

HOW WILL A SMALL LAW ENFORCEMENT AGENCY ACCOMPLISH COUNTYWIDE  
RADIO INTEROPERABILITY BY THE YEAR 2009?

Article

By

Captain Paul Cooper  
Claremont Police Department

Command College Class XXXVI

Sacramento, California  
September 2004

Every police chief, every law enforcement officer, and every public safety first responder has a story about radio communications problems they've encountered during their careers. A significant number of those stories can be traced back to one common theme, communications interoperability, or the lack thereof. In some of these stories, those involved were able to safely and effectively overcome the communications limitations, but in others, the endings were not so fortunate. Take for instance the events of 9/11. New York police and fire personnel could not communicate with one another because of incompatible radio systems. A police department helicopter pilot could not warn fire personnel of the collapse of Tower 1. Lives were lost as a result of this inability for police personnel to communicate with fire personnel in real time.<sup>1</sup>

New York and the tragedy of 9/11 is just one example of how radio communications interoperability fails first responders. National incidents, such as Columbine, Oklahoma City, and the Los Angeles Riots (1991), quickly come to mind and take center stage. However, there are local incidents, on a daily basis, that never appear on the nightly news or the morning paper.

For example, California law enforcement officers were involved in more than 18 vehicle pursuits each day in 2003.<sup>2</sup> Los Angeles County is comprised of 88 different cities and pursuits quickly cross over many jurisdictional boundaries in a matter of minutes. In these incidents, radio communications between the pursuing agency and assisting agencies are paramount, but often impossible because of the lack of interoperable communication systems.

What is interoperability and why are public safety officials unable to communicate with one another? Interoperability is the ability of public safety service providers to communicate with counterparts from other agencies, to exchange voice communications or data in real time.<sup>3</sup>

Why public safety agencies can't communicate with one another is a more difficult question to answer. The Federal Communications Commission (FCC) regulates communications devices, including the mobile and portable radio devices that law enforcement officers use on a daily basis. These radios are programmed with certain radio frequencies that fit into a certain spectrum band. Spectrum is the range of electromagnetic radio frequencies used in the transmission of sound, data, and video. "That includes radio, television, wireless Internet connectivity, remote control toy race cars, and every other communication enabled by radio waves."<sup>4</sup> Each band of spectrum has a finite number of frequencies in it. As frequencies are used up in a certain spectrum band, the FCC moves new licensees to other bands in the spectrum.

California first started using two-way radio communications in 1930. The Pasadena Police Department was one of the first law enforcement agencies in California to be licensed by the Federal Radio Commission, the predecessor of the FCC.<sup>5</sup> Since that time, California's population and the number of police departments has grown significantly. Today, there are over 600 law enforcement agencies in California requiring two-way radio communications.<sup>6</sup>

The demand for frequencies by law enforcement has forced the FCC to license law enforcement agencies in different spectrum bands to keep up with the demand. In Los Angeles County, there is a patchwork of spectrum being used by the various law

enforcement agencies. This patchwork includes Very High Frequency (VHF), Very High Frequency-low band, Ultra High Frequency (UHF), and 800 MHz. Radio manufacturers have not developed single radios that are capable of receiving and transmitting in different spectrum bands, so agencies in one range of spectrum cannot use their radio equipment to talk to another agency that is in a different spectrum range.

With a renewed focus on interoperable communications, from incidents such as 9/11, the federal government has set aside grant funding to purchase technology capable of providing limited interoperability by connecting equipment from two different spectrum bands. The FCC has also set aside a portion of the 700 MHz spectrum, currently used by television broadcasters, for public safety. For the first time, there are coordinating committees, including law enforcement, planning how to best meet the spectrum demands that public safety has by utilizing the newly allocated 700 MHz spectrum. This release of additional spectrum and the planning for interoperability appears at first to be a solution to the communications needs of law enforcement interoperability needs, until a closer review is made.

The 700 MHz spectrum, set aside by the FCC, is currently licensed to television stations. The FCC set aside the spectrum for future use by law enforcement and set a date by which the television stations had to relinquish the spectrum. That date has since come and gone. A new, more complicated, date and formula has now been established by the FCC for the release of the 700 MHz spectrum. In their new ruling, the FCC has established December 31, 2006, as the release date with the caveat that 85% of the households in a given television broadcast area must have transitioned to

high definition television (HDTV) before the FCC will force the release of the 700 MHz frequencies.<sup>7</sup>

If the 85% level is not met, the FCC has reserved the right to set the release date further into the future. In addition to this recent ruling, television broadcast stations have started to pressure the FCC into extending the date well past 2009.

What does the more recent FCC ruling mean to law enforcement and their ability to utilize the 700 MHz spectrum? In Los Angeles County, it means that there will not be the coordinated effort necessary to bring truly interoperable voice communications to law enforcement in the 700 MHz spectrum. There are too many variables involved for police executives and planners to count on a coordinated approach toward moving the municipal, county and state law enforcement agencies in the county to 700 MHz. There are 51 municipal and county law enforcement agencies in Los Angeles and 29 of those are licensed to operate in the UHF spectrum band. Most of those agencies have already committed themselves to staying in the UHF spectrum and working to develop interoperability there.

#### Alternative Solutions

Law enforcement executives in Los Angeles County could decide to do nothing to address interoperability and try and make the best of the situation by remaining on their currently licensed frequencies in the various spectrum bands. When thoroughly considered, this is not a viable alternative. History has shown that the lack of interoperability has cost lives, placed others in danger, and prevents law enforcement from effectively and efficiently delivering first responder services.

Short term solutions are available and some are actually in use today. The ACU1000 by JPS Communications is currently utilized by the Los Angeles County Sheriff's Department to provide an interconnect that allows dissimilar systems to be patched together. For planned events and events that cover a certain geographical area, the ACU1000 is very capable of providing interoperability. However, one drawback is that it does not extend the range of law enforcement agencies that utilize repeated systems outside their regular coverage area. Once an officer leaves the coverage area, he/she must have access to another system with a wider area of coverage or lose contact with their system and the interoperability.

The city of Glendale has embarked on a countywide UHF interoperability project called the Interagency Communications Interoperability System (ICIS). ICIS has formed an interim joint powers agreement with eight cities in Los Angeles County to develop a countywide trunked system. The system would operate much in the same way as the current cellular systems. As users travel throughout the county, they remain connected to their home agency system through a series of radio sites spread across the county. While ICIS agencies appear to be on the right road, they have not secured participation from a majority of the cities in Los Angeles County or the sheriff's department. Without coordinated efforts and complete participation throughout the county, true interoperability cannot be achieved.

The Los Angeles County Sheriff's Department is researching the development of a trunked countywide UHF system that would be capable of supporting additional municipalities. The counties of San Bernardino and Orange embarked on similar systems in the 800 MHz spectrum and have attained true interoperability for the law

enforcement and fire services in those counties. This future concept makes sense if it is a coordinated effort and not a patchwork of agencies. All of the agencies in San Bernardino and Orange counties participated in discussion and development of those systems, which led to their success. Again, without coordinated efforts and complete participation throughout the county, true interoperability cannot be achieved.

An additional alternative for police executives and planners faced with replacing existing communications systems in the near or distant future is to consider developing their systems as a piece of a larger puzzle. By purchasing a system and infrastructure so it can be adapted to the ICIS or Sheriff's system, they can ready themselves for true interoperability in the future. Agency executives need to commit to developing strategic planning at the regional (county) level and not just at the agency level. In order to accomplish true interoperability, agencies must plan for the future with one another, not independently, as has been the norm in the past.

### Conclusions

A complete review of 700 MHz has revealed that it is not the interoperability answer that law enforcement executives and officers have been looking for. The FCC's lack of commitment in setting aside the necessary spectrum, and forcing television stations off the spectrum on a non-conditioned, non-negotiable date, has made the spectrum worthless to law enforcement from a future-planning standpoint.

The ability for law enforcement and other public safety organizations to respond to critical incidents and provide effective and efficient services to their communities is paramount today, not in the two, three or five years from now when the 700 MHz spectrum may become available. Equally as critical is the need to provide a safe work

environment for all public safety personnel. The need for interoperable communications has reached critical mass in the public safety arena. Agency executives must make interoperability a priority when building new or upgrading existing communications systems and therefore must commit to working together to fit the puzzle pieces together. In Los Angeles County, a trunked UHF system makes sense, but not without the commitment and buy-in of each city and county public safety organization. Without an organized planning effort, interoperability will continue to remain out of reach and our communications network will remain a patchwork of radio spectrum.

## ENDNOTES

<sup>1</sup> Vincent Dunn, *Unanswered Questions about Fire Radios and Communications at the World Trade Center Terrorist Attack on 911*, 2000, Retrieved on January 3, 2004 from <http://222.nyfd.com/frontpage/91.pdf>

<sup>2</sup> John Benoit, *Benoit Introduces Legislation to Require Mandatory Jail Time for Those Who Flee Police*, 2004, Retrieved April 30, 2004 from [republican.assembly.ca.gov/members/index.asp?Dist=64&Lang=1&Body=PressReleases&RefID=2009](http://republican.assembly.ca.gov/members/index.asp?Dist=64&Lang=1&Body=PressReleases&RefID=2009)

<sup>3</sup> National Institute of Justice Agile Project, *Why Can't We Talk, Working Together to Bridge the Communications Gap to Save Lives*, 2003, Retrieved on November 22, 2003 from <http://pulse.tiaonline.org/uploads/ntfireport.pdf>

<sup>4</sup> Federal Communications Commission, *Spectrum*, 2002, Retrieved on January 3, 2004, from <http://www.fcc.gov/spectrum/>

<sup>5</sup> John Solomnicki, *Communications: Where Did It Start*, 1999, Retrieved December 18, 2003 from <http://www.911dispatch.com/information/historycomm.html>

<sup>6</sup> Commission on Peace Officer Standards and Training, *What is POST*, 2003, Retrieved on November 22, 2003 from <http://www.post.ca.gov/about/>

<sup>7</sup> Federal Communications Commission, *700 MHz Public Safety Spectrum*, 2002, Retrieved December 20, 2003 from <http://www.fcc.gov/publicsafety/700MHz/>

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