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THE SPECTRUM NEEDS OF OUR NATION'S FIRST RESPONDERS

HEARING

BEFORE THE

SUBCOMMITTEE ON TELECOMMUNICATIONS AND THE INTERNET

OF THE

COMMITTEE ON ENERGY AND COMMERCE

HOUSE OF REPRESENTATIVES

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THE SPECTRUM NEEDS OF OUR NATION'S FIRST RESPONDERS

WEDNESDAY, JUNE 11, 2003

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

The subcommittee met, pursuant to notice, at 11 a.m. in room 2322, Rayburn House Office Building, Hon. Fred Upton, (chairman) presiding.

Members present: Representatives Upton, Bilirakis, Gillmor, Cox, Whitfield, Shimkus, Bass, Walden, Terry, Tauzin (ex officio), Markey, McCarthy, Stupak, Engel, Wynn, and Green.

Staff present: Dan Brouillette, staff director; Will Nordwind, policy coordinator; Howard Waltzman, majority counsel, Will Carty, legislative clerk; Peter Filon, minority counsel; and Jessica McNiece, minority research assistant.

Mr. UPTON. Good morning. Today's hearing is entitled "The Spectrum Needs of our Nation's First Responders."

When you boil it all down, public safety relies on radios to communicate. As I recall from my history lessons, Federal regulations of our radio frequency spectrum began in 1912 as a reaction to the failure of the Titanic's help signals. Since that time, public safety communication has become infinitely more sophisticated, and our spectrum has become infinitely more crowded, making spectrums suitable for public safety communication and free from interference all the more scare.

In the wake of September 11, the critical question I have is: Does pubic safety have adequate spectrum free from interference suitable for interoperability? This hearing is designed to help us answer that answer. I am prepared to work with members like Mr. Fossella, Mr. Stupak, and Mr. Engel to find bipartisan legislation solutions to see if help is there.

I am proud to have First Lieutenant Gene Adamczyk of the Michigan State Police with us here today. Welcome. As you can see by his uniform and his badge, he represents those first responders who are on the front lines, selflessly putting themselves in harm's way every day to protect the citizens of our communities.

The State of Michigan has a state-of-the-art 800 megahertz interoperable public safety communication network. First Lieutenant Adamczyk will describe to us how that system works, the benefits of the system, and the ongoing challenges which the localities in

our State face in making a full interoperability public safety communications system a reality.

In addition, we will hear from a number of witnesses about interference between public safety and commercial mobile services in the 800 megahertz band. Interference is reaching unacceptable levels for public safety. The FCC must help resolve that crisis. The FCC has a pending proceeding on the matter. I look forward to hearing from some of the witnesses about their proposals to resolve these interference problems. I also want to learn about how the FCC plans to resolve interference between public safety and the Great State of Michigan and Canada.

Finally, I look forward to discussing public safety's demonstrable need for more spectrum, particularly in the 700 megahertz band. On Monday, 2 days ago, a number of our subcommittee members and I joined the city of Chicago's Public Safety Communications Command Center. While there we discussed the test of a terrific demonstration project which Motorola and the City are engaged in which provides interoperable data and video between first responders on the street to the command center. This was just a small test. Realistically speaking, such systems could not actually be deployed on a city-wide basis, or for that matter in any other large metropolitan area due to the current spectrum crunch in the 700 megahertz band.

As we know, 24 megahertz of spectrum in the 700 megahertz band has been dedicated to public safety once the transition to digital is complete. Such an allocation would enable full-scale deployment nationwide of systems like the one that we saw being tested in Chicago. That is what makes this subcommittee's work on completing the digital transition relevant.

As many of you are aware, a provision in the staff discussion draft of the DTV transition bill circulated last year, set December 31, is the hard date for all broadcasters to give up their analog spectrum, a significant portion of which was for public safety.

As you may recall, that provision was not without controversy. A number of members expressed concerns about flipping the analog switch off before a significant percentage of their constituents who rely on free, over-the-air television were ready to embrace the digital transition in their living rooms.

Today we will hear from our colleagues, the Honorable Jan Harman, and the Honorable Curt Weldon, on their Hero Act, which in effect, would require broadcasters on Channels 62 to 69 to move to another channel or be forced off by air by December 31, 2006. While it may sound simple in many cases, there is no place to move those channels.

The bill, if enacted, would force the early termination of approximately 75 stations, including 11 DTV stations nationwide, impacting millions of viewers including those who watch WWJ, a CBC-affiliate in Detroit, or WLLA, a WBM affiliate in Kalamazoo.

As such, the Hero Act is not without controversy. Nevertheless, I believe the intent of the Hero Act is noble. I commend my two colleagues for their leadership and their commitment to public safety. I will continue to carefully consider this proposal, particularly as the subcommittee addresses both a comprehensive DTV transi-

tion solution, and proposals to ensure public safety has adequate spectrum.

Having said that, I am committed to moving the DTV transition along, and I will continue to aggressively push all stakeholders in the DTV transition to clear those obstacles which are thwarting a timely digital transition. If they cannot clear away those obstacles, we are prepared to legislate. I would urge all of my colleagues to join Chairman Tauzin, Mr. Dingell, Mr. Markey, and me in that effort. Public safety needs spectrum, and in the wake of September 11, the need is mounting.

I look forward to hearing from all of our witnesses. At this point I will yield to my good friend, the ranking member of the subcommittee, the gentleman from Massachusetts, whose Boston Red Sox and my Chicago Cubs share first place.

Mr. Markey. It is a grand day.

Mr. MARKEY. It is a grand day. Think about it. Mr. Weldon and Ms. Harman are at the same table, too. It is only June though, Chairman.

Mr. UPTON. Cardinal fans, look out.

Mr. MARKEY. You know the old joke, the mother brings the two children into the zoo. In the cage is the lion and the lamb, lying together. The mother says to the two children, "Look, it is the biblical fulfillment of the prophesy that the lion and the lamb will lie together peacefully."

The zookeeper walks by and he hears the mother telling that to the children. The mother now has the zookeeper move over next to her. He says, "Hey, lady, do not get too excited. We have to put a new lamb in every day."

If you have been a Red Sox fan or a Cubs fan for 100 years, we are the lambs in the story. It feels good for awhile.

This hearing will give the subcommittee an opportunity to focus on a number of public safety related issues. First, the most common complaint from public safety entities is their inability to communicate with each other across jurisdictions and command authorities.

Not only do we often see the struggle of public safety entities to communicate effectively with neighboring towns and States, but also the inability of police, fire, emergency medical personnel, ambulance services, and others, to communicate within the same jurisdiction. Time and again, we hear requests from public safety entities back home in our districts for greater interoperability to safeguard homeland security.

Second, we hear from our first responders that we need to provide them with greater financial resources, especially at a time when we expect them to do more for homeland security, and most especially at a time when many States and municipalities are struggling with budget shortfalls and are cutting funding for public safety.

It does little good to point out possible equipment upgrades or new frequencies that will assist law enforcement entities to more fully meet the current challenges if they simply cannot afford to move to new frequencies or the equipment modifications.

I offered an amendment earlier this spring to legislation that we just considered on the House floor this morning, that would redi-

rect surplus spectrum option revenue into a trust fund. When we auction off licenses for new digital wireless technologies, I believe that we should reinvest the proceeds in a way that will pay digital dividends back to the public. My amendment proposed putting excess option funds into a trust fund and to use the interest off of that fund as grants to public safety for interoperability, for teacher training related to the education rate program for children, and other public interest telecommunications needs.

We need to be creative about finding funding sources for these needs. I am pleased that we will have an opportunity to explore these ideas when the subcommittee has a hearing on my digital dividends legislation later this summer. We could not have a more important hearing than the one that we are having today.

I also think that it is important that we review efforts that Congress has made in the past to assist in meeting public safety needs. In the Balanced Budget Act of 1997, Congress allocated 24 megahertz of spectrum for public safety use in the area of frequencies currently occupied by television channels 63, 64, 68, and 69. Public safety utilization of these frequencies in the very jurisdictions where frequencies are often crowded, is often where citizens have television stations which continue to occupy these channels.

Clearing out these frequencies has been thwarted by the lack of progress on the digital television transition. We cannot turn off these channels without a more comprehensive plan for the digital transition. I look forward to the renewal of the DTV round-table discussions that Chairman Tauzin has announced.

I also believe that if those negotiations do not result in an agreed-upon settlement by those companies, that this committee must legislate so that we ensure that there is a digital transition and that the public safety sector and others gain access to these important spectrum areas.

I look forward to exploring other proposals to advance public safety including the so-called Nextel proposal and other policy initiatives. I look forward to the testimony from our witnesses this morning. I think that the two witnesses which you have opening our hearing today are the two best that we could have to brief our committee on these subjects. I very much look forward to hearing from them.

Thank you, Mr. Chairman.

Mr. UPTON. Thank you, Jim. The gentleman's time has expired.

I would remind my colleagues that if they defer their opening statement from this point on, they will get an additional 3 minutes. Since we have two panels, they can use that extra 3 minutes on either Panel I or Panel II.

Mr. Whitfield?

Mr. WHITFIELD. Mr. Chairman, I am going to waive my opening statement.

Mr. UPTON. Mr. Shimkus?

Mr. SHIMKUS. I will do the same, Mr. Chairman.

Mr. UPTON. Mr. Cox?

Mr. COX. Thank you, Mr. Chairman. I will make a brief opening statement.

I want to thank you for scheduling this important hearing because it is of such critical importance to our Nation's first respond-

ers. Our witnesses today are colleagues with whom we have worked on this issue and are an excellent way to kick this off.

Let me say at the outset: Whatever this committee decides to do regarding the best technologies for first responders, and the most appropriate spectrum to devote to public safety, it is a good idea to require the commercial television broadcasters to return to the taxpayers the old analog spectrum by the end of 2006.

Certainly this spectrum should be turned to more productive uses as soon as possible since the broadcast stations have all been given ample new slices of the airwaves. The central question we seek to answer today is how to ensure that the tragic communications problems that plagued the heroic emergency crews of September 11, particularly in New York, are never repeated.

First responders at all levels of government must be able to share vital information in real time. That was not possible on September 11. It is one of the most bitter ironies of that tragedy. We have all been touched by the stories of those trapped inside the Twin Towers or within the rubble making one last cell phone call to say good-bye to a loved one—a child, a spouse, a friend. In a remarkable number of cases, those calls went through.

Meanwhile, the systems devoted exclusively to public safety too often failed. Many of the calls of the heroes who ran into the fire and the smoke in search of survivors did not go through. In fact, both in New York and in Washington, many public safety officials came to rely on conventional commercial wireless phones, supplied in many cases by some of the witnesses on later panels today.

Unfortunately, September 11 was not unique in this respect. There appears to be a consistent record of failure by public safety communications systems to adequately serve our first responders. We witnessed similar problems in the immediate aftermath of the Oklahoma City bombing.

Therefore, I hope that this committee will both learn from and act upon the lessons and the information that is provided to us today from our commercial networks. I hope that we learn that some of these networks might be appropriate for first responders if given priority access in times of crisis.

Thank you, Mr. Chairman.

Mr. UPTON. Thank you, Mr. Cox.

Mr. Stupak?

Mr. STUPAK. Thank you, Mr. Chairman. Thank you for holding this hearing and for your commitment to addressing our concerns on the communications needs of public safety. I want to specifically welcome Jim Tamlyn, Chairman of the Emmet County Board of Commissioners, and Chairman of the CCE, Charlevoix-Cheboygan-Emmet, Central Dispatch Authority from my Congressional district. CCE is truly a model of regional and interagency cooperation, which is even more impressive given the challenges posed by the rural area that CCE serves.

I would also like to acknowledge Lyn Johnson, the Emmet Country Controller, who is in the audience today. It is also good to see Gene Adamczyk. We go back some 20 years when I was in the Michigan State Police.

Mr. Chairman, often much of our focus is given to the more urban and populated areas. However, we must recognize that rural

and less populated areas of our country are also critical to our Nation's security, and cannot be overlooked.

My district is home to the Soo Locks which allow for 1,000-foot lake carriers to transit between the Great Lakes and permit shipping of vital cargo from the Western States and the Great Plains through the Great Lakes to the Eastern ports for export. The unimpeded functioning of the Soo Locks is essential to the steel industry, the Great Lakes trade, and commerce throughout the Nation. My district is also home to the Mackinac Bridge which connects the upper and lower peninsulas of Michigan. As the largest suspension bridge in the Western hemisphere, and the third largest bridge in the world, the Mackinac Bridge is considered one of the Midwest's most vulnerable points of infrastructure to terrorist activity.

These are just two examples of the critical landmarks in my district that demand the vigilance of public safety agencies in Northern Michigan to assure our Nation's security. And there are countless landmarks like this across the country, our Nation's security goes beyond the urban populated cities.

Public safety agencies all across our Nation are charged with ensuring the security of critical infrastructures. September 11 served to highlight how critical it is that our public safety agencies have the funding, spectrum, and equipment that they need to communicate with each other if they are asked to fulfill their mission.

The Federal Government has called upon our States and localities to be ever more vigilant and prepared against possible threats we may face. Besides the day-to-day burdens placed upon law enforcement, it seems like every few months we have a new heightened alert, Code Orange, where the States and localities must increase their caution even more. If we expect our law enforcement agencies and public safety agencies to act with haste and urgency to meet our homeland security goals, we must provide them with the tools to do so.

I believe that is critical and that we follow today's hearing with action. We must work to identify spectrum that can be made available for public safety, to identify auctions that can provide proceeds to public safety for their equipment and interoperability needs, and to provide a grant problem to further address these funding needs.

With that, Mr. Chairman, I will yield the balance of my time. Thank you again for holding this hearing.

Mr. UPTON. Thank you, very much.

Mr. Terry?

Mr. TERRY. I will waive my opening statement.

Mr. UPTON. Mr. Gillmor?

Mr. GILLMOR. I will waive my opening statement.

Mr. UPTON. Thank you.

[Additional statements submitted for the record follow:]

PREPARED STATEMENT OF HON. BARBARA CUBIN, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF WYOMING

Thank you, Mr. Chairman.

I would like to thank you all for coming Today to share your views with the Subcommittee on spectrum needs for America's first responders.

The term "first responders" became part of the American vernacular after the events of September 11, 2001. On that day, besides the thousands in the buildings

or traveling on the ill-fated planes, we lost the lives of hundreds of firefighters, police and Emergency Medical Technicians (EMTs)—those who put duty before safety and ran into burning buildings where others would run out. Since then we have heard about communications difficulties between emergency personnel at the World Trade Center on that day which may have cost lives. Clearly, we have an opportunity to learn from those events and ensure our emergency response teams are properly equipped with safety gear and communications equipment that will aid them in carrying out their mission.

I look forward to hearing from our distinguished panel about how we can ensure timely, effective and reliable communications for our emergency personnel, while eliminating the potential conflicts between the systems used by our first responders and others in neighboring areas of spectrum. In fact, we have some experience in this area based on a hearing from earlier this year on Chairman Upton's bill for spectrum reallocation. This bipartisan bill proposed mechanisms to move occupants out of portions of spectrum and reimburse any costs incurred in that move. I would imagine the principles of this bill will allow us to find ways to address any spectrum migration that may be required to enhance the reliability of the public safety spectrum. Interoperability and interference-free communication for our first responders is a worthy goal and I look forward to hearing testimony on where we are, how we got here and what is the best path going forward to achieve this goal.

I've said before, and I continue to believe, that we must beware of the law of unintended consequences in Congress. That's why any prospective legislation that comes out of this hearing should not derail any progress made thus far or short-circuit deliberations that may solve the short-term interference problems, but allow the Congress to act broadly to ensure our spectrum is properly managed. It must also ensure that we not short change the Treasury, and in turn the American taxpayers, with any allocation of spectrum that may not reflect the current market value.

I look forward to hearing your testimony and welcome you to the Subcommittee.

PREPARED STATEMENT OF HON. VITO J. FOSSELLA, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF NEW YORK

I want to thank Chairman Upton for calling for this hearing today. I also want to thank Mr. Engel and Mr. Stupak for their cooperation on this issue and look forward to working closely with them on possible legislation in the future.

Over the past two years most of us have come more knowledgeable to the critical infrastructure that keeps our public safety entities running smoothly and able to communicate during an emergency. Some of the things we've learned is that public safety radios sometimes receive interference from a few commercial operators, that there is not enough spectrum available for public safety to use all the tools they would like to, and finally, that there is not enough money available at the state and local level to fund the technology changes that may be necessary to address their problems.

Since the time of the September 11th attacks, the Department of Homeland Security, OMB, the FCC, NTIA, and numerous other agencies and private corporations have been working to solve some of these problems to the best of our ability with the funding available. During this time, the FCC's Spectrum Policy Task force issued their report on spectrum management detailing numerous ideas that could work to more efficiently use the limited amount of spectrum available.

As we will hear today during the past two years, some local, county and state agencies have been successful in starting their own programs to provide additional services with more efficient use of their available spectrum. In addition, some cases have shown that through compromises and hard work, interoperability between police and firefighters can and has been achieved. However, through all of this, there are still some instances where interference occurs due to their close proximity to a few private corporations that use infrastructure non-conducive to public safety systems.

I have learned a lot about interoperability and spectrum interference in large part from monitoring the 800MHz proceeding at the FCC. There has been a lot of debate as to what should be done in the 800MHz band to try to minimize the interference from commercial SMR and CMRS operators. I have come to believe that there are three main points of the proceeding.

1. There is interference from commercial operators in the 800MHz band.
2. Nextel Communications is the largest interferer.
3. Completely eliminating interference at this time is not possible unless either Public Safety is removed from the band, or all other operators are removed from the band.

Interference in the 800MHz band is caused primarily in two ways: intermodulation (IM) which is the mixing of two signals in the radio itself to produce a third signal, and what is commonly referred to as the "near-far" effect. The more common "near-far" effect simply means that when a public safety officer is near a low-site, high-power commercial tower and far from his or her own high-site, low-power ratio tower, and the opposing signal blocks out the public safety signal. Although other carriers have interfered with public safety operators, Nextel is the most common to interfere due to they're use of a combination of SMR technology which is what most of us know as their "walkie-talkie" service, and CMRS technology which is what many traditional cellular providers use. In order to provide the walkie-talkie service, Nextel's low-site towers must be on a high power level to be able to connect with the phone instantaneously. This leads to problems when public safety is farther away from one of their towers and closer to a Nextel low-site tower.

I want to be clear that I am not against the technology Nextel offers consumers; it is used widely with public safety officers and in some cases on military bases. What I want to emphasize is that public safety is the incumbent in this band and I believe that a new entrant into a spectrum band should be responsible for their actions and should be proactive to ensure they will not interfere, even before they are allowed to begin providing service. One tool that I hope someone on our panel will discuss today is if the TSB-88 algorithm would be a good tool to use to test interference before a new cell site is put up.

Getting back to the big picture, there are essentially three fundamental plans floating around in the filings at the FCC. One would require all public safety is moved to the 700MHz band when the broadcasters move off the analog spectrum. The date the broadcasters will vacate the spectrum is still questionable. However, through the efforts of Chairmen Tauzin and Upton to expedite the transition to HDTV, I am confident the broadcasters will put forth their best efforts to vacate the spectrum on or before the 2006 deadline. In addition, some states, including the Chairman's home state of Michigan, have recently built new systems in the 800MHz band and those states would not find it cost effective to retune to the 700MHz band. Another option is the Nextel plan, which consists of a re-banding of the 800MHz band. And finally the Balanced Plan that consists of new technology in the radio handsets as well as a restructuring of best practices established by the FCC. All of these plans have merit and all of them have timelines and levels of effectiveness. Although I'm not sure what the right solution is at this time, I believe the final solution will probably be a combination of all three.

I want to thank everyone for coming in today to share your views on a wide array of public safety spectrum issues and I look forward to working with you all in the future to find the best possible solution to these very critical problems.

PREPARED STATEMENT OF HON. GENE GREEN, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF TEXAS

Thank you, Mr. Chairman, for holding this hearing today on the complex issue of public safety spectrum. It is important for the Committee to hear and question the various proposals under consideration at the FCC to improve public safety communications.

Our oversight in this area is critical for the public interest. This can be a life or death issue for our first responders and all people they are trying to protect.

In the last couple of years, I have had a first hand experience with the difficulties local public safety departments have with spectrum. Until May of this year, the Houston Fire Department operated a fixed Microwave Alerting System (MAS) as the primary method for HFD dispatchers to alert stations and dispatch emergency medical service and fire suppression personnel.

The Houston Fire Department was required to replace their existing microwave system by the Federal Communications Commission (FCC). They were supposed to re-channel their systems by June 11, 1996, but due to budget problems, a series of temporary extensions of their license were needed to continue their utilization of the microwave system for another seven years!

Only with their backs to the absolute wall, was the City able to cover the costs to develop plans for an alternative station alerting system solution. I bring up this example to first thank the FCC for their understanding of our local funding problems and second to make some suggestions for the future.

In talking to firefighters charged with managing this system, we hear several serious concerns. First, as usual, is funding. Some are estimating it will cost more than $18 billion to modernize our public safety communications nationwide. Where is the steady, reliable funding going to come from?

Local governments across the nation are cash-strapped. Like most cities, Houston has folks demanding visible improvements, like new streets, more parks, and more police on the beat. Communications equipment purchasing is complex and often unseen.

The second major concern I hear is called the "sandbox" problem—meaning children fighting and throwing sand at each other. In the pursuit of a critical public good, we have good people, not surprisingly, trying to protect their own self-interests.

Also, it is not clear that the alphabet soup of agencies involved in this issue—the FCC, Justice, FEMA, NTIA, OMB, Treasury, and now Homeland Security—are really bringing folks together yet.

There is also a number of working groups and task forces involving those agencies. Some point soon, I think we need to clearly define who is responsible for what in public safety communications.

I made a similar point in our E911 hearing last week, but I am concerned about moving telecom policy decision-making power to the Department of Homeland Security.

All the players involved in public safety: the different jurisdictions, the different departments, the politicians, the equipment manufacturers, the broadcasters, private spectrum users, and anybody I've left out don't seem to agree on a whole lot, except that we have a problem.

The FCC's proceeding on public safety spectrum began in February 2002 and is still ongoing. I look forward to their testimony to see what, if any, conclusions they have made that can help us sort through the various proposals before us.

I would like to congratulate my colleagues Jane Harman and Curt Weldon for their work on their bill and their dedication to first responders. I look forward to working with them on this issue as we move forward on public safety spectrum.

While I have no local channels in the 700 megahertz band back in Houston, there are at least four broadcasters in Texas (PAX, WB, and UPN) who do broadcast in this band that are affected by this legislation. I also understand that there are over half a dozen Spanish language TV stations in this band.

I would note that broadcasters do provide their own public safety functions in this band—Amber Alerts, emergency weather information, and the Emergency Alert System. Broadcasters, including public broadcasters, can be a resource for public safety communications.

Mr. Chairman, I yield back the balance of my time.

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

Thank you Mr. Chairman: I truly appreciate that we are having this hearing. These may not be the issues that get us on the front page of our local papers, but these issue are vital. I also greatly appreciate the Chairman inviting Dr. Norman Jacknis, who is the Chief Information Officer of Westchester County to testify. I would like to note that the County Executive of Westchester, my good friend Andy Spano, is in the audience. Also on the 2nd panel is Vincent Stile from Long Island, New York.

For too long we have left public safety spectrum and funding for communications equipment on the back burner. We no longer have this luxury. Less than two years ago, terrorists who had been living, working, and training in our midst turned a commercial airliner into a weapon of mass destruction. Emergency personnel from numerous jurisdictions responded admirably. But there was a major impediment to their working more efficiently together—the fact that there is not a contiguous, large block of spectrum dedicated for their use.

Future plans to turn TV channels 63, 64, 68 and 69, after the digital transition, are moving too slowly—nor are those channels enough. We must look into ways to move the incumbent broadcasters more quickly off those frequencies. This is a public safety issue and must be addressed with all due haste.

We must also be honest that this equipment costs money. I am pleased that my colleagues, Mr. Fossella and Mr. Stupak have joined forces with me to work on a Public Safety Trust Fund that will provide dedicated funding to first responders. The fact is new radio equipment that will be "interoperable"—capable of having police, fire, medical personnel at the local, county, state, and federal level all communicating seamlessly—this equipment is expensive. It is also desperately needed.

We as a nation have come together to work to improve our homeland security. Even our public broadcasters are giving back a bit of their digital spectrum for use in homeland security. Each level of government has a role to play. The federal gov-

ernment's role is manage this precious, scare resource called spectrum. It is also uniquely able to assist our communities with the cost of radio equipment.

I look forward to our witness' testimony and thank the Chairman for his support of all our efforts.

Mr. UPTON. TAt this point, we will turn to our two distinguished colleagues, Jane Harman, a former member of this committee. We also have the ranking member of the important House Intelligence Select Committee, Mr. Curt Weldon, a member of the 100th Class, and very well respected, particularly as the founding co-member of the Firefighters Caucus.

Ms. Harman, your remarks are made part of the record. If you could limit your remarks to about 5 minutes, that would be terrific. Welcome back to the subcommittee.

STATEMENTS OF HON. JANE HARMAN, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA, AND HON. CURT WELDON, A REPRESENTATIVE IN CONGRESS FROM THE COMMONWEALTH OF PENNSYLVANIA

Ms. HARMAN. Thank you, Mr. Chairman. My thanks to the ranking member and the chairman of the full committee for your efforts to make this hearing happen. I also want to thank Mr. Cox for the comments he just made in his role as Chairman of the Homeland Security Committee. He knows full well how important interoperable communications are to an effective homeland security effort.

I want to thank the leader on this legislation, my friend Curt Weldon, who is the founder of the House Firefighters Caucus, for partnering with me yet again on an issue that is absolutely critical.

Imagine if you can a scene of unimaginable chaos and confusion. Sirens wail, buildings burn and collapse. Parents become separated from their children. Office workers search for exits. The elevators are closed. The stairways are dark. There are police officers, fire fighters, and emergency response personnel frantically attempting to save those workers and communicate with each other. Yet, they cannot.

That is the story of September 11, 2001. That scenario came tragically to life. Hundreds of New York City firefighters perished when police helicopters circling the World Trade Center were unable to warn firefighters inside that the Towers were glowing and were dangerously close to collapse.

They could not talk because the firefighters and police officers were using non-compatible radio systems that operated on different frequencies. Unaware of the impending disaster, at least 121 firefighters, many who were believed to be within striking distance of safety, died.

On the same day, just across the Potomac River from this hearing room hundreds of firefighters, police, military authorities, and others who responded to the attack on the Pentagon, had to use runners to communicate with one another. Let us think about that for a moment. Runners passing hand written notes between command centers. It sounds like something out of Ancient Rome. It is totally unacceptable because it reoccurs with chilling frequency.

We witnessed it, as Mr. Cox said, in 1995 in the immediate aftermath of the Oklahoma City bombing of the Murrah Federal Office

Building, and then again in 1999 when more than 46 public safety agencies responded to the tragedy at Columbine High School.

I witnessed it in a demonstration in Los Angeles County when two police cars from different cities in my district took 8 minutes to connect by radio. Those cars were parked next to each other in a parking lot.

The point of these anecdotes is the degree to which lives are at stake—the lives of first responders and the lives of citizens. When first responders from numerous jurisdictions and agencies converge on the scene of a disaster, they cannot wait to organize their communications. They must be able, on the spot and in real time, to communicate with each other.

First responders need interoperable communication systems so that firefighters can communicate with colleagues in neighboring jurisdictions, police officers can talk with each other and with firefighters, and all responders can instantly mesh their operations with State or Federal authorities on the scene. This involves prescient planning, inter-jurisdictional cooperation, and the right equipment and training. But all of that requires that sufficient spectrum is provided.

Pending before this committee, as you have said, is a solution, the Hero Act, which fulfills Congress' promise made in 1997 to provide the spectrum needed by 2006. Mr. Chairman, I will not repeat what the law does because you did that in your statement, but I would just like to conclude with a couple of observations.

First, the Hero Act is endorsed by a number of public safety and local government jurisdictions and organizations. In fact, all of the key ones, including the International Association of Fire Chiefs, the International Association of Chiefs of Police, the Association of Public Safety Communications Officers, the National League of Cities, the National Volunteer Fire Council, and the International Union of Police Associations. I believe all of their letters of endorsement have been provided for the hearing. I know you are going to hear from some of them later.

Let me just conclude by saying this. You said that the goal of this legislation was noble. You then pointed out, too, that some broadcasters who presently occupy the spectrum might be inconvenienced. I represent some of those broadcasters. I think those broadcasters, just like you and me, have kids in schools in hometowns in America. They want to be darn sure that if there is another Columbine tragedy, first responders can save the lives of their kids, and those kids' classmates.

My point would be: Not only is the goal noble, but the goal is the priority. I urge this subcommittee to act promptly on this very important legislation.

Thank you very much. I would ask that my testimony be included in its entirety.

Mr. UPTON. Without objection, so ordered.

[The prepared statement of Hon. Jane Harman follows:]

PREPARED STATEMENT OF HON. JANE HARMAN, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA

Chairman Upton, Ranking Member Markey and members of the Telecommunications and the Internet Subcommittee, thank you for convening this hearing on the spectrum needs of America's first responders.

Imagine if you can a scene of unimaginable chaos and confusion. Sirens wail, buildings bum and collapse, parents become separated from their children, office workers search for exits in the elevators and darkened stairways, where police officers, firefighters and emergency response personnel frantically attempt to communicate with each other and cannot.

On September 11, 2001, such a scenario came tragically to life. Hundreds of New York City firefighters perished when police helicopters circling the World Trade Center were unable to warn firefighters inside that the towers were glowing and were dangerously close to collapse. They couldn't talk because the firefighters and police officers were using non-compatible radio systems that operated on different frequencies. Unaware of the impending disaster, at least 121 firefighters, many believed to be within striking distance of safety, died.

On the same day, just across the Potomac River from this hearing room, hundreds of firefighters, police, military authorities and others who responded to the attack on the Pentagon had to use runners to communicate with one another.

Let's think about that for a moment: runners passing handwritten notes between command centers. It sounds like something out of ancient Rome and is totally unacceptable—even as it occurs with chilling frequency.

We witnessed it, for example, in 1995 in the immediate aftermath of the Oklahoma City bombing of the Alfred P. Murrah Federal Building—and then again in 1999 when more than 46 public safety agencies responded to the tragedy at Columbine High School.

Lastly, I witnessed it in Los Angeles County when two police cars, one from Torrance and another from the L.A. County Sheriff's Department, took 8 minutes to connect by radio. The cars were parked next to each other.

The point of these anecdotes is the degree to which lives are at stake—the lives of first responders and the lives of citizens. When first responders from numerous jurisdictions and agencies converge on the scene of a disaster, they cannot wait to organize their communications. They must be able to communicate on the spot and in real time.

First responders need interoperable communications systems so that firefighters can communicate with colleagues in neighboring jurisdictions, so police officers can talk to each other and with firefighters, and all first responders can instantly mesh their operations with state or federal authorities on the scene. This involves prescient planning, inter-jurisdiction cooperation, the right equipment and training—all of which can work if the sufficient spectrum is provided.

Pending before this committee is a solution, the HERO Act, which fulfills the promise Congress made back in 1997 to provide additional spectrum.

The 1997 Balanced Budget Act required the FCC to re-allocate 24 MHz of radio spectrum for public safety—from a band that was scheduled to be vacated no later than December 31, 2006 when the television stations on channels 60-69 converted to digital television. Unfortunately, the same law allows those stations to continue using channels 60-69 indefinitely if more than 15% of households are unable to receive digital television.

Because of the uncertainty surrounding the DTV transition, the practical effect is to prevent state and local agencies from using those frequencies by a time certain or being able to plan for their availability.

These needs have become even more acute in the post-September 11 environment. Hardly a day goes by when we don't read about some new possible attack on our homeland. Congress and the Administration have invested tremendous resources to assist local first responders in preparing for bioterror, chemical attacks, "dirty bombs" and numerous other dangers. But the resource we have yet to provide is the frequency with which first responders can communicate and coordinate a response. The consequences of our failure to provide this resource could be exponentially greater than 9/11—and this time we are alerted to the problem. In the vernacular, this time the dots *are* connected.

The HERO Act is endorsed by a number of public safety and local government organizations, including the International Association of Fire Chiefs (IAFC), the International Association of Chiefs of Police (IACP), the Association of Public-Safety Communications Officers (APCO), the National League of Cities, the National Volunteer Fire Council and the International Union of Police Associations, all of whose letters of endorsement are attached.

Mr. Chairman, by providing the frequencies Congress promised in 1997, we can give our first responders the tools they need. I hope you will join me in accomplishing this important task and favorably reporting the HERO Act.

Mr. UPTON. Thank you.

Mr. Weldon?

STATEMENT OF HON. CURT WELDON

Mr. WELDON. Thank you, Mr. Chairman. It is a pleasure to be here today, especially with my good friend and colleague, Jane Harman.

I would ask that my testimony be included in its entirety.

Mr. UPTON. Without objection, so ordered.

Mr. WELDON. I will make some anecdotal comments.

I could come before your committee as the Chairman of the Oversight Procurement Committee for the bulk of our military hardware where we have, in fact, put into place an inter-coordinated, interoperable system for our military to coordinate their communications on any battlefield, any place in the world.

Or, I could come here as a member of the Homeland Security Committee, where I fall under the leadership of Mr. Cox in doing outstanding work to make sure that we prepare for the next incident.

But I am here as a former fire chief, a fire chief who in a small town in 1975 was involved in the largest incident in America, the collision of two tankers, the Agrim Cooney and the Crinthos. The collision killed 29 people and burned out of control for 3 days. It was handled entirely by volunteers. Our biggest problem for those 3 days was that we could not talk with each other. Some of us were on low band, and some were on high band.

As the Chief Officer, I could not talk with my colleagues who were arriving on the scene. I could not talk with the police officers, the Coast Guard, or the corporate leaders who were there trying to deal with public safety issues for their complexes.

Twenty-seven or 28 years later, things are no different, Mr. Chairman. In fact, I did form the Fire and EMS Caucus 17 years ago. In that capacity I have been on every major disaster we have had in this country in the last 17 years. I was at Loma Prieta, Northridge, Hurricane Alicia, Hurricane Hugo, the Midwestern floods, the wildfires in California, Colorado, Oregon, and Oklahoma.

Mr. Chairman, I was at the Murrah Building bombing with Chief Morris. Chief Morris was the fire chief there. I did a hearing 1 year after the Murrah Building bombing. I said, "Chief, tell me what lessons you learned. What was your biggest problem?" He said, "Congressman, when I arrived on the scene I had a multistory Federal office building blown away. I had exposed concrete. I knew I had mass casualties and a day care on the first floor. I knew I had to rescue casualties."

He said, "I went to our radio system and realized I could not talk with the people responding. So I went to cellular phones. The cell in our region became overtaxed within minutes."

So the fire chief of Oklahoma City, in America, with a well-trained and well-equipped fire department, had to use precious firefighters and paramedics to hand carry messages to other colleagues of his to respond.

I was at the World Trade Center in 1993. In fact, I was taken through the World Trade Center by a guy who became a good friend of mine. When I went with the Fire Commissioner at the time, Howard Safer, I said, "Commissioner, what is your biggest problem?" He said, "Well, as you are hearing from the Battalion

Chief taking you around, Chief Ray Downey, our biggest problem is we cannot communicate. The Port Authority people cannot communicate with the fire department. The fire department cannot even communicate within its own capabilities because we do not have interoperable capability. The police and other agencies cannot as well."

Well, that was in 1993, Mr. Chairman. I went back to the World Trade Center in 2001, a day after it occurred, at the invitation of the Fire Department of New York. I spent the day at Ground Zero. I went there because one of my good friends was killed, the same guy who took me through the Trade Center in 1993, Ray Downey.

Ray Downey was the chief of all rescue operations on September 11. Ray Downey was on the Commission that we established in Congress, the Gilmore Commission, that issued three reports before 9/11. Again, it reaffirmed what the Piswack Advisory Committee said in 1995, what the Congress said in 1997, but what the dog-gone broadcasting industry has not done for the past 6, 7, 8, or 9 years. They did not consider the safety of our police, fire, and paramedics before their profits. I am so disgusted.

I am saying that it is time that Congress did something about it, Mr. Chairman. I lost good friends in New York. As Jane said, "Good friends that could have been saved because the helicopters above saw the buildings about to collapse, but could not communicate."

Is a TV show in my district in Pennsylvania more important than saving Ray Downey's life? I do not think so. Mr. Chairman, I ask you to use the influence of your subcommittee. I do want not to harm the public communications stations. But they have had ample time to move away from their existing structure to allow us to take that frequency spectrum that Congress committed to them back in 1997. The Piswack Advisory Committee recommended that it be done back in the mid-1990's. I saw this first hand back in 1975. Your firefighters in Michigan, and the other members' firefighters in their States, see this every day.

Mr. Chairman, the solution of this problem has unanimous support in our bill. The firefighters, the fire chiefs, the volunteers, the paid, the police chiefs, the law enforcement, the mayors are all behind it. There is a problem that is No. 1 in homeland security, and that is establishing interoperable capability so that emergency responders can interact quickly when they arrive on the scene of a disaster. The first few minutes are so critically important in determining how many casualties we will have in that situation.

Mr. Chairman, you might hear during the testimony that there is technology available, that Raytheon and other companies have developed, so that at the scene you, in fact, can link together disparate frequencies and systems. That is true. But no department in America can afford the price of that, Mr. Chairman. Emerging technology does not solve the long-term problem. Setting aside public safety frequency spectrum will solve the problem.

I thank you for your consideration of H.R. 1425. I would urge you and your colleagues to consider finding a way to help us deal with this issue in this session. Thank you.

[The prepared statement of Hon. Curt Weldon follows:]

PREPARED STATEMENT OF HON. CURT WELDON, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF PENNSYLVANIA

As Vice Chairman of the House Armed Services Committee, Chairman of the Subcommittee on Tactical Air and Land Forces and Chairman of the former Procurement and Research Subcommittees, I know first-hand, the powerful enabling technologies enjoyed by the Department of Defense that provide for real-time and precise communications, positioning and command and control. As a former volunteer fire chief and founder of the Congressional Fire Services Caucus, I am completely dismayed with the nationwide inability of our domestic responding agencies to merely talk to each other. As evident by our recent military actions, advanced technology is available, but we continue to handicap ourselves and first responders needlessly. The solution before us is very clear, we need adequate spectrum to be reserved for public safety and a national plan to standardize and manage public safety communications. The first step is the Homeland Emergency Response Operations (HERO) Act.

Interoperability is the ability for different jurisdictions to communicate with each other. This nationwide problem arises due to the use of non-compatible radio systems, on various networks, using disparate spectrum frequencies. There are not only different systems for different agencies within each community, but different jurisdictions maintain their own systems, as well. In fact, the larger the incident, the greater the probability that different branches of the emergency services cannot communicate with each other.

Cell phone use does not work when the system becomes gridlocked during emergencies, open communications such as CB Radio become chaotic and responders often must hope for the good will of cellular companies to roll in mobile cell phone towers and disperse new hardware connected to alternate networks. Most likely, during an emergency, first responders resort to what they have done during Hurricane Andrew, the shooting at Littleton, Colorado, the Oklahoma City bombing and both World Trade Center attacks in 1993 and 2001, which is wasting valuable firemen and emergency technicians by converting them into runners—passing handwritten notes between various command centers. In fact, during the Ohio River flooding in Indiana in 1995, jurisdictions on each side of the river were reduced to yelling across the river to communicate. This is unacceptable. This practice should anger each and everyone of you and all of Congress, because when a crisis occurs, American citizens are not able to be protected in a manner that our current technologies and abilities can provide.

This is not a new problem. Five years before 9/11, the Public Safety Wireless Advisory Committee (PSWAC) reported that "unless immediate measures are taken to alleviate spectrum shortfall and promote interoperability, public safety will not be able to adequately discharge their obligation to protect life and property in a safe, efficient, and cost-effective manner." Since that report, we have paid the price for inaction with the loss of lives.

The 24 MHz of spectrum planned for emergency and public safety use is still occupied by commercial broadcasters and may not be available until sometime after 2006, when at least 85% of households use digital television. The probability that less than 15% of homes use the current, cheaper televisions three years from now is a pipe dream at best, given the high costs of digital televisions and the uncertainty with digital conversion. With this in mind, and considering the likelihood of continued natural, accidental and terrorist attacks in the future, Congress has no choice but to require this spectrum to be available no later than 2007, regardless of the status of digital television.

The HERO Act sets aside the needed 24 MHz desired by all public safety associations. This spectrum is adequate for broadband use and should be sufficient to minimize congestion and interference. With this bill signed into law, we can begin a national plan with standardized equipment and an organized strategy that combines wireless interoperability, common language, unified command, joint training, standard operation procedures and radio discipline.

Mr. Chairman, America's heroes will continue to risk their lives by running into hazardous situations without sufficient communications to direct their actions or alert them of dangers. We must not remain dormant and fail to provide the minimal tools necessary for our nation's first responders to do their job effectively and safely. Thank you for your leadership in recognizing the need for spectrum allocation and addressing how important communication is for homeland security.

Mr. UPTON. Thank both of you very much for your testimony, story and your personal experiences. I know it has had an impact on all of us on the dais. One of the reasons why we are having this

hearing is to ask the very questions that you are asking of us. We certainly will be getting into that with the second panel.

I just have one quick question. We will be talking with the FCC on the second panel. I presume your districts or areas are impacted by broadcasters using that very same frequency. As the question goes forward, are you able to move that broadcasting from Channel 62, or whatever it might be in your particular district? Have you asked those questions of your local broadcasters of where they could go? How does that interfere with other stations in the vicinity.

Ms. HARMAN. I hear regularly from a broadcaster in my district about how inconvenienced his company would be if we moved ahead here and why do we not do the digital transition first.

My response to him is the one I just made in my testimony which is that he has school kids in the same schools. They will be at risk if we continue to fail to solve this problem. Now that the chairman is here, I would say to him that I thank him for helping make this hearing take place.

I would also urge this committee, which has a lot of good ideas, and urge the full committee chairman, to find other solutions for those broadcasters, and to speed the digital transition faster. I know there is going to be a round-table discussion in the near future. You also need to do whatever else you can to move those folks away from this spectrum, which was promised for emergency communications almost 6 years ago.

If we do not make clear that this will happen by the end of 2006, then all the systems that have to be put in place to use the spectrum, will not be able to be developed. We will lose more time. I do not think we have a day to lose, Mr. Chairman. There could be a major attack on our homeland any minute. I know that Mr. Cox and those of us who serve on the Homeland Security Committee and the Intelligence Committee, are well aware of this. I am sure you are, too.

I think that priority No. 1 has to be to make spectrum available to first responders to protect our citizens. As a second priority, we should help those broadcasters who are disadvantaged.

Mr. UPTON. I just want to point out that on Monday when a number of us on this subcommittee were in Chicago, as I mentioned in my opening statement, we did have the opportunity to visit the Chicago Command Center. We were all certainly impressed with what they have invested for any potential emergency.

But in terms of what they might be able to do on a day-to-day basis, whether it is looking at a robbery or a traffic stop, they have quite a bit of technology that they are not yet able to use that is there, that they could use to protect themselves, and to protect the communities that they live in. But they do not have the spectrum where they can actually put it into applicable use.

Mr. WELDON. Mr. Chairman, if I might, we developed significant technology in the military when I chaired the Military R&D Subcommittee. We developed GPS technology, technology for sensor and for transmitters so that we can tell where soldiers are on the battlefield.

Today we can provide that same technology for every first responder in the country, to know where they are, what their health

condition is, their heart rate, their pulse. We avoid what happened up in Boston where we had six firefighters killed in a building. They were in a building and became lost and disoriented. Two ran out of air. The other four went in to get them. No one knew where they were. No one knew their health condition.

The technology is there. What we do not have is adequate frequency spectrum allocation to give our first responders the kind of cutting edge technology to not just protect the public, but to protect themselves. I cannot put a price tag on that.

We have 1.2 million firefighters in 32,000 departments. Eighty-five percent of them are volunteers. They are people who work full-time jobs. What are we going to do? Are we ask them to work full-time jobs, raise $400,000 to buy a fire truck, and then raise another $100,000 to buy some kind of updated equipment to make up for the lack of frequency spectrum allocation? It is unfair.

It is sitting in every one of your districts. If you talk with any one of your firefighters in any district in any one of your States in America. They will tell you the same thing. I have been in all the States. They all have the same problem. They are looking to us to solve this problem.

I understand the problem of having the stations available to transit their signals. But in my opinion there is no doubt about it. This is the overriding priority that this Congress should address. We should work with the broadcasters to help them. But this should be our top priority.

Mr. UPTON. Thank you both.

At this point I yield to my friend from the great State of Michigan, Mr. Stupak.

Mr. STUPAK. Thank you, Mr. Chairman.

I really do not have any questions. It is more of a statement.

Besides the spectrum, we definitely need the resources. September 11 was mentioned as well as all these other great tragedies we have suffered in this Nation, but every day it happens in law enforcement.

Since 1973, when I was in law enforcement, this has always been the problem. We cannot talk with each other. We cannot help each other. In the rural areas it is even more difficult. Being one in public safety, while you are trying to help an officer who has been injured, traffic stops, domestic violence, accidents, fires—you cannot talk with each other. Half the time we cannot find each other because our equipment will not allow us to talk with each other. So you run around in circles trying to help someone who really needs help.

Quite frankly, after 30 years of dealing with this, I am sure I speak for most law enforcement officers and firefighters. They are frustrated. They really do not believe that the goals and objectives of the Hero Act will ever become a reality.

If you clear up the spectrum, great. But what about the resources to pay for it? We have a lot of work to do in this area. I, for one, after 30 years of dealing with this problem, would like to see it come to an end. I commend Ms. Harman and Mr. Weldon for their work in this area.

For all of us who have worked on it, we just cannot continue to pay lip service. I think you let down the men and women who serve

us every day. We do not need a national tragedy. You see it every day with officers out on the road, being shot and everything else. They need the help. We need it now.

Mr. UPTON. Thank you.

At this point I recognize the chairman of the full committee, the gentleman from Louisiana, Mr. Tauzin.

Chairman TAUZIN. Thank you, Mr. Chairman.

I want to thank Jane and Curt for coming to us and again highlighting this incredibly important need in our society. Thank you for your work.

I want to not only give you a little encouragement, some news, but also define the challenge we face if we are going to try to help you in a way that I know you predict we are going to need desperately in this country.

One, it is not as easy for us to free up that analog spectrum for these purposes as it might sound. As you know, the law says that the spectrum comes back in 2006 if enough Americans have made the transition from analog to digital. The reason that is in the law is because there is a great concern about whether Americans will have made that transition. They will have either bought new digital sets or bought the boxes that you are going to need to translate a digital signal back to an analog format.

Frankly, Members of Congress are concerned. We are concerned about putting a fixed date in the law when that might not happen. Consumers are stuck with analog sets and there is no longer an analog signal. You can see we have a real problem to resolve this. We need everybody's help in Congress to resolve it.

I would not feel comfortable setting a fixed date in 2006. We need to settle some other issues. What are consumers going to get if they buy another box? Are they going to get more signals? Are they going to see the same old picture on the same set and just have to spend a few hundred dollars more for a box? Are we going to give them something of value in return?

We have some agreements to make among Members of Congress on policy and with the industry before we get to that point. But we have to get there. That is what the round-tables are for. We may even sponsor legislation to move it along this year.

Second, there is good news. I was at CTI's convention in New Orleans and witnessed technology out of a company that was born in 1998 that now is building home stations to cure the interoperability problems between all the different spectrum systems and technologies that are designed now and being used by different departments—fire, police, ambulance. They are also moving to construct portable stations that would create interoperabilities where none existed.

So there are some new technologies that might help us solve this in the interim. And that is good news. But most importantly I want to point you to ultra broadband technologies. Ultra broadband technologies are being developed today. Unfortunately, they are being restricted in their licensing by the FCC with exaggerated fears. Some of it is coming from the incumbent industries, like EPS, who are afraid of the competition, in my opinion.

Ultra broadband technologies operate without the need for a new spectrum. They operate in the background noise, the way com-

puters do. They face the same opposition at the FCC that the computer industry faced when it first developed. The FCC feared: What is going to happen when a thousand computers are in a building? Are they going to interrupt communications in a town? You know it did not. It was all unfounded fears.

When they went ahead and licensed computer technologies, we saw an explosion of technological advance in this country. The FCC needs to loosen up their tight controls on the advance of ultra broadband technologies.

Let me tell you what that does. Ultra broadband technologies operating at low frequencies and background noise can locate not to meter, but to the millimeter. They can locate through brick and mortar. They can provide radar through brick and mortar. They can provide identified location, not simply from line of sight but from a satellite through collapsed buildings, the sites of destruction of hurricanes, or tornadoes, or terrorist disasters, to locate people who need rescue.

It can be an enormous source of help to fire companies, police, and other rescue units around America. But the FCC is being overly cautious about allowing that development to move. I would urge you to pay some attention to it. It might be the way we get some assistance for you quicker.

Finally, on a personal note, Curt, I want to bring you greetings from Brigadier General Hunt Banner.

Mr. WELDON. My good buddy.

Chairman TAUZIN. My candidate for Governor of Louisiana, who raised $1.5 million from the children of Louisiana to buy new fire trucks for the city of New Orleans.

Mr. WELDON. The first one was delivered.

Chairman TAUZIN. You know of our commitment to work with you for the firemen of America. We will stay on it.

Jane, thank you for all your work, too.

Mr. WELDON. The gentleman makes some excellent points. I take his admonition that we need to look at this new technology.

I am familiar with the mobile technology that companies like Raytheon and others have put forth. In fact, I demonstrated a mobile unit on the Hill 4 months ago. The problem with that technology is not its technical capability to integrate 14 different frequencies and system, it is the cost. I am trying to get one for my region, for Philadelphia. It is $200,000 just for the technology, as opposed to the vehicle.

So they buy that and then when they get frequency spectrum, they still have to buy the new radios. You are paying a double expense, which for a volunteer fire company, let alone a paid department, is next to impossible. That is the big limitation. The technology is there, but the cost is really high.

Mr. UPTON. Ms. Harman?

Ms. HARMAN. If I could just add a few things. I really thank the chairman for his interest in this and for making certain that this hearing happened. I again thank you, too, Mr. Chairman, for that.

I support the digital transition. I think it is something we should push harder on. I do understand the tough problems that lie in the way. Resolving how to protect intellectual property is just one of those tough challenges. I realize there will not be comment on the

spectrum until we resolve that. It is very hard to resolve. I am totally sympathetic.

On the other hand, I would just stress here, as you look at this recent disasters that we have had, with more to come, as you look at how many unnecessary lives were lost, I say that is not a fair cost. That is just not a fair cost. These broadcasters, all of whom are friends of our, have children in our public schools, and families in our home towns, that could die in the next terrorist attack or natural disaster where help is not adequate because there is not interoperable communication.

Chairman TAUZIN. Jane, I do not deny that. I just want to point out to you that it is not the broadcasters who are reluctant here. They are the ones who have been mandated. They are putting out the money for the equipment.

The problem is the consumers. If the consumers do not buy the digital equipment, and all they have is analog equipment, and we get rid of the analog signal, it will be on our neck.

Ms. HARMAN. Well, let me just make two more comments.

First, I think if you ask the average consumer—and I am not sure I am the average consumer—if you could choose between having adequate interoperable communications to protect you, your house, your home town, and your kids in school, or paying a few hundred bucks for a new TV set, which would you choose?

Chairman TAUZIN. We will try that out in the Post.

When are you coming back to my committee?

Ms. HARMAN. Finally, I am familiar as well on the bridging technology that Curt was talking about. There is current technology that puts a bunch of these frequency integrators on a flatbed truck, which can drive to the scene of a disaster, and then can beam some of that communication up to satellites and so forth.

But think of a catastrophic terrorist attack in three, five, or ten locations in the United States, which is totally conceivable right now. Whether or not that approach, which I would call a Band-Aid, is adequate, my answer is absolutely not.

Chairman TAUZIN. It is a Band-Aid. I accept that. Thank you.

Mr. SHIMKUS. Thank you, Mr. Chairman.

Actually, I yield myself my time. I will just say two things. I was on active duty, an Army officer, during Granada. The same stories that were heard about 9/11 were happening in the Granada conflict. It was overcome by a lot of work by the Armed Service Committee. I think those people who are harking back on that era, there are some valid issues being addressed here.

I also want to use this opportunity to talk about enhanced 911. In the issues that we are going to bring to this committee, are things that you would be interested in. We want to be able to identify the location of people. That would not only help on the emergency call placed by the person who is in trouble, but it will also help on the reverse aspects of getting information out to the public domain.

There is a public debate here on local number portability or enhanced 911. The courts have ruled to move on local number portability. I think it is bad policy that we ought to have criteria of what is important first. This is the same debate you are having. I think public safety ought to rise above the need.

Chairman Bilirakis, would you like the rest of my time?

Mr. BILIRAKIS. I appreciate that. I just wanted to ask a very quick question of Mr. Weldon, particularly, because of his role with firefighters over the years. I do not mean to slight you, Jane.

I am going to quote from a paragraph from the forthcoming testimony of Mr. Jacknis, Chief Information Officer, Westchester County, New York.

"In the first hours following the attack of September 11, 2001, the only way we could coordinate the sharing of firefighting, medical examiner, and health and information technology resources with the New York city officials was through the highly trained volunteer amateur radio ham operators. This was the result of the fact that normal commercial communication services were unavailable. There was no other single common communications medium except the amateur radio service. This irreplaceable resource must be protected against insurgents by their interests."

What are your comments regarding that? Ought we be considering them first responders in the same sense as all the others?

Mr. WELDON. Well, the gentleman makes an excellent point. Our ham radio operators nationwide, throughout the history of this country and the history of the technology, have been there to support us in some of our most difficult disasters. We should not be just looking at what we typically call the first responders—the firefighter, the paramedic, the police officer, the emergency worker—but also those people who have the capability that can be brought in.

Now, in some cases they, too, have been swamped. Their systems have been overwhelmed when they have tried to help out. I remember the Ohio River floods in 1997. Imagine this. You have people on both sides of the river. To communicate what they were doing, they yelled across the river. Is this America in the 21st Century?

We have the Ohio River flooding. Who can watch TV when your home is under ten feet of water? People are yelling across the river. "We are going to do this. We are going to bank this area. We are going to take care of this." Firefighters are trying to coordinate paramedic responsibilities. This is not America in the 21st Century. It is not about taking away communications. Nobody wants to do that. But when you are in a crisis and you have lives at risk, we have to have a plan in place to assist them.

Ham radio operators are an important part of that, Mr. Bilirakis. It should be an important part of this committee's consideration. It is a point that I did not raise and Jane did not raise. But it is a point well taken.

Mr. WALDEN. Will the gentleman yield?

Mr. BILIRAKIS. I will be glad to yield whatever time I have.

Mr. WALDEN. I just want to follow up on that. I am one of only two licensed amateur radio operators in the Congress. Just as the whole issue of the spectrum transition is promised, so is the promise to the amateur radio community that they would have spectrum to be the inventors on an amateur basis and to provide communication that is otherwise not provided at no cost, by the way, to any level of government. They are there as volunteers.

Yet the erosion that has occurred in the spectrum that was made available is astonishing. It needs to stop. I believe your bill would

put a stop to that. They are there. I am not that active. I know my friends are. Time and again, when you find an emergency, you find a ham radio operator. I think we need to be cognizant of that encroachment on the spectrum.

Mr. SHIMKUS. I reclaim my time.

I am supportive of something the chairman said. I think one of the biggest controversies that we have experienced is this. You remember a lot when you are in a parade route. What do people say to you on a parade route? To me, that really hits the grassroots. You remember the Direct TV satellite. "I want my local channels." Where else in the world can you be in Pike County, Illinois, and people are yelling at you on the parade route about their local channels because of Direct TV and the whole issue we addressed 4 or 5 years ago. There will be a public push on local broadcast stations. Siding with the chairman, this will take a lot of work. I know this committee is up to it.

I have 2½ minutes left on my time, but I am going to yield back and allow my colleague, Congressman Green from Texas.

Mr. GREEN. I have no questions of this panel.

Mr. SHIMKUS. He yields back.

Does anyone else seek time?

We want to thank our colleagues for joining us today. We appreciate your good work. I know you can work with Chairman Tauzin, Chairman Upton, and Ranking Member Markey to move forward on some legislation.

I would now like to ask the next panel if they would take their seats. As everyone is getting organized to be seated, let me welcome the entire panel.

Chairman Upton had to leave for a vote. He will come back and regain the gavel as soon as he can. I would like to grab the gavel as often as I can. He will wrestle it away from me as soon as he can get back.

Your full statements are accepted for the record. We will recognize you for 5 minutes. If you can summarize and do a synopsis, that would be fine.

Mr. Thomas is Chief Engineer of the Office of Engineering and Technology, Federal Communications Commission. Welcome.

STATEMENTS OF EDMOND J. THOMAS, CHIEF ENGINEER, OFFICE OF ENGINEERING AND TECHNOLOGY, FEDERAL COMMUNICATIONS COMMISSION; JAMES E. TAMLYN, CHAIRMAN, CHARLEVOIX-CHEBOYGAN-EMMET CENTRAL DISPATCH AUTHORITY; NORMAN J. JACKNIS, CHIEF INFORMATION OFFICER, DEPARTMENT OF INFORMATION TECHNOLOGY, WESTCHESTER COUNTY; GENE ADAMCZYK, MICHIGAN STATE POLICE; GREGORY Q. BROWN, EXECUTIVE VICE PRESIDENT, MOTOROLA, INC., PRESIDENT AND CHIEF EXECUTIVE OFFICER, COMMERCIAL GOVERNMENT, AND INDUSTRIAL SOLUTIONS SECTOR; VINCENT R. STILE, PRESIDENT, ASSOCIATION OF PUBLIC SAFETY, COMMUNICATIONS OFFICIALS INTERNATIONAL, INCORPORATED, SUFFOLK COUNTY POLICE, COMMUNICATIONS BUREAU; TIMOTHY M. DONAHUE, PRESIDENT AND CHIEF EXECUTIVE OFFICER, NEXTEL COMMUNICATIONS, INC.; STEPHEN L. CARRICO, DIRECTOR, COMMUNICATIONS AND BUSINESS DEVELOPMENT, WISCONSIN PUBLIC SERVICE CORPORATION; AND JIM HAYNIE, PRESIDENT, AMERICAN RADIO RELAY LEAGUE

Mr. THOMAS. Good morning, Mr. Chairman, and members of the subcommittee. It is a great pleasure to appear before you to discuss the critical issues concerning public safety.

Public safety has been one of the Commission's highest priorities for years. In the last few years the Commission has taken significant steps to allocate new spectrum for public safety. The Commission recently made available 50 megahertz of spectrums at 4.9 gigahertz. The rules adopted for 4.9 gigahertz band are intended to accommodate a variety of new broadband applications such as high speed data, video, and wireless local area networks.

In addition, the Commission has also allocated 24 megahertz of spectrum in the portion of the 700 megahertz band, but covered as part of the digital TV transition. The band planned for this 24 megahertz was developed in conjunction with the public safety community and among other things, it sets aside spectrums for intelligibility and future new uses.

Along with the allocation issue, the Commission also has been actively addressing interference into the public safety band. Recently the most significant interference issue has arisen in the 800 megahertz band. In March 2002, the Commission began the process of developing a public record for initiating a rulemaking proceeding. We sought comment as to additional steps we should take to help resolve the interference problem. I think it is an understatement to say the response has been robust.

Parties have engaged in extensive discussions of the proposals, and have submitted numerous different plans to reduce interference. For example, last year Nextel joined a group of public safety and private radio organizations to submit a relocation plan which was called the Consensus Proposal.

Others joined together and filed an opposition to the Consensus Proposal. In April of this year, I sent a letter to manufacturers asking for any additional technical information relevant to these critical interference issues. Last month, Motorola filed a response to my letter. They reported the development of a new portable trans-

ceiver that they believe, when used in combination with best practices, solves the interference problem at 800 megahertz.

Presently, the Commission staff is diligently analyzing the proposal before it. The public record is comprehensive, contradictory, and complex. We are committed to resolving this public safety interference problem as quickly as possible. We are also equally committed to taking full advantage of the thoughtful ideas, expert analysis, and collective expertise of all of those concerned.

On another front, the Commission is moving forward to enable and encourage the development of new technologies that hold great promise for public safety use. Ultralente band technology is one example. The most relevant application of ultralente band technology for public safety is imaging. For example, in hostage situations through-the-wall imaging systems can be used to pinpoint the location and movement of persons within a building. Similarly, ground penetrating radar systems can be used to locate buried objects or underground faults.

The Commission is also actively pursing the public safety potential for cogitative radio technology which holds tremendous promise in the area of intelligibility and interference rejection or avoidance.

For instance, during an emergency, these radios will have the capability to configure themselves for interoperable use and adjust automatically to avoid interference. The Commission staff hosted a Cognitive Radio Technologies Workshop last month as a preparatory step to beginning a rulemaking proceeding later this year to facilitate the development and deployment of this exciting technology.

Before I conclude, I must not fail to mention the contribution of the amateur radio operators to public safety. The ham radio community has offered invaluable service to first responders during emergency situations. In a report released last month, the Commission modified its rules to provide access to additional amateur channels in or near 5,250 to 5,400 kilohertz on a secondary basis, and to upgrade the existing secondary allocation to primary status in the 2,400 to 2,402 megahertz band.

Mr. Chairman and members, allow me to end as I began. The Commission views its responsibility in public safety as one of its highest priorities. The Commission has, and will continue to be sensitive to the needs of that community by making spectrum available, when necessary, by protecting it from interference and by enabling new technology to facilitate the completion of its mission.

Thank you for the opportunity to address this committee. I would ask that my testimony be included in its entirety.

Mr. UPTON. Without objection, so ordered.

[The prepared statement of Edmond Thomas follows:]

PREPARED STATEMENT OF EDMOND THOMAS, CHIEF, OFFICE OF ENGINEERING AND TECHNOLOGY, FEDERAL COMMUNICATIONS COMMISSION

Good morning, Chairman Upton, Ranking Member Markey and Members of the Subcommittee. Thank you for this opportunity to appear before you on behalf of the Federal Communications Commission (FCC) to discuss the critical issues related to access to spectrum for public safety, particularly first responders. Public safety has been one of the Commission's highest priorities for many years and it has taken on even greater importance with recent events. The FCC appreciates and shares this Subcommittee's longstanding commitment to assisting our public safety community.

Today, what I would like to do is to review for the Subcommittee the recent activities of the Commission in the area of public safety. My remarks will first address Commission actions to ensure that first responders and other public safety users have access to the spectrum necessary for completion of their missions. I will then discuss recent Commission activities directed at protecting public safety communications from harmful interference. After that, I will describe Commission activities designed to enable new technologies that should provide important new capabilities to first responders. Finally, I will briefly discuss additional Commission actions that illustrate our continuing recognition of the critical importance of ensuring adequate access for public safety purposes.

SPECTRUM FOR FIRST RESPONDERS

In the last few years, the Commission has taken significant steps to provide access to additional spectrum for public safety use. The Commission recently has made available for public safety use 50 MHz of spectrum at 4.9 GHz, which promises to permit the use of new advanced wireless technologies by public safety users. Part of a transfer of Federal Government spectrum to private sector use, the 4940-4990 MHz band (4.9 GHz band) was originally proposed to be allocated to fixed and non-aeronautical mobile services and to be auctioned to commercial users, with no designation of the spectrum for public safety use. In response to requests from the public safety community for additional spectrum for broadband data communication, the Commission designated the 4.9 GHz band for public safety use in February 2002 and adopted service rules in April 2003.

The rules adopted for the 4.9 GHz band are intended to accommodate a variety of new broadband applications such as high-speed digital technologies and wireless local area networks, particularly for incident scene management. For example, before leaving the fire house, building plans and schematics could be almost instantly downloaded to a fire vehicle. A local area network could be set up at the scene so that this information could then be relayed to all public safety personnel on site. These rules also foster interoperability, by providing a regulatory framework in which traditional public safety entities can pursue strategic partnerships with others necessary for the completion of their mission.

Another important allocation made by the Commission of spectrum for public safety use is the portion of the 700 MHz band that is being transitioned from broadcast as part of the digital television (DTV) transition. In 1997, the Commission proposed, consistent with a recommendation in a Final Report by its Public Safety Wireless Advisory Committee, to allocate 24 MHz of this reclaimed broadcast spectrum for public safety uses. Later in 1997, Congress enacted the Balanced Budget Act of 1997, which specifically directed that 24 MHz of the 60 MHz of spectrum being reclaimed from Channels 60-69 be allocated for public safety purposes, with the other 36 MHz to be auctioned for commercial uses. At the end of that year, the Commission specifically identified and allocated the new 24 MHz of public safety spectrum.

The Commission then moved quickly to take various additional steps needed to enable the new public safety spectrum to be effectively utilized. In doing so, it crafted special provisions both to address the continuing interoperability issues among various public safety systems and to provide flexibility to accommodate a wide variety of innovative uses. For instance, the Commission dedicated 2.6 MHz for interoperability. The Commission also chartered a federal advisory committee, the Public Safety National Coordination Committee (NCC), to develop operational and technical recommendations for use of this spectrum.

In February 2000, the NCC issued its initial report to the Commission recommending how best, technically and operationally, to use these dedicated frequencies. Many of these recommendations have served as the basis for Commission rules on those issues. Since then, the Commission has continued to work with the NCC, which has provided additional technical and operational recommendations regarding use of these frequencies. The NCC expects to present to the Commission its final recommendations in July, 2003, including a recommended standard for wideband interoperability.

In this space, the Commission also adopted a band plan targeted to accommodate all existing operational modes, including data, image, and video, and to accommodate future technologies. The band plan designated half of the spectrum for narrowband voice channels, and half of the spectrum for wideband channel uses. Finally, the Commission also designated a significant portion of this spectrum as a reserve—setting aside 22.5% of this spectrum (5.4 MHz) for future developments in broadband technologies.

From the beginning the Commission has recognized that the utility of this spectrum for public safety depended on taking actions, consistent with the current statutory scheme, to minimize, and ultimately clear, the broadcast use of this spectrum. For instance, during the digital television ("DTV") planning, the Commission minimized the use of channels 60-69. As a result, the new public safety spectrum on TV channels 63-64 and 68-69 is available now in many areas of the country.

The completion of the DTV transition, which will result in the nationwide clearing of the band of broadcast stations, is a key element in freeing this 24 MHz for public safety use. Within the current statutory scheme, the Commission, under FCC Chairman Michael Powell, has taken steps to help speed up the transition. For instance, last summer the Commission adopted requirements for new television receivers to include DTV reception capability. Almost 1,100 of our television stations are on the air with DTV service. The Commission's actions should have the effect of accelerating the availability of this important public safety spectrum.

Finally, the Commission has worked with Canadian authorities to clear public safety channels 63 and 68. We first addressed this problem in response to concerns raised by New York State's public safety community, but quickly expanded our efforts to address channel usage all along the U.S.-Canada border. In the period since September 11, 2001, the Canadians have re-evaluated their own public safety communications needs and decided to dedicate 24 MHz for public safety use and amend their DTV Table of Allocations to permit channels 63 and 68 to be used for public safety communications, instead of DTV, in Canada. They have indicated that they will complete their internal actions to reallocate this spectrum for public safety in the near future. We are working to develop similar arrangements with Mexico for use of the 700 MHz public safety frequencies in the border areas with that country.

Thus the Commission has taken, and is continuing to take, those actions necessary to make 24 megahertz of this new spectrum available at 700 megahertz for public safety use as soon as possible.

INTERFERENCE PROTECTION

Although providing access to sufficient spectrum for public safety entities has been a significant step enhancing first responder capabilities, harmful interference by commercial mobile radio service (CMRS) providers to public safety communications also is of significant concern to the Commission. First responders can be seriously compromised in their ability to carry out their life-saving responsibilities when they are unable to receive or transmit wireless communications. Accordingly, the Commission has taken an active role in protecting against harmful interference to public safety communications. Currently, the Commission is working to alleviate significant interference issues related to the public safety spectrum in the 800 MHz band.

To recap recent history, the Commission has been receiving reports that public safety radio operators in the 800 MHz band were experiencing unexpected interference. Users have been reporting "dead spots" where their mobile radios could not receive or transmit.

In April 2000, the Commission brought together representatives of CMRS providers, public safety communications officers and manufacturers to discuss the interference problem. The Commission emphasized that all parties affected by the interference—both commercial and public safety—needed to collaborate and jointly work to identify the causes of interference, establish mitigation alternatives, and develop joint planning and technical solutions for preventing interference.

As a result of this meeting, numerous participants, including manufacturers, commercial wireless providers and public safety representatives, agreed to form a working group to pursue these issues. By November of 2000, this group had developed a "Best Practices Guide." The Guide describes the types and causes of interference between 800 MHz systems and provides information and techniques useful to all affected parties to reduce or even eliminate interference, and to plan future system deployments.

The remedies identified in the "Best Practices Guide" have provided significant relief in many cases. Reports of interference have persisted, however. In late 2001, Nextel presented to the Commission a "White Paper" that proposed a significant realignment of the 800 MHz band to reduce the incidence of public safety entities operating on spectrum immediately adjacent to commercial entities. Nextel's plan called for the modification of the current interleaved band plan to create two large contiguous blocks of spectrum (one for public safety and one for commercial users), relocation of many incumbent users to these new blocks, and relocation of Nextel operations out of the 800 MHz band. The National Association of Manufacturers also presented a plan for modifying the 800 MHz band plan.

In March 2002, the Commission began the process of developing a public record by initiating a rulemaking proceeding. Our Notice of Proposed Rulemaking sought comment on the proposals in front of us and asked for public comment on any additional steps we should take to help resolve the interference problem. The response has been robust.

Parties have engaged in extensive discussions of the proposals, and have submitted numerous plans to reduce interference. For example, last August, Nextel joined a group of public safety and private radio organizations to submit a relocation plan that was styled by the parties as the "Consensus Proposal" designed to eliminate interference at 800 MHz. Given the significant nature of that proposal, the Commission allowed additional time for the submission of comments on the proposal. On December 24, 2002, the Consensus Plan parties filed substantial Supplemental Comments, modifying their proposal. Others joined together and advanced alternative solutions to the consensus plan. In light of the critical importance of these issues, the Commission again provided a further opportunity for all parties to provide comment.

In April, 2003, I sent a letter to five manufacturers asking for any additional technical information relevant to these critical interference issues to assist our staff in formulating its recommendations to the Commission. Last month, Motorola, the leading manufacturer of equipment for the 800 MHz band, filed a response. They reported the development of new portable public safety transceivers, that when used in combination with best practices, may resolve many of the interference problems related to the 800 MHz band. Parties have since filed both in support of and in opposition to the Motorola proposal.

As I have indicated, the record generated by our Notice of Proposed Rulemaking is comprehensive, contradictory and complex. We are committed to working with all parties to analyze and resolve the public safety interference issues as quickly as possible. We are equally committed to taking full advantage of the thoughtful ideas, expert analysis, and collective expertise of all those involved. Only by doing so will we be able to craft a solution that provides public safety entities with a lasting and meaningful resolution.

NEW TECHNOLOGIES FOR BETTER SERVICE

The Commission also is moving forward to enable and encourage the development of new technologies that hold great promise for public safety use. Ultra-wideband technology is one example. This technology uses the spectrum in a fundamentally different way than most current radio systems. The Commission recently authorized the use of ultra-wideband devices for imaging, vehicle radar, and communication systems. Perhaps most relevant for public safety are ultra-wideband applications allowing for imaging. Law enforcement can use ultra-wideband ground penetrating radar systems to detect or obtain images of buried objects. Similarly, through-wall imaging applications can be used to pinpoint the location and movement of persons on the other side of a structure such as a wall, and can be very useful in the successful resolution of hostage situations.

The Commission is actively pursuing the potential of cognitive radios. Under software control and in real time these radios have the capability to change their power and/or frequency, sense their environment, know their location, and optimize their communication path. This technology holds tremendous promise in the areas of interoperability and interference rejection/avoidance for public safety applications. We believe during an emergency these radios will have the capability to configure themselves for interoperable use and automatically adjust in real time to avoid interference. The Commission staff hosted a Cognitive Radio Technologies Workshop last month, as a preparatory step to beginning a rulemaking proceeding later this year to facilitate the development and deployment of this exciting technology.

The availability of Priority Access Service (PAS) on public wireless networks gives certain emergency personnel greater ability to access commercial cellular and PCS systems in times of crisis. Under the Commission's rules for this service, authorized National Security and Emergency Preparedness personnel users in emergencies may gain access to the next available wireless channel to originate a call. Following grant of a limited waiver of these rules last March, T-Mobile has completed the commercial deployment of certain PAS capabilities in more than 15 metropolitan cities, including Washington, DC, and New York City.

IMPORTANT HELP FOR AMATEURS

I must not fail to mention the contributions of amateur radio operators to public safety. The Ham radio community has offered invaluable service to, and as, first responders in natural disasters, emergency situations, and other crisis events. Ama-

teur radio operates literally all across the radio spectrum, and these bands are allocated on both a primary and secondary basis. Ham operators even successfully share some of these bands with important federal government operations. In a Report and Order released last month, the Commission modified its rules to provide access to additional channels in or near the 5250-5400 kHz band on a secondary basis, and to upgrade the existing secondary allocation to primary status in the 2400-2402 MHz band. The Commission recognizes the public service performed by the Ham community in times of emergency and looks forward to working with them in the future in this critical area.

CONCLUSION

Mr. Chairman and members allow me to end as I began. The Commission views its responsibilities in the public safety community as one of its highest priorities. The Commission has been and will continue to be sensitive to the needs of that community by making spectrum available for its use when necessary, by protecting it from interference and by enabling new technologies to aid it in its mission. Thank you again for permitting me to testify on this important and timely subject.

Mr. UPTON. Thank you.

Mr. Tamlyn?

STATEMENT OF JAMES E. TAMLYN

Mr. TAMLYN. Chairman Upton, Michigan's First Congressional District representative, Bart Stupak, and other distinguished members of the committee, thank you for allowing me the opportunity to testify on behalf of CCE-911.

My name is Jim Tamlyn. I am Chairman of the Emmet County Board of Commissioners in the great State of Michigan. I am also Chairman of the Board for the Charlevoix-Cheboygan-Emmet Central Dispatch Authority, a three-country E-911 central dispatch consortium.

In 1991, the three county boards of commissioners came to realize that they could deliver a far better, fully enhanced, 911 service to the public and the first responders of the area by combining resources. This was not an easy task and involved many hurdles along the way. The bringing together of three counties along with 62 individual units of government they represent and over 50 first response agencies was monumental.

To deliver a far-reaching interoperable radio communications and mobile data network to cover an area of just over 1,600 square miles, which is larger than the State of Rhode Island, with 200 miles of coastline on the Great Lakes, was a major hurdle in itself. The area that we have to cover includes the Mackinaw Bridge, one of the largest suspension bridges in the world with its 5 million vehicle crossings per year and its great importance to interstate and international commerce.

In the same vicinity of the Mackinaw Bridge are three large pipelines carrying crude oil, natural gas, and refined petroleum products across the straits of the Mackinaw at a rate of almost 2.5 million gallons per hour. Also sitting on the shores of Lake Michigan is the decommissioned Big Rock Power Plant with its spent fuel still sitting onsite.

We are only 50 miles from Canada which brings a whole host of problems such as frequency coordination and strength of signal. CCE built a system where all police, fire, and EMS talk with each other on common frequencies. Also in each patrol car we added an in-card computer. This in-card computer hooks directly to the State's data base in Lansing 200 miles away. An officer may run

a file check on an individual or a car plate in under 60 seconds, far quicker and more accurately than was ever done by voice communication.

Also added to patrol cars were automatic vehicle locators, which allows dispatchers to constantly monitor car locations using the Global Positioning Satellite system.

The plan is as effective as possible for the future. In 2002, CCE retained a radio consulting firm to evaluate our existing systems and current future needs of the responding agencies. The consultants projected our needs at $15 million. As we redesign our radio systems, we will ultimately be using a mixture of different frequency ranges, microwave, UHF, and VHF, with VHF 150 to 155 megahertz ultimately being used to deliver the signal to first responders.

We are currently not using 800 megahertz because it does not support voice paging for firefighters, and it does not support data transmission in our area. The system was designed in our area for mobile coverage, not portable coverage. We have multiple cost issues with it.

Our decision has been based on several factors such as better signal propagation with our greatly varied topography, the ability to efficiently deliver mobile data to on-board computers and response vehicles, and the ability to simulcast paging signals to fire and EMS personnel.

The development of our radio system will ultimately mean the addition of more towers in order to get the desired level of coverage needed. Our large rural area versus our tax based makes rural communications very difficult and expensive to maintain. Since 1994, to date we have spent over $16 million in local funding. In 2001, we received a Congressional appropriation of $750,000 to replace our outdated computer software. We are Phase Two compliant for the delivery of E-911, and at this point are waiting for cellular providers to complete their work.

However, much more needs to be done to keep us moving forward to meet the needs of today. We need to provide better radio signal coverage, secure encrypted radio channels, faster data bandwidth to the vehicles, and the ability to simulcast from multiple towers in order to begin meeting the needs of today's first responders.

The Coast Guard, FBI, border patrol, and Customs all have a presence in our area. Although all local governments are partnered together to provide state-of-the-art cost-effective communications to meet public needs, true regionalization of central districts should include partnering with Federal law enforcement agencies. The closest backup to one of their officers is most likely one of ours. If they cannot talk with each other, they cannot help each other.

In looking to the future, we are supportive of the development of an enhanced E-911 office within the Homeland Security Department, and the development of a block grant program to assist State and local governments whether it is through the Department of Homeland Security or the FCC.

In closing, we are grateful to the dedication and commitment to America's first responders by our President and our Congress. We

would like to thank them for their concern, assistance, and dedication, and wish them Godspeed in these endeavors.

I would specifically like to thank Congressman Stupak for his continuing commitment to public safety. I would like to say that the needs that rural first responders face are similar to those of our Nation's urban areas regarding the limited amount of frequency spectrum available. These issues are compounded even more so in rural areas, given the sheer size of the area that we cover, the topography, and the limited amount of resources. We must all work together to make radio frequency spectrum and funding available for our Nation's first line of defense, our first responders.

Thank you for giving me the opportunity to share my views. I will be available for any questions. I would ask that my testimony be included in its entirety.

Mr. UPTON. Without objection, so ordered.

[The prepared statement of James Tamlyn follows:]

PREPARED STATEMENT OF JAMES TAMLYN, CHARLEVOIX-CHEBOYGAN-EMMET CENTRAL DISPATCH AUTHORITY

INTRODUCTION

Chairman Upton, Ranking Member Markey, Michigan's First Congressional District Representative, Bart Stupak, and other distinguished members of the subcommittee. Thank you for the opportunity to testify on behalf of CCE-911 on the subject of need for interoperable communications systems and increased radio frequency spectrum availability.

To give you a little background on myself, my name is Jim Tamlyn, and I am the Chairman of the Emmet County Board of Commissioners in the great State of Michigan. I am also the Chairman of the Board for the Charlevoix-Cheboygan-Emmet (CCE) Central Dispatch Authority (a three county E-911 central dispatch consortium). I have served time in the United States Army, serving thirteen months as a medic in the DMZ of Korea. After my tour of duty, I have served my community in such capacities as firefighter, EMT basic, EMT Specialist, and EMT/Paramedic. In 1990 I was elected to the Emmet County Board of Commissioners, and have served seven years as the Chairman of that Board. I have also served as the Chairman of the Board of Directors of our three county regional E911/Central Dispatch since its' inception, and was a driving force in developing this agency.

TESTIMONY

The Charlevoix-Cheboygan-Emmet (CCE) Central Dispatch Authority was born out of the needs of our tri-county region to develop a method to deliver Enhanced 911 service to our citizens. The three County Boards of commissioners came to realize that they could deliver a far better fully enhanced 911 service to the public and the first responders of the area by combining resources.

This was not an easy task and involved many hurdles along the way. The bringing together of three counties along with the 62 individual units of governments (cities, villages, and townships) they represent, and over 50 first response agencies (which includes local, State, and Federal agencies) was monumental. To deliver a far-reaching interoperable radio communications and mobile data network to cover an area of just over 1,600 square miles (larger that the State of Rhode Island) with 200 miles of coastline on the Great Lakes was a major hurdle in itself. We were also faced with the issues of helping to secure the southern end of the Mackinac Bridge, one of the largest suspension bridges in the world, with its five million (5,000,000) vehicle crossings per year, and its great importance to interstate and international commerce. In the same vicinity as the Mackinac Bridge, are three large pipelines carrying crude oil, natural gas, and refined petroleum products across the Straits of Mackinac at a rate of almost two million five hundred thousand gallons per hour. Beaver Island being a part of Charlevoix County, but lying approximately twenty (20) miles offshore in Lake Michigan presented a very unique logistical situation as well. Also sitting on the shores of Lake Michigan is the decommissioned Big Rock Nuclear Plant with its spent fuel still on site.

With our geographic proximity to our good neighbor Canada being only 50 miles to the north and east we were also presented with an added layer of issues such as frequency coordination and clearance between our two countries, limits on broadcasting power (wattage), and tower heights to eliminate interference on similar frequencies.

In building our new dispatch center we pooled all available resources in our three county area. All radio frequencies owned by all the individual agencies were moved into a central pool. What came out of this pool is a system where all police agencies (two state police posts, three sheriff departments, and eight local police agencies) talk to each other on common frequencies. Also, in each patrol car we added in-car LEIN (Law Enforcement Information Network). This in-car computer hooks directly to the state's database in Lansing (200 miles away). An officer may run file checks on individuals or car plates in under sixty seconds, far quicker and more accurately than was ever done by voice communication. Also added to patrol cars were AVL (automatic vehicle locators) which allows dispatchers to constantly monitor car locations using the GPS (Global Positioning Satellite) for officer safety. Our new software installed this spring is giving our AVL system fits and we are working to get this resolved.

We have 28 fire departments (almost 1000 firefighters—both paid full time and volunteer) and 8 emergency medical service agencies. The fire departments also pooled their resources. Frequencies were set aside for dispatch, fire ground, and mutual aid. All 28 agencies can communicate with one another and EMS or go to individual fire ground frequencies. One frequency was set aside for police, fire, and EMS to talk to each other.

To aid in the development of fully interoperable radio systems which will meet the needs for additional secure-encrypted channels needed by first responders today, additional radio spectrum is a priority no matter what range of frequencies (VHF-UHF-Microwave) is utilized locally.

To plan as effectively as possible for the future, in 2002 CCE retained a radio consulting firm to evaluate our existing systems, the current and future needs of the responding agencies, as well as those of our dispatch facility. The consultants projected our needs at $15 million. As we redesign our radio systems, we will ultimately be using a mixture of different frequency ranges (microwave, UHF, VHF), with VHF (150-155 MHZ) ultimately being used to deliver the signal to first responders. We are currently not using 800 megahertz because it does not do voice paging for fire fighters, it does not support data transmission in our area, the system was designed for mobile coverage not portable, and several cost issues; however, we are still looking at 800 as an option.

This decision has been based upon several factors such as: better signal propagation with our greatly varied topography and foliage, the ability to efficiently deliver mobile data to onboard computers in response vehicles, and the ability to simulcast paging signals to fire and EMS personnel.

The development of our radio system will ultimately mean the addition of more towers in order to get the desired level of coverage needed. This will be a pivotal point in the rebuilding of our radio system as we cannot build towers as tall as needed, or have as strong a signal output as could be delivered due our proximity to Canada.

We have both an interoperable radio system that allows the first response agencies (law enforcement, fire, and EMS) to talk with one another during times of need, but also a three county shared database of records which has been instrumental in solving many crimes across jurisdictional boundaries since 1996. This has all been accomplished with local funding of over sixteen million dollars ($16,000,0000) in expenditures since 1994 until recently when an appropriation of seven hundred fifty thousand dollars ($750,000) was awarded to us through Congress in 2001 to replace our outdated computer software and hardware backbone. These system upgrades have been implemented recently, and we are beginning to see the benefits already. More data than ever is being shared among the law enforcement agencies in our area, with more to come in the future. This also has allowed us to become Phase II compliant for the delivery of wireless phone calls, and at this point are waiting for the cellular providers to complete their work.

This appropriation has allowed us to do even more for the units in the field, however much more remains to be done to keep us moving forward to meet the needs of today. We need to provide better radio signal coverage, secure-encrypted radio channels, faster data bandwidth to the vehicles, and the ability to simulcast from multiple towers in order to begin meeting the needs of today's first responders.

The three county Boards of Commissioners fund the operation and infrastructure needs of CCE. Lately, supply is having a hard time keeping up with demand. And, we will soon (early this summer) add a telephone surcharge. The funds raised will

be used over the next three years to improve AVL and Mobile Data Transmission to police vehicles. We are also looking at the possibility of adding this technology to lead fire and EMS vehicles. This will be in addition to our operational and capital budgets which will also continue to increase.

Still we find ourselves falling further behind. Our large rural topography versus our tax base makes rural communications very difficult to maintain. The responsibilities of local governments since 9/11 have also changed.

Local public safety has taken on an added dimension as we now think national security in all of our planning.

Coast Guard, FBI, Border Patrol, and Customs all have a presence in our area. All local governments partnered to provide state of the art, cost-effective communications to meet public safety needs. However, true regionalization of central dispatch should include partnering with federal law enforcement agencies. The closest backup to one of their officers is most likely one of ours. If they can't talk to each other they can't help each other.

On June 4th, Representative Upton called for the development of an Enhanced E-911 office within the Homeland Security Department, and the development of a block grant program to assist state and local governments.

We would support the development of a block grant program for such an effort, whether it is through the Department of Homeland Security, or the FCC with funding from auction of radio spectrum, or whatever other avenue is deemed appropriate.

Additionally, On June 6th, President Bush issued a Presidential Memo regarding the formation of the White House Interagency Task Force and the Spectrum Policy Initiative to review and develop policies for the future of radio spectrum. This is a monumental step forward in assisting all users of radio communications. This will also be an incredible asset to rural first responders in assisting them with opening up additional spectrum for their needs.

These two recent developments show a dedication and commitment to America's first responders by our President and Congress with the recognition for the need to assist them. We would like to thank them for their concern, assistance, and dedication, and wish them Godspeed in these endeavors. I would specifically like to thank Congressman Stupak for his continuing commitment to public safety.

The need of America's first responders to be able to share communications and data both locally and on a national level will continue to grow in the future. To not allow for this ability because of issues such as limited radio spectrum and limited data bandwidth will place the safety of the first responders and the public we serve in jeopardy.

In closing, I would like to say that the needs rural first responders face are similar to those of our nations urban areas regarding the limited amount of frequency spectrum available. But these issues are compounded even more so in rural areas given sheer size of the area we cover, topography, and the limited amount of resources available in manpower and funding we face. We must all work together to make more radio frequency spectrum and funding available for our nations first line of defense: our first responders.

Thank you for giving me the opportunity today to share my views on the issue of spectrum availability for our nations first responders. I would be happy to take any questions that the committee may have.

Mr. UPTON. Thank you very much. That was very nice testimony. Dr. Jacknis?

STATEMENT OF NORMAN J. JACKNIS

Mr. JACKNIS. Mr. Chairman, as well as Congressman Engel, Westchester's Congressman, and distinguished members of the subcommittee, thank you very much for inviting me to testify today.

I am the Chief Information officer for Westchester County. That means I am the Commissioner in charge of telecommunications and technology. My responsibilities include the 911 system, radios, other forms of wireless communications, our emergency dispatch system, emergency management, fire dispatch, and bioterrorism early warning.

We have a lot of activity in Westchester County. Basically we are a large county just north of New York City with 150,000 people.

We have two active nuclear plants. We have corporate headquarters of a few of the Fortune 500 companies. We have New York City's water supply. We practice drills for emergencies and have done so for years because of all of the situations. September 11 brought home to us how significant the practice was. Westchester is as good a place as any to understand the impact of the deficit in radio spectrum for first responders and emergency workers.

I am going to focus on those things that have not been said as opposed to repeating everything.

One important point is that the county government in our case plays a role in the communications system for first responders, even though we are in a situation where we have four dozen fire departments, dozens of EMS, dozens of police departments. Unfortunately, under the standard Federal definition, we do not qualify for any funding because we are not the primary first responder on the scene.

I would hope that Congress, as it looks forward to some of these communications problems, broadens the definition of who would be able to get money to include not just those who are physically appearing on the scene to respond to an incident, but those who are helping those folks appearing on the scene to communicate with each other.

I think we have already mentioned the point about the importance of ham radio. It seems a long time ago, 800 megahertz was promised as the panacea, if you will, for first responders. I will not repeat all of the other issues you will hear about in terms of interference, but I will just point out to you that when you deal with a metropolitan area like New York, it is impossible for every individual department to get those licenses. As an example, Westchester Country has never had any 800 megahertz frequencies.

This cannot be the mechanism by which all of us can communicate on a common frequency. It has not worked out that way. 700 megahertz has come along. We thank the Commission for doing that. But nevertheless, as you have already heard, a television station basically blocks out that possibility for us until 2007 at the earliest. We are doing our best to work with the State of New York on at least planning out that kind of common voice communication system that we all need. But right now it is really more of a hope than a realistic expectation. That is important to realize. We are stuck.

Another important point I would make here is that we have heard a lot of about voice communications. That is essential. It is very important. In fact, we have taken a regional approach to use the Raytheon-type device to establish voice intelligibility on the scene.

That is very essential, but that is not all there is. As you address these issues, I would appreciate it if you would look forward to the future of some of the needs that we have seen we need for first responders, and especially in significant emergencies.

That really gets into the realm of data supported requirements, everything from being able to point out to an emergency operations center what the scene of an incident looks like, to be able to take pictures to understand whether or not we have a serious bioterrorism outbreak. There are a variety of things that cannot be sup-

ported in the spectrum that has been allocated for voice communications. Frankly, you would not want to use up that spectrum for these kinds of things.

I will point out to you that I am not the only one talking about this. This is popping up all over the country. Even in this area, when the police and fire departments in the Metropolitan Washington, DC area, as a result of a number of incidents, realized they had to have some intelligibility to be able to talk with each other.

What they chose, as opposed to just buying more voice radios, was to startup a wireless data network called Capwin, which has been very successful. It has allowed them to be able to deal with some of the real communications issues. In fact, in a number of ways it provides more accurate communications than was even possible just using voice.

Later today we have scheduled someone from Westchester County to show Congressman Engel some examples of some of the modern first responder communications that are possible, even in the unlicensed 2.4 gigahertz range, which some of you know as Wi-fi. Maybe some of you at home have some of these wireless networks.

It is a very efficient use of spectrum because it is using the protocols that were built for the internet. It is probably the most efficient use of spectrum. I do not know what the FCC says about that. But it is certainly compared to a lot of the TV bandwidth that is not used in any place.

The protocol allows for easy operability. What I want to do is encourage you to look forward to that, and the use of the 4.9 gigahertz area. I would encourage the FCC to take that kind of approach for public safety in the 4.9 gigahertz area.

None of this can happen without money. Everybody is stressed at the State and local level. I am sure you have heard about this. For that reason, we are very pleased that Mr. Engel, Mr. Stupak, and Mr. Fossella is working with the chairman to find some mechanism so that we can actually put into place some of this infrastructure to take advantage of the 4.9 gigahertz area.

Thank you. I would ask that my testimony be included in its entirety.

Mr. UPTON. Without objection, so ordered.

[The prepared statement of Norman J. Jacknis follows:]

PREPARED STATEMENT OF NORMAN J. JACKNIS, CHIEF INFORMATION OFFICER, WESTCHESTER COUNTY, NY

Mr. Chairman, Fred Upton, Ranking Member, Edward J. Markey, Westchester's own Representative, Eliot Engel and other distinguished members of the subcommittee, thank you for holding these hearings on the radio spectrum needs of first responders.

I am the Chief Information Officer for Westchester County—the commissioner in charge of the County Government's technology and telecommunications. This includes the 911 system, the systems for dispatching fire and EMS units, radios and other forms of wireless communications, emergency management systems, emergency notification systems, the bioterrorism early warning system, and so on.

With a population of 950,000 people, two active nuclear reactors, New York City's water supply, corporate headquarters for several fortune 500 companies among other possible locations of a disastrous incident, Westchester County is as good a place as any to understand the potential impact of the radio spectrum deficit facing public safety and emergency workers. As a suburban county, just north of New York City, we demonstrate the kinds of communications issues that arise in the handling of incidents—both large and small—that do not limit themselves neatly to one side of a municipal border.

Westchester County also offers, in microcosm, the common picture of multiple first response agencies. In addition to the County Government's special services in Hazmat, bomb squad, fire training and the like, Westchester has more than forty other police departments, fifty-eight local fire departments (comprised of career, volunteer firefighters or a combination of the two), forty-two emergency medical service agencies, and more than fifty public safety answering points in our 911 system. Day-to-day, the County Government ensures that the communications network underlying these activities is working and we dispatch a majority of the fire departments in the county.

The County Government plays a critical role in coordinating these agencies, especially in the face of a major emergency. In the absence of true interoperability between all of these agencies, we are the only mechanism for these various units to coordinate their activities.

However, by the standard Federal definition, we are not "first responders" and so we are not eligible for funding to improve the communications for first responders. I would suggest that Federal law needs to be amended to reflect the involvement of agencies that handle communications (like the County) in addition to those that physically respond to an everyday incident.

In the first hours following the attack of September 11, 2001, the only way we could coordinate the sharing of firefighting, Medical Examiner, Health and Information Technology resources with New York City officials was through the highly trained, volunteer Amateur Radio (ham) operators. This was a result of the fact that normal commercial communications services were unavailable. There was no other single, common communications medium, except the Amateur Radio Service. This irreplaceable resource must be protected against incursion by other interests.

In the past, an answer to the needs of public safety, particularly police, was the use of radios in the 800-Megahertz band. Indeed some of Westchester's police departments use such frequencies in their local areas. However, the County never received an allocation of 800-Megahertz frequencies and is not able to get any because it sits in a large metropolitan area where these frequencies are already licensed to other jurisdictions, such as New York City.

More recently, there have been numerous complaints across the country of interference with these frequencies by commercial wireless services. In turn, there has been extensive lobbying to have local public safety agencies exchange their 800-Megahertz frequencies for others in the 700-Megahertz range. No matter what the outcome of these efforts, it is clear that 800-Megahertz, in our area, has not fulfilled its promise as the single frequency range for first responder coordination and communications.

So the 800-Megahertz strategy of the FCC has been replaced by a plan to allocate spectrum in the 700-Megahertz range for public safety uses. This too is years away in New York State and elsewhere. In New York, a large part of the northern part of the state faces interference from Canadian uses of the same frequencies. In the city metropolitan area, including the suburban counties of the lower Hudson Valley, these frequencies are still used by television stations. It will be 2007 at the earliest that we could get access to these frequencies.

There was some discussion about this bandwidth being able to carry more than the traditional voice communications. However, the FCC's plans for the 700-Megahertz range call for it to be split into voice channels in such a way that it will not support the more advanced forms of communications that are increasingly needed and that emerging technology is making possible.

As it tries to help, it is important for Congress to realize that the traditional solution does not reflect the future of communications and will not meet the more demanding needs of first responders. That traditional solution is to give them a nice big radio that allows them to talk.

Voice communication is essential, but so is the ability to deliver data and video. The first responders need information, like floor plans, on-demand video instructions on how to recognize a contagious disease, details from a geographic information system, transmission of medical data from patients, a view from inside a school building, and the ability to show and discuss what is happening at an incident to an emergency operations center miles away. These are only some examples of the extraordinary expansion of first responder communications capabilities that would be possible if the spectrum for public safety were managed for the future and not the past.

This is certainly not without precedent. When the suburban counties in metropolitan Washington, DC, realized their failure to properly coordinate in the face of a plane crash into one bridge and then a "jumper" off another bridge, they organized to create a data network (CapWIN)—not just buy the more traditional radios. This

has become an enormous success for them, even though they are dependent upon a variety of commercial communications services.

Later today, we are scheduled to show Congressman Engel some examples of modern first responder communications that are possible even in the unlicensed 2.4 Gigahertz range. These are also examples of the efficient use of spectrum because of their reliance on the communications protocols of the Internet. Moreover, these same protocols allow for easy interoperability between agencies with all kinds of different radio, voice, video and other equipment. Commonly called Wi-Fi (a part of the 802.11 family of standards), this is the fastest growing, most competitive, least expensive and most innovative sector of the communications market.

These are impressive technologies, but the problem is they are dependent upon unlicensed frequencies that are getting more crowded and commercialized. Public safety, emergency managers and first responders must have reliable delivery of the information required for proper decision-making and the protection of people's lives. They need sufficient and reliable spectrum to use these modern technologies—but without worry about being crowded out.

In recognition of this need, a few weeks ago, the FCC took a first step by deciding to allocate to public safety about 50 Megahertz of spectrum in the 4.9 Gigahertz range. This is less than the 100 or 200 Megahertz originally anticipated for these needs. It excludes communications to police surveillance helicopters. There is also potential interference from powerful Navy radio equipment, especially in the more populated coastal areas of the country. Nevertheless, this is a good first step forward.

Congress can help to ensure that this decision will achieve its potential to become the basis for the first responder communications system that people deserve. There are four necessary Congressional actions:

- First, urge the FCC to make this spectrum available soon. We cannot wait for a years-long regulatory process.
- Second, make sure that commercial or other interests will not encroach or interfere with this allocation of spectrum, as has been the case with the previous 800-Megahertz and 700-Megahertz plans. This also means that the new spectrum allocation would be exclusively for public safety and emergency response use of governments or their agents. In the case of my county, that definition includes our public transportation system, which plays an essential role in evacuating the public from harm, especially schoolchildren.
- Third, encourage the FCC to adopt a more modern approach to allocating these frequencies, in accordance with the more modern digital technologies they say they want to support. Rather than slicing up the spectrum into less usable allocations to individual agencies, it would make sense to dedicate the whole swath of this spectrum to encourage the deployment of a wireless, secure, Internet-like data network modeled on the way that 2.4 Gigahertz works. Bearing in mind the public safety purpose of 4.9 Gigahertz, the FCC would then permit only authorized agencies to send data over an infrastructure built out by regional (or even Federal) organizations.
- Fourth, while modern communications technology is much cheaper to deploy than traditional radio systems, it is not free. Like other local and state governments around the country, Westchester has mostly footed the bill for homeland security on its own, but cannot afford to build out the communications infrastructure or continue to spend to keep up with the improvements in technology. The absence of financial resources can stop progress cold. For this reason, it is good to see that this problem has been addressed in the legislation introduced by Congressmen Engel, Fossella and Stupak to create a trust fund for this purpose. By the way, considering that Federal emergency management agencies will also be part of the new spectrum allocation, the funding will help both the Federal and local governments to protect the public in these ever more dangerous times.

Again, I thank you for your interest in this critical problem and I welcome any questions.

Mr. UPTON. Thank you very much.

Lieutenant Adamczyk, welcome.

STATEMENT OF GENE ADAMCZYK

Mr. ADAMCZYK. Thank you, Mr. Chairman and committee members.

In Michigan, my responsibilities are to bring new local members into the Statewide radio system, to provide to their training needs, their customer service needs, and all their technological needs.

I heard earlier about the lack of intelligibility that other jurisdictions in other States face. Michigan happened to be at the right spot at the right time. We have addressed this issue to some extent.

The State of Michigan has just implemented one of the most advanced and reliable public safety two-way radio communication systems in the Nation, known as Michigan's Public Safety Communications System, or the MPSCS. It utilizes state-of-the-art 800 megahertz trunk digital technology that allow member agencies to communicate statewide. The 181 tower site infrastructure has been designed to provide 97 percent all-weather mobile radio coverage across every region of the State. Completion of this project is truly significant as subscriber agencies now have radio communications intelligibility across all 96,810 square miles of the State, from the Ohio border to Michigan's most northern tip of the Keweenaw Peninsula.

The building of MPSCS began nearly two decades ago. In 1984, the Michigan Department of State Police had to evaluate its crumbling two-way radio system that had been in operation since the 1940's. It was determined that the new terrestrial radio system would not only serve the Michigan State Police, but would be open to include all local, State, and Federal public safety agencies in Michigan.

In June 1994, the Michigan legislature overwhelmingly approved $187 million to fund the new system. Due to magnitude of the system, the State was divided into four geographic areas to complete this project. In September 1995, the State broke ground on Phase One construction. Phase One was built to APCO 16 standards. In 1998, during Phase Two, the vendor contract was amended to APCO 25 standards. This created an open architecture for the system.

MPSCS is recognized internationally as one of the most technologically advanced two-way radio systems in the world. It is capable of meeting both the current and future communications needs of Michigan's public safety community. Recent visitors to view the statewide system in hope of emulating Michigan's lead in technology include the State of Montana, and the Dutch, German, and Mexican governments.

MPSCS also provides statewide support to some of the recent Michigan public safety operations, such as the 2002 Republican Governors Conference, the Detroit G-8 Conference, the Gogebic County flood, the Hooten County communications outage, the Marquette County flood disaster, and the recent Presidential visit to Dearborn.

MPSCS also provides statewide support to first responders in routine public safety operations such as fugitive pursuits, searches for lost individuals, and other multi-agency critical events. Today, MPSCS is more than 235 local, State, and Federal public safety agencies with 10,400 radios on the system. Many local and county agencies are currently considering joining MPSCS.

Based on current public safety interests, it is anticipated that the system will host over 14,000 public safety radios by the end of this year. Public safety radio spectrum is a finite resource, and in emergencies it is vital for public safety personnel to have clear communications available immediately. Without spectrum, public safety communications is impossible. Dense urban areas, consisting of many political subdivisions, create significant demands on available spectrum.

No two adjacent independent communication systems can use the same frequencies. Efficient channel spacing and frequency reuse allow for the maximum use of limited spectrum. However, only so much is available. In addition, public safety communication systems face interference from other public safety communications systems. Adding additional features to public safety radio communication, such as mobile data, still images, mug shots, and live feed requires additional spectrum to operate.

The legislative intent in building Michigan's statewide radio system is public safety communications intelligibility for all of Michigan's public safety. For individual units of government to build disparate communications systems thwarts the legislative spirit of this MPSCS. Intelligibility must also have a standard.

The standard Michigan has adopted is Project 25. Project 25 standards is supported by APCO, the Association of Public Communications Officials, the FCC, International Associations of Chiefs of Police, International Sheriffs Association, International Associations of Fire Chiefs, the National Association of State Telecommunicators Directors, and the Department of Homeland Security.

The Michigan system is open to the entire public safety community, including police, fire, EMS, public works, and transportation, hospital emergency rooms, and school districts. In Michigan, one of the barriers to obtaining communications intelligibility is the lack of funding, whether the community is large or the community is small. Funding that is provided to public safety for homeland security and communications intelligibility should be directed to those projects that meet Project 25 intelligibility standards, as does MPSCS.

Thank you. I would ask that my testimony be included in its entirety.

Mr. UPTON. Without objection, so ordered.

[The prepared statement of Gene Adamczyk follows:]

PREPARED STATEMENT OF F/LT. GENE ADAMCZYK, MICHIGAN STATE POLICE

The State of Michigan has just implemented one of the most advanced and reliable public safety two-way radio communications systems in the nation. Michigan's Public Safety Communications System (MPSCS) utilizes state-of-the art 800 MHz trunked digital technology that allows member agencies to communicate statewide. The 181-tower site infrastructure has been designed to provide 97% all weather mobile radio coverage across every region of the state. The completion of this project is truly significant as subscriber agencies now have radio communications interoperability across all 96,810 square miles of the state, from the Ohio border to Michigan's most northern tip of the Keweenaw Peninsula.

The implementation process of MPSCS began nearly two decades ago. In 1984, the Michigan Department of State Police formed a committee to evaluate its crumbling two-way radio system that had been in operation since the 1940s. The committee consisted of several state departments including State Police, Natural Resources, Transportation, Management and Budget, Military Affairs and representatives of the state House and Senate Fiscal Agencies. It was determined that the new

terrestrial radio system would not only serve the Michigan State Police, but also would be opened to include all local, state and federal local public safety agencies in Michigan. In 1992, after several years of completing various system design plans and cost studies, specifications for a request for proposal were finalized and sent to potential vendors.

In June 1994, the Michigan Legislature overwhelmingly approved approximately $187 million dollars to fund the new system, awarding Motorola with the largest single-vendor contract in the State of Michigan's history. The state was divided into four geographical areas (four phases) due to the magnitude of the project.

In September 1995, the state broke ground on Phase One construction. Phase One was built to APCO 16 standards and encompassed all of southeast Michigan, including the Detroit, Jackson and Lansing areas. The phase was officially completed in 1997. In 1998, Phase Two, which included all of southwest lower Michigan, was brought online to the new APCO 25 standard. Phase One was also upgraded to the APCO 25 standard. The completion of Phase Three followed in 2000 and consisted of the northern Lower Peninsula. Phase Four, the entire Upper Peninsula, was competed and brought online in November 2002.

On November 6, 2001, the State Administrative Board approved $20.3 million dollars to modify the contract between the State of Michigan and Motorola. This allowed for an upgrade from the current Motorola ASTRO® 5.0 Platform to Motorola's latest two-way radio platform—ASTRO® 6.0 IP Voice System. Phase Four (Upper Peninsula) was brought online on the 6.0 platform. In November 2002, the entire infrastructure in the Lower Peninsula was upgraded to the 6.0 platform creating a true statewide communications system. Some of the more visible benefits of the upgrade included increased user capacity to 64,000 user IDs, 16,000 talk groups and simulcast capabilities at local sites added to the state infrastructure.

MPSCS is recognized internationally as one of the most technologically advanced two-way radio systems. It is capable of meeting both the current and future communications needs of Michigan's public safety community. Recent visitors to view the statewide system include representatives from the State of Montana and the Dutch, German, and Mexican governments.

MPSCS has provided support to recent Michigan public safety operations such as the 2002 Republican Governor's Conference, the Detroit G-8 Conference, the Gogebic County Flood, the Houghton County Communications Outage, the Marquette County Flood Disaster and the Presidential Visit to Dearborn. MPSCS also provides statewide support in routine public safety operations such as fugitive pursuits, searches for lost individuals and other multi-agency critical events.

Today the MPSCS has more than 235 local, state and federal public safety agencies with 10,400 radios on the system. Many local and county agencies are currently considering joining the MPSCS. Based on public safety interest, it is anticipated that the system will host over 14,000 public safety radios by the end of next year.

Public safety radio spectrum is a finite resource. In an emergency, it is vital for public safety personnel to have clear channels available immediately. Without spectrum public safety radio communications is impossible. Dense urban areas consisting of many political subdivisions create significant demands on available spectrum. No two adjacent independent communications systems can use the same frequencies. Efficient channel spacing and frequency reuse allow for maximum use of limited spectrum; however, only so much is available. In addition, public safety faces interference from other public safety communications systems and commercial communications systems. Adding additional features to public safety radio communications such as mobile data, still images (mug shots), and live feed video requires additional spectrum to operate.

The FCC is in the process of making available 24 MHz of the 700 MHz frequency band to all public safety nationwide. However, its availability for public safety use in Michigan and other states is contingent on the fact that commercial broadcasters have the right to continue using this band until December 31, 2006 or longer. Equipment manufacturers see little incentive to manufacture equipment capable of operating within this frequency range without this spectrum being available.

Mr. UPTON. Thank you very much.

You might have heard those buzzers and bells. I apologize, too, for my quick departures back and forth, but I have a markup in the Education Committee, you have to be present to vote. We have a series of votes on the House floor.

I will propose that we will adjourn temporarily. We will reconvene with Mr. Brown's testimony at 1:15 p.m.

[Brief recess.]

Mr. UPTON. The subcommittee will come to order.

We will continue with our panel discussion.

Mr. Brown?

STATEMENT OF GREGORY Q. BROWN

Mr. BROWN. Good afternoon, Chairman Upton, Congressman Markey, and members of the subcommittee. It is good to see you again since Chicago.

My name is Greg Brown. I am President and CEO of Motorola's Commercial Government and Industry Solutions Sector, or what we affectionately call, CGISS. I would like to thank you, Mr. Chairman, for scheduling this hearing and for taking the time to visit our real-time data communications project which we call Greenhouse. It is obvious that meeting public safety needs is a high priority for you.

I also want to thank the members of this committee who have been exploring ways to clear TV channels 60 to 69 in the 700 megahertz band, and to find additional public safety funds. I am pleased to be with you today to support your efforts to achieve our shared goals.

As you know, Motorola is a leading provider of communications and information solutions. Since installing the first police car radio over 65 years ago, we have been dedicated to serving the mission critical needs of public safety customers, with an extensive range of technology options.

Wireless communications is a critical tool for our Nation's public safety agencies underscored and reinforced by today's heightened homeland security concerns. It is the mechanism for providing our first responders with the right information at the right time and in the right place, whether that information is voice, data, or pictures.

First responders must obtain accurate information at the point of decision. They must have improved intelligibility among multiple agencies and levels of government. Today the technology exists, as we heard some commentary before, to improve the quality and effectiveness of public safety operations. But clearly there are obstacles to deploying these new technologies.

I am here this morning to ask for your help in two areas. First, public safety needs additional Federal funding to purchase the radios and systems necessary to do its job, including improving intelligibility. Second, public safety must have access—the 700 megahertz spectrum by December 2006 to fully achieve intelligibility and deploy the advanced state of technology.

Only when these steps are taken can wireless technology fully support our first responders. We can do things like improving the quality of information to our frontline responders. An officer or agent can transmit video of a potential bomb or a biological weapon and get real-time counsel from an expert in another remote location. Local or State police could instantly send or receive a photograph of a missing or abducted child. Firefighters can access building blueprints, hydrant locations, hazardous material data, and other critical important information.

We have heard a great deal about the need for improved intelligibility among first responder organizations. Some Federal funds have been made available for this purpose, but they are wholly inadequate to reach an acceptable level of intelligibility in a reasonable time. We need your leadership in committing to and enforcing a sustained funded multi-year Federal program that guarantees this communications problem will be fixed once and for all.

Turning to the need for spectrum, Congress recognized its importance in 1997 when 24 megahertz in the 700 megahertz band was reallocated to support mission critical public safety communications. TV channels 63, 64, 68, and 69 currently use this spectrum. These stations are slated to clear this spectrum as part of the DTV transition.

It is critical to public safety operations for two reasons. First, 700 megahertz provides additional capacity for interoperable voice communications. Second, 700 megahertz is the only dedicated spectrum allocation where public safety can have high speed wide-area access in the field data bases—the intranet, imaging, and video. In other words, critical information.

Unfortunately, most metropolitan area public safety operations cannot use the spectrum today, nor can they predict with any certainty when they might have access to these frequencies. This uncertainty is due to the way the current law is written. In reality, there is no hard date for ending the transition, leaving public safety and deployment of vital technology in limbo.

Until this problem is addressed, 5 percent of this country's TV stations will prevent improved public safety communications for over 50 percent of our Nation's population. We are mindful of the other considerations that are involved in clearing these channels. It will not be easy. But we believe it can be done. We believe the adverse effects can be mitigated. Clearing television operations will not happen without your commitment and help. The first step is to agree today to set a hard date of December 2006.

In closing, Mr. Chairman, there is no more sound investment than ensuring that our Nation's public safety officials have the necessary tools to protect our citizens in the years ahead. We urge this committee to clear spectrum and to invest in intelligibility for all public safety radio users. Motorola pledges its supports to our customers and to you, this committee, to ensure making that happen.

Thank you. I would ask that my testimony be included in its entirety.

Mr. UPTON. Without objection, so ordered.

[The prepared statement of Gregory Q. Brown follows:]

PREPARED STATEMENT OF GREG BROWN, EXECUTIVE VICE PRESIDENT, MOTOROLA, PRESIDENT & CEO, COMMERCIAL GOVERNMENT AND INDUSTRIAL SOLUTIONS SECTOR

Good morning, Chairman Upton, Ranking Member Markey and Members of the Subcommittee.

My name is Greg Brown, and I am the President and CEO of Motorola's Commercial Government and Industrial Solutions Sector. I want to express my appreciation to you, Mr. Chairman, for scheduling this hearing, and for taking time to visit our high-speed date project, the Greenhouse Project. It is obvious that you have put a high priority on identifying and meeting public safety needs. I also want to thank other members of this committee who were able to visit the project earlier this week, including Congressmen Rush, Bass and Terry.

This committee understands the challenges facing public safety and has taken the lead in exploring ways to address these needs, including the 700 MHz proposals of Chairman Tauzin, Ranking Member Dingell, Congresswoman Harman, and Congressman Weldon and the funding proposals by Congressmen Markey, Stupak, Fossella and Engel, among others. I am pleased to be with you today to support your efforts to achieve our shared goal of meeting public safety needs.

Motorola's Commercial, Government and Industrial Solutions Sector (CGISS) is a leading provider of communications and information solutions, with more than 65 years of experience in meeting the mission-critical needs of our public safety customers. We offer an extensive portfolio of solutions specifically designed to meet the rapidly evolving safety and security needs of these customers. Our solutions include interoperable mission-critical radio systems; command and control solutions; identification and tracking solutions; information management for criminal justice and civil needs; and physical security and monitoring solutions. In 2002, CGISS received the Malcolm Baldrige National Quality Award, the nation's premier award for performance excellence and quality achievement, and Motorola was pleased to be here in Washington last month to receive the award from Vice President Cheney and Commerce Secretary Evans.

Motorola works very closely with our customers to ensure their ability to effectively respond to both every-day mission critical needs and catastrophic events. Our goal is to help them provide superior information at the point of decision and to improve interoperability among multiple agencies and levels of government. Interoperable wireless communication capability allows two or more parties to exchange information directly. In every disaster scenario, emergency responders recognize wireless system interoperability as a key factor in effective response and regional coordination. With interoperability, on-scene personnel can quickly access each other to coordinate needed rescue and emergency activities.

Motorola has installed or upgraded hundreds of digital systems for local and state jurisdictions. For example, Motorola supplied the leading edge interoperable digital system for the State of Michigan, as well as the Integration Framework technology in Kalamazoo County that will connect the multiple justice information systems for new efficiencies in criminal enforcement and homeland security. In addition, the Commonwealth of Massachusetts is operating an interoperable, multi-agency statewide network that serves as a platform for interoperability among many State and local agencies and is planning for future expansion.

Our experience has confirmed that interoperability is an important priority, and in achieving this capability, like meeting other mission imperatives, the approach must fit the system in question and the customer's needs and circumstances. There is no one-size-fits-all because of the wide differences among existing systems and operations.

We believe that nationwide interoperability can be achieved by the end of this decade if we set that goal as a national priority. Despite the differences among systems, we have learned that the common, and key, requirements to achieving interoperability include spectrum, standards and money.

To that end Congress has taken many steps to make spectrum available to public safety, including setting aside 24 MHz in the 700 MHz band. Congress now should clear this spectrum by the end of 2006 so public safety can begin to use it for wide area high-speed data communications as well as expanded voice communications. Interoperability standards that meet public safety needs and are open to all manufacturers have been established for voice and data communication and soon will be affirmed for wideband services. And finally, the Administration and the Congress have begun to fund the various grant programs administered by the Departments of Justice and Homeland Security and to set interoperability as a high priority for these funds. However, the level of funding in general and the amounts set aside for interoperable equipment purchases must be increased significantly.

ACCESS TO SPECTRUM ALLOCATED TO PUBLIC SAFETY IS CRITICAL.

Wireless communications is a critical tool for our nation's public safety agencies, especially given today's heightened homeland security concerns. It is the mechanism for providing our first responders with the right information at the right time and in the right place, whether that information is transferred via voice, data, or images. Spectrum designated for exclusive use by public safety is the lifeline to their emergency response, detection and prevention capabilities. Simply put, without access to adequate spectrum, wireless communications cannot take place, effectively and ubiquitously.

Recognizing the urgent and rapidly growing need for additional spectrum, especially in our metropolitan population centers, the public safety community through

the Public Safety Wireless Advisory Committee (PSWAC), issued a report on September 11, 1996 that identified the need for almost 100 MHz of additional spectrum to meet its communications needs through 2010. The greatest amount of spectrum is needed for emerging wireless wide area and broadband technologies, adapted for mission critical public safety applications. These applications include high-speed data, intranet access, imaging and video transfers and on-scene multi-media mobile command communications.

In 1997 Congress reallocated 24 MHz in the 746-806 MHz band (700 MHz band) to support mission critical public safety communications. The FCC has implemented this directive and issued authorizations and technical rules for public safety use. However, this spectrum is currently used by television channels 63, 64, 68 and 69, and they are expected to vacate this spectrum as part of the HDTV transition.

These channels are critical to public safety for two reasons:

(1) Together, the new 700 MHz and current 800 MHz bands provide the best opportunity to integrate interoperable communications. The 700 MHz band's proximity to the 800 MHz band allows public safety agencies to expand their current 800 MHz narrowband voice and data systems for interoperability and regional coordination on an "intra" as well as "inter" agency basis. Equipment operating in these combined frequency bands on the FCC endorsed Project 25 interoperability standard is commercially available today. Further, the FCC last year granted each state a license to operate such narrowband communications in the 700 MHz band.

(2) 700 MHz is the only dedicated spectrum allocation where public safety can implement advanced mobile wide area systems that bring high-speed access to databases, the intranet, imaging and video to first responders in the field.

This technology offers a whole new level of mobile communications capabilities, which is far beyond today's voice and low speed data applications. For example:

1. An officer or agent could transmit video of a potential bomb, or biological weapon and get real time counsel from an expert in another location.
2. Local or state police could instantly send or receive a photograph of a missing or abducted child.
3. Crime scene investigators can transmit live video of footprints, fingerprints and evidence to speed analysis and apprehension of perpetrators.
4. Firefighters can access building blueprints, hydrant locations hazardous material data and other critical information.
5. Paramedics can transmit live video of the patient to doctors at the hospital that would help save lives.

Motorola and Pinellas County, Florida, conducted a successful trial of technology that can provide all of the above capabilities as part of what we refer to as the Greenhouse Project. Operating under an experimental license from the FCC, we are conducting trials in the City of Chicago. The capabilities being demonstrated are the emerging powerful multi-media applications that will bring public safety communications into the Twenty-First Century. Public safety users are currently finalizing the wideband interoperability standard through the Telecommunications Industry Association (TIA). Right now, actual product development could proceed as soon as we know with certainty that this spectrum will be available nationwide to the public safety community.

Unfortunately, most metropolitan area public safety operations cannot use this spectrum today, nor can they predict with any certainty when they might have access to these frequencies. Therefore, they cannot deploy, or plan for the deployment of, the interoperability and advanced technology that will improve their effectiveness and safety. Under current law, while TV incumbents are required to vacate this spectrum at the end of 2006, they can receive an unlimited extension of this deadline based on the state of the transition in their particular market. Many experts seem to accept that the 2006 date is not likely to be met in any television market. Nor is there any effort to prioritize clearing the stations that impede use of the public safety allocation. So, in reality, there is no "hard date" when the transition will end for public safety users, a situation which leaves the public safety community and those who support its efforts and needs in a terrible situation. We commend and encourage this committee's efforts on legislation to set this hard date.

In order for any public safety agency to use the spectrum it has been assigned in the 700 MHz band, any TV stations operating on those transmit and receive frequencies (referred to as the co-TV channels) must have ceased operations. In addition, any TV stations in that market that are operating one TV channel up or down from the co-TV channel (referred to as the adjacent TV channels) also must have ceased operations. In effect, as many as seven TV channels (62-65 and 67-69) must

be cleared before first responders in that market will be able to access the 24 MHz of new spectrum and deploy the equipment that uses this spectrum.

Based on current FCC licenses, we have developed maps that identify the locations of the TV broadcasters that are operating today on the public safety co-channels and adjacent channels throughout the country. The maps include Canadian TV broadcasters that are bordering the U.S and that would impact public safety operations in the bands. Because public safety systems operate in a pairing of transmit and receive channels, they will operate in previous TV channels 63 and 68, and 64 and 69. In addition adjacent channels would impact their operations. Each of the two maps below shows the implications of existing operations on one of the two pairings. The shaded circles indicate current areas blocked by TV incumbents on the co-channels and on the adjacent channels and they include the Canadian TV stations operations.

It is no surprise that these blocked areas are in our nation's densest population centers, where public safety urgently needs access to the spectrum. The reality is that 5% of this country's TV stations are blocking improved public safety communications for 84% of the population in the largest cities, those over 200,000. Of that 84%, more than two-thirds have no access to the spectrum, while the remaining third have only limited access. When we look at all areas of the country, rural as well as urban, 54% of our country's population is totally blocked by this small number of TV stations from receiving any benefits of public safety communications in this new band.

To allow public safety agencies to implement this vitally needed new wideband technology, as well as expand and interoperate with their existing 800 MHz systems, public safety must be allowed to access the 700 MHz spectrum throughout the country.

Congressional action is required to mandate a date certain by which all TV incumbents must vacate this critically needed spectrum, without exceptions. This firm date must be no later than 2006.

We are not unmindful of the other considerations that are involved in making this date a reality. It will not be an easy task, but we believe it can be achieved while mitigating the adverse effects. We urge the Committee not to be deterred from setting this goal because it may be hard to achieve. Rather, once it has been set, the affected parties, including the public safety community, the FCC and NTIA, the involved broadcasters and other affected parties, including our company, should be called upon to devote our energies to making it happen.

INCREASED RECOGNITION OF INTEROPERABILITY IS IMPERATIVE.

Motorola was the first company to put radio equipment in a police car. This landmark event took place approximately 65 years ago. From that day forward to the present, technology to meet first responder needs has steadily evolved. As the technology made it possible to move into higher and higher frequency bands, and as the lower frequencies reached user capacity, the FCC allocated additional spectrum to public safety users on an incremental basis, going from the VHF Low Band, located in the area of 30 MHz, to the VHF High Band in the area of 150 MHZ, and the UHF Band at 450 MHZ, and then going to the 800 MHz Band and now to the 700 MHz spectrum.

As this Committee appreciates, public safety equipment must be capable of many years of use, because local municipal budgets need to squeeze as much use out of equipment as is possible. Thus, there has been no set order in which municipalities expanded into new spectrum bands. A city would buy new equipment, perhaps in a new band, when they needed new or expanded communications, a replacement for their existing equipment, or as existing channels hit capacity usage levels.

This patchwork quilt approach to spectrum allocation and adoption by users for public safety by myriad independent political entities resulted in the interoperability challenges we are facing today. Regional coordination to enable interoperability was not considered to be a high priority, at least not until a local disaster exposed a problem. For example, more than 20 years ago, the public safety community in metropolitan Washington, D.C., learned firsthand how a lack of interoperability among agencies can contribute to the chaos of a disaster and may impede effective response.

On January 13, 1982, the crash of Air Florida flight 90 into the 14th Street Bridge revealed that many of the police, fire and rescue agencies from all levels of government, who responded to this large disaster, could not talk to one another. From this experience emerged a consensus that something had to be done. And action was taken, including years of planning and collaboration by the Washington Metropolitan Area Council of Governments to design proactively an interoperable

radio communications solution and mutual aid agreement among the area jurisdictions and response agencies.

On September 11, 2001, the local public safety organizations in the Washington, D.C. area were prepared, and with the flip of a switch, they were able to communicate seamlessly at the site of the terrorist attack on the Pentagon. There were still some coordination issues with the federal responders who also arrived on the scene, because they had not chosen to be part of the planning efforts of the local jurisdictions, and their radios operated on separate federal frequency bands. But both the benefits of interoperability and some ways in which it can be achieved were aptly demonstrated that day. This experience demonstrated that while meeting day to day operational requirements, interoperability can be achieved when there is a willingness to cooperate, sufficient compatible spectrum, funding, common technology and equally important, adequate training and planning.

PROJECT 25 IS THE U.S. INTEROPERABILITY STANDARD

In addition to spectrum access, standards are critically important to achieving interoperability. Fortunately, the standards for interoperability have been developed, and they have been accepted around the world, with systems now operating in 49 countries. The standards were developed by the public safety users in the United States, with cooperation from multiple equipment manufacturers. Public safety users adopted the Project 25 (or "P25") standard in order to implement an open standard that promotes interoperability and system migration, and enables more competitive procurements for digital radio systems, thereby eliminating their dependence on vendor proprietary systems.

P25 is actually a full suite of standards that, when built into communications equipment, provides the basis for interoperable digital radio voice and low-speed data communications among multiple public safety users, departments and agencies. These standards were developed under the auspices of, and are published by, the Telecommunications Industry Association (TIA), and accredited by the American National Standards Institute (ANSI). Public safety users have the option to choose Project 25 products from multiple vendors. The Project 25 web page lists 15 manufacturers serving the public safety and defense markets, who offer P25 compliant radios and/or P25 radio system products (http://www.project25.org/pages/manufacturers.htm).

Unlike many other communications standards and technologies in the broader wireless industry, the unique mission critical requirements of public safety users drove the development of the P25 suite of standards. High priority was given to public safety's operational and tactical requirements. For reasons of cost effectiveness, the Project 25 standards permit a graceful migration path from aging analog to new digital systems. These standards promote improved spectral efficiency, and, as intended, allow for multi-vendor equipment offerings. Radios that meet the P25 standards incorporate backward compatibility with conventional analog systems. Project 25 radios communicate in analog mode to analog radios, and either digital or analog modes with other P25 radios.

Public safety users at all levels of government have embraced Project 25. For example, Project 25 has received the endorsement of the National Association of State Telecommunications Directors (NASTD), the Association of Public Safety Communications Officials—International (APCO), the International Association of Chiefs of Police (IACP), the International Association of Fire Chiefs (IAFC), the Major Cities Chiefs (MCC), the National Sheriffs' Association (NSA), and the Major County Sheriffs' Association (NCSA).

Project 25 has received broad support at the federal level as well. Based on public safety user recommendations, the FCC endorsed the Project 25 suite of standards for voice and low-speed data interoperability in the new nation-wide 700 MHz frequency band. Every 700 MHz radio must include Project 25 compatibility defined by this TIA/ANSI standard. The U.S. Department of Defense mandated P25 for new land mobile radio systems. Recently, the Department of Homeland Security specified P25 as the standard for obtaining federal funding for interoperability grants.

INTEROPERABILITY FUNDING SHOULD BE A NATIONAL PRIORITY

Full public safety communications interoperability by the end of this decade should be a national goal. This is an ambitious goal, but a very worthy and doable one. Our nation has the necessary technology, the standards and equipment . What is lacking is the money to buy the equipment and deploy the systems, particularly at the state and local level, and we will not achieve this goal at the present pace of system upgrades. Instead, it will require a commitment lead by determined champions. Mr. Chairman, I urge this Committee to assume this important role.

There are several reasons why the federal government must take the lead. As we all know, homeland security is a federal, state and local responsibility, but national planning begins at the federal level. This is one of the reasons why the Congress and the President created the new Department of Homeland Security.

While we cannot predict future terrorist attacks, we must prepare for the real possibility and threat. Also, we do know that we will face natural disasters such as hurricanes, tornados, wildfires, and earthquakes and other threats such as hostage takings, hazardous materials spills, and train wrecks. Interoperable public safety communications is critical to effective response in all these cases.

With the states facing a staggering $80 billion aggregated deficit in 2004 alone, they cannot be expected to accomplish this goal without substantial federal support. Accordingly, we need a well-funded, multi-year federal program that guarantees that this communication problem is fixed, once and for all.

Consequently, we must work aggressively to increase the funds devoted to interoperable communications now and until the job is done. Nothing should be allowed to delay or impede this funding effort. At the present time, combining fiscal year "03 base and supplemental appropriations, about $5B has been appropriated for various grant programs for state and local first responders. While wireless communications is one of a number of allowed uses for these funds, only about $154M or 3% of the total was designated in the legislation specifically for wireless communications enhancements. We would ask for your help to increase the sums designated for wireless communications in light of the broad consensus that exists for improving the status of wireless communications interoperability among government entities.

We certainly cannot afford the human costs associated with delaying achievement of full interoperability.

Mr. Chairman, ensuring that our nation's public safety officials have the tools they need to protect our citizens in the years ahead is a sound investment for the entire country. We urge this Committee to clear spectrum for public safety and to invest in interoperability for all public safety radio users. Motorola pledges its support to our public safety customers and to this Committee to help you make this happen.

Thank you.

Mr. UPTON. Thank you very much.

Mr. Stile?

STATEMENT OF VINCENT R. STILE

Mr. STILE. Thank you, Mr. Chairman. My name is Vincent Stile. I am appearing before you as President of the Association of Public Safety Communications Officials. The International Association of Chiefs of Police and Major Cities Chiefs, the International Association of Fire Chiefs, the National League of Cities, and the National Association of Counties have also asked that I speak on their behalf.

My paying job is with the Suffolk County Police Department in New York as Communications Systems Director. I am also a retired police officer. I am also Frequency Advisor for Southern New York State for APCO.

I would like to discuss the spectrum needs of this Nation's first responders and in particular the need for a firm date to make available the 700 megahertz spectrum for public safety communications.

Today in much of the Nation there is simply not enough radio spectrum for public safety requirements. As the New York City area frequency advisor, I can truly say no channels are available for expanding public safety radio systems which has four major consequences.

One, an agency must operate on dangerously overcrowded radio systems. Two, agencies must share channels with other agencies and face the potential of interference. Three, agencies are unable

to deploy state-of-the-art capabilities such as mobile data or trunking technology. Four, agencies are forced to operate radio systems on diverse incompatible radio frequency bands.

In my written testimony I cited a few examples of spectrum shortages that have long been a major problem facing public safety communications across the Nation. The spectrum problems that I have described are not new. In 1996, the Public Safety Wireless Advisory Committee concluded that public safety users would need 97.5 megahertz of spectrum by the year 2010.

Among the specific requirements of that report, 24 megahertz of that spectrum from TV channels 60 to 69, are to be made available for public safety within 5 years. Unfortunately, that spectrum is still not available nationwide. In 1997, Congress required that the FCC allocate an additional 24 megahertz of radio spectrum for public safety services. However, the 1997 law allowed those television stations to remain on the air until December 31, 2006, or until 85 percent of the households in the relevant market areas have the ability to receive digital television which is likely to occur no later than 2006.

Speeding up digital television deployment to meet the 85 percent benchmark is not enough to solve the dilemma. Public safety needs the firm date of the new spectrum to be available for planning and funding purposes. Therefore, we urge Congress to establish December 31, 2006, as a firm and final date for television services to vacate specific channels that block public safety use of the 700 megahertz band. That will give State and local governments the ability to proceed with new radio systems and for expansion of overburdened systems operating on the adjacent 800 megahertz band.

800 megahertz is among the frequency bands in which public safety channels are no longer available in most of the Nation. Unfortunately, the 800 band is also subject to severe interference caused by Nextel and other wireless carriers. APCO has joined, along with public safety and private wireless organizations, to create a consensus plan to address these problems.

A consensus plan eliminates most of the interference problems and creates additional public safety spectrum channels for the 800 megahertz band. These additional channels are especially important right now where 700 megahertz remains blocked by the TV channels.

With additional public safety spectrum, an important benefit of the consensus plan is its principal goal to address serious interference problems. We have carefully studied the causes of interference of the 800 band. We are convinced that the problem is severe, widespread, and gets worse as commercial radio systems proliferate.

Therefore, APCO and others continue to support the consensus plan as its separate public safety users from Nextel and other cellular systems which we believe is necessary to address the interference problem.

Mr. Chairman, I want to thank you again for conducting these hearings and for allowing me to appear before you. APCO looks forward to working with you and your colleagues to ensure that public safety agencies have the access to the spectrum they need to protect the safety of life and property.

Thank you. I would ask that my testimony be included in its entirety.

Mr. UPTON. Without objection, so ordered.

[The prepared statement of Vincent R. Stile follows:]

PREPARED STATEMENT OF VINCENT R. STILE, PRESIDENT, ASSOCIATION OF PUBLIC-SAFETY COMMUNICATIONS OFFICIALS-INTERNATIONAL, INC.

Thank you, Mr. Chairman. My name is Vincent Stile, and I appear before you today in my capacity as President of the Association of Public-Safety Communications Officials-International, Inc. ("APCO"), the nation's oldest and largest public safety communications organization. The International Association of Chiefs of Police and Major Cities Chiefs Association have also asked that I speak on their behalf today.

I am also the Police Radio Communications Systems Director for the Suffolk County Police Department, Long Island, New York and serve as chair of the New York Metropolitan Advisory Committee (NYMAC) dealing with the concerns of radio spectrum as it affects first responders in New York City and its surrounding areas. I also serve as APCO's local frequency advisor for southern New York State.

I would like to discuss the spectrum needs of our nation's first responders and, in particular, the need for Congress to adopt a firm date for the availability of the 700 MHz spectrum that has already been allocated for public safety communications.

APCO has over 16,000 members, most of whom are state or local government officials who manage and operate police, fire, emergency medical, disaster relief and other public safety communications systems. As an FCC-certified frequency coordinator, APCO works closely with public safety agencies and the Commission to identify the most effective and efficient use of the scarce radio spectrum currently allocated and available for public safety use. APCO is also an advocate for the public safety community on communications issues, involving both spectrum and E9-1-1 issues. In that regard, APCO works closely with organizations such as the International Association of Chiefs of Police, International Association of Fire Chiefs, National League of Cities, National Association of Counties, and, on E9-1-1 matters, the National Emergency Number Association.

Police, fire, EMS and other first responders face many challenges as they strive daily to protect the safety of life, health, and property, especially in today's uncertain world. They cannot begin to tackle those responsibilities without effective radio communications capabilities. Public safety agencies must have reliable communications among their own personnel in the field and, increasingly, with personnel from other agencies and jurisdictions responding to the same emergencies. To do so, they need the financial resources to build and maintain state-of-the-art radio systems, and they need sufficient and appropriate radio spectrum on which those systems can operate. This latter problem, regarding radio spectrum, will be the focus of my testimony today.

Unfortunately, in much of the nation there is simply not enough radio spectrum allocated to accommodate public safety requirements. For example, in the New York City area, where I have long-served as APCO's local frequency advisor, there are no channels available for new or expanded public safety radio communications operations in any of the three main frequency bands in which public safety mobile radio systems operate: VHF (150-170 MHz), UHF (450-470, 470-512 MHz), or 800 MHz. Thus, many agencies are forced to (a) operate dangerously overcrowded radio systems; (b) share channels with other agencies and face the potential for interference, (c) forgo deployment of state-of-the-art communications tools such as mobile data or trunking technology, and (d) operate their radio systems on diverse, incompatible radio frequency bands.

As a current example, the Court System for New York State presently needs a pair of VHF frequencies for their law enforcement officers to operate in the Criminal and Superior Court Buildings within New York City. Right now, they are forced to share radio frequencies utilized by the City of New York. While those agencies cooperate in the sharing of the frequency, the arrangement place significant constraints on their operations.

This lack of radio spectrum has existed for many years in the New York area. For example, over ten years ago, the Garden City, New Jersey, Police Department was unable to find a public safety channel, but I was able to secure their use of a VHF business radio frequency. While that worked for awhile, business users are now creating interference problems for the Police Department's radio system. Similarly, the City of Newark, New Jersey, just across the Hudson River from Manhat-

tan, is in dire need of a single radio frequency to be used as an input frequency to a citywide radio system. The frequency presently in use is subject to constant interference, but no alternative channels are available.

As president of a nationwide organization of public safety communications professionals, I can assure that similar problems exist across the country.

One of the many consequences of insufficient radio spectrum is the lack of effective interoperability among first responders in the field. Often, the police, fire, EMS and other public safety personnel responding to an emergency are from different agencies or jurisdictions. All too often, these first responders cannot communicate with each other. This lack of "interoperability" has many causes, but is often the result of agencies being forced by spectrum shortages to use a variety of incompatible public safety frequency bands.

For example, the Suffolk County Police Department operates on 800 MHz frequencies while fire, EMS, and some police departments within the County operate on either VHF or UHF frequencies. Similar variations occur in neighboring Nassau County, and within New York City. This mix of incompatible frequency operations is a function of spectrum shortages, and leads to serious interoperability challenges. The agencies in question are working hard to find ways to interoperate as best they can, but the lack of radio spectrum is a major hindrance. There are not even enough channels to create a cross-band patch, let alone sufficient spectrum for a wide-area, multi-agency system in a single frequency band. Again, this is a common problem in many areas of the country.

Commercial radio systems are not the answer to our problems, though commercial operations can be helpful for certain types of "non-mission-critical" state and local government communications. "Mission-critical" public safety communications require dedicated public safety radio systems and spectrum to provide an extremely high level of reliability, ubiquitous coverage throughout the relevant jurisdiction (i.e., no "dead-zones"), immediate access (i.e., no waiting for clear channels), unfettered control during emergencies, continuity without regard to the whims of the marketplace, and ironclad security. Few if any commercial systems satisfy those requirements.

The spectrum problems that I have described are not new. In 1996, the Public Safety Wireless Advisory Committee (PSWAC) concluded that public safety users would need an additional 97.5 MHz of spectrum by 2010. Among the specific recommendations of the PSWAC Report is that 24 MHz of spectrum from the 746-806 MHz band (TV channels 60-69) be made available within five years of the Report. Ironically, the PSWAC Report was adopted on September 11, 1996. Exactly five years later, on September 11, 2001, that spectrum was still not available nationwide.

The Balanced Budget Act of 1997 did require the FCC to allocate an additional 24 MHz of radio spectrum for public safety services, and the FCC subsequently did its part and reallocated to public safety 24 MHz of spectrum from TV channels 63, 64, 68, and 69 (764-776/794-806 MHz). However, the 1997 Act allows television stations on those and other relevant channels to remain on-the-air until December 31, 2006, OR until 85% of households in the relevant markets have the ability to receive digital television (DTV) signals, whichever is later.

Unfortunately, it is highly unlikely that the 85% benchmark will be met until long after 2006. As a result, police, fire, EMS and other public safety personnel must wait indefinitely for the additional radio spectrum and communications capabilities that they need today, not at some future, undefined date.

I want to emphasize that merely speeding up DTV deployment to meet the 85% benchmark is not enough. Public safety needs a firm date for the new spectrum to be available, so that state and local governments can proceed with the planning, design, funding, and construction of new radio systems.

Therefore, we urge Congress to establish December 31, 2006, as a firm and final date for television stations to vacate the specific channels that block public safety use of the 700 MHz band spectrum allocated as a result 1997 Balanced Budget Act. That will give state and local governments the ability to proceed with new interoperable, state-of-the-art public safety radio systems to provide new capabilities and/or allow for expansion of overburdened systems operating in the adjacent 800 MHz band.

As I mentioned earlier, 800 MHz is among the frequency bands in which public safety channels are no longer available in much of the nation. Unfortunately, the 800 MHz band is also subject to severe interference problems caused by the commercial cellular operations of Nextel and other wireless carriers. APCO has joined with other public safety and private wireless organizations (including the Industrial Telecommunications Association and PCIA), and Nextel, to create the "Consensus Plan" to address both of these problems. Not only would the Consensus Plan elimi-

nate most of the interference problems, it would also create additional public safety channels in the 800 MHz band. Those additional channels are especially important right now, insofar as they would provide badly needed spectrum capacity in markets where the 700 MHz band spectrum remains blocked by TV station operations.

While additional public safety spectrum is an important benefit of the Consensus Plan, its principal goal is to address serious interference problems. APCO and other public safety organizations, such as the International Association of Chiefs of Police and International Association of Fire Chiefs, continue to support FCC adoption of the Consensus Plan as the most effective approach to deal with interference, without imposing costs upon state and local governments. This Plan would not require any legislative action.

We have carefully studied the causes of interference in the 800 MHz band, and we are convinced that the problem is severe, wide-spread, and will get worse as commercial radio systems proliferate. Some have advocated case-by-case approaches to correct interference problems once they occur, and equipment improvements that will address some forms of interference. While helpful, such "reactive" approaches are not sufficient. The critical nature of public safety communications demands a comprehensive, proactive set of solutions to prevent interference from occurring in the first place. We believe that such a solution must include a restructuring of the 800 MHz band, as proposed in the Consensus Plan.

Mr. Chairman, on behalf of our nation's first responders, I want to thank you once again for conducting this hearing and for allowing me to appear before you today. APCO looks forward to working with you and your colleagues to ensure that public safety agencies have access to the spectrum they need to protect the safety of life, health, and property.

Mr. UPTON. Thank you very much.

Mr. Donahue, welcome back.

STATEMENT OF TIMOTHY M. DONAHUE

Mr. DONAHUE. Thank you, Mr. Chairman. My name is Tim Donahue. I am the President and Chief Executive Officer of Nextel Communications.

I want to thank you for inviting me to testify on the critical problems facing public safety communications in the United States. I am here today primarily because at Nextel we believe our Nation's police officers and firefighters and those they serve are at risk. Our Nation's first responders are local police, firefighters and other emergency officials who rely on mobile communications to ensure their own safety, as well as the safety of the American public.

Their mobile communications system should be reliable, robust, seamless, and interoperable. Unfortunately, they often are not. Nextel serves more than 1 million government customers today, many with public safety responsibilities. Our experience in public safety communications has made us keenly aware of two serious problems confronting the public safety community.

First, public safety has insufficient spectrum to develop the robust radio networks necessary to protect the public. Second, there has been unanticipated rise in interference to public safety communications in the 800 megahertz band where many local, State, and public safety radio systems operate.

Unfortunately, the problem is increasing day-by-day, month-by-month. It has been such a serious issue, that as Mr. Stile has pointed out, a consensus group has been formed and put a plan on the table to alleviate a lot of that interference.

The consensus plan is a proactive, detailed, practical, and sustainable solution to the problems, not some general philosophy that will not protect the cop on the beat. It provides additional spectrum for public safety.

If the consensus plan were approved, there would be 25 percent more spectrum at 800 megahertz than there is today because of the spectrum that Nextel would turn back in. There would be 4 megahertz, or 16 percent more spectrum at 700 megahertz, and is immediately adjacent to the 700 megahertz spectrum that has recently been allocated to public safety. So not only does the plan eliminate the interference that is being caused today, but it also gives public safety significantly more spectrum.

The consensus plan separates fundamentally incompatible spectrum neighbors and groups together compatible neighbors in line with the FCC's 2002 Spectrum Policy Task Force Report. Nextel, the cellular carriers, and public safety communication systems, currently operate as incompatible neighbors. If you take a look at the chart to my left, you can see on the top how the 800 megahertz band is structured. If you take a look at the yellow across to the purple, we are all operating in and around that band, which is what causing enormous interference in the networks.

The varying types of communications were located almost randomly throughout the 800 megahertz. As a result, interference occurs. While the channel mixture made sense 30 years ago when the FCC adopted it, today it is the fundamental cause of public safety interference.

Realigning the 800 megahertz band to relocate commercial mobile providers and public safety into separate spectrum blocks will essentially eliminate the problem. If you take a look at the top box, which is what is happening currently, and then you take a look at the bottom box when we have been realigned, you eliminate all interference because there are separate blocks of spectrum that each of us would use.

The FCC is considering other plans for resolving interference at 800 megahertz. These reactive plans merely seek to continue the status quo providing neither a real solution to remedy the fundamental cause of interference, nor additional spectrum for public safety.

The consensus plan is the only plan that provides additional spectrum at both 800 megahertz and 700 megahertz for first responders while also addressing interference issues at 800 megahertz and 900 megahertz. This is due to Nextel's exchanging spectrum in these bands for which it paid $2 billion for an equal 10 megahertz in the 1.9 gigahertz band where there are no public safety operations. Nextel has also committed $850 million to pay for retuning of 800 megahertz public safety and other incumbents as necessary under the plan.

Our prospective, Mr. Chairman, is that we must act now. The loss of even one first responder to a preventable communications failure is unacceptable. A comprehensive solution must be adopted now. The sooner we begin, the sooner we can eliminate this risk to our first responders and the American people.

I urge this subcommittee to request that the FCC expeditiously resolve the issues facing public safety communications and adopts the consensus plan in full.

Thank you, Mr. Chairman. I would ask that my testimony be included in its entirety.

Mr. UPTON. Without objection, so ordered.

[The prepared statement of Timothy M. Donahue follows:]

PREPARED STATEMENT OF TIMOTHY M. DONAHUE, PRESIDENT AND CHIEF EXECUTIVE OFFICER, NEXTEL

Mr. Chairman and Members of the Committee: Thank you for inviting me to testify today on the critical problems facing public safety communications in the United States. I commend the Committee for giving attention to these issues, and I am grateful for this opportunity to present my views on a topic so vital to the security and welfare of this Nation.

As President and Chief Executive Officer of Nextel, I am well acquainted with the problems confronting public safety radio networks all across the United States. Many local and state public safety radio systems today operate in a portion of the 800 MHz radio spectrum band that is also home to a substantial proportion of Nextel's commercial mobile operations. In fact, a wide variety of other commercial mobile carriers and internal company and business radio systems also operate in this part of the 800 MHz band. As I discuss further below, this volatile radio mix has resulted in an increasing level of harmful interference to public safety communications all over the country. At the same time, the public safety community is still grappling with a long-term spectrum shortage that the FCC has been attempting to address, with mixed results, for the better part of the last decade.

An obvious question to ask is, "How could this interference develop in a radio band that is home to the most important, safety-of-life communications in the United States?" As I discuss further below, the short answer is that this mix of uses made sense thirty years ago during a dramatically different era of wireless communications. An much more important question, though, is what is the FCC going to do now to resolve these problems and give the first responders of this country the radio systems they need and deserve.

As one of the largest commercial wireless provider in this portion of the spectrum, Nextel has an important stake in any effort to resolve these public safety communications issues. Nextel and a broad cross-section of private radio and public safety licensees (including the Association of Public-Safety Communications Officials, International; the International Association of Fire Chiefs; the International Association of Chiefs of Police; the Major Cities Chiefs Association; the National Sheriffs Association; and the Major County Sheriff's Association) have developed a fundamental, long-term solution to these problems, in the form of the "Consensus Plan" for realigning the 800 MHz band. I urge this Committee to do whatever it can to expedite the Federal Communication Commission's ("FCC") adoption of this Plan.

THE IMPORTANCE OF PUBLIC SAFETY COMMUNICATIONS IN THE U.S.

There are few challenges as complex and as important as protecting the Nation's Homeland Security. First responders such as local police, fire fighters, and other emergency and safety-of-life personnel must have the best tools available to them. This includes the most advanced, reliable and robust public safety communications system possible.

Nextel is proud of its role in public safety communications. Nextel's iDEN® network has for many years supplemented public safety communications networks throughout the United States. Nextel has even developed an "Emergency Response Team" to coordinate and manage its resources to meet the needs of public safety organizations and personnel. In emergency situations, Nextel has provided and continues to offer technical expertise and rapid, reliable, and secure communications to city, state, and federal emergency workers, disaster-relief agencies such as the American Red Cross, utilities, and other first-responder organizations.

Through its iDEN® network, Nextel offers its public safety customers a unique variety of cellular, short messaging, Internet access, data transmission, and Direct Connect services. In particular, Nextel Direct Connect,® Nextel's two-way walkie-talkie feature, has become an invaluable tool for local, state, and federal public safety officials. Enhanced features such as "Emergency Group Connect" and "Priority Connect" have been integrated with Direct Connect® to meet disaster management and law enforcement needs.

In the last couple of years, Nextel has provided critical services to public safety agencies through a number of significant events and emergencies, including the following:

- **September 11, 2001.** Nextel provided more than 8,000 phones to emergency workers in the aftermath of September 11, 2001. When other cellular and traditional phone networks became inoperable due to technological and congestion

problems, Nextel's Direct Connect® service emerged as the single viable means of communication for public safety responders.

- **Sniper Task Force—October 2002.** Nextel provided more than 550 handsets to public safety officials—local, state and federal law enforcement, command centers, and community school systems—supporting the Joint Sniper Task Force during its investigation.
- **Arizona Rodeo-Chediski Wildfires—June 2002.** Nextel provided 175 phones to emergency workers battling the largest wildfire in Arizona history, including the U.S. Forest Service, Arizona Fire Management Division, Gila (AZ) County Sheriff's Department and the Forest Service Law Enforcement Group.
- **The 2002 Olympic Winter Games.** The Utah Olympic Public Safety Command partnered with Nextel to ensure reliable and interoperable communications among 15,000 local, state, and federal public safety personnel from ninety agencies involved in the Games.

TWO PROBLEMS FACING PUBLIC SAFETY COMMUNICATIONS

Nextel's experience in public safety communications has made us keenly aware of two serious problems confronting the public safety community in the United States.

Spectrum shortage. First, there is not enough spectrum available for public safety use. Public safety agencies still lack sufficient spectrum to develop the robust, redundant, and seamless radio networks necessary to protect the public. Too often, first responders don't have enough radio channels to have "interoperable" radios, and in many cases they cannot communicate with each other in the first critical moments following a disaster. This problem has been particularly severe in large metropolitan areas. Public safety operators also need more spectrum to support the advanced video and multimedia services that are indispensable in today's data-driven world.

Not only is it critical that the FCC provide public safety agencies with *more* spectrum, it's also important that such spectrum be in the *right* frequency band. With much of today's public safety communications falling in the 800 MHz band, the allocation of additional spectrum there will promote economies of scale and radio interoperability that can be used almost immediately, while equipment is developed and spectrum cleared for public safety communications services in other spectrum bands, such as 700 MHz.

As the Members of this Subcommittee no doubt know, the FCC has been working in recent years to provide public safety with more spectrum, but these efforts have been frustrated by a variety of factors. As I describe further below, the Consensus Plan provides the FCC with a fresh opportunity to address the shortage of public safety spectrum.

Interference. The second critical problem facing the public safety community is the unanticipated and disruptive growth of interference to public safety communications in the 800 MHz band. In 1999, Nextel and public safety agencies first observed significant interference in the 800 MHz band to public safety radios. This interference often occurs when public safety radios are used near towers operated by Nextel and other commercial wireless operators such as Cingular, AT&T Wireless and Verizon Wireless. Police, firefighters, and other first responders are experiencing garbled, fuzzy, or blocked calls, jeopardizing the lives of these emergency personnel as well as the public they serve.

This interference is occurring more and more frequently. Public safety interference in the 800 MHz band has been reported in nearly 800 locations and in more than 25 major cities spread throughout the country, including in Denver, Los Angeles, Miami, New York, Phoenix, Portland, Salt Lake City, and Seattle. Nextel's data shows that at least 10% of public safety radio systems in the 800 MHz band have been affected by interference—many at numerous locations. This year, public safety interference has reached its highest level, with 51 individual public safety agencies reporting interference at 117 different locations through April 30. If this trend continues, public safety agencies will experience interference at more than 350 locations this year—the highest single-year total to date. In the face of this alarming trend, the Subcommittee should bear in mind one key point: *this interference is occurring despite the fact that all wireless carriers in this band are operating in full compliance with the FCC's rules.*

Interference to public safety communications promises to get worse, as commercial wireless and public safety traffic continues to grow. Without decisive action from the FCC, the threat to first responders attempting to communicate in emergency situations will only become more acute.

THE CAUSE OF INTERFERENCE TO PUBLIC SAFETY COMMUNICATIONS

To figure out what to do about these public safety problems, it helps to take a step back and explore a key spectrum management principle discussed by the FCC's Spectrum Policy Task Force in its November 2002 Report. The Spectrum Policy Task Force Report is one of FCC Chairman Michael Powell's leading initiatives, and it sets forth several groundbreaking principles for spectrum management. In particular, the Task Force Report highlighted the principle that certain wireless systems and devices make "good neighbors" for each other in the radio spectrum; some others do not. To illustrate this point, I rely on a simple analogy: just as it doesn't make sense for a zoning board to allow a skyscraper to be built in a quiet residential neighborhood, it doesn't make sense for the FCC to locate incompatible radio systems next to each other in the radio spectrum. In the skyscraper example, residents may suffer from street congestion, excess noise, and a blocked view of the sky; in the spectrum context, one or both of the radio systems may experience harmful interference.

Accordingly, to protect and improve public safety communications in the U.S., the FCC must ensure that the public safety community has appropriate spectrum neighbors. Unfortunately, today's commercial mobile systems operated by Nextel and the other cellular carriers are fundamentally incompatible neighbors for public safety systems. This incompatibility results from the different "architecture" of these systems. Most public safety radio networks cover large geographic areas with signals from only one or a few transmitter towers. This design suits tight public safety budgets and accommodates typically sporadic levels of public safety traffic, but yields a relatively weak signal in areas distant from the transmitter or those areas "shaded" by buildings, terrain and other obstacles. In contrast, commercial cellular carriers rely on numerous low-power, low-site transmitter towers throughout their service areas. This architecture enables frequency reuse to achieve the capacity needed to serve much larger numbers of users; it also generates locally stronger signals in the immediate vicinity of cellular transmitters than the signals from distant public safety towers. In geographic areas where public safety systems and commercial mobile networks are licensed on neighboring spectrum, this difference in signal strength makes public safety radios highly susceptible to interference.

Unfortunately, under the FCC's thirty-year-old band plan, the 800 MHz radio environment nationwide is truly a terrible neighborhood. The stage was set in 1974, when the FCC allocated this portion of the 800 MHz band to a broad mix of wireless communications services, including public safety communications, private radio communications for internal use by businesses and industrial facilities, and the commercial mobile services that ultimately gave rise to Nextel's iDEN® system and other commercial wireless networks. These different services were spread and mixed almost randomly throughout this band. The result is a spectrum hodgepodge that makes bad neighbors of everyone, with incompatible public safety and commercial wireless networks assigned to adjacent radio channels throughout the band. This is akin to a town in which skyscrapers and single-family homes alternate block-by-block, or even building-by-building.

The FCC's hopelessly obsolete hodgepodge 800 MHz band plan is the fundamental cause of public safety interference. As a result of this spectrum hodgepodge, public safety operators are experiencing interference as a by-product of the fully FCC-compliant operations of Nextel and the nearby cellular A and B block carriers—Alltel, AT&T Wireless, Cingular, and Verizon Wireless—as they provide ongoing service to their own customers.

INITIAL EFFORTS TO ADDRESS INTERFERENCE

Since interference first appeared in 1999, Nextel has been committed to mitigating this problem. In 2000, Nextel joined with representatives of public safety agencies, cellular carriers, and wireless equipment manufacturers to examine different strategies for addressing this issue. These parties agreed to attempt to manage public safety interference on an interim case-by-case basis through a variety of short-term measures, including coordinated channel usage, tower site adjustments, and equipment modifications. For its part, Nextel has made extensive efforts to mitigate interference by voluntarily reducing signal strength, reorienting its antennas, limiting channel usage at certain sites, and other measures. Nextel understands how important it is to safeguard the reliability of public safety communications, and thus the safety of emergency response personnel and the public they protect, even if the FCC's rules don't require these technical changes.

While case-by-case engineering has helped somewhat to manage the most acute interference, it is not a permanent solution. Unfortunately, I understand that the FCC is considering alternative plans for solving the 800 MHz public safety inter-

ference problem that rely heavily on these case-by-case "best practices" to respond to interference. The FCC should reject this inadequate approach. These makeshift practices reduce the efficiency of both commercial mobile and public safety communications and chronically drain resources that could be devoted to product innovation and improved services. Case-by-case measures also require that significant amounts of 800 MHz spectrum lie fallow or operate far below optimum efficiency, contrary to basic spectrum management principles. These case-by-case measures are "band-aids;" they can only help so much before required operational constraints prevent the cellular carrier, the public safety system operator, or both from providing reliable communications to their respective users. This is because case-by-case "fixes" cannot correct the mix of fundamentally incompatible neighbors that is the proximate cause of this interference.

More importantly, these stopgap measures react to interference only after-the-fact, an unacceptable approach for emergency communications. Any partial, piecemeal or reactive solution leaves first responders in constant jeopardy, since a single case of interference to a policeman or firefighter's radio can jeopardize the lives of these first responders and the citizens they serve. The death of even one of them—as a result of communications interference that could have been prevented—is unacceptable. At the very least, our nation's first responders—who put their lives on the line every day—deserve a comprehensive, long-term, proactive solution that eliminates this interference before it can cause further harm.

The fact is short-term measures have failed to stem and cannot stem the rising tide of public safety interference; despite these patchwork efforts, the risk to first responders continues to grow. In response to this threat, the FCC in March 2002 issued its *Notice of Proposed Rule Making* on these issues. The FCC identified three main objectives: (1) to eliminate public safety interference, (2) to provide sufficient spectrum for critical public safety needs, and (3) to minimize disruption to existing services.

DEVELOPMENT OF THE CONSENSUS PLAN

Given the demonstrated inadequacies of the case-by-case approach, the FCC must adopt a fundamental, long-term solution that reorganizes the 800 MHz band to separate incompatible services while providing the public safety community with urgently needed spectrum. To this end, Nextel has worked closely with the public safety and private wireless communities to develop a consensus solution that realizes these vital goals. The resulting Consensus Plan for realigning the 800 MHz band was filed with the FCC on August 7, 2002, and the "Consensus Parties" have worked further to refine this proposal over the last ten months.

The Consensus Plan strikes a balance among the broad cross-section of interests and existing licensees in the 800 MHz band. The Consensus Plan enjoys extensive backing, including support from the leading national public safety organizations and most of the leading national private wireless associations. In total, the Consensus Parties or their members represent every category of licensee operating in the 800 MHz Land Mobile Radio band and over 90% of the licensees affected by public safety interference in this band.

The Consensus Plan provides the only detailed, practical, and sustainable means of achieving the FCC's public interest objectives in the 800 MHz band. The Consensus Plan will solve the interference problem and provide more spectrum to public safety, all without imposing costs on public safety or other licensees in the band and without requiring legislation or taxpayer funding. In doing so, the Plan will help police, firefighters, and other first responders meet the unprecedented challenges they now face in protecting this Nation's security.

Unlike alternative proposals that rely on stopgap, case-by-case measures, the Consensus Plan addresses the fundamental cause of public safety interference by restructuring the 800 MHz "neighborhood." The Plan will realign the band, shifting commercial mobile providers and public safety systems into separate, contiguous blocks of spectrum. Just as homeowners stand to benefit if developers are prevented from building skyscrapers in a residential neighborhood, public safety licensees will benefit greatly from the relocation of stronger commercial mobile signals to a different portion of the 800 MHz band.

The Consensus Plan will also give public safety operators access to additional 700 MHz and 800 MHz spectrum, thereby meeting the FCC's second objective in its proceeding. The additional spectrum in the 800 MHz band is particularly significant, since all recent development and implementation of new public safety communications systems have taken place in that band. For example, a number of states are implementing new, statewide public safety communications systems at 800 MHz. The FCC can build on these recent investments by providing additional 800 MHz

channels for interoperability, enhanced services, and expanded public safety capacity.

The Consensus Plan will also minimize disruption to incumbent licensees. No 800 MHz incumbent (except Nextel) will lose spectrum at 800 MHz as a result of the Consensus Plan realignment, and less than 30 percent of private radio licensees will have to retune a limited number of channels. The Consensus Plan can be implemented expeditiously, in three to four years, without any need for new legislation or budget appropriations.

If the Consensus Plan is adopted, Nextel has agreed to contribute up to a total of $850 million toward the relocation of all 800 MHz incumbents. Nextel and the other Consensus Parties have worked hard to "drill down" on the involved costs and expect that this amount will cover these incumbents' reasonable relocation costs. As part of the Consensus Plan, Nextel will also contribute 10 MHz of spectrum in the 700, 800, and 900 MHz bands to facilitate licensee relocations and provide public safety with critically needed additional spectrum. In addition, Nextel will incur the largest costs of any incumbent licensee required to relocate under the Plan—and it will do so twice—at its own expense. To make Nextel whole for its contributions to the Consensus Plan, it would receive 10 MHz of replacement spectrum in the 1.9 GHz band.

The Subcommittee should also note that the Consensus Plan is consistent with a number of recommendations contained in the FCC's 2002 Spectrum Task Force Report. Among other things, the Spectrum Task Force recommended that the FCC (1) maximize flexibility of spectrum use to permit the most efficient use of scarce spectrum resources, (2) provide clear and exhaustive definition of spectrum rights and responsibilities, and, as described above, (3) group technically compatible systems and devices in close spectrum proximity where possible.

In adopting the Consensus Plan, the FCC will abide by each of these Spectrum Task Force recommendations. By turning away from stopgap "command and control," case-by-case interference mitigation measures that constrain commercial and public safety wireless operations and leave spectrum underutilized, the FCC will encourage efficient use of the spectrum. The Consensus Plan also offers a set of clear, objective rules that define licensees' rights and responsibilities in a reorganized 800 MHz band. Finally, as I've described, the FCC would separate incompatible "neighbors," moving commercial wireless licensees into one portion of the 800 MHz band and interference-sensitive public safety and private wireless systems into another part of the band.

Mr. Chairman, the FCC has a clear path to improving public safety communications in the 800 MHz band, providing additional spectrum at both 700 and 800 MHz, and providing critical assistance to the police, firefighters, and other first responders who are so crucial to protecting this Nation's Homeland Security. Robust, secure, and interoperable public safety communications will save lives. I thank the Members of the Subcommittee for the opportunity to address these important issues, and I urge you to request that the FCC expeditiously resolve the issues facing the public safety community and adopt the Consensus Plan in full.

Mr. UPTON. Thank you very much.

Mr. Carrico, welcome.

STATEMENT OF STEPHEN CARRICO

Mr. CARRICO. Thank you, Mr. Chairman.

Mr. Chairman, and honorable members of the subcommittee, I am Stephen Carrico, Director of Communications and Business Development for Wisconsin Public Service Corporation, representing the United Telecom Council. I serve as Chair of UTC's Homeland Security Steering Committee. I want to thank you for the opportunity that we have to appear before you today.

For 55 years, UTC has directly or indirectly represented virtually every energy and water utility and pipeline in the country on telecommunication issues. All of these companies own, maintain, and operate mission critical communication systems. Critical infrastructure uses the same radio equipment as public safety.

As fellow emergency responders, we understand their communication needs better than any other industry. The most important

aspect of our radio systems is reliability. Utilities build their system for 24/7 high quality operation. The job of an electric lineman, until just recently, was considered the most dangerous in the Nation. These crews rely on their radios just as police and fire personnel do.

During any kind of a disaster, police, fire, utility, and other emergency personnel are on the scene at the same time. Any discussion of emergency intelligibility must include critical infrastructure if America is to have an effective system.

Congress recognized the importance of our systems in 1997 when you designed us as public safety radio services. For years, UTC and its members have looked for opportunities to bolster intelligibility among all emergency responders. On a local basis, that has meant shared radio systems. There are dozens of these throughout the country. Many of them have been built by utilities because we often can get the system funded and into operation faster than public safety agencies. We build our systems so that they work when the power is out.

I would just like to share with you two examples of shared systems. Gainesville, Florida, where the Gainesville Regional Utilities has built and maintains a nonprofit shared 800 megahertz system. In Mississippi, Alabama, Georgia, and the Florida Gulf Coast, Southern Company has built a commercial 800 megahertz system to utility standards. It is used by thousands of public safety personnel.

This is the only form of commercial system that is appropriate for mission critical communications. These are only local or regional type systems. The United States needs a nationwide solution so that all emergency responders can communicate with each other. We offer our expertise to help reach this vital goal.

Unlike traditional public safety, critical infrastructure has no dedicated spectrum for its own use. We suffer from increasing congestion and interference on the bands that we share. We want to work with public safety to construct a nationwide system on a new allocation, a system that would be interoperable among the many utilities that respond to the emergencies, as well as traditional public safety, Federal agencies, and others. A very good home for this system would be on the 700 megahertz band, adjacent to the public safety's allocation. An overview of this proposal is in our written statement.

Does public safety have enough interference-free spectrum for intelligibility? Critical infrastructure does not. Emergency responders, as a whole, will not be interoperable without critical infrastructure.

Finally, on the FCC's 800 megahertz proceeding, many UTC members operate on this band and have suffered interference, almost exclusively from Nextel. A prime example is Consumers Energy in Michigan. UTC is a leading member of the 800 Megahertz User Coalition which has submitted an alternative position to Nextel. We stress that interference to all user systems must be resolved at the cost of the interferer. Future interference must be prevented through new technical rules, while increasing regulatory flexibility.

Mandatory rebanding is inefficient, overly expensive, and ultimately ineffective. It would not solve interference. Under the Nextel plan, only Nextel could enjoy advanced technology and better spectrum efficiency. To the many utilities and State and local governments investing hundreds of millions in better systems for their communities, I am sorry, this is unacceptable.

I thank you for your time. I would ask that my testimony be included in its entirety.

Mr. UPTON. Without objection, so ordered.

[The prepared statement of Stephen Carrico follows:]

PREPARED STATEMENT OF STEPHEN CARRICO, DIRECTOR OF COMMUNICATIONS AND BUSINESS DEVELOPMENT, WISCONSIN PUBLIC SERVICE CORPORATION, ON BEHALF OF THE UNITED TELECOM COUNCIL

Mr. Chairman and honorable members of the Subcommittee: I am Stephen Carrico, Director of Communications and Business Development for Wisconsin Public Service Corporation, representing the United Telecom Council. I am a former UTC Chairman of the Board and currently serve as Chair of UTC's Homeland Security Steering Committee. I thank you for the opportunity to appear before you today to discuss issues of vital concern to all emergency responders.

For 55 years, UTC has been the voice of electrical, gas and water utilities in matters relating to their voice and data telecommunications. UTC's several hundred critical infrastructure members range in size from multi-state organizations such as American Electric Power in the Midwest and Entergy in the South, to municipally owned utilities and co-ops operating in cities, towns and rural areas throughout the country. All of these companies own, maintain and operate mission-critical communications systems. Most importantly for purposes of this hearing, these include two-way land mobile radio systems on which we all rely for both routine and emergency communications.

CRITICAL INFRASTRUCTURE COMMUNICATIONS AFFECT HOMELAND SECURITY

All critical infrastructure industries are becoming increasingly dependent on information management and private internal communications systems to control and maintain their operations. A 2002 study by the National Telecommunications and Information Administration (NTIA), entitled, "Current and Future Use of Spectrum by the Energy, Water and Railroad Industries," makes very clear the extent of this dependency to meet essential operational, management and control functions.[1] In fact, the physical components of the energy and water production, supply and delivery networks can be wholly intact but rendered virtually useless through control or incapacitation of these internal communications systems.

An article in the *Washington Post* a year ago noted that Al Qaeda operatives spent time on sites that offer software and programming instructions for the distributed control systems (or DCS) and supervisory control and data acquisition (known as SCADA) systems that run power, water, transport and communications grids in the U.S.—so, too, should this aspect of critical infrastructure protection receive your serious consideration.

All parties concerned with homeland security agree that one of the most important considerations is the availability of reliable communications for emergency responders. In this regard, there are three important issues which need to be addressed: 1) The critical players that require such communications include not only the first responders from the public safety community, but also the critical infrastructure enterprises such as power and water utilities which must provide a first line of defense; 2) We must ensure effective and interoperable communications between the communities of public safety responders and critical infrastructure enterprises; and 3) Government oversight of the communications facilities and services relied upon by public safety and critical infrastructure, which is now shared between the FCC and NTIA, must be streamlined to ensure effective protection from interference as well as interoperability.

[1] A copy of the Executive Summary of the NTIA Study is included as Attachment A to this document. The full study can be found at http://www.ntia.doc.gov/osmhome/reports/sp0149/sp0149.pdf.

EMERGENCY RESPONDER COMMUNICATIONS

It is understood that the local and state police and fire personnel are among the first responders to an emergency, as well as emergency health care workers. But critical infrastructure employees—the emergency utility workers—are often overlooked as vital to any emergency response. Along with protecting life, the first order of business following a manmade or natural disaster is the restoration of essential public services, including water (to fight fires and ensure clean and safe supplies), gas and electricity (to restore heat, light and energy generation capabilities). These are the first services that must be brought back on line, so these workers are among the first personnel on the scene.

Case in point: as soon as the magnitude of the 9/11 disaster became apparent, more than 1900 Consolidated Edison emergency workers were dispatched to Ground Zero to assist critical service restoration efforts and provide emergency communications capabilities to others on the scene. ConEd's two-way land mobile radio system was among the only communications available and was widely used during the first few hours following the collapse of the Twin Towers.

In a more recent and more common example: so far this year, Consumers Energy of Michigan has been called on to respond to two major storms. On Thursday, April 3rd, an ice storm swept across Michigan's lower peninsula. Through the following day, a total of 425,000 customers were without power. Over 10,500 "wire down" calls were received. All available Consumers Energy crews and available contractors were put into the field, along with over 125 electric line crews from neighboring utilities.

On Sunday, May 11th through Monday May 12th, strong winds in excess of 50 miles per hour hit Lower Michigan. Electric service to 101,000 customers was disrupted. Over 2,200 reports of down wires were received and resolved.

Responding to these storms required massive communication resources. All work was coordinated via the Consumers Energy 800 MHz trunked radio system. Only by having a reliable, private two-way radio system is Consumers Energy able to adequately respond to such emergencies.

Critical infrastructure entities use the same kind of radio equipment as Public Safety agencies, and as fellow emergency responders, we understand their communications needs better than any other industry. The most important aspect of our radio systems is reliability—utilities build their systems for 24-7 and "five 9s" operation. The job of an electric lineman until recently was considered the most dangerous in the nation—these crews rely on their radios just as police and fire personnel do. And one element of reliability beyond that of traditional public safety: our radios must work, wherever our crews go, when the power is out.

During any kind of manmade or natural disaster, you will see police, fire, utility and other emergency personnel on the scene at the same time. **Any discussion of emergency interoperability must include critical infrastructure if the United States is to have an effective system.** The White House has recognized this fact and has urged UTC's inclusion in energy, water and telecommunications sector work on Homeland Security.

LOCAL EFFORTS TOWARD INTEROPERABILITY

Congress recognized the importance of our systems in 1997, when you included utilities, pipelines and other critical infrastructure among "public safety radio services:" those private systems that provide support to such vital systems that entities operating them should have access to spectrum without obtaining it via auction. Since then, critical infrastructure has not sought access to existing public safety spectrum; however, the FCC has not made a separate allocation to non-public safety private wireless since 1985. Therefore, UTC and its members have looked for opportunities to bolster interoperability among all emergency responders by other means. The most effective means on a local basis has been through shared radio systems, and there are dozens of these throughout the country. Many of them have been built by utilities, because we often can get the system funded and into operation faster than public safety agencies. And—we build our systems so they work when the power is out.

Just a few examples of shared systems: Gainesville, Florida, where Gainesville Regional Utilities has built and maintains a non-profit, shared 800 MHz system. Local public safety agencies use this system as low-cost subscribers. There are many municipalities, as throughout the Philadelphia metro area, where local utilities and public safety agencies share a common radio system owned by the local government.

In Mississippi, Alabama, Georgia and the Florida Gulf Coast, Southern Company has built a commercial 800 MHz system to utility standards, making it attractive to thousands of public safety users, as well. A system like Southern's is the only form of commercial system appropriate for mission-critical communications, since

utilities must have complete coverage of their service territories, as well as guaranteed reliability at all times. No consumer-oriented commercial wireless provider can afford to offer service to this standard, nor do commercial systems continue to function during power outages of any duration.[2]

However, these shared systems are only local attempts to solve interoperability problems, and the United States needs a nationwide solution so that all emergency responders can communicate with each other. We offer our expertise to help reach this vital goal.

CRITICAL INFRASTRUCTURE HAS NO DEDICATED SPECTRUM

Unlike traditional public safety, the critical infrastructure industries have no designated spectrum for their own use, and we suffer from increasing congestion and interference on the bands we share with millions of other non-public safety private wireless users. We have requested a small, exclusive allocation of six to ten megahertz, on which we propose to construct a nationwide system. This system would be interoperable among the multiple utilities that always respond to regional emergencies, and would be made available to traditional public safety, federal agencies and others through additional equipment, or as part of a network of networks.

While it is understood that spectrum is a scarce resource, homeland security initiatives should consider an exclusive allocation of spectrum to critical infrastructure for the establishment of a nationwide emergency communications network. This would achieve three objectives: 1) economies of scale would drive down the cost of equipment; 2) efficient spectrum use would dictate the use of this spectrum on a day-to-day basis for critical infrastructure operations support, while entities would be responsible for maintaining the emergency network; and 3) emergency response capability would be served by all response agencies having immediate access to fully operational communications equipment, priority access and a fully interoperable network when the need arose. A very good home for this system would be on the 700 MHz band, on spectrum adjacent to the 24 MHz allocated to public safety. UTC includes an overview of this proposal in our written statement.[3]

Thus, in answer to the subcommittee's question of whether public safety has enough interference-free spectrum for interoperability, this segment of "public safety radio services" does not, and emergency responders as a whole will not *be* interoperable without critical infrastructure. However, we are ready and willing to help all parties reach this goal.

THE FCC'S 800 MHZ PROCEEDING

Hundreds of mission-critical utility radio systems are operated on the 800 MHz private land mobile radio (PLMR) frequency band. Such systems are of varying age and technological sophistication, from analog conventional use to advanced digital systems that incorporate voice and data transmissions. Several utilities are deploying such advanced systems across wide areas, with expectations of using them for, not only routine and emergency field communications in support of service and power restoration, but also for key telemetry systems that actually control the nation's power and water infrastructures. Because of the ability to use frequencies exclusively within a licensed area, coupled with the variety of equipment manufactured, the 800 MHz band is probably the most important PLMR band currently available for critical infrastructure communications, especially for entities seeking to deploy more advanced technology.

800 MHz interference is not only a public safety problem. Many UTC members operating on this band also have suffered interference, almost exclusively from Nextel's system. Prime examples are Union Electric in the St. Louis, MO area and Consumer's Energy in Michigan, which have had to resolve a number of interference problems; they have done so through use of engineering solutions such as those found in the "Best Practices" guide.

However, interference resolution alone is not enough. UTC is a leading member of the 800 MHz User Coalition, which has submitted an alternative position to Nextel's.[4] More than 30 parties, including several trade associations, individual crit-

[2] The Subcommittee should take notice that programs promoting commercial wireless providers for Wireless Priority Access Service are completely useless to critical infrastructure. Even if not overloaded with traffic during a disaster, whether manmade or natural, cellsites do not have long-term backup power. A system that simply doesn't work during power outages is useless to critical service restoration personnel and should be considered useless for public safety personnel, as well.

[3] Included as Attachment B.

[4] A copy of the 800 MHz User Coalition filing, with current supporters, is included as Attachment C to this document.

ical infrastructure entities, small commercial carriers, the cellular industry and some public safety agencies, have already signed on to the Coalition document, filed on May 29, 2003, and more are added daily. Statements by Nextel and its supporters that its "consensus" plan is supported by a vast majority of affected licensees are simply untrue.

The User Coalition stresses that interference to all user systems must be resolved, at the cost of the interfering licensee—and that future interference must be prevented through improved engineering practices, as well as regulatory flexibility that enables "channel swaps" and shared systems. Mandatory rebanding is an inefficient, overly expensive and ultimately, ineffective solution, since interference would still be present at the end of the process. Moreover, rebanding to "separate" compatible systems from incompatible ones only freezes a moment in time: these systems are not static, and migration to better technology will change the landscape again within a few years.

However, in spite of FCC policy directions in favor of better spectrum efficiency, less detailed regulation and market-based solutions, the Nextel plan would require a massive, four-year (at the minimum) reshuffling of the entire band placing all licensees in restricted space, and resulting in only Nextel being able to deploy advanced technology and better spectrum efficiency. To many utilities already building digital wide-area systems for themselves and their communities, this is unacceptable. UTC and dozens of our member companies have opposed the Nextel plan consistently, as have many public safety agencies. Such restrictions only scratch the surface of the User Coalition parties' concerns about the Nextel "consensus" plan: there are serious questions about the FCC's authority to implement the plan, and challenges are likely should it be adopted.

This band is too important to all its users; the solution for interference must be one that keeps it fit for the future of all of those that depend upon it.

Mr. UPTON. Thank you very much.

Mr. Haynie?

STATEMENT OF JIM HAYNIE

Mr. HAYNIE. Thank you very much. I would like to thank Chairman Upton for the honor of presenting to the subcommittee the collective views and concerns of our Nation's finest volunteer resources, 680,000 licensees with the Federal Communications Commission Amateur Radio Service. I would also like to thank Representative Bilirakis for his great leadership in introducing H.R. 713, the Amateur Radio Spectrum Protection Act.

We are, indeed, a first responder. Mr. Chairman, I noted in your opening remarks this morning, you mentioned the Titanic and its sinking in 1912. It was a ham radio operator that received that SOS. Our organization was founded only 2 years later, in 1914.

Amateur radio, which a lot of you know as ham radio, is a noncommercial radio service that goes beyond just having fun and playing with the radio. It is a noncommercial vocational pursuit. Ham radio has a duel mission. It provides in-depth, hands-on, technical education, and self-training in a stimulating environment. It also produces capable trained volunteer communications and systems of emergency telecommunications that are impervious to disasters of all sorts.

These volunteers are ready to respond, and do respond, immediately when all other systems of communications fails, including public safety communications when they are overloaded, destroyed, or lack interoperability. Amateur radio operators answered the call on September 11, 2001, at Ground Zero, at the Pentagon, and at the crash site of the third hijacked airliner in Western Pennsylvania.

They were there during last summer's disastrous Western forest fires in Colorado and New Mexico. We helped after the tornados

devastated parts of the Midwest and the South earlier this year. We responded when NASA needed help to locate debris that fell on Texas and Louisiana following the shuttle Columbia's tragedy. I might point out to the committee the served agency was the Federal Bureau of Investigation. They called on us, and we came through with flying colors.

We communicate from emergency communications centers, from the shelters, from vehicles, and even on foot. I have had some personal experiences with this during Hurricane Alicia. We helped coordinate transportation for medical personnel. After a devastating tornado hit Wichita Falls, Texas, we hams not only helped restore the police and fire radios, we got a local A.M. broadcast station up and running so that city officials could tell folks where to get help.

Radio amateurs are capable of providing high data rate communications, video, satellite communications, and long and short-range base, mobile, portable and voice communications from disaster response efforts. They are trained and organized within emergency service groups and under the auspices of local civil defense organizations, they provide a service that cannot be duplicated. While amateur radio communication systems are decentralized, they survive any natural or man-made disaster.

Our service conducts these activities out of a sense of national and civic pride and volunteerism. Candidly, we also enjoy it. What we ask in return is simply to retain access to the radio spectrum that we have left. A equivalent replacement spectrum is needed in order to continue to provide these services at no cost to the taxpayer, and to conduct our operations and our experiments.

Over time, and most especially during the last 15 years, the frequency bands allocated to the amateur radio service, has been substantially reduced. The FCC has either reallocated amateur spectrum, or substantially compromised amateur access to certain bands. Not to put a fine point on it, but amateur service has lost over 100 megahertz of VHF and UHF spectrum, and lost its use of another 360 megahertz of VHF and UHF spectrum, which has been substantially compromised.

H.R. 713 would apply to the amateur radio service, the same policy the FCC uses for other incumbent services displaced by these new technologies. It would make an equivalent spectrum available to the amateur service when an amateur radio frequency band is needed for commercial service, or for unlicensed devices which are incompatible with incumbent radio amateurs.

No cost reimbursement is requested or provided under this bill. It would define a Federal policy and an obligation to the FCC to: One, make no reallocation of primary allocations of amateur radio frequency bands. Two, not diminish the secondary allocations of those bands. Three, make no additional allocations within those bands or frequencies that would substantially reduce their utility to the amateur radio service unless the Commission, at the same time, provides equivalent replacement spectrum. What constitutes equivalent spectrum would be defined by the FCC.

The amateur service can compatibly share spectrum with many other services. The FCC must have flexibility in spectrum management. H.R. 713 provides a flexible mechanism to ensure that the FCC can make allocations rapidly and efficiently, while at the

same time retaining benefits and contributions of the tens of thousands of volunteers in the amateur radio services, one of the Nation's true first responders.

I would be remiss if I did not point out to the committee that at this very moment as I speak, in spite of all the fine technology that we have heard here today, there is a construction operator running a backhoe, taking the next bite toward the next fiber communications cable.

I thank you, Mr. Chairman, and the committee for the consideration of our concerns. I would be pleased to answer any questions. I would ask that my testimony be included in its entirety.

Mr. UPTON. Without objection, so ordered.

[The prepared statement of Jim Haynie follows:]

PREPARED STATEMENT OF JIM HAYNIE, PRESIDENT, AMERICAN RADIO RELAY LEAGUE, INCORPORATED

The American Radio Relay League, Incorporated, the national association of Amateur Radio Operators (ARRL), is pleased to offer the following testimony of its President, Jim Haynie of Dallas, Texas, regarding H.R. 713, the "Amateur Radio Spectrum Protection Act," sponsored by Rep. Michael Bilirakis, (R-FL) and the spectrum needs of the Amateur Radio Service, one of our nation's true "first responders".

Amateur Radio, known informally as "ham" radio, should require little introduction to this Subcommittee. A non-commercial, public service avocation, Amateur Radio is a voluntary communication service famous for providing reliable, emergency and disaster relief communications at no cost to States, municipalities, disaster relief agencies, and the Federal Government. Radio amateurs respond immediately, and without a call to duty, following any type of emergency or disaster with communications facilities and systems, manned by volunteer, trained communicators. They assist in restoring public safety communications facilities; they provide "first responder" communications until public safety facilities are restored to operation; they provide interoperability between and among public safety and other entities (interoperability that typically does not exist on an interagency basis); and they provide efficient communications for disaster relief agencies, such as the American Red Cross and the Salvation Army, for the duration of disaster recovery efforts. Amateurs are best known for their immediate responses to hurricanes, tornadoes, earthquakes, snow and ice storms, floods and other natural disasters. They are immediately available during and in the aftermath of such events, and commence their "first response" communications in support of public safety and disaster relief agencies and state emergency response agencies without any advance requests.

Amateur Radio is also a service which promotes technical self-training. Many, perhaps most, telecommunications professionals derived their interest, and most of their basic skills, from their avocational accomplishments in Amateur Radio. Many developments in modern telecommunications, including low-Earth-orbit microsatellite technology, and many refinements and adaptations of new technologies, were and are the direct result of Amateur Radio experimentation and inventiveness.

Worldwide, nationwide, statewide and local communications networks of Amateur Radio stations are in operation twenty-four hours per day, every day of every year. Since the Amateur Service is decentralized and ubiquitous, not dependent on fixed infrastructure, the ability of radio amateurs to provide reliable communications instantly over any path cannot be defeated by any disaster, act of terrorism, or by any other means whatsoever. The volunteer services provided by radio amateurs could not be duplicated by governmental entities at the Federal, state or local level at any cost. However, these services are provided at no cost. The Federal Communications Commission has at times described the Amateur Service as a "model of volunteerism" and a "priceless public benefit".

Congress has repeatedly stated similar sentiments. In Public Law 103-408 in 1994, Congress found and declared that Amateurs are to be "commended for their contributions to technical progress in electronics, and for their emergency radio communications in times of disaster;" that the Federal Communications Commission is "urged to continue and enhance the development of the Amateur Radio Service as a public benefit by enacting rules and regulations which encourage the use of new technologies" in the Amateur Service; and by making reasonable accommodation for the effective operation of Amateur Radio from residences, private vehicles and public areas; and that regulation at all levels of government should "facilitate and en-

courage amateur radio operation as a public benefit." Earlier, in 1988, in Public Law 100-594, a sense of Congress resolution, at Section 10 thereof, Congress held that it "strongly encourages and supports the Amateur Radio Service and its emergency communications efforts;" and that "Government agencies shall take into account the valuable contributions made by Amateur Radio operators when considering actions affecting the Amateur Radio Service." In the Communications Amendments Act of 1982, Public Law 97-259, Congress, in praising the accomplishments of the Amateur Service, held that: "the Amateur Radio Service is as old as radio itself. Every single one of the early radio pioneers, experimenters, and inventors was an amateur; commercial, military and government radio was unknown. The zeal and dedication to the service of mankind of those early pioneers has provided the spiritual foundation for amateur radio over the years. The contributions of amateur radio operators to our present day communication techniques, facilities, and emergency communications have been invaluable."

There are more than 680,000 Amateur Radio licensees of the FCC, and the numbers are growing. Amateur Radio has not lost any relevance or interest due to the advance of the Internet or other new technologies. The number of technologically-inclined individuals is on the increase as the result of the technology boom, and Amateur Radio allows them to experiment and develop their skills in a useful, constructive and flexible medium.

The use by radio amateurs of the radio spectrum in small segments of the medium, high, very high, and ultra high frequency bands, and on microwave frequencies, serves two fundamental purposes. First, it ensures that radio amateurs have spectrum to use at all times of the day and night to provide long distance and short distance communications, voice, data or video, as needed. As actual examples, a radio amateur in the United States might communicate with his or her counterparts in Puerto Rico, the Virgin Islands, or Guam during and after hurricanes or typhoons to coordinate relief efforts and delivery of medical supplies when all other facilities are inoperable. He or she might need to provide video transmissions from helicopters in support of, and to coordinate, fire crews fighting the Colorado forest fires. Short distance voice transmissions between amateurs allowed relay of messages between NASA personnel and FBI agents in efforts to locate Space Shuttle Columbia wreckage in Texas. Amateur Radio was a critical communications medium to facilitate tornado relief in Oklahoma and other parts of the Midwest in just the past few weeks. Any transmission mode, over any distance, is possible via Amateur Radio. All bands are used by some groups of radio amateurs for different applications. High speed data communications are popular in the microwave bands, as are very narrow bandwidth voice transmissions to study propagation and to improve receiver and preamplifier technology. An excellent metaphor for the use by Radio Amateurs of its small spectrum segments is that of a public park. The park is available to all who choose to use it, and it is used for the benefit of the public.

Radio Amateurs, following the events of September 11, 2001, have sought even greater roles in disaster relief, homeland security, and emergency communications generally. They participated at the Pentagon and in New York in recovery efforts immediately following 9/11 by providing communications for disaster relief agencies, and since that time, have entered into an affiliation with Citizen's Corps, a program for neighborhood alerting and security organized by the Department of Homeland Security. ARRL has long had a memorandum of understanding with FEMA, with the National Weather Service, with the National Communications System of the Department of Defense, and with other entities, but the Citizen's Corps participation stands to greatly expand the role of Amateur Radio at the community level.

Radio Amateurs must pass examinations in order to become licensed by the FCC. These examinations are administered and prepared by private sector amateur radio groups known as Volunteer Examiner Coordinators (VECs). They prepare and administer the examinations in coordination with the FCC for various license classes. The privileges of each class of license are keyed to the level of sophistication of the examination material. This is, however, the beginning of the educational process, not the end. ARRL has a Certification and Continuing Education Program. The most comprehensive aspect of this is the emergency communications training program. At the end of 2002, the Corporation for National and Community Service (CNCS) made a three-year Federal Homeland Security Grant to ARRL, as part of a program to boost homeland defense volunteer programs. It was used to develop and administer at no cost to radio amateurs, improved emergency communications training courses. As of the end of May, 2003, more than 2200 emergency communication volunteers have already entered the multi-level course. It includes basic message handling, equipment and use, the incident command structure, and operations and logistics. The course has 20 lesson units and takes 25 hours to complete over an 8-week period. There are intermediate and advanced courses as well.

Since all of the examination preparation and administration, and in fact most licensing data entry is done by radio amateurs themselves, the FCC utilizes almost no resources administering the Amateur Radio Service. Almost no enforcement is required by FCC, since the Amateur Service is essentially self-regulating. The invisibility of the Service to the FCC has produced both good and bad results. Radio amateurs are proud of their contributions made at no cost to the United States. However, the FCC, during the past 15 years, has had diminished awareness of the Amateur Service, and tends not to consider the needs of the Service when making spectrum allocations decisions. In general, the FCC neglects the Amateur Radio Service when examining rules changes requested in order to decrease regulatory burdens and facilitate deployment of new Amateur technologies.

The FCC has continually winnowed the amount of spectrum available to the Amateur Radio Service, more aggressively in recent years. To an extent, this is understandable due to the pressure on the spectrum for new consumer and other wireless technologies. It is also something that Amateurs have accommodated by use of flexible, frequency agile equipment that allows re-use of spectrum. The Amateur Service cooperatively and very successfully shares most of its allocations above 225 MHz with the Federal government, and as well with unlicensed consumer electronic devices. For the most part, those sharing arrangements work well, and Amateur Radio operators have adapted their operations to accommodate other services and unlicensed devices. Spectrum remaining available to the Amateur Service is used very efficiently and very effectively, by use of new technologies including narrowband data techniques, spread-spectrum, software-defined dynamic frequency selection, and high-speed, packetized data.

Some FCC spectrum decisions, however, have been substantially harmful to the Amateur Service. The FCC periodically has reallocated certain bands to other services, terminating access by the Amateur Service to those bands. As well, it has made incompatible allocations decisions which, on a de facto basis, make continued Amateur Radio operation on those bands impossible. Illustrative examples include the band 220-222 MHz, which was reallocated in 1989 for use by the Land Mobile Service, ostensibly to initiate narrowband commercial land mobile operation. However, land mobile licensing in that band has only recently been finalized. More recently, the 420-430 MHz band was reallocated in Buffalo, Cleveland and Detroit to the Land Mobile Service. Very recently, the FCC allocated 449-450 MHz, a band heavily used throughout the United States for Amateur Radio Repeaters for voice communications in emergencies, for use by wind profiler radars. In 1982, the 1215-1240 MHz band was reallocated, and became unavailable for Amateur Radio operation.

The Amateur Service was formerly allocated the entire band 2300-2450 MHz. Over time, the band 2310-2390 MHz was reallocated, first for aeronautical flight test telemetry, and later for both Satellite digital audio radio, and miscellaneous wireless services. Recently, the 2400-2450 MHz segment has been increasingly and intensively used for wireless computer networking and Wi-Fi systems, making it all but useless for Amateur and Amateur-Satellite operation. The 2305-2310 MHz segment was allocated to the miscellaneous wireless communications service. What remains reasonably available in that entire band is now 2300-2305 MHz and 2390-2400 MHz, both of which are under pressure for reallocation by other services for satellite or terrestrial commercial technologies.

At 5 GHz, the Amateur Service has a secondary allocation at 5650-5925 MHz, a large band 275 Megahertz wide. Within the past ten years however, the FCC has allocated 75 MHz of that for Intelligent Transportation Systems on a licensed basis (5850-5925 MHz); 100 MHz of that for unlicensed National Information Infrastructure systems (5725-5825 MHz) and FCC has just recently proposed to allocate another 75 MHz (5650-5725 MHz) for new Wi-Fi and other wireless LAN systems. Thus, of the 275 MHz formerly occupied by the Amateur Service and, compatibly, on a primary basis by the military for radiolocation systems, there is now only 25 MHz, at 5825-5850 MHz, remaining substantially uncompromised. Amateurs are, as a practical matter, excluded now from the 5850-5925 MHz band, because the Intelligent Transportation Systems that are to be deployed in that band include systems such as smart road signs. Amateurs could never transmit their own communications in a band in which signals from a "smart" road sign might be used to warn vehicles at a railroad crossing, for example, of oncoming trains. The result of interference could be disastrous. Thus, Amateurs are, de facto, excluded from that band entirely.

A year ago, the FCC allowed extremely high-powered unlicensed point-to-point fixed microwave facilities to operate at 24.05-24.25 GHz using antennas with unlimited gain. These high-powered facilities will undoubtedly preclude any Amateur operation in those bands within the main antenna lobes of those devices.

ARRL and radio amateurs generally understand that spectrum allocations decisionmaking is increasingly difficult for the FCC. We know that it is a dynamic proc-

ess, and do not wish to limit that process or prevent the FCC from making allocations decisions that benefit everyone, and bring new services to the market. However, in that process, the spectrum needs of the Amateur Service have been, and are increasingly, disregarded by the FCC. At the same time that the Amateur Service has grown and continues to grow substantially, the Amateur Radio band allocations have been reduced to the point that the Service is compromised. We cannot continue to suffer the loss or diminution of use of available spectrum and at the same time continue to provide the valuable communications services and fulfill the important Federal goals for the Service that have been the hallmark of Amateur Radio for the past century, and to the present.

Amateurs cannot pay for the spectrum they use, at auctions. Conceptually, a market-based allocations process disaccommodates radio amateurs completely. Assuming the utility of a market-based allocations process for spectrum using the private property model, the Commission must still maintain the "public parks" of Amateur Radio spectrum. Neither does the "spectrum commons" approach to spectrum management sufficiently accommodate the Amateur Radio Service, since unlicensed devices, in the aggregate, preclude much Amateur Radio operation without much more prudent management by the Commission than has been demonstrated thus far. While Amateur Radio is able to make some residual use of the unlicensed "junk bands" at, for example, 902-928 MHz, 2400-2450 MHz, and elsewhere, the density of unlicensed operation in the bands used for Wi-Fi and wireless broadband services, and the resultant high-noise environment quickly becomes incompatible with narrowband and weak-signal Amateur Radio operation.

The near-future spectrum challenges to the Amateur Service are substantial as well. For example, the FCC is eagerly anticipating the use of power line carrier (PLC) systems as a competitive broadband delivery mechanism referred to as "BPL", or "broadband via power lines". The frequencies used would generally be in the high-frequency part of the spectrum, including the crowded Amateur Radio frequency bands at 3.5-4.0 MHz, 7.0-7.3 MHz, 10.1-10.15 MHz, 14.0-14.35 MHz, 18.068-18.168 MHz; 21.0-21.45 MHz; 24.89-24.99 MHz and 28.0-29.7 MHz. These bands are the long-distance mainstay of the Amateur Radio Service; they are critical to Amateur long-distance communications; and they are extremely overcrowded at all times. Receivers used are very sensitive. PLCs use power lines as transmission systems, but they are also extremely good radiators at high frequencies. The potential interference to the Amateur Service from these systems is extremely high.

Other Amateur bands are in jeopardy, as the result of proposals from Mobile Satellite Service entities and terrestrial services who wish to expand their commercial allocations. At any given time, most, if not all, Amateur bands are the subject of requests for either reallocation of those bands, or for incompatible service overlays.

As stated above, the FCC should be able to quickly make dynamic allocations decisions to accommodate new technologies. As a matter of policy, when the FCC makes allocations for new technologies which adversely affect incumbent licensees, the newcomer is expected to make arrangements to reaccommodate displaced licensees in equivalent facilities. This was done, for example, in order to implement Personal Communications Service (PCS) at 2 GHz; in the 800 MHz auction proceedings; and most recently, in order to implement Mobile Satellite Service at 2 GHz in the bands formerly occupied by broadcast auxiliary and fixed microwave facilities. This is standard FCC policy for commercial services. *Redevelopment of Spectrum to Encourage Innovation in Use of New Telecommunications Technologies,* 7 FCC Rcd. 6886 (1992); *Mobile Satellite Service at 2 GHz,* 12 FCC Rcd. 7388, 7396-7404 (1997); *Redesignation of the 17.7-19.7 GHz Frequency Band,* 15 FCC Rcd. 13,430 (2000). In the 17 GHz proceeding, the FCC affirmed its policy of making arrangements for reaccommodating those incumbents involuntarily displaced by new technologies in comparable facilities. This policy has been applied consistently with commercial services, and has been upheld on appeal each time. *Association of Public Safety Communications Officials International, Inc. v. FCC,* 76 F. 3d 395, 397, 400 (D.C. Cir. 1996); *Small Business in Telecommunications, Inc. v. FCC,* 251 F.3d 1015, 1017, 1026 (D.C. Cir. 2001); *Teledesic, LLC. v. FCC,* F.3d (D.C. Cir. No. 00-1466, decided December 28, 2001. These cases all affirm the FCC's policy that "existing operations should not be disrupted during transition to emerging technologies."

Inexplicably, (or perhaps merely reflective of the fact that the Amateur Service is given insufficient consideration in FCC allocations decisionmaking), this policy, consistently applied where commercial radio services are displaced in favor of new technologies, is not applied where the Amateur Service is displaced, *de jure* or *de facto,* from an Amateur allocation. Unlike commercial displacement, where incumbents are reimbursed for the often very substantial costs of displacement and relocation to other comparable bands, the Amateur Service seeks no expense reimburse-

ment. Radio Amateurs would be more than satisfied with just a place to go in order to continue their operations. That is exactly the purpose of H.R. 713, which does no more than that. It would, after the effective date of the legislation, define as federal policy an obligation on the FCC to (1) make no reallocation of primary allocations of bands of frequencies of the amateur radio and amateur satellite services; (2) not diminish the secondary allocations of bands of frequencies to the amateur radio or amateur satellite service; and (3) make no additional allocations within such bands of frequencies that would substantially reduce the utility thereof to the amateur radio or amateur satellite service; unless the Commission, at the same time, provides equivalent replacement spectrum to amateur radio and amateur satellite service.

This provides no significant burden on the FCC. Nor is the FCC's flexibility in making allocations decisions limited to any significant degree. If the FCC does decide that an Amateur band is needed for a new service, it can immediately make the reallocations it wishes through normal rulemaking. It is merely obligated not to disaccommodate existing Amateur operations, and must provide what it determines in its discretion to be equivalent replacement spectrum elsewhere. The FCC would determine what constitutes "equivalent" replacement spectrum. Nor would Amateur Radio displace other incumbents. The Amateur Service can cooperatively share with most government and non-government incumbent users, and the burden of finding equivalent replacement spectrum is negligible as the result.

The relief provided for the Amateur Service does not constitute any sort of special accommodation or treatment. It is merely extending existing spectrum policy to a service that should have been subject to the policy all along, but has not been. The Amateur Service has been the victim of consistent and substantial reductions in spectrum allocations. It requires the same protection afforded incumbent licensees in other services against further net reductions in spectrum. H.R. 713 provides that protection and it does so in such a manner as to provide FCC with all the flexibility it requires to make allocations decisions quickly and efficiently, and to provide for the rapid deployment of new technologies.

The Amateur Radio Service is a "first responder" in the service of the United States, and with the assistance of this Subcommittee, will be able to serve in even greater volunteer roles, efficiently, for decades to come. Thank you for the opportunity to serve the United States and its citizens.

Mr. WALDEN. Thank you very much. That is why you are supposed to call before you dig.

Mr. HAYNIE. I believe there was an incident here in the Capitol just this morning. I saw it on the news.

Mr. WALDEN. We had one in the elevator, too, holding a dozen members for 40 minutes.

Mr. Thomas, I have a question for you. Let us talk notch filters. What role could they play in trying to deal with the interference that some of the first responders in their communications? Could you use a notch filter?

Mr. THOMAS. Theoretically, Congressman, you certainly could. It is a question of cost. The truth of the matter is that there are technical solutions. There are procedural solutions. The combination of picking, shall I say, the best class of each, is probably the right way to go. But the direct answer to your answer is that they could indeed solve the problem if they can be built economically. That is a big if.

Mr. WALDEN. Do you have any cost estimate of what it would take to retrofit one?

Mr. THOMAS. No, I cannot. That is a manufacturing issue. It is also connected to volume. It is a very difficult thing to do. The filters that are required to do that are rather sophisticated state-of-the-art filters.

Mr. WALDEN. Right. Mr. Brown, maybe you could enlighten me as to that? What about notch filters and other ways to stop the interference?

Mr. BROWN. Motorola filed on May 6 with the FCC in response to some technical questions about how to attack this issue. In essence, what we would call affectionately the "Technical Tool Box," is comprehensive detailed documentation of exhaustive procedures, tactics, and technical recommendations as a result of literally months and years' worth of experience, not only with us, but our users and other carriers. We wrote that and filed it on May 6. It involved a very disciplined set of steps that we think makes substantial progress in rectifying and mitigating interference.

It includes things like filtering transmissions, altering power, and reconfiguring antennas, swamping frequencies, and the like. In addition to that, it also includes a new interference resistant receiver that Motorola is going to produce and make available by the end of the year in newer radios going forward.

Mr. WALDEN. It just has a better filtering system in the front end?

Mr. BROWN. Among other things, yes. We have spent a lot of time on it, working with a whole host of people. More recently, just in the last few months, we have deliberately attacked some of the toughest interference issues with about six or seven customers. At this point we have significant cause for optimism in some of the progress that we think can be made.

Mr. WALDEN. Very good.

Lieutenant, I was intrigued by your testimony as it relates to what Michigan has been able to accomplish. One of the suspicions that I have in all of this is that there has to be some territorial warfare going on here among different organizations who have their own systems in place that work for them. The notion of having to give that up and go invest in something else is not attractive.

Did you run into that in Michigan as you put together an interoperable system? Was there turn warfare between cities and counties and within agencies?

Mr. ADAMCZYK. There are turf battles, sir. Where an existing system is functional, and it is not due to be replaced, that is where cross-band audio switches come in, or the patches. However, what I find to be financially imprudent by local jurisdictions is when they have to invest multiple millions of dollars and they will not take advantage of the State system, or they are resistant to. The State has this 181 tower infrastructure. You take a county or a local jurisdiction, instead of building 15 of their own towers at $1.5 million, why not take advantage of what the State's infrastructure has and just add to that. We maintain our infrastructure and they can maintain theirs. They are not a communications island. They have whole integration into the system.

Mr. WALDEN. You have been able to achieve, or offer the ability, to achieve that integration without us having to reallocate spectrum, correct? We have not done that.

Mr. ADAMCZYK. Yes, right now we have. Are there spectrum issues? Yes. Are we fighting for spectrum? Yes, sir. With the boundaries of the State, we can reuse spectrum every 70 miles.

Mr. WALDEN. Every 70 miles?

Mr. ADAMCZYK. Yes, sir.

Mr. WALDEN. Okay. All right.

Mr. Thomas, Mr. Jacknis states in his testimony the 800 megahertz band has "not fulfilled its promise as a single frequency range for first responder coordination and communications." Do you hear the same concern from other public safety communications personnel around the country? If it is true, why would the FCC waste time with rebanding schemes in the 800 megahertz band rather than start a transition of public safety systems out of the band?

Mr. THOMAS. Congressman, we get mixed reviews, frankly. At the end of the day, there are some public safety organizations that complain about it. There are others that say, "It is just fine. Thank you very much." There are arguments in between. You see that in almost any issue we get involved in. Our job is to try to weigh the pros and cons and make a recommendation. I include that in that band as well.

Mr. WALDEN. All right.

My time has expired. I turn to the gentleman from Michigan, Mr. Stupak.

Mr. STUPAK. Thank you.

Lieutenant, the 800 megahertz State police radio system does not provide full coverage for portable radios, right? Also, you cannot do data over the 800 megahertz; is that correct?

Mr. ADAMCZYK. That is correct.

Mr. STUPAK. How do you resolve the portable radio system? You talk about the Twin Towers, or just the trooper on the road trying to talk with the firefighter. Once they leave their cars, they are on portable radios. Once you leave your vehicle, if you cannot talk with them on 800 megahertz, should we be looking at a different spectrum or something different?

Mr. ADAMCZYK. The system was built to guarantee 97 percent statewide mobile coverage.

Mr. STUPAK. As long as you are in your vehicle.

Mr. ADAMCZYK. As long as you are in your vehicle, correct. However, we have benchmarked portable coverage testing. We have, statewide, overall, about 95 percent. Yes, there are dead spots. We do not guarantee portable coverage. When you get into your heavy buildings, when you get below grade, and depending on topography, a local jurisdiction coming onto the system does have the option of enhancing the infrastructure or putting amplification in buildings to improve their in-building portable coverage.

Mr. STUPAK. You would have to do that for almost every building, or you would have a dead spot.

Mr. ADAMCZYK. Where you have a dead spot; yes, sir. Or if you have a large enough geographic area, that is where you could add infrastructure to ours and integrate into our system.

Mr. STUPAK. Mr. Tamlyn, what system are you on? You provide the portable radios and interoperability, whether you are in your car or outside, correct?

Mr. TAMLYN. Correct. When you start talking about politics, there are politics of pulling this off. The counties wrote the checks for this. We took all the available licenses that the three counties had and we pulled them into one central pool. We had to put some new towers up. We are looking at some new towers now. We have

looked at the State's 800 megahertz system. You would have to have more 800 megahertz towers.

Mr. STUPAK. You are on VHF right now?

Mr. TAMLYN. We are on VHF.

Mr. STUPAK. Okay. Can the State police work off your system?

Mr. TAMLYN. They currently are.

Mr. STUPAK. Do they have the portability with the radios?

Mr. TAMLYN. Yes, they do.

Mr. STUPAK. Do you have data on yours?

Mr. TAMLYN. Yes, we do.

Mr. STUPAK. Has the State looked at the VHF and going into that? It sounds like the Emmet County CCE has a much more complete system than the State system.

Mr. ADAMCZYK. The last executive office upgraded the system one platform below integrated voice and data. You are correct. We do not have mobile data right now. However, we are preparing to ask the new Governor of Michigan to implement mobile data on our system.

Mr. STUPAK. If you are using a 800 megahertz system, and you are on VHF, how do we get you to combine and to work together. You would then have one system so that the people of Michigan at least are not trying to make a decision on VHF

Mr. TAMLYN. We are not locked out. The numbers they need for data are relatively small. The States are in financial crisis right now. They are not giving it to them. I talked with Mitch Erwin, who is the Governor's Director of Budget, Monday morning. He said, "It is not there." I do not understand it. If I were a State, I would prioritize what the Lieutenant wants. We have other financial issues with the State over the cost of this. But these are all workable issues.

Mr. STUPAK. If the State updates and gets the data on there, can you then abandon your system and go totally on theirs?

Mr. TAMLYN. We could as far as the police go. As has been said on this committee this morning, probably 85 percent of the firefighters in the United States are volunteer. The 800 megahertz system will not do voice paging. They tell me that the new 800 megahertz system will do a digital encrypted system and have firefighters responding to a scene trying to read in a moving automobile. They are not going to buy it. So we will still have to have some type of lesser system in the patrol cars to talk with the firefighters and the EMS.

Mr. STUPAK. Let me get to Mr. Thomas. Today we had the Commercial Spectrum Enhancement Bill. That was for DOD auction proceeds. We tried to do a public safety trust fund so we could have the funds to provide for law enforcement and others to improve their systems.

Can you identify any upcoming auctions that might provide a source of funding that we can look at and do a public safety trust fund to try to get some money into all these providers? If I have heard anything today, it has been money, money, money. I understand that, but we have to identify some sources. Do you have any other auctions coming up that might be able to provide some source of funding?

Mr. THOMAS. Yes, there are several auctions coming up this year. There is one in June. There is another one in August. There are two in September.

Mr. STUPAK. Can you identify the document you are reading from? I would move that we make it a part of the record.

Mr. THOMAS. I would be delighted to give it to you.

Mr. STUPAK. In that way we would have it and we can work on it a little bit more.

Mr. UPTON. Without objection, so ordered.

[FCC auction information is available at http://wireless.fcc.gov/auctions/]

Mr. STUPAK. Mr. Brown, I did not mean to cut you off.

Mr. BROWN. Just to add a little bit on the data discussion, and consistent with some of my earlier remarks, I think, first of all, everybody is in agreement that more spectrum is better. That said, we were very specific in requesting 700 megahertz consistent with the Public Safety Wireless Committee Report in 1996, the Balanced Budget Act of 1977, and subsequent FCC action, it is all consistent and says that the 700 megahertz band, specifically 24 megahertz, is the preferred resource to deploy wideband data.

Chairman Upton referenced some things we saw in Chicago earlier this week. Just as an anecdote, frequently during the day Chicago police officers ride alone in their police cars. If you had wideband data, which is what 700 megahertz would require, whether you would be approaching a burglary or a traffic stop alone, it is fundamental to the requirement and safety of our first responders. We are quite enthusiastic about that specifically.

Mr. STUPAK. And operability outside the vehicle?

Mr. BROWN. Yes.

Mr. STUPAK. Thank you, Mr. Chairman.

Mr. UPTON. Mr. Bilirakis?

Mr. BILIRAKIS. Thank you, Mr. Chairman. Thank you so very much for holding this hearing. First, Mr. Chairman, I have an opening statement that I did not have an opportunity to make. I would ask that it be included in the record.

Mr. UPTON. We asked that all members to put their statement in the record.

Mr. BILIRAKIS. I have a June 9 letter from Mr. James B. Massey from the Lighthouse Amateur Radio Club in Palm Harbor, Florida. I would ask that that be made a part of the record.

Mr. UPTON. Without objection, so ordered.

Mr. BILIRAKIS. The last sentence in that letter says, "The amateur radio band should be considered a national resource, like the militia during the American Revolution which was called upon in a time of emergency." I think that says it all insofar as the ham operators are concerned.

Mr. Haynie, how do amateurs respond during and just after a hurricane, for example?

Mr. HAYNIE. Well, first of all, we have had for many, many years an agreement with the National Hurricane Center down in Miami, Florida, where that is manned 24/7 by ham radio operators at two different stations, if I recall.

Once a hurricane is spotted in the Atlantic or the Gulf, we are well aware of it. In fact, ham radio operators in the islands give data back to the National Hurricane Center.

Mr. BILIRAKIS. So this is on a planned basis?

Mr. HAYNIE. Yes, very much so. Once the hurricane has hit land and started damage, the amateur radio service is alerted by two different networks, basically VHF and UHF. Again, the data keeps coming in on HF from the islands. We thank the Commission for the five discrete channels we got on 5 megahertz for this.

There are two basic groups—radio amateur civil emergency service, which is part of FEMA, and the amateur radio emergency service organizations, the league that our organization administers. We start bringing people in to work with public safety where their systems are overloaded, inoperable, or in many cases destroyed. We bring in our own systems for that. We station volunteers with public safety officials. We relay needed messages. We provide the same disaster relief for the Red Cross and the Salvation Army, and all types of logistics for the hospitals and other medical centers.

We provide generators which most hams do have as part of their makeup of equipment. We have actually powered up cellular systems using our portable power sets. I have personally done this in Hurricane Alicia and the Wichita Falls tornado. I am well aware of the response. I just cannot say enough about what the hams do. Hurricane Gilbert comes to mind where we had literally thousands of amateurs from all across the South dispatched to Florida. I am very proud of our people.

Mr. BILIRAKIS. You are truly a communications militia, are you not?

Mr. Haynie, does the FCC takes the spectrum needs of your service into account when making allocations and decisions? If not—and I am assuming the answer is going to be no—why do you think the FCC ignores the volunteer communication services that amateur radio operators provide during emergencies and disasters? Do they ignore it? Why do they ignore it?

Mr. HAYNIE. Mr. Bilirakis, yes, by and large they do. It is pretty understandable why they would. There are two basic reasons. The amateur radio service has always been self-regulating. We prepare and administer our own exams for ourselves. We provide license data directly to the FCC data base. There is no cost there to the government. We require almost no enforcement resources from the Commission. We are small on their radar screen in the big picture of what you have heard here earlier today.

We seldom ask for any additional allocations. Therefore, we are largely invisible to the Commission and require little attention. But unfortunately that is exactly what we get—very little attention.

The second reason is amateur radios are adaptable. We can share a spectrum and we do with other services. The Department of Defense is a good example. We always make do with less. That concept has reached the breaking point for our service. We are just in a real hard spot here. That is why I am here today. We cannot do much with our high speed data networks anymore because of the VHF/UHF spectrum. A good example is the 2.4 gigahertz which has literally become the polluted area of the airwaves. We originally had this almost exclusively.

Mr. BILIRAKIS. Mr. Chairman, my time is about up. I am not going to go into it anymore. We have had 9/11. We have heard the role that the amateur radio people have played in that regard, and in hurricanes and other disasters. I should hope, Mr. Chairman, that we will seriously take their role into consideration regarding any of our deliberations.

Thank you very much, Mr. Haynie.

Mr. UPTON. Thank you, Mr. Bilirakis.

Mr. Engel?

Mr. ENGEL. Thank you, Mr. Chairman. I have enjoyed the testimony of everyone. I think it is quite obvious that we need money for this. I was glad that Mr. Stupak asked the questions about auctions. It is really evident that for too long we have left the public safety spectrum and funding for communications equipment on the back burner.

Again, I want to highlight what Mr. Jacknis mentioned in his testimony that Mr. Stupak, Mr. Fossella, and I are working on a public safety trust fund that will provide dedicated funding to first responders. It is very clear to me that new radio equipment needs to be interoperable, which is capable of having police, fire, and medical personnel at all levels—local, county, State, and Federal levels—all communicating seamlessly. It is expensive, but it is needed.

Dr. Jacknis, welcome. It is nice to have someone from Westchester County, New York here. You have overseen difficult transitions in radio equipment for emergency personnel. Could you give us an idea of what this is costing Westchester County?

Mr. JACKNIS. We currently have a voice system for our Department of Emergency Services and the dispatch of fire and EMS, which will also include other agencies, like police and hospitals. We are worried about the interoperability. That project is over $20 million. This is not ground communications. When the fire departments in a mutual aid situation get together, they are using a different set of frequencies, not the UHF frequencies we are using for this. The police independently have their own. This is just for a piece of it. That gives you an idea as to what the kind of numbers are that we are talking about. The County has about 950,000 people. We have about 500 square miles.

Mr. ENGEL. Mr. Tamlyn, I would like to ask you the same question. You have had transitions in emergency personnel and radio equipment. How much has it cost?

Mr. TAMLYN. The budget number that we have put in the system since 1994 was about $16 million. Michigan has allowed us to put a surcharge on telephones. I was told yesterday that one of the Boards of Commissioners did it yesterday and the other two will do it in the next 2 weeks. We will add another 4 percent surcharge under the base rate of all phones in our three-county area and put that money strictly into communications equipment.

Mr. ENGEL. Thank you.

It is clear to me that there is going to have to be some help from the Federal Government if we are going to expect our communities to implement this.

In the testimony, one issue that came to light is that the Northern States—New York is one, Michigan as well, and others—is the

problem with Canada and its allocated spectrum for use that are hopefully now dedicating for public safety.

I am wondering, Mr. Thomas, if you could tell us what the FCC is doing about this? I would also like to ask Mr. Stile about APCO.

Mr. THOMAS. I would be happy to, Congressman. There is a committee called the Radio Technical Liaison Committee which is a joint committee with the Canadian equivalent of the FCC. We and they jointly chair that committee.

One of the most recent events that is helpful had to do with clearing Channel 63 and 68 in anticipation of using 700 megahertz. There is negotiations going on to clear the entire 24 megahertz in the 700 megahertz band. That committee meets regularly. Its intent is to address radio problems at the border.

Mr. ENGEL. Thank you. You anticipated my next question. I was going to ask you about what the FCC is doing to encourage the incumbent television stations to move more quickly off 700 megahertz?

Mr. THOMAS. I think the FCC has probably gone as far as it can under the present statute. The chairman has announced an initiative. One of the things that we enacted very recently was requiring all TVs to have DTV tuners in them. The smallest ones having those available would be by July 2007.

In addition to that, there is a voluntary program that we are encouraging people to make the transition. But at the end of the day, Congressman, it really is a question of how quickly the consumers will want to buy a digital TV. That has a lot to do with the utility of that as compared to the TVs that they have already within their homes. That is under the present statute to get to the 85 percent.

Mr. ENGEL. Thank you. Mr. Stile, could you comment on APCO and the Canada situation?

Mr. STILE. As Mr. Thomas points out, there was a meeting. New York has been quite involved in the proceedings in industrial Canada to have them actually clear away the situation that is causing a problem. It seems to me, and from what I understand, the transition in the border areas. They are going to go back to changing the TV channels that were originally assigned to the 700 megahertz spectrum that we are using for public safety.

I might also mention that in the consensus plan we have been working on the border problem to the extent that if there is not enough spectrum available for those border areas in the United States, in the particular area of the border, that the frequencies that are proposed in the 814/816 area, those frequencies are, in fact, going to be utilized by the border area people just to ensure that they have a spectrum to go to.

Is it permissible to go on?

Mr. ENGEL. Certainly.

Mr. STILE. Congressman Walden had spoken about the area of adjustment that Motorola has just recently put out. We see that as a very thing for public safety. However, that is good for future radios. I believe that is what Mr. Brown had already said.

In my county alone I have 4,000 radios, and I would have to spend a lot of money in order to retrofit those receivers. That is a problem for us. We need to be concerned about that.

There is a number of interference problems with public safety. We have documented this. We do have documentation in Florida as we get it in. There is a lot of interference problems that are not being reported. We have about 157 people at agencies that are affected by the interference problem that Nextel has caused. We are concerned about getting those things squared away.

If a police officer is shot, or cannot hear or cannot talk, that is a problem. That is what we are trying to clear away.

Mr. ENGEL. Thank you.

Mr. Chairman, I am wondering if you could indulge me for one final quick question to Dr. Jacknis.

Mr. UPTON. Certainly.

Mr. ENGEL. There has been a lot of talk about clearing Channels 63, 64, 68, and 69. Obviously that is not enough. How much spectrum would a system require that allowed voice, video, and data to work at local, State, and Federal? Would it require much more spectrum than that?

Mr. JACKNIS. Actually, I think the spectrum that was allocated just recently by the FCC in its 4.9 gigahertz certainly would be a good start to be able to handle all those things. I think that was their intention in doing it. Obviously the concern I was talking about earlier was to make sure that that piece of the spectrum plays by a new set of rules so we do not repeat the mistakes that we have had in the past where we have created these situations of incompatibility.

Mr. ENGEL. Thank you.

Thank you, Mr. Chairman.

Mr. UPTON. Thank you, Mr. Engel.

I want to go back to the cross-border inference. Lieutenant Adamczyk, could you just site a couple of examples of what you have seen as an officer of this State. Also, as I look at the membership on this committee, we have many members from the States that are pretty close to Canada, and other jurisdictions.

How far does this interference spread? My district is over here, across the lake from Chicago. I do not think we would get a lot of interference from Canada, from Windsor, and that area. I would be interested to know how big of a problem it is from all of the border States? What are some of the concrete examples of problems that you have seen as you have talked with your officers on the beat in Michigan?

Mr. ADAMCZYK. As far as cross-border interference, unless my expert behind me tells me otherwise——

Mr. UPTON. You have the gun.

Mr. ADAMCZYK. As you were asking the question, I just do not get a lot of complaints about cross-border interference. My expert behind me tells me that's because we have such a good relationship with Canada, it is really not an issue.

When we do go to 700 megahertz, even if we do that in the States, being a border State we still have to get Canada to comply, as with the Southern States with Mexico when that times does come.

Mr. UPTON. Mr. Tamlyn, do you agree with that?

Mr. TAMLYN. It is not the problem of the spectrum with Canada. When we have to do something near Canada you can add 1 year

in waiting time to get approval. You can figure if your radio experts tell you that you need a 300-foot tower with a 100-watt transmitter, that it is going to come back on the Hill that you described as a 100-foot tower with a 20-watt transmitter. You have to put up three or four times as many towers at three to four times the cost.

Mr. UPTON. Mr. Stile?

Mr. STILE. I am the spectrum advisor for Southern New York State. I have been dealing a good deal of time with Vermont, New Hampshire, and Maine. As mentioned, you cannot get frequencies. It takes a year to get a frequency in the northern tier. We do have interference. The 700 megahertz band is being addressed separately. In fact, I think we have progressed quite a bit from the original set-up that was being used by industrial Canada in their southern tier.

The fact of the matter is that we have come quite a ways. With these meetings that we have been having with industrial Canada, as far as the FCC is concerned, they have been dealing with the Canadian issue. I believe that that issue is pretty much getting resolved with the efforts that have been going on. We do have interference.

Mr. UPTON. Mr. Donahue, as we think about the consensus plan, does that address some of this cross-border interference policies? Again, think about members on the committee, whether it be Oregon or New Hampshire, Michigan, or New York.

Mr. DONAHUE. It will address the majority of those issues, yes.

But I would just like to say, Mr. Chairman, as it relates to interference and the conversations that have gone on concerning the 800 megahertz band, there are a couple of things that I think the committee should keep in mind.

First of all, there is a lot of what we call out-of-band interference. The notch filters, the filtering systems that have been talked about, do not address that issue. We find that issue in almost 50 percent of the interference that has been reported to us. I would say that we have to be very careful when we look at these other technologies and best practices to be sure that they, in fact, encompass all of the interference that is being caused.

I think the second point that is very important to understand is that 90 percent of the licensees that are currently utilizing 800 megahertz are for the consensus plan. That includes APCO, the International Association of Fire Chiefs, the International Association of Chiefs of Police, and the major cities Sheriffs Associations.

I would say to you that as you take a look at this whole interference issue, it is important to understand that the really only way to eliminate interference in its entirety is to realign the band.

Mr. UPTON. Mr. Thomas, do you agree with that?

Mr. THOMAS. No, I do not. There are many ways to eliminate interference. The words I take exception with is "the only way." There are a lot of options on the table being presented by very substantive parties. We are in the process right now of evaluating them. At the end of the day our hope and prayer is to come up with something that, No. 1, protects our public safety community and at the same time is practical and economical to implement.

Mr. UPTON. Mr. Donahue, do you want to have another word?

Mr. DONAHUE. Well, I would just say that we obviously have been involved in this situation for a significant period of time. We are very familiar with the practices and the practical solutions that have been put on the table.

But, Mr. Chairman, I think if you just take a look at the chart and look at where we are today and how that spectrum is interleaved, and you take a look at what the realigned spectrum does, it is pretty clear that contiguous blocks are going to go a long way toward eliminating most of the interference.

Mr. UPTON. Mr. Thomas, as I listen, you were here for the presentation by Mr. Weldon and Ms. Harman. Walk me through the gymnastics of what has to happen from the FCC side, if in fact, their bill was to become a reality. Again, as I look at the local example, at least from Michigan's prospective, we have a major station in Detroit that uses that band. We have a much smaller station in my district in Kalamazoo, a religious broadcaster, but they still use that. Mr. Stupak and Mr. Engel I am sure has some.

How difficult is it to wave that wand to see something happen? Is it impossible?

Mr. THOMAS. Yes, it is possible. It is not a technical issue.

Mr. UPTON. I said "Is it impossible?"

Mr. THOMAS. Oh, I am sorry. It is possible, not impossible.

But let me just walk you through, since you asked me to. To me, the problem is not a technical one. In most cases, the slots are available. They can move to a digital slot. A more significant question is: If a station moves to a digital slot and spends the money in order to do that, does it have an audience to support the advertising in the time you do it?

Mr. UPTON. You cannot move it in the analog slot; is that what you are saying?

Mr. THOMAS. What you would do is that you would make existing analog systems digital and move them to the digital slot.

Mr. UPTON. But that would take away from their capability of broadcasting in analog?

Mr. THOMAS. Depending on the size of the consumer market in their market area.

Mr. UPTON. I do not think that there is any question that there is room on the digital scale to do that. We are seeing a number of stations now beginning to broadcast in both, or at least prepared to do that. The question is: What happens to that analog signal until everybody is ready for it, to either have a digital set or have the cable system that will carry that? That obviously is the donut that needs to be filled.

Mr. THOMAS. That is certainly correct. I do not see a solution that allows the analog stations to continue, and at the same time establish a certain date.

Mr. UPTON. Mr. Carrico?

Mr. CARRICO. We would like to disagree that all of the problems would be solved by rebanding the 800 megahertz band. What would happen is that there would be many, many dollars that would have to be spent. That would go on the backs of the users of the 800 megahertz band. We do not believe that the time-frame that has been put forth to do that will happen.

What we would prefer to see is that this interoperability happen in the 700 megahertz band and not put the other users in the 800 megahertz band, kind of in the backwater of technology.

Mr. UPTON. My time has expired.

Mr. Stupak, do you have further questions?

Mr. STUPAK. I appreciate everybody coming. They have all put good arguments on why we have to do this. Just listening to the testimony here today, two things bother me. Mr. Thomas, if the Hero Bill by Harman and Weldon become a reality, that bill calls for 2006 as the implementation date. What do we do between now and 2006? If we put the Hero Bill up here as the way to resolve the issues, no one does anything until 2006. It just seems as though we are further delaying the problem and further frustrating the intent and the goals of everyone trying to get something done.

The second thing that bothers me is that I have heard rebanding, realignment, VHF, 700 megahertz, and 800 megahertz. It sounds like we are not all on the same page. Somehow we all have to get on the same page, but if we are going to put forth Federal money, maybe it is time for the Federal Government to step up and say, "Here is what we are going to do to guarantee the interoperability of everything to work inside and outside the car, or wherever it might be. This is what we will help fund. The rest of it we will not." I think that is more of a policy decision that we all have to look at.

Those are the two things that are bothering me about today's testimony. Does anyone care to comment on it?

Mr. Thomas, we will start with you and then to Mr. Stile.

Mr. THOMAS. Thank you, Congressman. Let me begin by saying that if you look at the public safety and in general all bands—and I include a cleared 700 megahertz band as part of that—we are talking about 97 megahertz available.

Now, different parts of the band have different problems in both propagation versus accessibility. A lot of the problem is solved by funding. The question is interoperability has a cost. Some changes have to be made somewhere. Even from the simple thing to be able to communicate from one band to the other.

There are two issues here. The first question is: Is there enough frequency available for public safety in totality. I leave it to you to form that judgment. But there are 97 megahertz. The question becomes: Can it be used in such a way—with more efficiency—that it will, in fact, solve most of the problems we heard here today.

Mr. UPTON. You mentioned costs. What would the estimated costs be?

Mr. THOMAS. Frankly I have no idea, Congressman.

Mr. UPTON. Besides billions.

Mr. THOMAS. It may or it may not. I just do not know. I am not prepared to even hazard a guess.

Mr. STUPAK. Thank you.

Mr. Stile, I know you want to jump in there.

Mr. STILE. What I would like to say is that the rebanding and the consensus plan puts public safety contiguous with the 700 megahertz band. So if we get the 700 megahertz band, we have public safety, but up against each other with the 800 megahertz, that improves the interoperability in those areas.

This is a long-term proposition that I am talking about. You give us the 700 megahertz and we have the 800 megahertz down contiguous with the 700 megahertz, we have a possibility here across the Nation of having money put toward funding going into that 700 megahertz band. That would give us the frequencies that would allow us to do that.

What we do is that we improve the interoperability between the public safety entities. That is what I am proposing.

Mr. DONAHUE. Congressman, if I may?

Mr. STUPAK. Go ahead.

Mr. DONAHUE. I would just like to follow up Mr. Stile's comments and suggest that as it relates to the consensus plan, solving the interference through rebanding and realignment, the dollars have been put on the table to pay for that. We estimate that would be somewhere in the neighborhood of $850 million. We at Nextel are prepared to put those dollars on the table to make that happen so that you get to a point that Mr. Stile was just articulating.

Mr. STUPAK. Mr. Brown, I know you wanted to comment.

Mr. BROWN. Congressman, you mentioned your two concerns. I think part of the complexity is that there are multiple issues that I think we are collectively trying to address.

With that said, I think that the date certainty will provide, to avoid this perpetual chicken and the egg, both the clarity and the conviction to have market forces and other things and rate of approaches to get digital TV signal and analog clearance by December 31, 2006.

The other thing that was worth mentioning is that I think we are in agreement that we need more spectrum. There are varying degrees of what and where. It is also obviously an agreement around funding. But it is also standards.

I think it was First Lieutenant Adamczyk who referenced in his comments Project 25. There is an existing standard for P-25 today. It provides for interoperable voice communications. It is supported by a whole host of people that he referenced. So there is clarity around that standard and coalescence around that.

Second, as I mentioned on the need for 700 megahertz, there is strong agreement and coalescence around 700 megahertz for wideband data. So as you get inter-jurisdictional interoperability—local, State, Federal—you need the wideband megahertz spectrum in 700 megahertz. That has also been stated.

So despite the complexity of the interference issues that I know Mr. Thomas and others will address technically, there are some clear standards around interoperable voice and a wideband data standard that should be coming out in the 700 megahertz band in a couple of months.

Mr. STUPAK. Mr. Carrico?

Mr. CARRICO. I would just like to say that from our perspective, we are maybe one of the ones that are not here asking for money.

Mr. UPTON. Mr. Haynie is.

Mr. CARRICO. And there may be some others here among my colleagues. But the dollars that you were talking about, we are not here to ask for dollars. What we are here to ask for is the ability to build a nationwide interoperable system that all first responders can use. If you look at the bulk of public safety and the systems

that they are using, they are not in the 800 megahertz band. So what good is that going to do to get a nationwide system for America?

We are asking for something in the 700 megahertz band, associated with public safety, so that we can get that interoperability.

Mr. UPTON. You get the last word, Mr. Stile.

Mr. STILE. Thank you very much.

I agree. The thing of it is, you put us all together in public safety in that one grouping right there, it is not going to happen overnight. This is something that is going to happen over a period of time. Local government has to put money aside to plan for that. That is what I am saying. You put us in this group together, contiguous, you have a lot of spectrum there for good use.

Mr. UPTON. Mr. Walden?

Mr. WALDEN. Thank you very much, Mr. Chairman.

My interest has been piqued in several areas. First of all, Mr. Stile, you indicated that you have 4,000 radios that would have to be retrofitted?

Mr. STILE. In Suffolk County.

Mr. WALDEN. I guess my question is this. If we were to make all this band reallocation, you would go interoperable?

Mr. STILE. Right.

Mr. WALDEN. Would those 4,000 radios still work?

Mr. STILE. Yes, they would.

Mr. WALDEN. Without any change or modification?

Mr. STILE. No, they would have to be retrofitted to the extent that you reband them. You can retune them. That is the whole idea in the consensus. It is returning. You do not have to replace the radios.

Mr. WALDEN. Right.

Mr. STILE. You just retune the radios.

Mr. WALDEN. Let me go to Mr. Thomas.

Mr. UPTON. What is the cost of retuning a radio?

Mr. STILE. We have an estimate of about $50 to $55.

Mr. WALDEN. Are they crystal controlled?

Mr. STILE. No, they are not crystal. They are computer controlled.

Mr. WALDEN. They are variable. Okay.

Mr. STILE. That is right.

Mr. WALDEN. Mr. Thomas, can you tell me from your experience what is the cost of a notch filter?

Mr. THOMAS. No, I cannot for the simple reason that it is a matter of volume. That is a question better asked to a manufacturer. It is basically a question of specification for the filter and the volume.

Mr. WALDEN. You went a question that I have been intrigued about. If you move everybody up to this band, how does that frequency work in terms of multi-pathing issues and rugged terrain? Is this a frequency that will be compatible whether you are on the flat plains of the Midwest or mountainous regions, or in cities around buildings?

Mr. THOMAS. You are talking about the consensus plan?

Mr. WALDEN. Right.

Mr. THOMAS. I see no more of a problem that way than presently exists. I do not think that is a major issue either way, Congressman.

Mr. WALDEN. Okay. That is good to know.

I ought to be in the broadcast business. I have an engineer here in front of me that does not bill me.

Mr. THOMAS. We could change that, if you would like.

Mr. WALDEN. I guess I do have to vote for your budget. So maybe it does work out that way.

The outer-band interference we heard about coming in here. I am curious with all this problem. It seems to me that you have two options. Both could apply. One is one the receiving end creating notch filters. The other is on the transmitting end and holding those who are transmitting more accountable for any signal issues that go outside the band; right? As an A.M. broadcaster, I have to make sure and test every approved performance that my A.M. output is right where it is supposed to be; right?

Mr. THOMAS. Yes, but let me identify the problem we see as the most significant problem. It occurs when a public safety portable is at a great distance from the base station, the public safety tower, and in close proximity to a cellular base station, an IDENT system.

The out-of-band question that was posed is the one that has only recently been identified by those involved in the consensus plan. We have asked for a lot of technical data to better understand this.

The primary problem has to do with the overload and the interference that is the result of that by being close to another transmitter.

Mr. WALDEN. Okay. All right.

The other thing that happened on 9/11, at least here in the Washington area, was that cellular service basically quit working. It was so overloaded. And long distance, trying to dial out cross-country failed. I know I had a Blackberry at that time. It worked.

Are we creating a system by putting everybody in the same band where you could get overload in the case of a problem? How are you going to sort all that out?

Mr. THOMAS. First of all, if I understand your question correctly, the overload is not a function of the frequency. It is a function of the traffic that is carried simultaneously at least for the width of the channel that is provided.

My strong suspicion—and I have to admit this is a guess—that relative to the available capacity, the Blackberry was not as overloaded as the cellular.

Mr. WALDEN. It worked.

Mr. THOMAS. I know it did because there was a residual capacity to do that. That is a guess. But I suspect that it is correct.

Mr. WALDEN. My question, though, is a different one. If you group everybody together in one band, is there going to be sufficient capacity in the case of the 9/11 event that we are talking about to be sure to be able to be better prepared for it in the future.

I am thinking like ham radio. You could switch around to other frequencies. If we have everybody interoperable in the same bandwidth, are we going to overload in the case of a major event?

Mr. THOMAS. Well, the question is if you lose bandwidth. It is not the band itself; it is the width of the band.

So if in the aggregate—and I am going to just make this up—you had 50 megahertz interleaved, and then you put it all together and you still have 50 megahertz, the congestion would be no different in either case.

Mr. WALDEN. Okay. All right.

I can sneak one more in?

Mr. UPTON. You can, but if I might indulge the kind gentleman, I have to vote again in Education. You can have two questions more if you come take this gavel.

While you are coming up here, I want to thank all of you for being here. I apologize for having to leave again. I will see you another day. God bless all of you. Thank you.

Mr. WALDEN. I am sorry to see the chairman leave. I just have 38 other questions now. I would like to ask about digital conversion for television. From listening to Representative Harman and Representative Weldon, you could sort of walk away with the impression that it is the TV broadcasters who are not doing their job here, that they are part of the problem, that they have not migrated quickly enough.

My understanding is that they are actually ahead of schedule in digital conversion and have spent hundreds of millions of dollars. Is that what you are seeing at the FCC?

Mr. THOMAS. Certainly there are a lot of broadcasters who are transmitting digitally. The real issue are the ones that are in the band that we are talking about, and in the locations they are in the band.

So if you are looking to clear a nationwide channel, it is like you are going down a road and eventually you hit a roadblock.

Mr. WALDEN. There are 52 in analog and 7 in digital?

Mr. THOMAS. I have heard different numbers, but there are certainly under a hundred in analog. The number I have heard is 45.

Mr. WALDEN. But the legislation that required broadcasters to go to digital and then eventually go up to band, the deal was that occurred once there was 85 percent consumer penetration. Do you have any idea where are now?

Mr. THOMAS. It is under 1 percent.

Mr. WALDEN. I could have a set-top conversion box so that I can still my analog TV?

Mr. THOMAS. That is a receiver. The way we count is that if it has digital reception capability, it is a receiver. It goes into the mix.

Mr. WALDEN. So that counts?

Mr. THOMAS. Yes.

Mr. WALDEN. But if I have an old TV that does not have digital receiving capability, an analog TV, I am going to have to get something to be able to receive these 60 station, or whatever they are, if they are digital and in this band if they go off analog; right?

Mr. THOMAS. Technically what you are going to have to do is get a digital receiver. That could be contained in a high-end TV or it could be a set-top box.

Mr. WALDEN. Do you have any idea of the pricing of the set-top box?

Mr. THOMAS. They vary. In today's market you are probably talking about something in the $300 range.

Mr. WALDEN. Per TV?

Mr. THOMAS. Per TV; yes.

I do not know if you can go to one of the discounters and get a significant reduction. But you are talking somewhere between $100 and $300. The other thing is just a number. I think there are about 120 million households in the United States. That 1 percent, if you take it, is like a million DTV receivers out there already.

Mr. WALDEN. I learned in the whole issue of satellite television coming into the markets, I got more postcards and mail on that issue than any other since I have been in the Congress. I am probably not alone on that. We were going to cut them off; right? What happened was that we passed a law that said, "No, you just go ahead. Just do the rebroadcast." But what I learned out of that was a little known clause in the Constitution that says "The right to my TV is Constitutionally guaranteed."

Mr. WALDEN. I am all for trying to solve this problem of our law enforcement and fire and first responders face. I think there are ways to do it. But I think we have to be realistic, too, of the fire storm. You are going to have riot police out there if suddenly we say, "As of this date, Grandma, your TV does not work in any of the three rooms you have it in unless you spend $150 to $300."

That is not a technical engineer question. That is a political engineering question.

Mr. CARRICO. Mr. Chairman?

Mr. WALDEN. Yes, sir?

Mr. CARRICO. I am not real skilled in this area, but I do not think it means that your TV is not going to work. Your TV is still going to work. It is just that if that particular channel goes digital, you are not going to receive it.

Mr. WALDEN. That is my point. If you take these stations that are broadcasted in this band between Channels 62 and 69, to tell them that they can no longer broadcast in analog on that band, that they can only do digital, then anybody in those markets where there are millions of viewers, are going to lose it unless they have a digital receiver; right?

Mr. THOMAS. Well, they will lose those specific channels.

If you have a favorite program on that channel, you would lose it.

Mr. WALDEN. I am going to hear about it. But we would lose it?

Mr. THOMAS. Yes, you would.

Mr. WALDEN. If you told them that they could not use that spectrum to broadcast in analog anymore—which is really what we are talking about here, other than the seven that are already in digital on those—then you have to figure out what you do with those. Then you are going to have interference on it.

Mr. Carrico?

Mr. CARRICO. Well, I think I would ask the committee to have someone get you the information as to how many people are actually going to be affected. I do not think it is going to be as many as you think that it is out there?

Mr. WALDEN. When you look at my district, if you could learn that——

Does the FCC have that kind of data?

Mr. THOMAS. Yes. The number we have right now are those that are in the band we want to clear for public safety, is 45. I have heard 50 and I have heard 75. The number that I was told was 45.

Mr. WALDEN. That is the number of stations?

Mr. THOMAS. The number of stations.

Mr. WALDEN. He is talking—and I believe I am asking, too—how many people? What is the audience?

Mr. THOMAS. I do not know if we have that information. When I go back, I will take a look. If we have it, I will file it for the record.

Mr. WALDEN. Thank you. That is an important issue. What is the tradeoff here?

Mr. Brown?

Mr. BROWN. Just one additional point. I do think I would encourage the clarity around the specificity of exactly who is impacted. I agree with Mr. Carrico that while anybody affected is still more than none—and there is no question that it is politically charged—I do think the clarity and conviction of a date certain is important.

I am far from a technical expert on this, but the notion of a digital-to-analog converter, you do not necessarily have to go out and buy a digital TV. The idea of having a digital-to-analog converter that would be a lower cost than if there were a date certain made, my guess would be that a lot of equipment manufacturers would rally to that cause to drive the cost down aggressively.

Then ultimately the implementation would be made for your example, Grandma, a very easy installation, and maybe it would be rabbit-ear like. But I do not think necessarily that everybody has to buy a digital TV. Not to minimize the political issues, but it is not the impact that might be described here.

Mr. WALDEN. I have more than exhausted my time.

Mr. Stupak, do you have any further questions?

Mr. STUPAK. No further questions.

Mr. WALDEN. So I get another round?

I find this topic very interesting. It is something we need to deal with. It is just a matter of how we do it fairly.

I will finish up with you two gentleman.

Mr. Stile?

Mr. STILE. I would just like to go back to your question about the overload in the spectrum. APCO is involved in public safety coordination. What we do is that we are very careful about the assignment of spectrum for a particular agency.

Mr. WALDEN. Within a specific area?

Mr. STILE. Within a specific area. What we have in operation is a mission critical type of operation of police, fire, and EMS. But they are not going to be impacting one another because they are separated in an area. Spectrum-wise, yes; it is all in the same area. But you utilize the spectrum that is in that area.

Mr. WALDEN. Well, since you started this, what happens in a case like New York City where you had departments from all over the country flocking there to help? They were all on different frequencies from their own departments in Pennsylvania, Oregon, or wherever they came from. How does that coordinate?

Mr. STILE. What we did do in a good part of the City was that we handed out radios. They were all on the same band. Particularly at Ground Zero, I put in a particular frequency on the interop channels that allowed the workers in that area just to operate on that particular frequency.

Mr. WALDEN. Okay. All right.

I believe Mr. Haynie wanted to make a comment.

Mr. HAYNIE. Thank you, Congressman Walden. This has been most enlightening to me. I see a lot of the problems in the industry that we have dealt with in amateur radio for years—70 mile rules for VHF, UHF, coordination, frequency allocations—we do that, too.

But until you solve this Gordian Knot that you have on your table, I just want to assure you that for the 680,000 radio amateurs in the United States, we are going to be there.

I took exception a while ago when it was said that I was the only one not asking for money. Well, I have changed my mind. If there is a few million to hit the floor, I can assure you that the amateur radio community can find good use for it.

I would like to make note of our education program. We talked about that in my opening statement. We have funded fifty schools across the United States with amateur radios, using it as a teaching tool in physics, mathematics, and speaking skills. We have used the International Space Station, which is all manned by ham radio operators to talk to the kids at the schools, to pen that new spark of communications.

So as the industry sits here to my right, I would like for you to remember that the engineers that you are going to get later on, are coming from these kids that we are working within amateur radio. A few million here and there never hurts.

Mr. WALDEN. I think there were some here somewhere.

We will leave the record open for member's statements and for other information.

[The following was received for the record:

INTERNATIONAL ASSOCIATION OF FIRE CHIEFS
FAIRFAX, VA
June 5, 2003

The Honorable JANE HARMAN
U.S. House of Representatives
Washington, D.C. 20515

RE: H.R. 1425

DEAR REPRESENTATIVE HARMAN: The International Association of Fire Chiefs thanks you for introducing this important legislation. The IAFC gives its wholehearted support to this bill and will work toward its successful passage into law.

Congress, in passing the Balanced Budget Act of 1997, required the Federal Communications Commission to re-allocate an additional 24 MHz of radio spectrum for public safety. The allocation was made from a portion of the radio spectrum that will become vacant once television stations on channels 60-69 convert to digital television. The FCC did as required, by allocating specific radio spectrum (channels 63, 64, 68, and 69) and adopting rules for efficient and interoperable public safety operations. This allocation doubles the amount of radio spectrum available for public safety and addresses some of the recommendations made by two federal advisory committees on public safety communications.

There exists in law, however, a barrier to the scheduled transfer of that spectrum to public safety on the final date of December 31, 2006. The 1997 legislation allows television operations to continue existing operations on these channels until that date or until some unknown date beyond that when at least 85% of television households in the relevant communities have access to digital television. This uncertainty is preventing many state and local governments from making any real plans or

funding commitments to use the newly allocated spectrum. Public safety agencies need this spectrum today—not some distant, unknown future date. H.R. 1425 resolves this serious problem by establishing a date certain that all of the channels allocated to public safety will be available.

The need for this spectrum continues to be urgent. We are all too aware of the communications failures that have occurred at major disasters—hurricanes, earthquakes, terrorist incidents, etc. There are some technologies that can help with short-term solutions, but the need for new and clear spectrum is now. The communications capabilities of fire/emergency medical services and law enforcement are restricted by the limited amount of radio spectrum allocated for public safety operations. In many parts of the United States, especially major metropolitan areas, there are insufficient radio frequencies available to accommodate current and future public safety communications needs, which include both voice and high speed data transmissions. Limited spectrum availability has also forced agencies to operate on several different, incompatible radio frequency bands. The result is a lack of "interoperability" which often makes it difficult if not impossible for fire, EMS, law enforcement, and other emergency responders from differing agencies to communicate in the field, thus endangering the safety of emergency personnel and the public.

We very much appreciate your leadership on this extremely important issue for public safety.

Sincerely,

CHIEF RANDY R. BRUEGMAN
President

APCO INTERNATIONAL
DAYTONA BEACH, FL
June 5, 2003

The Honorable JANE HARMAN
U.S. House of Representatives
Washington, DC 20515

DEAR REPRESENTATIVE HARMAN: On behalf of the over 16,000 members of APCO International, I want to express my appreciation for your support for public safety communications issues and, in particular, your sponsorship of the Homeland Emergency Response Organizations (HERO) Act, H.R. 1425.

Police, fire, EMS and other public safety agencies face severe shortages of radio spectrum in much of the nation, and need additional communications capacity to promote critical interoperability between personnel responding to emergencies in the field. Congress responded to this need in 1997, by requiring the FCC to allocate 24 MHz of new radio spectrum, for public safety services. The reallocated spectrum is in the Upper 700 MHz Band, which is also used by certain channel 60-69 television stations. Unfortunately, the 1997 legislation did not establish a firm date for this spectrum to become available, leaving it instead to be subject to the open-ended digital television (DTV) transition schedule. Thus, we support the HERO Act as it will establish December 31, 2006, as a firm date to clear this spectrum for public safety use.

Once again, thank you for your support of public safety.

Sincerely,

VINCENT STILE, *President*
APCO International, Inc.

NATIONAL LEAGUE OF CITIES
June 6, 2003

The Honorable JANE HARMAN
Ranking Member
House Permanent Select Committee on Intelligence
U.S. House of Representatives
Washington, DC 20515

The Honorable CURT WELDON
U.S. House of Representatives
Washington, DC 20515

DEAR REPRESENTATIVES HARMAN AND WELDON: On behalf of the National League of Cities 17,000 direct member cities, we are writing to express our strongest support for H.R. 1425. "The Homeland Emergency Response Operations (HERO) Act." As you know, the tragic events of September 11 made it abundantly clear that our

first responders are in dire need of improved communications. The HERO Act takes an important step in helping remedy this problem by providing first responders with badly needed access to broadcast frequencies for communications, Your continued leadership in the area of public safety communications has been applauded by local elected officials across the nation.

The strengthening of our nation's public safety communications infrastructure has never been more important to our nations security. The current capabilities of law enforcement, fire, emergency medical services, disaster relief and other emergency personnel remain severely restricted by the limited amount of spectrum allocated for public safety purposes. This limited availability of spectrum has forced emergency agencies to operate on several different and incompatible radio frequency bands, resulting in a lack of "interoperability" for communication between police, fire, and other emergency responders.

As you know, the Balanced Budget Act of 1997 required the Federal Communication Commission (FCC) to reallocate for public safety purposes that portion of radio spectrum used by television stations on channels 60-69. However, actual public safety use of this spectrum is blocked indefinitely as current law allows television stations to retain these channels until December 31, 2006, or until 85 percent of the television households in the community have access to digital television, whichever is later. Absent a change in the law, public safety's use of this spectrum may be put off for the indefinite future and the resulting uncertainty over when—or if—this spectrum will be vacated prevents local governments from making plans or funding commitments for the use of this spectrum.

Local elected officials across the nation support legislation revising the Balanced Budget Act of 1997 to ensure that radio spectrum for public safety use be made available to state and local governments as soon as possible. Accordingly, NLC supports H.R. 1425, the HERO Act, which establishes a "date certain," December 31, 2006, as a deadline for television stations to vacate channels allocated for public safety use by the FCC. By establishing a firm deadline for television stations to vacate this spectrum, local governments can begin the lengthy planning process necessary for the use of this spectrum by emergency personnel.

Should you or your staff require additional information on this matter, please contact Juan Otero, Principal Legislative Counsel, at (202) 626-3022.

Very truly yours,

DONALD J. BORUT
Executive Director

cc: Members of the House Energy and Commerce Committee

NATIONAL VOLUNTEER FIRE COUNCIL
WASHINGTON, DC
June 6, 2003

The Honorable JANE HARMAN
2400 Rayburn House Office Building
Washington, DC 20515-0536

DEAR REPRESENTATIVE HARMAN: The National Volunteer Fire Council (NVFC) is a non-profit membership association representing the more than 800,000 members of America's volunteer fire, EMS, and rescue services. Organized in 1976, the NVFC serves as the voice of America's volunteer fire personnel in over 28,000 departments across the country. On behalf of our membership, I would like to express my full support for your legislation, the Homeland Emergency Response Operations (HERO) Act (H.R. 1425). Which is intended to ensure our nation's first responders have greater access to shared broadcast frequencies for interoperable radio communications.

As you know, on September 11, 1996, the Congressionally-mandated Public Safety Wireless Advisory Committee issued its Final Report recommending that 97.5 of additional spectrum be made available for public safety by 2010, including approximately 25 MHz from TV channels 60-69 (746-808 MHz) that should be made available within five years from the date of the report—September 11, 2001.

Your legislation sets a firm deadline of 2006 by which the Federal Communications Commission must give public safety agencies the broadcast spectrum first set aside for them by Congress in 1997, That spectrum from 764-776 MHz and 794-806 MHz, is currently occupied by TV broadcasters on channels 63, 64, 68 and 69. Congress conditioned its transfer to public safety agencies on digital television reaching 85% of households. At present, only 1% of households have digital television and most analysts believe that few markets will reach that 95% threshold anytime in the coming decade. The HERO Act removes this threshold requirement.

Once again, the NVFC commands your efforts to support America's fire service and we thank you for the leadership role you have taken on this issue. If you or your staff have any questions or comments feel free to contact Craig Sharman, NVFC Director of Government Relations at (202) 887-5700 ext. 12.

Sincerely

PHILIP C. STITTLEBURG
Chairman

cc: California State Firefighter's Association

INTERNATIONAL UNION OF POLICE ASSOCIATIONS
ALEXANDRIA, VA
April 1, 2003

The Honorable JANE HARMAN
2400 Rayburn House Office Building
Washington, D.C. 20515

DEAR MS. HARMAN: On behalf of the International Union of Police Associations, AFL-CIO, I am proud to add our name to those supporting the "Homeland Emergency Response Operations" or "HERO" Act.

Communications is always one of the crucial components of critical incident management. Even prior to the tragedy of 9-11, emergency responders frequently identified their inability to effectively communicate with one another as a problem during post incident critiques. The events of that terrible day illustrated that point clearly for you and for the general public.

Homeland Emergency Response Act will help ease the crowded airways. It will also help public safety and those supplying communication enhancements for us with the necessary frequencies to apply their burgeoning technology.

If there is anything I.U.P.A. can do to help move this legislation forward, I hope you or your staff will call on me.

Respectfully,

DENNIS SLOCUMB
International Executive Vice President

Mr. WALDEN. Thank you very much, gentleman. We appreciate it. The record will remain open.

The subcommittee is adjourned.

[Whereupon, at 3:13 p.m., the subcommittee was adjourned, to reconvene at the call of the Chair.]

[Additional material submitted for the record follows:]

August 20, 2003

The Honorable FRED UPTON
Subcommittee on Telecommunications and the Internet
2161 Rayburn House Office Building
Washington, 20515

DEAR CHAIRMAN UPTON: Thank you, again, for the opportunity to appear before you and the Subcommittee on June 11 to testify regarding public safety's need for funding for communications tools, and for nationwide availability of the 700 MHz spectrum for their deployment of advanced wideband services and standards-based interoperable communications solutions. I appreciate your leadership on these important issues and the tremendous work of your staff to address them.

We thank you for the chance to respond to you, in the attachment to this letter, to the additional questions that were forwarded to me. Should you require additional amplification on any response, please feel free to contact me or Bill Anaya of my Washington team at (202) 371-6912.

Sincerely,

GREGORY BROWN
EVP MOT & President & CEO, CGISS

cc: Howard Waltzman, Counsel, Committee on Energy and Commerce
Will Nordwind, Counsel, Subcommittee on Telecommunications and the Internet

FOLLOW-UP QUESTIONS TO JUNE 11, 2003 HEARING

Question 1. Nextel has stated in their reports to the FCC that 10% of all public safety agencies licensed at 800 MHz have reported interference, whereas Motorola,

using APCO numbers, has stated that percentage at only 1%. What parameters are used to determine that information?

Response. As you indicate, Motorola used publicly available information concerning reports of interference cases from a website maintained by APCO to derive the 1% number. Subsequently, Nextel submitted information to the FCC citing the 10% number that previously was not publicly available. APCO has indicated that the information on its website is derived from voluntary reports by public safety licensees and is not a complete view of interference cases.

Question 2. Looking from a logical perspective, if a wireless service provider wants to build another tower, shouldn't they first test the site to make sure that they will not interfere with public safety communications, first and foremost, as well as with other service providers? What tools/formulas, excluding new radios, are available today that could be used to prevent interference from occurring before a new tower is put in place?

Response. The Best Practices Guide, jointly developed by APCO, PSWN, Motorola, Nextel, and CTIA, provides information on technical measures that can be used to identify and mitigate interference. Wireless carriers and public safety representatives are in the best position to advise the Subcommittee on the practicality of precoordinating antenna sites with public safety users.

Question 3. Nextel is causing the greatest proportion of interference with public safety communications, and the company has stated that they would shell out up to, but not more than $850 million to help move the public safety spectrum. The public safety community has stated that $850 million is not nearly enough money. With a contiguous band, Nextel could provide better services, gaining more customers and more capital from Wall Street. This leads to the question of whether or not re-banding is necessary or if Nextel is making it necessary in an effort to gain a contiguous block of spectrum in addition to a block of spectrum at 1.9 MHz.

Question 3a. With regards to the value of spectrum, is a contiguous block of spectrum worth more to public safety than the splinters that much of their spectrum at the 800 MHz band currently is composed of?

Response. The primary value of spectrum to public safety is its ability to support reliable communications to protect first responders and the public. Public safety associations have supported reconfiguring the 800 MHz band in part to alleviate the interleaving of public safety and commercial channels because doing so provides an environment more resistant to some types of interference.

Question 3b. Would a contiguous band allow public safety to offer newer and better services?

Response. The 800 MHz band will primarily support the current mission critical voice communications services upon which first responders rely. The Consensus Parties Plan before the FCC indicates that public safety would gain some 800 MHz channels as a result of the proposed rebanding. However, these channels would be sourced from an 800 MHz spectrum pool below 814 MHz that Nextel currently holds and they would continue to be spread throughout that band rather than form a contiguous block.

The most effective step that the Congress and the FCC could take to support new public safety services as well as interoperability between state and local jurisdictions and federal law enforcement is to clear incumbent analog television stations from the 700 MHz band. The FCC allocated twenty-four MHz of the 700 MHz band to public safety over five years ago, and yet this spectrum is still not available to support first responders in most of the top cities. Five percent of the nation's TV stations prevent over 50% of the country's population from receiving the benefits this new spectrum could bring. These benefits include wide area high-speed data and video services which could be used to instantly distribute a picture of a missing or abducted child; transmit video of a potential bomb or biological weapon to experts at a remote location; and provide firefighter access to building blueprints, hazardous material data and other critical information. The wideband standard to support these uses has been developed and unanimously adopted in TIA, an ANSI accredited standards development organization. In addition, trials of the technology upon which the standard is based have been conducted with public safety customers. Full product development awaits actual availability of this 700 MHz spectrum in major markets.

Question 3c. Would a contiguous band be equally or more valuable to a private carrier? And is it conceivable that they could provide newer services for their customers as well?

Response. We believe that cellular carriers are in the best position to respond to this question regarding their business model and planning

Question 3d. With that, do we have any idea what the value of a contiguous block of 16 MHz would be in the 800 MHz band?

Response. Motorola firmly believes that the primary value of spectrum is in its use, rather than its ability to generate auction revenue. The market value of a contiguous 16 MHz block of spectrum in the 800 MHz band could best be estimated by the cellular carriers that currently provide commercial services in that band. Furthermore, the FCC would likely be able to provide such estimates based on previous auction receipts information in their databases.

PREPARED STATEMENT OF AGOSTINO CANGEMI, DEPUTY COMMISSIONER AND GENERAL COUNSEL, NEW YORK CITY DEPARTMENT OF INFORMATION TECHNOLOGY AND TELECOMMUNICATIONS

I am Agostino Cangemi, Deputy Commissioner and General Counsel at New York City's Department of Information Technology and Telecommunications. On behalf of the City of New York, I am pleased to submit the following testimony on "The Spectrum Needs of Our Nation's First Responders."

The City has submitted several rounds of comments to the Federal Communications Commission in various proceedings on public safety spectrum issues. The City also has met with FCC commissioners, bureau chiefs and staff on related topics. We commend the FCC's obvious hard work and commitment in this area.

The spectrum-related needs and concerns of New York City's first responders include the following:

- The resolution of communication interference in the 800 MHz frequency range;
- The availability of additional public safety spectrum as soon as possible and, above all, by a date certain; and
- The avoidance of Federally-imposed unfunded mandates on local government first responders in addressing the above public safety needs and in taking any other actions relating to public safety spectrum issues.

ELIMINATING 800 MHZ INTERFERENCE

In the post-September 11 security environment, the interference being experienced by first responders in the 800 MHz frequency range is an increasingly dangerous problem, with profound implications for public safety. New York City makes critical use of its 800 MHz frequency allocation to support its public safety operations. The City's Department of Information Technology and Telecommunications supports an interoperable system utilized citywide—by agencies including the City's Fire Department, the City's Emergency Medical Services and the City's Office of Emergency Management—to coordinate communications in such extraordinary circumstances as blizzards, gas main explosions, hazardous materials incidents, plane crashes and terrorist threats. On a daily basis, the City's 800 MHz band allocation also supports lifesaving data, telemetry and dispatch communications by the Fire Department and Emergency Medical Services.

The City has experienced considerable interference to its 800 MHz operations from private cellular providers. This interference appears to be caused primarily by cell sites emitting strong Commercial Mobile Radio Service signals that overwhelm the public safety signals that are emitted from more distant towers. Given the City's critical use of the 800 MHz frequency for both "routine" public safety-related responses as well as potentially extraordinary crisis situations, this problem must be substantially, and not just marginally, set right. Neither the City's first responders, nor the public that relies on the system, should be subject to an unreliable public safety infrastructure resulting from unpredictable, and sometimes crippling, interference.

Because this phenomenon appears to be linked to the fact that CMRS systems operate on frequencies that are on adjacent channels or in adjacent bands to public safety frequencies, the City has given qualified support to the so-called "Consensus Plan," which would essentially eliminate the current interleaving of these frequencies. The City's support has, however, been conditioned on a unambiguous commitment by the Consensus Plan sponsors to the following: 1) a "zero tolerance" solution to interference on the 800 MHz public safety band; 2) the continuity of public safety communications (i.e., airtight assurances that these systems would remain 100% operational during every phase of any transition period); and 3) the up-front identification and commitment of external funding sources to cover the full costs of public safety implementation.

Ameliorating the 800 MHz public safety interference problem may also require complementary equipment modifications and operational changes. Along these lines, Motorola has recently proposed that certain technical advances may make it "possible to alleviate a majority of the interference being experienced through best practices and new technical solutions." The City will apply the same three criteria to

the Motorola proposal as we have to the Consensus Plan. Specifically, the implementation of new radio designs, alteration of spectrum use and any other changes (particularly, if in lieu of rebanding) must provide a complete solution to public safety interference, must not result in down-time to public safety systems and must not place an unfunded financial burden on public safety licensees. The City looks forward to the release by Motorola of additional informational that will permit such an assessment.

PROVIDING ADDITIONAL PUBLIC SAFETY SPECTRUM

New York City's public safety spectrum is stretched virtually to the limit. With respect to the City's 800 MHz operations, voice and data communications currently exceed the FCC's recommended loading criteria. Moreover, nearly two years after the September 11 attack, the City is still confronted by pressing new public safety communications needs on almost a daily basis. However, there still remains insufficient spectrum to meet these needs. Consequently, the City, along with other public safety entities, must look to other sources of interoperable spectrum. Unfortunately, our options in this regard are presently limited.

It should be stated that the City applauds the FCC's swift action, and substantive determinations, on public safety use of the 4.9 GHz band. The City, which submitted comments in the 4.9 GHz rulemaking proceeding, believes the FCC got it right in its recent Report and Order with respect to, for example, defining public safety eligibility criteria, establishing a geographic licensing scheme and prescribing various allowed uses of the 4.9 GHz spectrum. Without a doubt, the 4.9 GHz spectrum will be an invaluable resource to first responders in applications for which this spectrum is best suited—namely, broadband mobile, temporary fixed and point-to-point fixed.

Additionally, the City urges that the portion of the 700 MHz frequency band that was allocated to public safety use as part of the 1997 Balanced Budget Act be made available to public safety entities as soon as possible and, most importantly, by a date certain. The 700 MHz spectrum is appropriate to addressing interoperable wireless public safety needs. Regrettably, however, rather than setting a firm date for when this spectrum will be available to public safety entities, the 1997 Act allows television stations that currently occupy Channels 60-69 to remain on-the-air until the later of December 31, 2006 or until 85% of the households in the relevant market are able to receive digital over-the-air television signals, whichever is later.

Consequently, public safety users, including the City, are not only prevented from using this spectrum for an indefinite period of time, but are also stymied in their ability to predictably plan for its use. Obviously, implementing a comprehensive 700 MHz interoperable network requires exhaustive planning—including needs assessments, engineering studies, vendor solicitations, vendor contracting, equipment purchases, construction, testing and so forth. There are also the internal funding processes to be considered, including prioritizing the scope of any rollout against competing budgetary needs, and ultimately identifying and, as necessary, securing necessary funding. None of these planning activities can occur apace without certainty about the availability date of 700 MHz public safety spectrum. Particularly in the absence of such certainty, there should be no illusion that, when the 700 MHz spectrum is finally transferred, public safety entities will be able to simply "flip a switch" and be up-and-running.

AVOIDING UNFUNDED MANDATES

Municipal governments simply cannot bear the costs associated with new wireless public safety spectrum mandates. I am certain the Members of the Subcommittee are well aware of New York City's own fiscal problems resulting from the national economic downturn, the economic impact of the September 11 attack and the increased security-related costs we have incurred.

I have already discussed the fact that the City cannot bear the costs associated with new 800 MHz mandates. Nor would it be fair for the public to bear such costs, as the interference that is being inflicted on our public safety communications is being caused by private carriers, while the City operates entirely within the scope of its licenses.

I would, in closing, like to bring to the Subcommittee's attention a recent development that could also result in a considerable cost to the City and other public safety entities. In a rule issued on April 21, 2003, the FCC specified that public safety systems in the 150-174 MHz and 421-512 MHz bands must migrate from 25 kHz to12.5 kHz bandwidth transmissions by January 2018. (Non-public systems were ordered to migrate by January, 2013.) Of greater concern to the City, to encourage faster migration, the FCC rule further prohibited the manufacture and importation of 25 kHz equipment beginning January 1, 2008. Insofar as the City's existing systems

that support interoperable analog radio communications are 25 kHz-based, by essentially preventing public safety entities from purchasing 25 kHz radios after 2008, this new FCC rule will, in just a few years, preclude newer radios from communicating on the City's existing 25 kHz-based systems. That is, the rule will eliminate "backward compatibility" with existing City systems utilized by first responders for interagency communications. The City does not take issue with the FCC's time-line for full migration to 12.5 kHz transmissions by 2018. However, the benchmark date of 2008 for the City to, for practical purposes, overhaul its system, places a tremendous financial and operational squeeze on the City. Therefore, the City urges that the pace of transition to 12.5 kHz transmissions by the FCC's prescribed date of 2018 be left to public safety entities to determine.

I thank the Subcommittee Members for holding this important hearing and for providing the City of New York with the opportunity to present testimony on these tremendously urgent issues.

NEXTEL COMMUNICATIONS, INC.
RESTON, VA
June 23, 2003

The Honorable FRED UPTON, *Chairman*
The Subcommittee on Telecommunications and the Internet
2125 Rayburn House Office Building
Washington, DC 20515

Re: *The Spectrum Needs of Our Nation's First Responders*

DEAR CHAIRMAN UPTON: I am writing to address two points that were discussed at the Subcommittee's hearing on Wednesday, June 11, 2003 on "The Spectrum Needs of Our Nation's First Responders." As you know, as President and Chief Executive Officer of Nextel Communications, Inc. ("Nextel"), I testified at this hearing regarding the urgent problems facing public safety communications. On behalf of Nextel, I respectfully request that this letter and the attached material be included in the written record for this hearing.

First, Edmond Thomas, Chief of the FCC's Office of Engineering and Technology suggested at the hearing that the FCC had only recently become aware that out-of-band emissions ("OOBE") from commercial mobile providers are a significant source of interference to public safety radio systems. The FCC, in fact, has been aware for some time that OOBE is a significant cause of this interference. In December 2000, Nextel, Motorola, numerous cellular carriers, and public safety representatives jointly developed and presented to the FCC the "Best Practices Guide," which described the causes of public safety interference in the 800 MHz band and discussed a number of short-term measures for managing this interference. The Best Practices Guide discussed "Transmitter Sideband Noise," another term for OOBE. Best Practices Guide at 6-7. The Guide specifically stated that "[s]ideband noise is an increasingly frequent factor for commercial/public safety interference . . ."

Less than a year later, Nextel identified OOBE as a source of public safety interference in a "White Paper" filed with the FCC in November 2001. Then, in March 2002, the FCC itself noted the role of OOBE in public safety interference in its *Notice of Proposed Rule Making*, citing the interference analysis contained in the Best Practices Guide. Since the FCC's Notice, public safety representatives and Nextel have repeatedly described the contribution of OOBE to public safety interference.

In fact, as the incidence of public safety interference in the 800 MHz band has risen over the past several years, Nextel has found OOBE to be a contributing factor in almost fifty percent of these interference events. Accordingly, any proposed solution to public safety interference in the 800 MHz band must address the effects of OOBE. To date, the Consensus Plan is the only proposal before the FCC that would virtually eliminate OOBE as a source of interference to public safety communications in the 800 MHz band.

Second, I would like to respond to the brief discussion at the hearing of the potential use of "notch filtering" to reduce public safety interference in the 800 MHz band. A notch filter is a device that suppresses emissions across a narrow band of channels, with comparatively little effect on surrounding frequencies. Some parties have suggested that the installation of notched filtering by Nextel and other commercial mobile providers could significantly reduce 800 MHz public safety interference.

As explained in greater detail in the attachment to this letter, notched filters are neither an effective nor feasible means of addressing public safety interference in the 800 MHz band. As a fundamental matter, the 800 MHz band is simply too mixed with incompatible systems for notch filtering to be successful. The jumbled

nature of this spectrum would require heavy use of these filters; such extensive filtering would suppress carriers' "in-band" signals unacceptably degrading carriers' service to their commercial customers. Carriers would have no way to compensate for this signal loss, since the necessary power increases would be far too costly to implement.

There are other problems with notch filters. First, due to the number of public safety channels and the design of commercial systems, as many as 120 notch filters would have to be installed at a typical commercial transmission site. At most sites, there is not enough physical space to accommodate that many filters. In addition, for the reasons discussed above, there does not appear to be a single notch filter available off-the-shelf that is designed for use in the 800 MHz band. Waiting for manufacturers to develop such filters would further delay meaningful action on public safety interference. Finally, notch filtering would have *no* effect on "intermodulation" interference, which contributes to approximately half of all incidents of 800 MHz public safety interference.

As I pointed out in my testimony, notch filtering and all other short-term, stopgap technical measures fail to confront the fundamental cause of public safety interference in the 800 MHz band: the FCC's obsolete, thirty-year-old spectrum allocation, which spreads and mixes incompatible cellular and public safety services almost randomly throughout this band. In order to achieve a long-term solution to this fundamental problem, Nextel and the leading national public safety and private wireless organizations last year proposed the Consensus Plan. By relocating incompatible commercial mobile providers and public safety systems into separate blocks of spectrum, the Consensus Plan would essentially eliminate public safety interference in this band, while at the same time providing the public safety community with urgently needed additional spectrum. As Vincent R. Stile, President of the Association of Public-Safety Communications Officials-International, Inc., stated at the hearing, the public safety community strongly supports the Consensus Plan.

We all must do whatever is necessary to ensure that this country's policemen, fire fighters, and other first responders have access to robust and reliable emergency communications. I ask that this Subcommittee urge the FCC to resolve the issues facing public safety communications by expeditiously adopting the Consensus Plan in full.

Sincerely,

TIMOTHY M. DONAHUE, *President and Chief Executive Officer*
Nextel Communications, Inc.

Attachment

1. *Introduction.* This paper discusses whether CMRS carriers should be required to install notch filters to deal with interference to Public Safety radio systems in the 800 MHz band. Notch filtering of CMRS transmissions to prevent interference to spectrally adjacent and interleaved public safety systems is impracticable, unworkable and ultimately unrealistic in the current interleaved 800 MHz environment.

2. *Notch filter.* A notch filter is a passive device that rejects a particular set of frequencies while having little effect on all other frequencies. An ideal curve and a real curve for such a device are shown below in Figure 1. As Figure 1 shows, an ideal notch filter produces no loss on any frequency except the target frequency. Unfortunately, in the real world, it is not possible to manufacture such a filter.

A more realistic notch filter curve (taken from the product literature from one manufacturer) is overlaid on the ideal curve in Figure 1. As can be seen, it falls short of "ideal" performance in several areas:

a. Notch depth is not as great
b. Notch width is wider
c. Insertion loss is greater

3. *Application to interference problems in the 800 MHz band.* In order to use notch filters to address CMRS out-of-band emissions ("OOBE") interference to public safety radio systems, it would be necessary to install a bank of series-connected notch filters (at least one tuned to each public safety frequency to be protected) between each transmitting antenna at the CMRS site and its associated transmitter(s). This leads to the following problems:

a. Straight notch filters for use in the 800 MHz band are very uncommon. A survey of product literature from RFS, DB Products, and TX-RX (three well-known manufacturers of RF combining components) indicates that there are no off-the-shelf notch filters for the 800 MHz spectrum.
b. The number of notch filters that would be required to address public safety interference in the 800 MHz band would be enormous. A typical CMRS site has 6

transmitting antennas (2 per sector). If the public-safety radio system serving the area has 20 channels, as is common, a total of 6 x 20 = 120 notch filters would have to be installed at the CMRS transmitter site. There simply is not room at a typical CMRS transmission site to house this quantity of filters.

c. The series combination of notch filters would introduce significant signal loss across the 800 MHz spectrum. As shown in Figure 1, there would be at least a 1-dB insertion loss for all frequencies above the notch frequency. If 20 of these notches were connected in series, that measure would result in at least a 20 dB loss between the CMRS transmitter and its antenna (a 100-fold reduction in power). It would be impossible for the CMRS operator to raise transmitter power to a degree sufficient to compensate for this loss. Even if such a power increase were technically possible for the CMRS equipment itself, the resultant rise in electric power requirements would be unsupportable by the utilities involved, the increased space and HVAC requirements would not be approved by local zoning boards, and the operation of the CMRS transmitter site so modified would be prohibitively costly.

d. In any case, the notch depth of the individual notch filters may not be sufficient to reduce public safety interference in the 800 MHz band. If this were the case, *even more notch filters would have to be connected in series to achieve the necessary result.* Such action would exacerbate the problems described in (b) and (c) above.

e. CMRS frequencies that are relatively close (e.g., 3-6 channels away) to the center frequency of a given notch (presumably the protected public safety frequency) will receive even more attenuation than the 1 dB per cavity expected from the notch filter. This will make a significant quantity of interleaved CMRS channels unusable.

Moreover, *applying notch filters to CMRS transmitters would do nothing to combat receiver-generated IM interference,* which has contributed to approximately half of the interference cases that Nextel has addressed to date.

For these reasons, it would be unreasonable, unrealistic and ultimately ineffective to attempt to apply notch filtering to reduce public safety interference in the current interleaved spectrum environment in the 800 MHz band.

4. *Use of additional filtering as an adjunct to rebanding.* While use of notch filters in an interleaved environment is completely unreasonable, use of additional filtering as a complement to realignment of the 800 MHz band is completely reasonable and is, in fact, part of the Consensus Plan. By segregating the CMRS and non-CMRS allocations into separate blocks, it is possible to build a bandpass filter with extremely sharp skirts to reduce noise. Consider the filter curve shown in Figure 2:

Figure 2 shows a measured curve of an off-the-shelf 800 MHz bandpass filter from a major manufacturer. This particular filter provides more than 55 dB of rolloff within 2 MHz of its lower design frequency. Application of a similar type of filter to CMRS sites would resolve the above-described problems associated with the notch filter approach:

a. A single filter would be required between each CMRS site transmitting antenna and its associated transmitters, as opposed to the large collection of notch filters described earlier. In contrast to the notch filtering scenario described above, a typical CMRS transmitter site could accommodate such equipment.

b. The additional loss (less than 1 dB) in the CMRS antenna path is easily compensated for with a slight increase in CMRS transmitter power. This is both economically and technically feasible.

c. With a bandpass filter in a post-realignment environment, the overall reduction in OOBE noise in the 800 MHz band would be 55 dB or more for ALL frequencies at least 2 MHz below the filter design frequency.

5. *Conclusion.* It is completely impractical and unworkable from a technical and economic perspective to rely on notch filters to protect individual public safety systems from interference from CMRS-generated OOBE. In contrast, application of additional filtering to CMRS transmitters *in the post-rebanding environment* would provide reliable suppression of OOBE noise to public safety systems.

Figure 1. Ideal vs. typical notch filter response (target frequency 410.000 MHz)

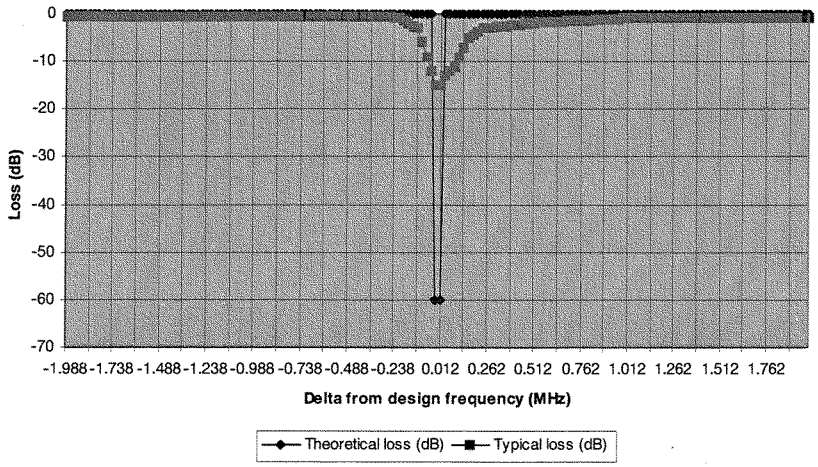
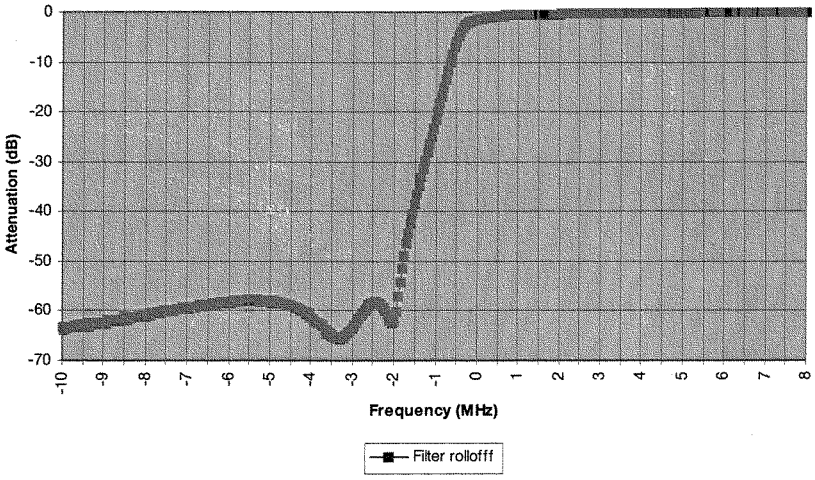


Figure 2. Filter rolloff



RESPONSE FOR THE RECORD FROM THE FEDERAL COMMUNICATIONS COMMISSION TO QUESTIONS OF THE MAJORITY AND MINORITY MEMBERS OF THE SUBCOMMITTEE ON TELECOMMUNICATIONS AND THE INTERNET

Question 1. Does the fact that someone is allowed to provide a new service in a spectrum band allow him or her to interfere with incumbent operators?

Response: No, generally, new users must protect incumbent licensees that operate on the same frequencies if both services have the same allocation status (secondary or primary). In the 800 MHz band, public safety, Commercial Mobile Radio Service (CMRS) providers and private radio users all have primary status. There are several applicable Commission rules requiring licensees to avoid interference and to work cooperatively to rectify any interference resulting from their operations. *See, e.g.,* 47 C.F.R. Sections 90.173 and 90.403(e). The Commission's rules also specify out-of-band emissions (OOBE) (signals that a licensee radiates outside its assigned channel) to protect services operating on adjacent frequencies. The Commission's 800 MHz Notice of Proposed Rulemaking (NPRM) addresses the issue of reported instances of interference between existing licensees using "non-cellular"[1] and "cellular" architectures in the 800 MHz band and the immediately adjacent cellular telephone bands. In discussing OOBE, the NPRM notes that imposing more stringent OOBE limits on CMRS transmitters could reduce interference. The NPRM thus solicited comment on the degree of OOBE suppression—relative to the CMRS carrier frequency—that would protect incumbent operators.

Question 2. In filings with the FCC, it is apparent that interference is growing as new low-site, high-power towers are being built. What rules does the FCC have in place with regard to new entrants into a spectrum band causing interference with an incumbent in the band? What enforcement powers does the FCC have to ensure that, once an operator recognizes a problem, the interfering operator ends that interference?Response: As noted in response to Question 1, the Commission's rules require licensees to cooperate to avoid harmful interference. This obligation applies to incumbents as well as new entrants. In the majority of cases, licensees do cooperate in resolving interference pursuant to these rules. However, there have been instances in which interference has been difficult to identify and resolve. For instance, in the 800 MHz band, OOBE from one or more "low-site, high-power" CMRS transmitters have been known to interfere with public safety portable and mobile radios; and two strong signals from one or more CMRS operators can "mix" together in the public safety radio to form a third signal (an "intermodulation product") that falls on the public safety operating frequency and renders the receiver portion of certain public safety radios inoperative. This OOBE and intermodulation interference can occur even if the CMRS licensees are operating pursuant to the Commission's technical rules, e.g. maximum OOBE limits for individual CMRS transmitters; effective radiated power; antenna elevation and frequency stability. It is for this reason that the FCC, in WT Docket No. 02-55, is considering new rules and policies directed to the avoidance of such harmful OOBE and intermodulation interference. The NPRM in that proceeding sought comment on the efficacy of re-locating public safety, private radio and CMRS operations within the 800 MHz band so that public safety channels would be separated as far as possible from CMRS channels. Such "rebanding" also would extract most CMRS systems from the "interleaved" portion of the band where their "low-site, high-power" cells can cause OOBE interference to public safety systems operating on channels that are immediately adjacent to—or only a few channels removed from—the channels used by the CMRS cell. The NPRM also sought comment on various technical remedies subsumed under the term "Best Practices." Presently, the Commission is examining whether rebanding, Best Practices, or a combination of the two, will eliminate the harmful interference encountered by some public safety systems. A decision in Docket 02-55 is anticipated in the near future. Finally, it should be noted that not all interference cases involve violation of the Commission's rules. Where interference results from a violation of a Commission rule, the Commission has aggressively enforced its rules, and

[1] "Non-cellular," as we use the term here means a system employing only one or just a few transmitters to cover a wide area. Generally, the antennas of non-cellular systems are installed on high towers or buildings. Non-cellular systems are therefore often referred to as "high-site" systems. "Cellular" systems use many transmitters or "cells" each of which covers a comparatively small area. Most, but not all, antennas of cellular systems are installed at low elevations. Cellular systems are therefore often referred as "low-site" systems. Because of their configuration—several cells each covering a small area—cellular operators can employ "frequency reuse," i.e. the same channel may be used simultaneously by different cells in the system, thereby increasing subscriber capacity. Moreover, cellular systems use computer controlled "handoff" in which, as a subscriber leaves the coverage area of one cell, he or she is automatically switched to another cell in the system. The process usually is transparent to the subscriber.

licensees who violate the rules may be subject to significant enforcement action including monetary forfeitures and license revocation.

Question 3. The disruption and costs associated with Nextel's Consensus Plan to realign the 800 MHz band appear to be disproportionate given the number of interference cases reported so far. Moreover, Nextel has said that re-banding will not resolve all interference problems. It has been further noted that the $850 million price tag is sufficient only to replace 1% of Public Safety handsets, and that many of the purported benefits of re-banding will occur only after all Public Safety handsets are replaced. While we all agree that Public Safety communications should not be compromised, do you also agree that the costs, both direct and indirect, need to be considered in relation to the benefits?

Response: Yes, we agree that it is incumbent upon the Commission to weigh the costs and benefits associated with each potential solution to the 800 MHz public safety interference problem. It is anticipated that such analysis will be done in the context of the Commission's ongoing rulemaking proceeding examining the issue. In this connection, it is important to note that the record before the Commission includes conflicting information regarding the number of interference cases. Some argue that such conflict may be due to underreporting and the often transient nature of the interference and because it often is difficult to determine whether loss of communications is caused by a radio malfunction, a coverage problem or interference (the receiver portion of the radio often simply goes "dead"). In any event, the Commission's goal is to address the 800 MHz public safety interference problem in a manner that resolves all interference problems to the greatest extent practicable, ensures that existing public safety and critical infrastructure communications systems are not unduly disrupted, and balances the costs and benefits associated with the potential solutions presented by interested parties. We believe effective public safety communications remains the paramount factor in crafting a solution.

Question 4. Under Nextel's Plan, electric and gas utilities that operate extensive land mobile systems in the 851-854 MHz band may be required to relocate to a "Guard Band" at 859-861 MHz where they will be subject to a higher probability of interference. Nextel's plan also proposes that licensees in this Guard Band will receive less interference protection than other licensees in the band. As a result, utilities' communications could be disrupted when they are conducting activities that are critical to public safety, such as restoring power or responding to requests to turn off electricity and gas so firemen can safely put out fires. Do you think it is appropriate to adopt a plan that compromises the communications of critical infrastructure licensees?

Response: Any plan intended to effectively address the 800 MHz public safety interference problem should be designed in such a way that protects against compromising communications by all existing licenses, particularly those licensees engaging in public safety and/or critical infrastructure communications. It is anticipated that this will be one of the factors examined and analyzed before the Commission adopts a plan. In terms of the proposals currently presented in the record of the 800 MHz public safety interference proceeding, it should be noted that on August 7, 2003, the Consensus Parties filed a supplement to the Consensus Proposal. In the supplement, it appears that the Consensus Parties essentially have abandoned the guard band concept and now propose that all non-cellular 800 MHz licensees, the Utilities included, would be provided an enhanced—and equal—degree of interference protection notwithstanding their location in the band.

Question 5. Nextel has stated in their reports to the FCC that 10% of all public safety agencies licensed at 800MHz have reported interference, whereas Motorola, using APCO numbers, has stated that percentage at only 1%. What parameters are used to determine that information?

Response: Nextel premised its estimates on 1,580 "distinct" public safety systems in the U.S., 155 of which (approximately 10 percent) reported interference in 703 different locations since the beginning of the year 2000. In a subsequent letter to the Commission, Nextel stated that the number of locations had increased to "nearly 800." Motorola premised its estimates on 2,139 public safety systems in the U.S., and stated that APCO data revealed twenty-four "unique customer issues" in 2000, seven in 2001 and five in the first quarter of 2003. Nextel noted that different conclusions may be reached on the total number of public safety systems, because a given public safety entity may operate a single system using multiple call signs, and that it had compensated for that fact in its estimates. APCO noted that its "Project 39" interference collection effort—which resulted in the data relied upon by Motorola—was not intended to be inclusive of all cases of interference.

Question 6. Looking from a logical perspective, if a wireless service provider wants to build another tower, shouldn't they first test the site to make sure that they will

not interfere with public safety communications, first and foremost, as well as with other service providers? What tools/formulas, excluding new radios, are available today that could be used to prevent interference from occurring before a new tower is put in place?

Response: Yes, good engineering practice would dictate analysis and testing of a potential transmitter site prior to construction to ensure that operations will not cause interference to other services in the same or an adjacent frequency band. With respect to tools/formulas that could be used to prevent interference from occurring before a new tower is put in place, we note that there are a number of commercially available software packages that are designed for site analysis (e.g., Cellplan, RF CAD, etc.). These tools allow CMRS providers to vary parameters including frequency, power, and antenna patterns to determine the best combination to minimize the potential for causing interference to public safety licensees. For such analysis to be meaningful, however, it must take into account the performance specifications of the receivers used by public safety licensees.

Question 7. Nextel is causing the greatest proportion of interference with public safety communications, and the company has stated that they would shell out up to, but not more than $850 million to help move the public safety spectrum. The public safety community has stated that $850 million is not nearly enough money. With a contiguous band, Nextel could provide better services, gaining more customers and more capital from Wall Street. This leads to the question of whether or not re-banding is necessary or if Nextel is making it necessary in an effort to gain a contiguous block of spectrum in addition to a block of spectrum at 1.9 MHz.

Question 7b. With regards to the value of spectrum, is a contiguous block of spectrum worth more to public safety than the splinters that much of their spectrum at the 800 MHz band currently is composed of?

Response: The value that public safety might place on a contiguous block of spectrum in the 800 MHz band would depend on several factors. For example, the narrow channel bandwidths are now optimized for voice services. A contiguous block of spectrum could be divided into narrow channels for voice service or used as wideband channels for data applications. There would likely be some economies of scale if the band continued to be used for voice applications because most existing equipment can be re-tuned to operate across the entire 800 MHz band. Further, contiguous spectrum for public safety would reduce the instances where public safety and CMRS systems operate on adjacent channels and thus may reduce the potential for interference between these services. These potential benefits would have to be weighed against the costs and disruptions of band relocation. APCO and other public safety organizations participating in the Consensus Proposal believe that the benefits outweigh the cost and disruptions; conditioned, however, on band reconfiguration being accomplished at no cost to public safety licensees.[2]

Question 7b. Would a contiguous band allow public safety to offer newer and better services?

Response: As we mention above, public safety licensees might want to use wider channels for data applications. This may be possible with a contiguous public safety band. However, new wideband equipment would need to be manufactured and rules adopted to permit such use. Further, the Commission recently allocated public safety spectrum in the 700 MHz band which will accommodate both narrowband voice and wideband data applications; and recently allocated contiguous spectrum in the 4.9 GHz band for public safety services, including wideband applications. Again, however, the costs and disruptions of band relocation would have to be considered, and those costs and disruptions could adversely impact the provision of new and improved services.

Question 7c. Would a contiguous band be equally or more valuable to a private carrier? And is it conceivable that they could provide newer services for their customers as well?

Response: Private entities, such as utilities, would gain the same benefits as public safety and have the same potential costs. Contiguous spectrum at 800 MHz could allow private carriers to offer new wideband applications not possible with non-contiguous channels. Such applications currently are not possible using non-contiguous channel technology such as the Motorola iDen system used by Nextel and others. Because private radio licensees use most of their capacity for internal communica-

[2] We note that some in the public safety community believe the $850 million estimate (of which $700 million is devoted to public safety system relocation) is unrealistically low; but that others, including the public safety representatives that are members of the "Consensus Parties," APCO included, have characterized Nextel's estimates as "reasonable "subject, however, to several significant variables."

tions related to their businesses, the monetary value that access to contiguous spectrum could provide is uncertain.

Question 7d. With that, do we have any idea what the value of a contiguous block of 16 MHz would be in the 800 MHz band?

Response: It is difficult to assess the value of contiguous vs. non-contiguous spectrum; e.g. the value that would accrue to Nextel if its current channels, scattered throughout the 800 MHz band, were consolidated into an 8 MHz (transmit) and 8 MHz (receive) block, in part because, among other things, there is no history of such spectrum consolidation to serve as a basis for valuation. Moreover, spectrum values fluctuate significantly, as has been demonstrated in the PCS and other auctions. We also note that the 800 MHz spectrum has not been "scored" by OMB.

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September 2, 2003

FRED UPTON, *Chairman*
Subcommittee on Telecommunications and the Internet
Committee on Energy and Commerce
Washington, DC 20515-6115

DEAR CHAIRMAN UPTON: Thank you for giving me the opportunity to testify on June 11, 2003 on behalf of Nextel Communications, Inc. ("Nextel") before the Subcommittee on Telecommunications & the Internet on the vital issue of the "Spectrum Needs of Our Nation's First Responders."

In response to your July 24, 2003 letter request for further information, this response addresses the following two questions:

Nextel has stated in their reports to the FCC that 10% of all public safety agencies licensed at 800 MHz have reported interference, whereas Motorola, using APCO numbers has stated that percentage at only 1%. What parameters are used to determine that information?

If a wireless service provider wants to build another tower, shouldn't they first test the site to make sure that they will not interfere with public safety communications, first and foremost, as well as with other service providers? What tools/formulas, excluding new radios, are available today that could be used to prevent interference from occurring before a new tower is put in place?

INTERFERENCE TO PUBLIC SAFETY COMMUNICATIONS IS A NATIONAL PROBLEM

As I described in my written testimony, interference to public safety systems using the 800 MHz band is growing rapidly. Since the year 2000, over 155 public safety licensees (out of 1,580 distinct systems nationwide) (approximately 10%) have reported interference at over 800 locations and in more than 25 major cities across the country. Many of these systems have suffered multiple incidents of interference; some continue to report interference after the interference (new or recurrent) in their jurisdiction was thought mitigated.

Nextel generated this data through its own investigations of incidents of interference reported to it by public safety agencies since the year 2000. As Nextel was alerted to an interference problem with public safety licensees in 1999-2000, it began tracking incoming complaints of interference that came directly from the public safety licensees themselves (typically to a monitored e-mailbox, publicsafety@nextel.com). Each report was investigated, typically by joint testing with Nextel's engineers and public safety personnel to validate the report and then to determine the causes and contributors to the interference. Nextel then catalogued the investigations and resolutions, if any, for each report in a database, which it has submitted to the FCC and referred to in its testimony before the Subcommittee.

Nextel believes, however, that the statistics provided above do not indicate the full scope of the interference problem. In some cases public safety officials may not have reported interference to Nextel, but may have provided it to one of the cellular providers, who also cause public safety interference but apparently do not track such information or make it publicly available. In other cases, public safety licensees may have experienced interference but not reported it to anyone at all because they may not have known whom to contact. The nature of the interference problem is such that, in many cases, interference may not be recognized unless and until a first responder tries to communicate at a particular location. As a result, the existence of harmful interference often goes unnoticed and hence unreported by public safety officials until an incident actually occurs. Unfortunately, a first responder can be put at grave risk before public safety interference is recognized and reported.

The "APCO database" Motorola cited to in its FCC filings significantly undercounts the extent of the interference problem. This "database" is in fact merely a list of interference incidents that have been reported to APCO by public safety agencies that have taken the time to complete an online incident questionnaire maintained on APCO's website. APCO itself has pointed out that this questionnaire is informal and participation by member public safety agencies is voluntary. As a result, as confirmed by APCO itself, the APCO database does not provide a comprehensive source of data on the frequency of public safety interference.[1]

The reports of public safety officials, both to Nextel, and to the FCC during the course of the FCC's proceeding, provide compelling evidence of a nationwide interference problem. In an August 7, 2003 filing with the FCC, a coalition of the nation's leading public safety agencies, such as the International Association of Chiefs of Police, the International Association of Fire Chiefs, and the Association of Public-Safety Communications Officials International ("APCO"), private wireless associations and Nextel (the "Consensus Parties") presented a state-by-state map depicting the incidents of interference that are described above. This map is provided below.

As this geographical representation demonstrates, the CMRS-public safety interference problem is national in scope. The problem is only getting worse, despite the mitigative efforts of Nextel, public safety agencies and the cellular industry. Based on the data reported by public safety and collected by Nextel, 13 public safety agencies experienced interference in 2000, 46 were affected in 2001, 74 suffered interference in 2002 and 51 agencies have experienced interference just through April 30 of this year. Similarly, the locations of interference have steadily increased: 56 locations in 2000, 200 locations in 2001, 330 locations in 2002 and at 117 locations already through April 30, 2003. At least 55 more incidents were reported by public safety in May 2003. At these rates, interference will be reported at more than 400 new locations during 2003.

Nextel initially submitted the above data to the FCC on May 16, 2003 and provided updated data in a filing dated July 1, 2003. Since then, on July 30, 2003, the Orange County, California Sheriff's Department submitted a Report to the FCC reporting *an additional 150 cellular A-band sites* that cause public safety communications "degradation every day." On July 31, 2003, Columbus, Ohio, reported that its countywide public safety radio system "has repeatedly experienced interference." Also, on July 31, 2003, the Public Safety Communications Division for Orange County, Florida confirmed: "[W]e are being interfered with on a daily basis. The worst part of this interference is that we do not know that we are being interfered with until a user complains. Since our users are public safety first responders, this a dangerous situation." The interference reported to Nextel and that reported separately to the FCC now totals over 1,000 locations. The CMRS-public safety interference problem is a national problem that requires a comprehensive solution.

PRE-COORDINATION AND TESTING OF NEW TOWERS CANNOT PREVENT 800 MHZ CMRS-PUBLIC SAFETY INTERFERENCE

The Subcommittee also asked whether pre-testing at a new CMRS site could ensure against interference to public safety operations. In today's spectrum environment, Nextel and public safety licensees have learned it is *impossible to predict or prevent the occurrence of CMRS—public safety interference* so long as the channels used by public safety and those used by CMRS operators remain mixed among each other.

The conditions that cause interference to public safety under the current 800 MHz band plan are highly variable, including the location of the public safety radio receiver in relation to both public safety base stations and the more numerous CMRS base stations, the timing of the particular public safety and CMRS transmissions that give rise to the potential for interference, the type of radio and transmission equipment involved, the interaction of different CMRS signals with each other, and numerous other factors. CMRS operations are inherently dynamic, and are intended to be responsive to constantly changing consumer demands, utilizing base stations that can transmit on thousands of different combinations of channels at any given moment. As a result, Cellular A and B block signals can mix with each other and with Nextel's transmissions, resulting in *thousands* of possible channel mixtures causing potential interference in the immediate areas where their facilities are co-located or virtually co-located. In addition, radio-frequency ("RF") propagation is affected by seasonal foliage and other variable natural and man-made environmental features that further complicate predictive efforts. At best, testing at a proposed

[1] Attached to this letter is a June 2, 2003 filing to the FCC made by APCO that explains the limitations of the APCO database.

new site can only provide a snapshot of the RF environment; it cannot be relied upon to *prevent* interference to public safety operations. Even if a proposed new site could be tested to ensure there would be no immediate interference, each subsequent new site or even a minor change to a new or existing public safety or CMRS provider's site would create an entirely new RF environment, making a previous tested site at risk to cause interference.

Moreover, to be effective, pre-construction testing would have to "freeze" the RF environment, thereby preventing the natural evolution of both public safety and CMRS operations. Such restrictions would directly conflict with the public interest goals of improved public safety communications and ubiquitous CMRS coverage. Public safety operators, by necessity, are working right now to improve their systems and *expand* their operations to address the needs for interoperability and increased reliable communications, particularly in the wake of September 11th. At the same time, CMRS carriers are also continuing to build-out their nationwide networks to meet the increasing demands of their customers, who demand ubiquitous coverage. *As a result, the thousands of locations of these CMRS and public safety sites cannot be restricted or held static. Each site, both new and old, presents countless opportunities for interference "dead zones" to occur.* It would be impractical, unreliable, and inefficient for CMRS providers and public safety agencies to conduct interference probability testing at all of these sites. In any case, even if a CMRS licensee were to follow these testing procedures in good faith, it could not guarantee that CMRS—public safety interference will not occur at some point in the future.

A COMPREHENSIVE SOLUTION IS AVAILABLE TO PREVENT INTERFERENCE: THE CONSENSUS PLAN FOR 800 MHZ REALIGNMENT

The Subcommittee also asked whether there are any methods available today that could be used to prevent interference. As my testimony in June described, the Consensus Plan for 800 MHz Realignment is a proactive, preventative approach to permanently solving the public safety interference problem. A realignment of the band would correct the underlying cause of the interference, an outdated 800 MHz band plan, which permits incompatible technologies to operate in the same geographic area in an interleaved and adjacent spectrum environment. Other approaches do not address this root cause and would fail to correct the problem.

By realigning the 800 MHz spectrum band, and separating cellularized technologies from the high-site, high-power operations of public safety operations, interference can both be eliminated and prevented. Realigning the 800 MHz band puts cellularized operations into one portion of the band, while public safety operations would be relocated away from the adjacent and interleaved cellularized operations. The public safety nationally allocated band (the NPSPAC band), which today is sandwiched between Nextel and the Cellular A band carrier, would see a 99.8% reduction in the probability of interference after relocation to the lowest end of the band. The remaining portion of the 800 MHz band where public safety operators would remain, at 854-859 MHz, would see the probability of interference reduced by over 95% post-realignment. Realigning the 800 MHz band as set forth in the Consensus Plan will virtually eliminate interference to public safety operations.[2]

The Consensus Plan offers other significant benefits. The Consensus Plan is the only plan before the FCC that provides public safety operators approximately 25% more 800 MHz spectrum (now licensed to Nextel), to protect, save and serve their fellow citizens. This spectrum is not only available today—there are no incumbent television broadcasters on Nextel's spectrum—but no new equipment needs to be developed to allow operations on the spectrum. Thus, the Consensus Plan will provide immediate tangible benefits to public safety

Finally, the Consensus Plan is funded without any federal, state or local taxpayer funding. As I described in my testimony, Nextel has committed to provide $850 million dollars to make 800 MHz realignment possible. As a result, public safety will not be burdened with paying for the solution to the interference problem caused by the outdated 800 MHz band plan. Instead, Nextel will fund public safety realignment in a unique public-private partnership.

In conclusion, unlike other proposals before the FCC, the Consensus Plan is a comprehensive solution to the 800 MHz interference problem, while providing significant benefits to our Nation's first responders. For all of these reasons, we urge

[2] The limited amount of interference to public safety operations that cannot be resolved by realignment alone can be addressed through filtering and other technical measures by the relocated and consolidated block of cellularized operators above 861 MHz. Because of the interleaved nature of the current 800 MHz band, these same technical measurers have proven ineffective in resolving the interference to public safety operations in the current environment.

the Subcommittee to support our Nation's first responders and indicate its support for the Consensus Plan before the FCC.

I trust this addresses the Subcommittee's questions. Thank you again for allowing Nextel the opportunity to provide its views on these vital matters to our Nation's first responders.

Respectfully submitted,

TIMOTHY M. DONAHUE
President and Chief Executive Officer

cc: Representative W.J. "Billy" Tauzin
Representative John Dingell
Representative Edward Markey

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