STATEWIDE EMERGENCY COMMUNICATIONS BOARD
OPERATIONS & TECHNICAL COMMITTEE

August 9, 2016
1:00 – 3:00 p.m.
MnDOT Arden Hills Training Center
1900 West County Road I, Shoreview MN
Chair: Joe Glaccum
Call-in Number: 1-888-742-5095
Code: 2786437892#

AGENDA

Call to Order
Approval of Agenda
Approval of Previous Meeting's Minutes
Announcements

Action Items

1. Sherburne County Sheriff's Office Request for Additional I.D.s (Kyle Breffle/Seth Hansen)
2. Public Works Best Practices Guide (Cathy Anderson)
3. Pierce County Participation Plan Amendment (Philip Meixner)

New Business

- Push-to-Talk Presentation from AT&T (Robin Weber)

Old Business

- Central Region Logger
- Change Management Standard (Stromberg)
- SOA-R Change Management Update (Stromberg)
- Regional responses about allowing LTACs in non-law enforcement radios
- LTAC-Change Management Update (Nate Timm)

Regional Reports

- Northwest (Dolan)
- Northeast (Semmelroth)
- Northern RIC (Bruning)
- Central (Fjerstad)
- Metro (Gundersen)
- Central/Metro RIC (Juth)
- South Central (Wesley)
- Southeast (Freshwater)
- Southwest (Hamann)
- Southern RIC (Donahue)

Other Reports

- MnDOT (Lee)
- System Managers Group (Lee)
- DPS Standing Report (Stromberg)
- Change Management Report (Stromberg)

Adjourn

STATEWIDE EMERGENCY COMMUNICATIONS BOARD

OPERATIONS & TECHNICAL COMMITTEE

June 14, 2016
MnDOT Arden Hills Training Center

MEETING MINUTES

Attendance

Members
Present Member/Alternate
Chair Joe Glaccum/Vacant– Minnesota Ambulance Assn
Vice Chair Dave Thomson/Vacant – MN Chiefs of Police Assoc.
John Gundersen/Ron Jansen – MESB
Tim Lee/Jim Mohn/Mukhtar Thakur– MnDOT
Tim Boyer/– MN State Patrol
Neil Dolan/Brian Zastoupil– NW Region
Bruce Hegrenes/Monte Fronk – NE Region
Terry Wesley/Darrin Haeder – SC Region
Al Fjerstad/Kristen Lahr/Paul McIntyre - CM Region
Rick Freshwater/Michael Peterson – SE Region
Mike Hamann/Kimberly Hall – SW Region
*Members attending are marked with yellow highlight.

Guests reporting:
Name Representing
Jim Stromberg, ECN
Cathy Anderson, ECN
Carol-Linnea Salmon, ECN
Rick Juth, ECN
Carrie Oster, Motorola
Jackie Mine, ECN
Brandon Larson, Central
Randy Donahue, ECN
Kurt from Alpha Wireless
John Hyde, City of Duluth
Bob Schornstein, Allina
Jason Siedle and Gina Winter, Brown County
Scott Wosje, Northland Business Systems
Rod Olson, City of Minneapolis
Jake Thomson, Anoka County
Tom Semmelroth, St. Louis County
Nate Timm, Washington County

CALL TO ORDER

Chair Glaccum calls the meeting to order at 1:03 p.m.

DRAFT

AGENDA REVIEW

Bruce Hegrenes makes a motion to approve the agenda.
Terry Wesley seconds the motion.
Motion carries.

ANNOUNCEMENTS

Chair Glaccum announces Bruce Hegrenes' retirement and thanks him for his work. Hegrenes thanks the committee. He introduces Tom Semmelroth who may be Hegrenes' replacement. Semmelroth has worked for St. Louis County for 19 years on the technical side. Glaccum welcomes Semmelroth.

APPROVE PREVIOUS MEETING'S MINUTES

John Gundersen makes a motion to approve the May meeting minutes.
Hegrenes seconds the motion.
Motion carries.

BROWN COUNTY BDA REQUEST (TERRY WESLEY)

Terry Wesley presents a request for an outdoor bi-directional amplifier (BDA) for the city of Springfield in Brown County. The request has been approved by the South Central Regional Advisory Committee (RAC), the Regional Emergency Communications Board and MnDOT and will be paid for by the 2014 SECB grant. The BDA will go on the Springfield water tower and will enhance coverage for police, fire and emergency medical services.

Jason Seidl, from the Brown County Sheriff's office, adds that they have been working with MnDOT and Fiplex Communications and Alpha Wireless on how to increase coverage in low spots in the city. A commercial service was considered but there would be rent and maintenance costs so the decision was to use the city of Springfield water tower. There is generator on site for backup power.

Jim Mohn from MnDot confirms that it has MnDot approval.

Al Fjerstad makes a motion to approve the Brown County BDA Request.
Hegrenes seconds the motion.
Motion carries.

FIRE SERVICE COMMUNICATIONS BEST PRACTICES GUIDE (CATHY ANDERSON)

Cathy Anderson introduces the Fire Services Communications Best Practice Guide as submitted in the meeting materials. The Standards Workgroup made suggested edits. There are additional edits that were submitted late that are not in the version presented in the meeting packet.

Char Glaccum asks who on the Standards Workgroup. Anderson responds that it is comprised of about 70 people, with good representation from various entities. About ten people participated in the last phone call to edit this guide and the final version was distributed to the entire list of 70 for comments.

Anderson reviews the proposed changes as submitted in the meeting materials. She presents new changes that were suggested by members of the workgroup but not reviewed by the full workgroup prior to this meeting.

There is discussion about the new changes that had not been vetted by the workgroup. There is consensus that

DRAFT

action on the Fire Service Communications Best Practices Guide should be tabled and the guide should go back to the workgroup with the suggested changes that came in too late for the workgroup to review.

Discussion and agreement that the names of those involved in rewriting the document be captured going forward so there is a list of those who participated and authored the changes. Discussion that this list could be those who participate on the final phone call.

Tim Boyer makes a motion to table this item until the workgroup can review the new proposed changes. Fjerstad seconds the motion.
Motion carries.

ST. LOUIS COUNTY ARMER PARTICIPATION PLAN ADDENDUM 3 (BRUCE HEGRENES)

Hegrenes presents a proposed addendum to the St. Louis County ARMER Participation Plan as presented in the meeting materials. St. Louis County requests 150 additional talkgroup IDs for a total of 370. The additional talkgroups will be used for emergency responder activation and dispatch. There are 3800 subscribers in St. Louis County and 184 user agencies in St. Louis County and over 7000 square miles. He notes that the request is for under 10 radios per talkgroup. St. Louis County also proposes to add a P25 Inter Subsystem Interface (ISSI) gateway interconnect between ARMER and Wisconsin WISCOM trunking systems for interoperability between Duluth and Superior and the surrounding area. Two additional T1 ports are requested from Waters Edge to Zone 5 MSO for the ISSI gateway. Five additional site access profiles are requested. St Louis County, the city of Duluth, and city of Carlton have gone to trunked radios and have had an issue with being able to communicate directly with partners across the bay and in the bay. The proposal is for an interoperability gateway which would take a P-25 trunked system and directly connect it to the state of Wisconsin P-25 trunk system. The Wisconsin system is VHF but this would allow for traffic to be patched and passed across directly without being coded or encrypted. The delays that normally happen with a patch and the issue of encrypted talkgroups being passed across encoded/decoded/encoded would not happen. The microwave between Wisconsin and Minnesota is already in place. St. Louis County has purchased and installed it between the Zone 5 MSO and the Douglas County initial port of contact. The proposal is to install this along with the server that was installed as part of the 7.15 upgrade which was a WAVE server provided by Motorola as part of the upgrade. This will be an application that will be installed on top of that. Two T1s are requested from Waters Edge to the Zone 5 MSO in Duluth. This proposal is not to approve the WAVE network. This proposal is for an application that will ride on the server already provided by Motorola. This is just for the ISSI. The WAVE discussion will happen later. There are two diagrams provided in the meeting materials with the changes that MnDot has requests. A firewall is included.

Hegrenes adds that he would like to add one user, the Boise Fort Band Conservation Group, which will add about five radios, and will be under St. Louis County's participation plan. This user was not included in the submitted meeting materials.

Jim Mohn adds that MnDOT has no issues.

Jim Stromberg asks that if in the future if the WAVE was not adopted by the state would that compromise St. Louis County's ISSI project? Hegrenes says it would not.

Stromberg asks how to ensure that future upgrade costs or maintenance costs associated with ISSI are assigned to St. Louis County and not to the state. Hegrenes says St. Louis County will fund upgrade costs or maintenance costs associated with the existing St. Louis County ISSI project but with the caveat that they also be included in the state contract, as consoles are and additional channels, so they can negotiate a cheaper price than what St. Louis County could receive from dealing individually with Motorola.

DRAFT

Glaccum says St. Louis County has paved a new road with the ISSI and in the future it may be helpful elsewhere and then costs may be shared but as it stands today it is a St. Louis County initiative.

Mines asks Mohn if there is an install charge on the WAVE.

Mohn is not aware of an install charge. Hegrenes says he has been told there is not an additional charge. Mines says she wants to be sure she is aware of what MnDot has promised St. Louis County and what the expectations are for the state.

Glaccum says in informal conversations with MnDot he understood that there would be no other charges than to St Louis County. If that changes, then we will have that discussion.

Hegrenes says they have a couple of other partners that might be interested in this in the future. Discussion about adding talkgroups for other users. These would need approval from St. Louis County and also from this committee. Another 10 talkgroups would require an additional license from Motorola and additional hardware for connectivity because St. Louis County will already be at the maximum number of talkgroups that can be brought across through a T-1.

Mohn says he can find two T-1s for St. Louis County. MnDOT has a plan to use an ethernet so as those things come up in the future it can accommodate more than just St. Louis County but for now it can just accommodate St. Louis County.

Nate Timm proposes the OTC add a subcommittee in the future to write a standards about how we would add more systems and talkgroups and he would be willing to organize that.

Mohn says there will need to be significant discussions regarding WAVE before we can move forward with it. There are a lot of things involved that need to be discussed.

There is discussion about what might be required for potential future interoperable needs along the border if at some point additional counties wanted to use ISSI. Jackie Mines recommends that if there is an interest going forward for statewide support that it be considered within the context of the SECB strategic plan and priorities and that careful thought be given to the financial impact on other priorities.

Gundersen says he thinks this is a minor change because all of the costs are borne by one county and it does not involve reprogramming radios. In a discussion about using it statewide, at that time it might be considered as a major change in change management. That's a three year cycle.

Glaccum summarizes that any other entity that is interested in this for the time being would present a request to St. Louis County and then to the OTC. He notes that the SECB has not formally adopted the implementation of ISSI and that this would be recommending to the board not only the adoption of the addendum but also the approval of the implementation of ISSI.

Hegrenes makes a motion to approve the St. Louis County Participation Plan Addendum with the understanding that this will be presented to the SECB as approval of the ISSI 8000 product to connect the ARMER system with the state of Wisconsin Wiscom system and with the addendum to approve the Bois Fort Band Conservation and with an additional five Site Access Profiles.
Terry Wesley seconds the motion.
Motion carries.

NEW BUSINESS

STATUSBOARD DISCUSSION

Cathy Anderson asks if there is still a desire to have a StatusBoard discussion at every meeting, as things are going well now. She can make a report if there is something of concern.

Chair Glaccum adds that the StatusBoard was unstable for a while but now it pretty stable. He suggests that it can be left off the agenda now and brought up as needed. He requests that in the event that there is a disruption to the system that Steve Mueller attend the next meeting to report on it.

OLD BUSINESS

REGIONAL REPORTS

Northwest (Zastoupil**)**
Brian Zastoupil reports that there was not a quorum at the last Regional Advisory Committee (RAC) meeting and there is no report.

Northeast (Hegrenes)
Hegrenes reports that the RAC and Emergency Communications Board (ECB) met last month with quorums. They are finished with grants for this year. Work is ongoing for the September training seminar in Hibbing and there is a venue now. It will be a two-day training and many participants are expected. They are looking ahead to the regional training center that is being established in Duluth for dispatch. Two additional MCC 7500s console positions will be added to the two that are already there and that should be done by the end of the month. There will be a joint meeting with ECN and the RAC and ECB on the 23th in Hibbing.

Northern RIC (**Bruning)**
No report.

Central (Fjerstad)
Fjerstad reports that we there was an issue with the regional logger over the weekend. There is speculation as to the cause and a report will be presented at the upcoming Owners and Operators meeting. The RAC did not meet this month. There will be a Detail Design Review with Motorola on the walk-on tower tomorrow and the plan is to light that tower up by the end of August.

Kristen Lahr says an RFI is moving forward for hiring or contracting a Regional Administrator.

Metro (Gundersen)
Gunderson informs the committee that Ron Vegemast passed away on June 9. He reads from the Star Tribune obituary. Ron started his consulting engineering firm in 1984, pioneering over 500 9-1-1 and public safety projects in 31 U.S. states, Canada, Central America and the Middle East. His achievements included developing transistor components, engineering autopilot technology and traveling faster than the speed of sound as a flight test engineer. Ron served as the president of the MN Society of Professional Engineers. Gundersen adds that Vegemast made usage predictions about 10 years ago when MAC came on the system and he hit it about on the button every year. He will be missed.

Gundersen reports that the Metro Technical and Operations Committee (TOC) met on May 25 and discussed state Standard 3.19.0, the Use of the Statewide LTAC. This was because the Maple Grove Fire Department asked for some LTACs but the request has since been rescinded. The TOC took a look at the standard and discussed possibilities for other users down the road of perhaps having a way to get a waiver and made a recommendation that the state standard on the use of these talkgroups be reviewed by the state standards workgroup. The TOC looked at the state change management revision and presented it to the change management standard workgroup. The TOC understands that not all of the recommendations were accepted and the revised document will be considered at the next meeting. He reinforces that it was a negotiated document and he will recommend that it be

approved.

Anderson says that she thought Standard 3.19.0 was referred to the SMG.

Nate Timm recalls a discussion at the System Managers Group and that it was stalled until the upgrade was complete having to do with testing and patching.

Jansen agrees that it went to the SMG and was tabled until the upgrade was completed so some encryption patch testing could be completed. It has not been taken back up again.

Central and Metro RIC (Juth)
Rick Juth reports that the Central Region is seeing more participation since the addition of a training component along with the meetings. Last month there was a scenario-based exercise developing a 205. This Thursday they plan to stand up the STR during the meeting.

South Central (Wesley)
Terry Wesley reports that the RAC met on May 12 and discussed allocation of funds for the 2015 SHSP grant which will include training and exercises and funding for a BDA for McCloud County. The RAC also approved the Brown County BDA project in Springfield. The RAC discussed the idea of LTACs be used in other than law enforcement radios and moved and approved that LTACs should only be used in law radios with no exceptions. Randy Donahue talked about the Public Safety Communications Research Program (PSCR) conference held in San Diego and it was approved and encouraged that up to four members from the region could go. Terry Wesley attended the PSCR (no others). There was a presentation from DHS about ARMER in St. Peter and Moose Lake.

Southeast (Freshwater)
Freshwater was at the PSCR conference in San Diego last week. No further report.

Southwest (Hamman)
No report.

Southern RIC (Donahue)
No report.

OTHER REPORTS

MnDOT (Mohn)
Jim Mohn reports that MnDOT recently substantially completed the core of the 7.15 upgrade. It went fairly well. He refers to the report in the meeting materials and asks if there are questions.

Glaccum asks about the Meander Lake solar power tower. Mohn says he assumes it is going well. Hegrenes says there was a short outage a couple of weeks ago. There was a wild fire and it worked very well.

Systems Managers Group (Mohn)
The SMG talked about the upcoming upgrade.

Timm adds that there was a discussion about the bug in network management where if you have affiliation display it hangs up on large site load. If that happens there is a new version of software that will fix this.

DPS Standing Report (Stromberg)
Jim Stromberg reports that the Change Management Workgroup met on May 27. The workgroup looked at the

DRAFT

changes suggested by the Metro Region and came up with something all members of the workgroup agreed upon. He sent the upgraded standard to the regions and ask that they bring it up at their next meetings and report back.

Glaccum asks Stromberg to please recommunicate that the regions should be prepared to report back at the July OTC meeting.

The SOA Repeater Change Management Issue
Al Fjerstad reports that he was asked to chair an SOA Repeater Workgroup at the last OTC meeting. He sent an email to the RICs requesting an operational person and a technical person to sit on the workgroup to draft a standard. He received the names of two people from the Central Region, two from the Metro Region, and one from the Southwest Region. No other regions responded. He asks if he should move ahead with those he has or send another message out and delay the process. He has no representation from the northern region.

Glaccum asks Fjerstad to check again with the Northern RIC and says that it is up to Fjerstad's discretion when to convene the group.

LTAC-E Change Management
Stromberg reminds the committee that there was a suggestion to create an L-TAC Change Management workgroup. He received feedback from the regions and RICs that there are too many workgroup requests. He would like to suggest a different model of how to discuss the details of these technically and operationally specific change-management issues. He recommends a change management subcommittee under this committee that could help identify all change management items and identify subject experts to discuss the various subjects.

Discussion about different types of groups that might be formed, such as a strike team model where subject experts meet on one issue and then disperse.

Discussion about LTAC-E usage. Is this a statewide issue or a Metro issue because of the lack of encrypted talkgroups in the Metro Region? The Metro Region recommends adding two encrypted talkgroups to Metro Region and some regional ones as well. Discussion about this being a major change under change management due to radios being reprogrammed.

Nate Timm will chair and put together a workgroup with regional representation and representation from the BCA and others and report back.

Subsystem Roaming
Stromberg reports that the Subsystem Roaming Workgroup has been moving along slowly but in a forward direction. There will be an in-person meeting in St. Cloud on July 11.

Agreement to add Change Management as a regular agenda item and Stromberg will report on it.

Rick Juth brings up that in the last meetings minutes there was motion that information should go to the regions for discussion about whether LTACs should be allowed in non-law-enforcement radios and that the regions should report back to the OTC. Juth notes that the Central and South Central regions approved motions that LTACs should not be added to other than law enforcement radios. Randy Donahue adds that the Southwest Region discussed this and concluded to not allow LTACs on other than law enforcement radios.

Mines ask that the RICS report to the next OTC meeting on the question of whether to allow LTACs in other than law enforcement radios.

Meeting adjourns at 3:10 p.m.

DRAFT

Sherburne County
SHERIFF
JOEL L. BROTT

Sherburne County Sheriff's Office
Division of Emergency Services

June 14, 2016

To OTC:

The Sherburne County Sheriff's Office is requesting an additional 300 ID's to be added to the MN DOT ARMER system. With the growth of response agencies in direct correlation to the growth in population and continued projected growth within Sherburne County 300 ID's will be sufficient to keep up with Sherburne County's communications needs on the ARMER system for the next 3 to 5 years. The Sheriff's Office does not foresee any loading or congestion issues with addition of the requested ID numbers.

Sincerely,

Sherburne County Sheriff's Office
Division of Emergency Services

Kyle Breffle

SHERIFF'S OFFICE
COUNTY GOVERNMENT CENTER
13880 Business Center Drive
Elk River, MN 55330-1692
Office - (763) 765-3500
Toll Free - (800) 433-5245
Fax - (763) 441-7303

MEMBER
NATIONAL SHERIFFS' ASSN

Minnesota

Public Works

Communications Best Practice Guide

Statewide Radio Board, Operations & Technical Committee, Interoperability Committee, Public Works Best Practice Workgroup

Approved by the Statewide Radio Board

July 28, 2016

This document describes the recommended best practice, standards, and contact information for Minnesota public works to assist in planning for interoperability with other public safety disciplines.

Table of Contents

Section I: Introduction

- Public Works Best Practices Workgroup

Section II: ARMER Basics for Public Works

- State Standard 1.11.4, Training 800 MHz Users
- Alexandria Technical & Community College Training Modules
  - Radio 101
  - Interoperability 101
  - Interoperability: How to Communicate Outside Your Agency
- FEMA NIMS Courses:
  - IS-100PWb, Introduction to the Incident Command System (ICS100) for Public works
  - IS-700a, National Incident Management System (NIMS), An Introduction
- Attending Field User ARMER Training

Section III: Public Works Related Statewide Standards

- State Standard 1.11.4, Training 800 MHz Users
- State Standard 2.6.0, Fleetmap Standards
- State Standard 2.8.0, Talkgroup and Radio User Priority
- State Standard 2.12.0, Scanning
- State Standard 3.15.0, Use of Scene of Action (SOA)

Section IV: Interoperability

- Regional Tactical Interoperable Communications Plan (TICP)
- State Standard 2.7.0, Use of Shared Talkgroups
- State Standard 3.16.0, 800 MHz Statewide STAC Interoperability Talkgroups
- State Standard 3.32.0, Statewide Interoperable Plain Language Policy
- Use of Minnesota State Patrol Call Talkgroup – Minnesota State Patrol General Order 16-40-015, MSP Hailing Talkgroup: MSP -CALL
- Bordering States and Provinces Interoperability
- Statewide Interoperability Zone
- Standard Minnesota VHF Interoperability Resources

Section V: Compliance & Conflict Resolution:

- State Standard 7.1.0, Audit/Monitoring Process
- State Standard 7.2.0, Response to Non-Compliance
- State Standard 7.3.0, The Appeal Process

Section VI: Refresher Training Plan

Section VII: Other Best Practice Guides

Section VIII: Minnesota Emergency Communication Networks Contacts

Section IX: Regional Radio and Advisory Committee Contacts

Section X: Radio Affiliated Acronyms

DOCUMENT REVISION HISTORY

Date	Revision	Notes	Name
5-17-2013	Removed Tom Johnson Added NWS standard info	Replaced with Brandon Abley	Cathy Anderson
4-29-2016	Entire guide		Workgroup

Section I: Introduction

The Public Works Best Practice Workgroup was created in 2012 to develop a Best Practice Guide for public works disciplines within the various agencies that are on the ARMER radio system or are in the process of migrating to the ARMER radio system. This guide is designed to serve as both a training plan and a resource document, providing a basic outline for the development of talkgroup layouts, and SOPs when interoperating with other disciplines of the same agency or other governmental and nongovernmental agencies. As the migration to ARMER continues to develop throughout the state, it is important for participating agencies to adopt similar programming and operational methods to facilitate seamless interdisciplinary and interagency communication. We will address communication between:

- Public works to public works
- Public works to law enforcement
- Public works to fire units
- Public works to EMS
- Public works to nearest dispatch center

It is likely that most public works disciplines migrating to the ARMER system have their law enforcement and fire departments already operating on the system or making the migration jointly, resulting in much of the fleetmap already being in place. Therefore, the affected public works disciplines will need to add talkgroups necessary for their operations, as well as talkgroups that would be necessary for operations with agencies or other disciplines they may work with on a regular basis.

It is important to remember that the most effective level of interoperability is achieved when users share the same radio system and have shared talkgroups directly accessible to them in their radios. Realizing the difficulty in achieving this goal statewide, this guide will set forth best practices for using current systems for the optimal interoperability solutions to address daily operations and extraordinary occurrences. The Minnesota Public Works Communications Best Practice Guide is a living document, and suggested changes may be submitted to the Emergency Communication Networks (ECN) Standards & Training Coordinator.

NOTE: Questions regarding State Standards or clarification of these standards should be directed to your Local System Administrator, Your Regional Interoperability Coordinator (RIC), or the Statewide Interoperability Program Manager.

Section II: ARMER Basics for Public Works

Each agency should customize their training plan to fit their own unique situation.
It is recommended that all training be completed by a qualified ARMER trainer.

State Standard 1.11.4, Training 800 MHz Users

This standard establishes the minimum training standards for radio operators to ensure proper operation of radios on the system.

Suggested supplemental training beyond the required training listed in State Standard 1.11.4:

It is highly recommended that Public Works personnel view training modules, created on behalf of the Statewide Emergency Communications Board (SECB) and reviewed and approved by subject matter experts. These training modules are hosted through the Alexandria Technical & Community College online website. They can be accessed from ECN's website under ARMER Standards.

A user name and password will be needed for these training modules, and instructions for obtaining these are posted on ECN's website under ARMER Standards. While web-based training is supplemental, except for the Minimum Training Requirements, all users must attend formal training for the ARMER system.

Alexandria Technical & Community College Training Modules

- Radio 101
- History of ARMER
- Interoperability 101
- Interoperability: How to Communicate Outside Your Agency
- Other relevant modules as developed

FEMA/NIMS Courses, NIMS training courses can be found at:
http://www.fema.gov/emergency/nims/NIMSTrainingCourses.shtm

- IS-100PWb, Introduction to the Incident Command System (ICS100) for Public Works
- IS-700a, National Incident Management System (NIMS), An Introduction

Attending Field User ARMER Training: Information on local Field User Training may be obtained through your Local System Administrator or Regional Advisory Committee (RAC).

Section III: Public Works Related Statewide Standards

State Standard 1.11.4, Training 800 MHz Users

This standard establishes the minimum training standards for radio operators to ensure proper operation of radios on the system

State Standard 2.6.0, Fleetmap Standards

A Fleetmap is a list of talkgroups or channels that are programmed into your radios. The Allied Radio Matrix for Emergency Response System (ARMER) will contain a large number of talkgroups and multi-groups to support the various agencies that will be subscribing to the system.

The ARMER System has multiple administrating agencies that will be maintaining fleetmaps and system programming of agencies they are responsible for. For the effective management of the system, a defined process needs to be used to document the fleetmap information that each administrating agency is supporting. This information needs to be in a format that is shared with the other administrators.

This also provides a resource for the subscribing agencies to reference when planning interagency

communications. System fleetmaps contain configuration information that is classified as "Security Information" and "General Non-Public Data," pursuant to Minn. Stats. § 13.37, Subd. 1a.

State Standard 2.8.0, Talkgroup and Radio User Priority

This standard establishes varying priority levels for talkgroups to ensure the most critical talkgroups on the system are granted a channel as quickly as possible when and where the system is experiencing busy conditions.

State Standard 2.12.0, Scanning

This standard identifies operational procedures and responsible authorities governing scanning activities.

In many jurisdictions, public works users are issued radios with more limited features than those used by public safety users. As a result, it is sometimes difficult for public works users to manage lists of scanned talkgroups in their radios. Public works users with questions about scanning are encouraged to work with their local system administrator.

State Standard 3.15.0, Use of Scene of Action (SOA)

This standard provides standards, protocols, procedures, and operating parameters for Scene-of-Action channels.

The public safety discipline is best served by creating an operating procedure that maintains safety of personnel in situations. The range of mobiles and the "walk over" issue is a critical point. Once a radio is keyed, there is no way to control the footprint of the transmission, other than limiting the power of that transmission. Personnel talking on a mobile radio may have no way of knowing if they are walking over a portable in the next community, because they will not be able to receive it or realize that the channel is in use by the portable.

Public works users should be aware that by switching to an SOA channel, they are leaving the ARMER network and are operating in a direct, "radio-to-radio" mode. This has advantages in certain situations, such as highway flagging operations, where short distance communications are required with a limited number of users. Using SOA channels does not impose any system loading on the local ARMER network. Although mobile radios are permitted on SOA channels, portable radios are recommended in most cases, due to the limitations explained in the paragraph above.

Public works personnel should become familiar with the content of all state and Radio Region Standards included in the Best Practices Guide. While some contain more specific and pertinent information than others, all public works personnel, regardless of position, should have a good understanding of each standard. State and Regional Standards may be accessed through the Statewide Radio Board's website at this link: dps.mn.gov/entity/SRB. Standards will be under the ARMER section.

Section IV: Interoperability

Regional Tactical Interoperable Communications Plan (TICP)

Tactical Interoperable Communications Plans are used by jurisdictions to document interoperable communications governance structures, technology resources, and usage policies/procedures. The TICP describes what interoperable communications assets are available in an area, how those assets are shared and prioritized, and the steps that individual agencies should use to request, activate, and deactivate them.

Public works personnel should be familiar with the regional communications resources that are available to their jurisdiction, as well as the process they must follow to request them. Copies of Regional TICP's are available through your Regional Advisory Committee (RAC).

State Standard 2.7.0, Use of Shared Talkgroups

This standard provides options to users of the Allied Radio Matrix for Emergency Response System (ARMER), which will allow talkgroup owners to predefine sharing authorizations for other agencies.

State Standard 3.16.0, 800 MHz Statewide STAC Interoperability Talkgroups

This standard establishes policy and procedures for use of uniform, statewide 800 MHz interoperability STAC talkgroups in all user radios.

3.32.0, Statewide Interoperable Plain Language Policy

The use of plain language (clear text) in emergency management and incident response is a matter of public safety, especially the safety of emergency management/response personnel and those affected by the incident. It is critical that all those involved with an incident know and utilize commonly established operational structures, terminology, policies, and procedures. This will facilitate the achievement of interoperability across agencies/organizations, jurisdictions, and disciplines, which is exactly what National Incident Management System (NIMS) and the Incident Command System (ICS) is seeking to achieve.

It is recommended that public works personnel be required to use clear speech for day-to-day activities. A limited list of permitted codes should be published for users and be strictly adhered to. This will make it easier to use clear speech only on major events, as well.

Use of Minnesota State Patrol Call Talkgroup

Minnesota State Patrol General Order 16-40-015, MSP Hailing talkgroup: MSP–CALL General Order, may be found on the ECN website under ARMER, Guide Books, and Best Practices.

Bordering States and Provinces Interoperability

Talkgroups may be patched by dispatchers to radio systems in other counties, states, or countries (Canada). If a public works user is working on a talkgroup patched to another system, it is important to use plain speech (no 10 codes) and identify yourself with agency name, followed by unit number. Example: "Hastings Public Works 303 to St. Croix County."

Statewide Interoperability Zone

ARMER Standard 3.16.6, 800 MHz Statewide Uniform Interoperability Radio Zones, establishes policy and procedures for the implementation of two 800 MHz uniform interoperability zones in all subscriber radios throughout the state. This policy will guarantee standardized Statewide and Nationwide interoperable communications capabilities for all service branches.

This uniformity will provide dispatch centers, Incident Commanders (ICs), and Communications Unit Leaders (COMLs) the ability to develop and adapt incident radio communications plans quickly and effectively without having to rely on reprogramming radios, swapping radios, or establishing patches in the field.

Based upon Standard 3.16.6, all Public Works subscriber radios shall have these two statewide interoperability zones (unless a waiver or variance has been granted):

STATEWIDE INTEROP		
ZONE DISPLAY NAME	ROTARY CHANNEL SELECTOR	CHANNEL DISPLAY NAME
MN	1	STAC1
MN	2	STAC2
MN	3	STAC3
MN	4	STAC4
MN	5	STAC5
MN	6	STAC6
MN	7	STAC7
MN	8	STAC8
MN	9	STAC9
MN	10	STAC10
MN	11	STAC11
MN	12	STAC12
MN	13	STAC13E*
MN	14	STAC14E*
MN	15	
MN	16	

CONVENTIONAL INTEROP		
ZONE DISPLAY NAME	ROTARY CHANNEL SELECTOR	CHANNEL DISPLAY NAME
8C	1	8CALL90
8C	2	8TAC91
8C	3	8TAC92
8C	4	8TAC93
8C	5	8TAC94
8C	6	8CALL90D
8C	7	8TAC91D
8C	8	8TAC92D
8C	9	8TAC93D
8C	10	8TAC94D
8C	11	8SOA1
8C	12	8SOA2
8C	13	8SOA3
8C	14	8SOA4
8C	15	FSOA1*
8C	16	FSOA2*

*STAC13E and STAC14E: Required in all DES-equipped radios (or waiver). Must use Statewide Common DES Encryption Key.

*FSOA1 and FSOA2: Required in Fire and EMS only (or waiver). Not allowed in non-Fire and EMS radios.

Personnel should familiarize themselves with ARMER Standard 3.16.6; specifically, the areas of technical background, operational context, standardized policy, and standardized procedure. Your Local System

Administrator should be contacted if you have any questions related to technical background and encryption.

Section IV. Standard Minnesota VHF Interoperability Resources*

CH #	Channel Name	Short Name[1]	Mobile TX	Mobile RX	TX/RX Mobile CTCSS[2]	TX/RX Base CTCSS[3]
1	VCALL10	VCAL10	155.7525	155.7525	156.7/CSQ	156.7/156.7
2	VTAC11	VTAC11	151.1375	151.1375	156.7/CSQ	156.7/156.7
3	VTAC12	VTAC12	154.4525	154.4525	156.7/CSQ	156.7/156.7
4	VTAC13	VTAC13	158.7375	158.7375	156.7/CSQ	156.7/156.7
5	VTAC14	VTAC14	159.4725	159.4725	156.7/CSQ	156.7/156.7
6	MNCOMM	MNCOMM	155.3700	155.3700	156.7/156.7	156.7/156.7
7	VFIRE23	VFIR23	154.2950	154.2950	156.7/156.7	156.7/156.7
8	MNFIRG2	MNFG2	154.0100	154.0100	156.7/156.7	156.7/156.7
9	MNFIRG3	MNFG3	153.8300	153.8300	156.7/156.7	156.7/156.7
10	DNRTAC1	DNRT1	151.4750	151.4750	156.7/156.7	N/A[4]
11	VLAW31	VLAW31	155.4750	155.4750	156.7/156.7	156.7/156.7
12	VMED28	VMED28	155.3400	155.3400	156.7/156.7	156.7/156.7
13	IR 2	IR 2	165.9625	170.4125	167.9/167.9	167.9/167.9
14	VTAC14R	TAC14R	154.6875	159.4725	156.7/156.7	156.7/156.7
15	NGRPTR*	NGRPTR	Rest.	Rest.	Rest.	Rest.
16	LE 2*	LE 2	162.2625	167.2500	$68F/$68F	$68F/$68F

Section V: Compliance & Conflict Resolution

The suggested method for reporting conflicts noticed by public works personnel is to document the conflict and forward it to your supervisor. The supervisor should attempt to obtain a resolution with the other entity involved. However, if a conflict is not able to be resolved at this level, the issue should be brought to the Local System Administrator.

[1] For use with limited character display radios
* Local option channel if not implemented with LOA or MOU for use of federal channels.
[2] CTCSS or NAC for subscriber radios. For VCALL10, VTAC11, VTAC12, VTAC13, and VTAC14, use receive CTCSS of 156.7 if needed to mitigate interference.
[3] CTCSS or NAC for fixed stations.
[4] There are no permanent, fixed stations on DNRTAC1.

Section VI: Refresher Training Plan

While it is the responsibility of each agency to establish their own refresher training, it is imperative to keep personnel up-to-date on the latest technological innovations, as well as applicable local, regional, and state guidelines/mandates.

It is a best practice recommendation that ARMER online equipment and console training modules be reviewed annually, at a minimum. In addition, the Minnesota Public Works Communications Best Practice Guide should become part of every agency's new trainee curriculum, and it should also be reviewed periodically in training sessions for current employees.

Online training modules are available to all users. These courses, created on behalf of the Statewide Emergency Communications Board (SECB) and reviewed and approved by subject matter experts, are hosted through the Alexandria Technical & Community College online website. They can be accessed from ECN's website under ARMER Standards.

A user name and password will be needed for these training modules, and instructions for obtaining these are posted on ECN's website under ARMER standards.

Section VII: Other Best Practices Guides

EMS
Hospital
Emergency Management/Public Health
Dispatcher
Fire
Law Enforcement

These guides have been created as a result of diligent work by the groups involved. These guides provide guidance for their respective public safety disciplines and are available online. Access to completed Best Practice Guides is available on ECN's website under ARMER and Guide Books.

Section VIII: Minnesota Emergency Communication Networks Contacts

Current email contact information can be found on the ECN website under Contact and then Staff Contacts.

Section IX: Regional Radio and Advisory Committee Contacts

Contacts for the Regional Emergency Communications Boards/Emergency Services Boards (ECB/ESB) and Regional Advisory Committees (RAC) can be found on the SECB website under Regional Boards and Committees.

Section X: Radio Affiliated Acronyms

You can find a link to commonly used radio-affiliated acronyms on the ECN website.

Minnesota

Public Works

Communications Best Practice Guide

Statewide Radio Board, Operations & Technical Committee, Interoperability Committee, Public Works Best Practice Workgroup

Approved by the Statewide Radio Board

~~November 29, 2012~~ July ~~May~~ 2~~8~~6, 2016

This document describes the recommended best practice, standards, and contact information for Minnesota public works to assist in planning for interoperability with other public safety disciplines.

Table of Contents

Section I: Introduction

- Public Works Best Practices Workgroup

~~**Section II: Participation in ARMER**~~

- ~~State Standard 1.10.0, Requesting and Configuring Participation~~
- ~~Agency's Participation Plan~~

Section III~~II~~: ARMER Basics for Public Works

- State Standard 1.11.4, Training 800 MHz Users
- Alexandria Technical & Community College Training Modules
  - Radio 101
  - ~~History of ARMER~~
  - Interoperability 101
  - Interoperability: How to Communicate Outside Your Agency
- FEMA NIMS Courses:
  - IS-100PWb, Introduction to the Incident Command System (ICS100) for Public works
  - IS-700a, National Incident Management System (NIMS), An Introduction
- Attending Field User ARMER Training

Section III~~IV~~: Public Works Related Statewide Standards

- State Standard 1.11.4, Training 800 MHz Users
- ~~State Standard 1.11.5, Training Non-Participating Radio Users~~
- State Standard 2.6.0, ~~ARMER~~ Fleetmap ~~Planning Guidance~~ Standards
- State Standard 2.8.0, Talkgroup and Radio User Priority
- ~~State Standard 2.9.0, 800 MHz Statewide Wide Area Talkgroup Access and Management~~
- State Standard 2.12.0, Scanning
- ~~State Standard 3.12.0, Talkgroup and Multigroup Ownership~~
- State Standard 3.15.0, Use of Scene of Action (SOA)

Section IV: Interoperability

- ~~Minnesota Public Safety Mobile VHF Interoperable Frequency Plan~~
- Regional Tactical Interoperable Communications Plan (TICP)
- State Standard 2.7.0, Use of Shared Talkgroups
- ~~State Standard 3.5.0, National/Statewide VHF Interoperability Resources (MNSEF)/VLAW31, (National EMS)/VMED28, (Statewide Fire)/VFIRE23, (MIMS)/MNCOMM~~
- State Standard 3.16.0, 800 MHz Statewide STAC Interoperability Talkgroups ~~Incident Response Talkgroups: STACs, ETACs, FTACs, & LTACs~~
- ~~State Standard 3.16.2, Use of Statewide 800MHz STAC 1-4 Talkgroups~~
- ~~State Standard 3.16.3, Cross Spectrum Interoperability System 800 MHz National Mutual Aid Resources~~
- ~~State Standard 3.16.4, Cross Spectrum Interoperability System VLAW31 Resources~~

Formatted: Bulleted + Level: 1 + Aligned at: 0.75" + Indent at: 1"

- ~~State Standard 3.16.5, Cross Spectrum Interoperability System VHF Variable Frequency Station (VFS) Resources~~
- ~~State Standard 3.31.0, ARMER System StatusBoard~~
- State Standard 3.32.0, Statewide Interoperable Plain Language Policy
- Use of Minnesota State Patrol Call Talkgroup – Minnesota State Patrol General Order 162-40-015, MSP Hailing Talkgroup: MSP -CALL
- Bordering States and Provinces Interoperability
- ~~State Standard 3.35.0 43.0, Use of National Weather Service Standard~~
- ~~Standardized ARMER system wide incident command zone for major incident response coordination.~~Statewide Interoperability Zone
- Standard Minnesota VHF Interoperability Resources

~~**Section VI: Strategic Technology Reserve**~~

~~State Standard 3.33.0, Establishment of Strategic Technology Reserve~~

~~State Standard 3.33.1, STR Radio Cache~~

~~Accompanying Regional Standard~~

~~State Standard 3.33.2, STR – Transportable Tower/Repeater~~

~~Accompanying Regional Standard~~

~~**Section VII: COML and COMT**~~

~~How and when to use a COML and/or COMT~~

Section V~~III~~: Compliance & Conflict Resolution:

- State Standard 7.1.0, Audit/Monitoring Process
- State Standard 7.2.0, Response to Non-Compliance
- State Standard 7.3.0, The Appeal Process

Section VII~~X~~: Refresher Training Plan

Section VII~~X~~: Other Best Practice Guides

Section VIII~~XI~~: Minnesota Emergency Communication Networks Contacts

Section IX~~II~~: Regional Radio and Advisory Committee Contacts

~~**Section XIII: Public Works Best Practice Workgroup**~~

Section X~~IV~~: Radio Affiliated Acronyms

DOCUMENT REVISION HISTORY

Date	Revision	Notes	Name
5-17-2013	Removed Tom Johnson Added NWS standard info	Replaced with Brandon Abley	Cathy Anderson
4-29-2016	Entire guide		Workgroup

Section I: Introduction

The Public Works Best Practice Workgroup was created in 2012 to develop a Best Practice Guide for public works disciplines within the various agencies that are on the ARMER radio system or are in the process of migrating to the ARMER radio system. This guide is designed to serve as both a training plan and a resource document, providing ~~and will provide~~ a basic outline for the development of talkgroup layouts~~, programming~~, and SOPs when interoperating with other disciplines of the same agency or other governmental and nongovernmental agencies. – As the migration to ARMER continues to develop throughout the state, it is important for participating agencies to adopt similar programming and operational methods to facilitate seamless interdisciplinary and interagency communication. We will address communication between:

- Public works to public works
- Public works to law enforcement
- Public works to fire units
- Public works to EMS
- Public works to nearest dispatch center

It is likely that most public works disciplines migrating to the ARMER system have their law enforcement and fire departments already operating on the system or making the migration jointly, resulting in much of the fleetmap already being in place. Therefore, the affected public works disciplines will need to add talkgroups necessary for their operations, as well as talkgroups that would be necessary for operations with agencies or other disciplines ~~that~~ they may work with on a regular basis.

It is important to remember that the most effective level of interoperability is achieved when users share the same radio system and have shared talkgroups directly accessible to them in their radios. Realizing the difficulty in achieving this goal statewide, this guide will set forth best practices for using current systems for the optimal interoperability solutions to address daily operations and extraordinary occurrences. The Minnesota Public Works Communications Best Practice Guide is a living document, and suggested changes may be submitted ~~for consideration~~ to the Emergency Communication Networks (ECN) Standards & Training Coordinator. ~~Statewide Interoperability Committee through the Statewide Interoperability Program Manager, Brandon.Abley@state.mn.us, or by calling 651-201-7554.~~

NOTE: Questions regarding State Standards or clarification of these standards should be directed to your Local System Administrator, Your Regional Interoperability Coordinator (RIC), ~~County System Administrator~~ or the Statewide Interoperability Program Manager.

~~Section II: Participation in ARMER~~

~~Should jurisdictions choose to participate, State Standard 1.10.0, Requesting and Configuring Participation, details the necessary requirements. State Standards may be found on the Statewide Radio Board (SRB) website at: dps.mn.gov/entity/SRB.~~

~~Public works agencies planning to participate on the Minnesota ARMER System must realize that it is a statewide, interoperable communications system built to a project 25 standard. Unlike individual radio systems of the past, the ARMER System has a statewide, formal governance structure with recommended operational procedures, including formal regional and state standards. These procedures and standards~~

are intended to streamline the process of achieving communications in routine, daily operations and in emergencies when time-critical action is required. This document includes numerous state and regional contact references as a resource to assist you in your planning and implementation.

The workgroup recommends that each agency either link to or attach their Agency's Limited or Full ARMER Participation Plan to this document.

Copies of County Participation Plans may be obtained from the Director or Supervisor of the County Dispatch Center, Public Safety Answering Point (PSAP), or from the Regional Advisory Committee (RAC).

Section III: ARMER Basics for Public Works

Each agency should customize their training plan to fit their own unique situation.
It is recommended that all training be completed by a qualified ARMER trainer.

State Standard 1.11.4, Training 800 MHz Users

This standard establishes the minimum training standards for radio operators to ensure proper operation of radios on the system.

Suggested supplemental training beyond the required training listed in State Standard 1.11.4:

Alexandria Technical & Community College online training may be obtained through the Alexandria Technical & Community College website, http://www.alextech.edu/static/d2l.html?logout=1, or by contacting the Statewide Interoperability Program Manager at Brandon.Abley@state.mn.us. To obtain user name and password information for the Alexandria Technical & Community College online training, please contact Linda Muchow at 320-762-4539, 1-888-234-1313, or via email at lindac@alextech.edu.

It is highly recommended that Public Works personnel view training modules, created on behalf of the Statewide Emergency Communications Board (SECB) and reviewed and approved by subject matter experts. These training modules are hosted through the Alexandria Technical & Community College online website. They can be accessed from ECN's website under ARMER Standards.

A user name and password will be needed for these training modules, and instructions for obtaining these are posted on ECN's website under ARMER Standards. While web-based training is supplemental, except for the Minimum Training Requirements, all users must attend formal training for the ARMER system.

Alexandria Technical & Community College Training Modules

- Radio 101
- History of ARMER
- Interoperability 101
- Interoperability: How to Communicate Outside Your Agency
- Other relevant modules as developed

FEMA/NIMS Courses, NIMS training courses can be found at:

http://www.fema.gov/emergency/nims/NIMSTrainingCourses.shtm

- IS-100PWb, Introduction to the Incident Command System (ICS100) for Public Works
- IS-700a, National Incident Management System (NIMS), An Introduction

Attending Field User ARMER Training: Information on local Field User Training may be obtained through your ~~L~~local System Administrator or Regional Advisory Committee (RAC).

Section I~~V~~II: Public Works Related Statewide Standards

State Standard 1.11.4, Training 800 MHz Users

This standard establishes the minimum training standards for radio operators to ensure proper operation of radios on the system

~~State Standard 1.11.5, Training Non-Participating Radio Users~~

~~This standard establishes the minimum training standards for radio operators having access to interoperability talkgroups of this system. This will ensure proper operation of radios on this system and safeguard against improper utilization of statewide system resources.~~

State Standard 2.6.0, Fleetmap Standards

A Fleetmap is a list of talkgroups or channels that are programmed into your radios. The Allied Radio Matrix for Emergency Response System (ARMER) will contain a large number of talkgroups and multigroups to support the various agencies that will be subscribing to the system.

The ARMER System has multiple administrating agencies that will be maintaining fleetmaps and system programming of agencies they are responsible for. For the effective management of the system, a defined process needs to be used to document the fleetmap information that each administrating agency is supporting. This information needs to be in a format that is shared with the other administrators.

This also provides a resource for the subscribing agencies to reference when planning interagency communications. System fleetmaps contain configuration information that is classified as "Security Information" and "General Non-Public Data," pursuant to Minn. Stats. § 13.37, Subd. 1a.

State Standard 2.8.0, Talkgroup and Radio User Priority

This standard establishes varying priority levels for talkgroups to ensure the most critical talkgroups on the system are granted a channel as quickly as possible when and where the system is experiencing busy conditions.

~~State Standard 2.9.0, 800 MHz Statewide Wide Area Talkgroup Access and Management~~

~~This standard establishes a policy that provides radio connectivity throughout the ARMER system, while minimizing roaming and excess system loading.~~

State Standard 2.12.0, Scanning

This standard identifies operational procedures and responsible authorities governing scanning activities.

In many jurisdictions, public works users are issued radios with more limited features than those used by public safety users. As a result, it is sometimes difficult for public works users to manage lists of scanned talkgroups in their radios. Public works users with questions about scanning are encouraged to work with their local system administrator.

~~State Standard 3.12.0, Talkgroup and Multigroup Ownership~~

~~This standard defines the ownership of private, shared, and interoperability talkgroups and multigroups. This provides standard, written documentation so that System Managers have firm guidelines as to who is permitted to have particular talkgroups and multigroups programmed into their radios.~~

State Standard 3.15.0, Use of Scene of Action (SOA)

This standard provides standards, protocols, procedures, and operating parameters for Scene-of-Action channels.

The public safety discipline is best served by creating an operating procedure that maintains safety of personnel in situations. The range of mobiles and the "walk over" issue is a critical point. Once a radio is keyed, there is no way to control the footprint of the transmission, other than limiting the power of that transmission. Personnel talking on a mobile radio may have no way of knowing if they are walking over a portable in the next community, because they will not be able to receive it or realize that the channel is in use by the portable.

Public works users should be aware that by switching to an SOA channel, they are leaving the ARMER network and are operating in a direct, "radio-to-radio" mode. This has advantages in certain situations, such as highway flagging operations, where short distance communications are required with a limited number of users. Using SOA channels does not impose any system loading on the local ARMER network. Although mobile radios are permitted on SOA channels, portable radios are recommended in most cases, due to the limitations explained in the paragraph above. ~~Under the current State Standard, only two SOA channels are available for use by public works users – ASOA1 and ASOA2.~~

Public works personnel should become familiar with the content of all state and Radio Region Standards included in the Best Practices Guide. While some contain more specific and pertinent information than others, all public works personnel, regardless of position, should have a good understanding of each standard. State and Regional Standards may be accessed through the Statewide Radio Board's website at this link: dps.mn.gov/entity/SRB. Standards will be under the ARMER section.

Section IV: Interoperability

~~**Minnesota Public Safety Mobile Very High Frequency (VHF) Interoperable Frequency Plan**~~
~~This plan may be found on the Statewide Radio Board website: dps.mn.gov/entity/SRB~~

~~**Excerpt from the Statewide Radio Board (SRB) MN VHF Interoperable Frequency Plan – Dated 12-2-2010**~~
~~The Statewide VHF Interoperable Frequency Steering Committee established the final revision of the VHF plan on 12-2-2010. This plan describes the primary channel for interagency law enforcement communications in the state as 155.4750 MHz, commonly referred to as MINSEF. The national naming convention for this channel is VLAW 31. Use of this channel is widespread in Minnesota, and permission from the SRB and previous authorities to utilize VLAW 31 outside law enforcement disciplines has been limited. The current standard operational mode for this channel is wideband analog, but this channel is subject to the FCC mandated narrowbanding deadline.~~

~~Public works personnel should be familiar with VHF channels that are integrated with the ARMER Radio system and are available to be patched to local, regional, or statewide talkgroups as needed. This is necessary when radio interoperability must be established with responders on legacy VHF systems.~~

Regional Tactical Interoperable Communications Plan (TICP)

Tactical Interoperable Communications Plans are used by jurisdictions to document interoperable communications governance structures, technology resources, and usage policies/procedures. The TICP describes what interoperable communications assets are available in an area, how those assets are shared and prioritized, and the steps that individual agencies should use to request, activate, and deactivate them.

Public works personnel should be familiar with the regional communications resources that are available to their jurisdiction, as well as the process they must follow to request them. Copies of Regional TICP's are available through your Regional Advisory Committee (RAC).

State Standard 2.7.0, Use of Shared Talkgroups

This standard provides options to users of the Allied Radio Matrix for Emergency Response System (ARMER), which will allow talkgroup owners to predefine sharing authorizations for other agencies.

~~**State Standard 3.5.0, National/Statewide VHF Interoperability Resources MNSEF (VLAW31), National EMS (VMED28), Statewide Fire (VFIR23), MIMS (MNCOMM)**~~
~~This standard establishes procedures for use and patching of MINSEF (VLAW31, 155.475), National EMS (VMED28, 155.340), Statewide Fire (VFIR23, 154.295) and Minnesota Incident Management System (MIMS, 155.370) VHF interoperability radio frequencies for interagency communications.~~

~~The most common VHF channels that are available are:~~

- ~~VLAW31 (previously MINSEF)~~
- ~~VFIR23 (previously Statewide Fire Mutual Aid)~~
- ~~VMED28 (previously statewide EMS)~~
- ~~MNCOMM (previously Minnesota Incident Management System -MIMS, or Point-to-Point)~~

~~Others may be available as well, such as the National Interoperability Channels VCALL10 and VTAC11-14. Local procedures should be developed that list the specific scenarios in which VHF channels would be needed.~~

~~Note: These channels should only be used at the direction of a dispatcher, Incident Commander, COML, or a COMT.~~

State Standard 3.16.0, 800 MHz Statewide STAC Interoperability ~~Incident Response~~ Talkgroups~~: STACs, ETACs, FTACs, & LTACs~~

This standard establishes policy and procedures for use of uniform, ~~standardized~~ statewide 800 MHz interoperability STAC ~~major incident response interoperability~~ talkgroups ~~and standardized incident command zones~~ in all ~~in~~ user radios.

~~**State Standard 3.16.2, Use of Statewide 800 MHz STAC 1-4 Talkgroups**~~

~~This standard specifies the use of the statewide 800 MHz STAC talkgroups for establishing and maintaining air ambulance emergency landing zones.~~
~~Public Works personnel should be familiar with these statewide talkgroup resources and understand the circumstances when they would be used.~~

~~Important points that should be emphasized are:~~

- ~~Use in order (1,2,3,4) for emergent events.~~
- ~~Use in reverse order (4, 3, 2, 1) for preplanned and non-emergent events.~~
- ~~Clear speech only - no "10" codes on statewide talkgroups.~~
- ~~Priority of use should be for incidents with responders from multiple regions.~~

~~**State Standard 3.16.3, Cross Spectrum Interoperability System (CSIS) 800 MHz National Mutual Aid Resources**~~

~~The purpose of this standard is to establish procedures for use and patching of 800 MHz national mutual aid resources included in the ARMER Cross Spectrum Interoperability System for interagency communications.~~

~~**State Standard 3.16.4, Cross Spectrum Interoperability System VLAW31 Resources**~~

~~The purpose of this standard is to establish procedures for use and patching of VLAW31 resources included in the ARMER Cross Spectrum Interoperability System for interagency communications.~~

~~**State Standard 3.16.5, Cross Spectrum Interoperability System VHF Variable Frequency Station (VFS) Resources**~~

~~The purpose of this standard is to establish procedures for use and patching of VHF Variable Frequency Station (VFS) resources included in the ARMER Cross Spectrum Interoperability System for interagency communications.~~

~~**State Standard 3.31.0, ARMER System StatusBoard**~~

~~The StatusBoard Application, maintained by MnDOT Electronic Communications, is a statewide dispatch console tool installed on all ARMER System consoles and is intended to help facilitate and advise what interoperable talkgroup or channel may be in use for an urgent, emergent, or preplanned event.~~

3.32.0, Statewide Interoperable Plain Language Policy

The use of plain language (clear text) in emergency management and incident response is a matter of public safety, especially the safety of emergency management/response personnel and those affected by the incident. It is critical that all those involved with an incident know and utilize commonly established operational structures, terminology, policies, and procedures. This will facilitate the achievement of interoperability across agencies/organizations, jurisdictions, and disciplines, which is exactly what National Incident Management System (NIMS) and the Incident Command System (ICS) is seeking to achieve.

It is recommended that public works personnel be required to use clear speech for day-to-day activities. A limited list of permitted codes should be published for users and be strictly adhered to. This will make it easier to use clear speech only on major events, as well.

Use of Minnesota State Patrol Call Talkgroup

Minnesota State Patrol General Order 16~~2~~-40-015, MSP Hailing talkgroup: MSP –CALL General Order, may be found on the ECN ~~SRB~~ website under ARMER, Guide Books, then ~~and~~ Best Practices. ~~at https://dps.mn.gov/entity/SRB . Once at the website, click on ARMER, then click on Guide Books and Best Practices.~~

Bordering States and Provinces Interoperability

Talkgroups may be patched by dispatchers to radio systems in other counties, states, or countries (Canada). If a public works user is working on a talkgroup patched to another system, it is important to use plain speech (no 10 codes) and identify yourself with agency name, followed by unit number. Example: "Hastings Public Works 303 to St. Croix County."

~~**State Standard 3.43.0, Use of National Weather Service Standard**~~

~~The purpose of this standard is to define the ARMER talkgroups and procedures to be used by the National Weather Service (NWS) offices that serve the various ARMER regions of the state for NWS to county and local agency communications during severe weather events.~~

~~STANDARDIZED ARMER SYSTEMWIDE INCIDENT COMMAND ZONE FOR MAJOR INCIDENT RESPONSE COORDINATION~~

~~Pos~~	~~Law Enforcement~~	~~EMS~~	~~Fire~~	~~Public Service~~
~~1~~	~~*Local Choice~~	~~*Local Choice~~	~~*Local Choice~~	~~*Local Choice~~
~~2~~	~~L-TAC1~~	~~E-TAC1~~	~~F-TAC1~~	~~Regional-TAC1~~
~~3~~	~~L-TAC2~~	~~E-TAC2~~	~~F-TAC2~~	~~Regional-TAC2~~
~~4~~	~~L-TAC3~~	~~E-TAC3~~	~~F-TAC3~~	~~Regional-TAC3~~
~~5~~	~~L-TAC4~~	~~E-TAC4~~	~~F-TAC4~~	~~Regional-TAC4~~
~~6~~	~~STAC1~~	~~STAC1~~	~~STAC1~~	~~STAC1~~
~~7~~	~~STAC2~~	~~STAC2~~	~~STAC2~~	~~STAC2~~
~~8~~	~~STAC3~~	~~STAC3~~	~~STAC3~~	~~STAC3~~
~~9~~	~~STAC4~~	~~STAC4~~	~~STAC4~~	~~STAC4~~
~~10~~	~~Regional TAC~~	~~Regional TAC~~	~~Regional TAC~~	~~LOC CH/ BLANK~~
~~11~~	~~Regional TAC~~	~~Regional TAC~~	~~Regional TAC~~	~~LOC CH/ BLANK~~

~~12~~	~~Regional TAC~~	~~Regional TAC~~	~~Regional TAC~~	~~LOC CH/ BLANK~~
~~13~~	~~Regional TAC~~	~~Regional TAC~~	~~Regional TAC~~	~~LOC CH/ BLANK~~
~~14~~	~~LOC CH/ BLANK~~	~~LOC CH/ BLANK~~	~~LOC CH/ BLANK~~	~~LOC CH/ BLANK~~
~~15~~	~~P SOA 1~~	~~P SOA 1~~	~~P SOA 1~~	~~LOC CH/ BLANK~~
~~16~~	~~A SOA 1~~	~~A SOA 1~~	~~A SOA 1~~	~~A SOA 1~~

~~800 MHz Statewide Incident Response Talkgroups – STACs, ETACs, FTACs, & LTACs – 3.16.0~~

Statewide Interoperability Zone

ARMER Standard 3.16.6, 800 MHz Statewide Uniform Interoperability Radio Zones, establishes policy and procedures for the implementation of two 800 MHz uniform interoperability zones in all subscriber radios throughout the state. This policy will guarantee standardized Statewide and Nationwide interoperable communications capabilities for all service branches.

This uniformity will provide dispatch centers, Incident Commanders (ICs), and Communications Unit Leaders (COMLs) the ability to develop and adapt incident radio communications plans quickly and effectively without having to rely on reprogramming radios, swapping radios, or establishing patches in the field.

Based upon Standard 3.16.6, all Public Works subscriber radios shall have these two statewide interoperability zones (unless a waiver or variance has been granted):

STATEWIDE INTEROP		
ZONE DISPLAY NAME	ROTARY CHANNEL SELECTOR	CHANNEL DISPLAY NAME
MN	1	STAC1
MN	2	STAC2
MN	3	STAC3
MN	4	STAC4
MN	5	STAC5
MN	6	STAC6
MN	7	STAC7
MN	8	STAC8
MN	9	STAC9
MN	10	STAC10
MN	11	STAC11
MN	12	STAC12
MN	13	STAC13E*
MN	14	STAC14E*
MN	15	
MN	16	

CONVENTIONAL INTEROP		
ZONE DISPLAY NAME	ROTARY CHANNEL SELECTOR	CHANNEL DISPLAY NAME
8C	1	8CALL90
8C	2	8TAC91
8C	3	8TAC92
8C	4	8TAC93
8C	5	8TAC94
8C	6	8CALL90D
8C	7	8TAC91D
8C	8	8TAC92D
8C	9	8TAC93D
8C	10	8TAC94D
8C	11	8SOA1
8C	12	8SOA2
8C	13	8SOA3
8C	14	8SOA4
8C	15	FSOA1*
8C	16	FSOA2*

*STAC13E and STAC14E: Required in all DES-equipped radios (or waiver). Must use Statewide Common DES Encryption Key.

*FSOA1 and FSOA2: Required in Fire and EMS only (or waiver). Not allowed in non-Fire and EMS radios.

Personnel should familiarize themselves with ARMER Standard 3.16.6; ~~-~~ ~~S~~specifically, the areas of technical background, operational context, standardized policy, and standardized procedure. Your Local System Administrator should be contacted if you have any questions related to technical background and encryption.

~~All Branch IC Zone~~

~~The following alternate "All Branch" STANDARDIZED INCIDENT COMMAND ZONE may be implemented either in addition to, or in lieu of, the service branch specific STANDARDIZED INCIDENT COMMAND ZONE specified in Section 4 of ARMER Standard 3.16.0.~~

~~If the All Branch zone is used, all 16 Statewide Incident Response talkgroups shall be included, and they shall be programmed exactly in the order specified below in order to maintain consistency and to facilitate a potential future renaming to these talkgroups to STAC 1-16 as part of ARMER 3.0. The All Branch zone may be implemented in any radio regardless of service branch.~~

~~This All Branch IC Zone is programmed into all Strategic Technology Reserve cache radios positioned throughout the State and is recommended for inclusion in all other cache radios.~~

~~Pos~~	~~All Branch IC Zone~~
~~1~~	~~STAC 1~~
~~2~~	~~STAC 2~~
~~3~~	~~STAC 3~~
~~4~~	~~STAC 4~~
~~5~~	~~LTAC 1~~
~~6~~	~~LTAC 2~~
~~7~~	~~LTAC 3~~
~~8~~	~~LTAC 4~~
~~9~~	~~FTAC 1~~
~~10~~	~~FTAC 2~~
~~11~~	~~FTAC 3~~
~~12~~	~~FTAC 4~~
~~13~~	~~ETAC 1~~
~~14~~	~~ETAC 2~~
~~15~~	~~ETAC 3~~
~~16~~	~~ETAC 4~~

~~Note: These talkgroups should only be used at the direction of a dispatcher, Incident Commander, COML, or a COMT.~~

~~Section VI: Strategic Technology Reserve~~

~~**State Standard 3.33.0, Establishment of Strategic Technology Reserve, 3.33.1 STR Radio Cache, 3.33.2 STR Transportable Tower/Repeater**~~

~~The basic purpose of the Strategic Technology Reserve (STR) is to provide communication resources that can be deployed in situations where there is a catastrophic loss of the existing public safety communication capabilities. Public Works personnel should be aware that in the case of a catastrophic loss of communication capabilities in the State that these resources (cache radios and portable radio towers) are available by contacting your County or State Patrol Dispatcher. The Workgroup suggests that each public works entity insert or link the applicable Regional STR Standard to this document.~~

Section IV. Standard Minnesota VHF ~~Interoperability Resources~~Interoperability Resources*

CH #	Channel Name	Short Name[1]	Mobile TX	Mobile RX	TX/RX Mobile CTCSS[2]	TX/RX Base CTCSS[3]
1	VCALL10	VCAL10	155.7525	155.7525	156.7/CSQ	156.7/156.7
2	VTAC11	VTAC11	151.1375	151.1375	156.7/CSQ	156.7/156.7
3	VTAC12	VTAC12	154.4525	154.4525	156.7/CSQ	156.7/156.7
4	VTAC13	VTAC13	158.7375	158.7375	156.7/CSQ	156.7/156.7
5	VTAC14	VTAC14	159.4725	159.4725	156.7/CSQ	156.7/156.7
6	MNCOMM	MNCOMM	155.3700	155.3700	156.7/156.7	156.7/156.7
7	VFIRE23	VFIR23	154.2950	154.2950	156.7/156.7	156.7/156.7
8	MNFIRG2	MNFG2	154.0100	154.0100	156.7/156.7	156.7/156.7
9	MNFIRG3	MNFG3	153.8300	153.8300	156.7/156.7	156.7/156.7
10	DNRTAC1	DNRT1	151.4750	151.4750	156.7/156.7	N/A[4]
11	VLAW31	VLAW31	155.4750	155.4750	156.7/156.7	156.7/156.7
12	VMED28	VMED28	155.3400	155.3400	156.7/156.7	156.7/156.7
13	IR 2	IR 2	165.9625	170.4125	167.9/167.9	167.9/167.9
14	VTAC14R	TAC14R	154.6875	159.4725	156.7/156.7	156.7/156.7
15	NGRPTR*	NGRPTR	Rest.	Rest.	Rest.	Rest.
16	LE 2*	LE 2	162.2625	167.2500	$68F/$68F	$68F/$68F

~~Section VI: Strategic Technology Reserve~~

~~**State Standard 3.33.0, Establishment of Strategic Technology Reserve, 3.33.1 STR Radio Cache, 3.33.2 STR Transportable Tower/Repeater**~~

~~The basic purpose of the Strategic Technology Reserve (STR) is to provide communication resources that can be deployed in situations where there is a catastrophic loss of the existing public safety communication capabilities. Public Works personnel should be aware that in the case of a catastrophic~~

[1] For use with limited character display radios
* Local option channel if not implemented with LOA or MOU for use of federal channels.
[2] CTCSS or NAC for subscriber radios. For VCALL10, VTAC11, VTAC12, VTAC13, and VTAC14, use receive CTCSS of 156.7 if needed to mitigate interference.
[3] CTCSS or NAC for fixed stations.
[4] There are no permanent, fixed stations on DNRTAC1.

loss of communication capabilities in the State that these resources (cache radios and portable radio towers) are available by contacting your County or State Patrol Dispatcher. The Workgroup suggests that each public works entity insert or link the applicable Regional STR Standard to this document.

Section VII: COML (Communications Unit Leader III) and COMT (Communications Technician)

COMLs and COMT's are emergency responders trained to facilitate communications during a planned event, manmade, or natural disaster.

COMLs and COMTs may be called out by contacting your local dispatch and/or State Patrol Dispatch Center. COML's may be called out anytime an Incident Commander believes there is a need for this

Section VII: COML (Communications Unit Leader III) and COMT (Communications Technician)

COMLs and COMT's are emergency responders trained to facilitate communications prior to or during a planned event, manmade, or natural disaster. COMLs and COMTs are available to help plan for communications when coordination between agencies is necessary.

COMLs and COMTs may be called out by contacting your local dispatch and/or State Patrol Dispatch Center. COML's may be called out any time an Incident Commander believes there is a need for this position. Refer to the Minnesota Communications Field Operations Guide (MN COMM FOG) for call-out procedure.

Formatted: Line spacing: At least 1 pt

Section VIII: Compliance & Conflict Resolution

The suggested method for reporting conflicts noticed by public works personnel is to document the conflict and forward it to your supervisor. The supervisor should attempt to obtain a resolution with the other entity involved. However, if a conflict is not able to be resolved at this level, the issue should be brought to the Local regional sSystem Aadministrator.

Please refer to State Standards 7.1.0 - Audit/Monitoring Process, 7.2.0 - Response to Non-Compliance, and 7.3.0 - The Appeal Process, for further information or consult your local system administrator.

Section VIX: Refresher Training Plan

While it is the responsibility of each agency to establish their own refresher training, it is imperative to keep personnel up-to-date on the latest technological innovations, as well as applicable local, regional, and state guidelines/mandates.

It is a best practice recommendation that ARMER online equipment and console training modules be reviewed annually, at a minimum. In addition, the Minnesota Public Works Communications Best Practice Guide should become part of every agency's new trainee curriculum, and it should also be reviewed periodically in training sessions for current employees.

Online training modules are available to all users. These courses, created on behalf of the Statewide Emergency Communications Board (SECB) and reviewed and approved by subject matter experts, are hosted through the Alexandria Technical & Community College online website. They can be accessed from ECN's website under ARMER Standards.

A user name and password will be needed for these training modules, and instructions for obtaining these are posted on ECN's website under ARMER standards.

~~It is the workgroup's best practice recommendation that ARMER online equipment modules be reviewed annually, at a minimum. In addition, the Best Practice Guide should become part of every agency's new trainee curriculum, and it should also be reviewed periodically in training sessions for current employees. Online training may be obtained through the Alexandria Technical & Community College website at http://www.alextech.edu/static/d2l.html?logout=1, or by contacting the Statewide Interoperability Program Manager at Brandon.Abley@state.mn.us. To obtain user name and password information for the Alexandria Technical & Community College online training, please contact Linda Muchow at 320-762-4539, 1-888-234-1313, or via email at lindac@alextech.edu.~~

Section VII~~X~~: Other Best Practices Guides

EMS
Hospital
Emergency Management/Public Health
Dispatcher
Fire
Law Enforcement

These guides have been created as a result of diligent work by the groups involved. These guides provide guidance for their respective public safety disciplines and are available online. Access to completed Best Practice Guides is available on ECN's website under ARMER and Guide Books.

~~at: https://dps.mn.gov/entity/SRB.~~

Section VIII~~XI~~: Minnesota Emergency Communication Networks Contacts

Current email contact information can be found on the ECN website under Contact and then Staff Contacts.

Jackie Mines, DECN, Director
jackie.mines@state.mn.us 651-201-7550

Brandon Abley, Statewide Interoperability Program Manager
brandon.abley@state.mn.us 651-201-7554

Bill Bernhjelm, DECN North Regional Interoperability Coordinator
william.bernhjelm@state.mn.us 218-349-3531

John Tonding, DECN Central/Metro Regional Interoperability Coordinator
john.tonding@state.mn.us 763-587-8234

Steve Borchardt, DECN South Regional Interoperability Coordinator
steven.borchardt@state.mn.us 507-398-9687

DECN Grants Project Coordinator, 651-201-7555

Dana Wahlberg, 911 Program Manager, DECN
dana.wahlberg@state.mn.us, 651-201-7546

Section IXII: Regional Radio and Advisory Committee Contacts

Contacts for the Regional Emergency Communications Boards/Emergency Services Boards (ECB/ESB) and Regional Advisory Committees (RAC) can be found on the SECB website under Regional Boards and Committees.
Contacts for the Regional Radio Boards (RRB) and Regional Advisory Committees (RAC) can be found on the ARMER website: Dps.mn.gov/entity/SRB

Section XIII: Public Works Best Practice Workgroup

Charles Koetter – Charles.Koetter@ci.stcloud.mn.us
DJ Goman – dgoman@ci.spring-park.mn.us
Jack Stansfield – Stansfield.Jack@co.olmsted.mn.us
John Tonding – John.Tonding@state.mn.us
Cathy Anderson – Cathy.Anderson@state.mn.us
Kerry Sorenson – Kerry.Sorenson@ci.red-wing.mn.us
Mike Moser – mikemoser@co.stevens.mn.us
Steve Olson – Steve.Olson@co.lake.mn.us
Steven Borchardt – Steven.Borchardt@state.mn.us
William Bernhjelm – William.Bernhjelm@state.mn.us
Tom Johnson

Section XIV: Radio Affiliated Acronyms

You can find a link Link to commonly used, radio--affiliated acronyms on the ECN website. – https://dps.mn.gov/entity/SRB , click on ARMER, and then click on Acronyms.

Pierce County Sheriff's Department

Sheriff Nancy Hove
Chief Deputy Jason Matthys

Sheriff Department Phone: 715-273-5051
Administration Fax: 715-273-3409
Jail Fax: 715-273-6856
Investigation Fax: 715-273-1137

432 W. Main Street, P.O. Box 9
Ellsworth, WI 54011

July 12, 2016

ARMER OTC
Chair Joe Glaccum
4501 68th Avenue North
Brooklyn Center, MN 55429

Chair Glaccum,

Pierce County Wisconsin is an approved interoperable user of the ARMER system. The majority of our deputies use either an APX dual band mobile or portable to interoperate with our Minnesota partners. This includes Goodhue, Dakota, and Washington Counties in addition to events at the Prairie Island Nuclear Generating Plant. Our dispatch center also is equipped with four ARMER control stations which allow us to establish interoperable patches.

We currently are authorized for 55 radio IDs.

Ellsworth Fire Department is in central Pierce County city and shares a road bridge with Minnesota. Ellsworth Fire Department has obtained four dual band radios and 1 XTS2500 portable and they wish to add ARMER to these radios to interoperate with Goodhue county. Those radios will be in several first out apparatus. If future grant funding allows, Ellsworth Fire Department may obtain additional ARMER capable radios.

I am requesting that Ellsworth Fire Department be added to our participation plan, and that 5 more of our current allotment of radio ID's be approved for their radios.

I am an authorized ARMER programmer and will be programming the Ellsworth Fire Department radios. I will also provide training for those radio users, and any future users. I will interface with the radio managers of Goodhue county to verify any of their talk groups placed in these radios are authorized and appropriate. These radio IDs will be created by Nate Timm, who administers the Pierce County block of IDs.

Thank you for your consideration.
Sincerely,

Philip Meixner
Sergeant
Pierce County Sheriff's Office
715-273-5051
Phil.miexner@co.pierce.wi.us

To: SECB Operations and Technical Committee (OTC)
From: Jim Stromberg, ARMER Program Manager
Date: July 28, 2016
Subject: SOAR (Scene of Action Repeater) Change Management Request

---

At the April 2016 OTC Committee meeting, the Committee identified the Scene of Action Repeater (SOAR) request as a Major Change Management item. At the May 2016 meeting, the Committee assigned Al Fjerstad to lead a workgroup to explore this issue. Due to an unforeseen workload, Al was unable to convene the workgroup he had assembled and I relieved him by moderating the workgroup's first and only conference call.

The SOAR workgroup was made up of the following persons and met by telephone on July 28, 2016.

Dave Sisser	Rick Freshwater
Monte Fronk	Bill Flatten
Chris Kummer	Dona Greiner
Mike Peterson	Rod Olson

I charged the workgroup with reviewing the technical merits of the SOAR proposal and with recommending the next steps in the Change Management process.

Workgroup members reported that they were current on the topic but welcomed a summary update from Dave Sisser. The communities of Atwater and Hancock in Central Minnesota do not enjoy good in-building, portable-radio ARMER coverage. Outdoor and indoor BDA solutions were not practical solutions so they sought an alternative. The solution they identified was to install a local repeater using conventional 800 MHz frequencies and patching to a dedicated ARMER talkgroup. Testing using a National Interoperability Channel proved successful. The request of the OTC was to use a Scene of Action (SOA) channel and its repeater pair to facilitate a permanent solution. There was general agreement from the workgroup that in-building coverage was an issue in some rural communities and that an 800 MHz conventional repeater may be a low cost solution.

There was some reluctance to moving forward using a repeated SOA channel. Two alternative solutions were considered. Concerns related to the coverage footprint and the inability for a user on the ARMER end of the connection to monitor the unrepeated SOA side of the connection before transmitting.

The first alternative considered was patching a simplex SOA to a dedicated talkgroup rather than using a repeater. With this solution there was a concern that a simplex channel may not provide adequate coverage.

The second alternative solution was to utilize a National Interoperability Channel in lieu of the SOA. This solution was deemed technically and financially very similar to the original SOA solution and was widely accepted by the workgroup. The concern about being able to monitor the channel for use prior to transmitting was mitigated by the fact that 800 MHz National Interoperability Channels were dedicated interoperability channels, while SOAs were open to all any ARMER user for any use. The workgroup understood that *interoperability* did not mean that the event has to be an emergency or large in scale and contended that this solution provided for *interoperability*.

Further benefits of this solution include that National Interoperability Channels (8TACs) are already programmed into all ARMER radios so no reprogramming would be necessary. The addition of a local 8TAC repeater enhanced interoperability as a whole. 8TACs may operate at a higher power than SOAs. Because there are four 8TACs available, there is more channel planning flexibility.

It was presumed that the OTC would forward this idea to the Interoperability Committee for consideration. If the OTC and the IOC both approve of utilizing a National Interoperability Channel rather that an SOA channel, the workgroup believed that this issue would no longer warrant review under the Change Management process.

The Workgroup recommended that I report its findings at the next OTC meeting.

Change Manage Progress Form
Scene of Action Repeater (SOAR)

Summary of Suggestion
Request to use conventional channel SOA-3 as a repeated channel to provide a low cost coverage solution in rural areas where in-building ARMER coverage suffers and without demand or resources for ARMER enhancements.

Change Sponsor *(entity)*
Central Emergency Communications Board for Stevens County.

Sponsor's Representative (person)
Micah Meyers

First Introduction to an OTC or IOC
October 13, 2015

Standard(s) Impacted
3.15.0 (Use of 700 MHz and 800 MHz Statewide Scene of Action (SOA) Channels)
3.24.0 (RF Control Stations)?
3.25.0 (Radio to Radio Cross Band Repeaters)?
3.33.3

Technical/System Change Suggestion

OTC Decision about whether Technical/System Change Suggestion would be a Major or Minor Change (if applicable)	
Major	Minor
On 4/12/2016 the OTC identified this as a Major Change Management request.	← Identified as a Major Change

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
May 10, 2016: OTC asked Al Fjerstad to form and lead a workgroup to explore this question. The workgroup was authorized to move this item on to MnDOT and System Admins for input. June 14, 2016: Al reported to OTC that there was a poor response to his request for workgroup members. OTC guided that he try again and then move forward. July 18, 2016: Al reported he was too busy at work to follow up. Jim will get group formed to review the "necessity and benefit" of this proposal. Al provided Workgroup membership info to Jim. July 28, 2016 Workgroup met and recommended using an 8TAC instead of an SOA. Memo drafted and sent to OTC.	n/a

If a Major Technical/System Change
MnDOT Technical Review

If a Major Technical/System Change

Change Manage Progress Form
Scene of Action Repeater (SOAR)

System Administrator Review

If a Major Technical/System Change
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: Interop Cmte identified this as a MAJOR change and empowered the workgroup to sort out the next steps, per standard. May 18, 2016: Email sent to Al advising that the IOC wants to add two people to the workgroup and offering assistance if those volunteers do not become apparent. Workgroup should consider • Comm Truck additions • Ability to be encrypted	n/a

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
5/18 This should be decided by the workgroup	

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

Change Manage Progress Form
Scene of Action Repeater (SOAR)

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
ECN Report

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

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

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

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

---

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	

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)

If a Major Operational/SOP Change

Change Manage Progress Form

Additional Encrypted LTAC Talkgroups

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

Project Status Report

Reporting Period July 1, 2016 through August 1, 2016

Executive Summary

Overall Status:

	Green (Controlled)	Yellow (Caution)	Red (Critical)	Reason for Deviation
Budget	☒ ☐ ☐	☐ ☐	☐	
Schedule	☐ ☐ ☐	☐ ☒	☐	Land acquisition delays will impact completion of some sites
Scope	☒ ☐ ☐	☐ ☐	☐	

ARMER Backbone

97%

On-the-air

Controls

Issue Status:

Change Status:

- No pending plan changes

Accomplishments

Accomplishments during this Reporting Period:

- The following sites went on the air:
- The land acquisition has been completed for the following sites:

Budget

Construction Budget Status as of August 1, 2016

Project Funding	Original Budget	Spent to Date	Unspent Balance Remaining	Encumbered	Available Balance
Phase 3	$45,000,000	$44,952,397.19	$47,602.82	$0.00	***COMPLETE**
SRB Funds (FY 09)	$1,902,831.00	$1,902831.00	$0	$0	**COMPLETE**
Phase 456 (FY 09)	61,996,957.89	$61,981,069.99	$15,887.90	$15,887.90	$ 0.00
Phase 456 (FY 10)	$62,015,407.77	$61,912,097.77	$103,310.00	$103,310.00	$ 0.00
Phase 456 (FY 11, 12, 13)	$61,987,634.34	$54,859,346.68	$7,128,287.66	$2,132,660.47	$ 4,995,627.19
Total Phase 456	$186,000,000.00	$178,752,514.44	$7,247,485.56	$2,251,858.37	**$ 4,995,627.19**
Projected Contingency as of August 1, 2016					$290,627.19

Comments:

Scheduled Milestones / Deliverables

Status updated August 1, 2016

Milestone	Total Sites	Sites Not Started	Sites in Progress	Sites Complete
ARMER Backbone Construction	335 Sites			
Tower Site Acquisition	335	0	7	
Tower Construction & Site Development Work	335	7	6	
Microwave Connectivity & RF Deployment	335	11	0	326 On the Air

Some Sites are on the air, but on the old towers or temporary towers. They are counted as on the air, but still require construction and/or installation at the new tower sites before they are complete:

- Finland
- Duluth South
- Eden Valley
- Lake Crystal

Of the 326, 4 are on temporary sites; sites construct and move still in the works.

SE – all sites completed
SR – 1 land acquisitions remaining, 1 new site plus leased site replacement for Lake Crystal.
SW – all sites completed
CM – Leased site replacement for Eden Valley, construction in process.
Metro – all sites completed
NW – 2 land acquisitions remaining.
NE – 3 land acquisitions remaining, 5 site under construction.

<u>Completion Targets</u>

ARMER all Phases:

4 original plan sites will be delayed due to delays in land acquisition.

Ongoing ARMER System Work

Motorola System Upgrade

- 7.15 upgrade in process. Master site upgrades completed. RF sites software upgraded. Working through dispatch center upgrades.
- Working on contracts for billing with local agencies involved in 7.19 equipment replacements under the Motorola contract.
- 2016 Motorola SUAII local agency billings received.
- SUAIIPlus 7.19 equipment upgrades. Over the next 5 years before we can go to Motorola system release 7.19 all circuit based simulcast and Quantar based ASR sites need to be upgraded. The hardware and services are all included in our current SUAIIPlus contract. We have meet with the agencies that this involves and we have come up with the following tentative implementation schedule for these upgrades:

System	Equipment order	Install
St Cloud subsystem	1st half 2016(Rcvd)	2nd half 2016
Stearns ASR sites	1st half 2016(Rcvd)	2nd half 2016
Enfield(Wright-Sherburne) subsystem	1st half 2016(Rcvd)	2nd half 2016
Goodhue subsystem	1st half 2016(Rcvd)	2nd half 2016
North Branch(Isanti-Chisago) subsystem	1st half 2016(Rcvd)	2nd half 2016
City Center	1st half 2016(Rcvd)	2nd half 2016
Olmsted subsystem	2nd half 2016	2nd half 2016
Hennepin SAT COW ASR	2nd half 2016	2nd half 2016
Norwood (Carver- Scott) subsystem	1st half 2017	1st half 2017
Hennepin West subsystem	2nd half 2017	2nd half 2017
Washington subsystem	1st half 2018	1st half 2018
Minneapolis subsystem	2nd half 2018	2nd half 2018
Dakota subsystem	1st half 2019	1st half 2019
Hennepin East subsystem	2nd half 2019	2nd half 2019
Anoka subsystem	1st half 2020	1st half 2020
Ramsey subsystem	2nd half 2020	2nd half 2020

Planned system upgrades during this contract period are:

- 7.15 May of 2016
- 7.17 May of 2018
- 7.19 End of 2020

Site improvements

- Still working on the addition of card key reader to the equipment shelters. Working on installs, 98% of the sites completed.

- We are continuing our review of our leased sites/land. Plans had always been to build towers in these areas, but to get the project moving we leased sites to get on the air. In review of some of the land and lease cost it would make sense to find land in these areas and build towers. Also

looking at long term land lease from private parties, would prefer to have towers we own on state, County or City owned land.

- Replace Lake Crystal leased site with 2 new sites. This adds a new site to the area.

Microwave improvements

- At this point we have identified one bad path where an intermediate microwave site is needed. So we are looking to add a microwave site somewhere in the Cromwell area to split the Lawler – Moose Lake link. Tower contract awarded. Site construction in process.

- Still reviewing microwave performance, ongoing.

VHF interop layer

- VPN access for access to MotoBridge network has been worked out. Remote access is now working.
- Working on plans in the metro area to simplify the VHF interop layer as we move from Gold Elites to 7500s.

Old towers that need replacement

- We have a number of towers that are on the air for ARMER that are old towers constructed in the 1950's. These towers did not pass structural when we added the new ARMER equipment. But the level of structural deficiency was not a risk that required immediate replacement. So we have held off on replacement of these towers to see where we were in the ARMER budget to build what we had planned. We are still holding off on these until we are a little further along with ARMER. Towers not replaced under the ARMER project will be scheduled for replacement as the ARMER maintenance budget allows, estimate 1 to 2 per year until completed.

ARMER Construction Budget (Remaining Work)

			Unencumbered Fund Balance (As of August 1, 2016)		$4,995,627.19
Site Name (Green - site on air)	**County**	**Description**	**Land/ Construction**	**Estimate to Complete**	**Balance**
Madelia	Watonwan	New tower	Specs at Bldg Sec	$350,000.00	$4,645,627.19
Lake Crystal	Blue Earth	New tower	Specs at Bldg Sec	$575,000.00	$4,070,627.19
Red Lake	Beltrami	Lease tower/New Shelter	Red Lake-Lease	$505,000.00	$3,565,627.19
Finland	Lake	Replace Tower	Envir	$440,000.00	$3,125,627.19
NE Lake County	Lake	New tower	DNR/Envir	$930,000.00	$2,195,627.19
Lima Mt	Cook	New tower	DNR/Envir	$880,000.00	$1,315,627.19
Molde	St Louis	Replace fire tower	DNR/Envir	$320,000.00	$995,627.19
Berner	Clearwater	New tower	Indent Land	$505,000.00	$490,627.19
PENDING WORK					
Site clean up, shelter and tower removals				$200,000.00	$290,627.19
				$0.00	$290,627.19
TOWER REPLACEMENTS (This work being held until above projects compeleted)					
Cass Lake	Replace tower	Working on spec for replacement		$600,000.00	
Windom	Replace tower	Working on spec for replacement		$600,000.00	
Freedhem	Replace tower			$600,000.00	
Middle River	Replace tower			$600,000.00	
Theif River Falls	Replace tower			$600,000.00	
Virginia	Replace tower			$600,000.00	
Viola	Replace tower			$600,000.00	
Kimball	Replace tower			$600,000.00	
Hoffman	Replace tower			$600,000.00	
New London	Replace tower			$600,000.00	
Woodland	Replace tower			$600,000.00	
Littlefork	Replace tower			$600,000.00	
Roosevelt	Replace tower			$600,000.00	
Hewit: Land Purchase, replace tower.				$500,000.00	
Scandia: Need to look at land purchase.				$100,000.00	
Geneva: Need to look at land purchase, new tower ?				$500,000.00	
Mapleton: Find land and build new tower				$500,000.00	
Red Wing: Land purchase				$100,000.00	

Allied Radio Matrix for Emergency Response

ARMER

Project Status Report

Reporting Period June 1, 2016 through July 1, 2016

Executive Summary

Overall Status:

	Green (Controlled)	Yellow (Caution)	Red (Critical)	Reason for Deviation
Budget	☒ ☐ ☐	☐ ☐	☐	
Schedule	☐ ☐ ☐	☐ ☒	☐	Land acquisition delays will impact completion of some sites
Scope	☒ ☐ ☐	☐ ☐	☐	

ARMER Backbone

97%

On-the-air

Controls

Issue Status:

Change Status:

- No pending plan changes

Accomplishments

Accomplishments during this Reporting Period:

- The following sites went on the air:
- The land acquisition has been completed for the following sites:
  - Madelia

Budget

Construction Budget Status as of July 1, 2016

Project Funding	Original Budget	Spent to Date	Unspent Balance Remaining	Encumbered	Available Balance
Phase 3	$45,000,000	$44,952,397.19	$47,602.82	$0.00	***COMPLETE**
SRB Funds (FY 09)	$1,902,831.00	$1,902831.00	$0	$0	**COMPLETE**
Phase 456 (FY 09)	61,996,957.89	$61,981,069.99	$15,887.90	$15,887.90	$ 0.00
Phase 456 (FY 10)	$62,015,407.77	$61,912,097.77	$103,310.00	$103,310.00	$ 0.00
Phase 456 (FY 11, 12, 13)	$61,987,634.34	$54,124,126.26	$7,863,508.08	$2,850,297.17	$ 5,013,210.91
Total Phase 456	$186,000,000.00	$178,017,294.02	$7,982,705.98	$2,969,495.07	**$ 5,013,210.91**
Projected Contingency as of July 1, 2016					$308,210.91

Comments:

Scheduled Milestones / Deliverables

Status updated July 1, 2016

Milestone	Total Sites	Sites Not Started	Sites in Progress	Sites Complete
ARMER Backbone Construction	335 Sites			
Tower Site Acquisition	335	0	8	
Tower Construction & Site Development Work	335	8	5	
Microwave Connectivity & RF Deployment	335	11	0	326 On the Air

Some Sites are on the air, but on the old towers or temporary towers. They are counted as on the air, but still require construction and/or installation at the new tower sites before they are complete:

- Finland
- Duluth South
- Eden Valley
- Lake Crystal

Of the 326, 4 are on temporary sites; sites construct and move still in the works.

SE – all sites completed
SR – 1 land acquisitions remaining, 1 new site plus leased site replacement for Lake Crystal.
SW – all sites completed
CM – Leased site replacement for Eden Valley, construction in process.
Metro – all sites completed
NW – 2 land acquisitions remaining.
NE – 3 land acquisitions remaining, 5 site under construction.

<u>Completion Targets</u>

ARMER all Phases:

4 original plan sites will be delayed due to delays in land acquisition.

Ongoing ARMER System Work

Motorola System Upgrade

- 7.15 upgrade in process. Master site upgrades completed. RF sites software upgraded. Working through dispatch center upgrades.
- Working on contracts for billing with local agencies involved in 7.19 equipment replacements under the Motorola contract.
- 2016 Motorola SUAII local agency billings received.
- SUAIIPlus 7.19 equipment upgrades. Over the next 5 years before we can go to Motorola system release 7.19 all circuit based simulcast and Quantar based ASR sites need to be upgraded. The hardware and services are all included in our current SUAIIPlus contract. We have meet with the agencies that this involves and we have come up with the following tentative implementation schedule for these upgrades:

System	Equipment order	Install
St Cloud subsystem	1st half 2016(Rcvd)	2nd half 2016
Stearns ASR sites	1st half 2016(Rcvd)	2nd half 2016
Enfield(Wright-Sherburne) subsystem	1st half 2016(Rcvd)	2nd half 2016
Goodhue subsystem	1st half 2016(Rcvd)	2nd half 2016
North Branch(Isanti-Chisago) subsystem	1st half 2016(Rcvd)	2nd half 2016
City Center	1st half 2016(Rcvd)	2nd half 2016
Olmsted subsystem	2nd half 2016	2nd half 2016
Hennepin SAT COW ASR	2nd half 2016	2nd half 2016
Norwood (Carver- Scott) subsystem	1st half 2017	1st half 2017
Hennepin West subsystem	2nd half 2017	2nd half 2017
Washington subsystem	1st half 2018	1st half 2018
Minneapolis subsystem	2nd half 2018	2nd half 2018
Dakota subsystem	1st half 2019	1st half 2019
Hennepin East subsystem	2nd half 2019	2nd half 2019
Anoka subsystem	1st half 2020	1st half 2020
Ramsey subsystem	2nd half 2020	2nd half 2020

Planned system upgrades during this contract period are:

- 7.15 May of 2016
- 7.17 May of 2018
- 7.19 End of 2020

Site improvements

- Still working on the addition of card key reader to the equipment shelters. Working on installs, 98% of the sites completed.

- We are continuing our review of our leased sites/land. Plans had always been to build towers in these areas, but to get the project moving we leased sites to get on the air. In review of some of the land and lease cost it would make sense to find land in these areas and build towers. Also

looking at long term land lease from private parties, would prefer to have towers we own on state, County or City owned land.

- Replace Lake Crystal leased site with 2 new sites. This adds a new site to the area.

Microwave improvements

- At this point we have identified one bad path where an intermediate microwave site is needed. So we are looking to add a microwave site somewhere in the Cromwell area to split the Lawler – Moose Lake link. Tower contract awarded. Site construction in process.

- Still reviewing microwave performance, ongoing.

VHF interop layer

- VPN access for access to MotoBridge network has been worked out. Remote access is now working.
- Working on plans in the metro area to simplify the VHF interop layer as we move from Gold Elites to 7500s.

Old towers that need replacement

- We have a number of towers that are on the air for ARMER that are old towers constructed in the 50's. These towers did not pass structural when we added the new ARMER equipment. But the level of structural deficiency was not a risk that required immediate replacement. So we have held off on replacement of these towers to see where we were in the ARMER budget to build what we had planned. We are still holding off on these until we are a little further along with ARMER. Towers not replaced under the ARMER project will be scheduled for replacement as the ARMER maintenance budget allows, estimate 1 to 2 per year until completed.

ARMER Construction Budget (Remaining Work)

				Unencumbered Fund Balance (As of July 1, 2016)	$5,013,210.91
Site Name (Green - site on air)	**County**	**Description**	**Land/ Construction**	**Estimate to Complete**	**Balance**
Madelia	Watonwan	New tower	Ready	$350,000.00	$4,663,210.91
Finland	Lake	Replace Tower	Envir	$440,000.00	$4,223,210.91
NE Lake County	Lake	New tower	DNR/Envir	$930,000.00	$3,293,210.91
Lima Mt	Cook	New tower	DNR/Envir	$880,000.00	$2,413,210.91
Red Lake	Beltrami	New tower	Indent Land	$505,000.00	$1,908,210.91
Lake Crystal	Blue Earth	New tower	Envir/Lease	$575,000.00	$1,333,210.91
Molde	St Louis	Replace fire tower	DNR/Envir	$320,000.00	$1,013,210.91
Berner	Clearwater	New tower	Indent Land	$505,000.00	$508,210.91
PENDING WORK					
Site clean up, shelter and tower removals				$200,000.00	$308,210.91
				$0.00	$308,210.91
TOWER REPLACEMENTS (This work being held until above projects compeleted)					
Cass Lake	Replace tower	Working on spec for replacement		$600,000.00	
Windom	Replace tower	Working on spec for replacement		$600,000.00	
Freedhem	Replace tower			$600,000.00	
Middle River	Replace tower			$600,000.00	
Theif River Falls	Replace tower			$600,000.00	
Virginia	Replace tower			$600,000.00	
Viola	Replace tower			$600,000.00	
Kimball	Replace tower			$600,000.00	
Hoffman	Replace tower			$600,000.00	
New London	Replace tower			$600,000.00	
Woodland	Replace tower			$600,000.00	
Littlefork	Replace tower			$600,000.00	
Roosevelt	Replace tower			$600,000.00	
Hewit: Land Purchase, replace tower.				$500,000.00	
Scandia: Need to look at land purchase.				$100,000.00	
Geneva: Need to look at land purchase, new tower ?				$500,000.00	
Mapleton: Find land and build new tower				$500,000.00	
Red Wing: Land purchase				$100,000.00	

Monthly Project Summary

James Stromberg
ARMER Program Manager & Statewide Interoperability Coordinator

Date	July 29, 2016		**Committee Priority**	OTC
Project	Change Management			
Progress	**1st Quarter**	**2nd Quarter**	**3rd Quarter**	**4th Quarter**
	On Track	On Track	On Track	

Summary

The project objective is to review, revise, and implement a new Change Management process and state standard.

The key steps are:

- Create a working group to address the issue
- Refine the current process
- Carefully consider timelines of state and local budget cycles as part of the process
- Memorialize new process in an updated standard
- Seek approval of the new process and standard from OTC and SECB

Current Status

- The Workgroup has created a new standard and submitted it to the OTC for approval.
- The Standard was approved by the OTC and forwarded to the SECB. The SECB has tabled the matter for additional review by the Metro region.
- The Change Management Workgroup received and reviewed recommendations from the Metro. A new draft standard implementing some of the proposed changes was sent to the regions for review.

Challenges

- An updated standard appears to be on track for approval and no challenges are apparent.

Monthly Project Summary

James Stromberg
ARMER Program Manager & Statewide Interoperability Coordinator

Date	July 29, 2016		**Committee Priority**	OTC
Project	7.19 Upgrade Monitoring			
Progress	**1st Quarter**	**2nd Quarter**	**3rd Quarter**	**4th Quarter**
	On Track	On Track	On Track	

Summary

The project objective is to monitor the ARMER 7.19 upgrade to ensure that hardware and software upgrades are remunerated and received consistent with contract.

The key steps are:

- Meet with Motorola and MnDOT to identify tracking process.
- Create a tracking tool to monitor process.

Current Status

- MnDOT has defined a schedule for rollout.
- MnDOT has added rollout reporting to their monthly ARMER report.
- MnDOT has shared it SUA2 Plus Monitoring Worksheet with ECN.
- MnDOT is forwarding invoices to ECN and ECN has started reconciling contract deliverables against packing slips and invoices.

Challenges

- No specific challenges are apparent

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	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.