



Mission Critical Push to Talk (MCPTT)
Considerations for Interoperability
Talkgroup Naming and Management

NPSTC Interoperability Committee
Common Channel Naming Working Group
National Public Safety Telecommunications Council
November 2018

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Executive Summary

This report is an early stage document addressing issues regarding the implementation of Mission Critical Push to Talk (MCPTT) and the management of interoperability talkgroup naming conventions. It is based on a series of assumptions regarding future MCPTT functionality while acknowledging a changing landscape as international standards continue to evolve and as technical decisions on MCPTT are finalized by the FirstNet Authority and AT&T.

This report lays out a series of nationwide considerations on how to manage MCPTT talkgroup names and seeks to stimulate conversation by local, regional, and state entities. It does not provide specific guidance because there are many unknowns regarding MCPTT features and functionality which will impact decisions on these issues.

Almost every first responder in the United States is supported by a public safety Land Mobile Radio (LMR) radio system. These networks provide public safety grade Push to Talk communications and are a cornerstone of first responder safety. LMR systems support a rich feature set of functionality and capabilities that are needed by public safety agencies.

MCPTT communications technology is evolving and promises to provide public safety with an equally rich set of features and capabilities that leverage the full extent of the Nationwide Public Safety Broadband Network (NPSBN). It is important to note that locally based LMR systems operate very differently than a nationwide MCPTT network.

The enhanced MCPTT capabilities provided by a nationwide architecture, coupled with sophisticated cellular technology, allow for exploration of new ways to manage interoperable communications. Indeed, the existing use of nationwide LMR interoperability channels cannot be replicated within MCPTT and requires a new look at how public safety agencies may provide these services.

This report highlights the importance of fully interoperable communications and the different ways in which first responders and public safety communications centers use LMR to communicate. The report also identifies a number of new approaches to interoperability that appear possible within MCPTT which would sustain, and improve upon, the LMR capabilities in use today.¹ They include the ability to create interoperability talkgroups dynamically, or at the time of need, and push those new talkgroups to first responder devices. MCPTT technology also allows for interoperability talkgroups to be pushed to user devices when the first responder enters the geographic area of the emergency event. Upon reaching the edge of a polygon

¹ This report does not speak to the need for interoperable communications with other LTE systems or the need for interoperability between LMR and LTE systems. Those issues were addressed in the *“Public Safety Land Mobile Radio (LMR) Interoperability with LTE Mission Critical Push to Talk”* report published by NPSTC in 2018.

created by the communications center or other authorized user, interoperability talkgroups would be automatically loaded to the first responders' MCPTT application.

There are a myriad of governance, policy, and training issues involving MCPTT that will require collaboration among local, regional, tribal, and statewide public safety entities. They include the need for discussions on interoperability talkgroup provisioning and management (e.g., who owns the talkgroup), the need to determine how many MCPTT interoperability talkgroups are needed, how those talkgroups should be allocated, and how interoperability resources are shared with Extended Primary users and other secondary responder entities. It is noted that while this report speaks to the management of talkgroup names for MCPTT interoperability talkgroups, the information is relevant to the naming of all MCPTT talkgroups.

A key finding of this report is that management of interoperable communications will continue to be handled at the local level and will require extensive collaboration. An additional key finding is **that MCPTT interoperability talkgroups should mirror the success of nationwide LMR interoperability channels which use standards-based consistent naming** across the U.S. The absence of a standard in MCPTT will create numerous problems as first responders travel into other jurisdictions and attempt to interpret various MCPTT talkgroup names.

Finally, this report recommends that NPSTC continue to monitor MCPTT development and produce future reports as standards and implementation methodologies are finalized.

1. Introduction

This report is designed to highlight a number of issues surrounding the adoption of Mission Critical Push to Talk (MCPTT) by public safety agencies with a focus on the naming of MCPTT talkgroups assigned to support voice communication interoperability.² This document provides a high-level discussion of MCPTT and interoperability and assumes that the reader is familiar with the technologies that support public safety broadband. The report also raises a series of questions and implementation issues that require further discussion by local, regional, tribal, and statewide entities as well as the FirstNet Authority and AT&T.

Public safety Land Mobile Radio (LMR) systems today provide the backbone of communications and related command and control systems for public safety agencies. Their use into the foreseeable future is also all but assured given the size, complexity, and cost of these networks and the slow evolution that naturally occurs when first responders consider new technology.

These LMR systems are typically confined to the specific geographic area of the agency, or agencies, being served which may result in a city, county, tribal, or statewide implementation. There may be multiple public safety LMR systems in the same geographic area and they may use more than one type of radio spectrum. For example, the city police department may have an LMR system which is separate from the County Sheriff and a third LMR system may support countywide fire and EMS agencies. This requires a number of technical approaches to ensure that interoperable voice communications can occur between different public safety agencies.

One of the technical solutions to address this issue is the use of discrete nationwide public safety interoperability frequencies (or channels). There are also local, regional, tribal, and statewide radio channels designated solely for public safety communications interoperability. These channels were created to provide inter-agency communications between adjoining departments, between departments in the next county, or with first responders in the next state. Most public safety communications centers have access to, and monitor, a number of interoperability talkgroups and channels.

Push to Talk over Cellular (POC) and Mission Critical Push to Talk (MCPTT) solutions represent an entirely new way of providing interoperable communications. They are based on Long Term Evolution (LTE) cellular technology using IP-based broadband connections. POC and MCPTT represent a shift from local area public safety radio system management to a nationwide public safety network model, which, in the future, will strive to offer ubiquitous coverage across the entire U.S. and its territories.

² Please refer to “*Public Safety Land Mobile Radio (LMR) Interoperability with LTE Mission Critical Push to Talk*” report published by NPSTC in 2018 for further background information on MCPTT.
http://npstc.org/download.jsp?tableId=37&column=217&id=4031&file=NPSTC_Public_Safety_LMR_LTE_IO_Report_20180108.pdf

The use of a single Nationwide Public Safety Broadband Network (NPSBN) prompts the discussion on how communications interoperability will be managed. There are many instances in which first responders use dedicated nationwide interoperable frequencies to contact nearby agencies for assistance. These include:

- An EMS unit transporting a patient into an adjoining state can switch their 800 MHz radio to frequency 8CALL90 to request assistance from a nearby public safety agency.
- A law enforcement officer transporting a prisoner across the state to a new facility may need to call for help from any nearby agency. They may select frequency VCALL10.
- A fire engine responding to provide mutual aid at a large warehouse fire in an adjoining county may switch to frequency UCALL40 to receive information on the status of the fire and the location of the staging area.

8CALL90, VCALL10, and UCALL40 are all examples of public safety interoperability channels designated by the Federal Communications Commission (FCC) for this specific purpose. They support interagency/inter-discipline communications even in instances where the first responder does not know which agency is nearby. These channels are all assigned nationwide common identification labels (e.g., channel names) that are used by all public safety agencies, thus ensuring that any first responder or public safety telecommunicator can easily locate the correct frequency in their radio or console. The American National Standards Institute (ANSI) has a published standard detailing the official name of each nationwide interoperability frequency.

A key element of this report centers on the question, what is the MCPTT equivalent of 8CALL90 and other nationwide interoperable channels?

To answer that question a group of public safety personnel worked with FirstNet, AT&T, and other industry participants to better understand the architecture and design of MCPTT solutions. It is clear that implementation of MCPTT requires an entirely new way of thinking about public safety communications and interoperability.

MCPTT will be deployed as a nationwide service on the FirstNet NPSBN operated by AT&T. The service must comply with a significant number of standards and other requirements in order to provide “mission critical” capabilities. For example, in order to assure high-speed call set-up times when a first responder presses their transmit button, the service will rely on a set of regionally distributed servers. Management of MCPTT services, including provisioning of service by public safety agencies and control of talkgroups by communications center personnel, will all be supported by a highly sophisticated and distributed network core.

While MCPTT will provide a number of new features and capabilities, it must provide at least the same level of service that public safety agencies receive today from their LMR systems. This

includes the ability to support interoperable voice communications for both known and itinerant first responders.

This report highlights the various ways that public safety agencies use interoperable communications resources and highlights a number of issues involving the implementation of MCPTT.

It is important to acknowledge that some of the questions raised in this report cannot be answered at this time. Work is still ongoing in the 3GPP International Standards organization³ to fully define Mission Critical Services, which includes MCPTT and the interconnection between LMR and LTE broadband networks. The FirstNet Authority and AT&T are still working to define the specific implementation of MCPTT for the NPSBN and some technical decisions on network architecture are pending.

Therefore, this report seeks to identify a set of issues that the FirstNet Authority and AT&T should consider as they finalize their planning for mission critical voice services.

This document is also intended to encourage additional conversation on these issues and to identify specific components that local, regional, tribal, and state coordinating entities should address as they plan for the implementation of public safety broadband services

2. Use of LMR Interoperability Channels and Talkgroups

Today, public safety communications interoperability is managed in a number of ways using various technology and systems approaches. These include the use of common channels, shared conventional, and trunked radio systems that are available to all first responders, as well as the use of gateway devices and console-based patching, all of which interconnect disparate radio systems. Public safety agencies also provide loaner devices stored in radio caches to ensure that first responders who show up on the emergency scene with incompatible communications equipment may communicate with all other personnel.

Notwithstanding a number of sophisticated technology implementations to support communications interoperability, many public safety agencies depend on the use of a set of nationwide designated interoperability frequencies. These channels are available for inter-agency coordination almost anywhere in the U.S. and allow a first responder from literally any agency to communicate with another first responder from a different agency.

LMR interoperability solutions support a wide range of first responder communications which include:

³ 3GPP is the Third Generation Partnership Project which creates international standards for LTE and 5G commercial carrier service. www.3gpp.org

- **Calling/Hailing Channels.** These channels are used by first responders who are assisting other agencies and who need information from a dispatch center to support their response or who need immediate assistance from any public safety agency within radio range. Also see: *Itinerant User* below.
- **Short distance, Direct Mode communications.** These channels provide short range, tactical, unit-to-unit communications between first responders from different agencies and are many times conducted in areas that do not have wide area network coverage.
- **Wide area communications between first responders.** These channels provide operational and tactical communications between the communications center and first responders and between groups of first responders who may be from different agencies but who are all either responding to, or on scene of, a major incident or event.
- **Itinerant (out of area) communications.** These channels (also known as Calling Channels) are used by first responders who have traveled out of their normal service area and who need to raise a specific communications center for assistance. These channels also support first responders who need assistance when traveling outside of their home area but who are unsure who to contact or how to contact them.
- **Itinerant (moving) convoy of public safety vehicles.** These frequencies, also known as “travel channels”, provide short-range and medium-range communications to support a group of public safety vehicles moving across the U.S. to provide mutual aid. Some of these convoys may be 2 miles in length end-to-end.
- **Air-to-Ground, Vessel-to-Shore Communications.** These channels provide operational and tactical communications between law enforcement, fire suppression, and aeromedical aircraft and designated first responders on the ground. Short-range communications are used to support landing zone coordination and aircraft operations while long-range communications are needed to support information exchange and coordination with inbound aircraft. Communications channels are also needed for marine communications (ship-to-ship, ship-to-shore, ship-to-aircraft).
- **Multi-Jurisdictional/Multi-State surveillance operations.** These channels provide short-range and wide area communications required by covert law enforcement personnel from multiple agencies who are following suspects across state boundaries.

The Working Group also identified additional considerations that impact the use of LMR interoperability solutions:

- It is common to use multiple interoperability channels and talkgroups simultaneously during large scale incidents and events.

- Some interoperable voice communications flow through vehicle-mounted repeaters and other RF relays.
- Some interoperable communications are interworked with other LMR and PTT networks.
- Communication channels and talkgroups should provide flexible support to manage Emergency Button activations and other data elements.

This report concludes that while MCPTT solutions operate in an entirely different way than LMR, MCPTT talkgroups must be able to support the same types of mission specific communications that are listed above.

3. MCPTT and Talkgroup Management

While MCPTT shares some similarities with public safety P25⁴ trunked radio systems the two services are significantly different. MCPTT will operate on a single nationwide network allowing first responders to communicate without regard to their location. MCPTT technology allows first responder subscriber devices to be reprogrammed over the air which may allow new talkgroups to be pushed to user devices based on the first responder's location. The technology may also allow for the creation of dynamic talkgroups that can be created at the moment they are needed.

Based on conversations with technical experts, it is likely that the following types of interoperable talkgroups will exist:

- **Wide Area Fixed MCPTT Interoperability Talkgroups.** These represent designated interoperability talkgroups that are programmed in a subscriber device at the time it is provisioned by the public safety agency. These talkgroups provide coverage across the entire MCPTT service area.
- **Wide Area Dynamic⁵ MCPTT Interoperability Talkgroups.** These talkgroups are created instantly at the time they are needed and may be provisioned by the communications center, ICS Communications Unit Leader (COML), or another authorized user. These talkgroups are then pushed automatically by the network to designated subscriber devices, allowing first responders to access the appropriate interoperability talkgroup.
- **Direct Mode Fixed MCPTT Interoperability Talkgroups.** These are direct mode interoperability talkgroups, which are programmed in a subscriber device at the time it

⁴ P25 refers to Project 25, a standard created for public safety trunked radio systems.

⁵ There are a number of important, and, as yet unknown, technical issues and considerations regarding the creation and use of dynamic talkgroups.

is provisioned for service. These special talkgroups allow short distance unit-to-unit communications without accessing any network infrastructure.

- **Direct Mode Dynamic⁶ MCPTT Interoperability Talkgroups.** These are direct mode talkgroups that are created instantly at the time they are needed. They may be provisioned by a COML or other authorized user at the scene of the incident and are pushed to a designated set of devices.

There is also a need for fixed PTT interoperability to support coordination between public safety communications centers. It is recognized that this coordination talkgroup or talk path may not require use of MCPTT technology.

Because MCPTT provides nationwide coverage it is not feasible to replicate the same public safety interoperability channel across the U.S. For example, conventional channel 8CALL90 may be programmed into a first responder's LMR radio and allow them to communicate with any other LMR radio network as they travel from state to state. However, in MCPTT if a first responder keyed up a nationwide common talkgroup, it would result in a radio broadcast over the entire coverage area of the MCPTT system⁷.

Geographic partitioning of a common nationwide MCPTT talkgroup, so it would only affiliate users within a specific area, is difficult and is not recommended. This issue highlights a fundamental shift in the management of interoperability for local and state entities:

- Since it is highly unlikely that a set of common MCPTT talkgroups will be assigned for nationwide use, this will instead require the creation of additional local, regional, tribal, and statewide talkgroups to support all types of communications interoperability. Specifically, this means that certain talkgroups must support access by itinerant users from adjoining regions and neighboring states.
- While MCPTT talkgroups can be assigned by an agency to support a particular geographic region, the actual coverage area of the talkgroup will be the entire MCPTT server region. For example, an interoperability talkgroup may be designated for use in the western portion of the state, but the actual radio coverage area of the talkgroup would be statewide.

MCPTT technology also allows for talkgroups to be pushed to subscriber devices based on geography, assignment, or need. This means that a first responder's device does not need to be loaded with dozens of MCPTT interoperability talkgroups to support all possible configurations

⁶ Standards work continues to evolve on Direct Mode services, which are also known as "Pro Se" services in LTE. Some of the functionality for direct mode talkgroups and devices is unclear at this time.

⁷ MCPTT uses regional servers to support high-speed call set up times and talkgroups typically provide coverage throughout the entire area of the server region. A single MCPTT server region may cover multiple states.

of response. Specialty talkgroups that are needed would be made available to the first responder automatically based on their location or the incident to which they were responding.

- Fixed interoperability talkgroups would still be programmed into the subscriber device at time of provisioning by the agency. This would provide a baseline set of interoperability resources.
- Specialized interoperable talkgroups may be pushed to the subscriber device automatically as the first responder enters a specific geographic area (e.g., a polygon created by the communications center or COML which denotes the incident area). This may include talkgroups created to manage a large incident in which law enforcement, fire, and EMS each need their own talkgroups to coordinate activities.
- Interoperability talkgroups may also be pushed to the subscriber device by the communications center or COML at the time the dynamic talkgroup is created for a specific incident purpose. This allows mutual aid units to join an interoperability talkgroup prior to their arrival at the incident scene.

The application that supports MCPTT user devices and consoles may also provide features and capabilities to help distinguish between and among various interoperability talkgroup options:

- Color coding and other symbology may be used to distinguish between law enforcement, fire, EMS, and Calling/Hailing assignments.⁸
- Color coding and other symbology may be used to indicate which talkgroups are actively monitored by a communications center vs. other talkgroups that are used for on scene tactical communications and which are not monitored.
- Segregation of different types of talkgroups may be managed through the use of folders or tabs on the user device or console (e.g., allowing separation of fixed vs. dynamic or between wide area and direct mode talkgroups).

This wide-ranging flexibility, with the creation and usage of MCPTT interoperability talkgroups, will likely result in these resources being managed at the local level (by city, county, regional, tribal, and state authorities). While some of this coordination is done today to manage public safety LMR systems, MCPTT creates a series of new challenges that will require statewide and nationwide collaboration.

⁸ It is recognized that not all devices may support color coding and that the use of other symbology would be complementary (and necessary for first responders who have visual impairments that prevent color awareness).

4. MCPTT Interoperability Talkgroup Naming Considerations

This report recognizes that it is too early in the technology development and adoption cycle to recommend a standardized naming convention for MCPTT interoperability talkgroups. However, the assignment of names to local, regional and statewide interoperability resources is a critical issue. The naming convention requirements also extend to regular operational talkgroups used by public safety agencies for daily response. Since any MCPTT talkgroup can be shared with almost any other MCPTT device, the talkgroup name takes on enhanced significance.

Consider this example when a fictitious public safety agency created a name⁹ for an interoperability talkgroup that resulted in confusion when it was shared with an adjoining agency.

The Adams County Sheriffs' Office operates a countywide MCPTT talkgroup called "County OPS" to support coordination between law enforcement, fire, and EMS personnel. Baker County first responders need access to this talkgroup because they frequently provide mutual aid to Adams County. Adams County agrees and shares this talkgroup with Baker County users. Baker County first responders now have a new talkgroup in their MCPTT radios called "County OPS." The name does not distinguish that it is an Adams County talkgroup and Baker County cannot modify the name of the talkgroup in their devices. The talkgroup name is somewhat ambiguous and creates confusion when first responders are trying to select an appropriate interoperability resource.

It is clear from this example that attention must be paid to the naming of all MCPTT talkgroups and special attention must be paid to those designated for interoperability. The following issues are important elements of this discussion:

- Mixed Mode devices, that support LMR and LTE/MCPTT, will provide access to both types of talkgroups, emphasizing the need for unique naming conventions to distinguish the talkgroup types and capabilities.
- Talkgroup names need to be "easy to speak" over the radio without ambiguity or confusion. They must also be easy to understand with special attention to "how they sound" when used.

⁹ Existing standards do not provide sufficient specificity in the area of talkgroup naming and it appears, as of the writing of this report, that a talkgroup name is fixed by the originating agency that creates it. Unlike in LMR, where a channel and talkgroup name can be edited in the radio programming software, these MCPTT talkgroup names are the same for all users.

- Talkgroup names need to be “easy to read” on a radio device display. Long text names do not translate well on certain devices that only support shorter character displays.
- Today, many local, regional, tribal, and state-designated LMR interoperability channels use highly variable and non-standardized naming conventions. These naming conventions may require additional scrutiny before being applied to an MCPTT talkgroup matrix.
- Many states use an alpha or numeric prefix to denote a particular geographic area, homeland security region, public safety discipline, or function assigned to the channel. However, most do not include any prefix that identifies their state. MCPTT interoperability talkgroups will provide service to itinerant users who have crossed state lines.
- How should states, regions, tribal, and local agencies provide MCPTT access to itinerant public safety users who are traveling through their area and need assistance? Should a particular talkgroup be designated as a calling channel for this purpose and available to “any” first responder who is in their geographic area? This type of service would be needed to mirror the capability of FCC-designated nationwide channels. It should also be noted that Extended Primary Users¹⁰ may also have access to public safety interoperability talkgroups to coordinate their response. These secondary responders may also be itinerant users who need access to a local agency.
- As noted above, MCPTT talkgroup names are assigned by the agency that creates the talkgroup. The talkgroup name is fixed in the MCPTT system and cannot be edited by other agencies which place the talkgroup in their subscriber devices. This requires regional collaboration among all public safety agencies to discuss talkgroup naming strategies that avoid ambiguous and duplicative names.
- MCPTT interoperability talkgroups may need a prefix that identifies them as a talkgroup on the NPSBN. This differentiates the MCPTT talkgroups from other LMR talkgroups that are either present in the same device (e.g., a dual mode radio) or are displayed when patching LMR and MCPTT talkgroups.
- What prefix should be used nationwide for consistency with this approach? Many of the suggestions discussed by public safety representatives were problematic.¹¹

¹⁰ Extended Primary is a term used by the FirstNet Authority to denote secondary entities that provide support to public safety agencies at the scene of an emergency. They may include public transportation, utilities, and other critical infrastructure entities.

¹¹ Examples of proposed prefixes include “FN” to denote FirstNet, but there were concerns about MCPTT talkgroups on other commercial and private networks. “BB” for Broadband was offered but might be confused with the digits “88” and “NPSBN” was offered, but it is too long to be used as a prefix.

- MCPTT interoperability talkgroups may need a designator that identifies their state of origin.
 - The two-character state abbreviations used by the U.S. Postal Service were recommended for consideration. These postal codes also include Canadian provinces which would support identification of Canadian MCPTT talkgroups.
 - The designator “US” could be used for federal agencies.¹²

- MCPTT interoperability talkgroups created for a **discipline specific** use may need an appropriate designator.
 - This would be similar to how 700 MHz interoperability channels are labeled, which includes LAW, FIRE, EMS, etc.

- MCPTT interoperability talkgroups created for **specific functions** may need an appropriate designator.
 - This could be similar to how 700 MHz interoperability channels are labeled which includes CALLING, ATG (Air-to-Ground), TAC, etc.

- MCPTT interoperability talkgroups created for **Direct Mode** usage should have a specific designator. These talkgroups have unique coverage and data sharing limitations and should be appropriately identified.

- **Dynamically created** MCPTT interoperability talkgroups should have a specific naming designator. These talkgroups are created “on the fly” by the communications center or COML to support a specific function at a particular incident.
 - Elements of the dynamic talkgroup name should include the **incident name and the function or discipline** assigned to that talkgroup (e.g., is the MCPTT talkgroup for law enforcement traffic control at the scene of a 2nd alarm warehouse fire or is it an MCPTT fire department talkgroup used for evacuation?).
 - The date may need to be included in the MCPTT talkgroup name to help identify currently active dynamic talkgroups.

- Dynamic talkgroups may be pushed to first responder devices; personnel are then directed to switch to them. Extensive policy discussions will be needed to ensure that these talkgroups appear on designated communications center consoles and that there is a procedure to account for personnel who transition back from the dynamic talkgroup to a regular agency operations talkgroup.

- The use of icons on the MCPTT device display may be useful to designate some elements of an interoperability talkgroup. For example, should an icon be used to

¹² U.S. federal agencies may require additional identification naming schemes beyond the use of a “US” suffix. This report does not include any specific federal guidance.

denote that a talkgroup is a direct mode channel or a dynamically created talkgroup?

Finally, a key finding of this report is that MCPTT interoperability talkgroups should mirror the success of nationwide LMR interoperability channels that use standards based consistent naming across the U.S. The absence of an adopted standard will create numerous problems as first responders travel into other jurisdictions and attempt to interpret various MCPTT talkgroup naming constructs.

5. Policy and Technical Considerations

There are a large number of significant policy and technical considerations regarding the creation of a standardized nationwide interoperability capability on the NPSBN. Some of these issues must be resolved by the FirstNet Authority and AT&T while others are under the purview of state, regional, tribal, and local public safety entities.

States, regions, tribal, and local public safety agencies need to consider the following steps in creating standardized interoperability policies:

- Develop or update a governance structure to manage the ownership of MCPTT interoperability talkgroups. Ownership impacts which public safety entity creates and manages the talkgroups, including providing authority for other agencies to use the interoperability resources.
- Determine how permissions for access are managed. Which first responder agencies or first responder units are authorized to access a specific MCPTT interoperability talkgroup? How are itinerant first responders, coming from areas beyond the region, granted permission to access specific MCPTT interoperability talkgroups? How is access granted to Extended Primary users?
- Create a matrix of MCPTT interoperability talkgroups which will support local, regional, tribal, and statewide communications.
- Create SOPs that will direct appropriate access and utilization of MCPTT interoperability talkgroups.
- Determine how updated information will flow to public safety agencies regarding which MCPTT talkgroups are in service, which agencies are monitoring them, and how notification is made when new interoperability talkgroups are created.
- Determine where MCPTT interoperability information will be housed for distribution to public safety agencies (e.g., will this information be included in the SCIP, TICFOG, etc.).

- Create a training plan that directs first responders and communications center personnel on the use of MCPTT interoperable talkgroups.
- Monitor MCPTT interoperability resources to ensure appropriate utilization and to encourage daily use.
- Develop a better understanding of how dynamic talkgroups will function. For example, how long does a dynamic talkgroup created for a warehouse fire remain active in the system and visible on first responder devices?

The following technical issues were identified as being significant to the implementation of MCPTT interoperability talkgroups:

- MCPTT interoperability talkgroups may be pushed automatically to public safety devices when a first responder enters a specific geographic zone.¹³
 - Public safety agencies need to consider how this is managed, including who creates the polygon (e.g., which communications center), the optimal size of a polygon, and how these new talkgroups appear in subscriber devices.
 - In what cases are first responders directed to switch to this new MCPTT interoperability talkgroup and in what cases are first responders automatically regrouped to the new talkgroup.
- Geographically based MCPTT talkgroups may need to be pushed to the device of a user who is responding from outside of the polygon (e.g., a fire engine providing mutual aid is responding from an adjoining county but needs to communicate with units already on the scene).
 - Public safety agencies need to consider how this is managed, including situations in which different communications centers support responding units.
- MCPTT talkgroups may be pushed manually to public safety devices by the communications center, COML, or another authorized user.
 - Public safety agencies need to consider how this is managed, including which talkgroups are used and for what purpose.

There are likely a number of additional policy and technical considerations that will surface as more decisions are made regarding the implementation of MCPTT. A key aspect of this chapter is the need for local, regional, tribal, and state entities to develop the relationships and governance structures necessary to address these issues.

¹³ This may be a fixed zone that exists on a continuous basis or an ad hoc zone/polygon created by the communications center or incident communications personnel.

6. Recommendations and Next Steps

This report includes a series of high-level recommendations and next steps which are designed to advance the conversation regarding MCPTT interoperability talkgroups.

- 1. Further study of MCPTT interoperability talkgroups is needed** as standards evolve and as implementation decisions are made by the FirstNet Authority and AT&T.
 - NPSTC should continue to monitor this issue and identify additional areas for discussion based on the future landscape of MCPTT.
- 2. The FirstNet Authority and AT&T should keep public safety agencies and associations informed** as decisions are made that will impact MCPTT talkgroups, especially issues that may impact their use for interoperability.
 - Statewide Interoperability Coordinators (SWICs), FirstNet State Single Point of Contact (SPOCs), and other state, regional, tribal, and local coordinating entities need this information to properly plan for these communications resources.
- 3. Each state should collaborate with appropriate regional,** tribal, and local entities to coordinate the planning and implementation of MCPTT Interoperability Talkgroups.
 - Statewide interoperability entities, including SWICs, SPOCs, and Statewide Interoperability Executive Committees (SIEC), would likely take a lead role in coordinating this effort.
- 4. A common naming scheme should be established by the FirstNet Authority** with input from the FirstNet Public Safety Advisory Committee (PSAC), which will easily identify designated MCPTT interoperability talkgroups and distinguish between the different types of interoperability talkgroups noted in this report.
 - This should be done on a nationwide basis for consistency.
 - The naming scheme should be enforced through edit checks contained in the Local Control portal software used to create MCPTT talkgroups.
 - Consideration should be given to adopting the two-letter postal code, which will identify the state, another prefix noting which region of the state (or which county) the talkgroup is designed for, the type of MCPTT talkgroup (regular, dynamic, direct mode), and the specific functional use allocated for that talkgroup (Calling, Tactical, Law, Fire, EMS, etc.).
 - Care should be taken to avoid conflicts with existing ANSI standard channel names and other nationwide designated naming schemes. For example, trunked talkgroups

names beginning with the prefix “ZZ” and “YY” are reserved for nationwide deployable trunked radio systems operating in the 700 MHz band.

5. This includes the need to address all of the policy items identified in **States should examine how existing LMR state and local interoperability channels and talkgroups are managed** and use that information to create a blueprint for MCPTT interoperability talkgroup management.
 - This includes the need to address the policy items identified in Chapter 5 regarding governance, SOP, training, and operations.

Finally, it is recommended that this report be forwarded to the FirstNet PSAC, SAFECOM, DHS’s Office of Emergency Communications (OEC) and the Science and Technology (S&T) Directorate, and the National Council of Statewide Interoperability Coordinators (NCSWIC) for their consideration.

NPSTC wishes to thank all the members of the Common Channel Naming Working Group for their hard work in the development of this report. More than 100 members of the public safety community contributed to, or reviewed, this report including first responders and representatives of industry and academia.