one of the greatest friends of public safety today is Senator Burns. Senator Burns actually got his seat in the Senate by defeating a gentleman by the name of John Melcher. We are not bitter. As a matter of fact, he has become one of our greatest allies, and we appreciate his leadership.

On behalf of NENA, the national Emergency Number Association, APCO, and NASNA, and their respective presidents, Sharon Kanneman, Glenn Nash, and Evelyn Bailey, I bring you greetings, and I am happy to appear before you today.

You have my written testimony, so I would really like to orally give you just a few thoughts that might help us in our pursuit of wireless 911 and issues that face public safety today. It is rather amazing that we sit before a Federal body discussing something that has traditionally been a State and local affair in the implementation funding and technology of 911.

However, the paradigm has shifted. As the nation recognized that competition and deregulation was of the order, and that bringing new technologies and innovation to telecommunications would be a part of the nation's future, we find that going from local solutions to more national demands is really a situation that we are facing more and more every day, so we think it is incredibly wonderful that the leadership, especially in this particular Committee, finds it useful that we explore our options as we are doing in today's hearing.

We were on the Hill on September 11, hosting the press conference for the nation's first report card to the nation. This was an effort undertaken by NENA to basically give a status of 911 in our country today, where we have been, where we are, and where we are going. It was with great pleasure that we hosted Senator Burns and other Members of Congress in that press briefing that morning.

Senator Burns actually talked at some length about the nation's infrastructure for 911 and how it needed to be prepared not only for the challenges it faces today, but for the significant challenges it faces in the future. He even stated, we hate to use the T word, but we need to be concerned about terrorism. How prophetic his words were in that within a few moments of him speaking them the Pentagon was attacked, which was after the New York City debacle.

So we find now that we are faced with looking very strongly at the nation's 911 infrastructure, and what we can do to make sure it meets common challenges that existed before September 11, and new challenges that exist after September 11.

The report card finds that public confidence in 911 is very, very high, that we worked very hard to build a system in this country that the public has come to trust. We must make sure that we commit every effort and do everything possible to make sure that the public trust remains high in the system that they have learned to trust so much.

Ninety-seven percent of our population in this country is covered by some form of 911, and about 94 percent of the land mass. But of our 3100 some counties in this country, there are over 230 counties today that still do not have 911 service. Many counties, especially in rural America, have only basic 911 service, and that is not good enough for the people of this country and the citizens we serve.

911 is sacred and special, and should be considered as such. As telecommunications systems are built, especially in the age of competition and deregulation, 911 must be one of the first things on the checklist for deploying the telecommunications system. It can no longer be an afterthought, or a Band-Aid that is added to a system once it is already built.

As the first wireless systems were rolled out in 1984 and 1985, 911 was not the first consideration. No one knew to make it the first consideration. Very few phone calls to 911 came from wireless subscribers. Now we find, and you have heard statistics today, that a third, sometimes 40 percent of calls to 911 centers are from wireless devices.

I am here to tell you that the Harris County Sheriff's Department, one of the largest sheriff's departments in the country that serves the Houston Metropolitan Area, today experiences over 50 percent of its 911 call volume from wireless telecommunications devices. This means that a 99.9 percent accuracy in getting the location information from our wireline constituency has now gone to less than half accuracy for our call takers in those centers, because what we get is the voice, and although we are all Phase I of the FCC rule-compliant, we get the tower that handled the call, or the cell site that handled the call, and the call-back number, but we do not get an accurate location.

This causes a very, very big delay in our response, even when people are somewhat familiar with where they are—I am at the McDonald's on the gulf freeway. Well, there are 12 McDonald's on the gulf freeway. Which one are you closest to?

It is a very, very challenging situation for those call-takers, and the call center managers that must manage this challenge. We

used to get one or two calls, when somebody would run to a pay phone from a major accident on a freeway. Now during rush-hour we experience 50, sometimes more than 50 calls, reporting the same incident, but our major call centers do not know that those are duplicate calls, and each one must be handled individually. Wireless location will solve that problem for us.

The time it takes to answer calls and the burden it is putting on the dispatchers and call-takers is tremendous. Let us not forget those call takers who actually have to sit on the other end of the phone while someone is screaming for help, and we are looking for them for minutes, sometimes hours, sometimes more than hours. Those call-takers take that frustration with them home. It causes them to lose sleep at night, and causes a great deal of stress and frustration.

Wireless must be deployed. I was privileged to be a part of the original consensus group that gave the consensus agreement back in 1995 and 1996 to the FCC, and the rules and timetable for those rules were put in place based mostly on that consensus agreement. It was our privilege at the time to work with Mr. Wheeler and other colleagues of ours in public safety and our friends at the Wireless Bureau to make the rules a reality. Now, here we are, more than 5 years later, and we have yet to have the first wireless 911 Phase II system up and operational.

I will tell you that our own PSAPs, and I represent over 1,000 call-takers, almost 160 public safety agencies, 42 PSAPs and 15 secondary answering points, are all today technically ready for wireless Phase II and beyond. We are currently working on an automatic crash notification project. As a matter of fact, Federal money now sits in conference committee waiting on approval from the Senate to make that a reality in the Houston area, but it is also a backbone that is being built for automatic crash notification from black boxes in vehicles like OnStar-equipped devices.

That backbone will be available for the rest of the State of Texas as well as the rest of the country. We are working with the Montana Department of Transportation to make that a reality for them as well.

These types of technologies, as my good colleague Jenny mentioned, are available in many of the urban centers in this country today, so while you may hear from some of the wireless industry that the public safety community is not ready, that is not necessarily the case. Over 50 percent of the call centers that take wireless 911 calls—and remember that not all PSAPs take 911 calls because of some State programs like California and New Jersey, but over 50 percent of those PSAPs that take wireless calls—of the PSAPs, over 50 percent are Phase I compliant, and have requested Phase I.

Most of the urban centers in this country are Phase II compliant and ready to take that data today.

There is a system sitting in Houston, Texas, ready to be turned on, and has been ready to be turned on since this summer, that is sitting there collecting dust, not being turned on today, and the carrier has not committed to turn it on until April of next year. We see no reason for that. We see no reason for not deploying systems that are ready.

We were proud to participate in a program back in December of 1996 that proved that wireless location technology was a reality, yet we have had some carriers fight to deploy systems that we were paying to build. Now we have a new commitment, and Mr. Sugrue mentioned deathbed conversions. Two of those carriers exist in Houston, and we are thrilled to see that they have finally put a stake in the ground and made a commitment to move forward, but there can be no further delays.

In the Report Card to the Nation, wireless got an I for incomplete. My good friend Mr. Wheeler has said that I stands for implementation, yet we do not have a system up and running today. We challenge Mr. Wheeler to reengage, as he did back in 1995 and 1996, with the public safety community and bring his membership to work very, very hard in making sure that wireless 911 is deployed and becomes a reality.

We have new technologies to address beyond wireless. I mentioned automatic crash identification, voice-over IP. There will be two-way communications devices that have the red button that says, "I have fallen and I cannot get up," but will be able to give us a latitude and longitude. We need to be able to make sure that these technologies are integrated into our 911 system in those centers that are ready today and deploy those technologies today.

We encourage you that the new request from the executive branch or from the National Communications System for cellular priority access include 911 interest. We worked with the NCS and their consultant, Booz-Allen-Hamilton, back in 1995 to make sure that they had appropriate date in their models. That proved the 911 calls can be integrated into the CPAS system with a slightly lower priority than the Federal and State rescue workers, and still make sure the 911 calls get through to the PSAPs, and not affecting those people who were also in need.

We are urging, now that that system is up again for review and hopefully implementation, that 911 be considered as a portion of that system, and we stand ready technically to help them work through those issues as well.

I also want to point out that there is a group of unsung heroes in all of this. We have talked about carriers, and the events of the 11th have certainly highlighted those heroes that are the responders, but there sits another group, and that is that group that is at the other end of the telephone when somebody calls 911 for help.

Those people need to be recognized. Their frustrations and their hardships need to be addressed. They need to know that you are finding for their good, because this is what it is all about. They are the connection for those who need public safety. They are the connection for those who need response. Many times, they are the connection that makes a difference between life and death.

We thank you for your time, and we certainly stand ready to answer any questions you have.

[The prepared statement of Mr. Melcher follows:]

PREPARED STATEMENT OF JOHN R. MELCHER, DEPUTY EXECUTIVE DIRECTOR, GREATER HARRIS COUNTY EMERGENCY 911 NETWORK

Mr. Chairman and members of the Committee, thank you very much for providing me the opportunity to appear before you today. My name is John Melcher, and I am the Deputy Executive Director of the Greater Harris County Emergency 911

Network. Our Network is the third largest 911 system in the country and provides emergency number service to approximately 4.2 million citizens in the Houston metropolitan area. In addition to representing our Network, I am here today on behalf of the National Emergency Number Association (NENA) as its First Vice-President, as well as the Association of Public-Safety Communications Officials-International, Inc. (APCO), and the National Association of State Nine-One-One Administrators (NASNA). Collectively, these associations represent state and local government emergency 911 communications centers (also known as "Public Safety Answering Points" or "PSAPs") throughout the country. The three Associations and their members have worked tirelessly to promote wireless enhanced 911 capability, and I am proud to be here today on their behalf and on behalf of the approximately 7,400 PSAPs, over 100,000 call-takers, and thousands of 911 PSAP managers across the United States.

On September 11, NENA, with support from APCO, NASNA and many other public and private interests, released its first Report Card to the Nation (RCN), the first nation-wide effort ever conducted by the public safety community to analyze the factors that make 911 successful today, and will make it successful tomorrow. The RCN reports that more than 190 million telephone calls are made to 911 each year, or over 500,000 calls each day.

Since over 97% of the nation's population is covered by some form of 911, I think that it is accurate to report that 911 has become part of our culture and adds to our quality of life. Generally, the American public both depends upon, and holds in good standing, our emergency communication systems. Indeed, the RCN notes that nearly 75% of the national population characterizes the system as either good or excellent. In terms of the "report card," that's a good grade, but serious challenges remain.

Technology is creating both opportunities and obstacles. Of the 190 million 911 calls to which I just referred, over 50 million of those are wireless calls—and, that number is growing. The Cellular Telecommunications and Internet Association (CTIA) estimates that there were nearly 110 million wireless telephones in the country by the end of last year. Wireless calls to 911 represent approximately 27% of our national 911 call volume, and that percentage is much higher in many metropolitan areas. In fact, the Harris County Sheriff's Department, in Houston, Texas, reports that wireless calls to 911 now exceed 50% of their total call volume. That means over half their emergency calls-for-service lack the features of an enhanced 911 system.

Quite frankly, according to the Report Card, the grade assigned to wireless 911 is incomplete. While wireless carriers are mandated to provide the services that the American public has come to expect—what we call "Enhanced 911"—they have not begun to do so and most will clearly fail to meet the FCC's October 1 deadline.

A little over ten years ago, nearly all incoming 911 calls to PSAPs were from wireline telephones, and most provided the call-taker with a call-back number (Automatic Number Identification or ANI) and automatic location information (ALI) for the caller. Additionally, 911 calls are selectively routed to the appropriate PSAP that responds to the calling party's location. The provision of ANI, ALI and selective routing is known as Enhanced 911 or E–911. Armed with this information, the 911 call-taker can quickly and accurately dispatch police, fire, ambulance and other appropriate public safety agency personnel to emergency locations.

Historically, however, that's not been the case with a mobile caller. The mobile nature of the service inherently makes the delivery of enhanced 911 more difficult. And, without accurate location information for such calls, the 911 call-taker must make a verbal inquiry regarding the caller's location—generally, a lengthy investigation, thus adding to the time that must be spent on each call, and slowing down response time by precious minutes, sometimes hours. All too often, wireless 911 callers do not know exactly where they are, or they are unable to describe their location with sufficient clarity or accuracy.

Just a few weeks ago, Sean Cospel died when his car ran off a cliff near Bear Mountain in New York. His buddy Jason Learn called 911 from his cell phone. Almost six hours after his first call, Jason was able to flag down a motorist on Route 9W after crawling 400 feet up a 45 degree embankment, while suffering from a concussion and a broken arm. Reportedly, he could hear the New Jersey State Police helicopter searching while his friend lay dying. In other cases, callers 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, and every night countless dispatchers continue to wake up in a cold sweat.

Even when wireless 911 callers can provide accurate verbal descriptions of their locations, the absence of 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 some of my largest agencies (averaging 4,000–5,000 calls a day) to receive up to 50 or more 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 calls are all about the same event, and we therefore need to expend scarce resources to answer each and every call. In the meantime, the PSAP's incoming lines can become clogged and we run the risk that there may be another caller waiting in line to report an entirely different emergency.

These two conditions—lengthy investigations to determine location and numerous calls on the same incident—have stressed and taxed the nation's dispatchers and call center managers beyond imagination. Unintentionally, and unfortunately, these dispatchers and call-takers are giving air traffic controllers a real run for their money in the stress department. Trust me, these are bragging rights we'd rather do without.

Fortunately there are major efforts are underway in our community to address these serious problems, though much more is still to be done. Nearly ten years ago, APCO, NENA, and others identified wireless E–911 as a critical issue and brought it to the FCC's attention. My own state of Texas and the Associations I'm representing today, among others, were a major part of that effort. The Commission responded with an appropriate proceeding that began in 1994, and resulted in rules adopted in 1996. Today—over five years later—we still do not have wireless Enhanced 911. In our RCN report, we estimate that less than 50% of the nation's population enjoys the first level of wireless 911 service, or Phase One. Fortunately, that figure is growing. Still, we await Phase Two.

Which brings us to the most important of missed deadlines. October 1, 2001, was not the starting point we envisioned for so many years. Implementation of Phase II of the FCC rules is now further delayed. Not one PSAP has actually begun to see the real benefits of wireless E–911.

Many wireless carriers have fallen behind this schedule and have been granted waivers to the deployment and accuracy requirements involved. Some appear to be trying to proactively minimize the impact of their waiver requests. It is perhaps an understatement to say that the waivers are quite troubling to the public safety community. A great deal of time has been spent on adopting and implementing wireless E–911 rules—time and effort spent by all parties, both public and private.

The requirements in the FCC's rules are clearly achievable. The technologies available today to locate mobile callers may not be perfect, but they have demonstrated the capability of meeting the FCC's standards. Sure, something better will always come along tomorrow. But the public safety community is seriously concerned that if we keep delaying present performance based on future promise, we will never have anything workable upon which to improve. We simply cannot allow "the perfect" to be the enemy of "the good." When was the last time your mobile call was dropped due to a failed cell-to-cell hand-off? Are *all* of your calls perfectly clear? Carriers have never waited on technology to be absolutely perfect prior to its deployment, why are they waiting now? While we acknowledge that there are many factors that affect deployment today, it's time to move on.

Of course PSAPs also have a responsibility for making wireless E–911 a reality. 911 communication centers must have call processing equipment capable of receiving and utilizing the location information involved. That also includes the ability to process geographic based data, though the latter does not necessarily imply the installation of sophisticated Geographic Information Systems (GIS). Ultimately, how a 911 call is processed is truly the responsibility of the public safety community.

The bottom line is that many PSAPs are now or will soon be ready to receive and process Phase II or location information from wireless carriers. The APCO initiated, and now a joint APCO /NENA initiative, "Project Locate" has identified 29 of its 50 model cities that have requested Phase II service. Those requests, along with others, include cities like Los Angeles, Kansas City, San Francisco, Chicago, Houston, Washington, DC, and Allen, VA. Other requests include counties and states like Spartanburg County, SC, Rockdale County, GA, Harris County, TX, Hamilton County, OH, St. Tammany Parish, LA, Stark County, ND, six counties in Oregon, Jackson County, MS, Gallatin County, MT, York County, VA, and the entire states of Connecticut, Rhode Island, Minnesota, and New Jersey.

Of the nation's PSAPs tasked with taking wireless 911 calls, over 75% are either capable, or in the process of becoming capable, of accepting Phase One call information from wireless carriers.

Others, of course, are not as far along, either because of funding constraints or the need for local exchange telephone company network upgrades. Many, we're told, are reluctant to expend scarce resources for Phase II readiness until the carriers themselves demonstrate that they are proceeding towards Phase II deployment. The

public safety community is working hard, however, to improve E–911 readiness on the part of all PSAPs, to say nothing of the public safety entities that have already placed requests. As I just described, the latter represents a significant population across this country. Those PSAPs are ready and so are the citizens they represent. Each day of delay impacts the lives of the dispatchers and of 911 callers!

Much work remains to be done. The RCN identified over 230 counties that don't even have 911 service. Most 911 infrastructure in this country continues to ride on yesterday's analog technology. Switching systems are rarely redundant. New York City maintained their system through a catastrophic chain of events, but no one seemed to notice that they did not lose one single 911 call for service. Unfortunately, their system's redundancy is rare in our country.

The challenges today are many for 911, and wireless is only part of that—though a significant part. Technology is expanding the way people communicate. The 911 calls of the near future will not be limited to a traditional telephone. Voice over the Internet, automatic crash notification via telematics devices, hand-held wireless products and a host of new and emerging communications technologies require our community to assess and address non-traditional access to emergency services. Our public will expect those efforts to occur in an effective and timely way. In the end, our common goal must be the ability to locate every 911 call, regardless of how it's placed. With so much work to do in these arenas, it's time to end the delays and start saving lives!

There are those who would assert that wireless telephones are already providing valuable emergency access to 911, and they would be right. But what makes our country great is our natural tendency to raise our expectations when it comes to saving lives and reducing pain and suffering. The opportunity to use this technology to save lives is here today. It's at the doorstep of every American that uses a wireless telephone. I'm sure that this Committee agrees with that, and we welcome your support and encouragement.

Thank you for the opportunity to testify on this extremely important subject.

Senator INOUYE. Thank you very much, Mr. Melcher. Now may I call upon Mr. Sewell.

**STATEMENT OF BRET SEWELL, PRESIDENT, SNAPTRACK, INC.**

Mr. SEWELL. Mr. Chairman, members of the Subcommittee, good morning, and thank you very much for the opportunity to appear before you today. My name is Brett Sewell. I am the president of SnapTrack, which was founded in 1995 and is now a Qualcomm subsidiary. SnapTrack's mission is to develop and deploy ubiquitously a high performance, cost-effective location solution for the FCC's E–911 mandate. Today, I would like to summarize for you how our wireless assisted technology works, describe our field test results, and share our commercial deployment experience.

Wireless-assisted GPS comprises distance measurement technology embedded in a wireless phone, and software centralized in the carrier's network. When 911 is dialed, ranges to GPS satellite and ranges to base station cell towers are measured in the phone and sent to the server. The server combines these range measurements and calculates the coordinates of the caller. The location information is then sent to the 911 public safety answering point, where it is used for efficient dispatch of police, fire, or ambulance assistance.

The system operates effectively in all terrain, including rural and suburban areas, downtown urban canyons, inside vehicles, and indoors. In blocked areas such as large buildings, where GPS signals are weaker, or may not be available, the system weights the base station range more heavily, and is still able to reliably produce location fixes.

Wireless-assisted GPS technology is air-interfaced independent. It can be deployed on TDMA, GSM, CDMA, iDEN, and third generation wireless networks.

SnapTrack's wireless-assisted GPS technology has been extensively field-trialed worldwide. NTT DoCoMo in Japan began field-testing on its PDC network in Japan in 1997. PDC is Japan's version of TDMA. As you can see, DoCoMo's testing achieved accuracies between 4 and 44 meters, and including some very challenging indoor and downtown sites around Tokyo.

In 1998, SnapTrack's GSM consortium field-tested a variety of sites in the U.K., Germany, France, Spain, Italy, and Holland. Accuracy results came in between 9 and 39 meters for that program.

SnapTrack wireless-assisted GPS has been rigorously field-tested on CDMA networks in the United States, Japan, and Korea. The field tests in this chart show accuracy ranging from 11 meters in the outdoor urban site to 76 meters indoors in an office building and 78 meters in an underground parking garage.

SnapTrack has openly licensed its wireless GPS technology to equipment manufacturers. Texas Instruments and Motorola licensed SnapTrack technology several years ago. Compaq Telecommunications, Nortel Networks, NEC Corporation and others have licensed our technology and some have already deployed products. After exhaustive testing, NTT DoCoMo deployed its DoCoNavE location service and this Denzo PDA palm computer became the first commercial SnapTrack product in January of 2000. This is in commercial service in Japan today.

Qualcomm and SnapTrack have invested thousands of person hours and over $1 billion pioneering a wireless-assisted GPS solution. About a year ago, Qualcomm started shipping the MSM 3300 chip set. Two weeks ago we launched the MSM 5100 third generation chip set and a number of similar GSM and YBM CDMA chips are in development today.

In addition to powering the phone's main communications functions, these tiny chips embed the GPS functionality.

The MSM 3300 and the MSM 5100, as well as their third generation 1X and GSM wide-band CDMA successors fit into a wireless telephone like you see in this chart. With a device this small, there is no size or weight impact to the phone, and the device can be implemented at a very small incremental cost.

In April of this year, SECOM, a Japanese security services company, deployed the CoCo SECOM emergency positioning service using this GPS terminal manufactured by Hitachi. This is not a cell phone. It is a data-only tracking terminal. It includes the same chip that I showed earlier.

Here are a few other examples of production GPS–1 phones. This Samsung phone is sold here in the United States today by Sprint for about $150. This Denzo phone is also made to comply with the FCC's E–911 mandate, and currently over 50 other GPS phone designs are underway now. Several new models will be available in the United States, Japan, and Korea over the next few months.

In summary, SnapTrack's wireless-assisted GPS technology works on all second and third-generation networks, and has been extensively field-tested. Trial results prove that the technology de-

livers high accuracy and reliability, surpassing the FCC E–911 requirements.

The technology can be implemented at a very reasonable cost, and SnapTrack is openly licensed it to equipment manufacturers. Qualcomm and its partners are manufacturing a variety of phones, one of which is already available in the U.S. market. The technology has been commercially deployed in Japan with great success. SnapTrack and Qualcomm are eager to help enhance the safety of America's 100 million wireless subscribers. With this objective in mind, and given the facts I have presented to you today, SnapTrack and Qualcomm are confident that U.S. wireless carriers have what they need to deliver this life-saving 911 enhancement.

Mr. Chairman, members of the Subcommittee, thank you very much for your time today.

[The prepared statement of Mr. Sewell follows:]

PREPARED STATEMENT OF BRET SEWELL, PRESIDENT, SNAPTRACK, INC.

Mr. Chairman and Members of the Subcommittee:

I. INTRODUCTION

Thank you for the opportunity to appear before you today. My name is Bret Sewell. I am the President of SnapTrack, Inc., a small business located in Campbell, California and a subsidiary of QUALCOMM Incorporated. Since 1995, QUALCOMM, through SnapTrack and through its chip division, QUALCOMM CDMA Technologies, has worked to develop a wireless handset location solution to enable wireless carriers to deliver to the police and other public safety entities the most accurate and reliable possible information to locate wireless callers to 911.

The message I want to leave you with today is this. My company's technology, which gives the police and other public safety entities the highest levels of accuracy to pinpoint the location of wireless callers to 911 (typically within 10 to 30 meters of the caller's location), has been extensively tested; is already deployed in Japan with great success; and, here in the United States, on October 1st, Sprint PCS began selling phones containing chips with this technology. Numerous other U.S. wireless carriers, including Verizon Wireless, ALLTEL, Qwest, and Leap Wireless, will also soon begin selling such phones. Our technology is the world's most accurate E–911 solution, and it is currently available for any U.S. wireless carrier to deploy. In fact, our technology will add only nominally to the cost of a wireless phone, and the technology will cost a carrier less to deploy than any other E–911 technology.

Our technology will enable the police to locate wireless callers with this high degree of precision whether the callers are located in rural, suburban, or urban areas, both indoors and outdoors. Our solution will work on all air interfaces (including CDMA, TDMA, GSM, iDEN and 3G networks) and produces levels of accuracy in excess of the FCC's accuracy rules. Finally, the technology has been openly and broadly licensed to wireless equipment manufacturers who can implement it in products for their carrier customers. Any U.S. wireless carrier could deploy our technology, no matter whether the carrier uses the CDMA, TDMA, GSM, or iDEN air interface. For these reasons, there is no need for the FCC to waive its accuracy rules. Any carrier could deliver the required level of accuracy by deploying our solution, and there are a number of vendors, including QUALCOMM and other companies who have licensed our technology, who could provide the necessary hardware and software to such a carrier.

In the balance of this testimony, I want to describe how our technology works, the results of the testing and initial deployment of the technology, and provide a status report on my company's efforts to work with wireless carriers, handset vendors, infrastructure vendors, and others to ensure that the public enjoys vast benefits from this technology as quickly as possible.

II. BACKGROUND

Let me provide you with some background information on my company and technology. SnapTrack has approximately 100 employees. We are a wholly-owned subsidiary of QUALCOMM, which has a total of approximately 7,000 employees. In response to the FCC mandate, QUALCOMM and SnapTrack have been working for several years on developing an E–911 solution. In March 2000, QUALCOMM ac-

quired SnapTrack. As a result of thousands of person-hours of effort, and over $1 billion in pioneering investment, QUALCOMM has developed a technology that integrates position location capability into the chip which goes inside a wireless phone.

Here is how our technology works. The wireless phone contains a chip with GPS measurement capability integrated into the chip. When a caller calls 911, the handset takes measurements both from GPS satellites and the land-based cellular network. Software in a server connected to the wireless network synthesizes the two measurements and produces a precise location for the caller. If multiple GPS signals are not available because, for example, the caller is located indoors, our technology will still determine the caller's location because the handset will use the measurements taken from the land-based cellular network. This technique is manifestly more accurate and produces greater integrity than simply relying only on the measurements taken from the network or the GPS satellites alone.

Our solution locates wireless callers with accuracy which exceeds that required under the FCC's accuracy rules, which requires accuracy of 50 meters for 67% of the calls. In most cases, we are producing accuracy within 10 to 30 meters, and in some cases, we can even pinpoint the location of a caller within just a few meters. The solution will only add nominally to the cost of wireless phones. Unlike other solutions, a carrier deploying our solution does not have to add any cell sites in order to achieve the required levels of accuracy. As a result, it will cost a carrier much less to deploy our E–911 solution than to deploy any other solution. Moreover, because the device with the position location capability is always under the control of the consumer, his or her privacy will be protected.

### III. OUR TECHNOLOGY HAS BEEN THOROUGHLY TESTED AND SUCCESSFULLY DEPLOYED

As I mentioned at the outset, our technology has been thoroughly tested and successfully deployed. We have conducted tests in the United States, throughout Europe, and in Japan and Korea in urban, suburban, and rural settings, both outdoors and indoors. These tests have been conducted over the networks of carriers using a variety of air interfaces (CDMA, analog, GSM, PDC and PHS). In each test, the results have been that the technology has located wireless callers more accurately than is required by the FCC's accuracy rules. A summary of these test results is attached to this testimony. Recently, a U.S. carrier tested our technology and was able to locate callers with an average accuracy of 19.9 meters.

Some carriers have suggested to the FCC that our technology will only work on the CDMA air interface because it depends on the wide channels used in CDMA wireless systems and that our technology will not work on air interfaces which use narrower channels, such as GSM or TDMA. This suggestion is inaccurate. We have tested our technology over the GSM and the PDC air interfaces, both of which use much narrower channels than CDMA. In Europe, we conducted tests over GSM networks in Paris, Bonn, London, Utrecht, and other European locations, and this testing even included cross-border roaming. Equipment vendors such as Texas Instruments, Motorola, CMG Telecommunications, Nortel Networks, and Siemens Information and Communications Networks also participated in these tests. The results of these tests over European GSM networks were that wireless callers were located more accurately than is required under the FCC's accuracy rules. These tests in Europe proved that our solution will work well over a GSM network, and therefore no GSM carrier here in the United States needs a waiver of the FCC's accuracy rules. Instead of obtaining a waiver of these critically important rules, U.S. GSM carriers could deploy our solution which meets the rules.

Likewise, we have tested our technology extensively in Japan over the wireless networks of NTT DoCoMo, and another carrier, both of whom use the PDC air interface. PDC is very similar to the TDMA air interface used here in the United States by AT&T Wireless. Wireless networks built on both PDC and TDMA both use narrow channels. Our technology performed quite well over the PDC air interface, again determining the location of wireless callers more accurately than is required under the FCC's accuracy rules. In these tests, wireless callers could be located within 4 to 44 meters using our technology.

But, our technology has not just been tested. Rather, it has already been commercially deployed in Japan with great success. In early April 2001, a Japanese security company by the name of SECOM initiated a new service by which subscribers can locate and direct emergency assistance to individuals who carry a device containing a QUALCOMM MSM3300 chipset, which uses the technology I have described, and which operates over KDDI's cellular system in Japan. This device enables someone who is in trouble to send a signal over the cellular system to the security company, which can determine the person's location using our technology and then to alert

the nearest police station. These devices are small, as you can see, and they are very easy to operate.

The initial results from this deployment showed the enormous public demand and need for these highly accurate location services. In the first two weeks of SECOM's service, they received 70,000 orders for the service and shipped 10,000 units (all the units they had in stock) to subscribers. In that same two-week time frame, the service was used 75,000 times to determine subscribers' locations. In the first few days, a SECOM security guard was able to locate a little girl who was lost in a large park in Osaka. The public safety benefits from this new service are substantial and will increase exponentially as new subscribers are added.

Our technology has also been deployed since January 2000 over NTT DoCoMo's PDC cellular network through a service by the name of DoCoNavi. This service allows users to download location information into a personal digital assistant made by DENSO (the Naviewn) over DoCoMo's PDC network.

Thus, our technology is working well today in Japan, and American wireless carriers, such as Sprint, Verizon, Qwest, ALLTEL, and Leap, are in the midst of their deployments. By working with wireless carriers, our handset vendor customers, and other vendors, we can and will bring this life-saving technology to millions of Americans to improve their safety.

IV. QUALCOMM'S PRODUCTION OF CHIPSETS AND SOFTWARE TO ENABLE WIRELESS CARRIERS TO DEPLOY WIRELESS ASSISTED GPS TO MEET THE COMMISSION'S ACCURACY REQUIREMENTS AND THE COMMISSION'S DEADLINES

QUALCOMM does not make wireless phones; instead, we have licensed our CDMA technology to all of the major handset vendors around the world and to the other major manufacturers of chips for wireless phones. QUALCOMM also makes chips which we sell to handset manufacturers, and we produce the software which is necessary for our position location technology to work.

QUALCOMM and its handset vendor partners are on track in producing 2G wireless phones containing QUALCOMM's MSM3300 chipsets, the first chipset which allows handset manufacturers to make 2G wireless phones incorporating QUALCOMM's position location technology to meet the FCC's E–911 mandate. QUALCOMM delivered MSM3300 chips, and on October 1st, Sprint began selling phones containing these chips, and additional models of phones with these chips will soon be available. I have brought with me to today's hearing a production Denso wireless phone containing an MSM3300 chipset. You can see that the phone is no larger or bulkier than the typical wireless phone.

In addition, we have developed chips incorporating both QUALCOMM's 3G technology and our E–911 solution. The 3G technology, which we call cdma2000 1x, is important because it will double the voice capacity of the wireless networks on which it is deployed and substantially improve the coverage of the cell sites on these networks, which should drastically reduce if not eliminate dropped calls. In addition, this 3G technology will allow much longer battery lives for wireless phones to reduce the chance that someone who needs to make a call in an emergency will be unable to do so because the phone's battery is dead. This 3G technology will enable users to send and receive data at very high rates (up to 307 kbps) over wireless phones, much faster than most Americans can today with their desktop computers.

Since April 2001, we have been shipping samples of this new chipset, the MSM5100, to handset manufacturers, who have been hard at work designing and testing phones incorporating the samples, and last Thursday, October 11th, we announced that we have begun making production shipments of these chips to our handset manufacturer customers so they can produce phones and other devices with this advanced chipset. In fact, these manufacturers are developing more than 50 products which will incorporate the new chipset. We now anticipate that there will be 5100-powered handsets, with both E–911 and 3G 1x capabilities, commercially available in the United States before the end of 2001. Thus, without any additional spectrum, U.S. wireless carriers who have opted to deploy cdma2000 1x and our E–911 technology will be able to deliver both 3G high speed data services and highly accurate and precise E–911 service consistent with the FCC's mandate beginning in the next two months.

In addition to Qualcomm's chipset implementations of SnapTrack technology, Texas Instruments and Motorola have licensed our Wireless-Assisted GPS technology. These two companies produce the vast majority of the chips for GSM and TDMA phones. In fact, with Qualcomm, Texas Instruments and Motorola, a majority of the world's suppliers of wireless handset silicon and chipsets have access to our cost effective, high performance E–911 technology, which will work on all wireless air interfaces.

We are very excited that Sprint PCS, Verizon Wireless, ALLTEL, Qwest, Leap Wireless and other carriers are in the midst of deploying our E–911 technology, and we are working with our handset vendor customers, infrastructure vendors and other necessary equipment and services, and the carriers themselves to ensure that the deployment occurs as soon as possible and as efficiently as possible. In particular, we have been sensitive to the needs of wireless carriers, especially the smaller wireless carriers, for technical assistance which they may need in deploying our technology and operating their networks once the technology is deployed. In their filings with the Commission, numerous carriers stated that they were interested in a "turnkey" solution for E–911 service.

To this end, we recently announced that SnapTrack has entered into an agreement with a company by the name of TechnoCom Corporation. TechnoCom is the country's premier wireless location system deployment and integration firm. Under our agreement, TechnoCom is the preferred field-test, engineering, and integration contractor for carriers and original equipment manufacturers for the implementation of our E–911 technology over wireless systems in the United States. TechnoCom will guide carriers through the deployment and provide ongoing service assurance to maximize the performance of their position location service in a cost-effective manner.

V. CONCLUSION

In conclusion, QUALCOMM, and its SnapTrack subsidiary, have followed through on their commitment to giving wireless carriers the tools they need to provide highly accurate E–911 service to protect the public and to enable the carriers to meet the FCC's accuracy rules and to meet the deadlines in the FCC's rules. We have developed a solution that works in all environments (urban/suburban/rural and indoors/outdoors) and over all air interfaces. Our solution is ready to go. We were very excited to see Sprint's announcement on October 1 that their phones with our technology are now getting into subscribers' hands, and we can't wait for the other carriers who are deploying our technology to make similar announcements over the next few months so that the over 100 million Americans who use wireless phones can, at long last, enjoy the added protection from enhanced 911 service.

Thank you, and I would be happy to answer any questions.

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Results of Testing QUALCOMM's Position Location Technology

| Location of Test | Air Interface Used | Environment | Level of Accuracy Attained |
|---|---|---|---|
| Denver, CO | Analog/CDMA | Outdoors, Open | 4 meters |
| San Francisco, CA | Analog/GSM/CDMA | Indoors, Urban | 45 meters |
| Tampa, FL | CDMA | Indoors, House | 20 meters |
| Tokyo, Japan | PDC/PHS | Dense, Urban | 18 meters |
| Madrid, Spain | GSM | Dense, Urban | 37 meters |
| Washington, DC | Analog | Urban Alley | 50 meters |

Senator INOUYE. Thank you very much.

Now may I call upon President Wheeler.

## STATEMENT OF THOMAS E. WHEELER, PRESIDENT AND CEO, CELLULAR TELECOMMUNICATIONS & INTERNET ASSOCIATION

Mr. WHEELER. Thank you, Mr. Chairman. You know, we have throughout this hearing been personalizing it with our own experiences, and maybe I should begin by personalizing things myself, because John Melcher made a reference. I am the guy that said we should sit down with the public safety community and develop a proposal to go to the FCC to enact into law. Having done that with John and his colleagues, we took this to the CTIA Board of Directors and they approved it.

It was a very significant step, and I hope you appreciate what it represented, because at the time there was no technology that

would accomplish this, yet we said, we will commit ourselves to go do that. At the time, there was no country in the world that had even considered doing this for their wireless phones.

You just saw a presentation in Japan for one specific device that has now just been introduced. Nobody in the world has considered doing this across the entire embedded base. The wireless industry said, "not only will we develop the technology, but we will go to the FCC and we will petition the FCC to make that a requirement so that we all have to do it." That is the environment into which this all has come.

Now, there are a couple, I think, misconceptions that have been kicked around here this morning that I would like to address. Number one is the statement that October 1 was some kind of a "missed deadline." October 1 is the starting line, not the finish line for E–911 Phase II. October 1 is when you are supposed to begin getting things going so that by December 31, 2005 you will have a total program in place, and that will happen.

The term waiver has been used. What the carriers have entered into with the FCC is a binding agreement that, as you heard Mr. Sugrue say, is enforceable. The agreements have benchmarks along the way, and they have quarterly reports along the way that say, "I will have this many of my subscribers by this date, X number by this date, Y by the next, et cetera," so that there is a program that you have to complete—we will be compliant with the rules, period.

And just to put it in perspective, what we are talking about accomplishing over the next several years is finding someone on the move, and working so that even when they go to another system in another city it will still work. We are going to do that in a couple of years.

It took over 20 years to get half of the American people plain old wireline 911. We are dedicated to making this happen. We are moving ahead. We will make this happen.

The carrier horse in this scenario is in the barn, if you will, but there are other issues that have not been corralled, let alone be put in the barn. The carriers provide the front-end location information, "here is where I am," but that information is about as useful as the proverbial tree falling in the forest with no one to hear it if there is not a back end that can transport and translate that into usable information.

The report which you all had the Congressional Research Service do for you, and it was turned in about 2 weeks ago, said, "It appears the necessary level of readiness for PSAPs to receive and process this information has not been achieved."

Now, let me stipulate right here that my goal is not to sit here and point fingers, cast aspersions, anything like this. We are in this together. My goal today is to go where Senator Wyden was going, and in the question he asked a few minutes ago, when he said, "What do we need to do?" Well, the technology has been developed, as you have heard. It is being deployed with enforcement mechanisms. Here is what else we need to do.

Number 1, we need to know where these PSAPs are. There is not even an accurate count of how many there are, what their boundaries of jurisdiction are, or whether they are Phase I compliant. We

need to have a simple kind of a survey, a directory. We can do that together.

Number 2, we need to have a statewide plan. Senator Burns, Senator Wyden's bill S. 800, that you all have been referencing, in fact, said that there should be a statewide plan for the implementation of wireless E–911. I am sorry to say that the take-up on that has been rather timid. Let me give you the math of this for a second.

If there are 6,800 PSAPs in the country, and there are five to nine wireless carriers for every PSAP, and then there is a local telephone company that has to interface between the two, you are talking about 8,000 negotiations that have to take place, 80,000 agreements that have to be reached. If we did 100 a week, and with all due respect to the legal profession, 100 agreements a week out of a team of lawyers is a great reach, it would take us 16 years. That is not acceptable. Why do we have 50 statewide plans?

The third thing that we can do to Senator Wyden's question is to test the technology before we roll it out. Let us roll out in a logical way. There are 104,000 cell sites in America. What we ought to have is a policy that says, "Let us test it here." If John has got the infrastructure in Houston so that he can do it, let us test it there, and then let us roll it out. Let us not just suddenly dash everything out at once, then have to go through and do the fixes that we know we are going to find as things roll out, and let us, as a result, get it out faster than having to go back and constantly refix.

There are a couple of other public safety issues that we need to address as they relate to 911 also in this hearing, and that again go to Senator Wyden's point about reordering our priorities. Reference has been made, for instance, to priority access. The Bush administration has asked for what is called "ruthless preemption." That means that when a national security official or emergency personnel wants to use their wireless phone, that they preempt anybody else's use.

We have told the administration that we will work with them to deliver that, but let me kind of set up what that means, for instance, to 911. The typical cell site—and it is dangerous to use a word like "typical," but you get the idea. A typical cell site can handle about 60 simultaneous calls.

Now, in an emergency everybody is going for their phone. You saw that up here on the Hill on September 11. At least, my reports are everybody was saying they could not complete calls on the Hill because all the circuits were blocked. When priority access is added on top of that, there will be even fewer 911 calls that will get through. We are not saying do not do priority access, but we are saying, we have got to figure out a way to make these all work together, because there are consequences for every action.

Now, one solution, and Mr. Chairman, we were before this Committee sometime ago, as you know, talking about spectrum. One issue is more spectrum. If there is more spectrum, there will be more calls that can be completed.

It is going to be a while till we get through all the issues about the other spectrum the Government is using, but consider the fact that we are the only country in the world that limits the amount of spectrum a wireless carrier can use. By FCC rule, every wireless

carrier is limited to only 45 MHz in their market. If you had access to more spectrum, you could complete more calls, including more priority access calls, including more 911 calls, including more calls to loved ones.

We are the only country in the world that has that kind of a cap on how much spectrum you can have. A citizen of the U.K., Germany, France, Japan, go right down the list, has a greater chance of their emergency call going through than does a citizen of the United States because their carriers have more spectrum. That does not make any sense. We want to talk about thinking anew. Here is one way that we can think anew.

There are other new ideas we need to look at real hard coming down the road. One of them is cell broadcast. It is an interesting concept, but it actually may turn around and have some unintended consequences. It has been proposed by a private organization that there be a type of emergency broadcast system for cell phones, that everybody in a specific area gets a call on their phone with a recorded message that says, "hurricane coming," or some similar message.

Now let us go back to what I was saying about 60 calls simultaneously per cell site. Imagine what happens in that kind of environment, when all of a sudden every phone in the whole area gets called, and then those people turn around and call and say, "Oh my God, honey, do you know there is a hurricane coming." 911 calls cannot get through, priority access gets choked. We need to think our way through what seem to be really easy and quick solutions to things.

Finally, I am sure that you were as amazed and dismayed as I was to pick up the *Washington Post* a couple of weeks ago and see on the front page an article that began by talking about how the rescue units at the Pentagon could not talk to each other, that the Montgomery County Fire Department could not talk to the Alexandria Fire Department, that they were using runners to communicate because their radios could not communicate with each other. The reason the radios could not communicate with each other is because the spectrum is so chopped up, and there are so many different technologies being used, that it was impossible for them to work.

This Committee has said that 24 MHz of spectrum will be turned over to public safety out of the UHF Channels 60 to 69 that has to be turned over by the broadcasters in 2006, but as you know, the broadcasters are not turning that over.

There is a real challenge that we have in terms of how are we going to see that there is enough spectrum for public safety, and there are solutions to them that this Committee has jurisdiction over, and we would be happy to work with the Committee to help address them. All of these issues, I want to emphasize, are issues that we believe passionately in. 140,000 times a day somebody uses their wireless phone to call for help, to save a life, to stop a crime, to help somebody in need, 140,000 times a day. It is the greatest safety tool since 911.

We want to make wireless even better. We are the ones who worked together to say, "Let us come up with a system, let us go to the Commission, let us make it law," and we will deliver on that.

Thank you, Mr. Chairman.
[The prepared statement of Mr. Wheeler follows:]

PREPARED STATEMENT OF THOMAS E. WHEELER, PRESIDENT AND CEO, CELLULAR TELECOMMUNICATIONS & INTERNET ASSOCIATION

Thank you for the opportunity to appear before you today. I am Thomas E. Wheeler, President and CEO of the Cellular Telecommunications & Internet Association (CTIA) representing all categories of commercial wireless telecommunications carriers, including cellular and personal communications services (PCS).

Thank you for inviting me here today to talk about this critical issue for the wireless industry, for consumers, and for the nation. Wireless carriers have long recognized the importance of providing 911 service to the public. Wireless phones help ensure public safety on highways, in cities, towns, workplaces and neighborhoods. Every day, in the United States there are more than 120 million wireless users making more than 140,000 calls for help or to report an emergency.

The challenges to implementing E–911 have proven daunting. But, the basic reality is that under Federal Communications Commission (FCC) guidelines adopted just two weeks ago carriers will deploy E–911 pursuant to specific implementation timetables. My testimony reviews the history of the E–911 issue, revealing the difficulties inherent when regulatory standards precede the technology necessary to meet a standard. But, from today forward, the task at hand is clear—implementing E–911. There are several aspects to the task, but they fit into a few categories.

First, how carriers and the public safety community—the PSAPs—will work together, and I emphasize together, to deploy E–911 technology. Today, there are some basic problems. For example, a comprehensive survey does not exist that identifies which PSAPs cover what areas and their specific deployment plans, including whether they are Phase I compliant. This can and should be remedied. Other practical tools to roll out E–911 technology would greatly assist the effort—model PSAP-carrier agreements, statewide implementation plans, and testing protocols are just some examples. This Committee has already directed the FCC to assist such planning, it did so when passing the Wireless Communications and Public Safety Act of 1999. Action is needed. Cooperation with PSAPs must also involve local wireline carriers—who must upgrade their networks to handle the additional requirements of delivering wireless location information to PSAPs.

Another challenge for PSAPs is finding the financing to support technology upgrades. Sadly, while wireless subscribers contribute more than $700 million annually to support wireless E–911 services, some States have "raided" their E–911 coffers to cover budget shortfalls. California alone redirected $50 million of $70 million earmarked for wireless emergency services to its General Fund in July.

Second, another set of challenges involves how carriers and the public safety community will work on other potential requirements or mandates. For example, the National Communications System has recommended a Priority Access requirement for the wireless industry. The wireless industry is already working on that task—complying with requests to give Priority Access to five hundred essential personnel within sixty days. But, if, as some have suggested, Priority Access is to be given to significantly more personnel, we could face a circumstance where Priority Access calls might actually prevent 911 calls from going through. Mandated "cell broadcast" systems, in which wireless phones in a given area receive a message, also present the possibility that scarce wireless spectrum resources are shifted away from 911 calls. Cell-siting issues will also have to be addressed. All these point to the problem that this Committee knows well—wireless spectrum is in extremely short supply, and the artificial caps on spectrum ownership exacerbate the problem. More demands on the wireless network require more spectrum, it is just that simple.

Third, spectrum shortfalls are also a problem for the public safety community. Despite Congressional direction, 24 megahertz in the 700 MHz band destined for public safety uses remains in regulatory limbo. Public safety personnel are in dire need for additional spectrum, interoperability of public safety communications is key and resolving the questions around the 700 MHz band is more important than ever.

BACKGROUND

In 1996, the Federal Communications Commission adopted rules for enhanced wireless 911 service. Under Phase I of its plan, carriers were required to transmit the handset's phone number and the location of the cell site serving the caller to the public safety answering point (PSAP). Phase II E–911 requires wireless carriers to provide to the PSAP more precise location information (latitude and longitude) and callback capability.

Although the Commission acknowledged that the technology required to locate wireless callers to emergency services did not exist in 1996—indeed, was not even under development—it nevertheless set an extremely aggressive five-year schedule to begin implementation of Phase II of its E–911 plan. This implementation was to be completed by December 2005. Despite breathtaking estimates of the costs to deploy Phase II technology ($7.5 billion), wireless carriers immediately began the process of identifying vendors and analyzing the most efficient and effective means of meeting the Commission's deadline.

Not surprisingly, given the aspirational nature of these requirements, there have been delays in satisfying the Commission's first Phase II benchmark. These delays have resulted from a confluence of many factors. First and foremost, the technology required to find callers within the Commission's parameters was never under the carrier's control and is only now becoming available. Wireless carriers in the United States will soon be Phase II capable. Two carriers representing almost 40% of wireless subscribers have committed to the deployment of technology covering all subscribers, not just new phones in 2002. It is notable that no other nation in the world has successfully developed and deployed the technology to pin-point a caller's location from a wireless device. Second, although PSAPs and the wireless industry share responsibility for the delivery of nationwide E–911 deployment, the public safety community must also work to upgrade PSAP facilities to handle the E–911 information sent by carriers. Finally, the Commission's E–911 regulations have undergone constant revisions since 1996, making it difficult for both the public safety and wireless communities to implement the daunting E–911 requirements.

## I. TECHNOLOGY CONCERNS

When the Commission issued its first E–911 order in 1996, it expected that Phase II requirements would be implemented through a "network overlay" solution. This solution permits callers to be located through triangulation of nearby cell sites (calculating distance by the time consumed for cell site-to-handset signal transmissions). Under the FCC's rules, a carrier using a network overlay must provide a level of accuracy within 100 meters 67 percent of the time.

After manufacturers and carriers had analyzed the network overlay technology under development, some vendors proposed use of an alternative "handset" solution which promised greater accuracy. This solution often includes a Global Positioning Satellite (GPS) receiver, with triangulation performed using the satellite data in conjunction with data derived from the wireless network. Other carriers later proposed a hybrid solution, which uses both network and handset upgrades. In 1999, the Commission revised its rules to permit use of handset solutions, but imposed more rigorous accuracy 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 technical challenges in both the network overlay and handset solutions. In most general terms, 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. In addition, the overlay solution requires the installation of additional antennas at most cell sites, which even in temporary testing scenarios generated considerable landlord and community opposition. GPS-assisted handsets still have not been manufactured in a quantity sufficient for retail use.

Wireless carriers have not been passive or nay-sayers in this process. Every credible (and some not so credible) solution has been analyzed and field tested numerous times in joint carrier/vendor endeavors. Carriers have spent millions of dollars and thousands of hours in their search for the right technology. These real-world tests demonstrated, however, that until recently there was *no* Phase II solution able to meet the Commission's accuracy requirements and that *no* technology has been able to perform well across all environments. Even if the technology could live up the claims of its salesmen, moreover, carriers have found that when they place orders, the equipment has not arrived on schedule and the network infrastructure upgrades bog down almost as soon as they are started. Only now are technically feasible, *complete* solutions starting to become available. Wireless carriers are poised to take advantage of this very new technology and there is no doubt that U.S. consumers will be the first on earth to reap the benefits of Phase II E–911 service.

## II. WHAT IS NEEDED TO MAKE E–911 DEPLOYMENT A REALITY

Our experience in deploying Phase I E–911 (call-back information) has demonstrated that three parties are essential to a successful resolution of the challenge of implementing Phase II: the wireless industry, the FCC, and the PSAPs. When

the first wireless customer receives a location-enabled wireless phone, and when wireless carriers deploy handset and network-based solutions, the public is going to expect Phase II E–911 features and service wherever they roam because, to state the obvious, a wireless phone is a *mobile* device.

While Congress wisely recognized the benefits of statewide implementation in the Wireless Communications and Public Safety Act of 1999—and specifically instructed the FCC to facilitate the development of such plans—the Commission has done little to further the intent of Congress in those states that do not already have a comprehensive plan for E–911 deployment.

With recent world events, an increasing reliance on wireless communication, and the public's expectation that dialing 911 from their mobile phone will deliver an effective and timely response, it is incumbent upon all States and their Governors to advance the Wireless E–911 process within their jurisdictions. Statewide procedures, standards and expectations for public and private sector cooperation should be developed. Updating and joining existing PSAPs with modern state-of-the-art technology will require an enormous coordinated federal-state partnership. Four steps that will lead to more timely E–911 deployment readiness are as follows:

*Survey and Inventory all PSAPs.* Today, after years of preparations for 911 and E–911 deployment, no one knows for sure how many PSAPs are in existence and their specific service areas. The wireless industry has identified in excess of 6,800 PSAPs in the United States. The National Emergency Number Association (NENA) has confirmed 5,000 primary 911 Centers and 2,300 secondary 911 centers, but this does not include the multiple police and fire departments which field emergency calls every day. Nobody knows with precise accuracy exactly how many PSAPs there are, what geographic area they serve, or their operational status. Available data indicate less than a third of PSAPs have implemented Phase I. While there are one or two markets that are imminent to launch Phase II, none have done so to date. A survey and inventory of PSAPs should include: name of facility, geographic area and boundaries they serve, name and contact number of a responsible party at the facility, Phase I & II implementation status, and expected actions necessary to ready PSAPs for Phase I and Phase II deployment. It is important to do a survey and assessment to determine if PSAPs are E–911 Phase I, Phase II, or not ready at all.

*Establish statewide implementation plans.* Creating a model PSAP-carrier agreement could be the first priority for every state. Within any given State, there are significant inconsistencies from PSAP to PSAP and they are at varying levels of readiness and effectiveness. Public and private sector entities would benefit from common contractual understandings. These varying levels significantly impact a PSAP and/or wireless carriers' ability to implement Phase I and Phase II. States should work towards harmonizing PSAP readiness within their borders.

Equally problematic in Phase II implementation is the lack of a standardized (or at least agreed-to) methodology to interconnect and process latitude/longitude information generated by the wireless carrier and translate it into a specific dispatch address. Even though a wireless carrier might have a standardized way in which it handles information throughout its network, a local PSAPs may not receive or handle the information the same way. This was a serious problem when only about 1,000 PSAPs requested Phase I capability; imagine what it will be like when 6,800 PSAPs decide they want Phase II.

National guidelines may be beneficial to create uniform principles that would facilitate deployment and promote PSAP interoperability across State borders. There are already a number of States that have demonstrated significant success in implementing Phase I in the vast majority of their PSAPs. These States share many common hurdles and common solutions which could help states that are not as far along in this process. The elements common to statewide solutions are:

- **A central planning body** within the State that manages financial, as well as implementation processes.
- **Technology neutrality**—a must for operational, technical and financial solutions.
- **Cost recovery** (funding mechanism) for both the carriers and the PSAPs should be in place.

Each State should create a State E–911 Task Force comprised of representation from the public/private sectors, PSAPs, wireline and wireless carriers, to complete the survey, establish the requirements and develop the program for how 911 and enhanced (E) 911 will be delivered within the State. Centralized planning within each State, an established appropriate funding mechanism and appointing a State Director/Administrator of statewide 911 systems are the key factors that have contributed to early State successes. A State Director/Administrator can do further as-

sessment planning and build it into current deployment schedules. Statewide planning will most likely enable redundancy and interoperability among existing PSAPs to give a higher level of service in these times. Setting aside local concerns and giving guidance at the State level is necessary to achieve success.

To get a grasp of the size of the task at hand, consider the following: there are over 6,800 PSAPs and 5 to 9 wireless carriers per PSAP area. This means that more than 34,000 contracts and agreements will need to be negotiated and finalized. A Statewide Director/Administrator negotiating on behalf of all the States' PSAPs could dramatically minimize the number of contracts per State or Region and significantly speed up the process.

This mirrors the congressional direction included in S. 800, the Wireless Communications and Public Safety Act of 1999, to implement a statewide plan for comprehensive deployment for E–911 amongst the public safety community.

*Test first, then roll out.* State identification of at least a test location for the initial implementation, possibly a market that has a large number of carriers, offers important practical advantages to all sides. There are 104,000 wireless cell sites throughout the country. Deployment will require the loading or modification of software, hardware and possibly additional equipment. Rolling out these technical modifications in an ordered fashion is the most sensible approach—hopscotching among the 104,000 wireless cell sites spread throughout the nation will be inefficient and ultimately ineffective. Programmatic, rational deployment will not only serve the citizens well, but will assist the wireless carriers that have significant technical issues to resolve. Enabling the service through a test market approach will identify roadblocks that can be eliminated before rolling out the service statewide.

The enormity of the task has been identified; establishing a rational roll out schedule for deployment and maintaining the schedule will facilitate a wider area and more people receiving the capabilities of the service in the timeliest fashion.

### III. PUBLIC SAFETY COMMUNITY LACKS STATE FUNDING COMMITMENT

There is no doubt that the nation's PSAPs face incredible challenges in their daily support and delivery of life-saving services. One of these challenges is financial. Although wireless subscribers contribute approximately $700 million a year to support wireless E–911 service, this money is not always provided to the PSAP serving the subscriber's home market. For example, as the *New York Times* recently reported, because New York City and Long Island operate their own emergency 911 systems, they do not share in the over $40 million raised by the state through consumer surcharges.

Worse still, some states have "raided" their E–911 coffers to cover budget deficits. In California, for instance, more than $50 million dollars earmarked for PSAP implementation of E–911 was diverted this year to close gaps in the state budget. North Carolina similarly decided to spend millions of E–911 dollars on other, unrelated matters. Consumers' ability to benefit from emergency location information would be greatly enhanced if PSAPs had access to, and could prioritize the use of, the hundreds of millions of dollars being collected from wireless consumers.

### IV. IMPLEMENTATION GUIDANCE HAS CHANGED

While we must all move forward, we believe it is important to understand that since the FCC first adopted its E–911 rules, the implementation process has been a moving target. Over the past few years, the Commission adopted then eliminated the cost recovery requirement for wireless carriers, modified the rules on cost allocation, imposed a signal scanning requirement on analog phones, and increased the location accuracy requirements for Phase II service. The Commission is currently considering—for the second time—whether to require call back capability for a wireless phone not assigned to a subscriber.

*Cost Recovery.* In 1996, the Commission stated that a wireless carrier's obligation to implement E–911 service was contingent upon the adoption by each state of a cost recovery mechanism. The Commission was aware that the costs of deploying Phase I and Phase II E–911 service were going to be enormous, and it wanted to ensure that recovery proceeded in the most efficient and effective manner possible.

Nonetheless, three years after it adopted this policy, the Commission repealed it for wireless carriers. Its action eliminated the states' incentives to adopt or retain cost recovery mechanisms, leaving wireless carriers in many areas to recover their implementation costs in whatever manner they could. As a result, negotiations between PSAPs and carriers, which previously had been focused on facilities deployment, foundered over questions of cost allocation.

*Cost Responsibility.* Although the Commission abandoned its cost recovery rules in 1999, it continued to emphasize that PSAPs must pay for all the upgrades and

facilities required to receive and utilize the data elements associated with Phase I service. Recently, however, the FCC revisited this issue, and shifted the responsibility for paying for certain network and database components from the PSAPs to the wireless carriers. This decision has created much concern among wireless carriers because they do not control the parts of the E–911 network for which they are now responsible, and hence they cannot determine the number of trunks needed by, or influence equipment choices of, the PSAP.

Other challenges evolve from the fact that E–911 technology involves not only wireless carriers and PSAPs, but local wireline carriers. For example, some technology challenges involving the Automatic Location Information (ALI) database are the result of the interconnection among PSAP, ALI database and carrier. For wireline E–911 applications, it is a one-time inquiry—PSAP checks ALI database and gets the caller's address at the initiation of the call. But, in the TIA standards-setting process, the wireless industry and PSAPs had to determine solutions that went beyond this capability—to get continuous inquiry into a wireless caller's location, not just a one-time inquiry at the start of the call. This is necessitated by the mobile nature of wireless communications. This "continuous-inquiry" functionality, requested by PSAPs, supported by the wireless industry, requires upgrades to the local wireline carriers interface with the ALI database.

*Accuracy Standards.* The FCC sometimes at vendor requests has changed the location accuracy requirements so that the standard upon which the PSAPs and the wireless industry agreed was never a stable platform for technological development. Although the Commission said that it did not want its rules to hamper the development and deployment of the best and most efficient technologies and systems, and that its goal was to encourage the broadest possible range of technical solutions to be employed to achieve Phase II compliance, in late 1999, the Commission adopted Phase II accuracy requirements that differed based on the technology selected by the carrier. These new rules imposed higher accuracy levels on handset-based technologies than on network-overlay solutions for E–911 service.

This approach resulted in a flurry of requests for waiver of the handset accuracy requirements from carriers that believe that handset or hybrid technologies provide the best solution for their customers.

*Non-Initialized Phones*. In 1997, the Commission reversed its initial ruling and required wireless carriers to pass all 911 calls to PSAPs, even from handsets that are not registered for service with any wireless provider ("non-initialized phones"). At the time, the Commission acknowledged that call back capability might not be available for these handsets because they have not been assigned a dialable number. In May 2000, the Commission asked parties to comment again on the call-back issue. In response, virtually every wireless carrier explained that there is no viable technical way to provide call back service for non-initialized handsets. CTIA noted that mandating call back capability for all non-initialized phones would require the development of "parallel call delivery systems," *the costs for which would exceed those for Phase I and Phase II implementation combined*.

Despite the overwhelming record evidence and the FCC's own 2000 conclusion, in May 2001 the Commission asked whether carriers or manufacturers must develop the capability to enable PSAPs to return calls from non-initialized phones. If the Commission were to adopt such a rule, this would obviously divert carrier resources from Phase I and Phase II implementation.

The constantly changing technical and regulatory landscape has delayed implementation of E–911 service. Carriers and public safety officials cannot complete negotiations over the deployment of E–911 systems as long as regulatory obligations and technical requirements are in flux. The uncertainty created by the lack of firm rules has deterred all parties from making the huge financial and time commitments necessary to bring E–911 service to the nation.

The wireless industry is proud of its role in promoting public safety. While widespread E–911 deployment is a priority for wireless carriers, the industry's efforts have been impeded by underachieving but highly touted technology, evolving technological and regulatory requirements, and a lack of public safety readiness. I firmly believe, however, that the process of bringing the benefits of E–911 to the public have been hastened by the certainty the Commission created two weeks ago when it approved some of the larger wireless carriers' E–911 implementation plans. Much still needs to be done by all parties to this effort—the FCC, the wireless industry, the technology suppliers, and the PSAPs—but for the first time since 1996, it appears that our common goals are achievable.

Senator INOUYE. Thank you very much.

Senator Wyden.

Senator WYDEN. Thank you very much for your thoughtfulness, Mr. Chairman. That was an excellent panel. Let me see if I might just ask a couple of questions.

I think Tom Wheeler made a number of points. I tried to tick them off. Certainly I support those, the question of the PSAP survey and the State plan and the like, and I think what I want to do is sort of walk from where we are now to essentially those kinds of issues.

Tell me, if you will, this panel, what specifically has changed already since September 11? If we are going to set about the task of reordering our priorities, I think it would be helpful, and we could just maybe go down the row. I think it would be helpful to have on the record what exactly has changed thus far in this area.

Where we all agree, when this panel agrees we are going to have to have a partnership between the private sector and the public sector to get it done, what has actually changed since September 11? Let us maybe go down the row. Start with you, Mr. Amarosa.

Mr. AMAROSA. Senator, I think what you are seeing is an emphasizing of what the actual needs are to locate people, the needs of wireless communication in these types of situation, which I think we have all agreed to, and I think it just shows the heightened personal security we all seek in this country after the events of September 11, and I think this is a mechanism that can do that. It is a mechanism that can support the needs of the public safety community and of the wireless industry to get the calls through and to get the expedited response to those locations very, very fast.

Senator WYDEN. But with all due respect, we knew before September 11 what the needs are. I want each one of you, to the extent you can, to set out on the record what has changed since September 11 in terms of getting this done, because under the leadership of the Chairman and Senator Burns, who have been at it, and I have been Senator Burns' junior partner, so to speak, on this for sometime, if we are going to get it done we need to know, at least to me, what has changed since September 11.

Ms. Hansen, maybe you want to give us your sense.

Ms. HANSEN. Well, initially the influx of people moving to the State of Montana.

[Laughter.]

Ms. HANSEN. Secondly, and more importantly, the additional calls for service received, the volume has significantly increased in public safety answering points in our State as well, and in other communities, from what my colleagues and I are sharing.

What we are doing as far as changes, recognizing the need, we have recognized the need for many years. Since the inception of wireline 911, equally important to wireless services, we have to be innovative and think outside of that box. Urban search and rescue teams, we had to plan for no communication ability. That is similar to every PSAP in this country, let alone in rural areas, where we have a lot of challenges in and of themselves.

From the public safety standpoint, again the influx, putting us in the position of having to wait, puts us again in the position of having to take care of it on our own, and that puts tremendous pressure, as John Melcher mentioned, on the public safety dispatcher, the call-taker, as far as the stress levels and the turnover

in our industry. We were working, however, with a number of the rules with the FCC and local carriers.

I would like to mention incredible work done by Western Wireless in particular, with some groups within Montana, in trying to think of innovative ways to roll out technology and still follow the rules.

Senator WYDEN. After September 11, Western Wireless got together with you, and said, "We have got to speed this up."

Ms. HANSEN. We have got to speed this up. It was a call to me. We have had exceptional working relationships prior to September 11, but afterward my question to them was, if we are not a model community of things like APCO, Project Locate, and found within parameters and strict constraints of rules, typically it was an all-or-nothing event. Either you meet this deadline with this type of result, or you do not get anything.

We in rural areas especially will take 100 meters. We will even take 1,000 meters. Just roll it out today, let us try it.

The State of New Jersey, if you were to deploy today, we would learn something in rural areas, in urban areas alike, and we would move forward with embracing the technology and completing that finish line probably sooner than what is given in these extensions.

Senator WYDEN. I think you heard when I questioned earlier I very much share that view. You are always going to have a better computer, you are always going to have a better mousetrap. That is not a case for not getting out this life-saving technology right away, while you advance it, so I am glad to see you can give us an example, at least with Western Wireless, of somebody after September 11 who said, "We have got to do more."

Mr. Sewell.

Mr. SEWELL. Yes, Senator. What has changed since September 11, I will make a couple of observations. Firstly, obviously, the tremendously heightened sensitivity to public safety in general, which I think further underscores the importance of implementing the guidelines that a lot of work has gone into over the last few years, but the one important thing that I think has changed is we now see the first results of an effort that started in 1996, championed by the FCC, supported by the wireless industry manufacturers and technology providers, which is the first product that can actually do what is being asked here.

So we are hoping that there will be more of this, of course, but today a subscriber can buy a cellular phone at a reasonable cost of $150, which provides accuracies that are well within the mandate, and if that is testament to what can be done by one carrier and one manufacturer, we are hopeful that others will follow and keep everything on track as we move ahead.

Senator WYDEN. Mr. Melcher.

Mr. MELCHER. I think in direct response to your question it is a matter of consciousness, and with that consciousness, a new consciousness comes of reprioritization. There are State legislatures, and unfortunately our own State legislature did not appropriate all of the funding that it collects for 911 to the State 911 commission which handles most of the rural part of the State in the last session of the legislature, and I believe they are going back to re-

address that as a result of—at least there are those who are advocating they do that.

I know there are other examples throughout the country, and trying to speak from a national perspective, it is a matter of priority. 911 has always been at the forefront of consciousness, thanks to William Shatner and others like that. 911 is somewhat ubiquitous, but what people do not understand is what happens behind the scenes. I think since the attacks on our nation there has been a little bit more attention paid to, if not significantly more attention paid to what 911 is really all about, and the complex components that make it up.

I mentioned earlier it has really been a State and local implementation issue until recently, when Federal mandates like wireless and others have come to the forefront.

Another significant change, and I think this is incredible and we need to expand upon this, is disparate interests have always been a bit of a problem for us. There has been a vendor versus vendor, network-based location is better than handset assisted location, this carrier solution than this carrier solution, this public safety agency is a better example than that public safety agency. I think we are seeing less of that as a result of the attacks, and I think we are seeing more of a, we have got to hold hands and get this done.

We, I believe, must—to bring this thing forward, I think we must capitalize on that momentum, and I believe that your own efforts by having this hearing today and other efforts you have done, especially other members of your panel have been participating in press conferences and meetings, and State hearings and the like, have drawn a focus and a consciousness that was taken for granted before September 11. Now it is no longer taken for granted, and that is a very, very important asset to the public safety community. Now we must get our act together to make sure that we are working together as a community to come to you with what our needs are, articulate them very well, delineate where our disparities are, ask you for the help that we need, and work with our colleagues and our fellow team members in making this a reality.

Mr. Chairman, I brought you a T-shirt, actually all the members of the Committee will get one, but we could not bring packages in because of the new restrictions that—you were in the meeting this morning. I brought you a T-shirt, actually two over here, one of them is from my colleague, Mr. Bradshaw in San Francisco, and it is an American flag that says, "United We Stand," and that is truly the position of public safety telecommunications today.

The other T-shirt I brought you is with respect to wireless 911. An operator answers the phone and says, "What is your emergency." The caller says, "There has been a terrible accident." The operator queries what is the location, and the caller says, "Latitude 30.428 West, longitude 90.328 North," and the call-taker says, "huh"?

The actual ability to make wireless location a reality is a team effort. It requires the efforts of public safety, it requires the efforts of the vendors, who cannot cat-fight with one another any more, it requires the efforts of the carriers, who must recognize their responsibility and make good on the promises we have committed.

We appreciate those deathbed conversions, and we appreciate those that have been working very hard for a long time. I believe the team effort, this kind of focus and a reprioritization is the benefit we have seen since the 11th.

Mr. WHEELER. Three things I think, Senator Wyden. Number 1, just by result of the calendar, the FCC's rules have gone into place with enforcement action, and with a deliverable schedule for the technology.

Number 2, and specifically in regards to the kinds of tragedies that happened on the 11th, was an increase in demand for various innovations such as the "ruthless preemption" priority access that I was talking about that will have an impact on 911. We have to figure out how to make it work.

In essence, what has happened is, we have been asked from the wireless industry standpoint to do more with less, to provide more connectivity without more spectrum, and that runs into the laws of physics.

But the third thing is I think that we learned something from New York itself. One of the things we have not talked about here today is that when we sat down and worked out how do we roll out wireless E–911 we did it in two Phases. Phase I was to be located to the level of the cell site, so I can identify that it is this particular cell site. That also put in the infrastructure that you needed for Phase II, so that when this great technology, that TruePosition and SnapTrack came along, the infrastructure was installed. The problem is, there has not been full implementation of Phase I.

Every wireless switch in America, every wireless switch is Phase I capable and has been now for a couple of years. In New York, however, there was not even a Phase I capability in place for PSAPs. In New York, since 1991, wireless subscribers have been paying 70 cents a month to the State for a wireless 911 surcharge, of which nothing has gone to the PSAPs to upgrade for wireless.

We had a situation in California, where $50 million out of the pot of money set aside to provide for the upgrades was taken out by the General Assembly for use on non-wireless initiatives. They said in the past, we have got that money, we have been raising it from consumers, saying that this money will go to paying for upgrades to the wireless PSAP capability. The General Assembly now says, "We are not going to use the money for that, we are going to spend it for other budgetary things."

Throughout the States, this is a typical thing that is happening. What happened in New York has helped us focus on that, because all the money has been collected. Even the first stage deliverable, which the wireless industry could deliver, was not there because the PSAPs were not ready.

Senator WYDEN. My time has expired, I think, Mr. Chairman. First, I thank you for your thoughtfulness in letting me begin, given how much work you and Senator Burns have done. I think the only area I was interested in exploring later maybe, if you allow a second round, is the relationship between the equipment supply and the technology question. I got the impression from Mr. Sewell and Mr. Amarosa that they felt that the technology for E–911 was ready, and I think there are still some issues, at least in my mind, with respect to equipment supply, but I very much thank

you for your thoughtfulness and the leadership you and Senator Burns are providing.

Senator INOUYE. Senator Burns.

Senator BURNS. Thank you, Mr. Chairman, and again I think the panel has just about covered the waterfront and answered most of the questions, and again I want to congratulate the wireless industry, Tom, and the work that you have done, and your willingness to step forward. We went through a lot of hours, as you well know, in order to get this done, with everybody at this table.

I want to just follow up on a couple of questions. Have we solved the issue of privacy yet? I would like your response to that. Anybody want to tackle that?

Mr. MELCHER. I think from the public safety perspective we have for 911. Privacy is not an issue. You obviously want to be located so that we can save your life, or bring assistance to you. We have worked very diligently in the standards groups as well as with the wireless industry as a whole to make sure that the phone does not give location unless you dial 911, or some other series of digits, or some other toggle that would be a subscriber service that you signed up for. With respect to 911, Big Brother is not the issue.

With respect to location outside of 911, it is an issue, and I think it is better that Mr. Wheeler address that.

Mr. WHEELER. 911 is kind of the ultimate opt-in, Senator. It is saying, "Please find me," but as Mr. Melcher says, "Okay, now, where do we go beyond that," and one of the issues I also need to back up and point out is that there are going to be commercial applications of this.

One of the things that frustrates me in this whole discussion is those who suggest that somehow the wireless industry is dragging their feet, that the technology really has been there, if we could make money off of this we would be really happy to get it out there fast, and there is a commercial incentive, not just a life-saving incentive.

In that commercial incentive, however, there is an absolute right to privacy, and we have adopted as an industry a code of conduct that says, it is only opt-in for information about location, that it has to go across all technologies and not just this technology or that technology, not just one that is associated with somebody that the FCC can regulate. In fact, the FCC rules on CPNI customer proprietary network information imposed on wireless carries today, that kind of opt-in requirement. The issue becomes, what about those who are not in the jurisdiction of the FCC, and we think the FCC needs to do something. We have asked them to do something in that regard.

Mr. AMAROSA. Senator, if I may, from a technology point of view, TruePosition's system is based upon assuring that the 911 calls, as we just talked about, are located. Any other location-based services require triggers within the system in order to locate them, so that if I signed up for a particular service, I am identifying that I want to be located for certain types of services that we would come forward with.

There are no data bases maintained as to where I am, as to locate Mike Amarosa during a particular time or during a particular

day, and I think we have gone to great lengths to allow that not to happen.

In addition, we have enabled the system, and even if I sign up for a particular service, that I can disable that location at that particular time by dialing something we call star 55, which is a software fix within the switch that says, "Even though Mike Amarosa has signed up for a particular service, he does not want to be located at this given point in time," and so we have gone to great lengths to try to ensure that that anonymity, if that is what we want, and that privacy, is maintained from a technological point of view.

Senator BURNS. I want to ask Mr. Sewell, is the technology available that the locator is only triggered on a 911 signal?

Mr. SEWELL. Yes, Senator. The technology can be implemented such that it is only triggered on a 911 call, or alternatively can be implemented so that the same technology can support other value-added services, but with an opt-in approach, can always be controlled and turned off by the subscriber, so that is how we see it being implemented.

Senator BURNS. Good. I want to bring to the Committee's attention that Montana's plan is already done, and our director, of course, is here today with Jenny.

Probably a year ago the most circulated picture of forest fires and the devastation that they wrought was this photograph here, which was a year ago, a fire down in the Bitterroot, which is south of Missoula, taken with a couple of elk standing out in the river for protection, and which points out that these are just as devastating to the destruction of our natural resources as any other emergency across the country, and the great thing about this, when forest fires go across an area, they take out lines of communications where wireless has to be a part of the scenario.

Now, Mr. Melcher, going back to you, in the 900 calls that come in that are really duplicate calls notifying of the same incident that would be an emergency, in order to get away from that, right now we have no way of doing that. Tell me about our training practices of personnel that operate our PSAPs. Is that satisfactory to this point, as when you look out across the country, is training moving ahead? You might want to chime in on this also, Ms. Hansen.

Mr. MELCHER. I think that training is one of the key aspects of the national associations and the State chapters as advocacy groups to make sure the call-takers are trained. I think you see a disparity across the country in training. Some areas are very well-funded and train a lot. Some areas stick with minimal training standards. Some States do not even have training standards for call-takers, so there is a disparity out there, and I think that is a real issue, but as an industry, I think we strive to make sure that our call-takers are trained as best they can be.

Direct response to your question on the duplicate incidents, in a large call center like in Houston or Dallas, or any of the large ones, when you get so many calls reporting the same incident, somebody in the PSAP eventually will stand up and go, does everybody have the accident on the loop at the north freeway, and that way they know that they have got it, and the other callers can kind of be given a shorter treatment.

We do have fixes for that, though. Our mapping systems have what we call potential duplicate call detection, and so any time a call is plotted on a map, the server for that system knows that it has a call there, so when another call comes in that is very close, both call-takers now have not only their own call on the map, but they have the other one that is in close proximity, so when the third call-taker gets it, they will get their call plus the other two and when the fourth call-taker gets it, they will get their call plus the other three, and pretty soon it is obvious we are all getting the same call.

So there are technological fixes for that, but without the location information, that latitude and longitude coming in, we cannot turn on that feature for wireless calls. We can only do it for wireline calls, which helps us when there is like a large apartment complex fire. You get multiple residences in the same complex calling in.

So training has to be there to fill in the gap where technology does not yet exist. Get us the technology required. We already have mapping and other type of technological fixes for that once we get location.

Senator BURNS. Ms. Hansen, I think we had a couple of occasions in Montana during our hearings out there in our conference where training was lacking, and we have noted that.

Ms. HANSEN. I agree, and you would find a disparity from county to county, State to State. That includes the State of Montana. However, last year, it was helpful to create a benchmark with Senate bill 41 locally in our State to at least embrace a training standard, a minimum training standard for public safety dispatchers within the State of Montana to have academic instruction within the first year of employment. My alma mater, California, a training standard exists as well, but I find from industry and State to State that that varies even from the county and local level. Training is key.

From duplicate events, we have a computer-aided dispatch system available between various vendors that also provide duplicate information availability on calls. However, we have to be diligent about collecting data and information from callers, because there may be, especially in a crime scene situation, additional information that caller number 47 may provide that will be very effective in the implementation and the deployment of the resources and follow through investigation.

Secondly, you talked about privacy issues. I have discovered an interesting flare and notable interest from the local level in the privacy issue. While it is covered diligently in Senate bill 800, we still fall into issues in developing wireline 911 services with local ranchers, for example, who are still in the midst of rural addressing issues, let alone identifying where they are from, and where they live, and who they are.

We are now taking that opportunity to provide public education, which I find a key component in addressing those privacy concerns to the local residential areas, the businesses, and to the local city and county commissions, but I agree, training, whether you are a public safety provider or a citizen I think is key, and we should take that opportunity to provide that as well.

Senator BURNS. Are we allocating enough money for training?

Ms. HANSEN. We are. However, the PSAPs that I find even within our own State typically do not know where to turn, and they find local sponsorship and support of that training taking a back burner, and what we have found since September 11 is that heightened awareness and sense of importance that I found to be changing with commission levels.

It was disturbing to find that that industry and the unsung heroes, as we refer to this business—I have been in it, again, 22 years, and again it has taken a back seat as far as priorities and importance. Keep the cops on the street, but again, if they are not able to talk, or if no one is able to hear them or answer the phone, it is a significant factor for me in advocating that public service.

Senator BURNS. Well, in the detection, it was interesting out there. We had a 911 call come into my old city in Montana, and they asked him where he was, and he says, "I am at mile marker 38 south of town." The dispatcher asked what town, and he did not have an awareness of what town. He said, "Missoula." Well, folks, that caller was in Miles City. That is 450 miles off, and so that is the challenge we have in rural areas, and I appreciate this panel very much. It has been very enlightening to me, and the knowledge of the situation.

I have no more questions, Mr. Chairman. I want to thank every one of them for coming, though, because this has been a terrific panel.

Senator INOUYE. Thank you.

I have lived through a few fear-generating crises, and I have found that two elements serve to make it worse. One is a feeling of isolation, and the other is uncertainty. I am convinced that the technology that we are discussing at this moment will be the technology we need to alleviate this, so it becomes absolutely essential, especially since the events of September 11.

At hearings of this nature, many of us may be tempted to get headlines by pointing fingers. That is the way you get it. Instead of doing that, because of the urgency of the moment I have just a couple of questions.

Realistically, when can the people of the United States expect to have one of those phones in their hands?

Mr. MELCHER. Well, I would say that based on the rules, some of those phones are being distributed now. They will not work in every area today. I think that if the promises you heard today are kept, that the end of the FCC's time line in 2005 will see ubiquitous 911 in the wireless industry, but I have to remind you, Senator, that unfortunately 911 does not exist everywhere today, even on the wireline side, and I believe it is an issue that we need to pay very close attention to in making sure that wireless 911 and wireline 911 happen in every corner of these United States.

Those areas that have 911 but it is just basic service need to be brought up to enhanced 911. We are not talking incredible sums of money here to make this happen. The gaps that are out there are, comparatively speaking, not chasmatic, but there are significant gaps in technology, there are significant gaps in training, and there are significant gaps in funding, and there is no same standard that exists for the same country, because it is usually handled

at the State level, so I think that before it becomes a reality just in wireless, it needs to become reality on the wireline side as well.

Senator INOUYE. Do the rest of you believe that 2005 is realistic?

Mr. MELCHER. I do, because the technology now exists. I think the carriers have stopped challenging the technology and are beginning to embrace it. We have seen two major national carriers just in the last 30 days, one of them signed contracts with a provider, another one is about to sign contracts with a provider, or a couple of providers, kind of the reverse of the position they had before.

We have known this technology exists. We have long been an advocate of deploying it, knowing that nothing is perfect, the PC example again, if you do not start somewhere, you will never start.

We hosted this in Houston in 1996. We built the system in 1998. We were ready to turn it on and got pushed back from the carriers. What we have seen later is them stop pushing back, and they have started to embrace some of these. They have some significant challenges, I will give them that, as do we on the public sector side, but I think the commitment of the last few months has been a little bit more since, and since the September 11 incidence I think it has been a lot more urgent.

So I would say that out of tragedy must come some good, and you will hear many, many stories come out of these tragedies that will warm your heart, but I think one of the most significant things is that we know that the nation's security infrastructure must be improved, and it must be robust, and it must be redundant. It must be digital, where it needs to be replacing analog, and I think now you will find the backbone of the nation's security for the general public is 911. We are beginning to have more focus and more attention, and we urge you and encourage you to keep the pressure on, keep the spotlight on this issue until it is done.

Mr. SEWELL. Mr. Chairman, I was just going to comment that today U.S. wireless subscribers are buying the phone you saw earlier now, not in tremendous numbers yet, as it just went on sale on October 1. However, if we look at the roll-out schedules that many of the carriers have put in their filings with the FCC, Qualcomm and SnapTrack believe that those deployment deadlines and roll-out of the coverage across the United States are very realistic.

As a technology provider and as a manufacturer of the chips that go in these phones, we also know that there are a number of terminal manufacturers who have designs underway and are planning to deploy those products, so again, today you saw two that are available for the U.S. market today, but that number will go up, and we will see many, many of these phones in the market over the next year.

Senator INOUYE. Mr. Amarosa, do you think 2005 is reasonable?

Mr. AMAROSA. Yes, I do, and I think what you are going to see in one of the major carriers, you will see over 2,000 cell sites built by the end of 2002, and you will see San Juan, Puerto Rico built very shortly as well, so I think it is moving. It is a starting process, as it will roll out, but I think 2005 will be something we can accomplish.

Ms. HANSEN. If I may address from the rural perspective, just in addressing basic wireline and wireless services, we have a signifi-

cant dead zone concern in our State with respect to lack of sites whatsoever. I think the economic factor is the key factor in that problem, and to identify a more feasible and economic plan to embrace basic wireless service would certainly improve coverage in rural America. That is what we are faced with.

Senator INOUYE. Would spectrum availability help?

Ms. HANSEN. It may, but that will also be a challenge in rural States, with propagation issues varying from county to county, mountain range to mountain range, for example. Portable coverage, limited coverage, those things we have to look at closely from area to area.

Senator INOUYE. Thank you.

Mr. Wheeler, can the industry carry the load?

Mr. WHEELER. Yes, sir. Let me just pick up on this one point that was just made, because it is a very valid point. The spectrum, if we are talking about already existing wireless spectrum, and lifting the spectrum cap, that is the fastest way to get more spectrum and more calls completed and to avoid the kinds of problems she was talking about.

Let me give you some dates and names and numbers, Mr. Chairman and be as specific as possible. I could give you this for all the major carriers, but I pick two, Cingular, because they are going to use a terrestrial network, and Verizon, because they are using a satellite network. Here is what they have bound themselves to with the Commission.

In Verizon's case, December 31, 2001, they must begin selling location-capable handsets. Within 6 months of that, July 31, 2002, 25 percent of all new handsets have to have GPS capability. By March 2003, 50 percent, by December 31, 2003, 100 percent of all the phones they sell have to have GPS capability. Then you have got the embedded base of people who bought their phones before then, they have agreed to an enforceable rule that says that by December 31, 2005, 95 percent of all their customers will have GPS-capable handsets.

I can give you the same dates—they vary by a couple of months here or there, but it is the same kind of situation with Cingular, with VoiceStream, with AT&T, with Sprint et cetera. They have committed to hard and fast dates, and to enforceability behind those dates.

Senator INOUYE. The next question you may have to be imaginative, but 2005, how much would it cost the consumer, how much more would it cost?

Mr. WHEELER. I am sorry, for what?

Senator INOUYE. What would be the cost of this technology?

Mr. WHEELER. I would believe, Mr. Chairman, that as the price of chip sets comes down, as it inevitably does, that it would be *de minimis*. We are dealing with a reality today where there are significant costs because you have not hit scope and scale yet, but as those come down, you will enjoy the kind of economies of scale that you have enjoyed for personal computers and everything else.

Senator INOUYE. 2005, when you said 95 percent, or 100 percent?

Mr. WHEELER. I am sorry, by 2005, 100 percent. They are required to have 100 percent of all of their subscribers have it.

Senator INOUYE. What would the subscriber have to pay extra now?

Mr. WHEELER. The plan here is that subscribers churn through handsets in a roughly 3-year period, so that the phones that are coming on will be GPS or location-capable, and they will churn into those phones as a part of their normal course of relationship with the company.

Senator INOUYE. I remember the first wireless phone I had that came in a briefcase, or an attache case, and cost $3,500, or some foolish number. It will not cost that much, will it?

Mr. MELCHER. I actually believe the consumer will see negligible cost, if any at all, and if the carriers play their cards right and move aggressively towards making some of these other location technology value-added services available to the consumers, because there is consumer demand out there, locating, because I have a flat tire, locating because I need the closest ATM, locating because I want to know the closest emergency room or Italian restaurant. If they play their cards right, they will make money off this technology.

I mean, like with anything, when the first cellular systems went up, they were expensive to build, but as the technology improved, I say to audiences all the time, I believe in three things, God, my mother, and technology, and not necessarily in that order, because my mother is very moody, but technology will always advance, and if they play their cards right, the value-added services will generate revenue for them that will offset this.

We have said for many years that 911 would only be the catalyst for an industry that would actually grow from that. It should be the catalyst. It is the right thing to do, but they will benefit from this in the long run.

Senator BURNS. My wife will be interested in the location of the next ATM.

[Laughter.]

Senator INOUYE. Senator Wyden.

Senator WYDEN. Thank you, Mr. Chairman.

Mr. Chairman, I want to follow up on an area that you, I think correctly, have said is a priority, and that is the relationship with the manufacturers and the suppliers. You requested that those people come today, and I think it was very regrettable that they did not.

Frankly, your request is even more important, given what the FCC said, because the FCC, Mr. Sugrue basically said that the biggest problem was not essentially technology, but the biggest problem was the question of equipment supply, and I think the only other question, and maybe some panel members have some ideas on this, is what can we do to get the manufacturers to be more aggressive in terms of working on this issue, and responding to what the FCC has said is the biggest problem.

One idea that comes to mind, and maybe Mr. Melcher and you, Mr. Wheeler, have some ideas on this. It seems to me that the carriers have a fair amount of contractual leverage with the suppliers, and can be in a position to say, Look, Chairman Inouye invited you to come to this hearing, Ron Wyden, Conrad Burns, this Committee wants you to speed it up," and those kinds of approaches—the con-

tractual relationships that carriers have, and there may be others—seem to me would be a way to respond to what Chairman Inouye has correctly identified as one of the big problems. And his request, frankly, is more important now, given what Mr. Sugrue said to us this morning, than it was before. I would be interested if any of the panel members have an idea to get these manufacturers and equipment supplies more engaged.

Mr. MELCHER. I personally would like to thank the Chairman for allowing the second round of questions, because that is very, very important to us. We believe that, just like Senator Wyden said, the carriers do have an inordinate amount of contractual leverage. It is all a matter of priorities.

Poll the room. How many people in this room have a WAP or wireless Internet-capable phone? Go hit the street and see how many people have wireless Internet-capable phones, but they are not 911-capable yet. It is a matter of priorities. Wireless Internet is revenue-generating. Wireless 911 is not revenue-generating.

I do not mean to sound very cynical. I am sure Mr. Wheeler will have an alternative view on this, but we have said long and hard, and we sat in many of those standards meetings for many years, where the manufacturers sat around the table saying, "It is what the carriers order, that is what we build. That is what our priority is. It is what the carriers order."

Mr. WHEELER. Mr. Wyden, first of all, I also represent the manufacturers with CTIA or all of the major handset manufacturers and infrastructure manufacturers as well, and so they are represented here today by me. I think that the carriers have had their full and fixed attention for sometime. Mr. Sugrue I think testified about 2 years ago, when the pedal was to the metal, and the carriers came in with manufacturers and said, "It is just not there yet."

I go back to the fact that we put this thing together, we asked for this, we thought the technology would be there. The carriers used their economic leverage on the manufacturers, and they discovered a basic reality. You cannot beat the horse harder to go faster. You still have to get through that process, and we are now working through that process.

There are all kinds of challenges. Mr. Sewell has got a great product that is out there right now, but he has got chip realities. How do you manufacture chips, get them into handsets? There are great things that have to be worked through, and all I can say to you is that I hope that you and other members of the Committee will take away from this hearing that there are not carriers, nor are there manufacturers, out there digging their heels in and saying, "No, you are going to have to drag me to make me get it done."

And particularly back to your comment about what is new since 11 September, long before that, as Mr. Sugrue said 2 years ago, folks had their sleeves rolled up and were banging away on this. There have been testbeds all over the country, trying to test out and find what works.

The kinds of approaches that have been taken to this have been unbelievable. There was an Israeli spy technology that was tried to be adopted that literally counted the number of times a signal bounced off buildings to try and triangulate location. There have been all kinds of new approaches and solutions, hundreds of mil-

lions of dollars have been invested in research, development and testing.

Senator WYDEN. I am going to just end. Chairman Inouye has been so kind to give me this time. I am going to leave it this way. I think you five have been very, very constructive, and have come with positive ideas, and made it clear that you want to accelerate this and advance the schedule, which is what I was calling for and what the Chairman and Senator Burns were calling for, and when the Chairman invited you all to come, you came, and we clearly had companies that declined to come.

Companies declined to come, and it seems to me you five patriotic Americans have made it clear that you are on board. We have got to get the companies to come into this when Chairman Inouye invites them, again, not by hammering them and clubbing them to death, but by being part of this effort that you five have indicated you want to be part of, and I thank you for the extra time, Mr. Chairman.

Senator INOUYE. Thank you very much.

Senator Burns.

Senator BURNS. I have a closing thought, and I thank the Chairman, and I thank everybody for coming, and I have already congratulated the panel. I was 47 days away from being 7 years old on that December 7, 1941.

The Chairman was there, so the experience that he talks of, the isolation and the confusion of a national emergency, and being at the eye of the storm, so to speak, he speaks of with great personal experience, and so I think we are all blessed really in this, that we have institutional memory and folks still around that understand those kinds of situations, and then recalling the folks of New York City, again who had to experience almost the same thing of not knowing, and isolation, and the extent of what a national emergency is really like.

So Mr. Chairman, I appreciate your calling this hearing, and I appreciate working with you, and we will work our way through this.

Thank you very much.

Senator INOUYE. Thank you very much, Conrad. I am not that old.

[Laughter.]

Senator INOUYE. Although I have been called the Strom Thurmond of the Pacific.

[Laughter.]

Senator INOUYE. Mr. Sugrue, Mr. Amarosa, Ms. Hansen, Mr. Sewell, Mr. Melcher, Mr. Wheeler, on behalf of the Committee, I thank you all very much. The record will stay open until November 15. If you wish to provide addendums or make corrections in your statements please feel free to do so, and we, in turn, would like to submit to you questions for your response.

With that, the hearing is adjourned.

[Whereupon, at 12:50 p.m., the Subcommittee adjourned.]

# APPENDIX

PREPARED STATEMENT OF HON. ERNEST F. HOLLINGS,
U.S. SENATOR FROM SOUTH CAROLINA

Thank you, Mr. Chairman. I appreciate your leadership in calling this afternoon's hearing. I am reminded that the very first section of the Communications Act states that a fundamental purpose of the Act is to promote "the safety of life and property through the use of wire and radio communication." As such, our focus today on the availability of emergency communications services and their vital importance to public safety is both timely and proper—particularly so, in light of the recent terrorist attacks on our country.

In 1968, Senator Rankin Fife completed the first "911" call in Haleyville, Alabama. Since then, Americans' use of "911" has mushroomed to the point where, today, 911 service has become synonymous with emergency assistance. Nevertheless, universal acceptance of dialing "911" for emergency services has also resulted in a number of new challenges. In particular, the meteoric growth of mobile phones has spurred the need to develop and implement call location technologies as part of "enhanced 911" or "E–911" services that can pinpoint the location of the now more than 43 million (and growing) wireless calls made to 911 each year.

Five years ago, in response to this need, wireless carriers and the public safety community hammered out a consensus agreement that was the basis for the FCC's first E–911 order. under those rules, wireless carriers were required to provide the location of all 911 calls by longitude and latitude in conformance with certain accuracy requirements by October 1, 2001. Unfortunately, the reality is that the wireless industry has failed to meet that deadline. In contrast, all of the major wireless carriers and dozens of smaller carriers sought waivers from the FCC, claiming either the absence of a satisfactory technological solution or the need for additional time.

Thus, today's hearing affords this Subcommittee a critical opportunity to grade the various parties on their efforts to date and to decide what can and must be done to ensure that wireless carriers, location service providers, and the public safety community can provide and process "Phase II E–911 location information" as soon as technically possible.

In this vein, I hope the message from Congress is clear: "While we do not expect carriers to achieve what is technically impossible, we will, where public safety is in the balance, require that carriers move expeditiously to do what is possible." After all, the wireless spectrum belongs to the public, and thus, should be made to serve the public.

I look forward to listening to the observations and recommendations of our distinguished panel of witnesses and to their responses to our questions.