

800 MHz Reconfiguration: Maximizing Reconfiguration Timeframes

800 MHz Transition Administrator

Public safety radio systems—those used by police, firefighters, emergency medical technicians, and other systems operating on the 800 MHz band—have been experiencing increasing levels of interference and “dead zones” as a result of commercial wireless carriers operating in the same or adjacent spectrum bands. Reconfiguration is designed to alleviate this interference by spectrally separating the two types of systems.

The 800 MHz reconfiguration program is part of the Federal Communication Commission (FCC’s) plan to promote safety and protect the lives of first responders and other emergency personnel by addressing the harmful interference to public safety communication systems operating in the 800 MHz Band. As the 800 MHz Transition Administrator, LLC (TA, LLC) for the reconfiguration of the 800 MHz Band mandated by the FCC, we are the neutral and independent entity charged with assisting licensees with reconfiguration.

On February 22, 2006, we submitted our Quarterly Report for the quarter that ended December 31, 2005, to the FCC.

By February 21, 2006, which marked the conclusion of Wave 1, Stage 1 Alternative Dispute Resolution (ADR),

the total number of all affected Channels 1-120 licensees who have reached agreements with Sprint

Nextel climbed to 47 percent. Since Channels 1-120 licensees in each Wave must clear the frequencies before National Public Safety Planning Advisory Committee (NPSPAC) licensees can move, this is an encouraging statistic. For more

information on the Regional Prioritization Plan for 800 MHz Reconfiguration, or to view the complete Quarterly Report, visit our website at www.800TA.org.

In addition to providing the status of licensees in various stages of the process, we described some

valuable ways in which the different parties involved can make the best use of the timeframes the FCC has outlined for 800 MHz Reconfiguration. As noted in the Quarterly Report, “perhaps the most significant lesson learned from the past 8 months is that *negotiations between parties must begin as soon in the process as possible*. Early and frequent dialogue is essential to framing the key issues to be resolved and to ensuring that adequate time is available in the schedule to resolve them.”

Planning Funding

We recommend filing a Request for Planning Funding (RFPF) if you expect to expend more than 30 person days of effort in planning activities, have a large and/or complex system, or are part of a group of smaller systems that share systems for interoperability. Large systems may be those with simulcast configurations, statewide, or other geographically large systems that have complex planning requirements. Large and complex systems generally include those with over 1,000 subscriber units, 10 or more channels, and three or more sites. Regardless of these recommendations, we know that individual reconfigurations may involve unique

	WAVE 1		WAVE 2		WAVE 3		WAVE 4	
	1-120	NPSPAC	1-120	NPSPAC	1-120	NPSPAC	1-120	NPSPAC
Voluntary Start Date for 1-120 / Earliest Date for NPSPAC Voluntary Start	Jun. 27 2005	Feb. 1 2006	Oct. 3 2005	May 1 2006	Jan. 3 2006	Aug. 1 2006	Apr. 3 2006*	Nov. 1 2006*
Planning Window Start	Apr. 15 2005	Nov. 18 2005	Jul. 20 2005	Feb. 15 2006	Oct. 20 2005	May 18 2006	Jan. 18 2006*	Aug. 18 2006*

*Tentative dates; actual dates for this Wave depend on border treaties with Mexico and Canada

funding or planning considerations, so *the decision whether or not to submit an RFPF is entirely up to you*.

Our recommended timeframe for submitting RFPFs—the “planning window”—is *75 days before* the start of your Voluntary Negotiation Period.

If Planning Funding is required, do not wait until the Mandatory Negotiation Period commences. This is too late in the process. Remember that the 75-day planning window is only a guideline, not a rule, and exceptions are expected. Ultimately you should determine what is required for your situation and act accordingly.

Negotiations of Cost Estimates

We recommend that public safety licensees immediately engage at the outset of the Voluntary Negotiation Window, as public safety agreements take

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The Collective Voice of Public Safety Communications

Visit our website at www.NPSTC.org

npstc executive director



Marilyn Ward

During the Public Safety Wireless Advisory Committee, (PSWAC), proceedings 10 years ago, the various national public safety organizations were very effective in uniting their efforts. By the end of the PSWAC process, it was obvious that this united front of local and state representatives was effective. Federal agency representatives also joined with us to accomplish our common goals. The effectiveness was demonstrated by the fast action of the Federal

Communications Commission (FCC) in doubling the amount of radio spectrum for public safety.

This united front, displaying openness and the ability to arrive at consensus positions, encouraged the FCC to continue on with the process and thus was born the National Coordinating Committee or NCC. Once again local and fed-

eral first responders united and presented consensus solutions to solving the problems developed during the NCC.

The value of our collective stance became so obvious that the major players in spectrum issues formed the National Public Safety Telecommunications Council. NPSTC has shown its value by obtaining funding from Washington, D.C., to assist the Regional Planning Committees to form and hold initial meetings. NPSTC has also been very effective in providing assistance to local agencies applying for funding in areas such as interoperability. NPSTC continues to be the only voice that represents local, state, and national interests and agencies. The strength of NPSTC has not been any individual or any agency. NPSTC has reached its strong position by being united and speaking for its various groups.

NPSTC is positioned to be even more productive and to achieve maximum advantages for public safety agencies. NPSTC has no intention of sitting on its laurels. In fact, we solicit even more participation by persons interested in the field of public safety communications. NPSTC extends an invitation to everyone to join with us in this cooperative effort. We already have the attention of Washington—we are a known group that has presented the consensus voice of all public safety. We have made the effort not to be involved with one group or to be dominated by commercial interests.

Federal belt tightening is facing us. Congressional delays are a fact. NPSTC offers help in confronting such obstacles. So come join with us.

800 MHz, continued

(Continued from page 1) longer to complete and implementation generally takes longer to plan.

One way to “engage” is to prepare your Cost Estimate with your proposed expenses for reconfiguration. You should consider having your Cost Estimate prepared when your Voluntary Negotiation Period starts. If you can submit your Cost Estimate to Sprint Nextel close to this start date, you will have a full 180 days to negotiate your Frequency Reconfiguration Agreement (FRA). The longer you give your organization, the more time you will have to work out the specifics of your contract. If you wait to start preparations for your Cost Estimate until your Voluntary Negotiation Period begins, the time constraints will be tighter, with less room for negotiation and increased likelihood that your case will enter ADR at the end of mandatory negotiations.

If You Need Help, Get It!

Engage with Sprint Nextel early in the process. Early dialogue is critical to successful reconfiguration. If at any time you feel your negotiations have stalled, we are available to assist. We are also available to communicate with Sprint Nextel or, if you choose, you can request mediation once you have entered Mandatory Negotiations. Forms are available for each

of these actions on our website

www.800ta.org/content/documents/reconfig_forms.asp.

Our website includes extensive informative resources, including the Online Reference Guide. This guide, also known as the Reconfiguration Handbook, reflects the most current policies and other updated guidance. We also offer “Webinars” or online seminars to educate licensees and other stakeholders about the process. These Webinars include presentations and live Q&A sessions. For the Webinar schedule and registration information, please refer to our website. In addition to these resources, we staff a trained Contact Center to answer your questions that can be reached at comments@800TA.org or PH: 888-800-8220.

One Last Word...

Engaging in reconfiguration activities early is critical to the success of reconfiguration. As you fulfill your responsibilities as a reconfiguring 800 MHz licensee, take advantage of the resources and information available to assist in the process.

As everyone agrees, when reconfiguration is complete, *we will all benefit from the improvements to public safety communications.*

This article was submitted by the 800 MHz Transition Administrator.

Ham Radio and Public Safety Ask for FCC Reevaluation of Broadband Over Power Lines

By Jackie Siegel

In April 2005, Representative Michael Ross, Arkansas, drafted House Resolution 230, on interference levels caused by broadband over power lines (BPL), asking that the Federal Communications Commission (FCC) reconsider and revise rules governing broadband over power line systems based on a comprehensive evaluation of the interference potential of those systems to public safety services and other licensed radio services. The American Radio Relay League (ARRL) and Representative Ross are looking for co-sponsors of the resolution. Tests conducted in Shelton, Connecticut; Agawam, Massachusetts; Allentown, Pennsylvania; and Briarcliff, New York, found significantly high levels of potential interference in the VHF low band 30 to 50 MHz range.

Comprehensive studies and actual measurements to date undertaken by the National Telecommunications Information Administration (NTIA) have determined that broadband over power line creates a “high risk” of radio wave interference, and that harmful interference to public safety mobile radio receivers can be expected at distances of 75 meters from the power line where broadband over power line is in operation, and at distances of up to 460 meters from fixed stations, such as VHF police or fire dispatch communications facilities. The same NTIA study determined that BPL interference to aeronautical and airline travel communications could be expected at distances up to 40 kilometers from the center of the broadband over power line system, and that interference to outer marker beacons for airline instrument landing systems could be expected at great distances as well.

BPL—What Is It?

BPL is the delivery of broadband Internet signals using electrical wiring to conduct high-speed digital signals to homes and businesses. BPL systems are designed to deliver Internet services using medium voltage power lines as the distribution medium and generally use the frequency range between 1.7 and 80 megahertz (MHz). Because power lines are not designed to prevent radiation of RF energy, BPL represents a significant potential interference source for all radio services using this frequency range. Overhead electrical power lines and residential wiring act as antennas that unintentionally radiate the broadband signals as radio signals throughout entire neighborhoods and along roadsides. Interference has been observed nearly one mile from the nearest BPL source.

Source: American Radio Relay League (ARRL) website.

Many public safety agencies, including emergency medical services, fire, and law enforcement as well as public safety support services use VHF low band (30–50 MHz).

Currently 14 states—California, Connecticut, Florida, Illinois, Indiana, Maryland, Mississippi, Missouri, Nebraska, North Carolina, South Carolina, Tennessee, West Virginia, and Wyoming—utilize that band for state police operations and nine of those states use it as their primary radio band. The potential for BPL interference to ongoing operations grows as California and other states expand reliance on the VHF low band.

“Not all BPL systems are created equal,” says Tom Abernethy, ARRL’s representative to NPSTC’s Governing Board. “There is a difference in BPL technologies. NPSTC and the ARRL are not against BPL,” he adds, “only the interference created by certain BPL system technologies to public safety and other licensed services. NPSTC and the ARRL are interested in a measure of protection from BPL systems. Several vendors have recently invested enormous efforts working with licensed radio services to create a “clean” BPL system.”

PLC, PLT, PLB—They’re All BPL

BPL is known by other names and acronyms, including Power Line Communications (PLC), Power Line Telecommunications (PLT), and Power Line Broadband (PLB). There are a number of types of PLC systems, using different approaches and architecture. All are “carrier-current” systems, a term used to describe systems that intentionally conduct signals over electrical wiring or power lines. There are three major categories of PLC:

Access BPL uses electrical distribution lines, overhead or underground, to provide broadband Internet access to homes and businesses. Because their wiring is physically large, often overhead, and extends across entire communities, access BPL systems pose a significant interference potential to over-the-air radio services. There are a number of different techniques used in access BPL, from spread spectrum to OFDM (multi-carrier signals).

In-building BPL systems are designed to use the electrical wiring within a building to network computers. Most operate under the HomePlug specification. HomePlug systems used within a building have notches in their product specifications, to protect over-the-air amateur radio operation.

Control PLC operates below 500 kHz, and is used by electric-utility companies to control their equipment using the power-lines as transmission lines. This type of PLC does not pose any significant interference risk to HF operation.

Source: American Radio Relay League (ARRL) website.

NPSTC - and the Association of Public Safety Officials - International (APCO) have filed with the FCC, urging that action in the BPL docket at FCC be withheld for at least 12 months, pending a conclusive determination of the radio waves interference potential of broadband over power line to public safety and radio systems below 80 MHz. The Missouri State Highway Patrol, which uses a statewide radio system with over 1,400 users in the VHF low band, also filed with the FCC, stating that the overall effect of broadband over power line implementation will be a potentially significant increase in interference to mission-critical public safety communications.

Congressman Ross’s resolution says that “...the FCC has struggled for years to resolve widespread instances of harmful interference to the 800 MHz communications of our heroic first responders, and should not have proceeded with introduction of a technology which appears to have substantial potential to cause destructive interference to police, fire, emergency medical services, and other public safety radio systems, operating below 80 megahertz, VHF low band without first conducting a comprehensive evaluation ...”

HR 230 states that (1) the FCC should reconsider and review the rules adopted pursuant to its October 28, 2004, action in the broadband over power line proceeding, which could disrupt public safety radio systems; (2) the FCC should conduct a full and complete radio wave interference analysis involving field studies and broadband over power line test demonstration systems, to determine the actual, measured

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GPS RTK — Using Wireless Telecommunications To Enhance Surveying Performance

By Larry Miller

By definition the Public Safety Radio Pool covers the licensing of governmental entities and includes numerous related activities. While the most frequent association with the term “public safety” is police, fire, and emergency medical services, all governmental entities are eligible to hold authorizations for frequencies from the Public Safety Frequency Pool. Governmental transportation agencies whose operations include emergency response related to accidents and hazardous material spills are eligible in that pool. While much of their work does not fall within the definition of public protection or disaster relief, there are times when these agencies are vital partners to the other organizations responding to natural and man-made incidents.

Included in the non-critical operations for these agencies is surveying. In order to maximize the efficiency of their work-force and accuracy of their map data, new technologies are being incorporated into their operations. One of the latest examples of this is Global Positioning Systems (GPS). These systems make land surveying the most accurate it has ever been. The efficiency of these systems is dependent upon a wireless telecommunications link. At least one manufacturer’s equipment comes from the factory with both UHF and 900 MHz receivers. The use of cellular telephony is also incorporated into some units.

The general operating concept is to locate a GPS receiver equipped with a wireless transmitter. This transmitter transmits correction signals to rover units, which can be as far as 24 kilometers from the master station. These signals make the work of the surveyors extremely accurate. The systems are used by both governmental and private surveyors, and are also used by public and private utility companies.

While the operations described are not typical first responder activities, the enhancement of survey data and efficiency of the public agency crews performing these duties are beneficial to the public safety community.

Governmental agencies historically eschew the use of commercial wireless services. This is in large part due to the need for greater reliability and the fact that these agencies require reliable service in areas sometimes not adequately served by commercial systems. Many times the agencies purchase the GPS RTK {RTK is a specialized form of GPS.} equipment only to discover that they needed to obtain a FCC Wireless Telecommunications Bureau Radio Service Authorization. In the past, this did not represent a tremendous problem for small agencies with relatively small areas of operation, but the state agencies desiring one or two UHF frequencies to use over the entire state presented a dilemma. Initially waivers to use Industrial/Business Pool frequencies were submitted and usually granted by the FCC. In order for the applicant to receive the license grant, a frequency search showing that there were no Public Safety Pool frequencies, which should be utilized by the applicant was required. This was not always possible for small systems. If this requirement was met, then another search for suitable frequencies in the Business/Industrial Pool was performed. If suitable frequencies were found,

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Low Power Television Stations Must Coordinate with Public Safety

By Bette Rinehart

Before filing applications for on-channel digital conversion on Channels 63, 64, 68, and 69, a Low Power TV (LPTV) station or TV translator must negotiate coordination agreements with the person responsible for administering the 700 MHz state license as well as all affected 700 MHz Regional Planning Committees (RPCs). If there is no active RPC, the LPTV or TV translator must coordinate directly with any existing public safety licensee(s) or a frequency coordinator certified to coordinate 700 MHz public safety frequencies.

The prior coordination requirement is intended to prevent interference to public safety operations from digital LPTV stations. Digital LPTV must not cause interference to public safety operations in the 700 MHz band and must cease operations as soon as they receive an interference complaint and it has been confirmed that their operations are at fault.

LPTV stations on Channels 63, 64, 68, and 69 must obtain a written coordination letter from the following affected public safety entities before filing an application to convert to digital operations:

- Any RPC within 75 miles of the proposed digital LPTV site.
- Any State Interoperability Executive Committee (SIEC) within 75 miles of the proposed digital LPTV site.
- Any state within 75 miles of the proposed digital LPTV site.

LPTV stations on Channels 62, 65, 66, and 67 must notify affected public safety entities within 30 days after filing their application to convert to digital operations:

- Any RPC within 50 miles of the proposed digital LPTV site.
- Any SIEC within 50 miles of the proposed digital LPTV site.
- Any state within 50 miles of the proposed digital LPTV site.

A sample coordination letter and more detailed information is available in a White Paper prepared by Motorola and available on the NPSTC website at www.npstc.org

Bette Rinehart is National Regulatory Affairs Manager for Motorola. She is active in the NPSTC Regional Planning Committee.

BPL, continued

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effect of broadband over power line on public safety systems, and a comprehensive interference analysis, with the participation of public safety agencies and organizations, and other interested parties; and (3) the FCC should allow extensive public review and comment on this study, and the results of the study, and a summary of the public comment should be published before broadband over power line systems are deployed pursuant to rules finally adopted in the FCC’s ET Docket No. 04–37.

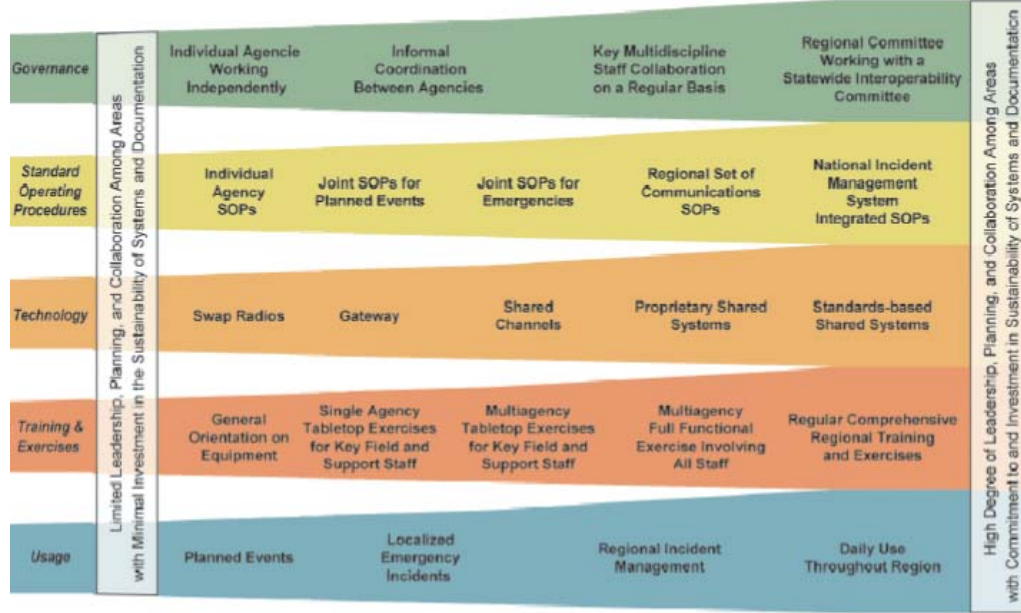
In the short term, NPSTC’s Governing Board is urging its participants to examine HR 230, and, in the long term, NPSTC will monitor issues that occur as the testing begins. For more information on BPL, visit NPSTC’s website, www.npstc.org, and ARRL’s website, www.arrl.org. Jackie Siegel is the Editor of *spectrum*.



What Does “Common Nomenclature” Mean to First Responders?

By Marilyn Ward, Richard Reynolds, and Ronald Mayworm

Have you ever responded to the scene of a multi-agency emergency and felt like you had entered the Tower of Babel? Between a variety of signals and codes, and different channel/talk group names on the radios, you may as well have been in a foreign country. We continue to work on the levels of



They simply want to know where to turn the knob on *their* radio so they can all talk to each other. Many times I have seen a group of officers huddled in a circle with their radios trying to find a common place to go so they could talk. In every instance, they all had a common nationwide intercity channel they could have used, but didn't. Why? *They didn't know that they all had the same frequency available.*

Interoperability has to be resolved with a variety of solutions. One of these is relatively inexpensive and requires fulfilling the most difficult of all the items on the continuum—agreement among people. Why is it that adjoining jurisdictions can't agree on a common naming solution for

interoperability as defined in the SAFECOM continuum.

This document can serve as an important tool to improve public safety communications interoperability. But what about the immediate interoperability needs of responders on the incident scene when their radios identify the same talk groups or channels by different names?

Look at it this way: Your name is John to your parents, and Tom to your cousins, and Jim to your co-workers and Frank to everyone else. When your cousin calls your office and asks for Tom, the answer will be “he does not work here,” so then he calls your neighbor and asks, “Is Tom's car in the driveway?” and the neighbor replies, “There's no Tom in the neighborhood,” and so on.

The same thing happens every day around the country when large incidents require a multi-jurisdictional response. From my own experiences, I can tell you about complaints to my office because “we do not have the hailing channel” resulting in a communications snafu during a pursuit. Now, ask a radio tech about the “hailing channel” and he or she will reply, “Sure you have inter-city 154.xxx.” Ask a police officer from an adjoining county, and the response will be more like, “Yeah, we don't

have a hailing channel, but we do have a Metro channel.” Whereas his radio tech may answer, “Yes, we have interagency communications at 154.xxx.”

My point is, it doesn't make a bit of difference to the officer, firefighter, EMS responder, or anyone who wants to “plug and play” that we use 154.xxx for interagency communications.

their radios?

One reason is that some models of radios have a display for six characters while most models have at least an 8-character display.



Six-character display

Another reason is the time and expense to recall radios and re-program to the agreed-upon nomenclature. A third reason—Whose do we use: yours or mine? And when do we start reprogramming, and how do we do it with the least impact on first responders?

All of these and many more questions have to be worked out. But, what I do know is that it will *never* happen if we don't start somewhere.

NPSTC believes the 55 Regional Planning Committees (RPCs) are a place to start. If the RPCs adopt a common nomenclature and write it into their plans, eventually common nomenclature will happen as frequency plans are reviewed and approved. NPSTC's RPC Committee has formed a working group called the Common Nomenclature Working Group to promote adoption of an existing system to help solve this problem nationwide.

There is a common interoperability channel nomenclature scheme that was developed by the Federal

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Fourteen-character display

Integrating Cognitive Radio into Public Safety Operations

By Sean O'Hara

Cognitive Radio (CR) technologies permeate our U.S. military capabilities, and are quickly being assimilated into commercial communications markets as well. However, homeland security and public safety communications are behind these other groups in both understanding and integrating these capabilities into their operations. This is unfortunate, as many of public safety's current communications interoperability and spectrum resource issues might be addressed through the utilization of these technologies.

The Cognitive Radio Technologies Working Group from the Software Defined Radio Forum (SDRF), with the involvement of the public safety community, through several National Public Safety Telecommunications Council (NPSTC) representatives, intends to investigate the application of SDR and CR to public safety's needs, through the examination of several operational scenarios. In order to do this, the Cognitive Radio Technologies Working Group, with participation from the SDRF Public Safety Special Interest Group (PS-SIG) and NPSTC will analyze these public safety scenarios and will assess how cognitive radio technology can provide public safety solutions to their communications and interoperability issues. The following CR technology areas will be examined for each scenario selected:

Spectrum RF Characterization: Portions of the CR system that determine spectrum occupancy, waveform identification, physical geolocation of communications nodes, and other related functions.

Connection Rules: Portions of the CR system that determine how nodes are connected, which communications are

routed to which nodes and how policy or rule-based decision processes support the communications functionality.

User Interface: Portions of the CR system that determine spectrum occupancy, how the CR interacts with the environment and the users. It will tailor the operational capabilities of the GUI and SDR/CR platform to meet the needs of public safety incident commander's responding to complex operations and situations.

Digital Filtering – PHY/MAC Functions: Waveform decomposition and information processing for routing to appropriate frequency bands, waveforms and communications nodes.

Networking Functions: Routing functionality and information transport mapping.

For each of these areas, the Working Group(s) will research technology capabilities, perform analyses, and simulations, and come to conclusions regarding requirements, current capabilities, and future development needs.

The effort will be completed in late 2006, and a summary of the results will be reported here – stay tuned!

Sean O'Hara has been deeply involved with Public Safety Communications for over 8 years, and serves as a Lead Communications Engineer for New York's Statewide Wireless Network.



Common Nomenclature, continued

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Communication Commission (FCC's) 700 MHz National Coordinating Committee (NCC) and included in their final recommendations to the FCC. The "NCC scheme" was expanded beyond just the 700 MHz band by the NCC to encompass all nationally designated interoperability channels, including federal, in all bands.

This scheme was developed through many hours of discussion with many individuals and groups. It represents a consensus that takes into account many requirements, including a band designator and a unique-across-all-bands (no more than 2 digits) number for radios with a 2-character display, many of which are fielded by the fire service across the country today. As you probably know, the FCC declined to require any nomenclature scheme in their rules. They did, however, recognize that "establishment of a minimum national standard" was necessary, and directed the NCC to consider developing an "industry standardized scheme for display labeling." Likewise, members of Congress and the Department of Homeland Security (DHS) have supported a standardized

nomenclature. The NCC scheme has already been adopted in a number of areas, and has been highly recommended for use in the major urban areas by DHS's Interoperable Communications Technical Assistance Program (ICTAP). In addition, use of the NCC scheme is being considered as a requirement for future federal grants.

NPSTC wants to increase public safety agencies' awareness of the NCC scheme, particularly now since rebanding presents a convenient opportunity for National Public Safety Planning Advisory Committee (NPSPAC) and other 800 MHz licensees to adopt the scheme. To help measure the current usage level of the NCC scheme, NPSTC's Common Channel Nomenclature Working Group has been asked to survey all 55 regions to determine what nomenclature scheme, if any, is being used in each region.

The development of a common nomenclature will do a lot for the interoperability problem on the scene and improve emergency communications nationwide. Won't you help us solve this problem and join our Working Group?

Marilyn Ward is the Executive Director of NPSTC. Richard Reynolds is the RPC Committee Chair. Ron Mayworm is Chair of the Common Nomenclature Working Group. For more information and to participate in the RPC survey, visit www.npstc.org.



Standardized Channel Naming: A "Must-Have" for interoperability.

By Don Root

As noted in the January 2006 edition of *spectrum* and elsewhere, public safety agencies throughout North America have not followed the naming convention for the five 800 MHz international interoperability channels that was recommended in the early 1990s by the FCC's National Public Safety Planning Advisory Committee (NPSPAC). This has led to many documented cases of public safety users being unable to communicate on common channels, when differing agencies have programmed different names for the same channel into their radio, sometimes even within the same agency!

Formed in the late 1980s to provide the FCC with guidance on how to implement the new public safety allocation at 821-824/866-869 MHz, NPSPAC originally recommended that the five conventional channels be officially named with a standardized format ("National Calling" or "NCall" and "National Tactical 1" [NTac1] through "National Tactical 4" [NTac4]). Following the signing of treaties with Canada and Mexico where those countries also agreed to the use of the five channel pairs for public safety interoperability communications, NPSPAC modified their naming recommendation to change the names to "International Calling" and "International Tactical" channels 1-4 [ICall and ITac1 through ITac4].

When the FCC chartered the Public Safety National Coordination Committee (NCC) to address the new 700 MHz band, the NCC's Interoperability Subcommittee developed a proposal for the standardized naming of each of the nearly 100 interoperability channels designated by the FCC and/or the NTIA, across the entire spectrum used for public safety voice

communications. In developing this new list of channels, the subcommittee members attempted to balance the need for simplicity with the requirement for each channel name to be unique from others, to prevent confusion from duplicated "Tac" names in different radio bands. The result was a naming structure that identified the band involved, type of channel, a unique number between 1-99, and indication if the use is to be simplex on a relay output ("Direct" or "Talkaround.") (See Figure A.)

Using the structure above, the VHF Calling Channel "VCall" at 155.7525 MHz is designated "1CAL18" and the 155.4750 MHz National Law Enforcement Channel becomes "1LAW16." The paired UHF Calling Channel "UCALL" (and "UCALLa" for

NCC Recommended 800 MHz Interoperability Channel Names

Pre-Reband User TX Freq.	Pre-Reband User RX Freq.	Post-Reband User TX Freq.	Post-Reband User RX Freq.	NCC Channel Name
821.0125	866.0125	806.0125	851.0125	8CAL90
866.0125	866.0125	851.0125	851.0125	8CAL90D
821.5125	866.5125	806.5125	851.5125	8TAC91
866.5125	866.5125	851.5125	851.5125	8TAC91D
822.0125	867.0125	807.0125	852.0125	8TAC92
867.0125	867.0125	807.0125	852.0125	8TAC92D
822.5125	867.5125	807.5125	852.5125	8TAC93
867.5125	867.5125	807.5125	852.0125	8TAC93D
823.0125	868.0125	808.0125	853.0125	8TAC94
868.0125	868.0125	853.0125	853.0125	8TAC94D

Figure B: NCC Recommended 800 MHz Interoperability Channel Names

direct use) outputting on 453.2125 MHz becomes "4CAL27" and "4CAL27D" for direct operations. (See Figure B)

Even though the FCC has not elected to adopt the NCC's recommendations as to standardized channel names for interoperability channels, we should take advantage of the opportunity provided by the rebanding of the 800 MHz band to get all of public safety "on the same sheet of music." As every public safety user's radio(s) with NPSPAC channels must be reprogrammed, *now* is the time for all SIECs and Regional Planning Committees to adopt the proposed naming standards for the 800 MHz interoperability channels, and for agencies using these channels to program the standardized names into their subscriber radios at the time the radios are reprogrammed during the four waves.

SIEC Data Gathering Update

The NPSTC Support Office has collected information on about two-thirds of the 55 state-like entities in the U.S. The SIEC Working Group is now reconciling the data collected against known sources such as the FCC's contact database in order to provide a current contact list. More information on this effort will be provided in the near future.

Don Root is the Assistant Manager of the San Diego – Imperial County Regional Communications System, and a long-time contributor to interoperability planning efforts on the national level. If you have questions or would be interested in participating in the SIEC Working Group, contact Don : 858.694.3903 or at don.root@sdsberiff.org.

NCC Recommended Channel Name Structure

PS Band	Use	Channel #	Simplex?
1 = 150-160 (FCC)	CAL = Calling	One or two digit unique number to ID combination	Blank if repeat or non-paired channel
1F = 160-174 (NTIA)	EMS = EMS		
3 = 30-50 (FCC)	FIR = Fire		
4F = 406-420 (NTIA)	LAW = Law		
4 = 450-512 (FCC)	TAC = Any PS		"D" indicates direct on paired channel
7 = 764-806 (FCC)	DAT = Data	(WB data uses numeric-alpha indicator to show 50, 100, or 150 kHz combination)	
8 = 851-869 (FCC)	WDAT = WB Data		

Figure A: NCC Recommended Channel Structure



Meet The National Association of EMS Officials

By Jackie Siegel

Emergency Medical Services (EMS) are organized systems for response, treatment, and transportation to persons with medical emergencies or injuries. At the intersection of public safety, public health, and health care, EMS is the “safety net” when the other services fail, states the National Association of Emergency Medical Services Officials (NASEMSO’s) website. The faces of EMS often stay hidden until they are needed, unlike their fire, police, and other colleagues whose community presence is often more obvious. EMS includes EMTs, paramedics, doctors, nurses, medical dispatchers, and medical first responders. They may be paid or volunteer, but they are all held to the same standards of professionalism.

NASEMSO is an organization of state EMS leaders from each of the 56 states and U.S. territories. “State EMS directors are responsible for the development, regulation, and oversight of EMS and trauma systems at the state and local levels. NASEMSO provides vision and leadership in the development and improvement of EMS systems and in national EMS policy,” says Kevin McGinnis, NASEMSO’s representative to NPSTC and an EMS provider for more than 30 years. McGinnis is a former ambulance service chief, hospital ER director, state EMS and 9-1-1 Director, and currently serves as the Maine EMS Trauma System Manager.

In October 2005, the National Association of State EMS Directors changed to NASEMSO and has subsequently formed national councils of state EMS medical directors and data managers. It is in the process of forming national councils of state EMS training coordinators and trauma system managers.

In his role at NASEMSO, McGinnis serves as the Program Advisor specializing in communications technology, data systems, and rural EMS. McGinnis is a member of the SAFECOM Executive Committee and has also worked on communications technology issues as a liaison for the Joint National EMS Leadership Conference, which includes the National Association of EMS Physicians, the National Association of Emergency Medical Technicians, and the National Association of EMS Educators. He is also communications technology liaison for the National EMS Management Association.

In April 2005, NASEMSO endorsed comments submitted to the Federal Communications Commission (FCC) by NPSTC and the Association of Public Safety Communications Officials-International, Inc. (APCO). The comments on future spec-

trum needs made the case for additional 700 MHz and VHF spectrum for public safety. The additional 700 MHz will allow public safety to access advanced technologies including wide area mobile data applications that can furnish important on-the-scene data for law enforcement officers, firefighters, and emergency medical personnel with high-speed data and high-resolution video and still images.

Futuristic Devices?

As first responders who work with law enforcement, fire, public health, hospitals, and transportation officials daily, the communications needs of EMS are myriad. In an article for *Interoperability Today*, published by the Department of Homeland Security (DHS’s) SAFECOM Program, McGinnis noted what types of communications devices could be possible to save lives.

Imagine having a screen—picture an air traffic controller’s screen—depicting the geographic area of interest to the user. This EMS Resource and Event Monitoring System (EMSREMS) shows the resources and emergency calls in the area and their status at the click of the cursor. EMS and medical staff could access the EMSREMS through PDAs, mobile data units in ambulances, or PCs at the ambulance base, emergency room, and helicopter EMS crew desks.

The system would be a platform to allow immediate “pulling” in of information by either receiving and holding it until the user wants it, or by polling other databases via secure web interfaces. This is important to EMS professionals who cannot afford to have information “pushed” at them at critical moments during incident response. Also imagine that there are versions of the EMSREMS tailored to the needs of law enforcement, fire service, and public works/transportation agencies. Each version has robust connections to databases required by their professionals and limited overlap with the others’ systems as required by agreed upon needs in an over-all system of systems. Each unit, whether in a PDA or PC or field-hardened tablet computer, has integrated voice communications and is able to “poll” all of the databases necessary to provide real-time information.

This future vision,” says McGinnis, “is not as ‘futuristic’ as one might imagine. The technology itself is either currently available or under development. The larger challenge is that, unlike our partners in the fire and law enforcement communities, there are too few EMS faces at the national, state, or local levels looking at what communications technology has to offer in terms of improving EMS response, thinking about how EMS might adapt communications systems to benefit the patient, and working to help secure funds and bandwidth to develop and implement these applications.”

“With recent advances in voice, visual, and data communications technology that support potentially lifesaving applications—applications that would have seemed unimaginable to EMS responders three decades ago—change may be on the horizon,” McGinnis says.

NASEMSO’s message—there are many lessons to be learned as the EMS community continues efforts to assure the ongoing

preparedness of the emergency medical services system. An Emergency Medical Services system that functions well on a day-to-day basis constitutes the very underpinnings of an EMS system that responds in a disaster or major catastrophic event. September 11th, as well as other disasters, have revealed significant weakness in each state or municipality's EMS communications systems. Standard telephone, cellular telephone, and other routine communications systems are overwhelmed. Redundant, secure, and exclusive radio and other communications systems are required for effective EMS communications during a disaster or crisis event. The need to link EMS communications with medical, public health, and hospitals is vital.

Just as needed by EMS as the ultimate "futuristic" broadband applications offered by additional spectrum, are the building blocks of communications systems, says McGinnis.

EMS interoperability at local and state levels will need to embrace voice, video, imaging and data communications, and state EMS leaders should make themselves aware of the future's potential for improving patient care through greater access to real-time information in the field. Developing these types of communications capabilities represents probably the greatest need for bandwidth in the public safety community.

EMS officials must get to the tables where decisions are made on communications system coordination and bandwidth allocation on their local, regional, and state levels (e.g., State Interoperability Executive Committees).

EMS officials should encourage a comprehensive needs assessment and the targeting of critical improvements through a process such as the State Communications Interoperability Planning (SCIP) methodology.

Nationwide 9-1-1 and EMD

As part of NASEMSO's mission and focus, the organization wants to highlight the lack of availability of 9-1-1 and enhanced 9-1-1 in many parts of the country, and the uneven training and certification requirements of emergency medical dispatchers, which vary from state to state and even within communities. Nationwide mapping is still incomplete and automatic location identification technology for cellular phones is in the early stages of development. Because nationwide access to a uniform emergency number and dispatchers trained to give lifesaving pre-arrival instructions is essential to the nation's emergency medical services system, NASEMSO supports nationwide 9-1-1 and uniform training and certification.

Domestic Preparedness and Disaster Response

NASEMSO also notes that the EMS system will play a vital part in the medical aspects of response to a disaster, whether local or large scale. State EMS offices are generally charged in the state disaster response plan with the responsibility for coordinating the EMS response. Some of these responsibilities may include determining the availability of EMS resources, directing ambulances into needed areas, and directing the flow and destination of patients evacuated from the event area.

In many instances, while the state plan may identify such a role for the state EMS office, the legal authority to command

these resources and the technological infrastructure necessary to assess availability and status of those resources is absent. NASEMSO encourages states to attend to assuring the role envisioned for the EMS office is legally and technically supportable, and that adequate resources are brought to bear to assure an optimal state of readiness.

Communications/Technology Liaisons

The Communications and Technology Committee coordinates NASEMSO's response to and participation in evolving communications and technology issues. All association telecommunications/intelligent transportation systems liaison activities are consolidated under McGinnis. NASEMSO staff, Communications and Technology Committee members, and other members and their communications staff have been very active in representing the EMS community in national planning venues in which EMS, in many cases, was previously completely or largely absent.

"The public safety and medical communications world is complex, with many activities going on simultaneously at the national level. NASEMSO realized that a 'big picture' perspective was needed to keep EMS effectively represented at the various policy-shaping tables and vested these liaison responsibilities with one liaison. Our partner associations felt the same way, and now I regularly distribute updates that end up on dozens of EMS leadership desks every week," says McGinnis. "NPSTC and SAFECOM are the sources of most of the communications activity to which we pay close attention. We have been active since the PSWAC days, but have definitely stepped up our interest."

"Our President, Dr. Bob Bass of Maryland, takes a huge interest in NPSTC's FCC filings and other activities, recognizing the credibility and expertise that NPSTC represents. Our President-Elect, Fergus Laughridge of Nevada, is equally committed to participating in NPSTC and SAFECOM, and is NASEMSO's alternate at the Governing Board and Executive Committees of those organizations."

McGinnis says that in the fall of 2004, the Intelligent Transportation Society of America Public Safety Advisory Group, which encourages transportation and public safety agencies to better integrate their on-scene incident response and to foster partnerships that improve interoperable communications systems and incident management procedures, held a series of forums with EMS, medical, and public safety providers to address communications issues. Forum participants identified a 'future vision' for EMS communications, based on available technology and technology under development.

"If EMS providers and leaders across the country make a concerted effort to learn more about the appropriate local, state and national forums that exist for interoperability and communications development, and commit the necessary personnel and financial resources to be represented accordingly, McGinnis says, "there is great potential that we may realize this 'future vision' sooner than we ever could have imagined."

Jackie Siegel is the Editor of spectrum.



From Washington, D.C.—Regulatory Update

By John Logan

NPSTC continues to review and participate in proceedings of the Federal Communications Commission (FCC) that affect public safety communications. Recent activities include the following.

700 MHz

The FCC is examining the 700 MHz band structure to determine whether any changes should be made to promote broadband applications in the band. NPSTC has stated that any reexamination must be premised on maintaining the current structure established for narrowband voice channels and that the focus of any changes be directed to the wideband and reserve channel structure. In letters to the FCC, sent on February 6, 2006, and November 18, 2005, NPSTC presented its preliminary analysis. It noted the potential to structure three 1.25 MHz channels for broadband or wideband applications from current wideband designated channels, with the Regional Planning Committee's having a critical role in establishing the band structure and the uses within each region. NPSTC noted that while the FCC's examination is pending, the issue of whether to adopt a wideband standard for interoperability should be deferred. (Dockets 96-86 and 05-157)

Emergency Alert System

The FCC proceeding addressing the Emergency Alert System (EAS) engages the need for bringing EAS capability to the state and local level. Drawing on testimony by Chief Robert DiPoli, City of Needham, Massachusetts Fire Department, and then President of the International Association of Fire Chiefs, before an FCC Advisory Committee examining emergency response, NPSTC emphasized the reality that current local warning systems are inadequate in scope and effectiveness. NPSTC urged the FCC to pursue EAS' objective to provide information to citizens, first responders, and government officials by formalizing a concerted effort with the Department of Homeland Security, other federal agencies, and state and local agencies to make it a resource that can be depended on. (Docket 04-296)

Interference on the Southwest Border

The difficult interference environment on the southwest border was the subject of a NPSTC February 1, 2006, letter to the FCC and Department of State. In the letter, NPSTC urged both agencies to pursue an agreement with the Government of Mexico to confront and alleviate the severe interference circumstances in public safety communications. NPSTC offered to establish a working group with state and local agencies that would work to present a model by which an agreement could be pursued.

Association of American Railroads

The Association of American Railroads (AAR) has proposed to the FCC that it be permitted to consolidate license authoriza-

tions currently held by individual railroads in the VHF and UHF bands into one national geographic "ribbon." NPSTC noted its serious concerns regarding the AAR proposal. NPSTC reflected that the proposal failed to provide a detailed analysis and justification for the frequencies involved and the ramifications of such a wide geographic exclusive license. NPSTC related that the proposal failed to describe the impact on public safety agencies holding licenses in the band, and noted that the proposal will foreclose sharing opportunities available to public safety and other services under current rules.

800 MHz Reconfiguration

In a November 18, 2005, letter to the Chief of the FCC's Public Safety and Private Infrastructure Division of the Wireless Bureau, NPSTC presented its examination of the administration of the 800 MHz band in the context of the ongoing reconfiguration. NPSTC noted its agreement with the premise that the additional channels made available under the reconfiguration be awarded to agencies in most need and that the Regional Planning Committees can provide an equitable and fair platform to resolve competing requests in the initial assignment of these channels. NPSTC also stated that the frequency coordinators are in a unique position to provide technical expertise for these channels to be used effectively, to protect the licensee and other users. It suggested a structure by which the RPCs and frequency coordinator can work together. (Docket 02-55).

ICOM Petition

NPSTC has stated its support of a petition filed by ICOM, Inc., to move certain 150 MHz frequencies to the Public Safety Radio Pool. These frequencies are Part 22 Public Mobile Radio Frequencies (18 Pairs and 4 unpaired frequencies) that were not sold at FCC auction. NPSTC noted that the 150 MHz band is an important resource for public safety communications and that VHF operations are in many circumstances the only means to conduct wireless communications for a range of agencies. In fact, 43 percent of public safety agencies use the band for core communications capability. Affording public safety agencies access to these channels will overcome the significant expense and time associated with the FCC waiver process. NPSTC did state that that the opportunities in the band may be limited. It is unlikely that any channels will be available in major metropolitan areas and that the presence of any incumbent paging operation on the frequencies may preclude public safety use. (RM 11311)

Copies of the NPSTC communications to the FCC are on the NPSTC website, <http://www.npstc.org/fccpositions.jsp>. The public record of the FCC proceedings may be accessed through the FCC website, www.fcc.gov, http://gulfoss2.fcc.gov/prod/efcs/comsrb_v2.cgi. Where no docket number is placed subsequent to the summary, no FCC online access is available.

John E. Logan is an attorney in Washington, D.C., who provides assistance to the NPSTC Program Support Office. He may be reached at johnelogan@msn.com.



By Richard Reynolds

The RPC Committee held its last meeting on January 23, in Nashville, Tennessee, where the progress of the various Working Groups was discussed. One very important one is the Common Nomenclature Working Group, chaired by Ron Mayworm, Vice Chair, RPC Committee, who reported on his plans to do an online survey of the 55 Regional Planning Committee (RPC) regions to collect data concerning the NCC common nomenclature deployment among public safety users within each region.

The goal of this survey is to determine who is using the NCC Common Nomenclature scheme and who is not. Once that information is gathered, the Working Group's goal is to share it with all the regions in an effort to promote the unanimous use of common nomenclature for all nationally shared interoperability channels. Common nomenclature is just one step towards achieving more seamless communications interoperability in national disasters such as those recently experienced in New Orleans during Hurricane Katrina.

Another very critical Working Group is the RPC Funding Working Group, comprised of Marilyn Ward, NPSTC's Executive Director, and Richard Reynolds, RPC Committee Chair. The purpose of this Working Group is to work closely with NPSTC's funding partners at the National Institute of Justice (NIJ) and the Texas Sheriff's Office. Through the Texas Sheriff's Office, NIJ is providing ongoing support funding for 700 MHz plan development and necessary ancillary expenses for travel and meeting expenses for the 55 RPCs. The funding also supports the needs of the NPSTC RPC Core Committee to further assist and support the 55 RPCs to successfully publish a comprehensive 700 MHz Plan. These funds can also be used for Computer Assisted Pre-coordination and Resource Database System (CAPRAD) training and attendance at the NPSTC quarterly meetings.

The RPC Committee has developed the necessary documents to administer the RPC funding reimbursements program. These documents include the RPC Travel Policy, the RPC Travel Reimbursement Form, and the RPC Miscellaneous Expense Form. Copies of these funding and travel forms along with a welcome letter describing the RPC funding program were distributed to over 90 Regional Planning Committee officers and members on February 15, 2006. If you have any questions concerning the RPC Funding Program, please contact the NPSTC Support Office at: 866-807-4755 or NPSTC@highlands-group.com. You may also contact Richard Reynolds, NPSTC RPC Committee Chair at Richard.Reynolds@state.de.us or Ronald Mayworm, Vice Chair, NPSTC RPC Committee at Ron@ktsignals.com for additional information on the RPC Funding Program.

The NPSTC RPC Committee has been aggressively soliciting active participation from within the four U.S. regions—East Coast, Gulf Coast, North Central, and West Coast—looking

for an active RPC officer who to serve on the NPSTC RPC Core Committee as their U.S. region's representative. I'm pleased to announce that we have been successful in filling all of the four regional representative positions on the NPSTC RPC Committee.

- ◉ East Coast Regional Representative—Peter Meade, Chair of the Region 8 700/800 MHz Committees.
- ◉ Gulf Coast Regional Representative—John Johnson, Chair of the Region 39 700/800 MHz Committees.
- ◉ North Central Regional Representative—William Carter, Chair of Region 54 700/800 MHz Committee.
- ◉ West Coast Regional Representative—Mark Schroeder, Chair of the Region 3 700/800 MHz Committees.

The RPC Committee is looking forward to meeting with as many of the RPC Committee members who can attend the March Governing Board meeting. If attendance at the meeting is not possible, we will have a conference bridge set up for the meetings and the call in numbers will be distributed to all of the RPC officers and members who are on our active email list. If you are reading this article and are not receiving the email messages being distributed by the NPSTC RPC Committee you may wish to contact the Support Office at the above email address to be added to the RPC email list.

Until next time, I want to thank all of the RPC members who have been actively involved with NPSTC and the RPC Committee and I look forward to seeing more and more of you in the future now that we have funding for all RPC Committees.

Richard Reynolds is the RPC Committee Chair.

GPS RTK, continued

(Continued from page 4) the frequency(ies) were entered into the appropriate sections of the FCC Form 601 and the application was sent to one of the Business/Industrial frequency coordinators for "sharing" of the frequency. If the Business/Industrial Coordinator approved the request, the application was filed with a waiver request for a Public Safety Eligible organization to use frequencies from the Business/Industrial frequency pool.

Sounds simple, right? Initially the FCC accepted the showing and fact that the Business/Industrial frequency coordinator approved the proposal and usually granted the license. In recent years, however, an increasing number of applications are returned to the submitting public safety coordinator questioning the evidence that a Public Safety Pool frequency (ies) cannot be assigned. This was especially true when attempting to license these systems for statewide use.

I attempted to have a portion of the 700 MHz band designated for these systems, with a first proposal made during the National Coordination Council meetings. The FCC, responded that these systems cannot be used in the 700 MHz Public Safety Pool because it is a "Land Mobile" band. I continue to feel that to assign 50-150 kHz of spectrum from the 700 Public Safety Frequency Pool is prudent spectrum management with 24 MHz of unused spectrum and the overcrowding in the UHF frequency bands, and that the time to plan is now, not after the band is encumbered.

Larry Miller, a consultant, represents the American Association of State Highway and Transportation Officials (AASHTO) on the NPSTC Governing Board.

Important Dates - 2006

Date

March 27-30
 April 10-13
 April 24-26
 May 15-16
 May 15-19
 May 19-22
 May 21-25
 June 1-4
 June 12-14
 June 14-16
 June 19-22
 June 19-23

Event

Project 25 Meeting
 SDR Forum Meeting
 IAFC Fire Rescue Conference
 RPC Colloquium
 IWCE
 Hamvention
 AASHTO Wireless Committee
 IAFC Haz Mat Conference
 NPSTC Governing Board Meetings
 SAFECOM Meetings
 SDR Forum Meeting
 Project 25 Meetings

Location

San Diego, CA
 San Francisco, CA
 Las Vegas, NV
 Las Vegas, NV
 Las Vegas, NV
 Dayton, OH
 Windsor, CT
 Hunt Valley, MD
 Ontario, CA
 CA
 Vancouver, BC
 Denver, CO

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