"First Responder Interoperability: Can You Hear Me Now?"

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on behalf of

TeleCommUnity

and

The National Association of Counties

before the

Subcommittees on

National Security, Emerging Threats and International

Relations

and

Technology, Information Policy, Intergovernmental Relations and the Census

of the

Government Reform Committee
United States House of Representatives

November 6, 2003

I. INTRODUCTION

Good Morning Mr. Chairmen, Ranking Members, and Members of the Subcommittee on National Security, Emerging Threats and International Relations and the Subcommittee on Technology, Information Policy, Intergovernmental Relations and the Census. My name is Marilyn Praisner and I am a member of the County Council of Montgomery County, Maryland. I am testifying today as the Chair of TeleCommUnity and the Chair of the National Association of Counties' Telecommunications & Technology Committee. TeleCommUnity is an alliance of individual local governments and their associations, which seeks to refocus attention in Washington on the principles of federalism and comity for local governments' interests in telecommunications. NACo is the national association of the nation's 3066 counties and seeks to ensure county officials' voices are heard and understood in the White House and the halls of Congress.

In addition to my leadership positions in TeleCommUnity and NACo, I have real life experience with the challenges facing local governments in the fields of interoperability and interference. I have gained these insights as a:

- Chair of the Montgomery County Council Committee which oversaw the County's new 800 MHz system including addressing the issues of towers and dead zones:
- Vice Chair of the FCC's Local State Government Advisory Council:(LSGAC)[1]
- Executive Board member of the of Public Safety Wireless Network: (PSWN)[2]

[1]While recently disbanded by the FCC, the LSGAC was formed in 1997 to advise the FCC on issues of concern to state, local and tribal governments. The LSGAC was comprised of local, state and tribal government officials from throughout the country.

[2] Jointly sponsored by the Department of Justice and the Department of the Treasury, PSWN was formed to promote effective public safety communications and to foster interoperability among local, state, federal, and tribal communications systems. The program brought together the Federal Law Enforcement Wireless Users Group and an

- Executive Committee of SAFECOM;[3]
- Vice Chair of the National Task Force on Interoperability (NTFI)[4]; and
- Board member of the Board of the Capital Wireless Integration Network (CapWin),[5]

II. WHERE WE FIND OURSELVES TODAY

My assessment of the status of interoperability and interference can be summed up by the conclusion with which the National Task Force on Interoperability (NFTI) opened its book ***Why Can't We Talk***.[6] NFTI stated:

> In an era where technology can bring news, current events, and entertainment from the farthest reaches of the world, many law enforcement officers, firefighters, and emergency medical service personnel working in the same jurisdiction cannot communicate with one another.

Because I believe this Committee is looking for solutions, and not to assign fault for our current status, let me begin my testimony by summarizing what I believe are the significant matters on which NTFI, CapWIN and PSWN agree:

1. Public safety is a core function of all levels of government.
2. Wireless communication is an essential element in executing our joint public safety responsibilities.

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executive committee of local and state public safety officials, to address mutual challenges to improving public safety communications interoperability.

[3] SAFECOM was established by the Office of Management and Budget and approved by the President's Management Council to serve as the umbrella program within the Federal government to help local, tribal, State and Federal Public safety agencies improve public safety response.

[4] NTFI was a collaborative effort of eighteen national associations representing the first responders community, and state and local elected and appointed officials

[5] CapWIN is a state-of-art wireless integrated mobile data communications network being implemented to support federal, state, and local law enforcement, fire and emergency medical services, transportation, and other public safety agencies primarily in the Washington, DC Metropolitan area.

[6] The book may be downloaded at http://www.agileprogram.org/ntfi/ntfi_guide.pdf

3. Interoperability and interference are major obstacles, along with lack of cooperation across jurisdictional lines, to government maximizing its return on investments in public safety wireless communications assets.[7]
4. The solutions to the challenges of interoperability and interference will not be cheap, but the cost of not acting is so much greater than the cost of fixing these problems.
5. While there is no such thing as a "one size fits all solution", solutions can only be achieved if there is leadership at the federal level and a commitment to cooperation at the state and local level.
6. Congress and the Federal Communications Commission must recognize their responsibilities in solving the problems of interoperability and interference by taking steps to ensure that local public safety agencies have adequate funding to achieve interoperability and have access to additional spectrum to alleviate serious interference problems.
7. Local government elected officials must be at the table if solutions are to be reached. For while we need the federal government's leadership, federal leaders need local government ownership of the issue, if we are to jointly make interference-free interoperable communications a reality.

III. INTEROPERABILITY -- "BY RADIO, ON DEMAND IN REAL TIME"

We can not achieve homeland security unless we have public safety wireless communications networks that are capable of supporting coordinated responses to threats at the neighborhood, county, regional or national level. It is no longer acceptable for individual public

[7] I believe it is vitally important for the Committee to understand the challenges are not just technical. Turf battles, lack of knowledge and unwillingness to work together are equally to blame for the challenges of interference and lack of interoperability.

safety agencies to build communications systems that do not communicate with each other. To be effective before, during and after any given emergency, public safety officials, at all levels of government, must be able to communicate with each other. As multiple agencies in multiple jurisdictions respond to crises, interoperability is essential.

That is why I believe that the PSWN definition of interoperability should be the standard by which we measure achievement.[8] PSWN states that for a system to be interoperable it must permit

> "**public safety personnel in different agencies or jurisdictions to communicate with each other by radio on demand, in real time."**

We are not there yet.

The challenge of interoperability is not new. While September 11th brought the lack of interoperability into sharper focus, local officials have spoken for years about the basic problems of the lack of interoperable equipment and the lack of adequate interoperable spectrum.[9] If there is a positive outcome from the events of September 11th, 2001, it may be that the public has come to recognize that communication is a primary tool for those who protect life and property even in less publicized events. It is also a vital tool in no less life-threatening incidents – such as fires, floods, hurricanes, tornadoes, major traffic accidents, and the pursuit of armed criminals.

[8] TeleCommUnity, NACo and the National Task Force on Interoperability employ almost the identical standard for interoperability.

[9] As ***Why Can't We Talk*** noted, it is sadly ironic that on September 11, 1996, five years before the attacks of September 11, 2001, the Public Safety Wireless Advisory Committee (PSWAC) released its final report. PSWAC concluded "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."

IV. INTERFERENCE

In the 800 MHz band, there is a very real problem with "dead zones."[10] Dead zones are areas where pubic safety radio communication is impossible because of interference caused by commercial mobile radio service ("CMRS"); or system operational limitations such as antenna placement or the reception/transmission capabilities of existing equipment.[11]

Many of the issues with interference arise from the FCC's decision to place commercial and public safety wireless communications in close frequency proximity. The FCC has complicated matters by leaving the wireless industry and local government to "work out" emissions interference, or worse, denying local government the ability to protect their first responders.

Local elected officials recognize that radio/telecommunications spectrum is a finite resource, but public safety radio dead zones must be eliminated. America cannot tolerate police officers and firefighter not being able to communicate while involved in life-threatening situations.

A. The Anne Arundel Experience

Let me share with you the experience of Anne Arundel County, Maryland and the less than satisfactory assistance they have received from the Federal Communications Commission.

[10] The National Task Force on Interoperability defined dead zones or dead spots as: "The area, zone, or volume of space that is within the expected range of a radio signal, but in which the signal is not detectable and therefore cannot be received. Common causes of dead spots include depressions in the terrain and physical structures.

[11] In this testimony I will limit my comments to commercial interference as the cause of interference. One should not read my testimony as stating commercial interference is the only cause of dead zones. For a description of dead

In 1998, Anne Arundel County, Maryland began to experience "dead zones" or "blackouts." In these dead zones, police, fire or emergency service personnel were unable to use portable receivers on their 800 MHz public safety radio system in the vicinity of commercial radio antenna sites where transmitters also operated in the 800 MHz band. Now while such dead zones would be a problem in any locale, in Anne Arundel County, such dead zones have national implications. For in addition to being home to Annapolis, the state's capital, Anne Arundel is also home to such national assets such as the National Security Agency, the United States Naval Academy, the Chesapeake Bay Bridge, the Baltimore -Washington International Airport and 533 miles of the Chesapeake shoreline. Anne Arundel County has a public safety communications commitment to all of us.

The County informed the FCC of these dead zones and an investigation commenced, only to reach the disputed conclusion that the problem was largely attributable to out-dated receivers used by the County.[12] Adding insult to injury, a year later, in early 2000, the County's police chief wrote to the FCC Chairman to outline the continued and growing problem of dead zones, and has yet to receive a response.

By March of 2002, even the FCC came to realize that the interference being experienced by Anne Arundel's police and firemen when in proximity to the cell towers housing cellular carriers operating at 800 MHz could not be resolved by receiver improvements alone. Because Anne Arundel was not the only jurisdiction experiencing such interference problems, the FCC

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zones due to lack of coverage or in building signal failure see: Church*, Radio dead zones in buildings Eyed,* The News Journal; September 15, 1999 (Delaware)

[12] The conclusion was disputed by the receiver manufacturer, Motorola, and by the County, which pointed out that no equipment or filtering capability existed that could deliver the remedy suggested by the FCC.

opened a rulemaking to consider a proposals by Nextel and others that would "realign" the spectrum at 800 MHz so that public safety uses would be farther removed from commercial uses. The County also hired its own technical consultant to examine the extent of commercial interference to its radio system and recommend solutions. The consultant found 61 dead zones across the County resulting from the operations of Nextel and Cingular Wireless and, to a lesser extent, Verizon Wireless.

Armed with the consultant's report, the County sought the cooperation of the carriers in mitigating or eliminating the interference. Nextel and Verizon agreed immediately. After several months of resistance, Cingular also joined the effort.

While seeking to address the problem of their dead zones, the County sought to avoid the creation of any new dead zones. They, therefore, adopted a land use approach to the problem (wireless zoning ordinance) that required advance coordination by the carriers to prevent interference to public safety radio. Cingular challenged the ordinance as an unlawful attempt by a local government to regulate in a field for which Congress had granted the FCC exclusive jurisdiction. In an FCC staff decision released in July of 2003, the Commission agreed with Cingular and preempted portions of the County ordinance.

The FCC did order the carriers to "cooperate" with the County to mitigate interference.

The County has appealed the staff's decision to the full FCC, and that appeal remains pending. The carriers have continued to cooperate as ordered. Unfortunately, the 20 remaining

dead zones are unlikely to disappear altogether. The County estimates that eight will remain until its planned system expansion and upgrade is completed in several years. Even when the upgrade is finished, four "intractable" sites are likely to remain unresolved.

While it is possible that the FCC's decision in the 800 MHz rulemaking will finish the job of interference reduction, no decision is expected until 2004, if then. That would mean that the County will have waited six years for a solution to their interference issue, and the only solution may be for the public safety community to move to a different area of the spectrum. What is worse is that the FCC hampered the County's efforts at self-protection and gave priority to the commercial users of the spectrum.

V. SOLUTIONS

In addition to continued education of decision makers at the federal, state and local level on the issues of interference and interoperability, NACo and TeleCommUnity believe that there are at least three elements to addressing these dual challenges:

- Additional interference-free spectrum;
- Adequate and assured funding; and
- Increased coordination at the federal and local levels including a focus on open standards.

I would like to take a moment to address each of these three solutions.

A. Radio Spectrum

In its final report, the PSWAC concluded that "unless immediate measures are taken to alleviate spectrum shortfalls and promote interoperability, public safety agencies will not be able

to adequately discharge their obligation to protect life and property in a safe, efficient and cost effective manner."

PSWAC asked the FCC to allocate additional spectrum for the exclusive use of public safety agencies. The radio frequencies currently set aside for public safety use are primarily in four areas of the spectrum and range from low band VHF (25-50 MHz) to 800 MHz (806-869 MHz). As a result, no universally available or affordable radio can handle all possible combinations.

In addition, many mutual aid channels have been set up on a regional or statewide basis.

Research conducted for the PSWAC's Operational Subcommittee concluded that one of the top priorities for public safety communications is the need to operate across frequency bands (e.g., from VHF to 800 MHz). Communications across bands is possible through "patching," but the process has serious limitations and complications. PSWAC determined that more than 100 MHz of spectrum is needed for public safety, yet public safety agencies currently have only 30 MHz of spectrum. It would be in the public interest to increase the number of nationwide interoperability channels. *To accomplish this, however, there is a need for greater allocation of radio spectrum dedicated to public safety use.*

Congress authorized the FCC to reassign spectrum between UHF television channels 60 through 69 in the 700 MHz range for public safety use. This spectrum was to be available for licensing in the year 2000. However, at the urging of broadcasters, Congress included a

provision in the legislation that may delay indefinitely the availability of that spectrum in some regions. Some broadcasters may never relinquish the frequencies if the penetration of digital television service remains below specified levels in individual markets.

Representative Jane Harman introduced H.R.1425, the HERO Act to set a firm date for the broadcasters to relinquish the spectrum. Under the HERO Act, broadcasters must clear the spectrum by the end of 2006. TeleCommUnity, NACo and all the major public safety associations support this legislation[13]

To date, the FCC has allocated 24 MHz of spectrum in the 746-806 MHz range for public safety use. *An additional 73.5 MHz is needed now to meet interoperability and capacity needs*.

B. Adequate Funding

According to the study conducted by the National Institute of Justice, limitations in funding already affect interoperability for 69 percent of all agencies surveyed. Wireless communications systems are becoming more complex and costly at a time when revenues are shrinking. Currently, only densely populated metropolitan areas are implementing new systems.

The federal government has decided to auction the 800 MHz spectrum for commercial uses. This has created interference problems within the portion of the 800 MHz spectrum previously used for local public safety communications. Not only has the FCC not remedied interference in the 800 MHz spectrum, but federal authorities also are proposing a new auction in

[13] Both TeleCommUnity and NACo support H.R. 1425, Rep. Harmon's "HERO" legislation and would request that all the Members of the Government Reform Committee join her efforts by co-sponsoring the legislation.

the 700 MHz spectrum.(I respectfully suggest that unless the mixed public safety and commercial uses are adequately separated, the 800 MHz interference problems may be replicated.) NACo and TeleCommUnity believe local communities should receive a portion of the federal revenues from wireless spectrum auctions to enhance interoperability and address interference through the spectrum relocation of local public safety communications systems.

Compared to the billions generated by a federal spectrum auction, the aggregate cost of new equipment to enable public safety interoperability should be minimal. The federal government should allocate an appropriate share of the spectrum auction money to address local government efforts to protect the health, welfare, and public safety of their citizens.

1. Public Safety Spectrum Trust Fund

My work with PSWN, NTFI and CapWIN has convinced me that a federal funding mechanism, separate and apart from the annual appropriations process, is needed to support interoperability. The federal government is subject to many of the same budget challenges we have at the local level. Technology investments and/or upgrades in equipment are often some of the first things to be cut in tight budget times. My recommendation is that this "Public Safety Spectrum Trust Fund" would be funded by the proceeds from the sale of public spectrum to private interests, like cellular phone companies and used to assist local governments fund interoperability projects.[14]

[14] I have already noted TeleCommUnity and NACo's very strong support for Rep. Harmon's "HERO" legislation.

C COORDINATION AND NATIONAL STANDARDS

I also share PSWN's feeling that improving interoperability requires local, state, and federal decision-makers active participation in the development of open standards to ensure compatible technologies and competitive markets. Public safety personnel often cannot talk to each other because their equipment comes from competing manufacturers who have sought to protect market share by not building on an open standard.

Congress and the FCC should examine what role they might play in encouraging manufacturers to build equipment that complies with open standards.

We at the state and local level can do our own part to encourage such open standards through our procurement policies. We must also participate in standards development efforts.

VI. SPECIFIC ISSUE AREAS

In inviting me to testify here today, the Committee asked that I provide insights into a number of specific issues including:

- What is the role of organizations such as NACo & TeleCommUnity in addressing interference and interoperability;
- What type of role can regional partnerships such as CapWin play;
- Could I share local government's thoughts on Project SAFECOM; and
- Is there a technological fix to issue of interoperability?

A. Role for TeleCommUnity, NACo and others.

The National Association of Counties has long viewed its role in this area as one of education. My fellow elected officials are often not familiar with the technical aspects of interoperability and interference. They, therefore, are not always prepared to ask the right questions and might be swayed by solutions a vendor or even our procurement officers suggest from the voice component of interoperability. This can result in a failure to appreciate the migration to, and growing importance of, data sharing.

NACo feels that this issue is so important that it is actively pursuing grant funding in this area so that we can do more to provide technical assistance to counties in a number of homeland security areas, including interoperability.

NACo has also invested substantial time and effort to ensure that as a group county officials' voices are heard and understood on this issue. This commitment is reflected in having three participating members of the U.S. Department of Justice's National Task Force on Interoperability, of which I was one. NACo is also represented on the SAFECOM Executive Committee.

We also recommend the use of Public Safety WINS: Wireless Interoperability National Strategy, developed by the PSWN Program. This tool is of assistance as local governments pursue solutions to the technical and policy challenges to improving interoperability.

B. CapWIN

The benefits of coordinated communications that are broadly and actively shared at all levels of government are beginning to be realized in the Washington metropolitan area with the CapWIN Project.[15] Local, state, and federal agencies have formed a working group to coordinate interoperability activities, and to develop and enact appropriate policies or executive orders. CapWIN is also deploying a shared state-of-art wireless integrated mobile data communications network to support federal, state, and local law enforcement, fire and emergency medical services (EMS), transportation, and other public safety agencies primarily in the Washington, DC Metropolitan area.

The purpose of CapWIN is to enhance communication and messaging systems through a "communication bridge," which allows mobile access to multiple criminal justice, transportation, and hazardous material data sources. It is also the first multi-state, inter-jurisdictional transportation and public safety integrated wireless network in the United States.

We hope that the lessons and model of CapWIN proves a success that may be replicated, where appropriate, around the county.

[15] The CapWIN Project is sponsored by the U.S. Department of Justice, Office for Domestic Preparedness, the Maryland State Highway Administration, the Virginia Department of Transportation, the U.S. Department of Transportation (FHWA), the National Institute of Justice, Office of Science and Technology and the Public Safety Wireless Network (PSWN)

C. PROJECT SAFECOM

The Committee also asked that I provide my feelings on the prospects for success at SAFECOM. I attended my first SAFECOM meeting this past Monday and I believe that we are moving in the right direction. This was, however, not always the case.

Project SAFECOM started out as a federal "top-down" solution to interoperability. In my opinion it was doomed to fail because first responders and local elected officials were not at the table. We were told that FEMA would look after our interests.

It was only after many months of intense discussions between the associations of local elected officials, first responders and the federal agencies that OMB and others came to understand that SAFECOM could only be successful if state and local partners were at the table.

The success of SAFECOM is yet to be judged, but with all the players at the table as potential equals, the long and arduous process of achieving regional, if not national interoperability may have just begun. It would also be my hope that the first products of SAFECOM would be the coordination, if not reduction, of the numbers of well-intentioned federal initiatives.

D. Role of Technology

Local government officials would be making a serious mistake were we to attempt to define what the technology fixes are for interoperability. As I said previously, national standards for open platforms are needed, but I believe this to be more a policy debate than a technology debate.

Since the Committee did ask me my opinion regarding the state of technology, I will offer my personal opinion. I believe that there are existing technologies to bridge most of the interoperable gaps in voice communication – solutions that are relatively inexpensive, but less than optimum. For data interoperability, the use of XML and other data normalization techniques can assist in making differing jurisdictions' legacy systems work together, but that too is no panacea. Encrypted wireless technologies need further development and with the utilization of new spectrum for personal communication devices, there are opportunities for improving both voice and data interoperability.

VII. CONCLUSION

There are no perfect "national" solutions to interoperability. The nuances of each region are too complex for a "one size fits all" approach. The biggest need to achieve interoperability is funding for a well planned, sustained effort over several years. Quickly throwing large sums of cash at jurisdictions in a short time frame with the goal of improving interoperability is actually counterproductive. The largest challenges for local governments is understanding the nature and limitations of their existing systems in achieving interoperability, determining the options, and then developing an engineering plan and migration strategy to a new interoperable system if necessary. This requires a great deal of education for local elected officials in some very technical matters as well as the availability of the necessary financial resources, interference-free spectrum and standards, which promote competition.

Thank you and I welcome your questions.