Celebrating 10 YEARS 1997-2007

spectrum

NPSTC

Ten Years of Progress | 1997-2007

The Newsletter of the National Public Safety Telecommunications Council www.NPSTC.org Volume 7, Issue 4, December 2007

Taking a Giant Step into the Age of Broadband

In July 2007, the Federal Communications Commission (FCC) made a decision that will allow public safety to truly move into the age of broadband. The FCC decision was foreshadowed in December 2006, when the FCC issued its Ninth Notice of Proposed Rulemaking (NPRM), which included the following statement. "We believe that the time may have come for a significant departure from the typical public safety allocation model the Commission has used in the past. While this system has had significant benefits for public safety users, in terms of permitting them to deploy voice and narrowband facilities for their needs, the system has also resulted in uneven build-out across the country in different bands, balkanization of spectrum between large numbers of incompatible systems, and interoperability difficulties, if not inabilities."

In This Issue

The creation of a national 700 MHz broadband network and a national broadband license for public safety are giant steps forward. In its decision, the FCC proposed the creation of a national public safety broadband network in the 700 MHz band to be developed by the winner of the auction for 700 MHz D Block spectrum and to be managed by a Public Safety Broadband Licensee (PSBL). In exchange for building the public safety network, the winning commercial bidder for the 700 MHz D Block will gain secondary access to the adjacent public safety spectrum. Together, these spectrum assets will form one network, which will create the public safety network, including priority access during emergencies, and allow commercial service as well.

The Public Safety Spectrum Trust (PSST), a non-profit group of public safety organizations, applied to serve and was designated the PSBL in November 2007. In preparation for the January 2008 auction, the PSST requested that NPSTC's Broadband

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700 MHz Statement of Requirements Developed in Record Time

The development of the 700 MHz SoR was a task accomplished by many contributors from the telecommunications community, including both public safety and industry representatives. A list of contributors is available at www.npstc.org. The pace of development and public safety comment occurred within extremely compressed time-frames. The Broadband Working Group held multiple teleconferences, a 2-day face-to-face meeting in Boulder, Colorado, followed by 2 more days of web meetings for public safety's final review of the draft. It invited review and comment from over 256,000 public safety users and considered over 400 comments submitted.

NPSTC's Governing Board presented certificates of grateful acknowledgement from NPSTC to Andy Thiessen, Emil Olbrich, Joe Ross, and Michael Ossmann, recognizing their hard work and leadership in assembling public safety participants, manufacturers, and others to develop the SoR.

NPSTC Executive Director

Marilyn Ward

Happy Holidays to all! This will be our final newsletter for 2007; isn't it hard to believe that we are at the end of another year? And, what a year it has been for public safety. The new public safety broadband license was granted to the Public Safety Spectrum Trust (PSST); we provided a collaborative website for statewide planning, through NIIX (National Interoperability Information Exchange); our common channel naming initiative has been adopted by many states; we have filed many comments with the Federal Communications Commission (FCC) about a variety of issues; and provided panels and outreach in a variety of forums. It would be accurate to say that the collaborative leadership of NPSTC has had an impact this year.

So, what have we done for you lately? A very complicated process, which has long-lasting implications on public safety communications, was recently undertaken by the NPSTC Broadband Working Group to develop a Statement of Requirements (SoR) for a national 700 MHz network. The Working Group, led by Andy Thiessen, Joe Ross, Emil Olbrich, and Michael Ossmann, included numerous face-to-face meetings, and conference calls, with public safety representatives and commercial (potential D Block bidders) representatives. They brought together the Project MESA international data standards document, and the SAFECOM SoR, and updated the information, making the final document specific to 700 MHz. The effort included reaching out for comments to over 256,000 public safety users, and allowed for an aggressive outreach to a diverse number of public safety reviewers. The SoR document version .06, was posted in early November on the NPSTC website, and has had over 6,000 downloads to date. Since it is a living document, the Working Group will be revisiting it at least quarterly. Congratulations to all who participated!

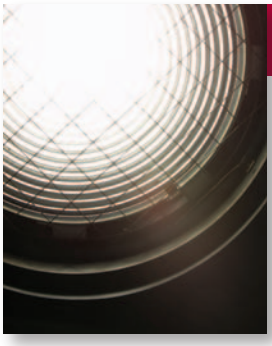
As we plan for our holidays, please be safe in your travels and enjoy your time with families!

Marilyn

Please Join Us at IWCE 2008

The International Wireless Communications Expo (IWCE) is the place where industry and public safety communications professionals come together to share thoughts and ideas on wireless communications technologies. It is also a place to find cutting-edge technologies, introduce yourself to new policies and standards, and a great place to network with your peers.

2008's IWCE is quickly approaching. It is to be held on February 25 – 29, 2008 in Las Vegas, Nevada. This year NPSTC is a Supporting Organization for IWCE and we would like to encourage you to attend. Join us at our booth and panels to share your ideas, get the newest information on important issues that NPSTC is involved in, and make an impact on public safety communications. Please check the NPSTC website at www.npstc.org often for the latest updates and for our booth location. For more information on IWCE 2008, visit http://www.iwceexpo.com/ .



Member SPOTLIGHT

Interoperability on the Radar to the North: NPSTC Partners with New Group Advancing Communications Interoperability for First Responders in Canada

By Lance Valcour

In one form or another, the National Public Safety Telecommunications Council (NPSTC) has been involved in advancing public safety communications interoperability in the Unites States for over 10 years. Canada hasn't been as fortunate - until now.

The Canadian Interoperability Technology Interest Group (CITIG) brings together representatives from public safety, industry, academia, government, and non-governmental organizations to collectively shape the future of Canadian public safety interoperability. Launched in April 2007 by the Canadian Police Research Centre (CPRC) in conjunction with the Canadian Association of the Chiefs of Police (CACP), the CITIG's first priority has been to reach out to those interested in advancing Canadian public safety interoperability.

In October, the first ever Canadian Interoperability Forum was held in Toronto, Ontario. It brought together more than 70 people from across Canada (and a few from the U.S.), and featured guest speakers, special presentations, and an interactive portion that gave participants a chance to address interoperability issues from their agency's, sector's, or industry's perspective. The NPSTC's own Marilyn Ward along with industry partners Al Ittner, Motorola, and Ken Budka, Alcatel-Lucent, participated to talk about the American approach. The insight was greatly appreciated!

NPSTC support did not end there. During the organization's November meetings in Atlanta, Georgia, the NPSTC Executive Board approved the CITIG as a new Associate, Non-Voting, Member — the NPSTC first non-US member. The news was well received by CITIG members. "Working with our neighbours to the north is a natural step for NPSTC, especially given the increasing focus on cross-border issues," remarked Marilyn Ward, NPSTC Executive Director. "We will be watching the progress on CITIG with great interest, and of course, we'll look for ways to actively and constructively participate in this worthwhile endeavour."

In launching CITIG, the Canadian Association of Chiefs of Police (CACP) partnered with both the Canadian Association of Fire Chiefs and Emergency Medical Services Chiefs of Canada as these partners form the nucleous of most public safety responses. However, the hope is to increase representation from across the Canadian public safety community in a move toward a governance model similar to the NPSTC. For now, the CITIG is focusing on building the foundation, including work to:

- create forums for the exchange of information and ideas;
- facilitate communications amongst Canadian public safety interoperability stakeholders;
- bring together the collective wisdom of public safety and communications leaders and experts;
- respond to regulatory issues that impact public safety communications in Canada; and
- provide a testbed where aspects of the five elements of the SAFECOM interoperability continuum (governance, standard operating procedures, technology, training & exercise, and usage) can be understood, designed, tested, negotiated, implemented, trained, exercised, standardized, or shared.

"When you look at the great strides in communications technology and you see the work being done in the United States and beyond, it's clear that we have a significant opportunity to impact the state of Canadian public safety interoperability," says Steve Palmer, Executive Director of the Canadian Police Research Centre. "As part of the CPRC's role to be single, national focal point for technology research and development efforts in support of Canada's police and public safety community, we are helping to bring together public safety organizations on the topic of interoperability while making sure no 'poor' agencies get left behind."

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IAFC Digital Problem Working Group Report

By Charles Werner

In 2006, a couple of U.S. fire departments discovered that the voice audio from digital radios in the presence of background noises (common to the fireground operations) may cause distortion to the degree of becoming unintelligible. Communications during firefighting operations is critical.

The International Association of Fire Chiefs (IAFC) Communications Committee Chair, Doug Aiken, established a Digital Problem Working Group that met on May 8, 2007, at the Dunn Loring Volunteer Fire Department in Fairfax, Virginia. The Working Group consists of members of the fire service, radio manufacturers, equipment manufacturers, and technical experts, who are working collectively to fully understand the vocoder effect, and identify techniques to overcome it both technically and behaviorally.

Actions Taken to Date

- March 20, 2007, the IAFC issued a Member Alert and published the information on the IAFC website.
- The IAFC also approved the formation of a Working Group to determine the scope of the problem and work with manufacturers and other stakeholders to identify and/or develop short- and long-term solutions.
- On May 8, 2007, the Working Group convened and established two subgroups (Testing and Best Practices).
- The Testing Group is focused on long-term solutions while the Best Practices Group is focused on quicker solutions through behavioral and/or operational modifications.
- Since May 8, 2007, both subgroups have conducted meetings in person and by conference call.
- In July 2007, the Testing Group met in Denver and worked with the National Institute of Standards and Technology (NIST) to develop a practical testing strategy. This group is set to reconvene in Denver in November.
- On July 24, 2007, the Best Practices Group met and forwarded its recommendation report to the Working Group and to the Testing Group for follow-up.
- On August 22, 2007, at Fire Rescue International, the Communications Committee requested that the Best Practices Group develop a PowerPoint Presentation (based on their findings) to be used as a training tool for fire and public safety agencies on effective radio techniques that can minimize the effect of background noise. Additionally, segments of the PowerPoint presentation will be developed and maintained by the radio manufacturers who will provide up-to-date links to their respective websites.

Summary of Findings To Date

- There is unanimous acknowledgement by all stakeholders that the "vocoder," which is a hardware/software component in every digital radio that converts analog voice to digital, can distort audio when operating in environments with high levels of background noise.
- Another consensus reached is that all equipment used by firefighters in a firefighting environment must be viewed as a system and considerations must be observed for overall operation and noise effect. In this regard, the equipment manufacturers have also been engaged in this process.
- In addition to fire service stakeholder agencies, the following radio manufacturers have been active and supportive participants throughout this process (listed alphabetically): E.F. Johnson, Kenwood, M/A-COM, and Motorola.
- Scott Health and Safety is also represented on the Working Group. The Working Group is also working with other Self Contained Breathing Apparatus (SCBA) manufacturers that have agreed to provide samples of their equipment for the testing.
- The Responder Knowledge Base is assisting the IAFC by jointly disseminating information to the emergency response community and coordinating cooperation from equipment manufacturers.
- Outreach has been made with law enforcement and the National Public Safety Telecommunications Council (NPSTC).

All related information will be updated and available following Fire Rescue International and can be found at the Digital Problem link on the IAFC website at: http://www.iafc.org/displayindustryarticle.cfm?articlenbr=33118

Charles Werner is Chair of the Digital Problem Working Group; serves as Fire Chief in Charlottesville, Virginia; and represents the International Association of Fire Chiefs on NPSTC's Governing Board.

RPCs

The New Face of Regional Planning

By Alan Bull

The newest face of Regional Planning is the formation of a new group called the National Regional Planning Council. I would like to devote the entire article to the history and accomplishments of the NRPC. Unfortunately, it would be a very short article if that happened.

It is exciting when we look at the organizations that make up the Governing Board of the NPSTC organization. I have not done it – but I bet if you add up the number of years that all of the organizations have been around it would be amazing. Just last year NPSTC took pride in celebrating its 10th year. But one thing that all of these groups have in common with the newly formed NRPC is that they all, at one time were 3 months old. And, I'm willing to bet that each group went through more than one episode of growing pains. No doubt we will, too.

Our history in a nutshell: At the invitation of the National Institute of Justice (NIJ), we were invited to attend a meeting in Austin, Texas to discuss some issues. One important issue was to find out the future of Computer Assisted Pre-coordination and Resource Database System (CAPRAD). NIJ was making changes and what CAPRAD was going to be in the future was in question. At these meetings we were told that CAPRAD would remain under the control and funding of NIJ. Also the maintenance would still be provided by TEQ [a service provider] and it would be repacked to allow for the new 700 MHz band plan. We were then tasked with making a list of wants and needs to make CAPRAD function the way we thought it needed to. This list obviously led to administrative confusion. The connection to NPSTC, the connection to all of the other organizations, as well as funding and travel issues, all led to other discussions.

After having the room emptied to allow the regional planners to discuss their fate, many discussions and debates ensued. After much discussion, it was decided by a majority of all of the regions to form a new organization of our own. A quick list of wants and needs were made and hand delivered to NIJ representatives. This was a preliminary list. A 20-minute discussion with representatives of the Texas Sheriff's Association and NIJ officials about funding and expenses took place and the meeting adjourned.

Needless to say – there were a lot of unanswered as well as unasked questions at this time. Obviously, it would take many meetings and calls to even start the process of organizing this into a real organization.

In no time, as you can imagine, in today's world of instant communications—the various viewpoints, the likes, dislikes, the good, the bad, the ugly—it all spread like wildfire. In only 72 hours we were attending the NPSTC meetings in Washington, D.C. It was impossible to answer any questions at that time – because there were no answers. Many of the representatives from the other organizations took the time to wish us the best and offered their support wherever possible. I tried to get around to as many officials as I could and assure them that as we organize we will keep everyone informed. I want to take the opportunity to thank everyone who helped me make it through those 3 days. I was able to meet with Marilyn Ward ahead of time; our long friendship makes any type of transition possible. I thank her for our past and look forward to our future.

After Washington D.C., we started the process of trying to get our final list of our wants and needs prepared to give to NIJ. Remember, during this time we were all racing with the FCC to get our list in so as not to hold up the new 700 MHz band plan. Trying to work on things like mission statements, by-laws and just trying to get a useable mailing list occupied most of my time. But, remember I also was working on 800 MHz rebanding, as were most people. I was able to get a letter out to everybody and we were able to get the rough draft of our wants and needs sent in. By now we were only a few weeks from NPSTC's Atlanta meetings.

After a review of the grant details that had been funding the travel and training for the regional planners by the grant administrators, there was a policy change that would affect our future operations in regards to attending meetings and our training structure. Decisions were made quickly to accommodate the people that had already made travel plans. The new policy was discussed and implemented quickly.

The goals of the group are simple—write a mission statement; develop and write by-laws; get CAPRAD repacked; get 700 Plans approved for all regions; develop training for all planners; and work with the entire public safety community and the FCC.

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Questions about interoperability? John Powell has the answers. Software defined radio? Call John. Updates on Project 25? Powell's your man.

Former police officer John Powell may not have the answer to every possible technical question about public safety telecommunications, but if he doesn't, he knows who to ask. During his career, Mr. Powell has implemented and/or managed several major projects including a statewide trunked radio system and an E-911 computer aided dispatch center for the University of California. He has served on numerous local, state, and national committees and has testified before numerous legislative bodies at all levels of government.

NPSTC's Governing Board is pleased to award the 2007 Richard DeMello award to John Powell. Chief Harlin McEwen, last year's award winner, presented the DeMello Award to Mr. Powell at the 98th Anniversary Annual Awards Banquet of the Radio Club of America in New York City, New York, on November 16, 2007, saying, "I cannot think of any person who has worked harder and longer on behalf of the public safety community than John Powell. I have worked with John for many years and believe he is extremely worthy of the honor this award conveys."

Mr. Powell was in good company, joined by keynote speaker, Andy Rooney of CBS's *60 Minutes*, and Walter Cronkite, former anchor of 'CBS Evening News,' and John S. Belrose, Ph.D., emeritus researcher at the Communications Research Center Canada, who each received the Club's foremost achievement award, the Armstrong Medal.

"I am deeply appreciative that my many colleagues and friends within NPSTC, and indeed from the international public safety community with whom I've had the great enjoyment and privilege to work for so many years, have chosen to recognize me with this year's DeMello Award," Mr. Powell said. "I had the honor of knowing and working with Richard DeMello for over a decade as we built strong partnerships among first responders, eventually resulting in the formation of NPSTC 10 years ago. This award is a wonderful and deserving tribute to Richard's tireless effort to build bridges between organizations, and I am humbled to be its second recipient."

A Past President and Life Member of the Association of Public Safety Communications Officials – International (APCO), Powell is one of six recipients of APCO's Art McDole Award for long-term technical contributions to the art and practice of public safety telecommunications, and was named "Most Influential Person in Public Safety Spectrum Management" by *Radio Resource* magazine in 1998. "There are a number of individuals dedicated to improving public safety communications interoperability for first responders. John is at the top of the list. I have yet to find anyone as committed to their cause as John is," says Don Root, Assistant Communications Manager, San Diego County Sheriff.

Powell has over 29 years of law enforcement experience at both the municipal and state levels as a police officer and supervisor for two San Francisco area agencies. He has authored numerous articles for communications sector publications on operational and technical issues related to advanced wireless communications, interoperability, and software defined radio. He has consulted extensively on issues and projects related to advanced telecommunications technologies, including interoperability and software defined radio. "John's combination of technical and operational experience is a tremendous asset to public safety. He can work with an advanced technology organization like the Software Defined Radio Forum with the knowledge and authority of someone who has been on the front lines of public safety for many years," says Fred Frantz, Chair of the SDR Forum's Public Safety Special Interest Group.

He currently chairs California's FCC-chartered Statewide Interoperability Executive Committee (SIEC), the Interoperability Committee and Software Defined Radio Working Group within NPSTC, and the Board of Directors of the SDR Forum. He is a member of the Executive Committee of Project SAFECOM within the Department of Homeland Security, and the Project 25 Steering Committee. Professional associations include membership on the International Association of Chiefs of Police (IACP) Law Enforcement

Information Management Section, and the IACP Communications and Technology Committee, Radio Club of America (Fellow), and a membership in International Association of Electrical and Electronics Engineers (IEEE).

John Powell had an interest in serving public safety from a young age, when he participated as a public safety volunteer through high school and college. In accepting the award, Powell said, "I note that, sitting here among the icons of our industry in its many flavors, are a number of young people including my own two children. I'd like to end my comments by offering all of them these words of encouragement: At some time in your life, you are going to be challenged and inspired by a cause or an idea that will be a benefit to your fellow man, perhaps for generations to come. It will grab you and say 'get involved.' When you meet that challenge, grasp it with both arms and devote as much energy and time as you possibly can to finding the best solutions possible. If you are indeed successful, you will be rewarded by your colleagues, family, and friends as I have been tonight."

Award Named to Honor DeMello's Achievements

Thanks to Greg Ballentine, GeoComm; Stu Overby, Motorola; and the Radio Club of America (RCA) for sponsoring this year's DeMello award. Each year, NPSTC presents an annual award at the RCA awards dinner, to one public safety communications person who has demonstrated the highest levels of personal and professional conduct and performance in the local, state, and national public safety communications arena. The award was named to honor the achievements of Richard DeMello, one of the founding fathers of NPSTC. Visit www.npstc.org to learn more about Mr. DeMello.

Radio Club of America

RCA was formed by a small group of dedicated radio amateurs and experimenters nearly a century ago. The Radio Club of America counts among its membership the very best in the radio communications industry, including the pioneers who shaped the industry.

New Face of Regional Planning continued from page 5

In a few weeks we will be 3 months old. The growing pains will be tremendous, the learning experience will be invaluable, and the outcome will hopefully be positive for everyone. In 9 years and 9 months – we will celebrate our 10th anniversary and the look of public safety then will be only what we can imagine it to be right now … So the look of Regional Planning at this time … is a baby face.

Be delicate with us and know that we really appreciate your support and look forward to working with each and every one of you for years to come.

Alan Bull is the Technical Services Manager for the Knox County Emergency Communications District in Knoxville, Tennessee.

In Brief

Canadian Border Alert

Are you looking to deploy 700 MHz in the Canadian border areas in the near future? If so, you should be aware that the recent 700 MHz Order from the FCC is not yet consistent with the current U.S. and Canadian International Agreement. If you have concerns regarding these issues, be aware that NPSTC has provided several detailed briefings on these issues, and these are available for download on the NPSTC website at http://www.npstc.org/meetings.jsp under the file name RPC Training-OHara Daly – NPSTC RPC Nov 2007 Report and Order Impact.

NPSTC is here to help; feel free to contact NPSTC's Border Issues Working Group Co-Chair Sean O'Hara directly at ohara@syrres.com.

SIECs

NIIX Update

The National Interoperability Information eXchange (NIIX) went live the first week in July 2007 with the Community Collaboration feature added on August 10. The National Public Safety Telecommunications Council (NPSTC) is providing NIIX as a service to the interoperability communications community. You will find tools here to assist you with the development of your statewide communications interoperability plans as well as other valuable information.

NIIX provides a centralized, secure warehouse for interoperable communications related information. Registered NIIX members can access peer-created documents and share information with each other. Members can also use NIIX tools to collaborate in the creation and management of their statewide plans.

There are now 750 users from 55 of the 56 United States and Territories. We have established 42 Communities for Urban Area Security Initiatives (UASIs), RPCs, and Regional Communications Coalitions as well as Statewide Interoperability Executive Committees who are preparing their Statewide Communications Interoperability Plans (SCIP) grants and Investment Justifications (IJs).

The Community Coordinators could not be more pleased with the ease of using NIIX and how functional it is in meeting the needs of communities drafting documents. Charles Wassman, Coordinator for Hawaii, thinks the site is very user friendly and says, "The site has been very beneficial for the Hawaii community in providing access to documents and managing those documents."

If you need to establish a collaborative community regarding interoperable communications for a local, regional, or state entity contact the NIIX support staff at 866.807.4755. Visit www.NIIX.org to see how we can help you today.

Laura Lippman, Community Manager, can assist users who would like to establish communities and organize web instruction to facilitate using NIIX.

First Responders in Canada continued from page 3

It appears that public safety communications interoperability in Canada will start to get the attention in deserves. Of course, a big thank you goes to the NPSTC and other like-minded organizations that are helping light the way. For more information on Canadian efforts, please visit the CITIG Web site (www.cprc.org/citig). Any suggestions, questions or concerns can be sent via e-mail to citig@cprc.org.

Lance Valcour is an Inspector with the Ottawa Police Service currently seconded to the CPRC as the Project Manager for CITIG. In addition to his long-time participation as a member of the CACP Informatics Committee, he has compiled over 30 years experience working in operational roles and led many technology-related projects both with the Ottawa Police and in the private sector.

NPSTC representatives had a chance to interact with their Canadian counterparts during the International Association of Chiefs of Police (IACP) conference in October 2007. Pictured here are (from left to right): Chief Willis Carter (President, APCO), Superintendent Richard Finn (York Regional Police), Marilyn Ward (Executive Director, NPSTC), Chief (ret.) Harlin McEwen (Chairman, IACP Communications & Technology Committee) and Chief Constable Jim Chu (Vancouver Police Service) during an IACP Technology Award presentation.

Cognitive Radio—Benefits for Public Safety

By John Powell

In the world of next-generation radios, cognitive radio seems to be the hottest topic. But what exactly is cognitive radio and what does the technology provide for public safety? These are questions that the Software Defined Radio (SDR) Forum has been considering for the past several months.

As for what a cognitive radio is, the SDR Forum has defined a cognitive radio as "a radio in which communication systems are aware of their environment and internal state and can make decisions about their radio operating behavior based on that information and predefined objectives." Basically, the idea is that the radios in a network have some capability to change their operating parameters (such as frequency or modulation type) based on where they are located, what RF activity they can detect, what type of information they are transmitting, and so on. In a public safety context, the decisions would not normally be made by a radio acting independently but in combination with the network on which the radio was operating.

While this technology is intriguing, the real question is how it can impact public safety. The SDR Forum's Public Safety Special Interest Group (SIG) has started to look at the issue. Their approach is to look at incident response scenarios, both actual and hypothetical, and develop ideas as to how cognitive radio could improve the communications capabilities for the first responders. These "use cases" are then analyzed to determine what technical capabilities need to be developed, what regulatory changes may be required, and the changes to policies and procedures that would be required if and when the technology is implemented.

The first scenario selected by the SIG was the bombings in London that occurred on July 7, 2005. This scenario was selected because it was an actual event for which the response was well documented in several after action reports. Based on the review of that scenario, the SIG concluded that development of cognitive capabilities has potential to dramatically increase the ability of incident commanders. Four examples of how cognitive radio technology could be utilized in such situations (the use cases) were identified:

1. Network extension for coverage and reachback.
2. Dynamic access of spectrum.
3. Dynamic prioritization.
4. Dynamic network configuration to include non-first responders.

To illustrate, consider the first use case—network extension for coverage and reachback. One of the challenges faced by the responders in London was that the explosions in the subway tunnels damaged some of the communications infrastructure that was in place to allow responders to maintain their communications link with the above-ground infrastructure. Thus when responders went to the scene of the explosion underground, they had no way to communicate above ground unless they made a 15-minute walk to the nearest station. The cognitive radio capability envisioned in this case is for radios to be able to detect that they are beyond the coverage of the network, identify peer radios with whom they can still communicate, and establish multi-hop links to a radio that is still within the coverage of the network and can reconfigure to act as a repeater.

The SIG has published a report that describes all of the proposed use cases in much greater detail and identifies the technical, regulatory, and operational considerations and issues that must be addressed in order to deploy and use such capabilities. The report, entitled "Use Cases for Cognitive Applications in Public Safety Communications Systems—Volume 1: Review of the 7 July Bombing of the London Underground," is available at the SDR Forum's website (www.sdrforum.org).

The SIG is currently conducting a similar analysis on a hypothetical scenario involving a chemical plant scenario and the coordinated evacuation of areas threatened by release of hazardous materials. That report is scheduled for completion in summer of 2008.

For more information, please contact John Powell, Chair, Interoperability Committee, NPSTC, and Chairman of the SDR Forum Board of Directors or Fred Frantz, Chairman of the Public Safety SIG at fred.frantz@L-3com.com.

Unifying Incident Response

By John Corbin, Kimberly C. Vásconez, and David Helman

Editor's Note: Public Roads *is the bimonthly magazine of the Federal Highway Administration (FHWA). "Unifying Incident Response" by John Corbin, Kimberly C. Vásconez, and David Helman is from the September/October 2007 issue, Volume 71, Number 2. The full article can be viewed at http://www.tfhrc.gov/pubrds/07sep/04.htm. For more information, visit http://www.fhwa.dot.gov.*

From minor incidents to multi-car crashes with fatalities, traffic incidents constitute a growing national concern, costing time and revenue for motorists and businesses, and — all too often — taking the lives of drivers, occupants, and responders. Traffic incidents account for 25 percent of congestion on U.S. roadways and are challenging to address because their location, timing, and intensity cannot be anticipated. In fact, the nonrecurring nature of traffic incidents not only affects travel times but also disrupts system reliability, turning a routine 15-minute errand into a 45-minute wait. Every minute that a freeway lane remains blocked during peak travel time results in 4 minutes of delay, during and even well after the lane is cleared. Beyond congestion delays, public safety and transportation professionals responding to roadway incidents can be at high risk for serious injuries or fatalities. As roads grow more congested, the risk increases, as evidenced by U.S. Department of Labor (DOL) statistics showing an upward trend in the numbers of incident responders struck and killed by vehicles every year. The DOL's Bureau of Labor Statistics reported that 372 responders died in 2006 in "struck-by" incidents — when responders are struck by passing vehicles while they are working at an incident scene — up from an annual average of 369 for 2001-2005. Struck-by incidents accounted for 7 percent of the total number of fatal occupational injuries in 2006.

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National Unified Goal (NUG) for Traffic Incident Management

Improving safety for response personnel and clearing incidents as quickly as possible are the focus of a new multidisciplinary initiative known as the National Unified Goal (NUG) for Traffic Incident Management. The NUG brings major stakeholders together to speed clearance of traffic incidents without compromising responder safety — in fact, to *increase* responder safety while addressing the congestion issue.

Responders must work together efficiently to accomplish the many tasks necessary to clear incidents quickly and safely, reduce traffic congestion, and safeguard responders and motorists. In major incidents — those most likely to cause extended traffic delays — these tasks generally involve public safety responders responsible for emergency medical services (EMS), emergency communications personnel, fire and rescue services, law enforcement, transportation workers, towing and recovery staff, and public information specialists. Each discipline has a distinct mission and role on the scene, which can make coordination challenging.

In 2004, the National Traffic Incident Management Coalition (NTIMC) formed to coordinate between these disparate disciplines. The coalition's 19 member organizations then created the NUG to serve as a strategic roadmap for activities aimed at improving safety for response personnel and clearing incidents as quickly as possible. Specifically, the NUG provides a framework for coordinating the major stakeholders at an incident site to speed clearance of traffic incidents while improving responder safety. The coalition's expectation is that coordinated operations with clear lines of responsibility will *increase* responder safety while addressing the congestion issue. This partnership marks the first time such a broad coalition of traffic incident responders has collaborated to produce policies to address common concerns.

What Is the NUG?

In November 2006, FHWA funded and sponsored an NTIMC conference in Newport Beach, CA, to obtain input from designated stakeholders on a draft NUG that was developed over a 1-year period. Developed under the leadership of NTIMC and with input from organizations representing traffic incident responders across the country, the NUG constitutes a national policy with three major goals: responder safety; safe, quick clearance of incidents; and prompt, reliable, and interoperable communications. NTIMC encourages state and local transportation and public safety agencies to adopt this unified, multidisciplinary

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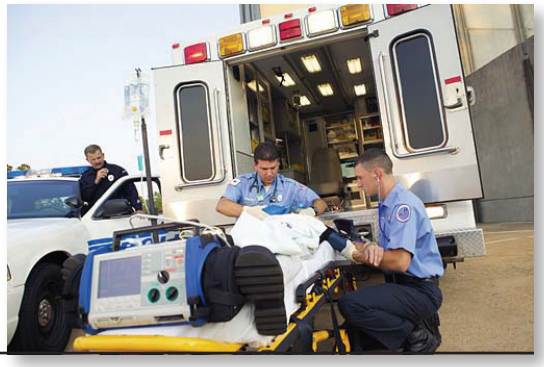

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policy because it has the potential to dramatically improve the way traffic incidents are managed on U.S. roadways. The possibility of enhancing responders' safety at incident scenes is a key motivator of support for the NUG. "The safety of firefighters is a big issue in the fire service," said David Daniels, chairman of the Safety, Health, and Survival Section of the International Association of Fire Chiefs, during the 2006 NTIMC conference, where invited delegates provided input on a preliminary draft of the NUG. "We are very interested in the opportunity to partner with other incident responders for safety."

Proposed NUG Strategies

Applying the motto "Working Together for Improved Safety, Clearance, and Communications," NTIMC developed 18 strategies to promote the 3 goals that comprise the NUG. NTIMC's mission statement states: "The NTIMC is committed to working together to promote, develop, and sustain multidisciplinary, multijurisdictional Traffic Incident Management (TIM) programs to achieve enhanced responder safety; safe, quick traffic incident clearance; and more prompt, reliable, interoperable communications."

Crosscutting Strategies

Strategy 1. TIM partnerships and programs. TIM partners at the national, state, regional, and local levels should work together to promote, develop, and sustain effective TIM programs.

Strategy 2. Training. TIM responders should receive multidisciplinary National Incident Management System (NIMS) training and TIM training.

Strategy 3. Goals for performance and progress. TIM partners should work together to establish and implement performance goals at the state, regional, and local levels for increasing the effectiveness of TIM, including methods for measuring and monitoring progress.

Strategy 4. TIM technology. TIM partners at the national, state, regional, and local levels should work together for rapid and coordinated implementation of beneficial new technologies for TIM.

Strategy 5. Effective TIM policies. TIM partners at the national, state, regional, and local levels should join together to raise awareness regarding proposed policies and legislation that affect achievement of the NUG objectives of responder safety; safe, quick clearance; and prompt, reliable traffic incident communications.

Strategy 6. Awareness and education partnerships. Broad partnerships should be developed to promote awareness and education regarding the public's role in safe, efficient resolution of incidents on the roadways.

Objective 1: Responder Safety

Strategy 7. Recommended practices for responder safety. Recommended practices for responder safety and traffic control at incident scenes should be developed and widely published, distributed, and adopted.

Strategy 8. Move-over/slow-down laws. Drivers should be required to move over and/or slow down when approaching traffic incident response vehicles and personnel on the roadway.

Strategy 9. Driver training and awareness. Driver training and awareness programs should teach motorists how to react to emergencies on the roadway to prevent secondary incidents, including injuries and deaths of traffic incident responders.

Objective 2: Safe, Quick Clearance

Strategy 10. Multidisciplinary TIM procedures. TIM partners at the state, regional, and local levels should develop and adopt multidisciplinary procedures for coordination of TIM operations, based on nationally recommended practices and procedures.

Strategy 11. Response and clearance time goals. TIM partners at the state, regional, and local levels should commit to achieve goals for traffic incident response and clearance times (as a component of broader goals for more effective TIM — see Strategy 3).

Strategy 12. 24/7 availability. TIM responders and resources should be available around the clock.

Objective 3: Prompt, Reliable Incident Communications

Strategy 13. Multidisciplinary communications practices and procedures. Traffic incident responders should develop and implement standardized multidisciplinary communications practices and procedures.

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In Brief

PSST Chosen as Public Safety Broadband Licensee

On November 19, 2007, the Public Safety Spectrum Trust Corporation (PSST), a non-profit established by national public safety leadership to oversee the creation of a nationwide wireless broadband network for public safety, was selected by the Federal Communications Commission (FCC) to be the Public Safety Broadband Licensee (PSBL). Following the announcement, the PSST will hold a license for 10 MHz of public safety spectrum in the upper 700 MHz band designated for nationwide wireless broadband use.

On September 10, 2007, the FCC issued a Public Notice soliciting applications for the PSBL. In its application, the PSST ensured its compliance with the FCC's criteria that it be a non-profit organization; be broadly representative of the public safety community; satisfy certain organizational requirements; and incorporate certain provisions in its articles of incorporation and bylaws. "We are grateful to the FCC Commissioners for recognizing the significant amount of work and progress achieved by the PSST to fulfill the FCC's guidelines for creating a nationwide network for public safety," says Chief Harlin McEwen, Chairman of the PSST. "Holding the spectrum license is a responsibility the PSST takes very seriously as we embark upon building an unprecedented interoperable communications system for public safety."

On November 15, 2007, the PSST released a Bidder Information Document (BID), providing prospective D Block bidders with information about certain public safety expectations and preferences regarding the public safety-commercial partnership, which will be updated to reflect additional feedback as it is gathered. "With the 700 MHz auction date rapidly approaching," Chief McEwen says, "our continued priority is to lay the foundation for a productive and beneficial partnership with the commercial D Block auction winner." For more information, visit www.psst.org.

In-Building White Paper on Best Practices

The need for reliable communications does not stop at the door of a building or the entrance to a tunnel. The lack of coverage or interference can be life threatening for public safety. In response, the NPSTC In-Building Working Group has developed a white paper that examines various in-building options, addresses interference concerns, defines best-practices for the design and implementation of in-building systems, and provides recommended regulatory actions. To review this excellent source of information and appendices on best practices, visit http://www.npstc.org/committeeTC.jsp and click on Best Practices for In-Building Communications.

From the Listserv

The folks at the SDR Forum have released a new 23-page report addressing "Considerations and Recommendations for Software Defined Radio Technologies for the 700 MHz Public/Private Partnership" just in time for review prior to the upcoming FCC auction. The report describes how software defined radio (SDR) technologies can help achieve the public/private partnership goals of the upcoming U.S. FCC 700 MHz frequency band spectrum auction. This report also covers cognitive radio (CR) and dynamic spectrum access (DSA) technologies as well.

The context for the report is the Second Report and Order which establishes rules governing wireless licenses in the 700 MHz band. The SDR Forum is uniquely positioned to consider the role of these new technologies in the 700 MHz band since its membership includes commercial mobile radio service providers, public safety representatives, technology developers, systems integrators, and equipment manufacturers. The information and recommendations in the report focuses on technology and related policy considerations to (a) prospective bidders and service providers, (b) potential grantees of the Public Safety Broadband License, (c) equipment manufacturers, and (d) regulators.

Emerging SDR and CR technologies, along with DSA (or DSM - Dynamic Spectrum Management) are believed to be the future of wireless communications. The report is well worth the time to read for those interested or concerned with spectrum matters. Download a full copy here: http://tinyurl.com/2v7vsa.
Source: http://spectrummatters.blogspot.com.

REGULATORY UPDATE

Since August when the Federal Communications Commission (FCC) made their decisions to establish the rules and band structure for the 700 MHz spectrum to be vacated by broadcasters in February 2009, several regulatory and other activities have taken place relating to this spectrum. These include the following:

***Appointment of the Public Safety Spectrum Trust Corporation as the Public Safety Broadband Licensee (PSBL);* PS Docket 06-229, FCC 07-199 (November 19, 2007)**

On November 19, 2007, the Commission granted the application of the Public Safety Spectrum Trust Corporation (PSST) for the single nationwide license for the public safety 700 MHz broadband spectrum allocation, the Public Safety Broadband License (PSBL). Under its August decision, the PSBL was created for the purpose of partnering with a commercial entity – the auction winner of the immediately adjacent 10 MHz of commercial "D Block" spectrum – to facilitate a public/private partnership that will lead to the build out and maintenance of a nationwide public safety network

The Commission determined that granting the application of the PSST to hold the Public Safety Broadband License is consistent with its August decision and would serve the public interest. It found specifically that the PSST's application met the standards and requirements it had established.

***Auction Date for 700 MHz Band;* Public Notice DA 07-4515 (November 2, 2007), AU Docket No. 07-157, WT Docket No. 06-150; PS Docket No. 06-229, Report No. AUC-07-73-D (Auctions 73 and 76)**

On November 2, 2007, the Commission announced procedures for the upcoming auctions of licenses for services in the 700 MHz band scheduled to begin on January 24, 2008. The auctions are designated Auctions 73 and 76. The Commission set the additional default payment percentage at 10 percent for the D Block licensee, which will partner with the PSBL to deploy and maintain a public safety broadband network. The additional default payment percentage amount for licenses in the A, B, and E Blocks remained at 15 percent. The Commission also provided guidance as to how it will exercise its authority if disputes arise with respect to the negotiation of the terms of the Network Sharing Agreement between the D Block Licensee and the PSBL.

***Public Safety Spectrum Trust Releases Bidder Information Document;* Public Safety Spectrum Trust, *Bidder Information Document,* Version 1.0 (November 15, 2007), www.psst.org**

On November 15, 2007, the Public Safety Spectrum Trust released a Bidder Information Document, Version 1.0. The document responded to requests in advance of the FCC's auction from prospective D Block bidders seeking additional information regarding the PSST's expectations for a shared public safety-commercial network.

The information developed and presented in the document is intended to form the basis for negotiation of important aspects of the Network Sharing Agreement (NSA) between the PSST and the D Block winner at the completion of the 700 MHz auction. The document is intended to assist prospective bidders in building their business plans prior to the auction to minimize differences in expectations. The document addressed several areas including coverage, reliability, security, operational capabilities, and priority access.

FCC Establishes Additional Deadlines and Procedures to Expedite 800 MHz Rebanding

By Bette Rinehart

In September, 2007, the FCC released two documents related to the 800 MHz rebanding process. One was a Memorandum Opinion & Order (MO&O) in which the FCC determined that Sprint Nextel had not met the first of its benchmarks – clearing Stage 1 (Channels 1-120) incumbents in 20 National Public Safety Planning Advisory Committee (NPSPAC) regions by December 28, 2006. The FCC's expectation was the "20 regions" corresponded with the 15 regions in Wave 1 plus 5 additional regions. Although Sprint Nextel had cleared Stage 1 incumbents in 26 regions overall, it had not cleared all Wave 1 Stage 1 incumbents. Wave 1 regions comprise the most heavily populated regions as well as the regions receiving the most interference. By not clearing all Stage 1 incumbents in Wave 1, the FCC determined that Sprint Nextel had undermined the purpose of the benchmark. The FCC decided to defer any enforcement action so that all parties could concentrate on completing rebanding.

In the MO&O the FCC established the following additional benchmarks:

- October 1, 2007 – Sprint Nextel must begin providing the FCC with a monthly progress report on the status of Channel 1-120 clearing.
- December 26, 2007 – Sprint Nextel must complete relocation of all non-Sprint, non-Southern LINC incumbents out of Channels 1-120 in all regions in Waves 1 through 3. Stage 1 incumbents who also have expansion band and/or NPSPAC channels and have elected to relocate in Stage 2 are exempt from the that deadline.
- January 1, 2008 and prior – Sprint Nextel must clear new NPSPAC channels within 90 days of receiving a request from a licensee seeking access.
- After January 1, 2008 – Sprint Nextel must clear new NPSPAC channels within 60 days of receiving a request from a licensee seeking access.

The FCC also acted upon waivers filed by six incumbent licensees in Georgia and Pennsylvania who sought an extension of the June 26, 2008, reconfiguration deadline due to their proximity to incumbent full power analog TV broadcasters operating on Channel 69 (directly adjacent to the new NPSPAC band). These applicants had asked to delay reconfiguration until after the broadcast incumbents had relocated out of the band in February 2009. The pending waivers were granted giving those applicants until March 1, 2009, to begin to retune their infrastructure. The FCC urged the licensees to proceed with all possible planning and preparatory activity (e.g., replacement and reprogramming of mobiles) that could be accomplished prior to the DTV transition.

Only those six incumbents who filed waivers are covered by this decision. Any other incumbents impacted by a Channel 69 TV broadcaster must file a separate waiver addressing their specific case. To access the complete text of the MO&O, use the following link: http://fjallfoss.fcc.gov/edocs_public/attachmatch/FCC-07-167A1.pdf

The original rebanding decision released in 2005 included another benchmark for Sprint Nextel – all impacted 800 MHz systems must have begun reconfiguration within 30 months of the start date of December 26, 2007. To ensure that this benchmark is met, the FCC released a Public Notice containing several additional deadlines and procedural advice for NPSPAC licensees.

Per the Public Notice, the new deadlines for completion of planning are:

- NPSPAC licensees must complete planning (either with or without a Planning Funding Agreement) and submit a cost estimate as follows: Systems with 1 – 5,000 units: 90 days from Transition Administrator (TA) approval; 5,001 – 10,000 units: 100 days from TA approval; over 10,000 units: 110 days from TA approval.
- NPSPAC licensees in Waves 1-3 already engaged in planning on September 11, 2007, must complete planning and submit a cost estimate to Sprint Nextel as follows: Wave 1 – by October 15, 2007; Wave 2 – by November 15, 2007; and Wave 3 – by December 15, 2007.
- NPSPAC licensees may request additional time but must clearly explain why additional time is needed and adequately demonstrate that the licensee has made good use of the time already allotted.
- Sprint Nextel must cooperate with and fully support NPSPAC licensees' planning efforts to meet the time limits. Requests for extensions of time due to Sprint Nextel delays will not be routinely granted.
- NPSPAC licensees should provide in their contracts with vendors and consultants that they will make sufficient resources available to support licensee planning efforts. Requests for extensions of time due to unavailability of vendor or consultant resources will not be routinely granted.

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- NPSPAC licensees must provide the TA with bi-weekly status reports and can recover the cost of preparing these reports from Sprint Nextel.

The FCC offered the following guidance on rebanding implementation to licensees:

- Use the resources offered by the TA to prepare for and expedite system reconfiguration.
- Provide for early replacement/retuning of equipment.
- Finalize contracts with vendors and consultants to ensure compliance with scheduling requirements.
- Create and distribute lists of key licensee personnel and contacts as well as contacts for vendors, consultants, Sprint Nextel, and the TA.
- Maintain an inventory of all subscriber and infrastructure equipment affected by rebanding and verify the receipt of all loaner and replacement equipment.
- Notify Sprint Nextel when channels in the new NPSPAC band need to be made available to allow system testing or operation on the licensee's new channel assignments.
- Notify the TA if an issue affecting implementation arises that vendors, consultants, or Sprint Nextel cannot quickly resolve or that affects the implementation schedule.

The FCC discouraged public safety licensees from filing requests to extend the June 26, 2008, rebanding completion deadline at this time. Any requests that have already been filed will not be acted upon until the FCC makes a further review of the progress made thus far. Any requests that have been or will be filed will be subject to a high level of scrutiny. System size, complexity, level of effort required to complete rebanding, and the degree of interoperability with other systems are all factors that will be weighed when reviewing an extension request.

The FCC did direct the TA to approve Frequency Reconfiguration Agreements (FRAs) that provide for recovery of rebanding costs incurred after June 26, 2008. The complete text of the Public Notice is available at: http://fjallfoss.fcc.gov/edocs_public/attachmatch/FCC-07-168A1.doc

Bette Rinehart works for Motorola and regularly reports on RPC issues for NPSTC's RPC Committee.

Age of Broadband continued from page 1

Working Group develop a Public Safety 700 MHz Statement of Requirements (SoR) to outline public safety's mission critical needs in a 700 MHz broadband network.

The goal of the SoR is to have as many well-informed bidders for the D Block spectrum as possible and to ensure that potential bidders understand the public safety requirements for this shared network. The SoR will provide a blueprint to the D Block winner for the construction, operation, and cost of the public safety network, allowing potential bidders to fully assess their interest in the auction. A major element of the public-private partnership is a Network Sharing Agreement that will be made between the PSBL and the winner of the D Block auction. This agreement will include elements that define the capabilities of a national broadband network.

Unifying Incident Response continued from page 11

Strategy 14. Prompt, reliable responder notification. All traffic incident responders should receive prompt, reliable notification of incidents to which they are expected to respond.

Strategy 15. Interoperable voice and data networks. State, regional, and local TIM stakeholders should work together to develop interoperable voice and data networks.

Strategy 16. Broadband emergency communications systems. National TIM stakeholders (working through NTIMC) should work together to reduce the barriers to developing and integrating broadband emergency communications systems (both wired and wireless).

Strategy 17. Prompt, reliable traveler information systems. TIM partners should encourage development of more prompt and reliable traveler information systems that will enable drivers to make travel decisions that reduce the impacts of emergency incidents on traffic flow.

Strategy 18. Partnerships with news media and information providers. TIM partners should join with news media and information service providers to provide prompt, reliable incident information to the public.

Important Dates 2008

Date	Event	Location
January 7-11	P25/TIA Meeting	Mesa, AZ
January 16-19	NSA Winter Conference	New Orleans, LA
January 20-24	NENA TDC-ODC Conference	Nashville, TN
January 26-30	APCO Winter Summit	Orlando, FL
February 11-13	NPSTC Committee and Governing Board Meetings	Mesa, AZ
February 25-29	IWCE Conference and Workshops	Las Vegas, NV
March 3-5	NENA 9-1-1 Goes to Washington, D.C.	Washington, D.C.

Publication Information

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