STATEWIDE EMERGENCY COMMUNICATIONS BOARD

INTEROPERABILITY COMMITTEE

Tuesday, August 16, 2016 1:00 p.m.
Chair: Dave Thomson
By Conference Call

Call-in number: 1-888-742-5095
Conference code: 2786437892#

MEETING AGENDA

Call to Order

Approval of Agenda

Approval of Previous Meeting Minutes - March

Action Items

- LTAC-E Change Management (Stromberg)

New Business

- Permitting LTACs in Law Enforcement Only Cache Radios (Stromberg)
- MNFOG Update (Stromberg)
- Aerial Repeater/Gateway (Stromberg)
- COMU Workgroup Purpose Statement (Stromberg)
- STR Tower Keying (Stromberg)
- Regional Contact Person for MN Duty Office (Stromberg)
- Fixed 8CALL or 8TAC Repeater Map (Stromberg)

Old Business

Reports

- US-Canada Interoperability Agreement article (Stromberg)
- NPSTC Channel Naming Document (Stromberg)
- ECN Report (Stromberg)

Adjourn

STATEWIDE EMERGENCY COMMUNICATION NETWORKS

INTEROPERABILITY COMMITTEE

May 17, 2016 1:00 p.m.
Chair: Dave Thomson
Mn/DOT Arden Hills Training Facility
1900 West County Road I
Shoreview, MN 55126

MEETING MINUTES

Attendance:
Members/alternates:

Chair: Dave Thomson/vacant—MN Chiefs of Police Association
Vice Chair: Tim Boyer/vacant – Minnesota State Patrol
Victor Wanchena/Steve Ouradnik – MN Dept of Corrections
Dan DeSmet/Vacant– MN Ambulance Association
Bill Schmidt/Vacant – MN Department of Health
Brian Askin/Dan Kuntz – MN DNR
Tim Lee/Mukhtar Thakur/Brad Peters – Mn/DOT
Bob Norlen – MN EMSRB
Ron Jansen/Chris Kummer– MESB
John Sanner/vacant – MN Sheriffs Association
Ulie Seal/Vacant – MN Fire Chief's Association
Lance Lehman /Bill O'Donnell –MN Bureau of Crime Apprehension
Pat Coughlin/Vacant – MIFC
Mike Martin/Brian Smith – Federal Seat
B.J. Battig/Vacant – UASI
Tom Simota/vacant– MN National Guard
John Dooley/– HSEM
Michael Wisniewski - HSEM Greater MN
Terry Stoltzman/Vacant – HSEM Region 6
Rick Freshwater/Mark Darnell – SE MN RAC
John Maatz/Paul Johnson - SW MN ECB
Brett Miller/Darrin Haeder – SC MN ECB
Micah Myers/Kristen Lahr– Central MN ESB
Kerry Swenson /Bruce Hegrenes– NE MN ECB
Dave Olson/Bryan Green– NW MN ECB
Monte Fronk – Tribal Government
vacant– Association of MN Emergency Managers (AMEM)
**Members attending marked with highlight.*

Guests:
Jim Stromberg, DPS-ECN
Rick Juth, DPS-ECN

Cathy Anderson, DPS-ECN
Carol-Linnea Salmon, DPS-ECN
Troy Tretter, MESB
Tom Beren, AmCom Communications

CALL TO ORDER

Chair Thomson calls the meeting to order at 1:02 p.m.

APPOVAL OF THE AGENDA

Chair Thomson asks for a motion to approve the agenda.

Victor Wanchena makes a motion to approve the agenda.
Bruce Hegrenes seconds the motion
Motion carries.

APPROVAL OF MINUTES

Chair Thomson asks if there are any changes to the March meeting minutes.

Hegrenes makes a motion to approve the March minutes.
Wanchena seconds the motion.
Motion carries.

ACTION ITEMS

SOAR CHANGE MANAGEMENT (JIM STROMBERG)

Jim Stromberg introduces the request. The Scene of Action Repeater (SOAR) has been discussed but has not gone through the formal change management steps. Under Standard 1.5.2, any operational change needs to be discussed by this committee to decide if it is a major or a minor change. This question was considered by the OTC and the OTC determined that for technical matters it is a major change. The OTC created a workgroup to look at the specifics. Stromberg agrees that it should be considered a major change.

Ron Jansen makes a motion that this is a major change for interoperability because most radios would need to be reprogrammed and that this committee follow the OTC's lead.
Ulie Seal seconds the motion.
Hegrenes ask to amend the motion to add that some members of this committee be on the workgroup to talk about the operational aspects.

Jansen and Seal accept this as a friendly amendment.

Discussion:

Rick Juth says as part of that review he would recommend that the workgroup review the draft Central Region standard that outlines operational protocols for the use of the SOAR in Steven's County.

Stromberg says the OTC asked Al Fjerstad to lead the group and identify membership.

Hegrenes says he has had discussions in his region about expanding this to put it in a command vehicle. They see a need for a repeater in a command vehicle that is used throughout the region. This will be coming forward. They are requesting the SOAs because they are allowed to be used digital and they could be encrypted and what is allowed now can't be encrypted. There is a need in Greater MN for an encrypted repeater in some spots.

Motion carries.

REPORTS

CASM WORKGROUP (JIM STROMBERG)

Stromberg reports that the CASM workgroup meets monthly and he is optimistic about how the work is moving forward. A CASM training was offered at the Minnesota Interoperability Conference with about 10-15 people attending.

Stromberg lists the members of the workgroup:

Al Fjerstad, Central
Chris Kummer, Metro
Keith Ruffing, Southern
Rick Freshwater, Southeast
Harry Algyer, Southwest
Steve Olson, Northeast
Brian Zastoupil, Northwest

He adds that it was agreed at the OTC and then the SECB that TICP be removed from the CASM Standard. The CASM workgroup has discussed whether there is a need for a state TICP Standard. The Metro Region has one because they are eligible for federal grant money by having a TICP. No other region has this opportunity. The workgroup does not see value in creating a state TICP Standard and decided that the requirement should be left to each region.

ONTARIO/MINNESOTA INTEROPERABILITY PROJECT (JIM STROMBERG)

Stromberg reports that the Ontario/Minnesota Interoperability Project has been successful and is 99% complete. The patch between Minnesota and Ontario is functioning perfectly. In a test with Rochester, St. Paul and Ontario, the connection happened rather seamlessly on the Minnesota side. There are some issues on the Ontario side. There are two dispatch centers in Ontario- one in Kenora and one in Thunder Bay. The Kenora connection is working well but the Thunder Bay connection has some issues that are being addressed. The Minnesota State Patrol is managing this and will oversee the required weekly tests.

There were plans to begin a similar interoperability project with Manitoba but those plans have been changed. Manitoba purchased a new P-25 700 MHz system and is focusing on that right now.

ECN PROJECTS (JIM STROMBERG)

The Minnesota Interoperability Conference held in April was successful. Stromberg will share the official feedback when it is available but anecdotally he heard feedback that it was a good conference.

He informs members that another change management request was approved by the Operations and Technical Committee and will come before this committee at its next meeting. The request, introduced by Hennepin County, is for LTAC encrypted channels.

The SCIP plan will be reviewed and updated at an in-person meeting on August 3. Stromberg emphasizes the importance of participation from committee members. Planning calls will begin in June and Stromberg will keep members informed.

Updates to the ARMER website have been a little slow due to the time required for the Interop Conference planning and also because the DPS Communications Department has to make some of the changes. Stromberg expects this to move more quickly now that the conference is over.

Review of Strategic Technology Equipment. Stromberg has visited the Northwest and Southeast regions to take inventory of the equipment and the best practices. He will continue with visits to the other regions. He is interested in seeing how the equipment is deployed, recorded and maintained. He would like to create a report so the regions can learn from each other.

COMU Program. Stromberg has inventoried the records along with the records in CASM and they are aligned. A workgroup meets monthly with a focus on how to envision the program for the state. A panel was held on this topic at the Interoperability Conference and there was a good discussion with many notes for use at the next workgroup meeting. The plan is to conclude this work by the end of the year with a report and recommendations presented to this committee.

Border State Interoperability Assessment. Adam Item, the state GIS coordinator, created a map with the border counties of Minnesota and the county in the bordering state. The map is color-coded to show interoperability. The plan is to identify how interoperability is happening county-by-county and then identify what the best practices might be. The map is not completed yet but when it is Stromberg will circulate it and post it on the SECB website.

ADJOURN

Meeting adjourns at 1:32 p.m.

Change Manage Progress Form
Additional Encrypted LTAC Talkgroups

Summary of Suggestion
Addition of two encrypted law enforcement talkgroups

Change Sponsor *(entity)*
MESB

Sponsor's Representative (person)
Curt Meyer, Hennepin County – curtis.meyer@hennepin.us, 612-596-1922

First Introduction to an OTC or IOC
Introduced by Curt Meyer to the OTC on May 10, 2016. A Change Proposal form was included.

Standard(s) Impacted
Proposal identified only 3.19.0 - Use of 800 MHz Statewide LTAC and SIU Interoperability Talkgroups

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Technical/System Change Suggestion

OTC Decision about whether Technical/System Change Suggestion would be a Major or Minor Change (if applicable)	
Major	Minor
May 10, 2016: the OTC decided that this was a Change Management matter and the change would be a MAJOR Technical/System change. The OTC advised that a workgroup should be formed. June 14, 2016: Jim advised that the workgroup had not yet been forrmed because of pushback from regions about too many workgroups. Need for workgroup was reinforced and Nate Timm agreed to chair it and identify members. July 27, 2016: Received report from Nate that he intended to send to OTC via Joe G. Looked thorough. Email sent to Nate advising that he should include his recommendations for the next steps in the Change Management process.	n/a

If a Major Technical/System Change	If a Minor Technical/System Change
OTC Review of Necessity and Substantial Benefit If YES, move on to MnDOT If No, return to Proponent	MnDOT System Administrator's Recommendation
	n/a

If a Major Technical/System Change
MnDOT Technical Review

If a Major Technical/System Change
System Administrator Review

If a Major Technical/System Change

Change Manage Progress Form
Additional Encrypted LTAC Talkgroups

Regional Input

If a Major Technical/System Change
Finance Committee Review and, if applicable, Regional Concurrence in Local Share

If a Major Technical/System Change	If a Minor Technical/System Change
OTC Review and Recommendations	If a Standard Revision is Required, OTC Review and Recommendations
	n/a

If a Major Technical/System Change	If a Minor Technical/System Change
SECB Decision	MnDOT Decision
	n/a

Operational/SOP Change Suggestion

IOC Decision about whether Operational/SOP Change Suggestion would be a Major or Minor Change (if applicable)	
Major	Minor
May 17, 2016: Mentioned to IOC that issue issue would be on the next agenda as an item. IOC needs to decide if this is a mojor or minor change.	

If a Major Operational/SOP Change	If a Minor Operational/SOP Change
IOC Review of Necessity and Substantial Benefit If YES, IOC Determines Change Proposal Review Requirements If No, return to Proponent	ECN Recommendations

If a Major Operational/SOP Change
IOC Requirements for Assessments and Focus Groups

If a Major Operational/SOP Change
ECN Report

If a Major Operational/SOP Change
Facilitator Reports

If a Major Operational/SOP Change
MnDOT Report

If a Major Operational/SOP Change
Reports and Assessments Circulated to Regions (ECBs, RAC, O&Os)

Change Manage Progress Form
Additional Encrypted LTAC Talkgroups

If a Major Operational/SOP Change
Finance Committee Review and, if applicable, Regional Concurrence in Local Share

If a Major Operational/SOP Change	If a Minor Operational/SOP Change
IOC Review and Recommendations	IOC Review and Recommendations

If a Major Operational/SOP Change	If a Minor Operational/SOP Change
SECB Decision	SECB Decision

Allied Radio Matrix for Emergency Response (ARMER)

Change Proposal

1. Administrative Information:

Type of Change (Technical or Operational)

Technical and Operational

Date Submitted:

Submitter (e.g., Regional Radio Board or state agency):

Metropolitan Emergency Services Board - MESB

Change Sponsor (Individual) Contact Information:

Curt Meyer, Hennepin County – curtis.meyer@hennepin.us, 612-596-1922

2. Summary of proposed change(s):

Add 2 statewide encrypted law enforcement talk groups (LTAC9E & LTAC10E)

3. Existing SRB standards impacted:

3.19.0 - Use of 800 MHz Statewide LTAC and SIU Interoperability Talkgroups

4. Scope of Change:

Impact on users (e.g., majority of users, minority of users, number of counties/regions):

All law enforcement radios that are equipped with DES-OFB encryption.

Impact on the placement of resources in communications equipment (e.g., upgrades):

2 encrypted talk groups to be added to encrypted law enforcement radios.

Impact on operational procedures (e.g., changes to operational standards):

Language for statewide encrypted law enforcement talk groups must be updated in the existing radio standard.

Impact on user training (e.g., training required for compliance):

Minimal training would be required as currently there are statewide encrypted talk groups.

Impact on reprogramming or configuration of end-user equipment:

Subscribers: Some training would be required as currently there are no regional encrypted radio resources.

Consoles: All law enforcement PSAP radio consoles would add the resources.

Other equipment: These new resources should be recorded.

5. Existing deficiencies, problems, needs addressed by the proposed changes:

Frequently all 4 encrypted statewide encrypted law enforcement talk groups are in use leaving none available for use.

Expected improvements & benefits resulting from the change:

More encrypted interoperable law enforcement statewide talk groups are available for use. This will relieve current congestion making additional encrypted interoperable law enforcement talk groups available. More encrypted law enforcement radios are being added. This will allow for future expansion.

6. Proposed implementation & transition plan including timeline, milestones and training:

Start and End Date:

Beginning of the next Change Management radio programming cycle. No end date.

Description of Implementation Plan:

Add to dispatch consoles, then to subscriber radios.

7. Preliminary assessments which have been completed (documentation attached):

See attached documentation.

8. List of Attached proposed new or revised Standards, Plans or Best Practices Guides:

3.19.0 - Use of 800 MHz Statewide LTAC and SIU Interoperability Talkgroups

9. Other Attachments:

10. **Tracking and Approvals:**

Submitter Approval:

Signature Date

DECN Receipt:

Signature Date

OTC/IOC Determination of Need:

Signature Date

MnDOT/ECN Approval:

Signature Date

OTC/IOC Approval of Assessments:

Signature Date

Finance Committee Approval:
(if required)

Signature Date

Final SRB Approval:

Signature Date

LTAC5E

	User Total	PTT Total	Usage
State Agencies - MN	37	1988	1.2%
Federal Agencies	96	26333	15.9%
Non Metro Agencies	182	19592	11.8%
Metro Agencies	333	117897	71.1%

Total	
165810	100%

LTAC6E

	User Total	PTT Total	Usage
State Agencies - MN	39	2000	1.2%
Federal Agencies	95	26327	15.9%
Non Metro Agencies	181	19586	11.8%
Metro Agencies	333	117897	71.1%

Total	
165810	100%

LTAC7E

	User Total	PTT Total	Usage
State Agencies - MN	12	843	2.0%
Federal Agencies	48	13244	31.6%
Non Metro Agencies	119	6084	14.5%
Metro Agencies	108	21789	51.9%

Total	
41960	100%

LTAC8E

	User Total	PTT Total	Usage
State Agencies - MN	22	4382	4.7%
Federal Agencies	40	41055	44.2%
Non Metro Agencies	113	17244	18.6%
Metro Agencies	82	30201	32.5%

Total	
92882	100%

Allied Radio Matrix for Emergency Response System (ARMER)
Standards, Protocols, Procedures

Document Section 3	**Interoperability Standards**	**Status:** Complete
State Standard Number	**3.19.0**	
Standard Title	**Use of 800 MHz Statewide LTAC and SIU Interoperability Talkgroups**	
Date Established		**SRB Approval:** 3/28/2013
Replaces Document Dated	**03/19/2013**	
Date Revised	**3/25/2016**	

1. Purpose or Objective

The purpose of this standard is to establish policy and procedures for use of the 800 MHz statewide law enforcement interoperability talkgroups. The LTAC and SIU talkgroups are a system wide resource to facilitate communications between law enforcement agencies including, but not limited to, Special Investigative Units that typically do not communicate with each other on a regular basis.

2. Technical Background

- **Capabilities**

It is possible to have access to one or more common pool of clear and encrypted talkgroups in radios used by agencies that share the statewide 800 MHz radio system. These clear and encrypted talkgroups can be used for a wide range of intercommunication when coordination of activities between personnel of different agencies is needed on an event.

- **Constraints**

LTAC5E through LTAC10E can be used by all law enforcement agencies with encrypted radios and can be programmed in law enforcement dispatch consoles.

Deleted: LTAC8E

The LTAC5E through LTAC10E and SIU1E through SIU4E talkgroups are always encrypted.

Deleted: LTAC8E

SIU1E through SIU4E are only to be use by Special Investigation Units; for example, Gang and Drug task forces, SWAT, etc. SIU1E through SIU4E may not be programmed in dispatch consoles.

When using SIU1E through SIU4E, if non-Special Investigation Unit officers and dispatchers need to participate in an activity, it is up to the local incident command to supply those persons with radios that have SIU1E through SIU4E.

SIU1E through SIU4E are not to be patched with any other talkgroup.

3. Operational Context

The LTAC and SIU talkgroups are a system wide resource to facilitate communications between law branch agencies including, but not limited to, Special Investigative Units that typically do not communicate with each other on a regular basis.

4. Recommended Protocol/ Standard

LTAC1 through LTAC4 TALKGROUPS

TG Requirements	For Whom?
Required	All Law Enforcement Users & PSAP
Recommended	
Optional	
Not Allowed	Non-law Enforcement
Site Access	System Wide – All Sites

Cross Patch Standard	YES / NO	To TalkGroups
Soft Patch	Optional	As Needed
Hard Patch	No	

LTAC5E through LTAC10E TALKGROUPS

Deleted: LTAC8E

TG Requirements	For Whom?
Required	All Law Enforcement users with Encrypted Radios
Recommended	All Law Enforcement PSAPs
Optional	
Not Allowed	All others

Cross Patch Standard	YES / NO	To TalkGroups
Soft Patch	Optional	Encrypted TGs only
Hard Patch	No	

SIU1E through SIU4E TALKGROUPS

TG Requirements	For Whom?
Required	
Recommended	SIU communications, i.e. Gang, Drug, Swat task forces
Optional	
Not Allowed	All others

Cross Patch Standard	YES / NO	To TalkGroups
Soft Patch	No	
Hard Patch	No	

The StatusBoard application will be used to manage the law enforcement pool talkgroup resources.

Console Resource Requirements and Patching

Integrated law enforcement ARMER dispatch consoles (Gold Elite, MCC7500, etc.) shall have LTAC1 through LTAC4 in their configuration, available for patching. If the patched talkgroups have different "home zones," multiple repeaters will be assigned, impacting system loading. Therefore, extended duration patching of statewide interoperability talkgroups to other talkgroups should be avoided. Users should transition to the statewide talkgroup as soon as it can be done safely, and the patch should be terminated. LTACs should not be patched to other statewide interoperability talkgroups. In order to meet the communications needs for an event, the LTAC talkgroups may be patched to:

- Conventional RF resources, such as VHF, UHF, etc.
- Private agency talkgroups, such as dispatch mains, tactical talkgroups, pools, etc.
- Patches between the LTAC talkgroups and regional TACs, although this would not be preferred as a method of resolving communications needs, because it reduces the number of talkgroups available for an incident.

LTAC5E through LTAC10E can optionally be programmed in law enforcement dispatch consoles but may not be patched to unencrypted ARMER talkgroups.

Deleted: LTAC8E

SIU talkgroups may not be programmed in dispatch consoles or any ARMER resource. When using SIU1E through SIU4E, incident command will provide radios for other non-SIU entities assisting, such as patrol officers, dispatchers, etc.

None of the SIU and LTAC-E talkgroups shall be part of any multi-group.

All radios using LTAC5E through LTAC10E and SIU1E through SIU4E must use the state assigned Data Encryption Standard (DES) encryption keys. The Minnesota Department of Transportation (MnDOT) System Administrator will be responsible for managing and periodically updating the statewide encryption keys.

Deleted: LTAC8E

It is highly recommended that SIU radio users program a sufficient quantity of SIU and LTAC-E talkgroups into their subscriber radios to meet interagency communications needs, starting with LTAC5E.

Dual Naming

Existing LETAC-1 through LETAC-4 talkgroups are renamed LTAC5E through LTAC10E. Existing LESIU-1 through LESIU-4 are renamed SIU1E through SIU4E. Dual names will be added to PSAP consoles and used for the renamed talkgroups and will remain in place until June 26, 2015, or until all affected ARMER radios have been reprogrammed. The old name will be primary until June 26, 2014, then secondary until June 26, 2015. Dual naming will be removed from PSAP consoles on June 26, 2015.

Deleted: LTAC8E

5. Recommended Procedure

The usage of LTAC1 through LTAC4 for **PREPLANNED NON-EMERGENCY** interoperability events should be LTAC4 through LTAC1, in that order.

The usage of LTAC1 through LTAC4 for **UNPLANNED EMERGENCY** incidents should be LTAC1 through LTAC4, in that order.

LTAC5E through LTAC10E may be patched **ONLY TO OTHER ENCRYPTED TALKGROUPS** during PREPLANNED NON-EMERGENCY interoperability events and UNPLANNED EMERGENCY incidents.

Deleted: LTAC8E

SIU1E through SIU4E may only be used directly and not be patched to other resources to meet the communications needs of an event or incident.

The dispatch center will use the StatusBoard application to identify use of the LTAC and SIU resources.

When an SIU resource is needed, any SIU agency may contact an appropriate 800 MHz dispatch center, capable of assigning SIU resources, to have the next preferred available SIU assigned and recorded on the StatusBoard. There must be an agreement between the SIU agency and the dispatch center to provide this service.

At the end of the event, the 800MHz assigning dispatch center must clear the status, so the other dispatchers will know this resource is available for use.

6. Management

The PSAP managers for agencies on the statewide 800 MHz radio system shall ensure that there is a procedure for assigning LTAC and SIU talkgroups.

The MnDOT System Administrator shall be responsible for the StatusBoard application.

Dispatch center operators shall receive initial and continuing training on the use of this procedure.

Responsibility for monitoring performance and for modifying this procedure shall be a function of the agencies using this resource.

Washington County

Office of the Sheriff

Commitment to Excellence

William M. Hutton
Sheriff

Daniel Starry
Chief Deputy

7/28/2016

ARMER Operations and Technical Committee
Chair Joe Glaccum
4501 68th Avenue North
Brooklyn Center, MN 55429

Dear Chair Glaccum,

In the June meeting of the OTC I was directed to research congestion on statewide encryption talkgroups and provide recommendations from frequent users of these talkgroups.

My report to the OTC committee follows.

Background:

In 2016 various ARMER administrators and dispatchers using the StatusBoard application began noticing congestion on the four statewide encrypted LTAC talkgroups (LTAC5-E – LTAC8-E). It was noted that all four of these talkgroups were frequently either in use or reserved. Hennepin County researched the congestion and determined that a majority of the traffic was from metro users. The metro Technical and Operations Committee (TOC) is currently using the change management process to look at adding at least two metro encrypted talkgroups. Because the nature of these operations often go outside of regional boundaries or involve staff from other regions, the TOC change management request also suggested adding more statewide talkgroups.

Research:

I first reached out to Bureau of Criminal Apprehension (BCA) agent Lance Lehman. Agent Lehman is responsible for many radio related matters at the BCA and is very familiar with the agency's radio protocols and challenges. We spoke by telephone on 6/16/2016.

Agent Lehman confirmed that encrypted LTAC congestion has been a challenge for the BCA and that something should be done to correct this problem. Agent Lehman agreed that adding some metro regional encrypted talkgroups should help the problem.

During our conversation we envisioned the following additional statewide solutions:

1) Add 2 to 4 new LTAC encrypted talkgroups
    - Pros: More capacity
    - Cons: Requires all encrypted law radios and console sites to be re-programmed.
2) Change SIU talkgroups from "taskforce only" to all law users, and allow these talkgroups in consoles
    - Pros: More capacity without a programming change, and SIU talkgroups could now be logged
    - Cons: Loss of taskforce only statewide communications. Non-taskforce radios will need to be re-programmed.
3) Change all regional encrypted talkgroups to statewide access
    - Pros: More capacity, without a programming change for BCA radios.
    - Cons: Loss of regional encrypted talkgroups. Some regions may allow their encrypted talkgroups in non-law enforcement radios. Non BCA radios will need to have the other regional encrypted talkgroups added.

Agent Lehman favored the first statewide solution. Agent Lehman suggested I contact BCA agent Brad Marquart for further input. Agent Marquart is the coordinator for the various law enforcement taskgroups around the state.

Agent Marquart agreed that there is a capacity problem on the LTAC encrypted talkgroups. Agent Marquart forwarded my email to the regional taskgroup commanders soliciting input on suggested changes. I received six replies. The consensus from the taskgroup commanders was to add more LTAC talkgroups, and that additional metro encrypted regional talkgrops will be beneficial in lightening load on the statewide talkgroups.

I later discussed the research results with Hennepin County Radio Manager John Gunderson. Mr. Gunderson offered a fourth compromise option:

4) Keep SIU 1 and 2 under current restrictions. Change SIU 3 and SIU4 to LTAC9-E and LTAC10-E. A report could be generated to show SIU talkgroup usage. If SIU 3 and 4 are infrequently used, this solution would provide more capacity and maintain taskforce only options. An immediate re-program would not be needed in taskforce radios. LTAC9-E and LTAC10-E would need to be added to law enforcement patrol radios.

Conclusion:

I believe any of the four above options would be classified as a major change. It is my recommendation that OTC moves this matter forward into change management, using the four above options for consideration during the study.

Next Steps:

After conferring with SWIC Jim Stromberg, the following next steps are anticipated:

1) MnDOT Technical Review
2) Review by Interop Committee (IOC)
    a. Acceptance as a major or minor change
    b. Decision on focus group
    c. ECN report
    d. Facilitator report from focus group
    e. MnDot report
    f. Regional concurrence
    g. IOC official approval
3) Review by System Administrators (SMG meeting?)
4) Regional input
5) Finance review
6) Back to OTC for final vote

Respectfully Submitted,

Nathan Timm
Radio Manager
Washington County Sheriff's Office

An example of Status Board encrypted LTAC congestion taken at the time this report was completed (7/28/16 9am):

LTAC 5E-LETAC 1	**Jason Scheffler (Kandiyohi County Sheriff's 911)**	Resource In Use
LTAC 6E-LETAC 2	**Liane Yanta (Hennepin Sheriff's Communications)**	Resource Reserved
LTAC 7E-LETAC 3	**David Kravik (BCA)**	Resource In Use
LTAC 8E-LETAC 4	**Liane Yanta (Hennepin Sheriff's Communications)**	Resource In Use

Minnesota

Communications
Field Operations Guide

MNFOG

Version 2.0

Minnesota Department of Public Safety
Emergency Communication Networks
Statewide Emergency Communications Board

DATE

Version HIstory

Version 2.0
(DATE RELEASED)

- General reorganization
- Overall reformatting to provide for 8½" x 11" formatting
- Separated tables for NE and NW regions and for ME and SR regions
- Tables unified so that the TX frequency was always left of the RX frequency
- Added Zone Controller and Home Zone Mapping information
- Listed contact persons included in the MNFOG in a directory
- Incomplete list

New in Version 1.7
April 14, 2014

- Typographical Corrections
- Updated regional interop zones
- Minor formatting/design changes

New in Version 1.6
November 21, 2013

- Frequency corrections: Tribal VHF interoperability zone, DNRTAC1

New in Version 1.5
November 21, 2013

- Name change: MNFOG (previously known as MN COMM FOG)
- Various updates related to 2013 Change Management
- Updated regional talkgroup references
- Change management "cheat sheet"
- Talkgroup/frequency guides moved to the front of the guide
- New section on Status Board
- New section on ARMER training website
- Added tribal 800 MHz and VHF interoperability zones
- Added State Patrol district map
- Other administratvie changes and corrections

TO DO LIST FOR THIS VERSION – DELETE BEFORE PRINTING

1. Suggestion from Jim Jarvis to add info on FEMA Region V RECCWG and shared resources.
2. Ask Ross Merlin (NIFOG author) to review the MNFOG
3. Should I add info about FedCom (under MN tab in Status Board)?

Introduction

The Minnesota Communications Field Operations Guide, or MNFOG, is a collection of technical reference material to aid Communications Unit personnel and other communications professionals during emergency incidents or planned events.

The Federal Emergency Management Agency (FEMA) established a command structure for managing both small and large scale events known as the National Incident Management System (NIMS) Incident Command System (ICS). Within the Logistics section of ICS resides what is known as the Communications Unit (COMU). The Department of Homeland Security Office of Emergency Communications (DHS OEC) has strengthened the COMU program by establishing COMU positions such as Communication Leaders (COML), Communication Technicians (COMT), and Auxilary Communicators (AUXCOMMs). COMLs, COMTs, and AUXCOMMS will be called on to support communications in the NIMS ICS ecosystem and will benefit from the data included in a Field Operations Guide.

DHS OEC produces a National Interoperability Field Operations Guide (NIFOG), as do many states. Minnesota finds value in a Field Operations Guide and has produced the Minnesota Communications Field Operating Guide (MNFOG) since 2012. This version (V-2.0) replaces V-1.8 and is the first complete revision of the MNFOG.

The MNFOG emphasizes *Minnesota's interoperability capabilities*. The MNFOG duplicates some information found in the NIFOG that is available in Minnesota and excludes resources not typically found in Minnesota. It is important to also reference the NIFOG as it includes those resources left out of the MNFOG as well as technical information such as wiring and connector coding, landline and cellular telephone related information, antenna propagation formulas, and frequency spectrum data.

Interoperability in Minnesota occurs on many levels. The ARMER radio system, by its design, provides significant interoperability and is sufficiently robust to handle large scale events involving ARMER radio users from a variety of disciplines and jurisdictions.

In the event that ARMER was compromised or interoperability was desired with a non-ARMER radio user, Minnesota has established secondary communication options, including:

- Simplex radio channels
- National interoperability channel repeaters in some urban areas
- Transportable towers and repeaters containing interoperability channels
- Cache radios
- Dedicated statewide VHF network containing interoperability channels

Beginning with V-2.0, the MNFOG will be printed in a pocket sized format, in an 8½" x 11" format, and in a digital PDF format. Contributions, corrections, or comments are welcome and should be directed to Minnesota's Statewide Interoperability Coordinator, Jim Stromberg, at James.Stromberg@state.mn.us or 651-651-201-7557. As updated information is received, the MNFOG will be updated and the most current version will be available on the Minnesota Department of Public Safety Emergency Communication Networks' website.

This version of the MNFOG was revised by the following persons, was reviewed by the Statewide Emergency Communication Board's Interoperability Committee, and was approved by the Statewide Emergency Communication Board.

MNFOG Workgroup: Steve Ouradnik, Chad Steffen, Jim Stromberg, Nate Timm, and Troy Tretter

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Statewide Emergency Communications Board (SECB)

Minnesota Statutes §403.36 and §403.382 establish the Statewide Emergency Communications Board (SECB). Among many other provisions, this statute:

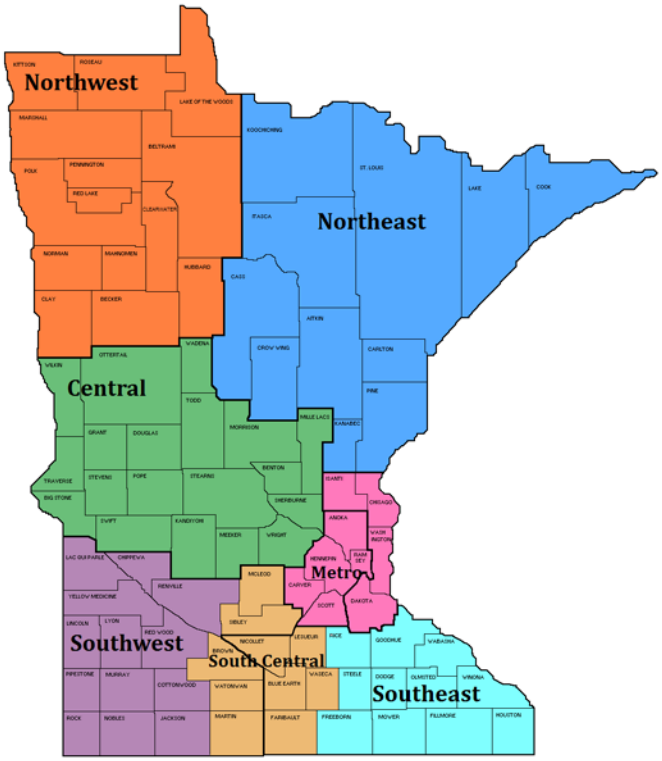
- Directs the Commissioner of Public Safety to "convene and chair the Statewide Radio Board to develop a project plan for a statewide, shared, trunked public safety radio communication system" and it identifies the system as "Allied Radio Matrix for Emergency Response" or "ARMER."
- Establishes the SECB as the Minnesota's State Interoperability Executive Committee (SIEC).
- Directs the SECB to "promote coordination and cooperation among local, state, federal, and tribal public safety agencies in addressing statewide public safety communications interoperability within Minnesota."
- Directs the SECB to "develop guidelines and standards that support interoperability with adjoining states and provinces of Canada along Minnesota's northern border."

To support its mission the SECB has created the following Committees:

- Executive
- Finance
- Interoperable Data (IDC)
- Interoperability (IOC)
- Integrated Public Warning System (IPAWS)
- Legislative
- Next Generation 911 (NG911)
- Operations and Technical (OTC)
- Steering

Regional Emergency Communications Boards

Minnesota Statute §403.39 and §403.392 establish Regional Emergency Communications/Services Boards in seven emergency communication regions of Minnesota. Each region has created Committees to support its regional Emergency Communications/Services Board.



Typical Committees found on Regional Boards include:

<u>Regional Advisor Committee (RAC):</u>
describe

<u>Owners & Operators (O&O):</u>
describe

<u>Users:</u>
describe

Governance

Minnesota's ARMER radio system and other public safety communication programs—NextGen 911, FirstNet, and Integrated Public Alerting Warning Systems—are governed by state and regional governance bodies.

Regional Emergency Communications Boards

Region	Key Contacts (contact info may be found on pages _____)	Counties Served
Northwest (NW) Emergency Communications Board http://www.nwmnradio.org/		Becker, Beltrami, Clay, Clearwater, Hubbard, Kittson, Lake of the Woods, Mahnomen, Marshall, Norman, Pennington, Polk, Red Lake, Roseau
Northeast (NE) Regional Radio Board http://www.nemnradio.org/index.html		Aitkin, Carlton, Cass, Cook, Crow Wing, Itasca, Kanabec, Koochiching, Lake, Pine, Saint Louis
Central (CM) Emergency Services Board http://www.cmnradio.org/		Benton, Big Stone, Douglas, Grant, Kandiyohi, Meeker, Mille Lacs, Morrison, Otter Tail, Pope, Sherburne, Stearns, Stevens, Swift, Todd, Traverse, Wadena, Wilkin, Wright
Metropolitan (ME) Emergency Services Board http://www.mn-mesb.org/		Anoka, Carver, Chisago, Dakota, Hennepin, Isanti, Scott, Ramsey, Washington
Southwest (SW) Regional Radio Board http://www.swmnradio.org/		Chippewa, Cottonwood, Jackson, Lac Qui Parle, Lincoln, Lyon, Murray, Nobles, Pipestone, Redwood, Renville, Rock, Yellow Medicine
South Central (SR) Emergency Communications Board http://www.scmnradio.com/		Blue Earth, Brown, Faribault, Le Sueur, Martin, McLeod, Nicollet, Sibley, Waseca, Watonwan
Southeast (SE) Emergency Communications Board http://semnrrb.com/		Dodge, Fillmore, Freeborn, Goodhue, Houston, Mower, Olmsted, Rice, Steele, Wabasha, Winona

TO DO
Verify if region has a RRD, an ECB, or an ESB.
Ask each region to identify two or three contact persons

Statewide ARMER Interoperability

Statewide, regional, local, and specialty talkgroups exist to foster interoperability between ARMER users. These charts identify state and some specialty interoperability talkgroups.

Common Statewide Interoperable Talkgroups

Name	Availability	Purpose	Notes
STAC 1 – 12	All Users	Any	Required in all ARMER radios
STAC 13E – 14E	All Users (with Encrypted Radios)	Any	Encrypted Required in all ARMER encrypted radios
LTAC 1 – 4	All Law Enforcement Users	Law Enforcement Use Only	Required in all ARMER law enforcement radios
LTAC 5E – 8E	All Law Enforcement Users (with Encrypted Radios)	Law Enforcement Use Only	Encrypted Required in all ARMER encrypted law enforcement radios

- Statewide talkgroups have statewide coverage.

Other Statewide Interoperable Talkgroups

Name	Availability	Purpose	Notes
MSP CALL	All Users (MSP Dispatch and subscriber radios only)	Statewide Hailing (Minnesota State Patrol)	MSP monitors and will relay any call to correct PSAP
SIU 1E – 4E	Law Enforcement Users Only	Sensitive Investigations	Encrypted Recommended in SIU (taskforce) radios 6/30 Nate will research
TC-OP-1	Tribal Entities Only	Tribal Command and Control	
DRO 1 – 4	Disaster Relief Organizations and Cache Radios	Disaster Relief Organizations	DRO 1: Red Cross DRO 2: Salvation Army DRO 3 & 4: Shared
EMH-SED	Emergency Medical Services Only	Interoperability Between EMS and ED	6/30 Troy will research
EMS-SMRCC	Emergency Medical Services Only	EMS	Statewide EMS
EMS-MRCXP1	Emergency Medical Services Only	East Metro EMS	East Metro MRCC (Regions)
EMS-MRCXP2	Emergency Medical Services Only	West Metro EMS	West Metro MRCC (Hennepin EMS)
SEMTAC	All Users	Emergency Management	Emergency Management Interoperability
MNDO		Hailing and Communication with Minnesota Duty Officer	

- Statewide talkgroups have statewide coverage.

Statewide ARMER Interoperability

Statewide, regional, local, and specialty talkgroups exist to foster interoperability between ARMER users. The ARMER system utilizes six zone controllers and each statewide ARMER talkgroup is "Home Zone Mapped" to one of these zones.

ARMER Zone Controllers and Home Zone Mapping

Zone	Region Served	Home Zone Statewide Talkgroups
1	Metro (not Hennepin or Ramsey)	DRO1 – 4 EMSAIRCOM LTAC1 & 2 STAC1, 2, 5, 6, 9, 10, 11, & 12 STAC13E&14E
2	Southwest Metro (Hennepin & Ramsey)	
3	Southeast South Central	
4	Central	LTAC3 & 4 LTAC5E – 8E SIU1E – 4E STAC3, 4, 7, & 8
5	Northeast	
6	Northwest	

- Patching of multiple talkgroups all Home Zone Mapped to the same zone controller will only consume one RF resource. If talkgroups from multiple zone controllers are patched together, the number of RF resources consumed for each transmission will be equal to the number of zone controllers included in the patch.

ARMER RF Resources

All ARMER repeater sites have at least five RF channels, one always serving as the control channel and four to carry voice. The following ARMER sites have additional channels.
Format:Site Name (site #)……Total # RF channels including control channel

ZONE 1

City Center (1) 24
Dakota (3) 16
Hastings (5)..... 16
Lino Lakes (2) 15
Minneapolis (9)..... 20
North Branch (6)..... 11
Norwood (4) 16
Ogilvie (89) 5
Woodland (90)..... 5

ARMER RF Resources

All ARMER repeater sites have at least five RF channels, one always serving as the control channel and four to carry voice. The following ARMER sites have additional channels.
Format:Site Name (site #)……Total # RF channels including control channel

ZONE 2

Beaver Creek (38)..... 5
Brewster (25)..... 5
Canby (93)..... 5
Chandler (36)..... 5
Clarkfield (94)..... 5
Danube (85)..... 6
Echo (95)..... 5
Granite Falls (97)..... 5
Granite Falls LE (80)..... 5
Hardwick (29)..... 5
Hector (86)..... 6
Hennepin East (1)..... 24
Hennepin West (2)..... 16
Holland (90)..... 5
Ivanhoe (92)..... 6
Jackson (78)..... 5
Jeffers (34)..... 5
Kanaranzi (39)..... 5
Lake Benton (88)..... 6
Lakefield (24)..... 5
Madison (96)..... 5
Marshall (33)..... 5
Marshall (75)..... 5
Milan (98)..... 5
Minneota (77)..... 5
Montevideo (81)..... 5
Morton (87)..... 6
Mountain Lake (35)..... 5
Olivia (79)..... 5
Ramsey (3)..... 22
Rushmore (27)..... 5
Russell (89)..... 5
Slayton (26)..... 5
Tracy (91)..... 5
Trosky (37)..... 5
Vesta (32)..... 5
Wanda (31)..... 5
Windom (30)..... 5
Windom (76)..... 5
Woods (99)..... 5
Worthington (28)..... 5

ZONE 3

Albert Lea (33)..... 6
Alden (80)..... 6
Alma (1)..... 6
Amherst (2)..... 5
Austin (6)..... 6
Bear Valley (42)..... 6
Biscay (45)..... 7
Blue Earth (78)..... 6
Caledonia (3)..... 5
Comfrey (22)..... 6
Elba (21)..... 6
Elkton (5)..... 6
Evan (28)..... 6
Fairbault (44)..... 10
Fairmont (75)..... 6
Gravin (92)..... 6
Gaylord (27)..... 6
Geneva (7)..... 6
Glenville (34)..... 6
Gibbon (26)..... 6
Harmony (83)..... 5
Hayfield (25)..... 10
Janesville (31)..... 7
La Salle (30)..... 6
Lake Crystal (85)..... 6
Leroy (86)..... 5
Mankato (43)..... 10
Mapleton (81)..... 6
Money Creek (10)..... 5
New Richland (4)..... 6
New Ulm (29)..... 7
Nodine (49)..... 6
Oakland (12)..... 6
Olmsted (41)..... 11
Reno (23)..... 5
Rollingstone (12)..... 6
Sherburne (76)..... 6
Sleepy Eye (19)..... 5
Spring Grove (24)..... 5
Troy (15)..... 6
Truman (77)..... 6
Waldorf (82)..... 6
Walters (79)..... 6
Waseca (11)..... 6
Waterville (20)..... 7
Wilson (17)..... 6
Wykoff (18)..... 5
Zumbrota (40)..... 8

ZONE 4

Aldrich (99)..... 5
Amor (96)..... 6
Appleton (3)..... 5
Avon (21)..... 6
Barnesville (89)..... 5
Belgrad (23)..... 6
Benson (1)..... 5
Browns Valley (2)..... 5
Cold Spring (34)..... 6
Comstock (88)..... 5
Correll (28)..... 5
Dumont (78)..... 5
Eagle Lake (90)..... 6
Enfield (40)..... 11
Erdahl (83)..... 6
Erhard (91)..... 6
Farming (20)..... 6
Fergus Falls (24)..... 5
Fergus Falls (92)..... 5
Freeport (4)..... 6
Garfield (97)..... 6
Gilman (49)..... 8
Glenwood (6)..... 5
Grove (22)..... 6
Hanson Silo (33)..... 7
Henning (27)..... 5
Herman (7)..... 6
Hewitt (97)..... 5
Hoffman (8)..... 6
Holdingford (79)..... 6
Holloway (10)..... 5
Johnosn (26)..... 5
Kent (77)..... 5
Kimball (11)..... 8
Lincoln (12)..... 6
Litchfield (43)..... 10
Long Prairie (13)..... 5
Luce (94)..... 6
Morris (14)..... 6
Nashua (25)..... 5
New London (15)..... 7
New York Mills (95)..... 6
Onamia (81)..... 6
Parkers Prairie (93)..... 6
Paynesville (35)..... 6
Royalton (42)..... 10
Saint Cloud (41)..... 10
Sauk Centre (36)..... 6
Schumacher (86)..... 5
Sebeka (98)..... 5
Starbuck (82)..... 5
Terrace (16)..... 5
West Union (17)..... 6
Wheaton (18)..... 5
Willmar (19)..... 7

ARMER RF Resources

All ARMER repeater sites have at least five RF channels, one always serving as the control channel and four to carry voice. The following ARMER sites have additional channels.
Format:Site Name (site #)……Total # RF channels including control channel

ZONE 5

Aitkin (47) 5
Argo Lake (79)..... 5
Arrowhead (32)..... 5
Askov (41) 8
Baxter DOT (16)..... 7
Bena (12) 6
Big Falls (22) 5
Bois Forte (29)..... 5
Borden Lake (17)..... 7
Border (23)..... 5
Brimson (83)..... 5
Cass Lake (4) 6
Crane Lake (90) 5
Crosby (36)..... 7
Draper (5)..... 7
Duluth (43)..... 10
Elmer (30)..... 5
Elphant Lake (91) 5
Ely (78) 6
Emily (14)..... 7
Gheen Hill (89)..... 5
Glen (7)..... 5
Hibbing (97) 6
International (21) 5
Itaska (44)..... 8
Jenkins (18)..... 7
Kabetogama (93) 5
Lawler (8) 5
Leader (2) 6
Line Lake (81) 5
Little Fork (26) 5
Logan (6) 5
Loman (27) 5
Mahtowa (20) 5
Maple Hill (40) 6
Margie (28)..... 5
Meander Lake (92) 5
Mizpah (24) 5
Molde (67)..... 5
Moose Lake (19)..... 5
Moose Lake DOC (33) 6
Northome (25) 5
Ogilvie (75) 6
Oshawa (1) 6
Palo (82) 5
Pike Bay (11)..... 5
Pillager (34)..... 7
Quadna (13)..... 5
Sandy Lake (9) 5
Sax (31) 5
Shaw (65) 5
Silver Cliff (46) 7
Vermillion Dam (88) 5
Virginia (45)..... 8
Walker (35)..... 7
Whipolt (3) 6
White Pine Fire (10) 7
Woodland (76)..... 5
Wrenshall (66)..... 8

ZONE 6

Ada (20) 5
Alida (76) 5
Angus (16) 5
Bagley (77).....5
Baudette (11).....5
Bemidji Fire Tower (80) 5
Bemidji West (31).....5
Carp (12) 5
Cormorant (25).....6
Crookston (17) 5
Detroit Lakes (66) 6
Donaldson (4).....5
Dorothy (91).....5
East Grand Forks (18).....5
Eldred (19) 5
Faunce (9) 5
Felton (27).....5
Flaming (21).....5
Flom (22) 5
Gatzke (15).....5
Greenbush (5).....5
Grygla (88).....5
Hawley (26) 5
High Landing (89).....5
Hines (78).....5
Holmseville (65) 5
Holt (85).....5
Island Lake (79) 5
Juggler Lake (72) 5
June Berry (6) 5
Kabekona (71).....5
Lake Bronson (1) 5
Lengby (75).....5
Lude (13).....5
Lancaster (2) 5
Mahnomen (74).....5
Mantrap (70) 5
Marcoux (23) 5
Middle River (86) 5
Moorhead (24) 8
Nevis (69).....5
Northcote (3).....5
Plummer (92) 5
Roosevelt (10).....5
Roseau (7) 5
Saum (81).....5
Strandquist (87).....5
Thief River Falls (90).....5
Thorhult (82).....5
Trail (29) 5
Warren (30).....5
Warroad (8).....5
Washkish (83) 5
White Earth (67) 5
Winger (73).....5
Winner Silo (14) 5
Wolf Lake (68).....5

Regional ARMER Interoperability

Statewide, regional, local, and specialty talkgroups exist to foster interoperability between ARMER users. These charts identify regional interoperability talkgroups.

Northeast (NE) Regional Interoperable Talkgroups

Name	Availability	Purpose	Notes
NE CALL	All NE Region Users	Hailing NE Region PSAPs & PSAP to PSAP	
NE TAC 2 – 12	All NE Region Users	Any	
NE EM TAC	All NE Region Users	Emergency Management	

- NE regional talkgroups have NE regional coverage only and are not statewide.

Northwest (NW) Regional Interoperable Talkgroups

Name	Availability	Purpose	Notes
NW CALL	All NW Region Users	Hailing NW Region PSAPs & PSAP to PSAP	
NW TAC 2 – 12	All NW Region Users	Any	

- NW regional talkgroups have NW regional coverage only and are not statewide.

Central (CM) Regional Interoperable Talkgroups

Name	Availability	Purpose	Notes
CM CALL	All CM Region Users	Hailing CM Region PSAPs & PSAP to PSAP	
CM TAC 2 – 12	All CM Region Users	Any	
CM-EMS-HAIL	All CM Region Users	EMS Hailing	
CM EM	All CM Region Users	Emergency Management	

- CM regional talkgroups have CM regional coverage only and are not statewide.

Twin Cities Metro (ME) Regional Interoperable Talkgroups

Name	Availability	Purpose	Notes
MSP CALL	All Users	Statewide Hailing (Minnesota State Patrol)	MSP monitors and will relay any call to correct PSAP
ME TAC 1 – 4	ME Public Safety Users Only	Public Safety Only	
ME TAC 5 – 8	All ME Region Users	Any Purpose	

- ME regional talkgroups have ME regional coverage only and are not statewide.

Regional ARMER Interoperability

Statewide, regional, local, and specialty talkgroups exist to foster interoperability between ARMER users. These charts identify regional interoperability talkgroups.

Southwest (SW) Regional Interoperable Talkgroups

Name	Availability	Purpose	Notes
SW CALL	All SW Region Users	Hailing SE Region PSAPs & PSAP to PSAP	
SW TAC 2 – 13	All SW Region Users	Any	
SW-HOS-14	All SW Region Users	EMS	
SW-R5EMTAC15	All SW Region Users	Emergency Management	
SW-ENC-1 – 4			

- SW regional talkgroups have SW regional coverage only and are not statewide.

South Central (SR) Regional Interoperable Talkgroups

Name	Availability	Purpose	Notes
SR CALL	All SR Region Users	Hailing SR Region PSAPs & PSAP to PSAP	
SR TAC 2 – 12	All SR Region Users	Any	

- SR regional talkgroups have SR regional coverage only and are not statewide.

Southeast (SE) Regional Interoperable Talkgroups

Name	Availability	Purpose	Notes
SE CALL	All SE Region Users	Hailing SE Region PSAPs & PSAP to PSAP	
SE TAC 2 – 13	All SE Region Users	Any	
SE TAC 14E – 15E	All SE Region Users	EMS	Encrypted

- SE Regional talkgroups have SE regional coverage only and are not statewide.

Regional Talkgroup Programming

Each region has establish criteria for the programming of its regional talkgroups in cache and regular service radios outside of its region.

Grants permission to any ARMER participant to include in their radios
OR
Requires that written permission be received from the region to program

Conventional ARMER Interoperability

Scene of Action (SOA) channels and are available for use in ARMER radios. These channels are not on the trunked radio system and are, generally, not repeated or monitored. They provide antenna-to-antenna, line-of-sight communications. These SOA channels are only licensed for use in Minnesota.

800 MHz Scene of Action Channels

Name	Frequency (TX)	Frequency (RX)	NAC	Analog / Digital	Notes
8SOA-1	853.9250	853.9250	$293	Digital	
8SOA-2	853.9375	853.9375	$293	Digital	
8SOA-3	853.9500	853.9500	$293	Digital	
8SOA-4	853.9625	853.9625	$293	Digital	Jail sally port comms
FSOA-1	853.9750	853.9750	$293	Digital	
FSOA-2	853.9875	853.9875	$293	Digital	

- 8SOAs are required in all ARMER radios
- FSOAs are required in all Fire Service radios

700 MHz Scene of Action Channels

Name	Frequency (TX)	Frequency (RX)	NAC	Analog / Digital	Notes
7SOA-1	769.00625	769.00625	$293	Digital	
7SOA-2	769.01875	769.01875	$293	Digital	
7SOA-3	769.03125	769.03125	$293	Digital	
7SOA-4	769.04375	769.04375	$293	Digital	
7SOA-5	769.05625	769.05625	$293	Digital	
7SOA-6	769.06875	769.06875	$293	Digital	
7SOA-7	774.93125	774.93125	$293	Digital	
7SOA-8	774.94375	774.94375	$293	Digital	
7SOA-9	774.95625	774.95625	$293	Digital	
7SOA-10	774.96875	774.96875	$293	Digital	
7SOA-11	774.98125	774.98125	$293	Digital	
7SOA-12	774.99375	774.99375	$293	Digital	

- 700 MHz SOAs are not Non-Federal National Interoperability Channels but they are a national set of channels available to all public safety.
- 7SOAs are *optional* in all ARMER radios and have not been widely programmed
- 7SOAs are limited to 2 watts. They may be digital or analog and may be clear or encrypted CLARIFY THIS
- Many ARMER radios in use on the system are 800 MHz-only radios and/or do not have 700 MHz antennas

Non-Federal National Interoperability Channels

800 MHz National Conventional Interoperability Frequencies are required to be programed in all ARMER radios in a dedicated interoperability zone and are available for any (routine, emergent, large- or small-scale) public safey interoperability *purposes.*

800 MHz National Interoperability Channels

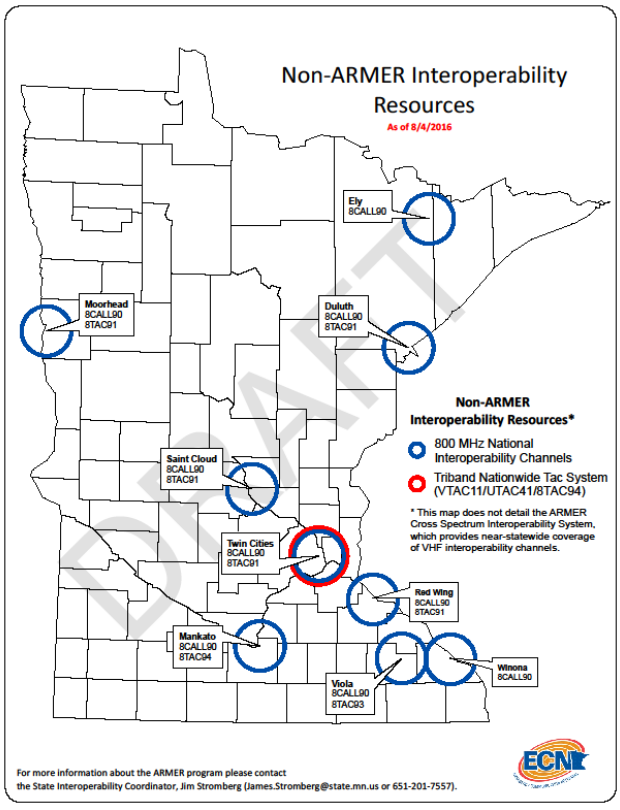
Name (D=simplex)	Frequency (TX)	CTCSS (TX)	Frequency (RX)	CTCSS (RX)	Analog / Digital	Notes
8CALL90	806.01250	156.7	851.01250	156.7	Analog	Calling Channel
8CALL90D	851.01250	156.7	851.01250	156.7	Analog	
8CALL91	806.51250	156.7	851.51250	156.7	Analog	
8CALL91D	851.51250	156.7	851.51250	156.7	Analog	
8CALL92	807.01250	156.7	852.01250	156.7	Analog	
8CALL92D	852.01250	156.7	852.01250	156.7	Analog	
8CALL93	807.51250	156.7	852.51250	156.7	Analog	
8CALL93D	852.51250	156.7	852.51250	156.7	Analog	
8CALL94	808.01250	156.7	853.01250	156.7	Analog	
8CALL94D	853.01250	156.7	853.01250	156.7	Analog	

- Narrowband (4.0 KHz)

800 MHz National Interoperability Channels Repeaters

The Below Areas Have Fixed Repeaters Containing The Following Channels	
Duluth	8CALL90
Ely	8CALL90
Mankato	8CALL90 & 8TAC94
Moorhead	8CALL90 & 8TAC91
Red Wing	8CALL90 & 8TAC91
Rochester (Viola)	8CALL90 & 8TAC93
St. Cloud	8CALL90 & 8TAC91
Twin Cities	8CALL90 & 8TAC91
Winona	8CALL90

- Typically provide very good mobile coverage for a large geographical location
- Not reliable for portable or indoor coverage



Non-Federal National Interoperability Channels

The below table identifies the VHF National Conventional Interoperability Channels most commonly available for use in Minnesota. Other VHF National Conventional Interoperability Channels may be identified in the NIFOG. Interoperability means communication between different entities and is not just for large-scale emergencies.

VHF National Interoperability Channels

Name (R=Repeated)	Frequency (TX)	CTCSS (RX)	Frequency (RX)	CTCSS (RX)	Analog / Digital	Notes
VCALL10	155.7525	CSQ	155.7525	156.7	Analog	
VTAC11	151.1375	CSQ	151.1375	156.7	Analog	
VTAC12	154.4525	CSQ	154.4525	156.7	Analog	
VTAC13	158.7375	CSQ	158.7375	156.7	Analog	
VTAC14	159.4725	CSQ	159.4725	156.7	Analog	See note below
VFIRE23	155.295	156.7	155.295	156.7	Analog	
VMED28	155.3400	156.7	155.3400	156.7	Analog	
VLAW31	155.4750	156.7	155.4750	156.7	Analog	

- Minnesota has not widely adopted VSAR16, VFIRE21, VFIRE22, VFIRE24, VFIRE 26, VMED29, VLAW32, VTAC33, VTAC34, VTAC33, VTAC36, VTAC37, or VTAC38.
- Nationally, VTAC33, VTAC35, VTAC36, and VTAC38 provide frequency pairs to provide repeater options for VTAC14. Minnesota does not follow this convention and has historically used a Minnesota-only frequency to provide a repeated capabilities for VTAC14; this channel is known in Minnesota as VTAC14-R. See the next page for more information about VTAC14-R. See the NIFOG for information about VTAC33, VTAC35, VTAC36, and VTAC38.

UHF National Interoperability Channels

The only UHF National Conventional Interoperability Channel readily available for use in Minnesota is the [triband patch in metro] (see page ___ of MFOG). UHF cache radios are not readily available.

700 MHz National Interoperability Channels

No 700 MHz National Conventional Interoperability Channels are licensed for use in Minnesota.

Minnesota-Specific Interoperability Resources

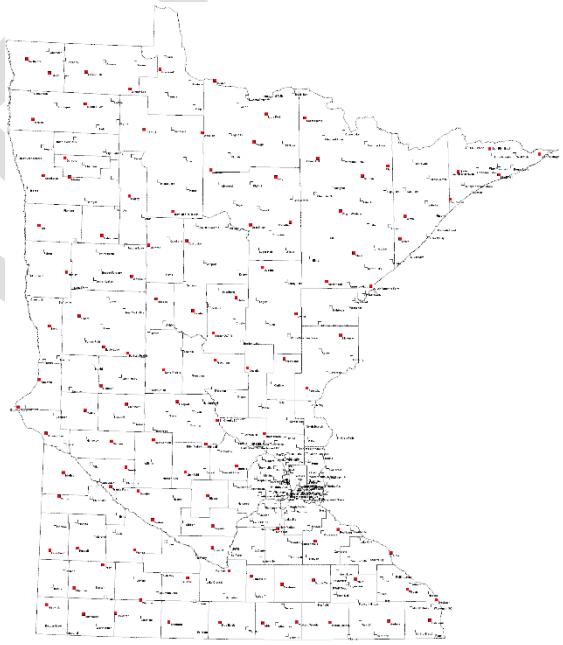
VHF Minnesota-Specific Interoperability Frequencies

Name (R=Repeated)	Frequency (TX)	CTCSS (RX)	Frequency (RX)	CTCSS (RX)	Analog / Digital	Notes
VTAC14-R	154.6875	156.7	159.4725	156.7	Analog	Programmed into each STR repeater/tower
MN-COMM	155.3700	156.7	155.3700	156.7	Analog	
MN-FIRG2	154.0100	156.7	154.0100	156.7	Analog	
MN-FIRG3	153.8300	156.7	153.8300	156.7	Analog	
DNR-TAC1	151.4750	156.7	151.4750	156.7	Analog	

Cross Spectrum Interoperability System

Explain the VHF overlay

Detailed info here
Who has Motobridge and how to activate
Summarrize dedicated hailing channels
How is the overlay different when above line A?
Add hyperlink to the map at right



VHF/UHF/800 MHz Tri-Band Nationwide TAC Channel System

A sub-regional infrastructure within Hennepin County utilizing VTAC11, UTAC41, and 8TAC94.

Eight site voting receiver system with a transmitter located in Plymouth, MN. Can be soft patched to talkgroups on the ARMER system. VTAC11 is simplex, while UTAC41 and 8TAC94 are repeated. The Hennepin County sub-regional infrastructure is configured for 12.5 KHz narrow band ANALOG operation using the nationwide standardized CTCSS tone of 156.7 on all three bands.

6/30 Troy will research this

Neighboring State/Province Interoperability

Minnesota enjoys varying degrees of interoperability with its neighboring states and provinces. These charts summarizes the general overlap of resources.

Iowa

Resource	Notes
VCALL10 VTAC11 – 14	Required by ISICSB Policy ISICSMC12-B to be programmed in all VHF-capable public safety radios
UCALL40 UTAC41 – 43 (repeated & simpex)	Required by ISICSB Policy ISICSMC12-B to be programmed in all UHF-capable public safety radios
7CALL50 UTAC51 – 55 (repeated & simpex)	Required by ISICSB Policy ISICSMC12-B to be programmed in all 700 MHz-capable public safety radios
8CALL90 8TAC91 – 94 (repeated & simpex)	Required by ISICSB Policy ISICSMC12-B to be programmed in all 800 MHz-capable public safety radios
VRIR21	Required by ISICSB Policy ISICSMC12-B to be programmed in all VHF-capable public safety radios
VFIRE23	Not used. VFIRE21 used for statewide fire mutual aid.
VMED28	Required by ISICSB Policy ISICSMC12-B to be programmed in all VHF-capable public safety radios
VLAW31	Required by ISICSB Policy ISICSMC12-B to be programmed in all VHF-capable public safety radios
155.3700 (MNCOMM)	State point to point channel

- Iowa has historically used VHF radio systems but is currently transitioning to a statewide 700 MHz Interoperability radio system. Metropolitan areas will be the first to move to this system and rural areas, particularly along the Minnesota border, may transition in the future.
- Iowa's Field Operations Guide
- Iowa Interoperable Communications is governed by the Iowa Statewide Interoperability Communications System Board (ISICSB)

Manitoba

Manitoba and Minnesota do not have established interoperability plans.

Michigan

Michigan and Minnesota do not have established interoperability plans. Minnesota does not share a land border with Michigan and Michigan resources would be a very unlikely partner to assist Minnesota. However, Minnesota would be the closest state to Isle Royale National Park, a Michigan island in Lake Superior, and is identified as a fire fighting mutual aid resource in the *Fire Management Plan 2004 for Isle Royale National Park*. Michigan operates a statewide radio system very similar to ARMER but has no infrastructure on Isle Royale. Isle Royale. DOES MICHIGAN REQUIRE 8CALL AND 8TACS IN THEIR PROTABLE RADIOS? 6/20/16 VM left for Brad Stoddard – awaiting reply

Michigan's Field Operations Guide

Michigan's Interoperable Communications is governed by Michigan's Public Safety Communications System

Neighboring State/Province Interoperability

Minnesota enjoys varying degrees of interoperability with its neighboring states and provinces. These charts summarizes the general overlap of resources.

North Dakota

Resource	Notes
VCALL10	Staging Area Manager Net [Zone 5 / Channel 7]
VTAC11	Unified Incident Command [Zone 5 / Channel 5]
VTAC12	
VTAC13	Operations Section Chief [Zone 5 / Channel 6]
VTAC14	EMS Tactical 2
VFIRE23	Statewide Fire Mutual Aid [Zone 3 / Channel 4]
VMED28	Statewide EMS Mutual Aid and Command [Zone 3 / Channel 5]
VLAW31	Statewide Law Enforcement [Zone 3 / Channel 3]
154.6875 TX / 159.4725 RX (VTAC14-R)	
155.3700 (MNCOMM)	Law Enforcement Command
154.0100 (MN-FIRG2)	
153.8300 (MN-FIRG3)	
151.4750 (DNR-TAC1)	
8CALL90	Minnesota maintains a repeater in Moorhead that serves the Fargo area
8TAC91	Minnesota maintains a repeater in Moorhead that serves the Fargo area

Write up summary here.
List info here about the patch for the Interstate bridge dividing Moorhead from Fargo.
North Dakota's Field Operations Guide
North Dakota's Interoperable Communications is governed by _____

- ANY 8CALL or 8TACS??

Ontario

Interoperability between Ontario and Minnesota is accomplished through a dedicated radio patch. A consolette owned by the Province of Ontario and programmed with an Ontario trunked-VHF talkgroup (in the 138 MHz band and known as "PP-INT-2") was installed in and ARMER site in International Falls, Minnesota. The consolette was connected to the ARMER infrastructure and its antenna was aimed at an Ontario Provincial Public Safety Radio Fleetnet tower in Devlin, Ontario. The connection may be enabled and disabled by the Minnesota State Patrol Dispatch. Any ARMER resource available to the Minnesota State Patrol Dispatch may be patched to PP-INT-2. The PP-INT-2 resource is available to Ontario Provincial Police Provincial Communication Centre (PCC) located in Thunder Bay, Ontario and the Kenora Central Ambulance Communication Centre (CACC) located in Kenora, Ontario. The PCC (Thunder Bay) may add the Ministry of Natural Resources (forest service) to the interoperability patch. The CACC (Kenora) may add fire resources to the interoperability patch.

Neighboring State/Province Interoperability

Minnesota enjoys varying degrees of interoperability with its neighboring states and provinces. These charts summarizes the general overlap of resources.

South Dakota

Resource	Notes
VCALL10	Emergency use only. In all public safety radios.
VTAC11	Emergency use only. In all public safety radios.
VTAC12	Emergency use only. In all public safety radios.
VTAC13	Emergency use only. In all public safety radios.
VTAC14	Emergency use only. In all public safety radios.
VFIRE23	Statewide fire channel. Mutual Aid 2. (VFIRE22 is Mutual Aid 1)
VMED28	Statewide EMS channel 3
VLAW31	Statewide law enforcement
154.6875 TX / 159.4725 RX (VTAC14-R)	
155.3700 (MNCOMM)	Not Widely Used
154.0100 (MN-FIRG2)	
153.8300 (MN-FIRG3)	
151.4750 (DNR-TAC1)	

Write up summary here

- ANY 8CALL or 8TACS??

6/21 Jeff Pierce responded to my email advising that he has Todd Dravland looking at it too.
South Dakota's Field Operations Guide (v1.0 April 2012)
South Dakota's Interoperable Communications is governed by _____

Neighboring State/Province Interoperability

Minnesota enjoys varying degrees of interoperability with its neighboring states and provinces. These charts summarizes the general overlap of resources.

Wisconsin

Resource	Notes
VCALL10	Public safety interoperability calling channel
VTAC11	Public safety interagency tactical communications (analog and digital)
VTAC12	Public safety interagency tactical communications (analog and digital)
VTAC13	Public safety interagency tactical communications (analog and digital)
VTAC14	Public safety interagency tactical communications (analog and digital)
VFIRE23	Known as “FG Blue” (analog, tx/rx tones of 85.4) VFIRE23 (tone 156.7) unlikely to be found in WI fire radios
VMED28	Known as “EMS B” (analog, tx tone of D156, rx = CSQ)
VLAW31	Statewide law enforcement
154.6875 TX / 159.4725 RX (VTAC14-R)	
155.3700 (MNCOMM)	State point to point channel
154.0100 (MN-FIRG2)	
153.8300 (MN-FIRG3)	Known as “FG Red” (analog, tx/rx tones of 69.3)
151.4750 (DNR-TAC1)	

Other Wisconsin Resources

Resource	Notes
VFIRE21	Known as “FG White” (analog, tx/rx tones of 74.4)
VFIRE22	Known as “IFERN” (analog, tx/rx tones of 210.7) VFIRE22 (tone 156.7) unlikely to be found in WI fire radios
VFIRE24	Known as “FG Black” (analog, tx/rx tones of 94.8)
VFIRE25	Known as “FG Gray” (analog, tx/rx tones of 136.5)
153.8375	Known as “FG Gold” (analog, tx/rx tones of 91.5)
155.4000	Known as “EMS A” (analog, tx tone of D156, rx = CSQ)
155.2800	Known as “EMS C” (analog, tx tone of D156, rx = CSQ)

Write up summary here. List info here about the patch that Nate and Josh set up using dedicated ARMER talkgroups. MN talkgroup hardpatched patched with STAC5 and another hardpatched w RTAC54. WIS-MN-1 and 2. Add info on ISSI too WIFOG Wisconsin’s Interoperable Communications is governed by _____.
ANY 8CALL or 8TACS??

VHF Federal Interoperability Channels

The United States government has dedicated specific frequencies for interoperability between federal radio users and non-federal state and local users. "IR" channels are Incident Response channels and are dedicated for interoperability between federal users and local users in "any discipline." NC 1 (National Calling) IR channels 1-9 are in the VHF spectrum and are listed below. NC 2 (National Calling) IR channels 10-18 are in the UHF spectrum and can be found in the NIFOG.

Incident Response Plans (IR)

Name	Frequency (TX)	CTCSS (TX)	Frequency (RX)	CTCSS (RX)	Analog / Digital	Notes
NC 1 (repeated)	164.7125	167.9	169.5375	none	Analog	National Calling
IR 1 (repeated)	165.2500	167.9	170.0125	167.9	Analog	
IR 2 (repeated)	165.9625	167.9	170.4125	167.9	Analog	Programmed into each STR repeater/tower
IR 3 (repeated)	166.5750	167.9	170.6875	167.9	Analog	
IR 4 (repeated)	167.3250	167.9	173.0375	167.9	Analog	
IR 5	169.5375	167.9	169.5375	167.9	Analog	NC 1 simplex
IR 6	170.0125	167.9	170.0125	167.9	Analog	IR 1 simplex
IR 7	170.4125	167.9	170.4125	167.9	Analog	IR 2 simplex
IR 8	170.6875	167.9	170.6875	167.9	Analog	IR 3 simplex
IR 9	173.0375	167.9	173.0375	167.9	Analog	IR 4 simplex

- ONLY for federal users or local *interoperability* with federal users.
- Not authorized for routine or administrative uses.
- Use of these frequencies within 75 miles of the Canadian border require special coordination.
- Frequencies/Channels not authorized in Minnesota are greyed out (this is due to existing wideband adjacent channels).
- The US Department of Justice – Wireless Management Office and the Minneapolis office of the FBI have recommended inclusion of channels IR2 and IR12 in all VHF federal radios for use in the metro region. (Was this wupposed to say IR2 and LE2?) There is a federal engineering study that dictates this.
- Do we need licenses?

7/14 DRAFT MnFOG sent to Mike Martin for review.

VHF Federal Interoperability Channels

The United States government has dedicated specific frequencies for interoperability between federal radio users and non-federal state and local users. "LE" channels are Law Enforcement channels and are dedicated for interoperability between federal and local law enforcement users. LE A (National Calling) LE channels 1-9 are in the VHF spectrum and are listed below. LE B (National Calling) LE channels 10-18 are in the UHF spectrum and can be found in the NIFOG.

Law Enforcement Plans (LE)

Name	Frequency (TX)	CTCSS (TX)	Frequency (RX)	CTCSS (RX)	Analog / Digital	Notes
LE A	167.0875	167.9	167.0875	169.7	Analog	National Calling (simplex)
LE 1	162.0875	167.9	167.0875	169.7	Analog	National Calling (repeated)
LE 2	162.2625	$68F	167.2500	$68F	Digital	Programmed into each STR repeater/tower
LE 3	162.8375	$68F	167.7500	$68F	Digital	
LE 4	163.2875	$68F	168.1125	$68F	Digital	
LE 5	163.4250	$68F	168.4625	$68F	Digital	
LE 6	167.2500	$68F	167.2500	$68F	Digital	LE 2 simplex
LE 7	167.7500	$68F	167.7500	$68F	Digital	LE 3 simplex
LE 8	168.1125	$68F	168.1125	$68F	Digital	LE 4 simplex
LE 9	168.4625	$68F	168.4625	$68F	Digital	LE 5 simplex

- ONLY for federal users or local *interoperability* with federal users.
- Not authorized for routine or administrative uses.
- Use of these frequencies within 75 miles of the Canadian border require special coordination.
- Frequencies/Channels not authorized in Minnesota are greyed out (this is due to existing wideband adjacent channels).
- The US Department of Justice – Wireless Management Office and the Minneapolis office of the FBI have recommended inclusion of channels IR2 and IR12 in all VHF federal radios for use in the metro region.

Standardized Interoperability Zones

Each ARMER Strategic Technology Reserve (STR) radio is required and all other ARMER radios may be programmed with the following zones and channel assignments.

ARMER Standardized Interoperability Zones

Channel	Statewide	Conventional	Home Region
1	STAC 1	8CALL90	Regional CALL
2	STAC 2	8TAC91	Regional TAC 1
3	STAC 3	8TAC92	Regional TAC 2
4	STAC 4	8TAC93	Regional TAC 3
5	STAC 5	8TAC94	Regional TAC 4
6	STAC 6	8CALL90D	Regional TAC 5
7	STAC 7	8TAC91D	Regional TAC 6
8	STAC 8	8TAC92D	Regional TAC 7
9	STAC 9	8TAC93D	Regional TAC 8
10	STAC 10	8TAC94D	Regional TAC 9
11	STAC 11	8SOA1	Regional TAC 10
12	STAC 12	8SOA2	Regional ROAM
13	LTAC 1*	8SOA3	DRO 1
14	LTAC 2*	8SOA4	DRO 2
15	LTAC 3*		DRO 3
16	LTAC 4*		DRO 4

- LTACs are only to be included in Law Enforcement radios

Standardized Interoperability Zones

Explain the zone here.

VHF Standardized Interoperability Zone

Channel	Name	Purpose	Notes
1	VCALL10	Hailing	VHF National Interoperability Channel
2	VTAC11	Any	VHF National Interoperability Channel
3	VTAC12	Any	VHF National Interoperability Channel
4	VTAC13	Any	VHF National Interoperability Channel
5	VTAC14	Any	VHF National Interoperability Channel
6	MNCOMM		
7	VFIRE23	Fire Service Only	
8	MNFIRG2	Fire Service Only	
9	MNFIRG3	Fire Service Only	
10	DNRTAC1		
11	VLAW31	Law Enforcement Only	
12	VMED28	Medical Only	
13	IR 2	Federal “Incident Response” Interop	
14	VTAC14R	Any	Programmed into each STR repeater/tower
15	NGRPTR	Channel information may be released by MN National Guard as needed	
16	LE 2	Federal “Law Enforcement” Interop	Programmed into each STR repeater/tower

Tribal Interoperability

Specific talkgroups and national interoperability channels have been identified for interoperability with Tribal Nations. This charts identifies a sixteen-channel Tribal Interoperability Zone. Most of the talkgroups identified in this chart are shared resources, not exclusively reserved for tribal interoperability.

ARMER Tribal Interoperable Zone

Channel	Name	Availability	Purpose	Notes
1	TC-OPS-1	Tribal Users Only	Tribal Command and Control	
2	STAC 7	All Users	Any	
3	STAC 12	All Users	Any	
4	NE 7	All NE Region Users	Any	
5	NW 7	All NW Region Users	Any	
6	SE 7	All SE Region Users	Any	
7	SW 7	All SW Region Users	Any	
8	CM 7	All CM Region Users	Any	
9	8CALL90	National	Hailing	
10	8CALL90D	National	Hailing	Simplex (not repeated)
11	8TAC92	National	Any	
12	8TAC92D	National	Any	Simplex (not repeated)
13	SOA-1	All Users	Any	Simplex (not repeated)
14	SOA-2	All Users	Any	Simplex (not repeated)
15	MSP-CALL	All Users	Hailing MSP	MSP monitors and will relay any call to correct PSAP
16	TC-OPS-1	Tribal Users Only	Tribal Command and Control	

- ME 7 was intentionally excluded. It was not included in the ARMER Tribal Interoperability Zone included in MNFOG v1.8. The Metro region asked that placement of ME 7 in the ARMER Tribal Interoperability Zone be formally requested and, as of printing, no Metro Tribe has made application.
- SR 7 was intentionally excluded. It was not included in the ARMER Tribal Interoperability Zone included in MNFOG v1.8. There are no fedrally recognized tribes in the South Central region and no request was made to the SR region.

6/16 per email from rick Juth, CM wants tribes to formally request use of cm-7

Tribal Interoperability

Specific talkgroups and national interoperability channels have been identified for interoperability with Tribal Nations. This charts identifies a sixteen-channel Tribal Interoperability Zone. Most of the talkgroups identified in this chart are shared resources, not exclusively reserved for tribal interoperability.

VHF Conventional Tribal Interoperable Zone

Channel	Name	Purpose	Notes
1	IR 2	Federal Medical Evac. Control	
2	IR 6	Federal Incident Command	Simplex
3	IR 7	Federal Medical Evac. Control	Simplex
4	IR 8	Logistics Control	Simplex
5	VCALL10	National VHF Calling	
6	VTAC11	National VHF tactical channel	
7	VTAC12	National VHF tactical channel	
8	VTAC13	National VHF tactical channel	
9	VTAC14	National VHF tactical channel	
10	VTAC33	National VHF tactical channel	
11	VTAC34		
12	SAR NFM	Public Safety SAR common	
13	MNCOMM	Hail channel near Canadian border	
14	VFIRE23	Fire Only	
15	VMED28	Medical Only	
16	VLAW31	Law Enforcement Only	

Strategic Technology Reserve

Minnesota maintains a healthy Strategic Technology Reserve (STR) and it components are available for routine or emergency events. The STR assets are included in CASM and, in some cases, Status Board.

Cache Radios—Portable Radios

Asset	Quantity	Owner	Location	Administrative Contact Information
Motorola XTS 1500 portable radios programmed with ARMER interoperability talkgroups and 800 MHz National Interoperability channels	30	NW Region	Pennington County EOC Thief River Falls	Dave Olson Pennington County
	30	NE Region		???? Saint Louis County
	30	CM Region	Alexandria	Mike Henrion Douglas County
	150	ME Region	ECN Office St. Paul	Jim Stromberg DPS ECN
	30	SW Region	Marshall County	Todd Roelfsema Lyon County
	30	SR Region	Mankato	Tim Mohr Blue Earth County
	30	SE Region	Olmsted Co. EOC	Rick Freshwater Olmsted County
	324	Hennepin County	Hennepin County Sheriff's Radio Plymouth	John Gunderson Hennepin County
VHF Portables	79	Hennepin County	Hennepin County Sheriff's Radio Plymouth	John Gunderson Hennepin County

Cache radios should be programmed so that an advanced system key is not required to reprogram the radio. NEED TO CONFIRM

Strategic Technology Reserve

Minnesota maintains a healthy Strategic Technology Reserve (STR) and it components are available for routine or emergency events. The STR assets are included in CASM and, in some cases, Status Board.

Transportable Tower and/or Repeater

Asset	Owner	Location	Contact Information
Transportable Tower (50') with VHF and 800 MHz Repeater	NW Region	NW Region Thief River Falls	Dave Olson Pennington County
Transportable Tower (50') with VHF and 800 MHz Repeater	NE Region	NE Region	
Transportable Tower (50') with VHF and 800 MHz Repeater	CM Region	CM Region	Mike Henrion Douglas County
Transportable Tower (50') with VHF and 800 MHz Repeater	ME Region	Metro Region Bloomington	Troy Tretter MESB
Transportable Tower (50') with VHF and 800 MHz Repeater	SW Region	SW Region	Todd Roelfsema Lyon County
Transportable Tower (50') with VHF and 800 MHz Repeater	SR Region	SR Region	Tim Mohr Blue Earth County
Transportable Tower (50') with VHF and 800 MHz Repeater	SE Region	SE Region Olmsted Co. EOC	Rick Freshwater Olmsted County 507-xxx-xxxx
Transportable Tower (50') with VHF Antenna		NW Region Thief River Falls	Tom Vanderwal

- Add Towing Requirements
- Repeater is a stand-alone repeater system designed to be used with the STR tower/trailer, but can be deployed on its own. Add info about the channels in the repeater and that it is stand alone (x2) or cross band.
- 800 MHz repeater with 8CALL90 and 8TAC91-94 channels
- VHF repeater with VTAC14R, IR2, and LE2 channels
- Standalone repeater modes for both bands simultaneously, or crossband "patch" 800-to-VHF
- The STR repeater does not interact with or connect to ARMER or any other trunked radio system (unless patched through a special, non-standard procedure). The repeater system solution provides simultaneous repeat of VHF and 800MHz signals, as well as a cross-band capability. System can operate on any one VHF channel and any one 800 MHz channel simultaneously, but no more than one channel in VHF and no more than one channel in 800 MHz at any one time.

SAT-COW

Describe SAT-COW here – Ask Joh G for assistance with this

Contact: John Gunderson (Hennepin County)

Minnesota National Guard

The Minnesota National Guard has many communications resources available. Because they are not as immediately available as other STR items and the process to request and deploy these items is different from other STR equipment, they are listed separately.

Asset	Location	Administrative Contact Information
JCP1 VHF/UHF/800 Tower More Description		SFC Tom Simota
JCP2 VHF/UHF/800 Tower More Description		SFC Tom Simota
JCP3 VHF/UHF/800 Tower More Description	Duluth	SFC Tom Simota
RCP1 VHF/UHF/800 Tower (59') More Description		SFC Tom Simota
RCP2 VHF/UHF/800 Tower (106') More Description		SFC Tom Simota

Need more info on deployment procedures here.

6/30 Troy is working on this
7/7 I spoke with Simota about something else and and he said he hadn't heard from Troy yet but he will work with him to get this update.

Minnesota Interagency Fire Center

Describe here

Much more info is needed. Marcus will introduce me to Pat.

Asset	Owner	Location	Contact Information
VHF Portables	325	MN Interagency Fire Center	MIFC Grand Rapids
Communications Trailer with 31’ Tower	MN Interagency Fire Center	Grand Rapids	Pat Caughlin
Transportable Tower 50’ VHF Antenna	MN Interagency Fire Center	Grand Rapids	Pat Caughlin
Transportable Tower 100’ VHF Antenna	MN Interagency Fire Center	Grand Rapids	Pat Caughlin
Four (4) VHF Repeaters (Daniels)	MN Interagency Fire Center	Grand Rapids	Pat Caughlin

National Weather Service

The following National Weather Service frequencies are used throughout Minnesota.

Channel & Frequency		
WX1 162.4000	WX2 162.4250	WX3 162.4500
WX4 162.4750	WX5 162.5000	WX6 162.5250
WX7 162.5500		

Add info about NWS talkgroups and NWS interop procedures with PSAPs when they are finalized.

Aviation

Aerial operations in Minnesota is limited to the Minnesota State Patrol, air ambulances, Minnesota Interagency Fire Center, and Civil Air Patrol.

The Minnesota State Patrol's Flight Section enjoys full ARMER functionality.

Several air ambulances serve Minnesota and each uses ARMER to interoperate with other ARMER users. Landing Zone and field operations with air ambulances should be on an STAC talkgroup.

The Minnesota Interagency Fire Center operates aerial firefighting operations on VHF.

The Civil Air Patrol is an ARMER participant for land operations only.

The EMSAIRCOM talkgroup is dedicated to communications between helicopter communication centers.

More work needed here.

Marine

Due to the significant number of lakes in Minnesota there is a potential for water-related events and the need to communicate with civilian and public safety persons.

Marine Channel	TX / RX Frequency	Purpose
14	???	Monitored by Army Corp of Engineers Mississippi River Locks and Dams
16	156.8000	Distress Safety
18A	157.0750	Was in the WIFOG – determine if applicable in MN
River Ops Talkgroups	Learn more about these talkgroups and add here	

Railroad

Canadian Pacific Rail and Burlington Northern Santa Fe railroads are each ARMER participants. Their day-to-day operations are on VHF but select law enforcement and disaster response teams use ARMER for interoperability.

Channel	TX / RX Frequency	Purpose
73 (W) / 073 (N)	161.2050	Railroad Police Mutual Aid

Minnesota's State Emergency Operations Center (SEOC)

Minnesota's State Emergency Operations Center (SEOC) activates during times of disaster or emergency. It serves as the hub for state agencies and their partners to support local governments and coordinate response efforts.

Location	Telephone
444 Cedar Street	651-201-7483
Saint Paul, Minnesota 55101-5137	Only activated during a state of emergency

State Activation Levels:

Level I Full Activation with Federal Support – SEOC Full Activation with Federal Support
Initiated by a Presidential Disaster Declaration for Minnesota and includes full federal Emergency Support Functions (ESF) support.

Level II Full State Activation – SEOC Activation with Command Staff, General Staff and Select State Agencies
Response to an actual event having significant impacts over large geographical areas. The Governor's Authorized Representative (GAR) will direct state agencies to provide assistance under the Governor's Executive Order assigning emergency responsibilities to state agencies.

Level III Partial Activation – SEOC Activation with Command Staff and General Staff
Activation of appropriate agencies or Incident Command System (ICS) sections to closely monitor a developing situation or incident with limited impact. Actions may include preparing to or providing any necessary assistance as needed.

Level IV Monitoring – Continuous Monitoring
In Coordination with Minnesota Duty Officer (MDO), Homeland Security and Emergency Management Operations Section maintains statewide situational awareness.

Minnesota State Duty Officer

The Minnesota Duty Officer Program provides a single answering point for local and state agencies to request state-level assistance for emergencies, serious accidents or incidents, or for reporting hazardous materials and petroleum spills.

- Phone: 651-649-5451
- Toll-free: 800-422-0798
- Ops Center: 651-793-5451
- Fax: 651-296-2300
- Sat Phone: 254-543-6490
- Duty Officer may also be contacted through "MNDO" ARMER talkgroup

Communications Survey Asset and Mapping Tool (CASM)

A federal database provided by the US Department of Homeland Security to help jurisdictions inventory their public safety emergency communications capabilities.

CASM is managed in Minnesota by the Statewide Interoperability Coordinator, Jim Stromberg.

Regional Administrators.

Region	Primary Administrator	Secondary Adminstrator(s)
State	Jim Stromberg	Cathy Anderson
Northwest	Brian Zastipul	vacant
Northeast	Steve Olson	Karla White
Central	Al Fjerstad	Brandon Larson
Metro	Chris Kummer	Jake Thompson, Ron Jansen, Curt Meyer, Rod Olson, Dave Pikal, & Troy Tretter
Southwest	Harry Algyer	Bill Clayton
South Central	Keih Ruffing	Pat Wallace
Southeast	Rick Freshwater	vacant

Status Board

Status Board is a statewide web-based dispatch tool accessible through the public internet. It is intended to help coordinate use of interoperable communications resources for urgent, emergent, or preplanned events.

Status Board is available at https://app2.dps.mn.gov/statusboard.

To request access to Status Board or training resources, contact ECN Standards and Training Coordinator, Cathy Anderson at cathy.anderson@state.mn.us or (651) 201-7548.

Public Safety Answering Points (PSAP) and Related Dispatch Center Contact Information

A-B

AGENCY	CITY	24/7 TELEPHONE
Aitkin County	Aitkin	218-927-7400
Allina EMS		651-222-0555
Anoka County	Anoka	763-427-1212
ATF		
Becker County	Detroit Lakes	218-847-2661
Beltrami County	Bemidji	218-333-9111
Benton County	Foley	320-968-7201
Big Stone County	Willmar	320-839-3558
Bloomington	Bloomington	952-888-4401
Blue Earth County	Mankato	507-387-5601
Brown County		507-233-6720

C-D

AGENCY	CITY	24/7 TELEPHONE
Carlton County	Carlton	218-384-4185
Carver County	Chaska	952-361-1231
Cass County	Walker	218-547-1424
Chippewa County	Montevideo	320-269-2121
Chisago County	Center City	651-257-4100
Clay County	Fargo	701-451-7660
Clearwater County	Bagley	218-694-6226
Cook County	Grand Marais	218-387-3030
Cottonwood County	Windom	507-831-1375
Crow Wing County	Brainerd	218-829-4749
Dakota County	Rosemount	651-322-2323
Dodge County	Mantorville	507-635-6200
Douglas County	Alexandria	320-762-8151

E-F

AGENCY	CITY	24/7 TELEPHONE
Eden Prairie	Eden Prairie	952-949-6200
Edina	Edina	952-826-1600
Faribault County	Blue Earth	507-526-6180
FBI		
Fillmore County	Preston	507-765-3874
Fort Snelling / 934th Security Forces Squadron		612-713-1102
Freeborn County	Albert	507-377-5200

Public Safety Answering Points (PSAP) and Related Dispatch Center Contact Information

G-H

AGENCY	CITY	24/7 TELEPHONE
Goodhue County	Red	651-385-3155
Grant County	Elbow Lake	218-685-8280
Hennepin County	Plymouth	763-525-6216
Hennepin EMS (HCMC)	Minneapolis	612-347-2140
Houston County	Caledonia	507-725-3379
Hubbard County	Park Rapids	218-732-3331
Hutchinson	Hutchinson	320-587-2242

I-J

AGENCY	CITY	24/7 TELEPHONE
Isanti County	Cambridge	763-689-2141
Itasca County	Grand Rapids	218-326-3477
Jackson County		507-847-4420

K-L

AGENCY	CITY	24/7 TELEPHONE
Kanabec County		320-679-8400
Kandiyohi County		320-235-1260
Kittson County		218-843-3535
Koochiching County		218-283-4416
Lac qui Parle County		320-598-3720
Lake County		218-834-8385
Lake of the Woods County		218-634-1143
LeSueur County		507-357-4440
Lincoln County		507-694-1664
Lyon County		507-537-7666

Public Safety Answering Points (PSAP) and Related Dispatch Center Contact Information

M-N

AGENCY	CITY	24/7 TELEPHONE
Mahnomen County		218-935-2255
Marshall County		218-745-5411
Martin County		507-238-4481
Mayo Clinic		507-255-2808
McLeod County		320-864-3134
Meeker County		320-693-5400
Metropolitan Airports Commission (MAC)	Minneapolis	612-726-5577
Metropolitan Transit Commission (MTC)	Minneapolis	
Mille Lacs County		320-983-8257
Minneapolis	Minneapolis	612-348-2345
Minnesota State Patrol	Rochester	
Minnesota State Patrol	Roseville	
Minnetonka	Minnetonka	952-939-8510
Morrison County		320-632-9233
Mower County		507-437-9400
Murray County		507-836-6168
Nicollet County		507-931-1570
Nobles County		507-372-8430
Norman County		218-784-7114
North Memorial	Brooklyn Park	763-520-2897

O-P

AGENCY	CITY	24/7 TELEPHONE
Olmsted County		507-328-6800
Otter Tail County		218-998-8555
Pennington County		218-681-6161
Pine County		320-629-8438
Pipestone County		507-825-6700
Polk County		218-281-0431
Pope County		320-634-5411

Public Safety Answering Points (PSAP) and Related Dispatch Center Contact Information

Q / R

AGENCY	CITY	24/7 TELEPHONE
Ramsey County	Saint Paul	651-767-0640
Red Lake County		218-253-2996
Red Lake Nation		218-679-3313
Redwood County		507-637-4036
Regions Hospital (MRCC East)	Saint Paul	
Renville County		320-523-1161
Rice & Steele Counties		507-451-8232
Ridgeview Medical	Waconia	952-442-4722
Rock County		507-283-5000
Roseau County		218-463-1421

S-T

AGENCY	CITY	24/7 TELEPHONE
Scott County	Shakopee	952-445-1411
Sherburne County		763-765-3595
Sibley County		507-237-4330
Saint Louis County	Duluth	218-727-8770
Saint Louis Park	Saint Louis Park	952-924-2618
Stearns County		320-251-4240
Rice & Steele Counties		507-451-8232
Stevens County		320-208-6500
Swift County		320-843-3133
Todd County		320-732-2157
Traverse County		320-422-7800

Public Safety Answering Points (PSAP) and Related Dispatch Center Contact Information

U-V-W-X-Y-Z

AGENCY	CITY	24/7 TELEPHONE
University of Minnesota (Twin Cities)	Minneapolis	612-624-7828
Wabasha County		651-565-3361
Wadena County		218-631-7600
Waseca County		507-835-0500
Washington County	Stillwater	651-439-9381
Watonwan County		507-375-3121
White Bear Lake	White Bear lake	651-429-8511
Wilkin County		218-643-8544
Winona County		507-457-6368
Wright County	Buffalo	763-682-7600
Yellow Medicine County		320-564-2130

NEED TO COMPLETE THESE BOXES

Key Contacts

These persons are identified in the MNFOG.

Name	Telephone Numbers	Emails
Harry Algyer		
Cathy Anderson	651-201-7548	Cathy.Anderson@state.mn.us
Rick Freshwater		
John Gunderson		John.gunderson@hennepin.us
Ron Jansen		
Brandon Larson		
Curt Meyer		
Rod Olson		
Dave Pikal		
Keith Ruffing		
Tom Simota		thomas.j.simota.mil@mail.mil
Jim Stromberg	651-201-7557	James.Stromberg@state.mn.us
Jake Thompson		
Nate Timm		
Troy Tretter		ttretter@mn-mesb.org
Pat Wallace		
Karla White		
Brian Zastoupil		

Key Contacts

Notes

Notes

Inside of back page

Back Page

Minnesota's Communications Unit (COMU) Program
Purpose Statement
July 21, 2016

Background

The National Incident Management System (NIMS) is a standardized approach to incident management established in March 2004 by the Department of Homeland Security. Within NIMS, the Incident Command System (ICS) standardizes command, control, and coordination of emergency response. The Communications Unit (COMU) resides in the Logistics Section of the ICS.

Beginning in 2007, the Department of Homeland Security (DHS) started development of the Communications Unit Leader (COML) program to train and credential incident communications support staff. The DHS has expanded the COML program to include Communication Unit Technician (COMT), Auxiliary Emergency Communicator (AUXCOMM), and a variety of technical specialties.

In 2009 Minnesota established standards governing how Minnesota would certify and recertify COMLs and then, in 2011, did the same for COMTs.

Purpose Statement

Consistent with the National Incident Management System Incident Command System, Minnesota will develop and maintain a strong Communications Unit (COMU) program that is organized, encourages training and exercising, and one that supports availability and deployability so that the Communications Unit may be considered a core component of public safety incidents and exercises.

Objectives

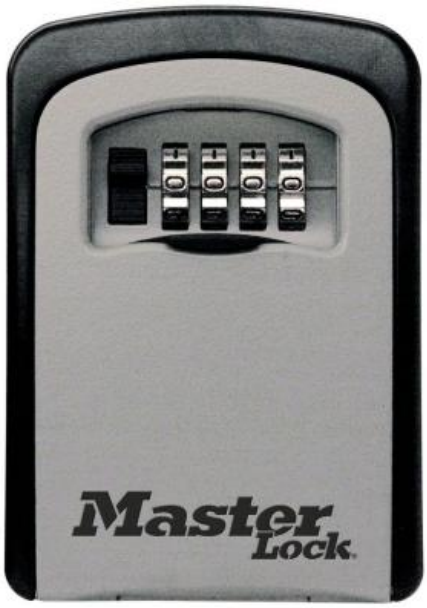
Minnesota is a national leader in emergency communications. As part of that leadership role Minnesota will strive to achieve the following objectives for its COMU program:

- Minnesota will ***develop and maintain*** a strong Communications Unit (COMU) program, consistent with the NIMS ICS.
- Minnesota's COMU personnel will be ***organized*** regionally as guided by their regional Emergency Communications Board (ECB) or Emergency Services Board (ESB) to support their region. COMU personnel will also be organized at a state level in coordination with Homeland Security and Emergency Management (HSEM) for purposes of interstate Emergency Management Assistance Compact (EMAC) deployability.
- Minnesota's COMU personnel will be ***well trained***. In addition to the basic training prescribed by the OEC, Minnesota COMU personnel will receive Minnesota-specific training. COMU personnel will be required to receive continuing education and to exercise their skills.
- Minnesota's COMU personnel will be ***available*** to support the communications needs of small, local events as well as large, multijurisdictional emergencies.
- Minnesota will promote its COMU program so that communications is considered ***core components*** of all public safety incidents and exercises.

Master Lock | Model # 5401DHC | Internet # 100176033 | Store SKU # 202403

Wall Mount Set-Your-Own Combination Lock Box

★★★★½ (40) | **Write a Review** | **Questions & Answers (7)**



Open Expanded View | Click Image to Zoom


$29.97 /each

- Stores up to 5 combination keys for multiple users
- Constructed of reinforced steel for strength and durability
- Features a large compartment to hold up to 5 car or padlock keys

IN STOCK AT YOUR SELECTED STORE

Inver Grove Heights #2843
Inver Grove Heights, MN 55077

6 **In Stock**
Aisle 11, Bay 018
Text Product Location

PRODUCT OVERVIEW

Model # 5401DHC | Internet # 100176033 | Store SKU # 202403

Store up to 5 keys with the Wall Mount Steel Combination Padlock Key Safe. It is reinforced to withstand hammering and sawing, while the shutter door covers the combination for protection against the elements. It can easily fasten to a wall, and its attractive design blends with any decor to minimize attention.

- Constructed of steel
- Door opens smoothly and remains attached to lock body for convenient operation
- Large compartment holds more than 5 house, car or padlock keys
- Dial combination padlock
- 4-dial resettable combination provides simple set-your-own combination convenience
- Shutter door provides enhanced weather resistance
- Reinforced body withstands hammering and sawing

Feedback

SPECIFICATIONS

DIMENSIONS

Body width (in.)	3.25	Product Width (in.)	5.25 in
Product Depth (in.)	1.5	Shackle clearance (in.)	0
Product Height (in.)	7.25	Shackle diameter (in.)	0

DETAILS

Adjustable shackle	No	Locking mechanism	Lever
Coated	N	Material	Steel
Color	Black and Grey	Multi-pack keyed alike	No
Color Family	Gray	Number of locks in pack	1
Key material	Steel	Product Weight (lb.)	1.12 lb
Keys & Accessories Product Type	Padlock	Rekeyable	No
Lock Product Type	Padlock	Returnable	90-Day
Lock Type	Combination	Shrouded shackle	No
Lock material	Steel		

WARRANTY / CERTIFICATIONS

Manufacturer Warranty	Limited Lifetime

MORE PRODUCTS WITH THESE FEATURES

Lock Type: **Combination** | Color Family: **Gray** | Lock Product Type: **Padlock** | Brand: **Master Lock**

Price: **$20 - $30** | Review Rating: **4 & Up**

SEARCH

More saving. More doing.®

Feedback

Minnesota Duty Officer
Guidelines and Contact Information for
Communications Resources

The Minnesota Department of Public Safety Emergency Communication Networks and the Statewide Emergency Communications Board support communication resources for large-scale and emergency events. These resources include:

Communications Unit Personnel

- Communication Leaders (COMLs)
- Communication Technicians (COMTs)
- Auxiliary Communicators (AUXCOMs)
- Technical Specialists (TECHSPC????)
- Radio Operators (RADOs)

Communications Response Taskforce

- Communication Leaders (COMLs)
- Communication Technicians (COMTs)
- Incident Dispatcher or Team

Strategic Technology Reserve

- Cache Radios
- Transportable Towers and Repeaters
- Gateways
- Communication Vehicles
- Satellite Telephones

Radio Options

- ARMER Resources
- Non-ARMER Resources (to supplement or in place of ARMER)
- Ham Radio Services

Routine and emergency requests for these services and equipment should be made through the Minnesota Duty Officer. The Duty Officer should convey requests to the following key contact persons, based on the requesting entity's Emergency Communications Region.

Northwest Region	Counties:	Becker, Beltrami, Clay, Clearwater, Hubbard, Kittson, Lake of the Woods, Mahnomen, Marshall, Norman, Pennington, Polk, Red Lake, Roseau		
	Contact Name	Best Method	Second Method	Third Method
First Contact				
Second Contact				
Third contact				

Northeast Region	Counties:	Aitkin, Carlton, Cass, Cook, Crow Wing, Itasca, Kanabec, Koochiching, Lake, Pine, Saint Louis		
	Contact Name	Best Method	Second Method	Third Method
First Contact				
Second Contact				
Third contact				

Central Region	Counties:	Benton, Big Stone, Douglas, Grant, Kandiyohi, Meeker, Mille Lacs, Morrison, Otter Tail, Pope, Sherburne, Stearns, Stevens, Swift, Todd, Traverse, Wadena, Wilkin, Wright		
	Contact Name	Best Method	Second Method	Third Method
First Contact				
Second Contact				
Third contact				

Minnesota Duty Officer
Guidelines and Contact Information for
Communications Resources

Metro Region	Counties:	Anoka, Carver, Chiscago, Dakota, Hennepin, Isanti, Scott, Ramsey, Washington		
	Contact Name	Best Method	Second Method	Third Method
First Contact	See the existing list from the metro			
Second Contact				
Third contact				

Southwest Region	Counties:	Chippewa, Cottonwood, Jackson, Lac Qui Parle, Lincoln, Lyon, Murray, Nobles, Pipestone, Redwood, Renville, Rock, Yellow Medicine		
	Contact Name	Best Method	Second Method	Third Method
First Contact				
Second Contact				
Third contact				

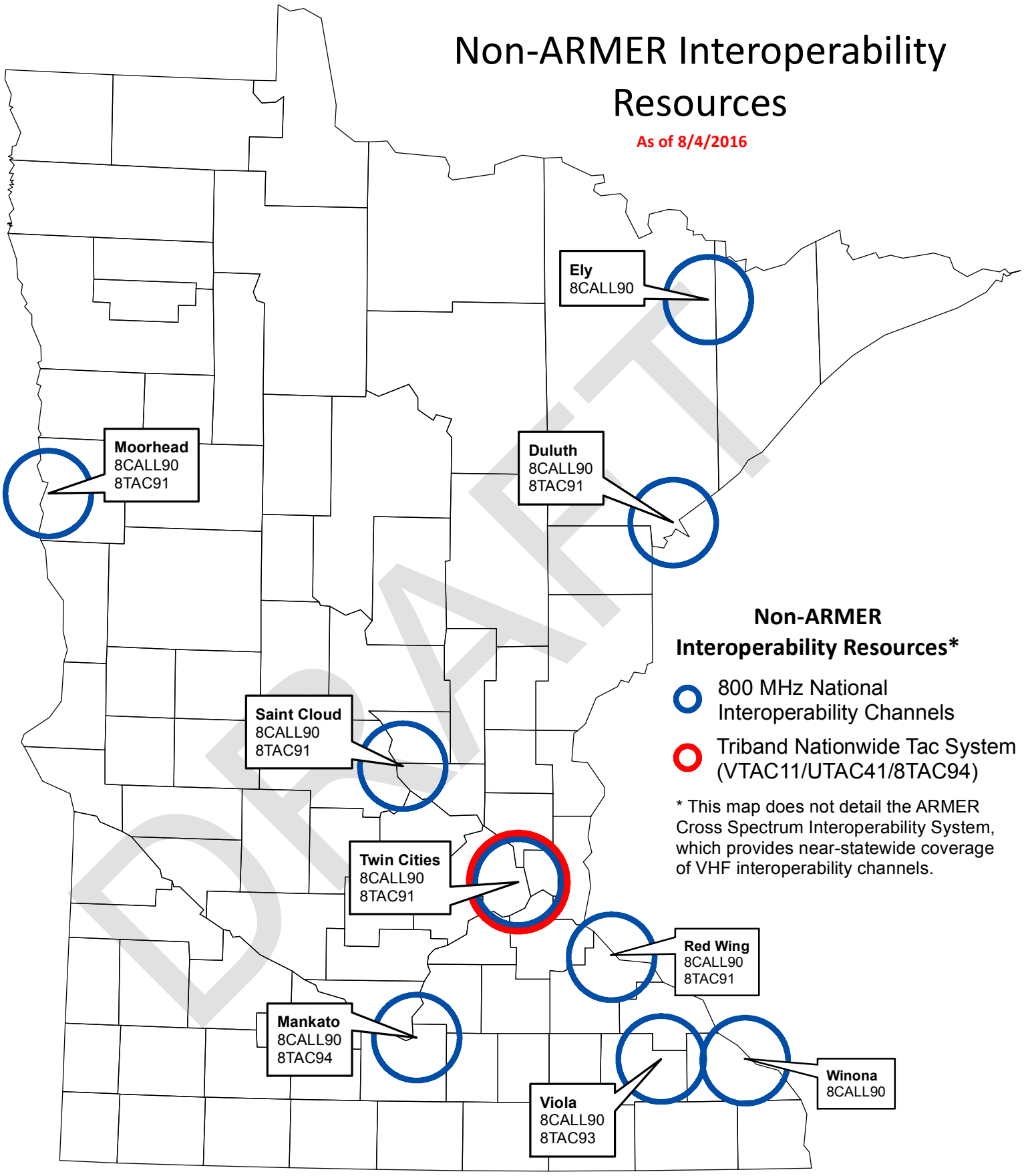
South Central Region	Counties:	Blue Earth, Brown, Faribault, Le Sueur, Martin, McLeod, Nicollet, Sibley, Waseca, Watonwan		
	Contact Name	Best Method	Second Method	Third Method
First Contact				
Second Contact				
Third contact				

Southeast Region	Counties:	Dodge, Fillmore, Freeborn, Goodhue, Houston, Mower, Olmsted, Rice, Steele, Wabasha, Winona		
	Contact Name	Best Method	Second Method	Third Method
First Contact				
Second Contact				
Third contact				

State of Minnesota	All requests not specific to a region. Very large events. Interstate Requests. Non-response by a region.			
	Contact Name	Best Method	Second Method	Third Method
First Contact	Jim Stromberg	651-788-0399	952-923-6318	JimStromberg@gmail.com
Second Contact	Cathy Anderson			
Third contact	Melinda Miller			
Fourth Contact	Jackie Mines			

Non-ARMER Interoperability Resources

As of 8/4/2016



Non-ARMER Interoperability Resources*

- 800 MHz National Interoperability Channels
- Triband Nationwide Tac System (VTAC11/UTAC41/8TAC94)

* This map does not detail the ARMER Cross Spectrum Interoperability System, which provides near-statewide coverage of VHF interoperability channels.

For more information about the ARMER program please contact the State Interoperability Coordinator, Jim Stromberg (James.Stromberg@state.mn.us or 651-201-7557).

PUBLIC NOTICE

Federal Communications Commission
445 12th St., S.W.
Washington, D.C. 20554

News Media Information 202 / 418-0500
Internet: http://www.fcc.gov
TTY: 1-888-835-5322

DA 16 - 739
Released: June 30, 2016

PUBLIC SAFETY AND HOMELAND SECURITY BUREAU PROVIDES GUIDANCE TO U.S. PUBLIC SAFETY AGENCIES ALONG THE CANADA BORDER SEEKING TO ROAM INTO CANADA OR IMPROVE CROSS-BORDER COMMUNICATIONS VIA BASE STATION REPEATERS

By this *Public Notice*, the Public Safety and Homeland Security Bureau (Bureau) provides guidance to U.S. public safety licensees seeking to: (1) roam into Canada with their mobile or hand-held portable radio equipment; (2) communicate from the U.S. through base station repeaters in Canada; or (3) host Canadian public safety licensees seeking to communicate through base station repeaters in the U.S.

Our guidance is based upon recent arrangements and understandings reached by Bureau staff with officials from Innovation, Science and Economic Development Canada (ISED). The licensing guidance we provide below applies to any public safety licensee operating a Private Land Mobile Radio (PLMR) system in any frequency band authorized under Part 90 of the Commission's rules.[1]

Cross-Border Communication Scenarios

Public safety licensees and their associated first responders who operate PLMR radio equipment along the U.S.-Canada border have long expressed a need to roam across the border with their licensed radio equipment or to communicate across the border through base station repeaters in the other country. [2]

Specifically, these licensees indicate that their first responders could improve their ability to respond to emergency incidents along the border if they could communicate under the following three scenarios:

- Scenario 1: operate their own mobile and/or hand-held portable radio transceivers on the opposite side of the border;
- Scenario 2: use base station repeaters on the opposite side of the border to interoperate with public safety licensees in the other country;
- Scenario 3: use base station repeaters on the opposite side of the border to communicate with public safety licensees in their own country.[3]

[1] *See* 47 CFR § 90.20.

[2] In the context of this Public Notice, the term "first responder" refers to any person authorized by a licensee to operate PLMR radio equipment under its license.

[3] The three cross-border scenarios were first presented to officials from the FCC and ISED at a 2009 conference hosted by the U.S. Department of Homeland Security's (DHS) Office of Emergency Communications (OEC) in Niagara Falls New York. The conference was attended by first-responders from the both the U.S. and Canada.

In response to these scenarios, Bureau staff along with staff at the International Bureau and State Department worked with ISED to determine what changes to international agreements or licensing procedures were needed, if any, to permit public safety licensees along the border to operate in the manner described above.

Below we summarize their results and conclusions.

Scenario 1 – Conditions for Cross-Border Roaming

In October 2014, the FCC and ISED (collectively the Agencies) signed a "Statement of Intent" (SOI) to update roaming privileges for licensees operating on public safety spectrum which were originally adopted by the U.S. and Canada via a Convention in 1952.[4] The SOI removed barriers to roaming with hand-held portable units and eliminated the need for the host country to issue permits to public safety licensees crossing the border.[5] The SOI is available on the Commission's website at: https://www.fcc.gov/encyclopedia/international-agreements.

Pursuant to the SOI, first responders operating along the U.S. - Canada border may now roam across the border with their mobile and hand-held portable radio units to perform duties for which they are licensed provided the first responder's public safety agency is properly licensed in its country of origin.[6] No additional approval or permits are required if the first responder's agency is licensed in its home country for the frequencies the first responder is using.

Consequently, U.S. first responders seeking to roam across the border into Canada for temporary operations on the other side of the border may now do so provided the first responder's agency is licensed for the frequencies it intends to operate in Canada.

[4] In 1952 the U.S. and Canada ratified a Convention which addresses citizens of either county operating radio equipment in the other country. See Convention Between Canada and the United States of America Relating to the Operation by Citizens of Either Country of Certain Radio Equipment of Stations in the Other Country (signed Feb 8, 1951 and entered into force May 15, 1952) (1952 Convention).

[5] *See* Statement of Intent of the Federal Communications Commission of the United States of America and the Department of Industry of Canada Related to the Cross-Border Operation of Portable Radios by Public Safety Agencies Along the United States-Canada Border (Oct 2014)(SOI).

[6] Enforcement authority remains with the country in which the transmitter is operating.

Scenarios 2 and 3 – Conditions for Use of Base Station Repeaters in the Other Country

Staff from the Agencies agree that first responders operating mobile or hand-held radio equipment along the U.S-Canada border may communicate through base station repeaters located in the other country, as described above in Scenarios 2 and 3, provided the licensee of the first responder's radio obtains written consent from the licensee of the base station repeater (host licensee) and the following conditions are met:

- the base station repeater is properly licensed in the country in which it is located;
- the host licensee maintains control and is responsible for operation of its base station repeater at all times;
- a licensee obtains written consent from the host licensee before permitting its first responders to communicate with a base station repeater in the other country; and
- a licensee is properly licensed in its own country for the frequencies its first responders use to communicate through a base station repeater in the other country.

The requirements detailed above apply regardless of whether the first responder intends to use the base station on the other side of the border to interoperate with counterparts in the other country (Scenario 2) or to interoperate with first responders in its own country (Scenario 3).

After researching the issue, staff at the Agencies concluded that the sharing mechanisms described in Scenarios 2 and 3, although not specifically contemplated, are consistent with existing regulations and international agreements.[7] Thus, staff found no need to modify current regulations or agreements.

Nonetheless, staff at the Agencies agree that licensees should meet the requirements described above before their users can begin communicating through a base station repeater in the other country. Furthermore, although we instruct licensees to first obtain written consent from the host licensee, we seek to minimize the burden on both the licensee seeking consent and the host licensee issuing consent by providing the parties maximum flexibility to decide the format of the written document.[8]

[7] *See* 47 CFR § 1.928 (detailing requirements for coordination of frequency assignments with Canada).

[8] When obtaining written consent, we advise licensees to ensure that their mobile and portable radios can support the trunked radio features of the base station repeater in the other country. We also advise U.S. licensees to share with their Canadian counterparts any domestic mutual aid agreements (U.S. licensee-to-U.S. licensee) which are already in place and for which cross-border communications are contemplated.

U.S. Base Station Licensees Hosting Canadian Licensee's First Responders

The licensee of a base station repeater located in the U.S. may act as a host for a public safety first responder from Canada provided the U.S. licensee meets the requirements described above beforehand. Specifically, the U.S. host licensee should first agree to terms of use for the base station repeater and provide its written consent to the Canadian licensee.

The written consent should indicate the call sign or co-channel serial (COSER) coordination number (if applicable) of the Canadian licensee whose first responders are permitted to communicate through the base station repeater and list the input/output frequencies to which they will have access. As noted above, the format for written consent is left to the parties involved. The host licensee should maintain a record of its written consent and provide a copy to Bureau staff if requested.

If the licensee of the base station repeater in the U.S. needs to modify the technical parameters of its license prior to hosting a first responder from Canada, we recommend it include with its modification application a copy of its written consent to the Canadian licensee to assist Bureau staff in processing the application. Examples of modifications which could be needed include adding additional channels or increasing the effective radiated power listed on the license.

Once a U.S. licensee provides its written consent and makes any necessary modifications to its license, it may act as a host for a Canadian first responder seeking to use the base station repeater to communicate with its counterparts in the U.S. (Scenario 2) or with first responders in Canada (Scenario 3). The Canadian first responder must be properly licensed in Canada for the frequencies on which it operates before it can communicate through the base station repeater in the U.S.

U.S. Licensees Seeking a Canadian Host

Any U.S. public safety licensee seeking to have its first responders communicate through a base station repeater in Canada must first obtain written consent from the Canadian licensee of that base station (host licensee). The written consent from the host licensee in Canada should be addressed to the licensee of the first responder's radio. In addition, ISED may require the host licensee to add a condition to its license before permitting U.S. first responders to communicate through the base station repeater in Canada.

We suggest that the written consent include the call sign or COSER coordination number (if applicable) of the base station repeater in Canada and list the input/output frequencies to which the U.S. first responder will have access. The format for written consent is left to the parties involved. The U.S. licensee receiving written consent from a host licensee in Canada should maintain a record of the consent and provide a copy to Bureau staff if requested.

If a U.S. licensee needs to modify the technical parameters of its license prior to communicating through a base station repeater in Canada, we recommend it include with its modification application a copy of the written consent it received from the host licensee in Canada to assist Bureau staff with processing the application. Examples of modifications which could be needed include adding channels or increasing the number of mobile units listed on the license.

Once a U.S. licensee receives written consent from the host licensee in Canada and makes any necessary modifications to its license, its first responders may use the base station repeater in Canada to

communicate with their counterparts in Canada (Scenario 2) or with first responders in the U.S. (Scenario 3) provided the host is properly licensed in Canada and has added any necessary conditions to its license.

Licensing Along Border Under Any of the Three Scenarios

U.S. public licensees and their associated first responders seeking to operate under any of the three scenarios described above should be aware of the licensing and coordination requirements for the frequency band in which they seek to operate. For instance, Bureau staff coordinates with Canada any application for the VHF or UHF frequency bands in which the applicant is:

- seeking a frequency in the 30-174 MHz or 450-470 MHz bands[9] which is,
  - within the coordination zone[10] and,
  - proposing to operate at an effective radiated power (ERP) greater than three watts.

The purpose of this coordination is to determine whether or not an applicant's proposal is likely to cause harmful interference to a licensee in Canada.[11] Coordination is required for any frequency in these VHF or UHF band segments including the interoperability frequencies. We list the designated U.S. VHF and UHF interoperability frequencies in Attachment B.

Thus, as noted above, any applicant seeking to license frequencies or facilities in these frequency bands to operate under any of the three scenarios can significantly reduce the risk of an inadvertent rejection by ISED if it includes with its application a description of how it intends to interoperate with licensees in Canada, including, if available, copies of any written agreements between the licensees.[12] Bureau staff will include this detail as part of an information exchange with staff at ISED when coordinating applications for these frequency bands.[13]

---

[9] The Agencies license applications in the 30-174 MHz and 450-470 MHz frequency bands on a first-come, first-served basis. *See* Exchange of Notes between the Government of the United States of America and the Government of Canada Concerning the Coordination and Use of Radio Frequencies Above Thirty Megacycles per Second, with Annexes (Oct 24, 1962) (Above 30 MHz Agreement). *See also* 47 CFR § 1.928 (detailing FCC rule requirements pursuant to the Above 30 MHz Agreement).

[10] "Line A" defines the coordination zone in the U.S. along the border with Canada for the lower 48 states while "Line C" establishes a similar coordination zone in the U.S. along the border with Canada in Alaska. *See* 47 CFR § 1.928(e).

[11] ISED will typically reject a U.S. coordination proposal that is predicted to produce a signal strength exceeding -146 dBW based on 10% time / 50% location variability at the location of a Canadian base or mobile station operating on the proposed frequency. *See* Public Safety and Homeland Security Bureau, Wireless Telecommunications Bureau, and International Bureau Provide Guidance to Part 22 and Part 90 Applicants Seeking VHF and UHF Frequencies Along the U.S. – Canada Border, *Public Notice*, 24 FCC Rcd 5578, 5579 (2009).

[12] 47 CFR § 90.129(h) (supplemental information to be routinely submitted with applications, include requests for authorization to communicate with foreign stations in accordance with §§ 90.20(b) or 90.417 of the Commission's rules). *See also* 47 CFR § 90.175(a) (frequency coordinators may request, and applicants are required to provide, all appropriate technical information, system requirements, and justification for requested station parameters when such information is necessary to identify and recommend the most appropriate frequency.)

[13] 47 CFR § 1.928 (provides for the exchange of frequency assignment information and engineering comments on proposed assignments along the U.S.-Canada border areas in certain bands above 30 MHz). *See also* 47 CFR

Coordination with Canada is typically not needed for U.S. public safety applicants seeking to license channels in the 700 MHz (narrowband) or 800 MHz bands.[14] U.S. licensees may operate on channels designated as primary to the U.S. in these frequency bands provided they meet the requirements outlined in Arrangements F and Q respectively.[15]

Furthermore, the designated mutual aid and interoperability channels in these bands are also available for cross-border communications between first responders in the U.S. and Canada.[16] We list these channels in Attachment B. A U.S. first responder may operate on these channels to communicate along the border with other first responders in the U.S. or across the border to interoperate with their Canadian counterparts.[17]

U.S. public safety agencies eligible to hold a license pursuant to Section 90.20 of the Commission's rules may have their first responders operate mobile units and hand-held portable units on the mutual aid and interoperability channels in the 700 MHz (narrowband) or 800 MHz bands without the agency having an individual license for those channels.[18] These agencies, however, must hold an individual license in order to operate a base station or control station on these mutual aid or interoperability channels.[19]

Finally, we recognize that in some cases, a U.S. public safety licensee may need to license a channel outside the Public Safety Pool in order to interoperate with licensees in Canada because, in many instances, public safety licensees in Canada use different channels than their U.S. counterparts.[20] In these instances, the public safety licensee may seek a waiver to operate on a U.S. channel for which it would otherwise not be eligible. Any licensee seeking such a waiver, however, must demonstrate that it has no other option for communicating with the licensee across the border and that its proposed operation will

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§ 90.175(i) (applications for facilities near the U.S.-Canada border area may require coordination with the Canadian government).

[14] *See* Sharing Arrangement Between the Department of Industry of Canada and the Federal Communications Commission of the United States of America Concerning the Use of the Frequency Bands 806-824 MHz, and 851-869 MHz by the Land Mobile Service Along the Canada-United States Border (Aug 2011) (Arrangement F); Sharing Arrangement Between the Department of Industry of Canada and the Federal Communications Commission of the United States of America Concerning the Use of the Frequency Bands 768-776 MHz and 798-806 MHz by the Land Mobile Service Along the Canada-United States Border (May 2013) (Arrangement Q).

[15] Arrangement F at § 5; Arrangement Q at § 5.

[16] Arrangement F at § 3.2.3; Arrangement Q at § 3.2.4.

[17] Interoperability channels are to be used only for coordination of tactical communications or for similar emergency communications between or among public safety agencies. *See* Arrangement F at § 3.2.3, n. 1; Arrangement Q at § 3.2.4, n.2.

[18] *The Development of Operational, Technical and Spectrum Requirements for Meeting Federal, State and Local Public Safety Agency Communication Requirements Through the Year 2010*, Third Memorandum Opinion and Order and Third Report and Order, 15 FCC Rcd 19844, 19885 ¶ 90 (2000).

[19] *Id*.

[20] Unlike the U.S., ISED does not specify dedicated public safety interoperability channels in the 150-174 MHz and 450-470 MHz bands.

not cause interference to other U.S. or Canadian incumbent operators. Commission staff will evaluate requests of this nature on a case-by-case basis.[21]

Paperwork Reduction Act

This document contains new information collection requirements subject to the Paperwork Reduction Act of 1995 (PRA), Public Law 104-13. It will be submitted to the Office of Management and Budget (OMB) for review under Section 3507(d) of the PRA. OMB, the general public, and other Federal agencies are invited to comment on the new information collection requirements contained in this document. In addition, pursuant to the Small Business Paperwork Relief Act of 2002, Public Law 107-198, see 44 U.S.C. 3506(c)(4), the Bureau will seek specific comment on how the Bureau might further reduce the information collection burden for small business concerns with fewer than 25 employees.

- FCC –

[21] *See, e.g., State of Washington*, Order, 22 FCC Rcd 10121 (2007) (granting Washington State Patrol a waiver to operate on a paging frequency in order to interoperate with the Royal Canadian Mounted Police).

Attachment A: Summary of Licensing Requirements Under Three Cross-Border Scenarios

Conditions for Licensing Under Three Cross-Border Communication Scenarios

❖ *U.S. Public Safety Licensee First Responder Roaming into Canada (Scenario 1)*

A U.S. public safety licensee's first responder may roam across the border into Canada with his or her mobile and portable radio equipment provided it is:

- properly licensed in the U.S. for the frequencies on which it operates
- performing duties for which it is licensed

Roaming is permitted pursuant to the 1952 Convention and the Statement of Intent (SOI) signed by between the FCC and ISED in Oct. 2014.

❖ *U.S. Public Safety Licensee First Responder Communicating with a Base Station Repeater in Canada (Scenario 2 or 3)*

A U.S. public safety licensee's first responder may communicate with a base station repeater in Canada if, beforehand, the licensee:

- is properly licensed in the U.S. for the frequencies on which it operates
- obtains written consent from the licensee of the base station in Canada (host licensee)

Communications with the base station repeater in Canada may only occur if the host licensee is properly licensed in Canada. The host may also need to add a condition to its license.

Once these conditions are met, the U.S. licensee's first responders may use the base station repeater in Canada to communicate with their counterparts in Canada (Scenario 2) or with first responders in the U.S. (Scenario 3) provided the host licensee maintains control and is responsible for the base station repeater's operation at all times.

❖ *U.S. Licensee Hosting a Canadian Licensee's First Responder Seeking to Communicate with a Base Station Repeater in the U.S.*
(Scenario 2 or 3 for licensee in Canada)

The licensee of a base station repeater located in the U.S. (host licensee) may permit a Canadian first responder to communicate through its base station repeater provided that, beforehand, the host licensee:

- is properly licensed in the U.S. for the base station frequencies on which it transmits
- agrees to terms of use and provides written consent to the Canadian licensee.

Once the above conditions are met, Canadian licensee's first responders may use the base station repeater in the U.S. to communicate with their counterparts in the U.S. (Scenario 2) or first responders in Canada (Scenario 3) provided the host licensee maintains control and is responsible for the repeater's operation at all times.

Attachment B – Use of Mutual Aid and Interoperability Channels Along Canada Border

- U.S. licensees need an individual license to operate on these channels in the Canada coordination zones defined by Lines A and C.

150-162 MHz Band

Interoperability Channel (MHz)	Industry Label*	Purpose
151.1375 MHz (base/mobile)	VTAC11	Tactical
154.4525 MHz (base/mobile)	VTAC12	Tactical
155.7525 MHz (base/mobile)	VCALL10	Calling
158.7375 MHz (base/mobile)	VTAC13	Tactical
159.4725 MHz (base/mobile)	VTAC14	Tactical

450-470 MHz Band

Interoperability Channel (MHz)	Industry Label*	Purpose
453.2125 MHz (base/mobile) 458.2125 MHz (mobile)	UCALL40D UCALL40	Calling
453.4625 MHz (base/mobile) 458.4625 MHz (mobile)	UTAC41D UTAC41	Tactical
453.7125 MHz (base/mobile) 458.7125 MHz (mobile)	UTAC42D UTAC42	Tactical
453.8625 MHz (base/mobile) 458.8625 MHz (mobile)	UTAC43D UTAC43	Tactical

* Industry adopted channel nomenclature but not specified in FCC rules.

- U.S. licensees need no separate authorization to operate mobile and hand-held portable units on the following channels. This blanket licensing approach applies to operation anywhere in the U.S. including along the border with Canada. Operation of a base or control station on these channels, however, requires an individual license.

  Licensees may use these channels for cross-border tactical communications with agencies in Canada.

800 MHz Band

Mutual Aid Channel (MHz)	Label *	Purpose
851.0125 MHz (base/mobile) 806.0125 MHz (mobile)	8CALL90D 8CALL90	Calling
851.5125 MHz (base/mobile) 806.5125 MHz (mobile)	8TAC91D 8TAC91	Tactical
852.0125 MHz (base/mobile) 807.0125 MHz (mobile)	8TAC92D 8TAC92	Tactical
852.5125 MHz (base/mobile) 807.0125 MHz (mobile)	8TAC93D 8TAC93	Tactical
853.0125 MHz (base/mobile) 808.0125 MHz (mobile)	8TAC94D 8TAC94	Tactical

700 MHz Band

Interoperability Channel (MHz)	Label *	Purpose**
769.14375 MHz (base/mobile) 799.14375 MHz (mobile)	7TAC51D 7TAC51	Tactical General Public Safety
769.24375 MHz (base/mobile) 799.24375 MHz (mobile)	7CALL50D 7CALL50	Calling
769.39375 MHz (base/mobile) 799.39375 MHz (mobile)	7MED65D 7MED65	Tactical EMS
769.49375 MHz (base/mobile) 799.49375 MHz (mobile)	7MED66D 7MED66	Tactical EMS
769.64375 MHz (base/mobile) 799.64375 MHz (mobile)	7TAC52D 7TAC52	Tactical General Public Safety

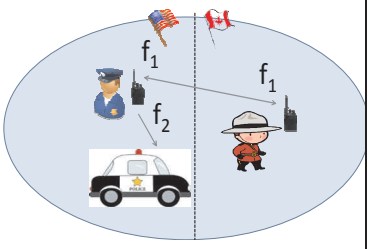
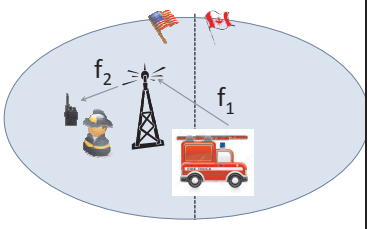
Interoperability Channel (MHz)	Label *	Purpose**
769.74375 MHz (base/mobile) 799.74375 MHz (mobile)	7TAC55D 7TAC55	Tactical General Public Safety
769.89375 MHz (base/mobile) 799.89375 MHz (mobile)	7FIRE63D 7FIRE63	Tactical Fire
769.99375 MHz (base/mobile) 799.99375 MHz (mobile)	7FIRE64D 7FIRE64	Tactical Fire
770.14375 MHz (base/mobile) 800.14375 MHz (mobile)	7TAC53D 7TAC53	Tactical General Public Safety
770.24375 MHz (base/mobile) 800.24375 MHz (mobile)	7TAC56D 7TAC56	Tactical General Public Safety
770.39375 MHz (base/mobile) 800.39375 MHz (mobile)	7LAW61D 7LAW61	Tactical Law Enforcement
770.49375 MHz (base/mobile) 800.49375 MHz (mobile)	7LAW62D 7LAW62	Tactical Law Enforcement
770.64375 MHz (base/mobile) 800.64375 MHz (mobile)	7TAC54D 7TAC54	Tactical General Public Safety
770.89375 MHz (base/mobile) 800.89375 MHz (mobile)	7MOB59D 7MOB59	Tactical Mobile Repeater
770.99375 MHz (base/mobile) 800.99375 MHz (mobile)	7GTAC57D 7GTAC57	Tactical Other Public Service
773.00625 MHz (base/mobile) 803.00625 MHz (mobile)	7MED86D 7MED86	Tactical EMS
773.10625 MHz (base/mobile) 803.10625 MHz (mobile)	7TAC71D 7TACD71	Tactical General Public Safety
773.25625 MHz (base/mobile) 803.25625 MHz (mobile)	7CALL70D 7CALL70	Calling
773.35625 MHz (base/mobile) 803.35625 MHz (mobile)	7MED87D 7MED87	Tactical EMS
773.50625 MHz (base/mobile) 803.50625 MHz (mobile)	7FIRE83D 7FIRE83	Tactical Fire

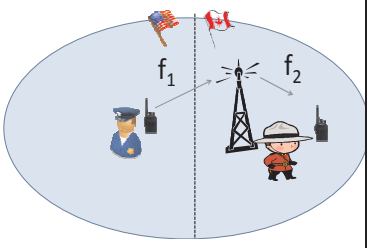
Interoperability Channel (MHz)	Label *	Purpose**
773.60625 MHz (base/mobile) 803.60625 MHz (mobile)	7TAC72D 7TAC72	Tactical General Public Safety
773.75625 MHz (base/mobile) 803.75625 MHz (mobile)	7TAC75D 7TAC75	Tactical General Public Safety
773.85625 MHz (base/mobile) 803.85625 MHz (mobile)	7FIRE84D 7FIRE84	Tactical Fire
774.00625 MHz (base/mobile) 804.00625 MHz (mobile)	7LAW81D 7LAW81	Tactical Law Enforcement
774.10625 MHz (base/mobile) 804.10625 MHz (mobile)	7TAC73D 7TAC73	Tactical General Public Safety
774.25625 MHz (base/mobile) 804.25625 MHz (mobile)	7TAC76D 7TAC76	Tactical General Public Safety
774.35625 MHz (base/mobile) 804.35625 MHz (mobile)	7LAW82D 7LAW82	Tactical Law Enforcement
774.50625 MHz (base/mobile) 804.50625 MHz (mobile)	7MOB79D 7MOB79	Tactical Mobile Repeater
774.60625 MHz (base/mobile) 804.60625 MHz (mobile)	7TAC74D 7TAC74	Tactical General Public Safety
774.85625 MHz (base/mobile) 804.85625 MHz (mobile)	7GTAC77D 7GTAC77	Tactical Other Public Service

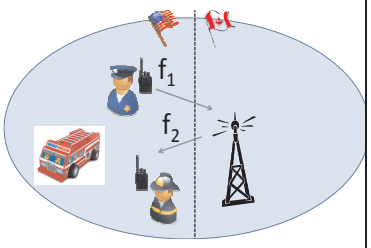
* Industry adopted channel nomenclature but not specified in FCC rules.

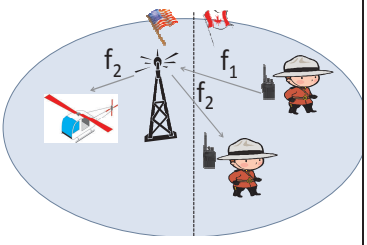
** Tactical designations are industry adopted standard but not specified in FCC rules.

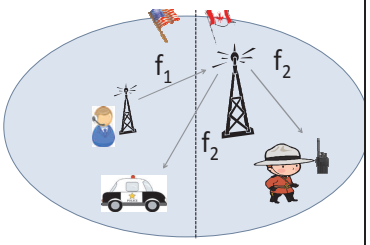
Attachment C: Cross-Border Communication Scenarios with Examples

	Examples	License Requirements	Visual Description
1	Use of mobile or portable radios to communicate in direct mode with public safety officials in other country. Example: US public safety licensee first responder using a portable radio in the U.S. to communicate directly with his or her counterpart in Canada and a mobile unit in the U.S. All licensees communicate from their home country.	All licensees must be properly licensed in their home country for frequencies on which they transmit. In this example, the U.S. licensee will need to hold an individual license for its mobile and portable units operating on frequencies f1 and f2 unless these frequencies are interoperability or mutual aid frequencies from the 700 MHz or 800 MHz band in which case no separate authorization is needed. If frequency f1 or f2 are from the 150 MHz or 450 MHz bands (including interoperability frequencies) then operation in the Canada coordination zones defined by Lines A and C must be licensed individually and coordinated with Canada prior to operation. We recommend applicants include a copy of any written agreement with licensees in Canada when applying to license frequencies for cross-border communications.	
2	Use of mobile radio (installed in a vehicle) or portable radio traveling across the border for operation on a temporary basis in the other country. Cross-Border Scenario 1. Example: A US firefighter crosses the border to assist with a fire in the other country but wants to maintain communication with his or her home jurisdiction.	The base station, mobile, and portable units must be properly licensed in the U.S. Operation on Canada side of border is pursuant to 1952 treaty and the Statement of Intent (SOI). In this example, the U.S. licensee will need to hold a license for its mobile and portable units operating on frequency f1 and its base station repeater operating on frequency f2. The base station repeater must be licensed under any scenario, but if frequency f1 is an interoperability or mutual aid frequency from the 700 MHz or 800 MHz bands then no separate authorization is needed for the mobile or portable units. If frequency f1 or f2 is from the 150 MHz or 450 MHz bands (including interoperability frequencies) then operation in the Canada coordination zones defined by Lines A and C must be licensed individually and coordinated with Canada prior to operation.	

Examples		License Requirements	Visual Description
3	Use of a base station repeater in other country to interoperate with first responders in other country. Cross-Border Scenario 2. <u>Example</u>: US licensee's first responder using a portable radio in the U.S. to communicate through a base station repeater in Canada to provide logistical support to a Canadian first responder pursuing a suspect in Canada.	All licensees must be properly licensed in their home country for frequencies on which they transmit. Any user seeking to communicate with a base station repeater in the other country must obtain written consent from the license holder for that base station prior to using it. The process for obtaining consent will be left up to the agencies involved. In this example, the US licensee will need to hold an individual license for its mobile and portable units operating on frequency f1 unless frequency f1 is an interoperability or mutual aid frequency from the 700 MHz or 800 MHz bands in which case no separate authorization is needed as noted above. If frequency f1 is from the 150 MHz or 450 MHz bands (including interoperability frequencies) then operation in the Canada coordination zones defined by Lines A and C must be licensed individually and coordinated with Canada prior to operation. The U.S. licensee will need to obtain written consent from the licensee of the base station in Canada (host licensee). The host licensee will need to be properly licensed in Canada and may need to add a condition to its license before the U.S. licensee can begin communicating with the base station repeater. We recommend an applicant seeking to apply for a license in order to communicate with a base station repeater in Canada include with its application a copy of the written consent it received from the licensee of that base station. The written consent should note the base station input and output frequencies (f1 and f2) to which the applicant will have access.	

	Examples	License Requirements	Visual Description
4	Use of a base station repeater located on the opposite side of the border to interoperate with first responders (base, mobile or portable) located in its own country. Cross-Border Scenario 3. <u>Example</u>: U.S. Public Safety licensee's first responder using a portable radio in the U.S. to communicate through a base station repeater located in Canada to communicate with first responders in the U.S. fighting a fire.	All licensees must be properly licensed in their home country for frequencies on which they transmit. Any user seeking to communicate with a base station repeater in the other country must obtain written consent from the license holder of that base station prior to using it. The process for obtaining consent will be left up to the agencies involved. In this example, the US licensee will need to hold an individual license for its mobile and portable units operating on frequency f1 unless frequency f1 is an interoperability or mutual aid frequency from the 700 MHz or 800 MHz bands in which case no separate authorization is needed as noted above. If frequency f1 is from the 150 MHz or 450 MHz bands (including interoperability frequencies) then operation in the Canada coordination zones defined by Lines A and C must be licensed individually and coordinated with Canada prior to operation. The U.S. licensee will need to obtain written consent from the licensee of the base station in Canada (host licensee). The host licensee will need to be properly licensed in Canada and may need to add a condition to its license before the U.S. licensee can begin communicating with the base station repeater. We encourage an applicant seeking to apply for a license in order to communicate with a base station repeater in Canada to include with its application a copy of the written consent it received from the licensee of that base station. The written consent should note the base station input and output frequencies (f1 and f2) to which the applicant will have access.	

Examples		License Requirements	Visual Description
5	Use of a base station repeater by first responders on the opposite side of the border to communicate with their counterparts on both sides of the border. Combination of Cross-Border Scenarios 2 and 3. Example: Canadian licensee's first responder using a portable radio in Canada to communicate through a base station repeater in the U.S. to coordinate a search and rescue mission with first responders on both sides on the border.	All licensees must be properly licensed in their home country for frequencies on which they transmit. Any user seeking to communicate with a base station repeater in the other country must obtain written consent from the license holder for that base station prior to using it. The process for obtaining consent will be left up to the agencies involved. In this example, the US licensee (host licensee) will need to hold a license for its base station repeater operating on frequency f2 even if it is using an interoperability or mutual aid frequency from the 700 MHz and 800 MHz bands. Furthermore, the host licensee must agree to terms of use and provide written consent to the licensee in Canada before its first responders can begin communicating with the base station repeater. If the licensee of the base station repeater needs to apply for a new license or to make a modification to an existing license in order to act as a host for an agency from Canada, we recommend it include with its application a copy of its written consent to the agency from Canada to assist Bureau staff with processing of the application	

	Examples	License Requirements	Visual Description
6	Use of a base station on one side of the border to communicate via base station repeater on the opposite side of the border with first responders located on the both sides of the border. Combination of Cross-Border Scenarios 2 and 3. <u>Example</u>: A U.S. dispatcher communicates via a control station (FX1) through a base station repeater in Canada in order to interoperate with first responders on both sides of the border.	All licensees must be properly licensed in their home country for frequencies on which they transmit. Any user seeking to communicate with a base station repeater in the other country must obtain written consent from the license holder for that base station prior to using it. The process for obtaining consent will be left up to the agencies involved. In this example, the US licensee will need to hold a license for its control station (FX1) operating on frequency f1 even if it is using an interoperability or mutual aid frequency from the 700 MHz and 800 MHz bands. The U.S. licensee will need to obtain written consent from the licensee of the base station in Canada (host licensee). The host licensee in Canada will need to be properly licensed in Canada and may need to add a condition to its license before the U.S. licensee can begin communicating with the base station repeater. We encourage an applicant seeking to apply for a license in order to communicate with a base station repeater in Canada to include with its application a copy of the written consent it received from the licensee of that base station. The written consent should note the base station input and output frequencies (f1 and f2) to which the applicant will have access.	

NPSTC Intrastate Channel Naming Recommendations

June 13, 2016

The National Public Safety Telecommunications Council is a federation of organizations whose mission is to improve public safety communications and interoperability through collaborative leadership.

The member organizations of the National Public Safety Telecommunications Council are grateful to the Department of Homeland Security's Science and Technology Directorate, Office for Interoperability and Compatibility (OIC), and the National Protection and Programs Directorate, Office of Emergency Communications (OEC), for their support.

Purpose and Scope

The purpose of these recommendations is to provide a common system for naming the interoperability channels used regionally and statewide by local, regional, tribal, and state agencies throughout the State of <State>.

The scope of these recommendations includes first responders and other authorized users. It applies to all voice communications channels designated by <State> agencies for interoperability purposes.

It does not apply to interoperability channels designated nationally by the Federal Communications Commission (FCC) or to federal agency channels designated nationally by the National Telecommunications and Information Administration (NTIA). These two groups of nationwide interoperability channels can be found in the National Interoperability Field Operations Guide (NIFOG) and the ANSI/APCO/NPSTC ANS 1.104.2-2016 Standard.

Radio Programming

Based on the capability of their equipment, agencies should program their radios to use the interoperability channels within their region or for statewide use across <State> as appropriate for each channel.

In addition, all NIFOG and ANSI/APCO/NPSTC ANS 1.104.2-2016 channels should also be programmed into each subscriber's radio on a per radio band basis so that field units can directly access national interoperability channels anywhere in the United States with use of their standardized national names.

Rules of Use

To be developed by the individual state. These rules should address how the frequencies are licensed (directly by the agency or by the state, with local users under letters of agreement[1] and any specific operating protocols such as encryption. These rules should also take into consideration the needs of dispatch centers to implement this channel naming convention.

Naming System

Each designated regional/statewide interoperability channel shall have a unique name that is developed using the following standardized format. This format requires the use of a maximum of eight characters which is the minimum display size for current

[1] Refer to 47CFR90.421 and 47CFR90.179.

production radios. If your equipment is not capable of using eight characters, then a six character name can be used. The standardized naming format is as follows:

The standardized name is derived from the following four categories:
SN **Type** **##** **M**

SN = State Name

The State Name designator is a unique two character alpha designator developed by the United States Postal Service. For <name of State> radios this prefix is <S**N>**.

Type = Channel Use Designator

The Channel Use Designator is a three or four place alpha tag that denotes the primary purpose of operations on the channel. To facilitate the use of these Channel Names in older radios with only 6 characters available in the display, the "**type**" Channel Use field is limited to the first 3 characters. Short Form names are not applicable to the 700 MHz band since the equipment used for this band does not have the character limitation.

Eight Characters Available	**Six Characters Available**	**Definitions**
Name	**Name**	**Channel Use Type**
CALL	CAL	Dedicated statewide for the express purpose of interoperability calling only.
CORD	CRD	Reserved for on-scene coordination by any public safety eligible component.
DATA	DAT	Reserved statewide for the express purpose of data transmission only.
FIRE	FIR	Primarily used for interagency incident communications by fire licensees.
GTAC	GTC	Primarily used for interagency incident communications between public safety eligible entities and eligible non-governmental organizations.
MED	MED	Primarily used for interagency incident communications by Emergency Medical Service

		licensees.
MOB	MOB	Primarily used for on-scene interagency incident communications by any public safety eligible, using vehicular repeaters (FCC Station Class MO3).
SAR	SAR	Primarily used for interagency incident communications for Search and Rescue Operations.
TAC	TAC	Primarily used for interagency communications by any public safety eligible.
TRVL	TRV	Primarily used for interagency communications by any public safety eligible to coordinate travel when responding to/from an incident outside of an agency's own jurisdiction.

Notes:

- Starting in VHF High Band, Channel Identifiers are grouped by Channel use type. Channel Identifiers ending in "0" should be reserved for Interoperability Calling use.
- Channels Identifiers specified for Emergency Medical Services ("MED") in this document should be numbered to avoid conflict with the FCC's UHF medical channel naming methodology specified in 47CFR90.20(d)(65) and 47CFR90.20(d)(66)(i).
- If a new frequency becomes available, it will be given the next unique channel identifier.

= Unique Channel Identifier

The Unique Channel Identifier is a one- or two-place numeric tag that uniquely identifies the specific channel. States may designate the numbering sequence; however it is recommended that the numbering sequence in combination with the channel type be sufficiently different than that of the ANSI/APCO/NPSTC ANS 1.104.2-2016 Standard for the appropriate band, so as to avoid potential confusion on the part of the user.

M = Modifier

The Modifier character is a single alphanumeric tag to identify a modification to the default operation type on the channel/channel pair:

D *Direct or "Talk around" use [Simplex operations on the output channel of a pair normally designated for half-duplex or mobile relay operations.]*

Use of this modifier on channels which are normally simplex are at the discretion of the state. [2]

Standardized Tone Squelch or Network Access Codes

The use of a common Continuous Tone Coded Squelch System (CTCSS) tone of 156.7 Hz for transmit and receive on national Interoperability Channels was originally specified in the NPSPAC proceedings (FCC Docket 87-112) and was adopted by the FCC's 700 MHz NCC Interoperability Committee's Working Group for all analog voice operations on all interoperability channels in all bands except for the VHF tactical repeater pairs VTAC33 to VTAC38 that use 136.5 Hz on input only to avoid interference with simplex users on those same channels. This recommendation has been carried forward into this naming convention.
However, where there are multiple repeaters on the same frequency pair in the same area, it may be desirable to use transmitter steering by supporting multiple input tones to each repeater. All repeaters activate upon receipt of the national tone 156.7 Hz, but each also has an individual tone used just by that repeater to avoid a field unit (mobile/portable) keying multiple repeaters in the same area.

For P-25 digital voice operations, the "carrier squelch equivalent" Network Access Code (NAC) of $293 hex (decimal equivalent 659) shall be used. However, where there are multiple repeaters on the same frequency pair in the same area, it may be desirable to use transmitter steering by supporting multiple input NACs to each repeater. All repeaters activate upon receipt of the national NAC $293, but each also has an individual NAC used just by that repeater to avoid a field unit (mobile/portable) keying multiple repeaters in the same area.

ANALOG OPERATION

CTCSS Tone 156.7 Hz should be used for all analog operations on interoperability channels:

1. All (fixed and subscriber) analog transmitters should encode 156.7 Hz.

[2] This format differs from the earlier APCO/NPSTC ANS Standard format for the VHF Band.

2. Subscriber receivers should be set for carrier squelch operations unless conditions in the area require the use of tone protection to mitigate adjacent channel interference, or interference from intermodulation products. In those cases, receivers should decode 156.7 Hz.
3. Subject to the approval of applicable state communications plans, Statewide Communications Interoperability Plans (SCIP), and/or FCC-approved Regional Plans, mobile relay (repeater) stations that are part of a local, regional, or statewide interoperability network may be equipped with a second receive CTCSS tone to provide local ("in cabinet") mobile relay operation, provided:

    a. The relay transmitter continues to transmit the common CTCSS tone of 156.7 Hz to ensure that all users within range of the station are aware the station is in use;

    b. The relay will accept the common CTCSS tone of 156.7 Hz and present the audio accompanying the 156.7 Hz-encoded transmission for automatic in-cabinet repeat or to a live operator at the appropriate controlling dispatch facility; and

    c. The operational configuration of the mobile relay station is published in applicable interoperability resource tracking documents (such as the appropriate TICP, SCIP, FCC-approved Regional Plans, or other administrative authority).

DIGITAL OPERATIONS

Network Access Code (NAC) $293 hex should be used for all digital operations on these regional and statewide interoperability channels where digital modulation is permitted or required, as follows:

1. All (fixed and subscriber) digital transmitters should encode $293 hex (Decimal 659).
2. Subscriber receivers should be set for $F7E (Decimal 3966).
3. Subject to the approval of applicable state communications plans, SCIP, and/or FCC-approved Regional Plans, mobile relay (repeater) stations that are part of a local, regional, or statewide interoperability network may be equipped with a second receive NAC to provide local ("in cabinet") mobile relay operation, provided:

    a. The relay transmitter should continue to transmit the Common NAC of $293 so that all users within range of the station are aware the station is in use;

b. The relay should accept the Common NAC of $293 and present the audio accompanying the $293-encoded transmission for automatic in-cabinet repeat or to a live operator at the appropriate controlling dispatch facility; and

c. The operational configuration of the mobile relay station should be published in applicable interoperability resource tracking documents (such as the appropriate TICP, SCIP, FCC-approved Regional Plan, or other administrative authority).

Regional Restrictions on Channel Availability

Where channels are restricted to use within a particular region of <State>, they should be appropriately color-coded in the Channel Table to show such restriction. A sample table is shown below.

Region	**Color Coding**
Northeast <State> Region	Magenta
Northwest <State> Region	Orange
Urban Area <#1>	Green
Urban Area <#2>	Blue
Statewide	No color shading

Acronyms

ANSI -American National Standards Institute

APCO - Association of Public-Safety Communications Officials

CFR - Code of Federal Regulations

CTCSS - Continuous Tone-Coded Squelch System

FCC -Federal Communications Commission

NAC - Network Access Code

NIFOG - National Interoperability Field Operations Guide

NPSPAC - National Public Safety Planning Advisory Committee (800 MHz)

NPSTC - National Public Safety Telecommunications Council

NTIA - National Telecommunications and Information Administration

SCIP – Statewide Communications Interoperability Plan

TICP - Tactical Interoperable Communications Plan

Monthly Project Summary

James Stromberg
ARMER Program Manager & Statewide Interoperability Coordinator

Date	August 5, 2016		**Committee Priority**	IOC
Project	Border State Interoperability Assessment			
Progress	**1st Quarter**	**2nd Quarter**	**3rd Quarter**	**4th Quarter**
	On Track	On Track	Delayed	

Summary
The project objective is to identify the assorted ways Minnesota public safety agencies working near state borders interoperate with the neighboring state or province. The key steps are: • Create tracking tools (spreadsheet and map) • Collect and collate the current data • Critique the data • Identify best practices • Publish best practices

Current Status
• A spreadsheet for tracking data was created • Calls and site visits to individual entities necessary • A map for visualizing the data is was produced by the GIS office and is attached

Challenges
• Finding time to do the necessary follow ups

Minnesota Border County ARMER Interoperability

As of 8/4/2016

Manitoba

Ontario

North Dakota

South Dakota

Wisconsin

Iowa

Pembina
Kittson
Roseau
Lake of the Woods
Koochiching
Walsh
Marshall
Grand Forks
Polk
Traill
Norman
Cass
Clay
Richland
Wilkin
Roberts
Traverse
Big Stone
Grant
Lac Qui Parle
Deuel
Yellow Medicine
Brookings
Lincoln
Moody
Pipestone
Minnehaha
Rock
Lyon
Osceola
Dickinson
Emmet
Kossuth
Winnebago
Worth
Mitchell
Howard
Winneshiek
Allamakee
Saint Louis
Lake
Cook
Carlton
Douglas
Pine
Burnett
Chisago
Polk
Washington
St. Croix
Dakota
Pierce
Pepin
Goodhue
Wabasha
Buffalo
Trempealeau
Winona
La Crosse
Vernon
Nobles
Jackson
Martin
Faribault
Freeborn
Mower
Fillmore
Houston

Interop Category

- Unknown
- A
- A & B
- B
- C
- D
- E
- F

Interop Category Descriptions

A -- Control Station programmed with neighbor's local channels is located in Minnesota county's PSAP and the Minnesota PSAP controls the patch

B -- Control Station programmed with ARMER talkgroups is located in the neighbor's PSAP and the neighboring PSAP controls the patch

C -- Neighboring jurisdictions selects a VHF resource available on Minnesota's VHF overlay and a Minnesota PSAP controls the patch to ARMER

D -- Neighboring jurisdiction and Minnesota jurisdiction share common talkgroups/channels and interoperability is not dispatch dependent

E -- Shared, interstate PSAP

F -- No interoperability with neighboring jurisdiction

For more information about the ARMER program please contact
the State Interoperability Coordinator, Jim Stromberg (James.Stromberg@state.mn.us or 651-201-7557).

ECN
EMERGENCY COMMUNICATION NETWORKS

Monthly Project Summary

James Stromberg
ARMER Program Manager & Statewide Interoperability Coordinator

Date	July 29, 2016		Committee Priority	IOC
Project	COMU Program Direction and Plan			
Progress	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
	On Track	On Track	On Track	

Summary

The project objective is to consider options and identify an objective and strategic plan for Minnesota's COMU program.

The key steps are:

- Establish a working group of key persons from all regions of the state
- To establish a timeline for this project
- For the working group to meet and agree on key, shared objectives for the COMU program
- Seek IOC's endorsement of workgroups outcomes
- To memorialize the key, shared objectives into a state standard
- Establish a plan of action

Current Status

- Workgroup identified and monthly calls are happening
- Department of Homeland Security Office of Emergency Communications engaged in the discussion
- Three COMU discussions at the Interop Conference yielded in much feedback
- COMU Purpose Statement drafted and will be presented to Interop Cmte at next meeting
- Several topics related to the Purpose Statement have been tackled
- Recommending to Interop Cmte that some sort of guidelines be produced to provide specific guidance to regions on how to organize their COMU programs
- Engaging HSEM to ensure that our mission aligns with their mission and to identify gaps or overlap
- Engaging the Minnesota Duty Officer to ensure that their notification process aligns with our expectations
- Exploring how to update standards

Challenges

-

Monthly Project Summary

James Stromberg
ARMER Program Manager & Statewide Interoperability Coordinator

Date	August 5, 2016		Committee Priority	IOC
Project	COMU Program Training and Exercising			
Progress	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
	On Track	On Track	On Track	

Summary

The project objective is to consider different options to for COMU training and exercising.

The key steps are:

- Establish a working group of key persons from all regions of the state
- Contemplate and evaluate different training and exercising options
- Create models for different training and exercising options
- Seek endorsement of workgroups outcomes by IOC
- Memorialize the plan
- Create process to implement new models

Current Status

- Workgroup identified and monthly calls are happening
- Department of Homeland Security Office of Emergency Communications engaged in the discussion
- Three COMU discussions at the Interop Conference yielded in much feedback
- COMU Purpose Statement drafted and will be presented to Interop Cmte at next meeting
- Several topics related to the Purpose Statement have been tackled
- Recommending to Interop Cmte that some sort of guidelines be produced to provide specific guidance to regions on how to organize their COMU programs
- Engaging HSEM to ensure that our mission aligns with their mission and to identify gaps or overlap
- Engaging the Minnesota Duty Officer to ensure that their notification process aligns with our expectations
- Exploring how to update standards

Challenges

-

Monthly Project Summary

James Stromberg
ARMER Program Manager & Statewide Interoperability Coordinator

Date	July 29, 2016		**Committee Priority**	OTC & IOC
Project	Strategic Reserve Equipment Review			
Progress	**1st Quarter**	**2nd Quarter**	**3rd Quarter**	**4th Quarter**
	On Track	On Track	Delayed	

Summary

The project objective is to review the current practices associated with the strategic reserve equipment and to explore ways to enhance the usability and availability of the equipment.

The key steps are:

- Identify and catalogue all Strategic Technology Reserve equipment
- Identify custodians of STR equipment
- Identify current practices in place to exercise and test equipment
- Evaluate current practices and explore new ways to ensure equipment is ready
- Identify working group to review Standards and to consider updates
- Encourage use of equipment through training and exercises

Current Status

- SharePoint tool developed to track all STR equipment, custodians, and reviews.
- Collection of regional standards underway

Challenges

- Finding time for site visits has hampered my progress. I am trying to combine this process with other trips so progress depends on whether I need to visit a region or not.