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UNITED STATES HOUSE OF REPRESENTATIVES
COMMITTEE ON GOVERNMENT REFORM
SUBCOMMITTEE ON NATIONAL SECURITY, EMERGING THREATS, AND INTERNATIONAL RELATIONS
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Thank you Mr. Chairman

My name is Glen Nash. I am a Senior Telecommunications Engineer working for the State of California, Department of General Services where I have over 30 years experience in the design, installation and maintenance of public safety communications systems. I am a Past President of the Association of Public Safety Communications Officials-International, Inc. (APCO). I served as the Chair of the Technology Subcommittee of the FCC's Public Safety National Coordination Committee, served on the joint FCC/NTIA Public Safety Wireless Advisory Committee (PSWAC), served on the National Task Force on Interoperability, and have otherwise been very active on matters related to interoperability between and amongst public safety agencies. I am here today representing the State of California and as a general spokesman for the public safety community.

Communications and, in particular, radio communications is a vital tool used by public safety agencies to exercise command and control of emergent events in the community. Those events range in scale from routine traffic stops by police agencies and calls to EMS agencies for medical assistance to large disasters such as the wildland fires experienced each year in California and other states and the events our country experienced on September 11th, 2001. Public safety radio is the mechanism by which operational commanders and government officials gather information about the event, deploy forces to respond to the event, and direct the actions of our nation's first

responders. It also serves as a lifeline in protecting the safety of those first responders. Without effective communications, our nation's police, fire, and EMS personnel cannot perform their primary duties of protecting the American public's life and property.

While the term "interoperability" has received significant interest since the events of September 11th, it is neither a new issue nor something that the public safety community has not been addressing for many years. Things are far from perfect and there certainly are many ways that interoperability can be improved across the country. But, let us not ignore the successes.

In California, we have implemented "mutual aid" systems for many years. These have included the California Law Enforcement Mutual Aid System, commonly called CLEMARS, in which the State contributed and licensed radio channels statewide that can be used by any law enforcement agency. All that a local agency need do is sign a standardized agreement regarding use of those channels then program the channels into their mobile and portable radios. Upon doing so, they are able to "talk" with personnel from virtually any other law enforcement that has similarly joined the system. This system has been in existence since the early 1960's and, I am proud to say, most if not all law enforcement agencies in California are participants. Is the CLEMARS system perfect? No, it still suffers from technology problems related to the fact that public safety agencies are spread across multiple frequencies that are mutually incompatible with one another and from training issues, both of which I will discuss in a moment. While we are working to resolve some of these limiting issues, the solutions will require the expenditure of time, effort, and public tax dollars that are vitally needed in many other areas.

Another success story can be found in the fire community. As many of you probably are aware, California suffers from several large wildland fires each year. Besides the obvious devastation caused by these fires, the effort required to fight these

fires is tremendous. A single fire may require deployment of a thousand or more fire fighters along with hundreds of pieces of apparatus, aircraft, and logistical support from local, state, and federal agencies. The State, in conjunction with representatives of local fire agencies and representatives of the U.S. Forest Service and Bureau of Land Management have developed a communications plan known as FIRESCOPE that lays out procedures for communicating with all of these resources. The plan calls for the integration of frequencies licensed to the state and local agencies along with frequencies controlled by the Federal agencies and the integration of both the frequencies and equipment from the National Interagency Fire Center to create an overall communications system that supports the efforts directed toward controlling the wildland fire. While this system has enjoyed great success, it too is being challenged by technologic and training issues.

I would like to mention two other efforts underway in California because they are being driven by local agencies coming together to develop a communications plan that addresses their response to events that occur within a more localized region. Those efforts are the Los Angeles Tactical Communications System and the Bay Area Tactical Communications System. In both of these efforts, command personnel from the local agencies are coming together to discuss the operational issues that must be resolved so that they can work together as a team on an event; to catalog the capabilities and the limitations of their communications systems; and to develop plans that can be readily implemented when the need arises. These events, by the way, do not need to be large scale events. They could include a pursuit that moves from one jurisdiction to another or the automatic response of the nearest fire unit to a call rather than the unit within whom's jurisdiction the call originates. If I were to try to characterize these events, I would have to say that they can happen at any time and any place, often without warning. They start out as "local response" events and grow into something larger.

I mentioned before that there were technological and training issues that limit public safety agencies and personnel at the state and local levels from implementing the "ideal" interoperability solution. What are some of those issues?

First and foremost is an issue related to the radio spectrum. Local, state and federal agency communications systems are spread across five major frequency bands. Each of these bands is mutually incompatible with the others. In some cases, individual agencies were able to select the band they use based upon the operational advantages offered by that band. But, more often than not, the frequency band used by an agency was determined by what was available at the time they originally built their system. In some cases, agencies may have changed to a different frequency band as part of a major changeout or upgrade, but the decision to do so often was driven by the fact that they could not get additional channels in the original frequency band. In many regions of the country, all of the agencies have built their systems on frequencies that come from the same frequency band thus they have an inherent ability to create interoperability assuming that channels can be identified.

But therein lies the problem. Oftentimes, there are no unused channels that can be designated for "interoperability" purposes. All of the channels are fully in-use providing the normal day-to-day communications needed by agencies within the area. Thus, to implement an interoperability capability either some agency needs to abandon one or more of its frequencies, possibly meaning that it must move to some other part of the spectrum, or the interoperability system itself must be developed in some other part of the spectrum. In the former case, that one agency becomes an "island" because its day-to-day system is incompatible with both the new interoperability system and with every other agency in the area. In the latter case, few agencies are able to implement the new interoperability capability because they cannot afford the new radios associated with operating in a new part of the radio spectrum.

This is a major problem with the new interoperability spectrum created by the FCC in the 700 MHz band. Don't get me wrong, having 2.6 MHz of spectrum set aside for interoperability is a tremendous asset that will be useful in the future. But, realize also that no radio currently in use by any public safety agency in America is capable of operating on those new interoperability channels. Realize also that those channels are located in a portion of spectrum that is incompatible with the spectrum used by the majority of public safety agencies in America. Thus, even after those agencies replace their existing radios with newer models, it is unlikely that they will be able to access the 700 MHz interoperability channels. What we need is more interoperability spectrum set aside in each of the major frequency bands and a plan to allow interconnecting the interoperability channels in each band together such that an agency that normally operates in one part of the spectrum can be cross-connected to an agency that normally operates in another part of the spectrum.

A new technological problem is developing that few practitioners in America have been forced to address. For the past 60+ years, all public safety radio systems have used a common technology known as analog FM. There have been a few improvements and upgrades to that technology, but basically it has been constant over that entire time. This means that agencies operating in the same frequency band are CAPABLE of interoperating because their share use of a common technology. With recent advances in technology and the push from the FCC to implement systems having greater spectral efficiency, public safety agencies will be migrating to digital technologies. Herein lies the problem, there are several digital technologies currently being marketed and those technologies are themselves mutually incompatible. For interoperability to occur, one and only one digital technology can be employed on the channels designated for interoperability. The NCC recognized this problem when it presented its recommendations to the FCC with regards to the technical standards that

would have to be adopted for operation on the 700 MHz interoperability channels. The NCC recommended adoption of a suite of standards commonly known as Project 25 for operation on not only the 700 MHz interoperability channels, but also the interoperability channels that have been or might be designated in the other bands. The FCC already has implemented some of those recommendations. Others are awaiting action by the Commission. The State of California strongly urges the Commission to implement the remainder of the NCC's recommendations---not just with regard to the 700 MHz band, but to apply those recommendations to all interoperability channels in all of the frequency bands.

I also mentioned that there were issues related to training. Most public safety field personnel and operational commanders are not radio engineers nor they do they, quite frankly, have time to think about the operation of their radios when faced with an emergency situation. Operation and use of the radio must be both simple and second nature. Simplicity of use is something that we engineers must consider as we design new radios and systems, but making use of those radios "second nature" is a training issue. Just as most large events start out as a "local event" that escalates to needing additional resources from neighbors and higher levels of government, the use of interoperable radio systems must grow out of the normal day-to-day use of an agency's radio system by its personnel. They need not only a half-hour lecture at the academy, but regular exercises using the interoperability mode to "talk" with other agencies. The time to find and fix glitches is during an exercise, not during a real event.

Where does the Federal government fit into all of this? We look to you to provide leadership and to help us find solutions to our individually unique circumstances. Don't tell us what to do or how to do it, rather show us alternatives and "best practices" learned by others. Help us to understand the need to come together and develop plans and provide incentives for us to do so. Give us tools and support.

Thank you, Mr. Chairman and the members of your Subcommittee for this opportunity to discuss this critical issue to the safety of the American public.