

# METROPOLITAN EMERGENCY SERVICES BOARD

## RADIO TECHNICAL OPERATIONS COMMITTEE AGENDA

Board Room, Metro Counties Government Center  
September 28, 2016  
1:00 – 3:00 p.m.

### MEMBERS:

Ulie Seal, Chair  
MN Fire Chiefs Association

Ron Jansen, Vice Chair  
Dakota County

Jake Thompson  
Anoka County

Tim Walsh  
Carver County

Rod Olson  
City of Minneapolis

Jon Eckel  
Chisago County

John Gundersen  
Hennepin County

Bob Shogren  
Isanti County

Jeff Bjorklund  
Metropolitan Airports  
Commission

Chad LeVasseur  
Metropolitan Council

Iver Johnson  
Metro Region EMS

Dave Pikal  
Ramsey County

Scott Haas  
Scott County

Chuck Steier  
U of M Police, at large  
member

Nate Timm  
Washington County

Open  
MN Chiefs of Police  
Association

1. Call to Order
2. Approval of August 24th, 2016 Minutes
3. Agenda Items
  - a. MN DHS ARMER Plan Follow up – Rey Freeman
  - b. Anoka County Participation Plan Amendment – Thompson
  - c. Hennepin County Participation Plan Amendment – Meyer
  - d. HCMC Participation Plan Amendment – Wendy Lynch
  - e. FY2017 Grant Funding Priorities – Tretter
  - f. SOAR Change Management Memo – Kummer/Olson
  - g. LTAC-E Change Management Memo - Tretter
4. Moves, Additions & Changes to the System
  - a. Anoka County Water Tower Sites Repainting - Thompson
  - b. Update on Removal of Voting from Interoperability System – Jansen
    - a. October 3<sup>rd</sup>, cut-over.
    - b. CCGW Moves from MnDOT to HCGC & City Center
  - c. Removal of dual naming on metro channels in Statusboard - Jansen
  - d. IP Simulcast Conversion
    - a. City Center – 7 September
    - b. North Branch – End of October
5. Committee Reports
  - a. Metro Mobility System Usage Update—Chad LeVasseur/Dana Rude
  - b. System Manager's Group/Metro Owner's Group Update – Jansen
  - c. Reports from SECB Committees
    - i. Steering - Tretter
    - ii. OTC – Jansen / Gundersen
    - iii. Interoperable Data Committee – Olson / Thompson
    - iv. IOC – Jansen / Kummer
  - d. Scene of Action Repeater (SOAR) Workgroup – Olson / Kummer
  - e. 911 TOC Feedback on Metro Zone Change Management Proposals - Tretter
6. Other Business
  - a. Regional Talkgroup Permissions Updates
  - b. Next Meeting October 26<sup>th</sup>.
    - a. TOC & SECB Committee Chair/Vice
7. Adjourn

**Metropolitan Emergency Services Board  
Radio Technical Operations Committee  
Meeting Notes  
August 24, 2016**

**Members Present**

Ulie Seal; Chris Kummer; Dana Rude; Curt Meyer; Jon Eckel; Ron Jansen; Nate Timm; Chad LeVasseur; John Gunderson; Iver Johnson.

**Guests Present:**

Jill Rohret, MESB; Troy Tretter, MESB; Tom Folie, LOGIS; Jim Jarvis, OEC, Jim Stromberg, ECN; Rick Juth; ECN; Rey Freeman, Rey Freeman Consulting; Bill Schmidt, MDH; Butch Gillum, Bloomington PD.

Ulie Seal proceeded with meeting business until a quorum could be reached.

**Introductions**

**Draft Standard Review – 3.17.5 Incident Tactical Dispatcher (INTD)**

Chris Kummer stated that the Metro Communications Response Taskforce made up of the metro's COMLs, COMTs and Incidence Dispatchers. The intent of this standard is to establish protocols and procedures to be used for certification and re-certification of Incident Tactical Dispatcher (INTD) in Minnesota. The COMLs and COMTs have already been certified. All have been reviewed by the CRTF Steering Committee.

**Draft Standard Review – 3.17.6 Radio Operator (RADO)**

The intent of this standard is to establish protocols and procedures to be used for certification and re-certification of the Radio Operator (RADO) in the Metro Region of Minnesota.

Jim Jarvis suggested that RADO be named on certificate in case it is ever adopted by FEMA.

**Draft Standard Review – 3.17.5 Incident Communication Center Manager (INCM)**

The intent of this standard is to establish protocols and procedures to be used for certification and re-certification of the Incident Communication Center Manager (INCM) in Minnesota.

Jim Jarvis added that most other states have gotten away from the term certified. The state suggests due diligence is done before it is approved at the state level. The standards other than a couple of typos look good. He suggested adding that records be shared with HSEM.

Jill Rohret added the ECN is currently the manager of the COMLs and COMTs recognition.

**Moves, Additions & Changes to the System**

**Update on Removal of Voting from Interoperability System**

Jansen said that there has been no movement VHF overlay since our last meeting. It is still scheduled for cutover October 3<sup>rd</sup>. You will have to reconfigure and reboot. It will be a tiered approach and move to simulcast sometime in 2020.

**CCGW moves from MnDOT to HCGC and City Center.**

Those slated for IP upgrade to simulcast are:

August 31 - City Center, September 7<sup>th</sup> - St. Cloud, September 28<sup>th</sup> - Zumbrota, October 5<sup>th</sup> - North Branch, October 26<sup>th</sup> - Enfield, December 7<sup>th</sup> - Olmsted.

## **Committee Reports**

### **Metro Mobility System Usage Update**

Dana reported there were no issues, July was a quiet month for transports.

### **System Manager's Group/Metro Owner's Group Update**

Ron Jansen said the discussion this month was the IP simulcast update.

MnDOT went through a number of updates.

Motorola going through what is left of punch list for the 7.15 upgrade.

Metro Owners Group, there will be a briefing from Microwave Networks International (MNI) on a possible update to the microwave links in the next 3-5 years.

## **Reports from SECB Committees**

### **Steering**

Tretter said the only report from the Steering Committee was from the subsystem roaming group. It addressed conflict resolution of region to region roaming. The agenda item was to have the two standards combined go before the standards working group and then on to the OTC before coming back to the Steering Committee.

Jill Rohret asked Jim Stromberg to clarify if the roaming standard would be separate from the other conflict resolution standard. Jim stated that yes, it would be separate.

### **OTC**

Ron Jansen said there was a very lengthy discussion on the LTACs and LTACEs. Interop subcommittee to piggyback on the OTCs work.

Tretter said the change management standard did pass.

Tretter briefed about the OTC discussion to allow LTACs on non-law enforcement radios. There was no formal vote, but there was a consensus that they should not be allowed. There was some discussion that the cache radios with LTAC's programmed should be for Law Enforcement only.

### **Scene of Action Repeater (SOAR) Workgroup**

Jim Stromberg told members it is moving forward. As of the last discussion, there is general opposition to the scene of action as a repeated resource. Rod has a very simple solution for that, he will address it with the workgroup.

*Quorum was reached with John Gunderson attendance.*

## **MN DHS ARMER Plan Follow up**

Rey Freeman asked members approve the amendment to their ARMER plan that had been presented at the MESB TOC in March of 2016. The plan has not been approved at this point and Ray said that getting changes made and sending back to administration would be very time consuming.

It was suggested by Ulie Seal that rather than amending the plan, the adjustments should be made and then submit the completed plan. Rey Freeman and Bill Schmidt agreed and will make the changes before submitting back to the TOC.

John Gunderson said that he agrees the plan looks good, he would just need to have come back to the MESB before it is officially approved.

### **TriTech interface to MCC7500**

Tom Folie; LOGIS Public Safety Manager asked for approval to upgrade interface MCC7500 at some of the PSAPs. Tom said the interface would reside on the MCC7500 Console. John Anderson said they have been working with LOGIS and TriTech, the file can't be at the MSO. The plan submitted by LOGIS is the way to do it. He adds that MnDOT approves.

Ulie asked Ron Jansen how Dakota County is doing the interface. Ron said Dakota is using U.S. Digital Design.

Jon Eckel asked how it (the interface) ports are assigned for routing, port and destination, to prevent the program from introducing a virus. It opens up more risk.

Tom Folie said he is not the technical expert, TriTech is.

Jon Eckel raised issues this needs to be tested to ensure it does not propose a risk to the ARMER system.

Nate Timm asked Ron Jansen how Ramsey County does it. Ron said they using U.S. Digital Design as well.

Tom Folie said that the API will press the button on the console for the paging tones.

Butch Gillum added this interface would be paging tones only, not voice.

*M/S/C Motion made by Jansen to approve upgrade of interface MCC7500. Nate Timm seconded. Motion carried.*

Jill Rohret clarified that this request to approve interface upgrade will still need state board approval.

### **Minutes of the July 27, 2016 Meeting**

*M/S/C Motion made by Gunderson to approve the July 27, 2016 minutes. Eckel seconded. Motion carried.*

**Next Meeting - September 28.**

# State of Minnesota DHS



Minnesota Department of **Human Services**

## ARMER Radio Participation Plan

Rev. August 2016

## Contents

<b>I.</b>	<b>Introduction .....</b>	<b>I</b>
A.	ARMER System Application – State of Minnesota DHS .....	I
B.	Agency and Project Summary .....	2
C.	Jurisdictional Coverage of System.....	4
D.	Entities and Users Participating in the Planned System.....	4
E.	Existing Radio System Configurations.....	6
<b>2.</b>	<b>ARMER System Technical Review.....</b>	<b>7</b>
A.	System Design .....	7
i)	System Infrastructure and Tower Site Planning .....	7
ii)	Local Equipment Additions and Enhancements.....	10
iii)	Dispatch Center Console Equipment and Connectivity .....	12
iv)	Logging and Recording .....	12
v)	Subscriber Radios .....	17
vi)	System Talk Group Planning and ID Requirements .....	17
vii)	800 MHz System Traffic Loading Review.....	18
viii)	Legacy Radio System Equipment.....	27
B.	Coverage Review .....	28
i)	Design Parameters .....	28
ii)	Coverage Propagation Mapping .....	28
C.	Contingency Planning .....	33
D.	Training.....	34
E.	Interoperability .....	34
F.	Standards .....	35
G.	Alarms and Monitoring .....	35

H.	Maintenance.....	35
I.	System Administration.....	35
3.	<b>Project Costs and Budget.....</b>	<b>36</b>
4.	<b>Project Implementation .....</b>	<b>37</b>
	<b>References .....</b>	<b>38</b>

**Attachment 1A: DHS Primary ARMER Locations Map**

**Attachment 1B: DHS Secondary ARMER Locations Map**

**Attachment 2: List of Low-Tier, Secondary Non-Dispatch Locations**

**Attachment 3A: DHS Existing ARMER Talk Groups (Fleet map)**

**Attachment 3B: DHS Proposed ARMER Talk Groups (Primary locations)**

**Attachment 3C: DHS Proposed ARMER Talk Groups (Secondary locations)**

**Attachment 4: DHS ARMER Radio Inventory (Existing and Proposed)**

# ARMER Participation Plan

---

## I. Introduction

---

### A. ARMER System Application – State of Minnesota/Department of Human Services

The State of Minnesota Department of Human Services (DHS) requests approval of this new ARMER Participation Plan for continued participation in and use of the State of Minnesota Allied Radio Matrix for Emergency Response (ARMER) radio system. The agency is a “Full Participant” in the ARMER system, and has been utilizing the ARMER system at select locations for the past 5 years through the existing joint Participation Plan approved in 2009 for the State DHS and DOC (Department of Corrections).

DHS requests that this application and plan be reviewed and approved by the following agencies:

- ☐ Metropolitan Emergency Service Board (MESB)
- ☐ State of Minnesota Operations and Technical Committee (OTC)
- ☐ State of Minnesota Emergency Communications Board (SECB)

In 2009 the DHS and DOC jointly submitted and received approval of an ARMER Participation Plan developed to cover both agencies’ use of the ARMER radio system. This plan specifically incorporated the physical locations where ARMER radio equipment was being implemented, and the system would be used on a constant basis. Both agencies established a contract to use the system through this initial plan process.

In 2014, the two agencies determined that each should employ independent ARMER plans, to better allow for changes in operations and equipment, in conjunction with use of the system. The DOC submitted a new plan in November 2014 which was approved, and effectively removed the DOC from the previous joint plan. The DHS has now prepared this plan to address their use of the ARMER system. Upon approval of this DHS plan, the joint plan submitted in 2009 will be deleted.

Additionally, DHS has an existing Limited Participation Plan that covers the use of a relatively small number of radios for the following agency operations:

- ☐ “REP” (Radiological Emergency Preparedness) program
- ☐ Security staff at various Minneapolis/St. Paul DHS administrative locations

The radios and operations included in these existing plans are incorporated into this new “Full” participation plan. Details of the use of the radios for these existing operations are provided in following sections of this new plan.

This new DHS plan has been developed based on the requirements and operational standards established for participation in and use of the ARMER radio system<sup>1</sup>, and carries forth the core criteria established in the previous joint plan, along with the addition of new plan data. The agency desires to continue their



contract with the MESB and the State of Minnesota Department of Transportation (MnDOT) for use of the ARMER system.

A list of the department and locations within the agency to be included in the use of this system is provided in Section I.D of this planning document.

## **B. Agency and Project Summary**

The Department of Human Services is the largest agency within the State of Minnesota organization, and operates or oversees over 150 facilities of various sizes throughout the state. These facilities range from high security operations such as the MSOP (Minnesota Sex Offender Program) facilities in Moose Lake and St. Peter, State Hospitals (MSHS) in Anoka, Brainerd, and St. Peter to Community Behavioral Health Hospitals, as well as other lower-level facilities.

Currently, the only locations incorporated into previous joint ARMER plan were the Moose Lake and St. Peter MSOP facilities, along with the REP and Security use included in the existing Limited plan. The use of 800 MHz ARMER radio system equipment has proven critical to successful operations at these facilities. The DHS has been working to determine what additional facilities should be considered for the future implementation of 800 MHz ARMER radio system equipment; some locations now utilize UHF radio system equipment, and other locations have no radio communications and utilize cellular telephones.

The general classification of DHS facilities included in this plan are as follows:

1. High-tier, Primary Dispatch operations: 4 locations, including St. Peter and Moose Lake MSOP, etc. These facilities will include 100+ radios, along with dispatch console equipment and direct connectivity into the ARMER system infrastructure.
2. Mid-tier, Primary Non-dispatch operations: 1 existing and 11 proposed locations, including smaller State Hospitals and addiction recovery facilities. These facilities will include 20 to 40 radios, and not use any system-based dispatch console equipment.
3. Low-tier, Secondary Non-dispatch operations: Approximately 140 locations, including community-based juvenile and adult behavioral and addiction treatment facilities. These facilities will have no more than 5 radios, and no dispatch equipment.
4. Mobile/portable-only non-facility based operations, including the REP program and Facility Security and Maintenance operations at Metro office locations.

*Refer to the detailed agency review in the next section of this plan, along with the associated facility acronym list.*

***Note: Although this plan incorporates many new locations for potential ARMER radio usage, no immediate plans are being made for the purchase and implementation of additional ARMER radios for any of the facilities or locations included in this plan. Any new radios included in this plan are to be considered potential long-term purchases. As such, this plan shall be considered a future long-term “phased” implementation plan, as funding and budgeting becomes available.***

**The total number of ARMER radios to be covered by this new ARMER plan are as follows:**

- ☐ 500 existing radios (Moose Lake and St. Peter MSOP's, REP program, and )
- ☐ 20 existing REP and Security radio operations
- ☐ 1,220 new radios forecasted for future implementation at other facilities

The primary goals of a new radio communications system are:

- ☐ Provide improved radio communications reliability, coverage, and capacity through ARMER system use
- ☐ Replacement of the existing aging VHF and UHF radio system equipment
- ☐ Provide expanded DHS and region wide interoperability between public safety agencies

The usage of the ARMER system by DHS operations and personnel will be in the following areas:

- ☐ General operations
- ☐ Security
- ☐ Facility maintenance
- ☐ Wide-area event, emergency response and activity coordination

Through this planning process, the DHS has concluded that continued use, and eventual expansion of 800 MHz ARMER radio system use will best meet the needs of the agencies radio communications goals, and will provide the required level of interoperability between public safety agencies throughout the state.

The primary points of contact for this project are:

William Schmidt  
Tactical Communications Coordinator  
625 N. Robert St.  
St. Paul, MN 56537  
651-201-5716 Phone  
[William.Schmidt@state.mn.us](mailto:William.Schmidt@state.mn.us)

Rey Freeman  
RFCC  
13517 Larkin Drive  
Minnetonka, MN 55305  
952-541-0747 Phone  
[rfreeman@geo-comm.com](mailto:rfreeman@geo-comm.com)

### C. Jurisdictional Coverage of System

The radio system is intended to provide radio communications services at the DHS facilities located throughout the State of Minnesota. ***The use of ARMER radios at most of the DHS locations is intended to provide coverage within and around the specific locations; the wide-area use of radios and talk groups will be very limited, and dealt with on a specific basis.*** There are no city or county geographical boundaries associated with the DHS's use of the ARMER system.

### D. Entities and Users Participating in the Planned System

It is the intent of DHS and associated agencies within to implement a shared radio system that will incorporate both public safety and additional governmental agencies. For reference purposes, the following list of acronyms of DHS operations and facilities is provided for this plan:

- MSOP: Minnesota Sex Offender Program
- MSHS: Minnesota Specialty Health Systems
- CARE: Community Addiction Recovery Enterprise
- CBHH: Community Behavioral Health Hospital
- CABHS: Child and Adolescent Behavioral Health Services
- MSOCS: Minnesota State Operated Community Services
- REP: Radiological Emergency Preparedness program
- CO: Central Office/Facility and Security Management

As noted in the previous section of this document, the types of facilities incorporated into the DHS plan are grouped into four general classifications:

- I. High-tier, Primary Dispatch Operations (4):
  - a. MSOP Moose Lake (existing); 344 radios, dispatch consoles
  - b. MSOP St. Peter (existing); 149 radios, dispatch consoles
  - c. MSHS Anoka (future); 113 radios, dispatch consoles
  - d. MSHS St Peter (future); 511 radios, dispatch consoles

***These existing facilities currently now have, and will continue to have the greatest ARMER radio inventory and associated system airtime use of the locations included in this plan. This is due to the type of operations involved, along with the number of radios now in service or planned for future usage. All four of these facilities are high-security locations, with high-risk patients and clients. A review of the existing and forecast system airtime usage is provided in Section 2.A.vii of this plan.***

2. Mid-tier, Primary Non-dispatch operations (1 existing, 11 future locations):
  - a. Alexandria (CBHH)
  - b. Annandale (CBHH)

- c. Baxter ((CBHH)
- d. Bemidji (CBHH)
- e. Brainerd (CARE, MSHS)
- f. **Carlton (CARE, existing)**
- g. Fergus Falls (CARE, CBHH)
- h. Rochester (CBHH)
- i. St. Peter (CARE, CBHH) (separate physical location from the MSOP and MSHS)
- j. Wadena (MSHS)
- k. Willmar (CABHS, CARE)
- l. Willmar (MSHS)

Of these locations, only the Carlton CARE facility currently has and uses ARMER radios (20 radios). These facilities will use ARMER radios for a variety of uses, including security, general operations and coordinating patient care, facilities maintenance, and emergency operations. These facilities will have an average of 20 to 25 radios per locations.

***Refer to Table 1 (page 10) of this Plan for a detailed list of these facilities and associated number of radios planned, along with a state wide map of DHS facilities (Attachment 1A) included in the ARMER planning process.***

- 3. Low-tier, Secondary Non-dispatch operations (~140 future locations):

***Refer to Attachment 1B for a map of these locations, and Attachment 2 for a detailed list of these facilities.*** These facilities will have a maximum of 2 to 5 radios per location, with a single Talk Group, and will be used mainly for emergency purposes and coordination with other facility personnel. The expected overall impact on the ARMER system will be very limited.

- 4. Mobile/portable-only non-facility based operations:
  - a. REP program (12 existing radios)

The Radiological Emergency Preparedness (REP) program is a tactical group designed to provide emergency response and coordination for an event or accident involving radiation leaks or exposure at the Monticello and/or Prairie Island nuclear power plants. It is the responsibility of this team to mobilize to the affected area(s) and provide emergency evacuation support, manage Reception Center operations, decontamination of personnel and coordinate related emergency response activities. Communications and coordination with local law, fire and EMS agencies would be included in this work.

The actual use of these radios would be focused in the Wright and Sherburne county areas for the Monticello nuclear plant, and the Goodhue, Wabasha (MN) and Pierce (WI) county areas for the Prairie Island nuclear plant.

The radios are stored in a cache at the DHS Central Office in St. Paul, and deployed when needed for emergency operations and training drills and exercises. The primary use of these radios will be for the purpose of conducting training drills and exercises.

As noted, there are only 12 ARMER radios associated with this program, and potentially 7 talk groups. Most of the talk groups are capable of statewide operation, as is needed for these operations.

b. Facility Security and Maintenance operations at Mpls/St. Paul Metro office locations (8 radios)

DHS currently has 8 radios being used by administrative, security and facilities maintenance staff at their “Anderson” and “Lafayette” locations in downtown St. Paul. There are 4 active talk groups associated with these operations.

## E. Existing Radio System Configuration(s)

The DHS facilities included in this plan are now using both ARMER and non-ARMER VHF and UHF radio equipment at the various locations. The locations now using ARMER are:

- Moose Lake MSOP
- St. Peter MSOP
- REP program
- DHS main offices – St. Paul
- Willmar State Hospital
- Carlton CARE Center (SOA channels only)

All other locations are using local VHF or UHF radio systems and equipment. There is no central dispatch center in place for communications with the different locations around the state, although this is being considered for future implementation.

## 2. ARMER System Technical Review

---

### A. System Design

Since 2009, when the ARMER system was implemented for the DHS Moose Lake and St. Peter MSOP facilities, the system has proven to meet the operational needs of these facilities, and provides enhanced interoperability with the other state and local agencies also using the system.

During the current expanded DHS ARMER system planning process, work was done to determine that the system would meet the needs of the remaining DHS facilities. Because the system provides both local coverage as well as wide-area capabilities, it was concluded that the ARMER system could provide important benefits to the DHS operations. The primary factors included in the planning process:

- ☐ System infrastructure and equipment plans
- ☐ Tower site planning
- ☐ Tower site and Public Safety Answering Point (PSAP) connectivity
- ☐ 800 MHz channel requirements
- ☐ 800 MHz talk group requirements
- ☐ Quantity of end user radios

Specific details of how these system parameters will be addressed are provided in this section of the document.

#### i) System Infrastructure and Tower Site Planning

The DHS plan for use of the ARMER system is geographically diverse, spread out through many areas of the state, and will therefore utilize many of the ARMER tower sites throughout the entire state. The process of identifying the specific tower sites in a plan is to determine which sites will be used by the DHS radio users, the amount of radio traffic expected from these radios, and the potential impact on overall traffic and channel loading at these sites.

The DHS's overall use of the system's tower sites, and the resulting traffic loading will vary widely depending on the type of DHS facility being reviewed. The Moose Lake and St. Peter MSOP locations, with 100's of radios and dispatch console operations, will obviously have a much greater impact on the local tower sites than a smaller location such as Bemidji, which would have 23 portable radios, or Owatonna with 2 radios. It is possible to identify the tower site(s) associated with each proposed DHS facility, however with the large (~155) number of facilities being included in this plan, the approach being used to address this technical issue will be as follows:

- ☐ High-tier, Primary Dispatch locations: A review of the specific tower sites and traffic loading calculations are provided for these four facilities (Moose Lake, St. Peter [2], and Anoka).
- ☐ Mid-tier, Primary Non-dispatch locations: A review of the specific tower sites and traffic loading calculations are provided for these 11 facilities.

- ❑ Low-tier, Secondary Non-dispatch locations: The expected “target” tower site for each of the approximately 140 locations is included in the facility data included in Attachment 2. No coverage maps or traffic loading calculations are included for these locations, due to the very small number of radios and talk groups planned for these locations.
- ❑ Mobile/portable-only operations: Again due to the small number of radios (which are currently on the system and incorporated into the existing Limited Plan) and few talk groups, no loading calculations are included for these radios.

**ARMER Tower Sites:** A review of the tower sites associated with the High-tier and Mid-tier Primary locations is provided below; refer also to the Table at the end of this section for a summary of these tower sites. A review of the tower site usage and traffic loading data and calculations is provided in Section A. vii of this document.

- ❑ High-tier, Primary Dispatch locations

a) Moose Lake MSOP (existing)

The Moose Lake facility has been operational on the ARMER system since 2009/2010, with approximately 341 portable radios and 2 RF control stations. The DHS and DOC jointly implemented a new 800 MHz ARMER “ISR” tower site located at the agency’s Moose Lake facility. The Moose Lake ISR tower site is a 5-channel RF site, and provides the primary coverage and system access for radios being used in and around the Moose Lake facility.

Note that the DOC/DHS ISR supports local, regional and state Interoperability talk groups for all radio users in the area whose radios may affiliate with this site. The DHS radios at Moose Lake are programmed to Prefer the local ISR site, but are allowed to affiliate with other sites, including the Moose Lake ARMER site (#19) if needed for coverage in the area.

b) St. Peter MSOP (existing)

The St. Peter MSOP facility has been operational on the ARMER system for several years, with approximately 141 portable radios and 8 RF control stations. Radio traffic for the St. Peter MSOP is routed through the MnDOT St. Peter ARMER tower site, which is located on the top of the hill, within the boundaries of the state’s St. Peter campus.

The St. Peter ARMER tower site is part of the St. Peter 6-site simulcast subnetwork. As such, all radio traffic for the St. Peter MSP is routed through all of the local tower sites associated with the simulcast subnetwork. This subnetwork includes 10 800 MHz RF channels per site; a system usage and capacity review is included in Section A. vii.

c) St. Peter MSHS (future)

The St. Peter MSHS facility is located on the same campus area as the MSOP operation, but is a completely separate building and operation located further up the hill, approximately ¼ mile from the MSOP location.

At such time in the future if MSHS operations move forward with ARMER system use, it would potentially add a significant number of radios (~511) to the (10 channel) simulcast subnetwork. A system usage and capacity review is included in Section A. vii.

***Based on a review of the projected traffic levels, and feedback from the South Central Minnesota RAC (Regional Advisory Committee), the DHS has concluded that it would be prudent to plan for the implementation of a standalone RF site (ISR) on the St. Peter ARMER tower. This ISR RF site, which would be connected into the ARMER network,***

**would provide the capacity and coverage needed within the MSHS facility. It would also then avoid adding this traffic to the St. Peter multi-site Simulcast network.**

Note that the MSOP would remain on the Simulcast network if the MSHS ISR were to be implemented.

d) Anoka MSHS (future)

In the future, **if** the Anoka MSHS operations convert to ARMER system operation, it would potentially add 117 radios to the ARMER system. Initial testing has been conducted with ARMER portable radios at the Anoka facility, and the radios routinely affiliated with the Hennepin West tower site, located in downtown Anoka, which is 1.3 miles southwest of the Anoka MSHS facility. Radios did not normally affiliate with Anoka County subsystem sites. A preliminary system usage and capacity review is included in Section A. vii.

In the time since this plan was initially presented, concerns had been expressed by the members of the MESB (Metropolitan Emergency Services Board) Technical Committee about the traffic loading that the new Anoka installation could have on the Hennepin West network, which continues to experience additional traffic growth from numerous ARMER system users.

DHS has reviewed this situation with the MESB member staff, and agreed that a better solution would be for DHS to implement a standalone (ISR) RF site at the Anoka hospital, which would be dedicated to serving the new radios at the Anoka facility. An ISR RF site at the Anoka facility would also be tailored to provide specific in-building coverage at the site, which would be the primary needs for the radio system. DHS agrees to plan for an ISR site at the Anoka facility (or equivalent technology) if and when ARMER radios would be implemented.

☐ Mid-tier, Primary Non-dispatch facilities

Refer to Table I shown below.

☐ Low-tier, Secondary Non-dispatch facilities

Refer to Attachment 1B for a map of these locations, and Attachment 2 for detailed location and ARMER site affiliation data. Refer also to Section (v) of this plan for additional mobile and portable radio inventory data.

**Table I: DHS Primary ARMER tower site usage and radio inventory summary:**

DHS Facility Location	ARMER Tower Site	ARMER Region	County	Qty of Radios
Moose Lake MSOP (existing)	Moose Lake ASR	NE	Carlton	344
St. Peter MSOP (existing)	St. Peter Simulcast	SC	Nicollet	150
Carlton CARE (existing)	None (using SOA)	NE	Carlton	20
REP Program & Security	As needed	--	Statewide	20
<b>Future Locations:</b>				
St. Peter MSHS	St. Peter Simulcast	SC	Nicollet	511
Anoka MSHS	Henn. Co West Simul	Metro	Anoka	117
Anoka CARE	Henn. Co. West Simul	Metro	Anoka	25
Alexandria CBHH	Garfield	CM	Douglas	25



Annandale CBHH	Annandale Simul	CM	Wright	21
Baxter CBHH	Baxter	NE	Crow Wing	23
Bemidji CBHH	Bemidji	NW	Beltrami	23
Brainerd CARE, MSHS	Baxter	NE	Crow Wing	34
Cambridge CARE	Cambridge	Metro	Isanti	23?
Fergus Falls CARE, CBHH	Fergus Falls	CM	Otter Tail	47
Rochester CBHH	Rochester Simul	SE	Olmstead	20
St. Peter CARE, CBHH	St. Peter Simul	SC	Nicollet	40
Wadena MSHS	Hewitt	CM	Wadena	17
Willmar CABHS, CARE	Willmar	CM	Kandiyohi	38
Willmar MSHS	Willmar	CM	Kandiyohi	20
MSOCS Facilities (141)	See Attachment 2	--	--	282

## ii) Local Equipment Additions and Enhancements

The ARMER planning study conducted for DHS focused in two primary areas:

- ☐ Radio coverage and tower sites
- ☐ 800 MHz tower site channel capacity

As noted, this ARMER plan for DHS includes the potential addition of over 1,000 radios to the existing ARMER radio network, however many of these radios are scattered throughout the state, with anywhere from 2 to 35 radios being added at any single location (other than the St. Peter location).

The key areas of potential concern would be the two new High-tier Primary dispatch locations at St. Peter and Anoka, where larger groups of radios would be added.

- ☐ St. Peter: The plan includes the implementation of an estimated 511 radios at this facility, which would be affiliated with the local St. Peter tower site and simulcast subnetwork.

The St. Peter MSHS operation currently uses two VHF repeater stations for operational communications, with approximately 350 portable radios. If this facility is converted to ARMER operational use, the number of ARMER radios is expected to be similar, around 511.

It would be expected that the level of radio system use and associated airtime would increase with the increased number of radios. To determine the overall estimated radio usage, a radio traffic airtime study was conducted with the existing repeater system. This data has been used to calculate the expected traffic from the larger inventory of new radios, and is provided in Section 2.A.viii of this plan.

- ☐ Anoka: The plan includes the implementation of up to 117 radios at this facility, which would be affiliated with the Hennepin County West simulcast network. A traffic review of the current use of the Hennepin West subnetwork is provided in Section 2.A.vii of this report.

The Anoka MSHS currently uses two UHF repeater systems for Operations, Security and Maintenance operations. To again attempt to determine the potential impact on the Hennepin

West subnetwork site usage by the addition of the DHS ARMER radios, an airtime study was conducted with the existing UHF systems to establish the typical amount of radio usage in the facility. This data is included in Section 2.A.viii of this plan.

### **Conclusions:**

#### ☐ Tower sites and coverage:

Based on the results of ARMER system testing with portable radios at several of the High-tier and Mid-tier DHS locations, it was determined that the level of coverage provided by the existing ARMER system tower sites was sufficient at all locations and no new tower sites would be needed for any of the DHS locations for coverage enhancements.

However, some locations have significant below-ground tunnels and office areas, which do not have reliable coverage from existing tower sites. On-site BDA's will be considered for these locations in the future.

#### ☐ Tower site channel use and capacity:

Though this proposed DHS ARMER plan brings a significant number of new radios to the ARMER radio system, it is our belief that the radios are spread out through such a large service area around the state, in conjunction with the limited number of talk groups for most of these locations, that the overall impact will be very minimal on the local tower site channels.

***The two exceptions to this conclusion are the proposed St. Peter MSHS and Anoka hospitals. A significant number of radios are being considered for both of these locations, with resulting radio communications traffic at local ARMER tower sites. As noted in the previous section of this plan, it was initially considered that the existing ARMER subnetworks could handle the additional traffic potentially generated by the new DHS radios at these locations. However, after further review and discussion, it is concluded that DHS will plan for the installation of ISR sites at both Anoka and St. Peter if, and when, new radios (at the quantities included in this plan) are implemented at these two locations.***

The review of this topic included in Section 2.A.vii of this ARMER plan included the following data:

- c. The number of radios planned for use at the target DHS locations
- d. The number of talk groups
- e. Existing ARMER tower site traffic usage
- f. A calculation of the expected radio traffic usage, based on existing radio airtime usage monitoring, whereby the amount of radio traffic currently being generated was quantified for use in this plan.

The results of this work show a fairly limited overall impact on the traffic loading for the ARMER tower sites serving these facilities, other than the St. Peter location, which is estimated to bring a 7% increase in radio traffic to the St. Peter simulcast subnetwork. ***Nonetheless, ISR's will again be considered for the Anoka and St. Peter MSHS locations if and when the new radios are planned for these sites.***

### iii) PSAP/Dispatch Center Console Equipment and Network Connectivity

The Moose Lake and St. Peter DHS dispatch centers are currently equipped with radio control consoles and are used for operations with the ARMER network:

- ☐ The Moose Lake MSOP control center is equipped with a four-position MCC7500 console system; it and the Moose Lake ISR site are connected to the ARMER system via microwave radio link.  
This console system is equipped with 12 CCGW ports.
- ☐ The St. Peter MSOP control center is equipped with a two-position MIP5000 console system, connected to a group of eight (8) 800 MHz RF control stations, which connect via RF to the St. Peter ARMER tower site. No CCGWs are associated with this location.

No changes are planned for these two existing locations.

- ☐ The new Anoka and St. Peter MSHS control centers will utilize new Motorola MCC7500 control consoles for radio operations.

*Each of these consoles will require a total of 10 Conventional Channel Gateway (CCGWs) ports.*

High-level system connectivity diagrams are provided on the following pages.

Connectivity between the DHS dispatch/control centers and the ARMER system is required for operation of the system talk groups, as well other non-trunked conventional channel resources.

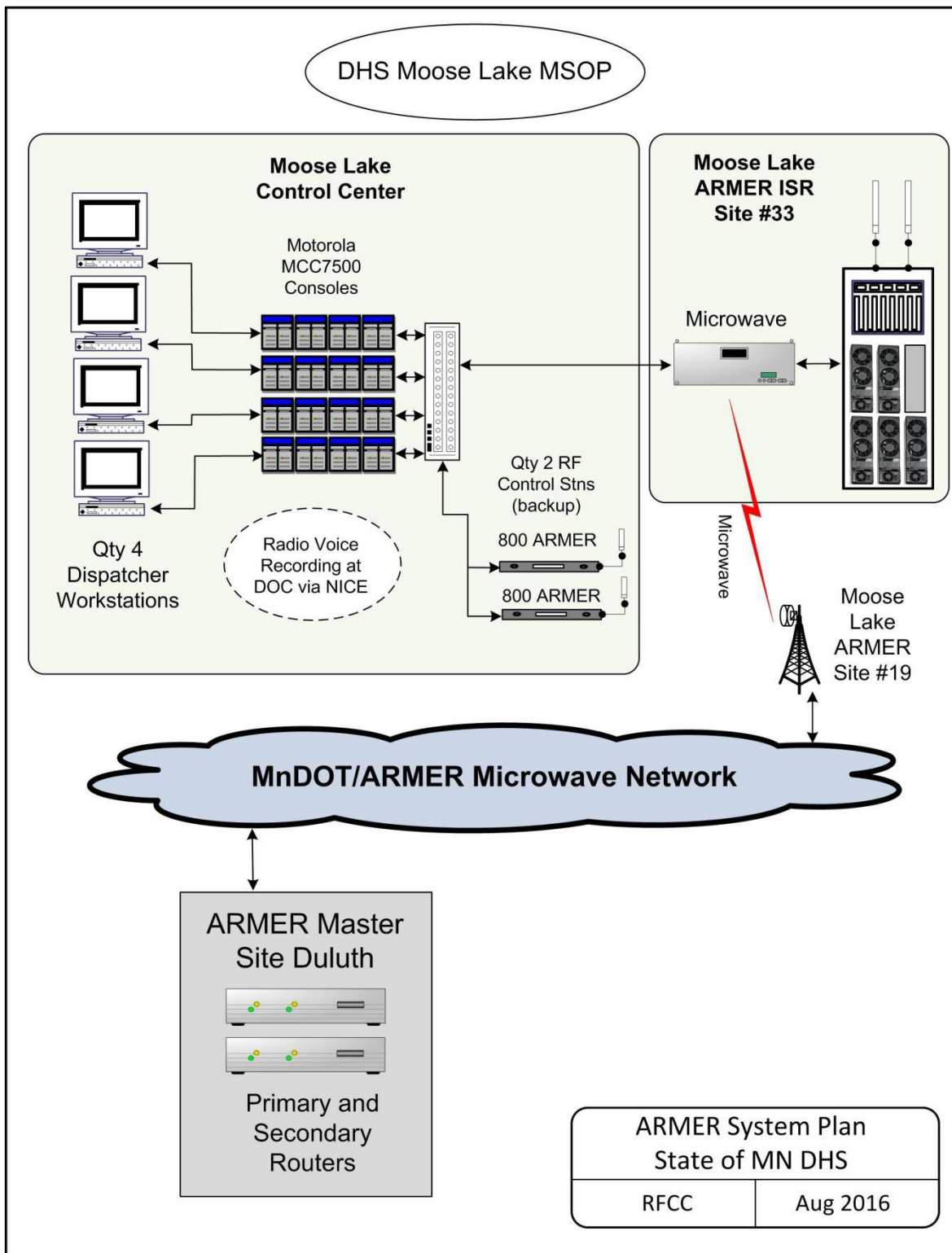
- ☐ The existing Moose Lake MSOP control center and local ISR site are connected via microwave radio to the Moose Lake ARMER tower site
- ☐ The existing St. Peter MSOP control center uses 800 MHz RF control stations to communicate on-channel through the St. Peter ARMER tower site.
- ☐ The proposed Anoka MSHS control center will utilize microwave radio connectivity to the Hennepin West ARMER site
- ☐ The proposed St. Peter MSHS control center will utilize fiber optic connectivity to the St. Peter ARMER tower site

### iv) Logging/Recording

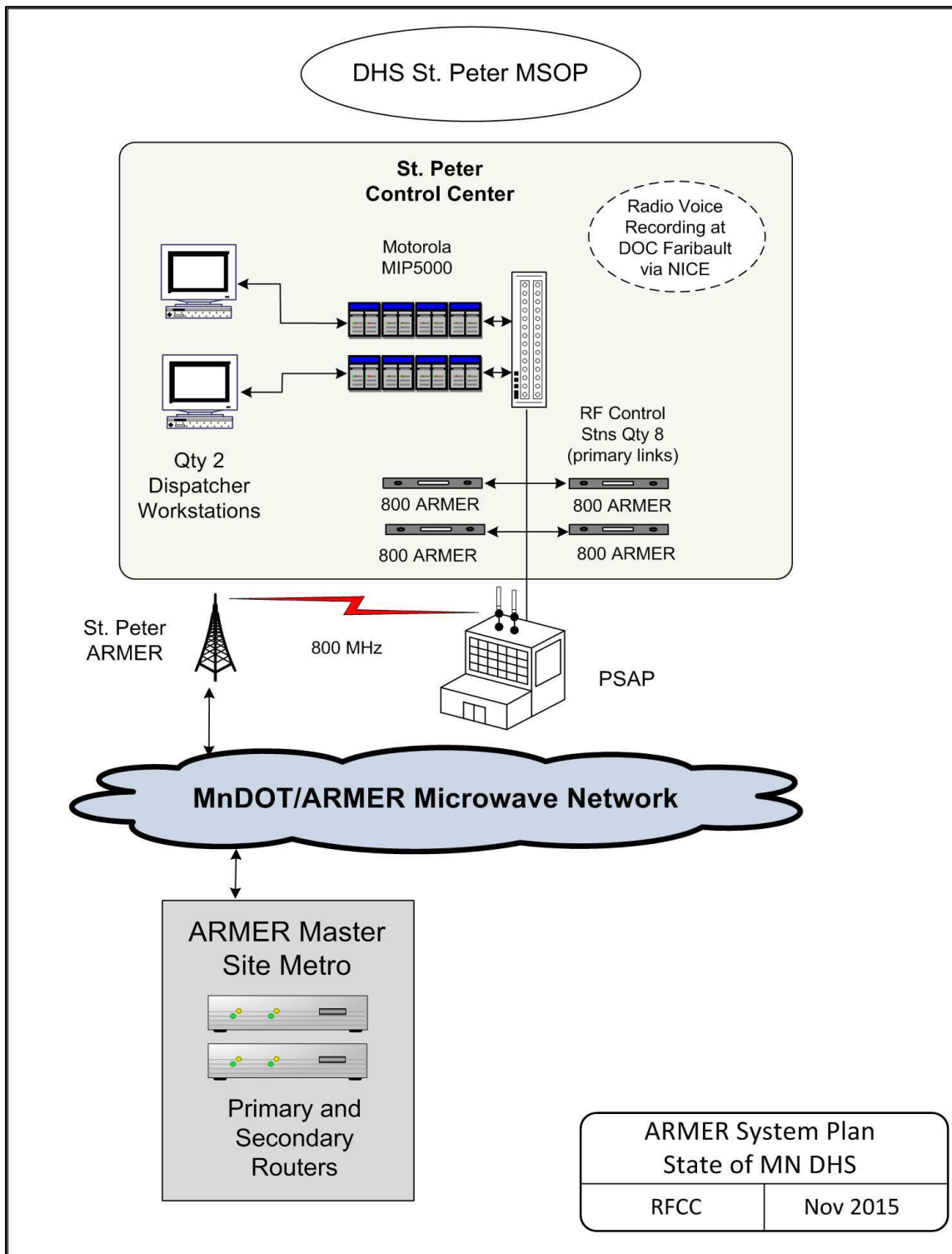
Voice Recording/Logging: The existing Moose Lake and St. Peter dispatch centers will continue to use their existing voice logging recorder systems for the recording of ARMER and conventional channel radio traffic.

- ☐ The Moose Lake MSOP control center utilizes the NICE network-based recording system, which is operated and managed by the DHS, and shared with DOC. This recorder is located at the Moose Lake facility.
- ☐ The St. Peter MSOP control center utilizes a NICE network-based recording system, operated and managed by the DOC located at their Faribault facility.
- ☐ The new Anoka and St. Peter MSHS control centers will utilize a NICE network-based system for voice recording.

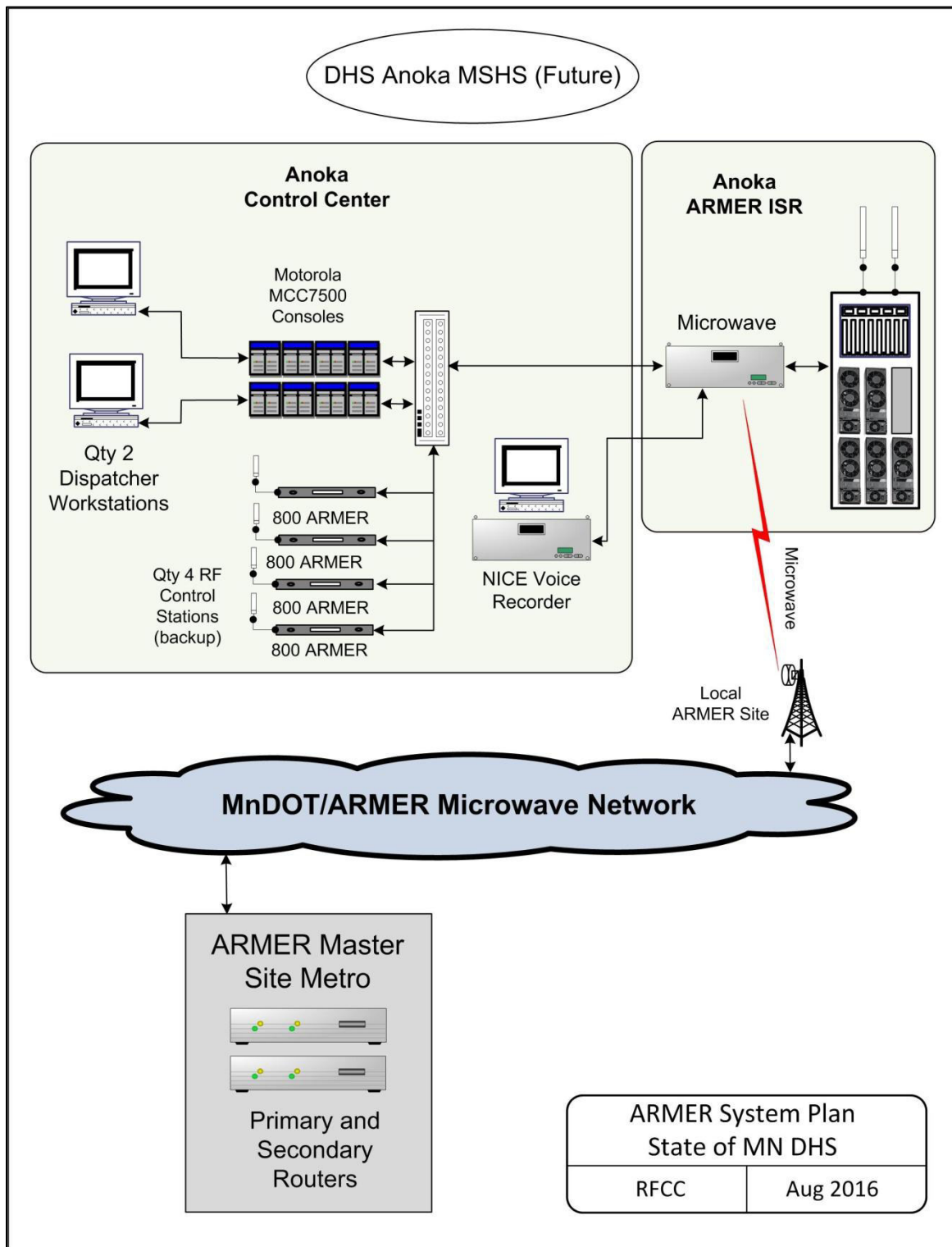
### Moose Lake MSOP PSAP ARMER Architecture (existing)



### St. Peter MSOP PSAP ARMER Architecture (existing)

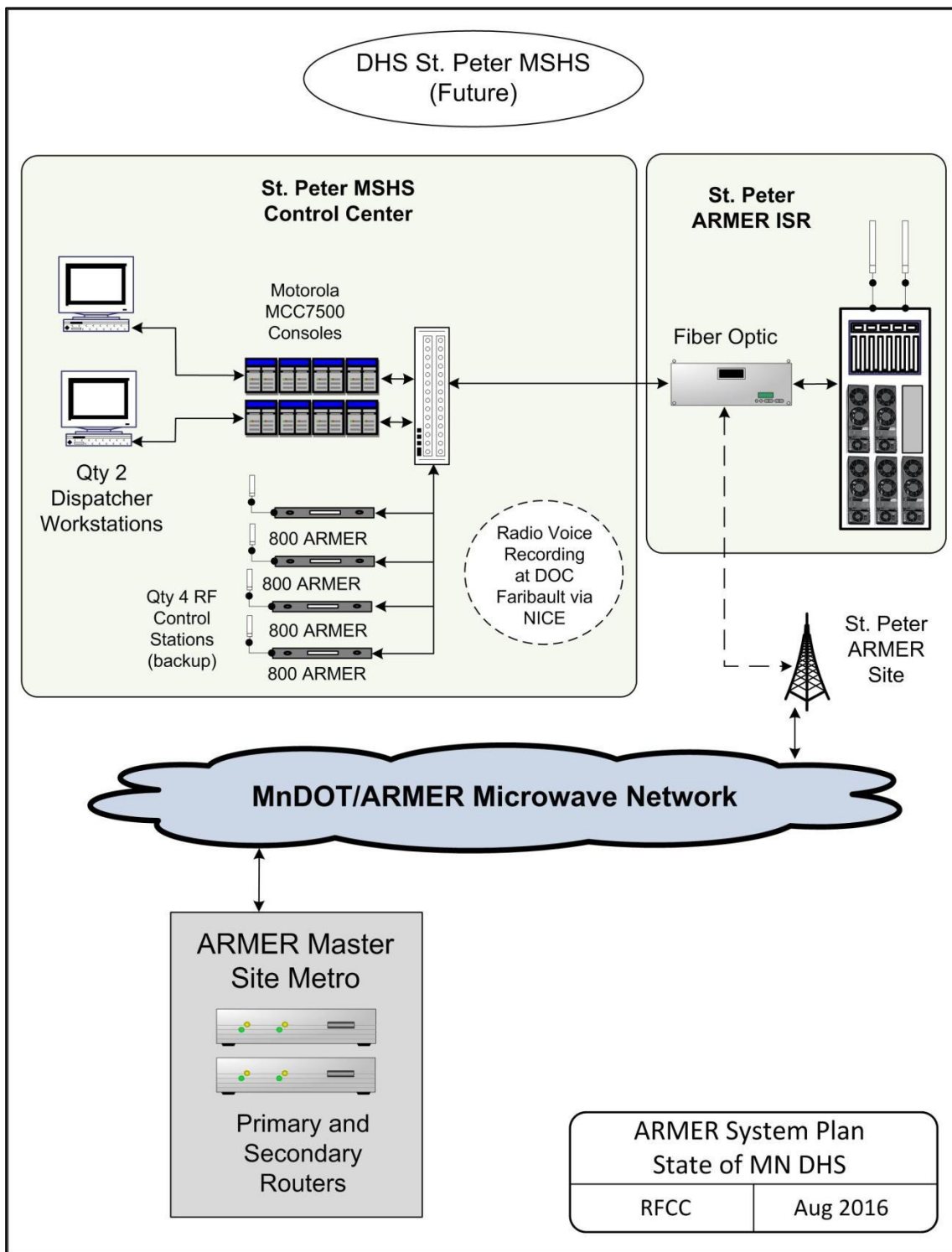


## Anoka MSHS PSAP ARMER Architecture (future)





## St. Peter MSHS PSAP ARMER Architecture (future)



## v) Subscriber Radios

The 800 MHz subscriber (mobile and portable) radio inventory planning work conducted with DHS agencies has established an estimated total number of ARMER radios that would be added to the system. A total of approximately 1,761 portable, mobile and control base radios would be implemented over some period of time in the system, if all agencies purchase or obtain the radios identified within this plan. This includes the total potential for long term planning for the agencies within the DHS.

The DHS agencies currently have a total of approximately 535 radios on hand, which are being used at multiple locations throughout the ARMER system. A detailed breakdown of DHS's existing and future mobile and portable radio inventory requirements are provided in Attachment 4.

***Please note that no new or additional near-term radio purchases are planned at the time this ARMER plan is being prepared. All future radio purchases and implementation will be based on the funding available for a system-wide radio deployment.***

## vi) System Talk Group Planning and ID Requirements

The previous DHS/DOC ARMER plan submitted in 2009, along with Limited ARMER Plan now in place, included a total of 28 talk groups for use by the DHS agencies. These talk groups will be retained for existing operations, though some renaming may be required to meet current operational standards.

The revised Fleetmap for DHS has been updated based on the expanded long-term needs of DHS agencies, and will have a proposed total of 200 talk groups, including the existing talk group ID's currently active in the ARMER system database. The revised fleetmap and talk groups are organized as follows:

- ☐ 28 existing talk groups for current Moose Lake, St. Peter, REP and Administrative operations (refer to Attachment 3A)
- ☐ 31 new talk groups for the proposed Primary, non-dispatch facilities listed in Table 1 (refer to Attachment 3B)
- ☐ 141 new talk groups for the proposed Secondary, non-dispatch facilities listed in Attachment 2 (refer to Attachment 3C)

In addressing the talk group needs for the DHS agencies, the following basic outline will be used:

- ☐ Primary and secondary dispatch talk groups for primary location operations
- ☐ Talk groups for Security, Tactical, Administrative and Facilities Maintenance use
- ☐ Talk groups for interoperability
- ☐ Individual talk group(s) for each participating agency location

Radio usage: The existing radios incorporated into the current DHS ARMER plans are used for daily operations, security, maintenance and other activities as noted. This model will apply to the new/future Primary locations as well, at such time as they are implemented.



The radio usage at the 141 Secondary locations will be very limited, as only two radios and one talk group are planned for each of these facilities. The radio use at these sites will be general operations, emergencies and patient care. Because of this limited use, it is expected that these radios will have very little impact on ARMER site traffic loading throughout the state.

A total of 1,825 ARMER system IDs are expected for the DHS implementation, which includes three to five year estimated totals, if radios are implemented at all of the listed locations:

- ☐ 1,725 for mobile and portable subscriber units total expected on the system for all agencies
- ☐ 100 for Dispatch and base operations

All regional and statewide interoperability talk groups will be incorporated into DHS radios as defined by ARMER standards.

#### **vii) 800 MHz System Traffic Loading Review**

The DHS agencies and locations incorporated into this plan will be utilizing numerous ARMER tower sites and RF resources throughout many areas of the state. This includes high-usage operations such as the existing Moose Lake and St. Peter MSOP facilities, as well as the planned St. Peter MSHS hospital. Other Primary future locations such as the Anoka and Brainerd MSHS operations are projected to have a moderate level of use, based on the number of radios and talk groups. The numerous Secondary non-dispatch operations will have a very limited use of the system, as each location will only have two radios and one talk group, and are not expected to have any significant effect on overall site or system traffic.

The DHS recognizes that in a trunked radio system it is important that the tower sites be established with a sufficient number of 800 MHz channels to ensure that all radio users are able to access the system when needed for both routine and emergency radio communications traffic. A balance must be established between providing a sufficient number of channels and the cost of implementing those channels, as well as the number of 800 MHz frequencies available for the channels.

System usage calculations that are conducted to address this topic need to incorporate existing neighboring city, county and state radios along with the proposed radios for the system. The industry-standard Erlang-C process is often used to calculate or analyze the traffic loading data within a radio system.

However, the DHS believes that since the ARMER tower sites to be used by DHS have now been operational for years and have knowable levels of existing radio traffic and “System Busy” data, it would better to review the calculated additional traffic that would be generated by DHS radios added to the system and sites.

The DHS facilities included in this plan are grouped into four categories based on their operational needs and anticipated radio system usage; these groupings will be used to assess the existing and potential future use and impact on the ARMER network’s tower sites and RF channel resources:

1. Existing Primary Dispatch Locations (Moose Lake and St. Peter MSOPs)
2. Proposed Primary Dispatch Locations (St. Peter and Anoka MSHS)
3. Proposed Primary Non-dispatch locations (14)
4. Proposed Secondary Non-dispatch locations (141)

A review of each of these categories and locations is provided within this plan.



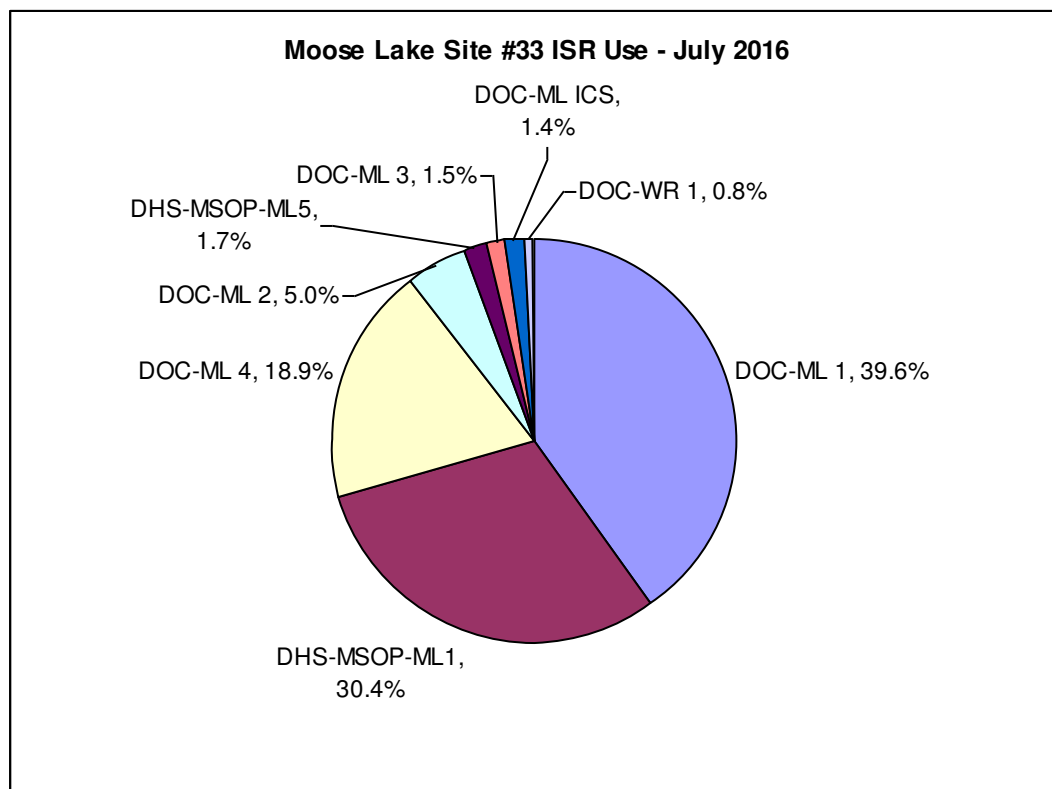
## I. Existing Primary Dispatch Locations (Moose Lake and St. Peter MSOPs)

Both the Moose Lake and St. Peter MSOP locations have been operational for several years, and were included in the original joint DHS/DOC ARMER plan. No changes are planned for either of these locations, so existing traffic data is provided for reference purposes.

### **Moose Lake MSOP:**

- 345 radios
- 8 Talk Groups

The majority of the radio traffic from the Moose Lake MSOP operation is routed through the local DHS/DOC ISR site, which is located on the DHS/DOC facility campus. A graph of the traffic for this site for the month of July 2016 is provided below. This site generally does not experience any Busy queues.



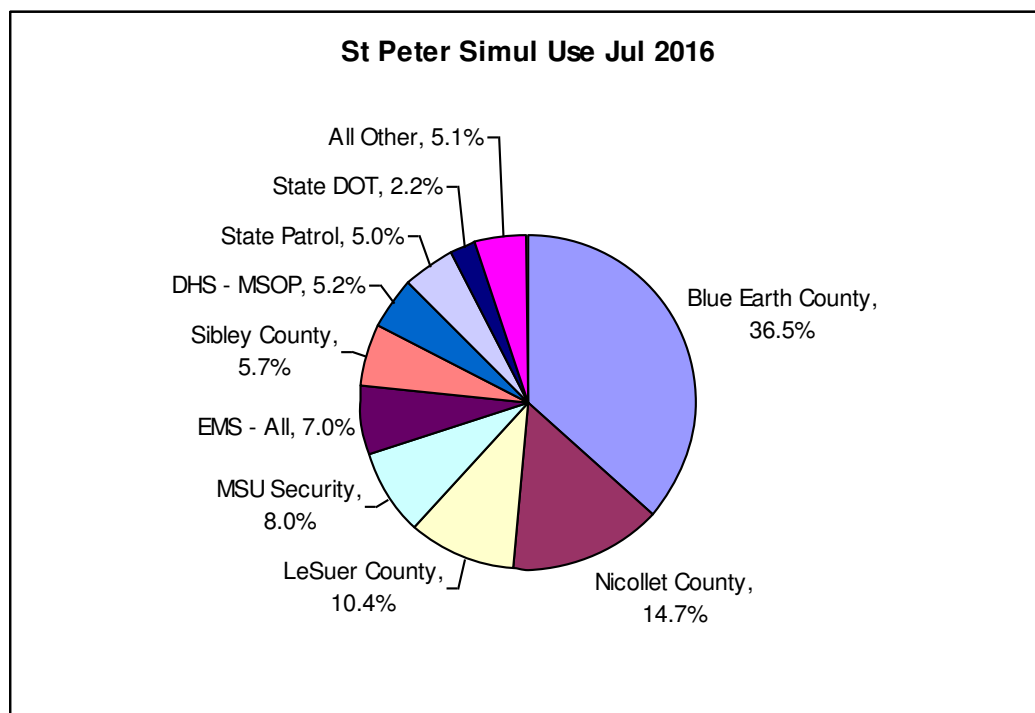
### **St. Peter MSOP:**

- 150 radios
- 9 Talk Groups

All radio traffic from the St. Peter MSOP operation is routed through the St. Peter Simulcast system, which is a 6-site, 10-channel subsystem. A review of the traffic for this site was conducted for the months of July and August 2016. The results of this review reflect the following:

- July 2016: DHS MSOP use = 5.2% of total subsystem traffic
- Aug 2016: DHS MSOP use = 5.0% of total subsystem traffic

Shown below is a chart of the St. Peter simulcast system traffic for July 2016:



***A review of the monthly ARMER system traffic reports for the St. Peter simulcast subsystem show few or no “Busies” for the three months data reviewed for this plan.***

## 2. Proposed Primary Dispatch Locations (St. Peter and Anoka MSHS)

The DHS ARMER plan includes new radios for the St. Peter and Anoka MSHS locations, as well as MCC7500 dispatch consoles.

**Note:** *The following calculations were prepared and included in this plan when DHS intended to use the existing St. Peter subnetwork, if and when the MSHS facility converts to ARMER operation. As noted in Section 2.A.i and ii of this plan, DHS now recognizes the need for a standalone ISR RF site to serve the St. Peter MSHS, and will plan for the implementation of an ISR if this migration is to occur at some time in the future. The calculations provided below have been left in the plan for reference purposes.*

**St. Peter MSHS:** As described in an earlier section of this plan, the St. Peter MSHS facility is located on the same campus as the existing MSOP facility, but is a completely separate operation, and is located in separate buildings on the northwest area of the campus. A two-channel UHF repeater system is currently used for radio communications at the MSHS facility.

As shown in the previous section of this plan (Existing Primary Locations – St. Peter MSOP), the MSOP operation with 141 radios utilizes approximately 4% - 5% of the monthly system airtime traffic.

### Proposed Radio System Data:

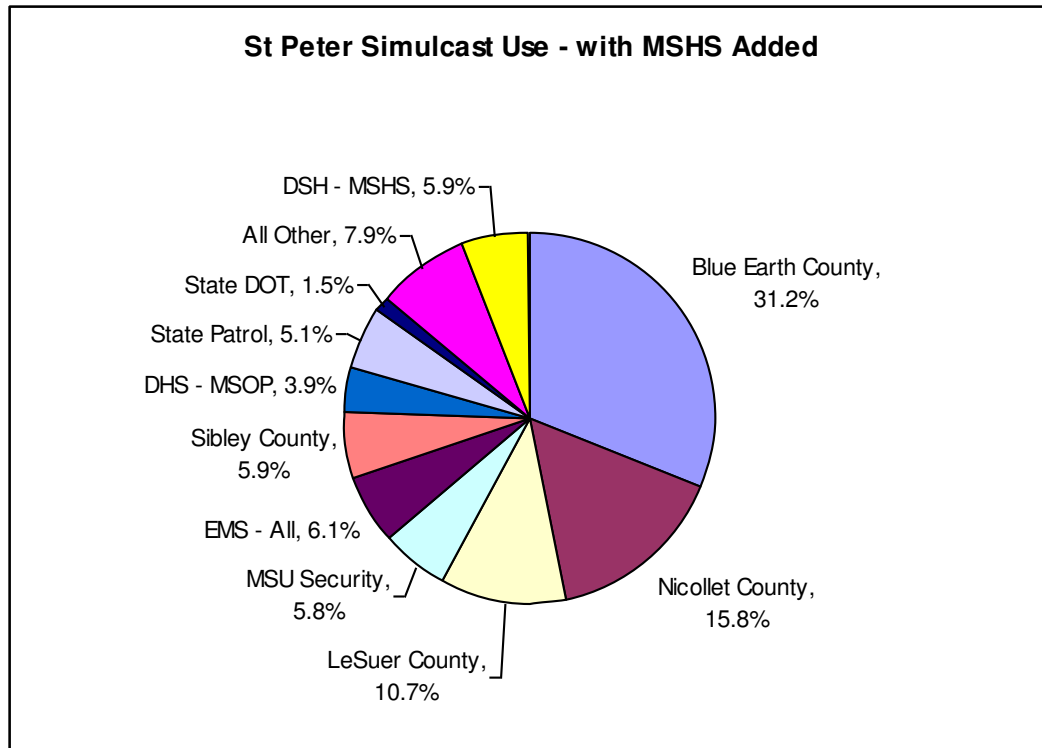
- 350 existing VHF radios (for reference purposes)
- 511 new ARMER radios (including RF control stations)
- 5 ARMER Talk Groups

To develop an estimate of what radio traffic levels might result from the implementation of 511 new radios at the MSHS facility, the following steps were taken to establish accurate estimates.

- The existing MSOP system use of 4% - 5% is based on a measured 21 to 27 monthly hours of actual system airtime (with 141 radios).
- A radio airtime study was conducted to determine the current use of the MSHS VHF repeater systems. This process showed a total daily airtime use of 40 minutes per day, which calculates to an airtime use of 20 hours per month (with 350 radios).
- If the number of radios were expanded from the existing 350 to a total of 511 (portables), which is an increase of roughly 46%, it would be expected that the monthly airtime use would rise by a similar amount. However, it has been seen that radio use potentially increases more than the calculated amount with a trunked radio system, and the expanded number of talk groups available to the users.

With this in mind, DHS has calculated that the resulting monthly ARMER system airtime usage for the MSHS operation would be approximately 29 hours per month (20 hours x 1.46 = 29 hours). An additional 15% has been added to this number, which results in 33 hours of ARMER system airtime.

Assuming these calculations and estimates to be valid, the MSHS implementation would add 5% to 6% more traffic to the St. Peter simulcast subnetwork, and account for 5.3% of the overall traffic on the subnetwork. Shown below is a usage chart for the St. Peter simulcast subnetwork with the new DHS MSHS radio traffic added to it (shown in yellow). Compare this chart to the one shown above with existing St. Peter usage.



The question resulting from this work is whether this increase would result in the generation of “System Busies”, which are not currently being experienced in the St. Peter Simulcast subnetwork. The DHS would argue that this traffic increase would not result in the generation of “System Busies”, based on the lack of these now being experienced, along with the overall capacity of the 10-channel system.

As noted, the DHS will plan for the addition of an ISR site at St. Peter MSHS facility, and therefore cause no traffic increase on the existing St. Peter Simulcast subnetwork.

**Anoka MSHS:** The Anoka MSHS facility is located 1.5 miles north of downtown Anoka. A two-channel UHF repeater system is currently used for radio communications at the Anoka MSHS facility.

**Note:** *The calculations included here were prepared and included when DHS intended to use the existing Hennepin West subnetwork if and when the Anoka MSHS facility converts to ARMER operation. As noted in Section 2.A.i and ii of this plan, DHS now recognizes the need for a standalone ISR RF site to serve the Anoka MSHS, and will plan for the implementation of an ISR if this migration is to occur at some time in the future. The calculations provided below have been left in the plan for reference purposes.*

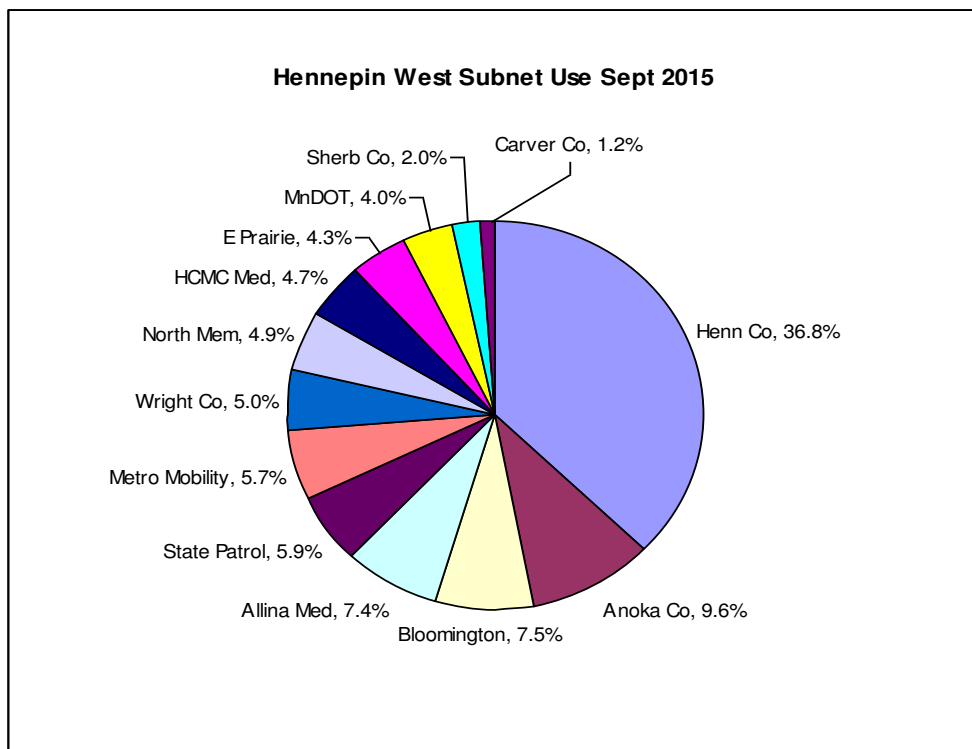
**Proposed Radio System Data:**

- 125 existing VHF radios (for reference purposes)
- 125 new ARMER radios (including RF control stations)
- 5 ARMER Talk Groups

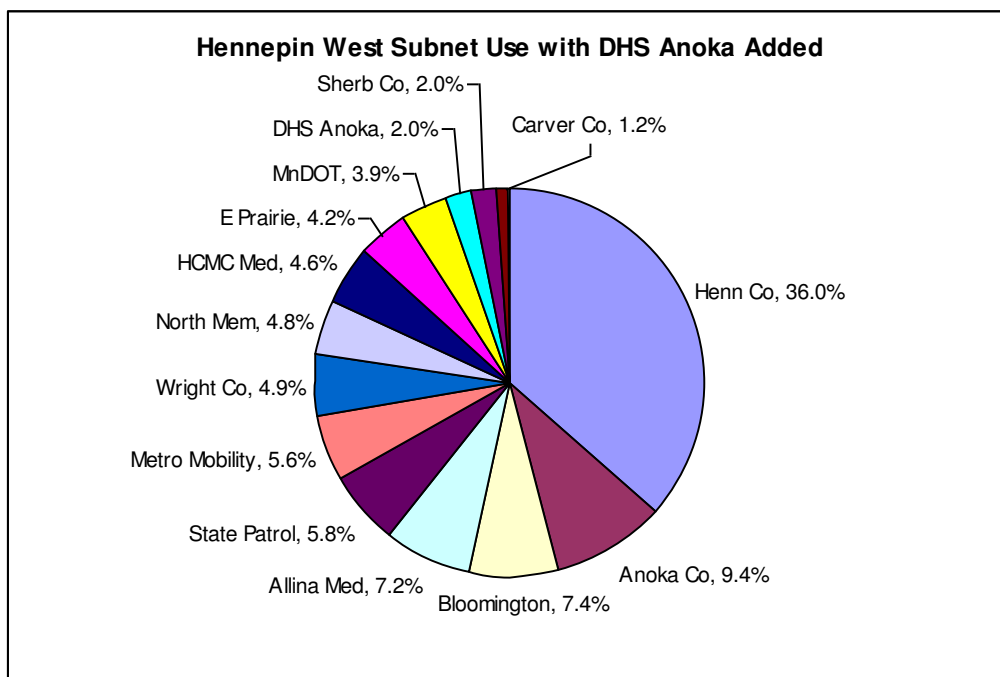
To develop an estimate of what radio traffic levels might result from the implementation of 125 new radios at the MSHS facility, the following steps were taken to establish accurate estimates.

- A radio airtime study was conducted to determine the current use of the Anoka MSHS UHF repeater systems. This process showed a total weekly airtime use of 6 hours per week, which calculates to an airtime use of 24 hours per month.
- Testing was conducted within the Anoka facility with ARMER portable radios to determine the level of ARMER system coverage within the building(s), as well as establish which ARMER tower site the radios would affiliate with. The results of this testing revealed that the Hennepin West tower site, in downtown Anoka, was the site preferred by the radios during all testing periods. This is due to the Hennepin West tower site being located only 1.5 miles from the Anoka MSHS facility.
- An existing radio traffic review was conducted of the Hennepin West simulcast subnetwork. The Hennepin West subnetwork is a 16-channel system.

Shown below is a chart of the Hennepin West simulcast system traffic for September 2015:



If the proposed Anoka MSHS traffic of 24 hours per month were added to the Hennepin West subnet, it would cause for an estimated 2% increase in overall traffic use, as shown in the chart shown below with Anoka DHS radio traffic added to it (shown in light blue). Compare this chart to the one shown above.





A review of the overall busy count for the Hennepin West subnetwork for the past 24 months shows very few traffic periods which resulted in Busy queues for system users, in spite of the large volume of radio traffic. The actual data shows that no Busy responses were generated in 8 of the 24 months, and even the busiest months had a maximum Busy level of less than .0001% (811,983 PTT's and 71 Buses); in other words, the system has more than sufficient capacity for existing radio users, and (in DHS opinion) would be unaffected by the addition of DHS Anoka MSHS radio traffic.

### 3. Proposed Primary Non-dispatch Locations (12)

This DHS plan includes 12 new mid-sized facility locations where new ARMER radios would be implemented. These locations are smaller than the larger primary facilities, and would utilize an average of 25 radios, and have two ARMER talk groups per location (Ops and TAC). The chart below shows the locations, along with the county in which the facility resides, the ARMER Region and target tower site, and number of radios planned.

DHS Facility Location	ARMER Tower Site	ARMER Region	County	Qty of Radios
Alexandria CBHH	Garfield	CM	Douglas	25
Annandale CBHH	Annandale Simul	CM	Wright	21
Baxter CBHH	Baxter	NE	Crow Wing	23
Bemidji CBHH	Bemidji	NW	Beltrami	23
Brainerd CARE, MSHS	Baxter	NE	Crow Wing	34
Cambridge CARE	Cambridge	Metro	Isanti	23
Fergus Falls CARE, CBHH	Fergus Falls	CM	Otter Tail	47
Rochester CBHH	Rochester Simul	SE	Olmstead	20
St. Peter CARE, CBHH	St. Peter Simul	SC	Nicollet	40
Wadena MSHS	Hewitt	CM	Wadena	17
Willmar CABHS, CARE	Willmar	CM	Kandiyohi	38
Willmar MSHS	Willmar	CM	Kandiyohi	20

A review of the overall existing traffic loading for each of these tower sites was conducted to determine if there were any obvious problems at these sites. None of the sites listed have experienced any levels of Busy queuing with the exception of Bemidji, which is a known issue, although the level of Busy queuing is still less than .0005%. The Busy issues at this site will be further improved with the installation of a new MCC7500 console system at the Beltrami PSAP. Based on a review of the above data, the DHS believes that the eventual implementation of ARMER radios as shown at these locations will not have a significant impact to channel loading at these tower sites and subnetworks.

#### **4. Proposed Secondary Non-dispatch locations (141)**

This plan includes the potential addition of radios at approximately 141 MSOCS state-owned or leased treatment facilities. These locations would be equipped with only two radios (for a total of 282 radios) and a single talk group, for use by the management staff; these radios would serve two primary purposes:

- Provide direct radio communications between primary management staff personnel for daily operations
- Allow the staff to communicate directly via radio to other DHS personnel outside of the local facility, using one of the DHS statewide talk groups
- Allow direct communications with local public safety agency personnel in the event of an emergency or other situation

Refer to Attachment 2 for a list of these facilities, and Attachment 3C for a list of the talk groups planned for them.

Because of the limited number of radios and talk groups at these locations, as well the diverse locations, DHS believes that the use of these radios would have no significant affect on tower site channel traffic loading throughout the system.

#### **viii) Legacy Radio System Equipment**

DHS will continue to operate and control existing VHF and UHF radio system equipment at DHS facilities until such time that the individual locations obtain ARMER radios and transition to the new system. Many of the locations have only portable radios, without any other system infrastructure or fixed-station equipment.

## B. Coverage Review

### i) Design Parameters

The overall system design and resulting communications coverage of the ARMER system can be affected by the following goals and concerns:

- ☐ Desire to obtain in-building coverage as best as possible within the DHS facilities
- ☐ Need to cover the geographic service area with the existing ARMER tower sites
- ☐ Cost of developing new tower sites, including structures, land acquisition, Federal Aviation Administration (FAA)/FCC/National Environmental Policy Act (NEPA) considerations, as well as local zoning
- ☐ Availability of and costs associated with existing and planned tower sites

The existing and planned tower sites planned for this project are being provided by the State's ARMER network. The coverage goals for the DHS use of the system are:

- ☐ 95% "on the street/outdoor" reliability to a portable radio using a standard antenna held at a height of five feet above ground level
- ☐ 90+% "in-building/above ground" reliability to a portable radio using a standard antenna, held at a height of five feet above ground level, within a 6db building. It is understood that many of the DHS buildings have loss factors higher than 6db, and in-building BDA's will be considered as needed for these locations.

### ii) Coverage Propagation Mapping

In the planning for this project, coverage modeling and propagation analysis was done to determine if the basic tower site planning assumptions were valid and could be expected to result in a system that would meet the DHS's coverage needs.

These coverage maps were generated with the RadioSoft® ComStudy2® software program. The modeling for the coverage analysis was done with both the Okumura and Longley-Rice propagation models. The coverage maps were done for portable talk-in and talk-out usage, as this is the most difficult coverage scenario. If the basic system design shows the portable goals are attainable, then mobile coverage should not be a concern.

Provided below are the parameters used for the coverage modeling:

Site Parameters	Value
Transmit Antenna Gain	9 db, omnidirectional
Transmit Output Power (into main line)	35 watts
Transmission Line Size (under 300 feet ant. Hgt.)	7/8 inch Heliax®
Transmission Line Length	Based on tower height
Receive Antenna Gain	9db, omnidirectional
Receive Tower Top Amplifier Gain	5db

Receive Transmission Line Size	7/8 inch Heliax®
<b>Field Unit Parameters</b>	<b>Value</b>
Type of Unit	Portable radio
Environment	Outdoors, on-street
Antenna Height	5 feet
Transmit Power	3 watts

Preliminary coverage maps for portable radio talk-in and talk-out are shown on the following pages. The color coding for these maps is:

- ☐ Light Green: Reliable signal coverage 40 dBu or greater
- ☐ Yellow: Reliable signal coverage 33 dBu or greater
- ☐ Red: Marginal signal coverage 19 dBu or greater
- ☐ White: No useable coverage expected 10 dBu or less

3 predicted-coverage maps are provided in this plan:

1. Moose Lake ISR 12db coverage
2. St. Peter 12db coverage
3. Anoka 12db coverage

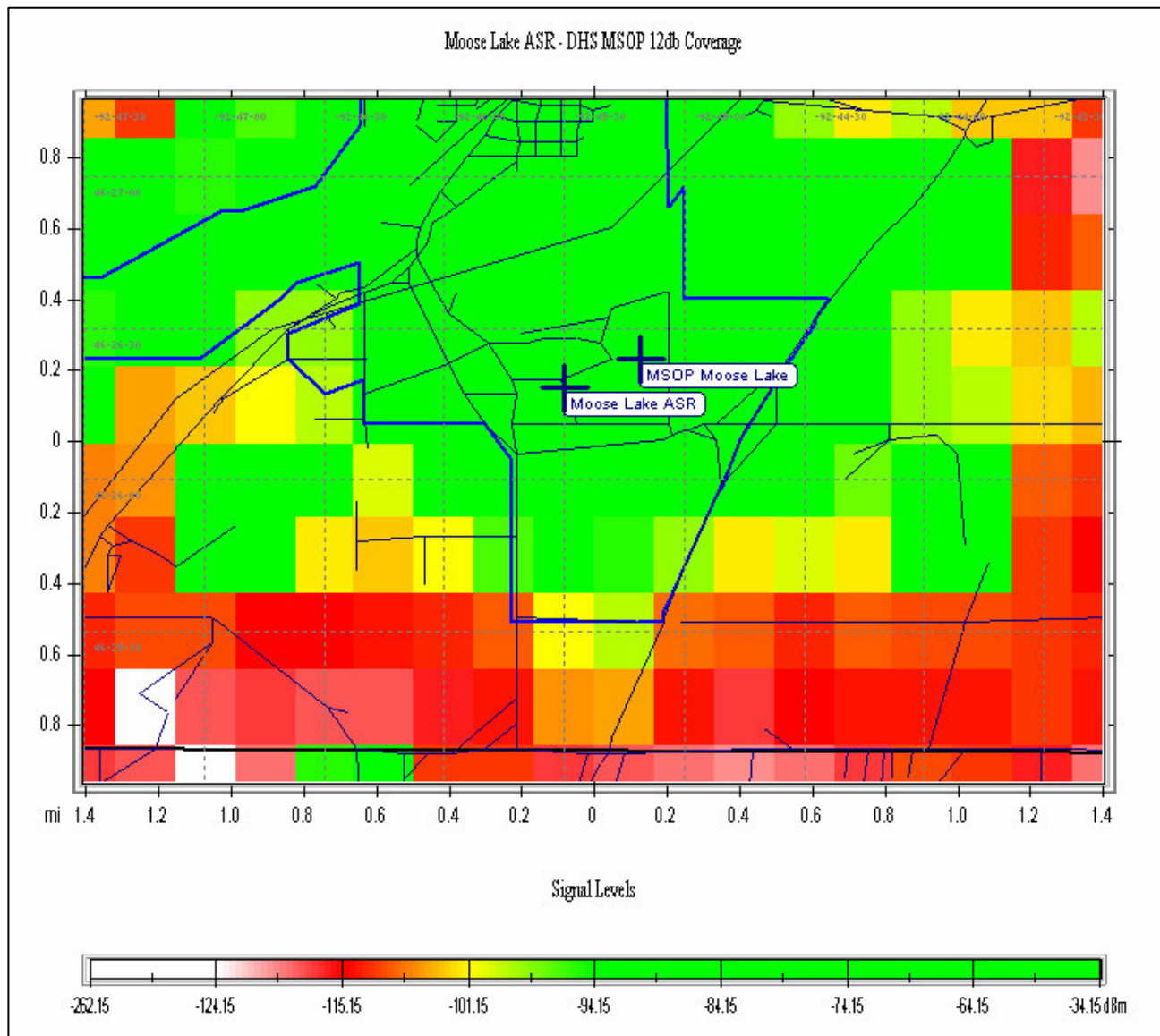
As shown in the predicted coverage maps on the following pages, the potential coverage for the system, using the selected sites and parameters is very good and is expected to meet the project coverage goals.

All maps were created using RadioSoft® ComStudy2® software program, and the modeling for the coverage analysis was done with the Longley-Rice and Okumura propagation models.

The areas shaded in white reflect a lower level of signal where coverage cannot be predicted, and can be interpreted to represent very weak areas of coverage.

**Map I: Moose Lake ISR (Site #33) DHS and DOC Area Coverage (12db In-Building)**

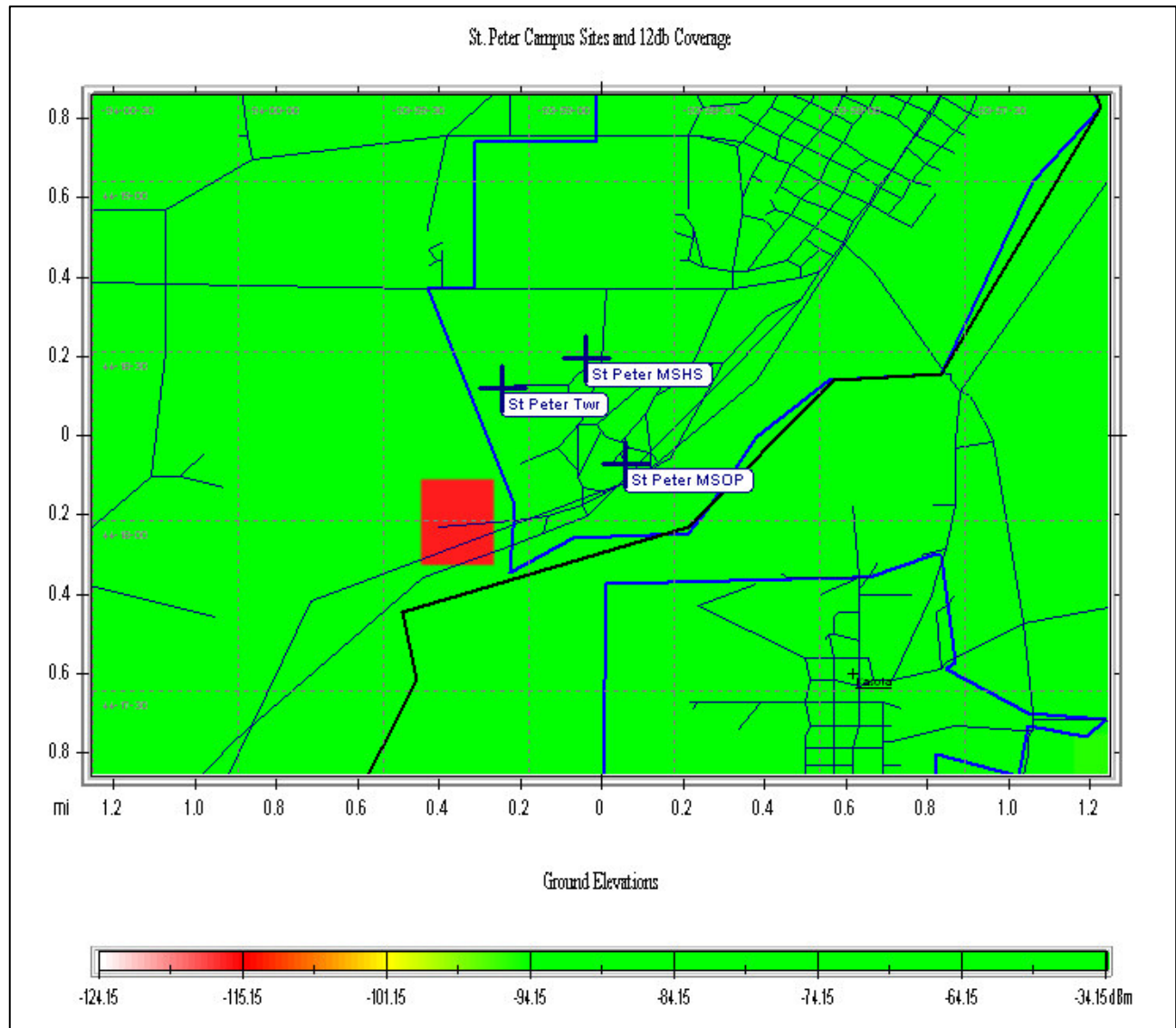
This map provides the predicted 12db loss coverage for the Moose Lake ISR tower site that was implemented by DHS and DOC for coverage in and around these agency's facilities.



As shown, 12db coverage throughout the Moose Lake campus from the Moose Lake ISR site is very good. Note that the Moose Lake ISR tower site has an antenna height of only 25 feet AGL.

**Map 2: St. Peter DHS MSOP and MSHS Campus Area Coverage (12db In-Building)**

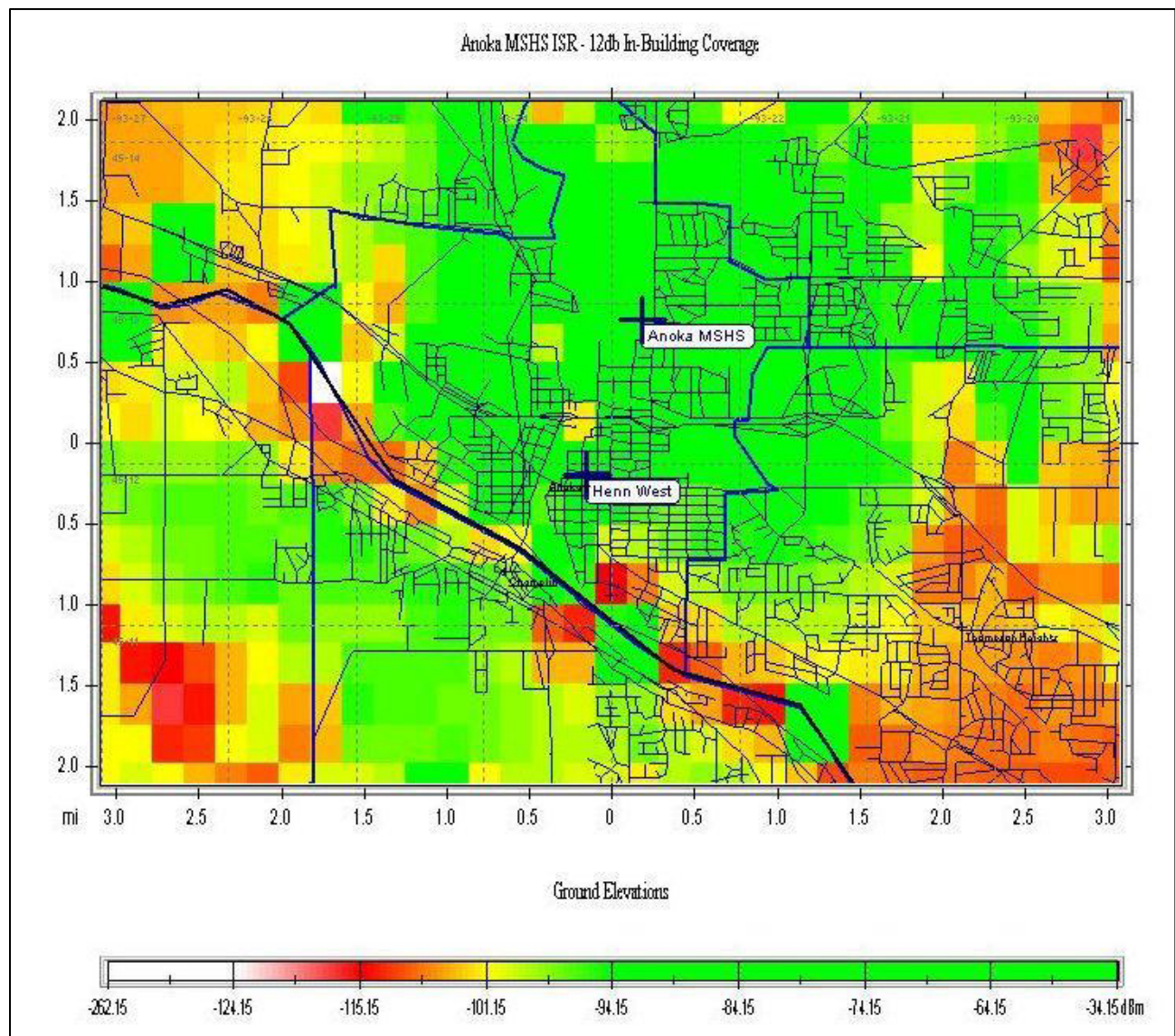
This map provides the predicted 12db loss coverage for the St. Peter tower site, which is located on the hill above the DHS St. Peter Campus.



The predicted mobile radio coverage throughout the St. Peter DHS campus is excellent with the planned tower site. In-building BDA's may be added for additional below-ground coverage. This coverage reflects both the existing site coverage and a future ISR, which would be located at the same tower.



**Map 3:** Anoka DHS MSHS Coverage from an ISR located at the Anoka Hospital site (12db In-Building)  
This map provides the predicted 12db loss coverage for the Anoka MSHS facility and surrounding area.



The predicted 12db loss In-building coverage for an ISR at the Anoka MSHS hospital would meet the needs of DHS operations at the Anoka facility and surrounding areas. The Hennepin West site is shown for reference purposes only.

## C. Contingency Planning

In planning for ARMER system migration and connecting to the ARMER system the following failure modes are being addressed:

1. Loss of connectivity between the dispatch center and the ARMER system.
2. Loss of microwave network (to ARMER tower sites), which will result in the system reverting to site trunking mode.

This plan includes four primary locations that will utilize dispatch consoles with connectivity into the ARMER network:

- ☐ St. Peter MSOP (existing)
- ☐ Moose Lake MSOP (existing)
- ☐ St. Peter MSHS (future)
- ☐ Anoka MSHA (future)

Of these locations, the St. Peter MSOP operation uses RF control stations for system access, with no direct microwave or fiber/TI connectivity. The remaining locations now have or will incorporate a group of 800 MHz RF control stations at the primary dispatch locations. This would typically include one control station for each primary talk group. If the PSAP loses direct connectivity with the ARMER network, the control stations will allow the PSAP staff to access the DHS-specific and system interoperability talk groups over the air and function much like a mobile or portable radio.

If local ARMER site(s) lose connectivity to the master site, or the master site experiences a failure, the sites will revert to a Site Trunking mode, which results the sites operating independently from each other. The effect on field units is that they can only communicate with each other if they are in range of the same tower site. If they are not, communication is not possible.



## D. Training

ARMER system implementation and associated operational standards require that all personnel who will be using the system receive proper training on the use, capabilities, and features of the system. Trunked radio systems, including the ARMER system, have operational requirements that differ from traditional conventional repeater systems, and it is necessary that dispatchers and end users be trained on the capabilities, proper operation of the system and their role and responsibility as related to their job function.

DHS agencies recognize this need, and have conducted initial in-house training for the current radio system users. New employee Orientation and refresher training is to be provided on a regular schedule to support ARMER standards. DHS may utilize the services of independent contractors recognized by the State as being proficient in the use and operation of ARMER radio system equipment. All training programs will include training for the following workgroups and functions:

- ☐ Radio end user training
- ☐ PSAP dispatchers
- ☐ Local system administrator
- ☐ Interoperability

Funding for the end user and dispatcher training has been included in the project budget.

## E. Interoperability

The need for interoperability exists on multiple levels within public safety radio operations. Establishing or enhancing interoperability at each of these levels has been a primary consideration in the DHS's decision to migrate to the ARMER system. The areas specifically addressed are:

**Internal:** Between and within the DHS agencies and locations. The radio system will be used for daily operational purposes. Also, the implementation of a common 800 MHz trunked radio system for all DHS locations will allow direct communications with management staff at DHS facilities on a statewide basis if needed.

**External:** Between the DHS locations and other local public safety (law, fire, and EMS) and government agencies providing emergency response services to DHS facilities, to include the following:

- ☐ Local city and county law, fire and EMS agencies
- ☐ State of Minnesota law enforcement agencies

As most of the public safety agencies within Minnesota have now converted to ARMER system radio operations, which greatly simplifies and improves communications interoperability for those agencies.

## **F. Standards**

The primary technology standard applied to this project is that of the Project 25 (P25) ARMER system. The P25 standard is specifically for digital radios systems for public safety. In this case, the Phase I Frequency Division Multiple Access (FDMA) standard is currently in use.

DHS will adopt and comply with the standards published by the State Emergency Communications Board. Use of these standards will ensure that users in DHS will adopt the same naming conventions, talk group usage, and other operational and technical standards that are in use throughout the state.

## **G. Alarms and Monitoring**

MnDOT – ARMER will have the primary tower site alarm monitoring for sites in the DHS.

## **H. Maintenance**

Maintenance of the primary ARMER tower sites used by DHS will be handled by the MnDOT staff.

Maintenance of the radio system equipment (ISRs and dispatch consoles) owned and operated by the DHS is provided by local Motorola service facilities under contract direct to DHS. The maintenance and programming of mobile and portable radio equipment is handled by DHS technical staff.

## **I. System Administration**

Local system administration for the DHS ARMER equipment implementation is the responsibility of the DHS Facilities Management staff.

### 3. Project Costs and Budget

Funding for the expanded implementation of the ARMER system for DHS agencies is being considered from within the agency's operating and capital budgets, but no funding is currently in place for near-term equipment purchases. This process will continue to be reviewed by the DHS and considered for year 2016 or beyond.

#### Project Cost Estimates:

Equipment and Location	Min. Cost	Max. Cost
2-Position MCC7500 Control Consoles - Anoka	\$200,000	\$275,000
5-Channel 800 MHz ISR Site – Anoka	\$300,000	\$350,000
Microwave Radio Connectivity – Anoka	\$ 60,000	\$ 85,000
NICE Logging Recorder – Anoka	\$150,000	\$175,000
Qty 90 Portable Radios – Anoka	\$270,000	\$270,000
2-Position MCC7500 Control Consoles – St. Peter	\$200,000	\$275,000
5-Channel 800 MHz ISR Site – St. Peter	\$300,000	\$350,000
Microwave Radio Connectivity – St. Peter	\$ 60,000	\$ 85,000
Qty 511 Portable Radios – St. Peter	\$894,250	\$1,379,700
Qty 330 Portable Radios – Primary Locations	\$647,500	\$695,000
Qty 300 Portable Radios – Secondary Locations	\$525,000	\$525,000
In-Building Amplifiers (BDA's)	\$50,000	\$75,000
Other Costs	\$100,000	\$110,000
<b>Grand Total – Estimated Costs</b>	<b>\$3,756,750</b>	<b>\$4,649,700</b>

## 4. Project Implementation

---

### A. Schedule

Implementation of the ARMER radio network for an organizational group the size of the DHS, with the number of agencies and quantity of radios being planned, would typically be expected to require a 12 to 24 month period to complete.

The DHS Moose Lake and St. Peter MSOP facilities will continue to utilize the ARMER system with existing radio system equipment and configurations.

The other DHS agencies identified in this plan will continue to seek the funding needed to obtain ARMER-capable radios and related equipment needed for a conversion to the ARMER system. The DHS is also planning and budgeting for the implementation of new Motorola radio dispatch consoles at the Anoka and St. Peter MSHS facilities.

***There are no current near-term plans to purchase and/or implement the future equipment and locations identified in this plan.***

The DHS will continue to utilize their existing VHF and UHF radio systems over the next few years, and will retain such equipment as needed for Interoperability purposes.

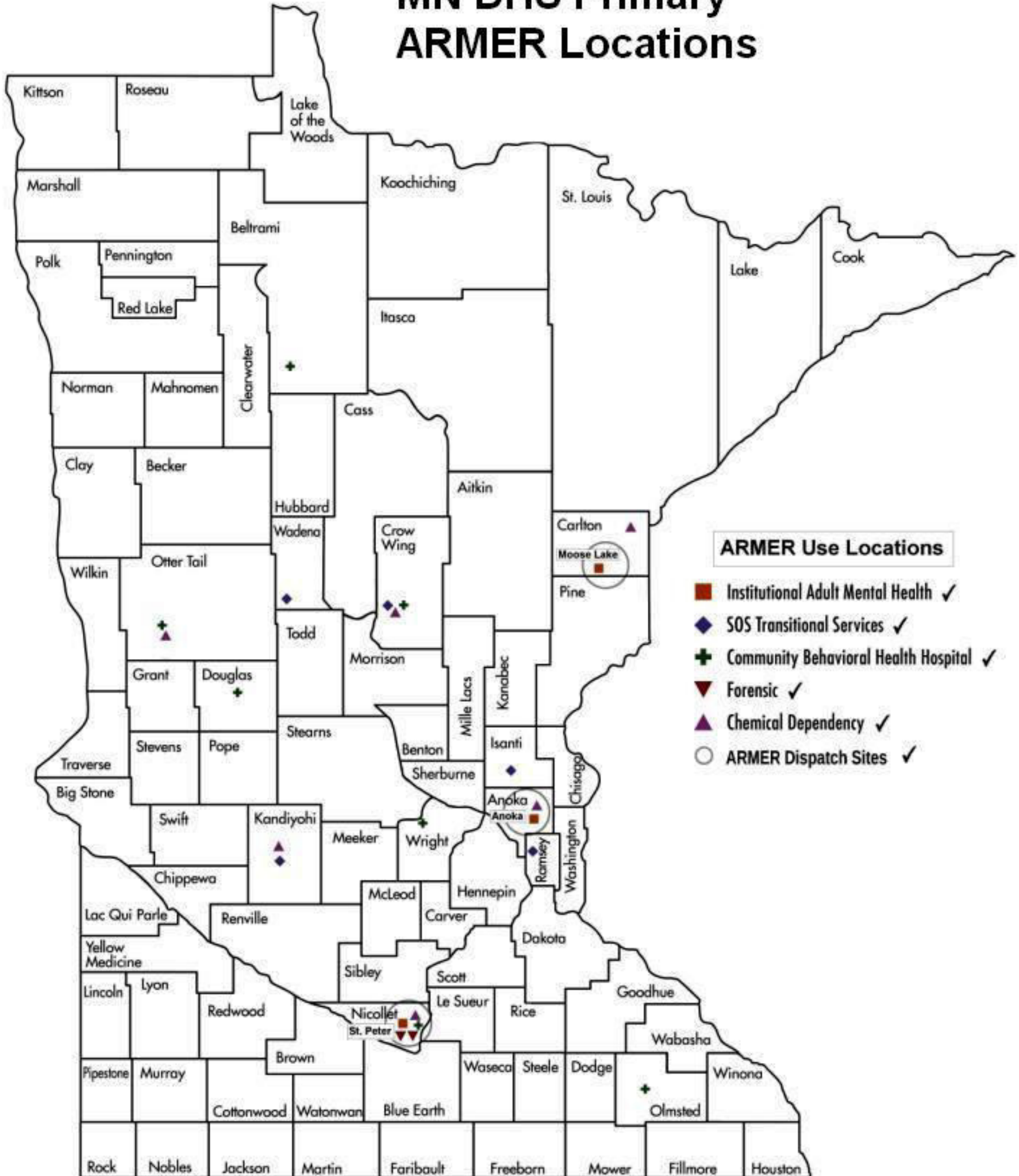
## References

1. State of Minnesota “Local Agency and Regional Planning and Contracting for ARMER Participation” dated September 8, 2008, as published at [www.srb.state.mn.us](http://www.srb.state.mn.us)
2. RadioSoft™ ComStudy2™ Terrain Database
3. ARMER Status Map, as posted at <http://www.srb.state.mn.us/> dated October 2015
4. Region 22 (Geographic State of Minnesota) 800 MHz Regional Planning Committee “Regional Band Plan” as filed with the FCC, General Docket 87-112; 800 MHz NPSPAC Plan Amendment WT Docket No. 20-55; NPSPAC PR Docket No 93.130 dated June 2009



# Attachment 1A

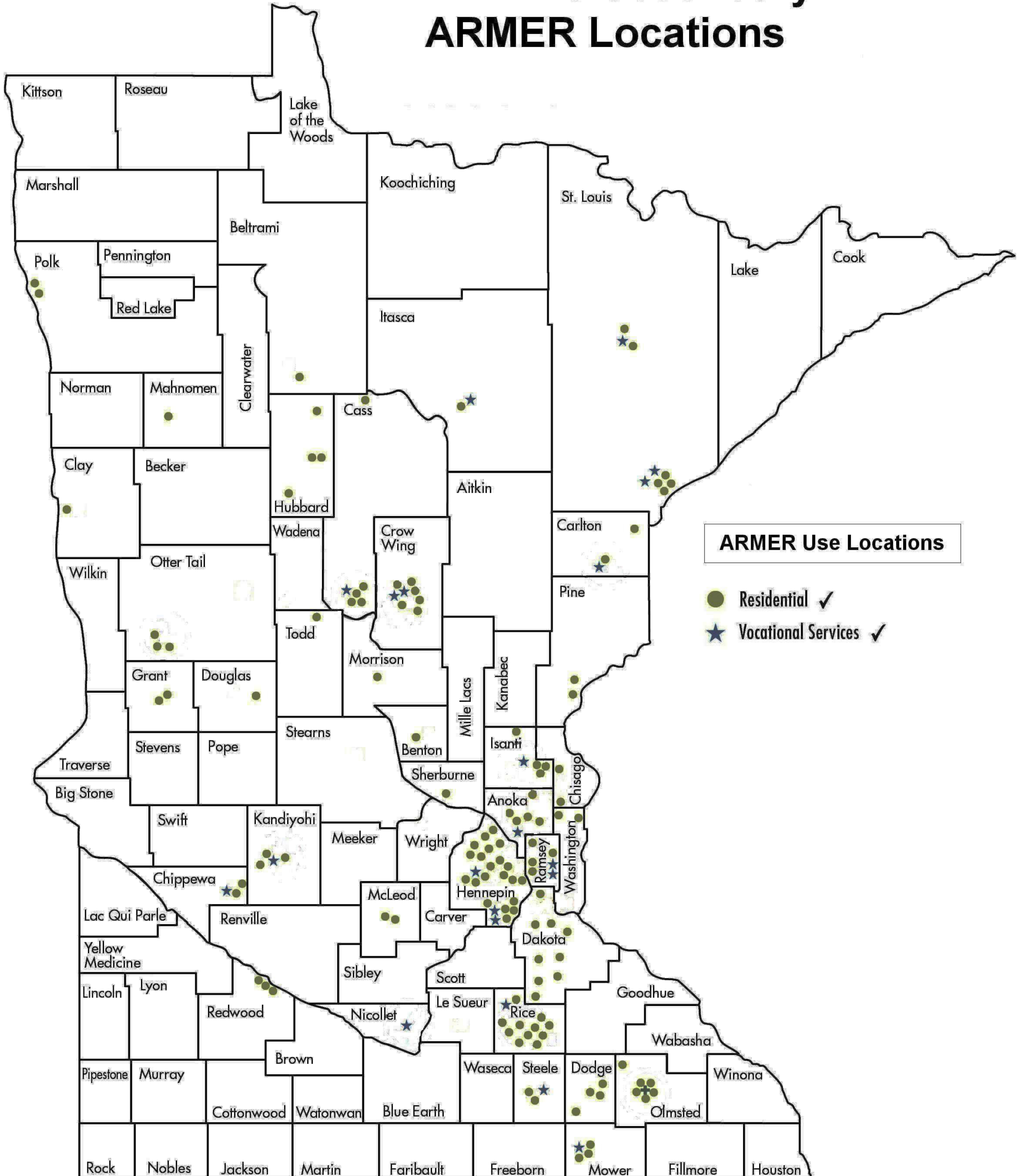
## MN DHS Primary ARMER Locations





## Attachment 1B

# MN DHS Secondary ARMER Locations





Attachment 2 - DHS ARMER Plan

Low-Tier, Secondary Non-Dispatch Locations							
Community Based Services - Owned and Leased Properties							
	Site Name	Address 1	City	State	County	ARMER Site	Lease/ Own
1	Akeley Crossing	23653 County 25	Akeley	MN	Hubbard	Nevis	Leased
2	Akeley Road	23655 County 25	Akeley	MN	hubbard	Nevis	Leased
3	Alexandria	123 Bethesda Street	Alexandria	MN	Douglas	Garfield	Owned
4	Anoka/Burns	5361-189th Avenue NW	Anoka	MN	Anoka	Anoka Simul	Leased
5	Austin	1000 - 12th Street NW	Austin	MN	Mower	Austin	Owned
6	Austin - Shady Grove	2001 11th Street SW	Austin	MN	Mower	Austin	Leased
7	Austin - Turtle Creek Ind	2909 West Oakland	Austin	MN	Mower	Austin	Leased
8	Austin - Turtle Creek Ind new	2103 14th Street NE	Austin	MN	Mower	Austin	Leased
9	Baxter - Brentwood	4707 Brentwood Road	Baxter	MN	Crow Wing	Baxter	Leased
10	Baxter - Forestview	12936 Kingwood Drive	Baxter	MN	Crow Wing	Baxter	Leased
11	Baxter - Lynndale	14610 Lynndale Drive	Baxter	MN	Crow Wing	Baxter	Leased
12	Baxter - Quality Ent	8053 Industrial Park Road	Baxter	MN	Crow Wing	Baxter	Leased
13	Baxter - Quality Enterprises II	8053 Industrial Park Road	Baxter	MN	Crow Wing	Baxter	Leased
14	Bemidji	810 Clausen Avenue	Bemidji	MN	Beltrami	Bemidji	Leased
15	Big Lake - Ridge Place	4301 Ridge Circle	Big Lake	MN	Sherburne	Sherburne	Leased
16	Biwabik	101 Old Hwy 4	Biwabik	MN	St. Louis	Erie Hill	Owned
17	Bk Park - 89th Crescent	5422 North 89th Crescent	Brooklyn Park	MN	Hennepin	Henn/Brk Pk	Owned
18	Bk Park - 91st Crescent	5209 North 91st Crescent	Brooklyn Park	MN	Hennepin	Henn/Brk Pk	Owned
19	Bk Park - Prestwick	8920 Prestwick Circle	Brooklyn Park	MN	Hennepin	Henn/Brk Pk	Owned
20	Bk Park - West River Road	9241 West River Road	Brooklyn Park	MN	Hennepin	Henn/Brk Pk	Leased
21	Blaine	12949 Kenyon Street NE	Blaine	MN	Hennepin	Anoka Simul	Owned
22	Bloomington - Old Shak Rd	10101 First Avenue S.	Bloomington	MN	Hennepin	Henn/Bloom	Owned
23	Bloomington	8634 Oakland Avenue	Bloomington	MN	Hennepin	Henn/Bloom	Owned
24	Bloomington - Solstice Voc	660 W. 92nd Street	Bloomington	MN	Hennepin	Henn/Bloom	Leased
25	Bloomington - Windfield	9741 Queen Road	Bloomington	MN	Hennepin	Henn/Bloom	Leased
26	Braham	215 South Eastgate Avenue	Braham	MN	Isanti	Isanti Simul	Leased
27	Brainerd - Hillcrest	2415 Hillcrest Drive	Brainerd	MN	Crow Wing	Baxter	Leased
28	Brainerd - N Street	1202 Northeast N Street	Brainerd	MN	Crow Wing	Baxter	Leased
29	Brainerd - Pickeral Lake	20124 Pickeral Lake Road	Brainerd	MN	Crow Wing	Baxter	Leased
30	Brainerd - Pine Street	1869 Dandelion Lane	Brainerd	MN	Cass	Baxter	Leased
31	Burnsville - Crystal	1101 West Crystal Lake Road	Burnsville	MN	Dakota	Dakota Simul	Owned
32	Burnsville - Dakota Crisis	300 Timberland Drive	Burnsville	MN	Dakota	Dakota Simul	Leased
33	Cambridge - East Central	245 10th Avenue SW	Cambridge	MN	Isanti	Isanti Simul	Leased
34	Cambridge - Evergreen	280 - 326th Lane	Cambridge	MN	Isanti	Isanti Simul	Leased
35	Cass Lake	16421 - 65th Ave. NW	Cass Lake	MN	Cass	Cass Lake	Leased
36	Champlin - Dean	310 Dean Avenue	Champlin	MN	Hennepin	Henn/Brk Pk	Owned
37	Clara City - Division Street	1126 N. Division Street	Clara City	MN	Chippewa	Granite Falls	Leased
38	Clara City - Sparks	14 NW 2nd Avenue	Clara City	MN	Chippewa	Granite Falls	Leased
39	Cloquet - Stephen Road	1399 Stephen Road	Cloquet	MN	Carlton	Cloquet WT	Leased
40	Dayton - Rosewood	14080 Rosewood Circle	Dayton	MN	Hennepin	Henn/Rogers	Owned
41	Duluth - Airpark I	4619 Air Park Blvd.	Duluth	MN	St. Louis	Duluth Simul	Leased
42	Duluth - Lincoln Park Lifeskills	2122 West Superior Street	Duluth	MN	St. Louis	Duluth Simul	Leased
43	Duluth - Pike Lake	5675 Birchway Road	Duluth	MN	St. Louis	Duluth Simul	Leased
44	Duluth - Swan Lake	1423 Swan Lake Road	Duluth	MN	St. Louis	Duluth Simul	Owned
45	Eagan - Sibley	3034 Sibley Memorial Highway	Eagan	MN	Dakota	Dakota Simul	Owned
46	East Grand Forks	2134 - 13th Avenue NW	EGF	MN	Polk	EGF	Owned
47	East Grand Forks - Red River	2132 13th Avenue NW	EGF	MN	Polk	EGF	Owned
48	Eden Prairie - Chatham Way	6204 Chatham Way	Eden Prairie	MN	Hennepin	Henn/Glen Lk	Owned
49	Eden Prairie - Dell Road	7198 Dell Road	Eden Prairie	MN	Hennepin	Henn/Glen Lk	Owned
50	Eden Prairie - Met Tech Park	Technology Park VIII	Eden Prairie	MN	Hennepin	Henn/Glen Lk	Leased
51	Eden Prairie - Met Unlimited	9600 West 76th Street	Eden Prairie	MN	Hennepin	Henn/Glen Lk	Leased
52	Elbow Lake NE	1107 - 1st Street NE	Elbow Lake	MN	Grant	Erdahl	Leased
53	Elbow Lake SE	114 - 11th Avenue SE	Elbow Lake	MN	Grant	Erdahl	Leased
54	Faribault - 3rd Street	1011 - 3rd Street SE	Faribault	MN	Rice	Faribault	Owned
55	Faribault - 7th Avenue	813 SW 7th Avenue	Faribault	MN	Rice	Faribault	Owned
56	Faribault - Allen Path	54 Allen Path	Faribault	MN	Rice	Faribault	Owned
57	Faribault - Cannon River	1400 Cannon Circle #9	Faribault	MN	Rice	Faribault	Leased
58	Faribault - Park Avenue	2307 Park Avenue NW	Faribault	MN	Rice	Faribault	Owned
59	Faribault - Shumway	1805 Shumway	Faribault	MN	Rice	Faribault	Owned
60	Faribault - Windsor PL	1309 Windsor Place	Faribault	MN	Rice	Faribault	Leased
61	Farmington - Donnelly	20345 Donnelly Avenue	Farmington	MN	Dakota	Dakota Simul	Owned
62	Farmington - Eaves Way	20359 Eaves Way	Farmington	MN	Dakota	Dakota Simul	Owned
63	Fergus Falls - Gustavus	229 West Gustavus	Fergus Falls	MN	Ottertail	Fergus Falls	Leased
64	Fergus Falls - Sterling Heights	2440 Sterling Heights	Fergus Falls	MN	Ottertail	Fergus Falls	Leased
65	Fergus Falls - Union	1024 Circle Lane	Fergus Falls	MN	Otter Tail	Fergus Falls	Leased
66	Forest Lake	22500 Iverson Avenue	Forest Lake	MN	Washington	Wash Co	Owned
67	Forest Lake - Irish	24130 Irish Avenue	Forest Lake	MN	Chisago	Forest Lake	Leased
68	Fridley - Metro Tech Ind	7270-7272 Commerce Cir E	Fridely	MN	Anoka	Anoka Simul	Leased
69	Golden Valley - Scott Avenue	3220 Scott Avenue	Golden Valley	MN	Hennepin	Henn/GV	Owned
70	Ham Lake	17635 Jefferson Street NE	Ham Lake	MN	Anoka	Anoka Simul	Leased
71	Harris	42756 Ginger Avenue	Harris	MN	Chisago	North Branch	Leased
72	Hayfield - Westfield	16839 - 750th Street	Hayfield	MN	Dodge	Hayfield	Leased
73	Hermanton - W Arrowhead Rd	5668 West Arrowhead Road	Hermantown	MN	St. Louis	Duluth Simul	Owned
74	Hermantown - W Marble St	5682 W. Arrowhead Road	Hermantown	MN	St. Louis	Duluth Simul	Leased
75	Hermantown Crisis	5223 Maple Grove Road	Hermantown	MN	St. Louis	Duluth Simul	Owned
76	Isanti - Rum River Orn	520 North 1st Avenue	Isanti	MN	Isanti	Cambridge	Leased
77	Kasson	1101 - 1st Avenue NE	Kasson	MN	Dodge	Dodge Cntr	Owned
78	Kasson - Region 10	106 NW 1st Avenue	Kasson	MN	Dodge	Dodge Cntr	Leased



Attachment 2 - DHS ARMER Plan

79	Lakeville - Hershey	20685 Hershey Avenue West	Lakeville	MN	Dakota	Dakota Simul	Owned
80	Lakeville - Jonquil	17041 Jonquil Avenue	Lakeville	MN	Dakota	Dakota Simul	Owned
81	Laporte	39915 Count Road 39	Laporte	MN	Hubbard	Cass Lake	Leased
82	Mahnomen	2559 - 140th Avenue	Mahnomen	MN	Mahnomen	Mahnomen	Owned
83	Maple Grove	10775 - 108th Avenue	Maple Grove	MN	Hennepin	Henn SO	Leased
84	Medford - Straight River Ent	405 First Ave. SE	Medford	MN	Steele	Owatonna	Leased
85	Moorhead	820 - 63rd Avenue N.	Moorhead	MN	Clay	Moorhead	Owned
86	Moose Lake	305 - 4th Street	Moose Lake	MN	Carlton	Moose Lake	Owned
87	Moose Tracks	471 North Arrowhead Lane	Moose Lake	MN	Carlton	Moose Lake	Leased
88	Moose Tracks 2	451 & 461 Arrowhead Lane	Moose Lake	MN	Carlton	Moose Lake	Leased
89	Morristown	400 SW 2nd Street	Morristown	MN	Rice	Morristown	Owned
90	Mounds View - Crestview	2406 Woodcrest Drive	Mounds View	MN	Ramsey	Ramsey/AH	Leased
91	Mpls - 19th Avenue	3740 - 19th Avenue S.	Minneapolis	MN	Hennepin	Henn	Owned
92	Mpls - 41st Avenue	3740 - 41st Avenue South	Minneapolis	MN	Hennepin	Henn	Owned
93	Mpls - Newton	4401 Newton Avenue N	Minneapolis	MN	Hennepin	Henn	Owned
94	North Branch	6171 Elm Street	North Branch	MN	Chisago	North Branch	Leased
95	North Branch - Zodiac	30382 Zodiac Street NE	North Branch	MN	Isanti	North Branch	Leased
96	Northfield - Canby Court	8631 Canby Court	Northfield	MN	Rice	Dundas	Owned
97	Northfield - Highland	300 Highland Avenue	Northfield	MN	Rice	Dundas	Owned
98	Northfield - Jefferson	1904 Jefferson Road	Northfield	MN	Rice	Dundas	Owned
99	Northfield - Sciota	1375 - 310th Street East	Northfield	MN	Dakota	Dakota Simul	Owned
100	Owatonna - 32nd Avenue	300 SW 32nd Avenue	Owatonna	MN	Steele	Owatonna	Owned
101	Owatonna - 8th Avenue	2020 - 8th Avenue NE	Owatonna	MN	Steele	Owatonna	Owned
102	Park Rapids	911 Pine Street	Park Rapids	MN	Hubbard	Nevis	Leased
103	Pillager - Lakes Employment	110 East 2nd Street	Pillager	MN	Cass	Pillager	Leased
104	Pillager - Northland Park	12418 - 43rd Avenue SW	Pillager	MN	Cass	Pillager	Leased
105	Pillager - Sylvan	12819 - 25th Avenue SW	Pillager	MN	Cass	Pillager	Leased
106	Pillager Creek	118 East 2nd Street	Pillager	MN	Cass	Pillager	Leased
107	Pine City	215 East 6th Avenue	Pine City	MN	Pine	Pine City	Owned
108	Pine City Crisis	12433 Loon Drive	Pine City	MN	Pine County	Pine City	Owned
109	Pine Island	611 County Road 13 SW	Pine Island	MN	Olmsted	Pine Island	Leased
110	Randall - Maplewood	121 Maplewood Drive	Randall	MN	Morrison	Little Falls	Leased
111	Raymond - Chippewa	5035-140th Avenue NE	Raymond	MN	Kandiyohi	Willmar/Woods	Leased
112	Redwood Falls	205 Baker Drive	RWF	MN	Redwood	Morton	Owned
113	Redwood Falls - Falls Place	628 Middle Street	RWF	MN	Redwood	Morton	Owned
114	Redwood Falls - Middle River	630 Middle Street	RWF	MN	Redwood	Morton	Owned
115	Richfield	6637 Fourth Avenue South	Richfield	MN	Hennepin	Hennepin Co	Owned
116	Richfield - South Stevens	7532 Stevens Avenue S.	Richfield	MN	Hennepin	Hennepin Co	Leased
117	Rochester	448 - 17th Street SW	Rochester	MN	Olmsted	Rochester	Owned
118	Rochester - Greenhouse	1613 8th Avenue	Rochester	MN	Olmsted	Rochester	Leased
119	Rochester - Hunter Hills	5502 - 22nd Avenue NW	Rochester	MN	Olmsted	Rochester	Leased
120	Rochester - Knotting Hill	4342 Knotting Hill Lane NW	Rochester	MN	Olmsted	Rochester	Leased
121	Rochester - Summerset	5405 Highway #63 S.	Rochester	MN	Olmsted	Rochester	Owned
122	Roseville - Woodcrest	1898 Huron Avenue	Roseville	MN	Ramsey	Ramsey Co	Leased
123	Sauk Rapids - Arbor Way	900 Arbor Way	Sauk Rapids	MN	Benton	St Cloud	Leased
124	Scandia	15565 - 220th Street	Scandia	MN	Washington	Scandia	Owned
125	St Paul - Aurora II	St. Paul Business Center	St. Paul	MN	Ramsey	Ramsey Co	Leased
126	St Peter - Valley Enterprises	1711 Gault Street	St. Peter	MN	Nicollet	Nic/St Peter	Leased
127	Stacy - Fawn Lake	6616 Fawn Lake Drive NE	Stacy	MN	Anoka	Anoka Simul	Leased
128	Staples - Oakwood Terrace	30480 Trader Trail	Staples	MN	Todd	Staples?	Leased
129	Vadnais Heights	3200 Labore Road	Vd Heights	MN	Ramsey	Ramsey Co	Leased
130	Vadnais Hgts - Aurora	3526 Labore Road	Vd Heights	MN	Ramsey	Ramsey Co	Leased
131	Virginia	700 South 7th Avenue	Virginia	MN	St. Louis	Virginia	Owned
132	Virginia - Range Area Voc	1006 8th Street South	Virginia	MN	St. Louis	Virginia	Leased
133	W St Paul - Christensen	1546 Christensen Avenue	West St. Paul	MN	Dakota	Dakota Simul	Leased
134	Warsaw - Ableman	23450 Falls Avenue	Warsaw	MN	Rice	Faribault	Owned
135	West Concord	406 - 6th Street	West Concord	MN	Dodge	Dodge Cntr	Owned
136	White Bear Lake	5103 Long Avenue	WBL	MN	Ramsey	Ramsey Co	Leased
137	White Bear Lake - Halper Way	1289 Halper Way	WBL	MN	Ramsey	Ramsey Co	Leased
138	Willmar - Crossroads	2000 SW Trott Avenue	Willmar	MN	Kandiyohi	Willmar	Leased
139	Willmar - Lakeland I	1021 Lakeland Drive NE	Willmar	MN	Kandiyohi	Willmar	Leased
140	Willmar - Lakeland II	913 Lakeland Drive NE	Willmar	MN	Kandiyohi	Willmar	Leased
141	Willmar - Terrace Drive	208 Terrace Drive SW	Willmar	MN	Kandiyohi	Willmar	Leased

### Attachment 3A

	Rev August 4, 2015				
	<b>DHS MN ARMER - Existing Talk Groups</b>				
	<b>Talk Group Alias</b>	<b>Function</b>	<b>ID</b>	<b>Notes 1</b>	<b>Notes 2</b>
1	DHS-MSOP-ML1	MSOP Moose Lake	80036682		Recorded by DHS/DOC
2	DHS-MSOP-ML2	MSOP Moose Lake	80036684		Recorded by DHS/DOC
3	DHS-MSOP-ML3	MSOP Moose Lake	80036686		Recorded by DHS/DOC
4	DHS-MSOP-ML4	MSOP Moose Lake	80036688		Recorded by DHS/DOC
5	DHS-MSOP-ML5	MSOP Moose Lake	80036690		Recorded by DHS/DOC
6	DHS-MSOP-ML6	MSOP Moose Lake	80036692		Recorded by DHS/DOC
7	DHS-SOP-ML7	MSOP Moose Lake	80036694		Recorded by DHS/DOC
8	DHS-MSOP-ML8	MSOP Moose Lake	80036696		Recorded by DHS/DOC
9	DHS-MSOP-SP1	MSOP St Peter	80020196	Same as "Main" on console?	Recorded by DOC Fblt
10	DHS-MSOP-SP2	MSOP St Peter	80020198	Same as "Trans" on console?	Recorded by DOC Fblt
11	DHS-MSOP-SP3	MSOP St Peter	80020200	Same as "Emer" on console?	Recorded by DOC Fblt
12	DHS-MSOP-SP4	MSOP St Peter	80020202	Same as "MTC" on console?	Recorded by DOC Fblt
13	DHS-MSOP-SP5	MSOP St Peter	80020204	Same as "ICS" on console?	Recorded by DOC Fblt
14	DHS-MSOP-SP6	MSOP St Peter	80020206		Recorded by DOC Fblt
15	DHS-SOP-SP7	MSOP St Peter	80020208		
16	DHS-MSOP-SP8	MSOP St Peter	80020210		
17	MNMSH 2SPRCT(?)	MSOP St Peter	?	On console at St Peter	
18	DHSEME	DHS SW EM/REP	80000455	From existing radio matrix	
19	DHSEME1	DHS SW EM/REP	80000459	From existing radio matrix	
20	DHSEME2	DHS SW EM/REP	80000460	From existing radio matrix	
21	DHSEM3	DHS SW EM/REP	80000461	From existing radio matrix	
22	DHSROAM	Statewide Roam	80000462	From existing radio matrix	
23	DHSCO	DHS Central Office Metro	80000463	From existing radio matrix	
24	DHS-MSOP-AOSI	?	80000516		
25	DHS-MSOP-ATRF	?	80000518		
26	DHS-WLMR TRT CTR	?	80024119		
27	DHS-MSOP-OSI1	Statewide Roam	80000512		
28	DHS-MSOP-OSI2	Statewide Roam	80000514		

## Attachment 3B

Rev August 4, 2015

DHS MN ARMER Fleetmap: New/Proposed Talk Groups - Primary Locations					
	Talk Group Alias	Function		Notes 1	Notes 2
1	MNDHS AN OPS	Anoka Operations			AMRTC CARE
2	MNDHS AN TAC	Anoka Tactical			AMRTC CARE
3	MNDHS AN ADMIN	Anoka Administrative			AMRTC CARE
4	MNDHS AN FACIL	Anoka Facilities Mtc			AMRTC CARE
5	MNDHS AN SEC	Anoka Security			AMRTC CARE
6	MNDHS STP OPS	St Peter Operations			MSHS
7	MNDHS STP TAC	St Peter Tactical			MSHS
8	MNDHS STP ADMIN	St Peter Administrative			MSHS
9	MNDHS STP FACIL	St Peter Facilities Mtc			MSHS
10	MNDHS STP SEC	St Peter Security			MSHS
11	MNDHS BRD OPS	Brainerd Operations			MSHS CARE
12	MNDHS BRD TAC	Brainerd Tactical			MSHS CARE
13	MNDHS BRD FACIL	Brainerd Facilities Mtc			MSHS CARE
14	MNDHS ALX OPS	Alexandria Operations			CBHH
15	MNDHS ALX TAC	Alexandria Tactical			CBHH
16	MNDHS ANN OPS	Annandale Operations			CBHH
17	MNDHS ANN TAC	Annandale Tactical			CBHH
18	MNDHS BXT OPS	Baxter Operations			CBHH
19	MNDHS BXT TAC	Baxter Tactical			CBHH
20	MNDHS BJI OPS	Bemidji Operations			CBHH
21	MNDHS BJI TAC	Bemidji Tactical			CBHH
22	MNDHS CAM OPS	Cambridge Operations			
23	MNDHS CAM TAC	Cambridge Tactical			
24	MNDHS CAR OPS	Carlton Operations			CARE
25	MNDHS CAR TAC	Carlton Tactical			CARE
26	MNDHS FF OPS	Fergus Falls Operations			CARE CBHH
27	MNDHS FF TAC	Fergus Falls Tactical			CARE CBHH
28	MNDHS RCH OPS	Rochester Operations			CBHH
29	MNDHS RCH TAC	Rochester Tactical			CBHH
30	MNDHS STP2 OPS	St Peter Operations			CARE CBHH
31	MNDHS STP2 TAC	St Peter Tactical			CARE CBHH
32	MNDHS WDN OPS	Wadena Operations			MSHS
33	MNDHS WDN OPS	Wadena Tactical			MSHS
34	MNDHS WIL OPS	Willmar Operations			MSHS CBHH CABHS
35	MNDHS WIL TAC	Willmar Tactical			MSHS CBHH CABHS

## Attachment 3C

Rev August 4, 2015

DHS MN ARMER - MSOCS Locations - New/Proposed Talk Groups				
	Talk Group Alias	Function	Notes 1	Notes 2
1	MNDHS AKY OPS1	Akeley Crossing		MSOCS
2	MNDHS AKY OPS2	Akeley Road		MSOCS
3	MNDHS ALX OPS	Alexandria MSOCS 2 Ops		MSOCS
4	MNDHS AN2 OPS	Anoka/Burns		MSOCS
5	MNDHS AUS OPS1	Austin		MSOCS
6	MNDHS AUS OPS2	Austin - Shady Grove		MSOCS
7	MNDHS AUS OPS3	Austin - Turtle Creek Ind		MSOCS
8	MNDHS AUS OPS4	Austin - Turtle Creek Ind new		MSOCS
9	MNDHS BAX OPS1	Baxter - Brentwood		MSOCS
10	MNDHS BAX OPS2	Baxter - Forestview		MSOCS
11	MNDHS BAX OPS3	Baxter - Lynndale		MSOCS
12	MNDHS BAX OPS4	Baxter - Quality Ent		MSOCS
13	MNDHS BAX OPS5	Baxter - Quality Enterprises II		MSOCS
14	MNDHS BJI OPS	Bemidji		MSOCS
15	MNDHS BLK OPS	Big Lake - Ridge Place		MSOCS
16	MNDHS BIW OPS	Biwabik		MSOCS
17	MNDHS BPK OPS1	Bk Park - 89th Crescent		MSOCS
18	MNDHS BPK OPS2	Bk Park - 91st Crescent		MSOCS
19	MNDHS BPK OPS3	Bk Park - Prestwick		MSOCS
20	MNDHS BPK OPS4	Bk Park - West River Road		MSOCS
21	MNDHS BLN OPS	Blaine		MSOCS
22	MNDHS BLM OPS1	Bloomington - Old Shak Rd		MSOCS
23	MNDHS BLM OPS2	Bloomington		MSOCS
24	MNDHS BLM OPS3	Bloomington - Solstice Voc		MSOCS
25	MNDHS BLM OPS4	Bloomington - Windfield		MSOCS
26	MNDHS BHM OPS	Braham		MSOCS
27	MNDHS BRD OPS2	Brainerd - Hillcrest		MSOCS
28	MNDHS BRD OPS3	Brainerd - Pine Street		MSOCS
29	MNDHS BRD OPS4	Brainerd - Pickeral Lake		MSOCS
30	MNDHS BRD OPS5	Brainerd - N Street		MSOCS
31	MNDHS BVL OPS1	Burnsville - Crystal		MSOCS
32	MNDHS BVL OPS2	Burnsville - Dakota Crisis		MSOCS
33	MNDHS CAM OPS1	Cambridge - East Central		MSOCS
34	MNDHS CAM OPS2	Cambridge - Evergreen		MSOCS
35	MNDHS CLK OPS	Cass Lake		MSOCS
36	MNDHS CMP OPS	Champlin - Dean		MSOCS
37	MNDHS CLC OPS1	Clara City - Division Street		MSOCS
38	MNDHS CLC OPS2	Clara City - Sparks		MSOCS
39	MNDHS CLQ OPS	Cloquet - Stephen Road		MSOCS
40	MNDHS DAY OPS	Dayton - Rosewood		MSOCS
41	MNDHS DLH OPS1	Duluth - Airpark I		MSOCS
42	MNDHS DLH OPS2	Duluth - Lincoln Park Lifeskills		MSOCS
43	MNDHS DLH OPS3	Duluth - Pike Lake		MSOCS
44	MNDHS DLH OPS4	Duluth - Swan Lake		MSOCS
45	MNDHS EGN OPS	Eagan - Sibley		MSOCS
46	MNDHS EGF OPS1	East Grand Forks		MSOCS

## Attachment 3C

47	MNDHS EGF OPS2	East Grand Forks - Red River		MSOCS
48	MNDHS EDP OPS1	Eden Prairie - Chatham Way		MSOCS
49	MNDHS EDP OPS2	Eden Prairie - Dell Road		MSOCS
50	MNDHS EDP OPS3	Eden Prairie - Met Tech Park		MSOCS
51	MNDHS EDP OPS4	Eden Prairie - Met Unlimited		MSOCS
52	MNDHS EBL OPS1	Elbow Lake NE		MSOCS
53	MNDHS EBL OPS2	Elbow Lake SE		MSOCS
54	MNDHS FAR OPS1	Faribault - 3rd Street		MSOCS
55	MNDHS FAR OPS2	Faribault - 7th Avenue		MSOCS
56	MNDHS FAR OPS3	Faribault - Allen Path		MSOCS
57	MNDHS FAR OPS4	Faribault - Cannon River		MSOCS
58	MNDHS FAR OPS5	Faribault - Park Avenue		MSOCS
59	MNDHS FAR OPS6	Faribault - Shumway		MSOCS
60	MNDHS FAR OPS7	Faribault - Windsor PL		MSOCS
61	MNDHS FRM OPS1	Farmington - Donnelly		MSOCS
62	MNDHS FRM OPS2	Farmington - Eaves Way		MSOCS
63	MNDHS FF OPS2	Fergus Falls - Gustavus		MSOCS
64	MNDHS FF OPS3	Fergus Falls - Sterling Heights		MSOCS
65	MNDHS FF OPS4	Fergus Falls - Union		MSOCS
66	MNDHS FLK OPS1	Forest Lake		MSOCS
67	MNDHS FLK OPS2	Forest Lake - Irish		MSOCS
68	MNDHS FDL OPS	Fridley - Metro Tech Ind		MSOCS
69	MNDHS GVL OPS	Golden Valley - Scott Avenue		MSOCS
70	MNDHS HAM OPS	Ham Lake		MSOCS
71	MNDHS HAR OPS	Harris		MSOCS
72	MNDHS HAY OPS	Hayfield - Westfield		MSOCS
73	MNDHS HER OPS1	Hermanton - W Arrowhead Rd		MSOCS
74	MNDHS HER OPS2	Hermantown - W Marble St		MSOCS
75	MNDHS HER OPS3	Hermantown Crisis		MSOCS
76	MNDHS ISN OPS	Isanti - Rum River Orn		MSOCS
77	MNDHS KSN OPS1	Kasson		MSOCS
78	MNDHS KSN OPS2	Kasson - Region 10		MSOCS
79	MNDHS LKV OPS1	Lakeville - Hershey		MSOCS
80	MNDHS LKV OPS2	Lakeville - Jonquil		MSOCS
81	MNDHS LPT OPS	Laporte		MSOCS
82	MNDHS MAH OPS	Mahnomen		MSOCS
83	MNDHS MPG OPS	Maple Grove		MSOCS
84	MNDHS MED OPS	Medford - Straight River Ent		MSOCS
85	MNDHS MHD OPS	Moorhead		MSOCS
86	MNDHS MLK OPS1	Moose Lake		MSOCS
87	MNDHS MLK OPS2	Moose Tracks		MSOCS
88	MNDHS MLK OPS3	Moose Tracks 2		MSOCS
89	MNDHS MOR OPS	Morristown		MSOCS
90	MNDHS MVW OPS	Mounds View - Crestview		MSOCS
91	MNDHS MSP OPS1	Mpls - 19th Avenue		MSOCS
92	MNDHS MSP OPS2	Mpls - 41st Avenue		MSOCS
93	MNDHS MSP OPS3	Mpls - Newton		MSOCS
94	MNDHS NBH OPS1	North Branch		MSOCS
95	MNDHS NBH OPS2	North Branch - Zodiac		MSOCS

## Attachment 3C

96	MNDHS NTF OPS1	Northfield - Canby Court		MSOCS
97	MNDHS NTF OPS2	Northfield - Highland		MSOCS
98	MNDHS NTF OPS3	Northfield - Jefferson		MSOCS
99	MNDHS NTF OPS4	Northfield - Sciota		MSOCS
100	MNDHS OWT OPS1	Owatonna - 32nd Avenue		MSOCS
101	MNDHS OWT OPS2	Owatonna - 8th Avenue		MSOCS
102	MNDHS PRK OPS	Park Rapids		MSOCS
103	MNDHS PIL OPS1	Pillager - Lakes Employment		MSOCS
104	MNDHS PIL OPS2	Pillager - Northland Park		MSOCS
105	MNDHS PIL OPS3	Pillager - Sylvan		MSOCS
106	MNDHS PIL OPS4	Pillager Creek		MSOCS
107	MNDHS PIN OPS1	Pine City		MSOCS
108	MNDHS PIN OPS2	Pine City Crisis		MSOCS
109	MNDHS PNI OPS	Pine Island		MSOCS
110	MNDHS RAN OPS	Randall - Maplewood		MSOCS
111	MNDHS RAY OPS	Raymond - Chippewa		MSOCS
112	MNDHS RWF OPS1	Redwood Falls		MSOCS
113	MNDHS RWF OPS2	Redwood Falls - Falls Place		MSOCS
114	MNDHS RWF OPS3	Redwood Falls - Middle River		MSOCS
115	MNDHS RCH OPS1	Richfield		MSOCS
116	MNDHS RCH OPS2	Richfield - South Stevens		MSOCS
117	MNDHS ROC OPS1	Rochester		MSOCS
118	MNDHS ROC OPS2	Rochester - Greenhouse		MSOCS
119	MNDHS ROC OPS3	Rochester - Hunter Hills		MSOCS
120	MNDHS ROC OPS4	Rochester - Knotting Hill		MSOCS
121	MNDHS ROC OPS5	Rochester - Summerset		MSOCS
122	MNDHS RSV OPS	Roseville - Woodcrest		MSOCS
123	MNDHS SKR OPS	Sauk Rapids - Arbor Way		MSOCS
124	MNDHS SCN OPS	Scandia		MSOCS
125	MNDHS STP OPS	St Paul - Aurora II		MSOCS
126	MNDHS SP3 OPS	St Peter - Valley Enterprises		MSOCS
127	MNDHS SCY OPS	Stacy - Fawn Lake		MSOCS
128	MNDHS STA OPS	Staples - Oakwood Terrace		MSOCS
129	MNDHS VDN OPS1	Vadnais Heights		MSOCS
130	MNDHS VDN OPS2	Vadnais Hgts - Aurora		MSOCS
131	MNDHS VIR OPS1	Virginia		MSOCS
132	MNDHS VIR OPS2	Virginia - Range Area Voc		MSOCS
133	MNDHS WSP OPS	W St Paul - Christensen		MSOCS
134	MNDHS WAR OPS	Warsaw - Ableman		MSOCS
135	MNDHS WTC OPS	West Concord		MSOCS
136	MNDHS WBL OPS1	White Bear Lake		MSOCS
137	MNDHS WBL OPS2	White Bear Lake - Halper Way		MSOCS
138	MNDHS WIL OPS1	Willmar - Crossroads		MSOCS
139	MNDHS WIL OPS2	Willmar - Lakeland I		MSOCS
140	MNDHS WIL OPS3	Willmar - Lakeland II		MSOCS
141	MNDHS WIL OPS4	Willmar - Terrace Drive		MSOCS

## Attachment 4 - DHS ARMER Plan

### DHS MN ARMER Radio Inventory (Existing and Future)

Existing Locations	Facility		No. of Radios
Moose Lake MSOP	MSOP		345
St. Peter MSOP	MSOP		150
Carlton CARE	CARE		20
REP Program & Security	Admin & EM		20
<b>Total Radios</b>			<b>535</b>
Future Locations	Facility	No. of Locations	Total no. of Radios
Anoka MSHS	MSHS	1	117
St. Peter MSHS	MSHS	1	516
Anoka CARE	CARE	1	25
Anoka	MSOCS	1	2
Akeley	MSOCS	2	4
Alexandria	CBHH	1	25
Alexandria	MSOCS	1	2
Annandale	CBHH	1	21
Austin	MSOCS	4	8
Baxter	MSOCS	5	10
Baxter	CBHH	1	23
Bemidji	MSOCS	1	2
Bemidji	CBHH	1	23
Big Lake	MSOCS	1	2
Biwabik	MSOCS	1	2
Blaine	MSOCS	1	2
Braham	MSOCS	1	2
Brainerd	CARE MSHS	1	34
Brainerd	MSOCS	4	8
Brooklyn Park	MSOCS	4	8
Burnsville	MSOCS	2	4
Cambridge	CARE	1	23
Cambridge	MSOCS	2	4
Cass Lake	MSOCS	1	2
Champlin	MSOCS	1	2
Clara City	MSOCS	2	4
Cloquet	MSOCS	1	2
Dayton	MSOCS	1	2
Duluth	MSOCS	4	8
Eagan	MSOCS	1	2
East Grand Forks	MSOCS	2	4
Eden Prairie	MSOCS	4	8
Elbow Lake	MSOCS	2	4
Faribault	MSOCS	7	14
Farmington	MSOCS	2	4
Fergus Falls	CARE CBHH	1	47

## Attachment 4 - DHS ARMER Plan

Fergus Falls	MSOCS	3	6
Forest Lake	MSOCS	2	4
Fridley	MSOCS	1	2
Golden Valley	MSOCS	1	2
Ham Lake	MSOCS	1	2
Harris	MSOCS	1	2
Hayfield	MSOCS	1	2
Hermantown	MSOCS	3	6
Isanti	MSOCS	1	2
Kasson	MSOCS	2	4
Lakeville	MSOCS	2	4
LaPorte	MSOCS	1	2
Mahnomen	MSOCS	1	2
Maple Grove	MSOCS	1	2
Medford	MSOCS	1	2
Moorhead	MSOCS	1	2
Moose Lake	MSOCS	3	6
Morristown	MSOCS	1	2
Moundsview	MSOCS	1	2
Minneapolis	MSOCS	3	6
North Branch	MSOCS	2	4
Northfield	MSOCS	4	8
Owatonna	MSOCS	2	4
Park Rapids	MSOCS	1	2
Pillager	MSOCS	4	8
Pine City	MSOCS	2	4
Pine Island	MSOCS	1	2
Randall	MSOCS	1	2
Raymond	MSOCS	1	2
Redwood Falls	MSOCS	3	6
Richfield	MSOCS	2	4
Rochester	CBHH	1	20
Rochester	MSOCS	5	10
Roseville	MSOCS	1	2
Sauk Rapids	MSOCS	1	2
Scandia	MSOCS	1	2
St Paul	MSOCS	1	2
St Peter	CARE CBHH	1	40
St Peter	MSOCS	1	2
Stacy	MSOCS	1	2
Staples	MSOCS	1	2
Vadnais Heights	MSOCS	2	4
Virginia	MSOCS	2	4
W St Paul	MSOCS	1	2
Wadena	MSHS	1	
Warsaw	MSOCS	1	2
West Concord	MSOCS	1	2



**Attachment 4 - DHS ARMER Plan**

White Bear Lake	MSOCS	2	4
Willmar	CABHS CARE	1	38
Willmar	MSHS	1	??
Willmar	MSOCS	4	8
GRAND TOTALS	0		1761



# Anoka County

## COUNTY ADMINISTRATION

Central Communications / Radio Service

### Participation Plan Amendment

Anoka County is formally requesting approval of an amendment to its participation plan for the addition of a WAVE Radio over IP gateway as well as adding local schools as users on the radio system via the WAVE system. The addition of the WAVE system is to allow schools to utilize one dispatch hailing talkgroup in case of a major incident. This would be a resource that could be used in lieu of calling 911. It can also benefit both the schools and public safety during an incident as the dispatcher could patch a school user to a public safety responder.

One of the major challenges for school admin and school liaison officers is that there are two different radio systems within the school. A private radio system is sometimes used for school admin to talk to each other as well as the liaison officer. The ARMER system is used for the liaison officer to talk to dispatch. We have found in many schools that neither system covers all of the school well. By utilizing the WAVE system we are able to provide a single system to cover the needs of all users and give coverage throughout the school.

Anoka County has talked to MnDOT on the use of the WAVE system and they have no concerns as it does not connect directly into the ARMER system via an ISSI gateway. Anoka County has no intentions of connecting via ISSI in the future. We look to expand via mobile radio connections.

Respectfully,

**Jake Thompson**

Emergency Dispatching for Sheriff, Police and Fire Departments in Anoka County

Radio Shop ▲ 13595 Hanson Blvd NW ▲ Andover, MN 55304  
Office: 763-450-4580 ▲ Fax: 763-755-2035 ▲ [www.anokacounty.us](http://www.anokacounty.us)

Affirmative Action / Equal Opportunity Employer



DEDICATED TO PUBLIC SAFETY

**RICHARD W. STANEK**  
HENNEPIN COUNTY SHERIFF

COMMUNICATIONS DIVISION

Mr Troy Tretter  
Radio Services Coordinator  
Metropolitan Emergency Services Board  
2099 University Ave West  
St Paul, MN 55104

Hennepin County is respectfully requesting a change to our participation plan. Hennepin County is planning to add one channel to the Hennepin WEST simulcast group. The Hennepin West simulcast group currently has 16 channels at 8 sites, one additional channel will provide 17 total channels. This channel expansion is needed to alleviate existing loading of this simulcast group.

The new channel frequency to be used will be 856.9625/811.9625 MHz; this will be licensed by Hennepin County. The hardware needed for this new channel will be Motorola GTR8000 stations. The installation and optimization of this equipment is expected to start in the fourth quarter of 2016. The majority of work will be completed by Hennepin County technicians, some assistance may be needed from Mn/DOT and Motorola's dedicated FSO for integration of the channel to the Network.

Respectfully submitted,

Curt Meyer  
Asst. Radio Systems Manager  
Hennepin County Sheriff's Communications Technology  
Hennepin County Sheriff's Office  
1245 Shenandoah Ln  
Plymouth, Mn 55447



**Hennepin Emergency Medical Services**

701 Park Avenue South, Red 2

Minneapolis, MN 55415

612-873-3839

September, 8, 2016

Mr. Troy Tretter  
Radio Services Coordinator  
Metropolitan Emergency Services Board  
2099 University Ave West  
St Paul, MN 55104

Hennepin County Medical Center EMS is respectfully requesting a change to our participation plan. We are planning to add 1 new MCC7500 dispatch operator position. This addition will bring us to a total of 6 dispatch operator positions. The new MCC7500 console will be added onto the same dispatch site as our current consoles and this equipment will be used by HCMC EMS to dispatch our responders on our internal talk-groups.

The equipment will be purchased from Motorola and we will be working with the vendor and Hennepin County Sheriff's Office technicians to complete the install. This work is expected to start in the fourth quarter of 2016 and expected to be completed by the end of the first quarter of 2017.

Respectfully submitted,

Wendy Lynch.

Hennepin EMS Chief  
Communications, Technology, WMRCC



**METROPOLITAN  
EMERGENCY SERVICES BOARD**

2099 UNIVERSITY AVENUE WEST  
SUITE 201  
SAINT PAUL, MINNESOTA  
55104-3431

PHONE 651-643-8395  
FAX 651-603-0101  
[WWW.MN-MESB.ORG](http://WWW.MN-MESB.ORG)

## MEMO

**To:** Radio TOC Members  
**Fr:** Troy Tretter  
**Date:** September 21, 2016  
**RE:** Regional Funding Priorities, FY 2017

---

Per ECN Director Jackie Mines, annually each radio region must establish regional funding priorities for the next grant cycle.

Types of grants available for the Metro Region:

- SECB (State Emergency Communications Board): This is a state grant paid though state 911 fees, we cannot buy radios with this grant.
- SHSP (State Homeland Security Grant Program): This is a federal grant that ECN applies for yearly, priorities are set by the federal government each grant.
- SLIGP (State and Local Implementation Grant Program): This grant is a mixture of state and Federal funds and can only be used for FirstNet and Broadband activities.

The following list represents the funding priorities approved for FY2016:

- Motorola IP Simulcast Training (Course ACS715217)
- Metro Region Dispatcher Scenario Training
- TIC Plan Maintenance
- IPAWS Software
- Portable Tower
- Non-ARMER interoperability infrastructure

The Radio TOC needs to finalize a list of funding priorities at the October 2016 TOC Meeting.

To: John Anderson (System Managers Group)  
Tim Lee (MnDOT)  
SECB Finance Committee  
Dewey Johnson (Northeast Regional Advisory Committee)  
Neil Dolan (Northwest Regional Advisory Committee)  
Micah Meyers (Central Regional Advisory Committee)  
Ulie Seal (Metropolitan Emergency Services Board)  
Bill Flatten (Southwest Regional Advisory Committee)  
Tim Mohr (South Central Regional Advisory Committee)  
Dave Pike (Southeast Regional Advisory Committee)

From: Jim Stromberg, ARMER Program Manager

Date: September 8, 2016

Subject: Scene of Action Repeater (SOAR) Change Management Request

---

On October 13, 2015, Kandiyohi and Stevens Counties requested of the OTC that the SECB consider changing the way one of Minnesota's Scene of Action (SOA) channels is used (attached). The goal of the request was to enhance ARMER coverage in rural communities where in-building ARMER coverage suffers by repurposing a statewide simplex "Scene of Action" channel to be used as a repeated channel. The request has come to be known as SOAR (Scene of Action Repeater).

The Operations and Technical Committee (OTC) and the Interoperability Committee (IOC) reviewed the SOAR proposal and have identified SOAR as both a major operational and a major technical proposal. The OTC and the IOC engaged the Change Management process prescribed in Change Management Standards, 1.5.2 and 1.8.0.

The attached report and the points below summarize the proposal, to date.

- The OTC created a workgroup that later submitted a report (attached) recommending that 800 MHz National Interoperability Channels be considered instead of SOAs.
- The OTC guided the Workgroup to draft a standard in which both simplex SOAs and 800 MHz National Interoperability Channels be considered as options. The OTC also asked the IOC to formally consider if this was an approved use of the 800 MHz National Interoperability Channels.
- The IOC approved using 800 MHz National Interoperability Channels in this configuration for interoperability purposes and asked that a draft standard also be brought to it for review.

- The workgroup drafted a standard (attached) and renamed SOAR to *Conventional Resource ARMER Enhancement*.
- Per the Change Management standards, the OTC recommended that the SOAR issue be forwarded to MnDOT, the System Managers Group, the SECB Finance Committee, and each of the Emergency Communications/Services Board regions for reviews.

Will you please present the SOAR Change Management issue and the attached documents to your groups at your next meetings and provide written feedback to me shortly afterward? When your comments are received, I will present them and the draft standard to the OTC and IOC.

I am available for your questions by email ([james.stromberg@state.mn.us](mailto:james.stromberg@state.mn.us)) or telephone (651-201-7557).

# Allied Radio Matrix for Emergency Response (ARMER)

## Change Proposal

---

### 1. Administrative Information:

Type of Change (Technical or Operational): **Both Technical and Operational**

Date Submitted: **01/12/16**

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

Change Sponsor (Individual) Contact Information: **Central MN RAC & Stevens County**

Summary of proposed change(s): **Local use of 8SOA3 during an emergency, training, exercises or special events.**

**Weak and no coverage areas that are low traffic, multi structure with poor or no portable coverage from the ARMER system will benefit from a SOAR. These areas are small in size and with too many structures to warrant an indoor BDA, and where Outdoor BDA will not penetrate the structures, yet these areas are critical enough for indoor coverage for emergency responders.**

### 2. Existing SRB standards impacted:

**New Standard written and included.**

**CM- 3.15.0 How to Use Scene of Action (SOA)**

**State- 3.15.0 - Use of 700 MHz and 800 MHz Statewide Scene of Action (SOA) Channels effective 11/22/13**

**3.24 RF Control Stations?**

**3.25.0 - Radio to Radio Cross Band Repeaters?**



### 3. Scope of Change:

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

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

**The footprint of the SOAR must be contained to address immediate poor coverage area and not over extend beyond the intended coverage area.**

Impact on operational procedures (e.g., changes to operational standards): **New Standard (attached)**

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

**Users would need to be instructed on where the talkgroup is located in their radio, how to use it, and informed of any pertinent ARMER standards. SOAR procedures will need to be addressed in the training of all personnel operating within the SOAR system. Training will cover the different on scene procedures utilized by all users. It is critical that all users are aware of the rules and procedures and limitation in utilizing the SOAR channel.**

Impact on reprogramming or configuration of end-user equipment:

**Subscribers: Use of SOA 3 as a repeater pair 853.950/808.950 with a NAC code of 293 operating in Project 25 Phase 1 and not utilizing any Encryption.**

**The need or necessity for the SOAR channel to be programmed into radios will be determined by each agency. If an agency opts to not place this channel into their radios they will be responsible for any limitations on their ability to communicate within the SOAR coverage area.**

Consoles: **Control Stations currently set up for Site Trunking would need to be reprogrammed (if made mandatory).**

Other equipment:

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

**The Hancock School, Hancock Police Department, Chokio Fire Hall, Chokio School and other buildings within these cities have limited to no indoor coverage. A SOAR repeater is designed for radio to radio coverage in a poor or no coverage area of the ARMER radio system, also giving the radio one talk group on the ARMER system. With a use of a gateway the SOAR would tie to the ARMER talk group, effectively improving coverage for one talk group and also increasing the radio to radio coverage in the affected area.**

Once on the ARMER system a local dispatch agency will control and direct the traffic from the SOAR repeater.

**5. Expected improvements & benefits resulting from the change:**

**Interoperability**

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

**Start and End Date:** Start date could begin immediately.

**Description of Implementation Plan:** Stevens County is in line for a 2016 Central MN grant, the Stevens County Board of Commissioners has approved this grant and the 50 % match required.

**After OTC/Change Management approval:** Application for a SOAR will be submitted from the agency to the CM ESB for approval. Application will include.

- Letter explaining reason for SOAR
- Intended coverage area, how they will limit coverage foot print
- Agency who will be responsible for SOAR and contact information
- FCC form 601, schedule D, schedule H showing SOAR location and coverage area will be attached with the application.
- Other SOAR's within a 30 air mile radius
- A Valid FCC License has been obtained

**Local System Administrator will be responsible for ensuring that users follow the standards, protocol and procedures.**

- **Training**  
SOAR procedures will need to be addressed in the training of all personnel operating within the SOAR system. Training will cover the different on scene procedures utilized by all users. It is critical that all users are aware of the rules and procedures and limitation in utilizing the SOAR channel.



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

**System Tested:**

We have used a Quantar 800Mhz repeater with an antenna system low enough to give us town coverage, yet contain the signal to the areas that need indoor coverage and a small radius around the town.

A gateway system, consisting of two mobile radios, one on the 8TAC94 and the other on a County ARMER talk group as the interface, this was tested in Hancock and Atwater and both operational.

**Test Results:**

In both cases (Atwater and Hancock) we found no internal buildings that we could not penetrate using the 8TAC94 repeater. The Dispatch centers choose to use a lower County interop talk group which dispatch would monitor, and patch when required. All users inside and outside of the structures understand what channels and “talk groups” to use.

**Audio Delays:**

A concern of ours was if the audio delays in our system design would cause users on the 8TAC94, ARMER subscriber radios and dispatchers too much delay and make the system unusable. We did not find this to be the case, technically there is a slight delay, but not much more than what users experienced on a VHF repeater system.


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

**9. Other Attachments:**

Draft Standard, Letter to OTC Dated 09/23/15 & Letter Dated 05/29/15

## 10. Tracking and Approvals:

Submitter Approval:

 01-11-2016  
Signature Date

DECN Receipt:

\_\_\_\_\_  
Signature Date

OTC/IOC Determination of Need:

\_\_\_\_\_  
Signature Date

MnDOT/ECN Approval:

\_\_\_\_\_  
Signature Date

OTC/IOC Approval of Assessments:

\_\_\_\_\_  
Signature Date

Finance Committee Approval:  
(if required)

\_\_\_\_\_  
Signature Date

Final SRB Approval:

\_\_\_\_\_  
Signature Date



# 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
<u>April 12, 2016</u> : OTC identified this as a Major Change Management request.	← Identified as a Major Change

If a Major Technical/System Change OTC Review of Necessity and Substantial Benefit If YES, move on to MnDOT If No, return to Proponent	If a Minor Technical/System Change MnDOT System Administrator's Recommendation
<p><u>May 10, 2016</u>: 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.</p> <p><u>June 14, 2016</u>: 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.</p> <p><u>July 18, 2016</u>: 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.</p> <p style="text-align: center;"><u>July 28, 2016</u> Workgroup met and recommended using an 8TAC instead of an SOA. Memo drafted and sent to OTC.</p> <p style="text-align: center;"><u>August 9, 2016</u></p>	n/a

**Change Manage Progress Form**  
**Scene of Action Repeater (SOAR)**

SOAR discussed at OTC. Suggestion received that a simplex SOA be allowed as an option as well as repeated 8TACs. OTC supported using 8TACs and simplex SOAs. Tim Lee suggested that IOC should formally endorse this use of 8TACs. Motion to move to IOC for further consideration. Also included in motion was to <u>send to MnDOT for Technical Review, SMG for System Admin review, regions, and Finance Committee</u> . Recommended that a Standard be drafted to address this topic. In progress.	
--	--

If a Major Technical/System Change
MnDOT Technical Review
<u>September 8, 2016</u> : Sent to Tim Lee by email.

If a Major Technical/System Change
System Administrator Review
<u>September 8, 2016</u> : Sent to John Anderson by email.

If a Major Technical/System Change
Regional Input
<u>September 8, 2016</u> : Sent to all RAC Chairs by email.

If a Major Technical/System Change
Finance Committee Review and, if applicable, Regional Concurrence in Local Share
<u>September 8, 2016</u> : Carol asked to add to Finance Cmte agenda.

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

**Change Manage Progress Form**  
**Scene of Action Repeater (SOAR)**

**Operational/SOP Change Suggestion**

IOC Decision about whether Operational/SOP Change Suggestion would be a Major or Minor Change (if applicable)	
Major	Minor
<p><u>May 17, 2016</u>: Interop Cmte identified this as a MAJOR change and empowered the workgroup to sort out the next steps, per standard.</p> <p><u>May 18, 2016</u>: Email sent to AI advising that the IOC wants to add two people to the workgroup and offering assistance if those volunteers do not become apparent.</p> <p>Workgroup should consider</p> <ul style="list-style-type: none"> <li>• Comm Truck additions</li> <li>• Ability to be encrypted</li> </ul>	n/a

If a Major Operational/SOP Change	If a Minor Operational/SOP Change
<p>IOC Review of Necessity and Substantial Benefit</p> <p>If YES, IOC Determines Change Proposal Review Requirements</p> <p>If No, return to Proponent</p>	ECN Recommendations
<p><u>May 18, 2016</u>: This should be decided by the workgroup.</p>	

If a Major Operational/SOP Change
IOC Requirements for Assessments and Focus Groups
<p><u>August 16, 2016</u>: Workgroup already exists and is working on standard. No objections to moving forward with using simplex SOAs and repeated 8TACs. Workgroup should bring standard back to IOC for approval.</p>

If a Major Operational/SOP Change
ECN Report

If a Major Operational/SOP Change
Facilitator Reports
See workgroup info.

If a Major Operational/SOP Change
MnDOT Report
<p><u>September 8, 2016</u>: Sent to Tim Lee by email.</p>



**Change Manage Progress Form**  
**Scene of Action Repeater (SOAR)**

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

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  
Monte Fronk  
Chris Kummer  
Mike Peterson

Rick Freshwater  
Bill Flatten  
Dona Greiner  
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 than 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.

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

Document Section 3	<b>Interoperability Standards</b>	<b>Status:</b> Committee Date: 00/00/00
State Standard Number	<b>3.47.0</b>	
Standard Title	<b>Conventional Resource ARMER Enhancement</b>	
Date Established	<b>00/00/00</b>	<b>SRB Approval:</b> 00/00/00
Replaces Document Dated	<b>00/00/00</b>	
Date Revised	<b>00/00/00</b>	

### **1. Purpose or Objective**

This standard authorizes local system administrators to establish radio patches between conventional RF (radio frequency) resources and dedicated ARMER talkgroups for the purpose of providing radio coverage in specifically-defined areas insufficiently served by the trunked ARMER network.

The options identified in this standard shall be known as *Conventional Resource ARMER Enhancement*.

### **2. Technical Background**

#### **▪ Capabilities**

A connection between a strategically-placed gateway device programmed with a conventional channel and bridged to the ARMER network affords radio coverage in areas not well covered by ARMER.

#### **▪ Constraints**

The Conventional Resource ARMER Enhancement solutions offered in the standard are lower cost alternatives to more sophisticated options such as Signal Amplifiers (e.g. BDAs). Patching a conventional channel to ARMER comes with a variety of limitations. Among them, the following should be considered:

- Conventional radio channels have limited range.
- The options identified in this standard are meant to enhance significant ARMER coverage deficits but the solution implemented may, itself, be imperfect.
- End users selected to the conventional channel will lose their ability to scan ARMER resources. While radios may be programmed to allow this functionality it is discouraged in standard #2.12.0 because of other technical limitations.
- When using a traditional patch as authorized in this standard, typically only voice is carried between the two systems being bridged. Functions such as emergency buttons and radio aliases may not pass between the systems.

- Traditional radio bridges create a short delay and may result in clipping of the first portion of a voice transmission. Care must be taken to pause between pushing the push-to-talk button and speaking.
- The conventional channel identified for the patch must be available in user radios.

Technical guidance should be applied before employing a Conventional Resource ARMER Enhancement solution so that emissions, coverage area, technical limitations and training needs are understood.

### **3. Operational Context**

A conventional RF resource may be bridged to ARMER to provide supplemental radio coverage to a geographical area. The gateway device may be either fixed or mobile.

In the case of a fixed Conventional Resource ARMER Enhancement, the area to be served must be clearly defined and the RF solution should be engineered to provide for that area but not beyond it. Since a conventional channel will be patched to an ARMER talkgroup and talkgroups are a finite resource, it is encouraged that each Conventional Resource ARMER Enhancement be engineered to provide broad coverage of the area needing enhanced coverage so that multiple talkgroups are not needed for multiple sites in one geographical area. The ARMER talk group must be a local talk group dedicated exclusively to the patch.

In either a fixed or mobile Conventional Resource ARMER Enhancement, a simplex channel or a repeated channel may be employed and bridged to an ARMER talk group. The following conventional channels are authorized for use:

#### **Locally Identified Frequencies – Simplex or Repeated**

These channels may be used in a simplex or repeated configuration. They may be analog or digital and may not be encrypted. These channels may be used as dictated by their FCC license.

This option limits availability of this resource to only those who have the locally identified frequency programmed in to their radio.

#### **7SOA-9 or 7SOA-10 (700 MHz) -- Simplex**

These channels must be used in a simplex configuration; they may not be used in a repeated configuration. 7SOAs used as a Conventional Resource ARMER Enhancement must be digital and may not be encrypted. These channels may be used for routine, day-to-day business.

This option is available to all ARMER users however these channels are not required to be programmed in all ARMER radios.

#### **SOA-3 or SOA-4 (800 MHz) -- Simplex**

These channels must be used in a simplex configuration; they may not be used in a repeated configuration. SOAs must be digital and may not be encrypted. These channels may be used for routine, day-to-day business.

This option is available to all ARMER users.

#### 800 MHz Non-Federal National Interoperability Channels (8TACs) -- Simplex

These channels may be used in a simplex or repeated configuration. This section defines their availability for use in a simplex configuration. They must be analog and may not be encrypted. Normally, these channels should not be used for routine, day-to-day business. These channels should be used for interoperability purposes.

This option is available to any public safety unit nationwide with an 800 MHz radio, including all ARMER users.

#### 800 MHz Non-Federal National Interoperability Channels (8TACs) -- Repeated

These channels may be used in a simplex or repeated configuration. This section defines their availability for use in a repeated configuration. They must be analog and may not be encrypted. Normally, these channels should not be used for routine, day-to-day business. These channels should be used for interoperability purposes.

This option is available to any public safety unit nationwide with an 800 MHz radio, including all ARMER users. As repeated 8TACs are an interoperability asset, repeated 8TACs should be deployed to allow wide area coverage such as to a rural city or township.

### **4. Recommended Procedure**

Local ARMER system administrators may implement Conventional Resource ARMER Enhancement to enhance coverage in areas insufficiently served by the trunked ARMER network.

The need or necessity for a Conventional Resource ARMER Enhancement channel to be programmed into radios will be determined by each agency. If an agency opts to not place this channel into their radios they will be responsible for any limitations on their ability to communicate within the Conventional Resource ARMER Enhancement coverage area.

Applications for fixed Conventional Resource ARMER Enhancement shall be submitted to the impacted Emergency Communications/Services region and then to the Operations and Technical Committee of the SECB for approvals. An impacted region is any region where the Conventional Resource ARMER Enhancement will be employed or any region within 30 air miles of where the Conventional Resource ARMER Enhancement will be employed.

Application for fixed Conventional Resource ARMER Enhancement shall include:

- A letter explaining the need for a Conventional Resource ARMER Enhancement.
- The intended coverage area and how the coverage footprint will be limited
- The agency who will be responsible for Conventional Resource ARMER Enhancement and contact information.
- A FCC License form 601 schedule D and schedule H showing the Conventional Resource ARMER Enhancement location and coverage.
- Other Conventional Resource ARMER Enhancement channels within a 30 air mile radius.

Users when entering into a fixed Conventional Resource ARMER Enhancement coverage area with the intent of using the resource will notify the governing dispatch agency. The agency will be responsible for its use during the event.

Mobile Conventional Resource ARMER Enhancement solutions may be incorporated into special-use command and communications vehicles or daily-use vehicles such as squad cars and ambulances. Mobile Conventional Resource ARMER Enhancement solutions do not need approval from the Operations and Technical Committee of the SECB. They must be programmed so that only one mobile repeater may be active in a geographical area at a time.

Established NAC and CTCSS tones must be used for all Conventional Resource ARMER Enhancement configurations.

## **6. Management**

The local system administrator is responsible for all pieces of this process including technical matters, training, and licensing. The local system administrator is also responsible for coordinating with the Regional CASM (Communications Asset Survey Mapping) Administrator to add this resource to CASM and for coordinating with the SWIC (Statewide Interoperability Coordinator) to add this resource to the MNFOG (Minnesota Field Operations Guide).

To: John Anderson (System Managers Group)  
Tim Lee (MnDOT)  
SECB Finance Committee  
Dewey Johnson (Northeast Regional Advisory Committee)  
Neil Dolan (Northwest Regional Advisory Committee)  
Micah Meyers (Central Regional Advisory Committee)  
Ulrie Seal (Metropolitan Emergency Services Board)  
Bill Flatten (Southwest Regional Advisory Committee)  
Tim Mohr (South Central Regional Advisory Committee)  
Dave Pike (Southeast Regional Advisory Committee)

From: Jim Stromberg, ARMER Program Manager

Date: September 12, 2016

Subject: LTAC-E Change Management Request

---

As we are sure you are well aware, Hennepin County presented a Change Management request to the OTC asking that the state create two additional encrypted LTAC talkgroups. Both the OTC and the IOC have identified this request as a “major” change request and this request is in the Change Management process.

To date, the OTC has created a workgroup and accepted a report from it recommending that four, rather than two, new encrypted LTAC talkgroups be created. The IOC has asked the same workgroup to further explore a few items and the workgroup has done so. A report detailing progress, discussions, and meetings as well as the original proposal are attached.

The workgroup was authorized to advance this topic through the next steps in the change management standards, including reviews by MnDOT, the SMG, the Finance Committee, and the regions. Will your groups please consider the LTAC-E proposal and provide feedback to the workgroup through Jim Stromberg.

Thank you.



**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
<p><u>May 10, 2016</u>: the OTC decided that this was a Change Management matter and the change would be a <b>MAJOR Technical/System change</b>. The OTC advised that a workgroup should be formed.</p> <p><u>June 14, 2016</u>: Jim advised that the workgroup had not yet been formed because of pushback from regions about too many workgroups. Need for workgroup was reinforced and Nate Timm agreed to chair it and identify members.</p> <p><u>July 27, 2016</u>: 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.</p>	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
<p><u>August 9, 2016</u>: OTC approves four additional <b>LTAC-Es</b>. Forwards to MnDOT, SMG, regions, and Finance for review.</p>	n/a

## Change Manage Progress Form

### Additional Encrypted LTAC Talkgroups

If a Major Technical/System Change
MnDOT Technical Review
<p><u>August 25, 2016</u>: Workgroup suggests sending update to Tim Lee after they review today's meeting notes.</p> <p><u>August 26, 2016</u>: Curt, Nate, and John all reported that my meeting notes looked ok.</p> <p><u>September 12, 2016</u>: Summary sent to MnDOT for review.</p>

If a Major Technical/System Change
System Administrator Review
<p><u>August 25, 2016</u>: Workgroup suggests sending update to John Anderson after they review today's meeting notes.</p> <p><u>August 26, 2016</u>: Curt, Nate, and John all reported that my meeting notes looked ok.</p> <p><u>September 12, 2016</u>: Summary sent to SMG for review.</p>

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
<p><u>May 17, 2016</u>: Mentioned to IOC that issue would be on the next agenda as an item. IOC needs to decide if this is a major or minor change.</p> <p><u>August 16, 2016</u>: IOC decided this was a Major Change.</p>	n/a

# Change Manage Progress Form

## Additional Encrypted LTAC Talkgroups

If a Major Operational/SOP Change	If a Minor Operational/SOP Change
<p>IOC Review of Necessity and Substantial Benefit If YES, IOC Determines Change Proposal Review Requirements If No, return to Proponent</p>	ECN Recommendations
<p><u>August 16, 2016:</u> IOC recommended that the OTC workgroup should study this further. Specific items to study include home zone mapping, encryption keys, and patching rules. Micah offered to join the workgroup. Suggested that King Fung or Curt Meyer join the workgroup with Nate.</p> <p><u>August 17, 2016:</u> Email sent to John (per Nate's suggestions) and Curt asking if they could be part of a meeting to finish this discussion. Asked that they forward to King. John suggested Ron and Rod join discussion for their Home Zone Mapping knowledge.</p> <p><u>August 19, 2016:</u> Meeting invite sent to Nate, John, Curt, King, Rod, and Ron for 8/25/16.</p>	n/a

If a Major Operational/SOP Change
IOC Requirements for Assessments and Focus Groups
<p><u>August 16, 2016:</u> OTC decided this was a major issue and supported the OTC workgroup should study this further. Specific items to study include home zone mapping, encryption keys, and patching rules.</p>

If a Major Operational/SOP Change
ECN Report

If a Major Operational/SOP Change
Facilitator Reports
<p><u>August 25, 2016:</u> Workgroup call held. Attendees: King Fung, John G., Curt M., Nate T., Ron J., and me.</p> <p><b>Encryption Key:</b> Keep same as others. May be time to review encryption standards but not as part of this process.</p> <p><b>Home Zone Mapping:</b> Mostly metro use. Not much demand for patching. LTACE1-4 currently in Zone 4.</p> <p><b>Recommend putting 2 of the new ones in zone 1 and the other two in zone 2.</b></p> <p><b>New talkgroups v repurposing SIUs:</b> Leave SIUs alone. Create new talkgroups.</p> <p><b>Patching Rules:</b> Use existing standards. Consider reviewing the patching standards while reviewing the encryption standards.</p> <p>Discussion about if there are enough non-encrypted LTACs and the thought was that there were. STACs also available.</p> <p>I should draft an update and sent it to this group for review and then forward to SMG (John) and MnDOT (Tim). Pending.</p> <p><u>August 26, 2016:</u> Curt, Nate, and John all reported that my meeting notes looked ok.</p> <p><u>September 12, 2016:</u> Summary sent to MnDOT for review.</p>

**Change Manage Progress Form**  
**Additional Encrypted LTAC Talkgroups**

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
Finance Committee Review and, if applicable, Regional Concurrence in Local Share

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

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

# Allied Radio Matrix for Emergency Response (ARMER)

## Change Proposal

---

### 1. Administrative Information:

**Type of Change (Technical or Operational)**

Technical and Operational

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

Metropolitan Emergency Services Board - MESB

**Change Sponsor (Individual) Contact Information:**

Curt Meyer, Hennepin County – [curtis.meyer@hennepin.us](mailto:curtis.meyer@hennepin.us), 612-596-1922

### 2. Summary of proposed change(s):

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

### 3. Existing SRB standards impacted:

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

### 4. Scope of Change:

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

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

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

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

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

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

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

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

**Impact on reprogramming or configuration of end-user equipment:**

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

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

Other equipment: These new resources should be recorded.

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

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

Expected improvements & benefits resulting from the change:

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

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

**Start and End Date:**

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

**Description of Implementation Plan:**

Add to dispatch consoles, then to subscriber radios.

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

See attached documentation.

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

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

**9. Other Attachments:**

10.Tracking and Approvals:

Submitter Approval:

\_\_\_\_\_  
Signature Date

DECN Receipt:

\_\_\_\_\_  
Signature Date

OTC/IOC Determination of Need:

\_\_\_\_\_  
Signature Date

MnDOT/ECN Approval:

\_\_\_\_\_  
Signature Date

OTC/IOC Approval of Assessments:

\_\_\_\_\_  
Signature Date

Finance Committee Approval:  
(if required)

\_\_\_\_\_  
Signature Date

Final SRB Approval:

\_\_\_\_\_  
Signature Date

# LTAC5E

	User Total	PTT Total	Usage
State Agencies - MN	37	1988	1.2%

Federal Agencies	96	26333	15.9%
------------------	----	-------	-------

Non Metro Agencies	182	19592	11.8%
--------------------	-----	-------	-------

Metro Agencies	333	117897	71.1%
----------------	-----	--------	-------

Total			
	165810	100%	



# LTAC6E

	User Total	PTT Total	Usage
State Agencies - MN	39	2000	1.2%

Federal Agencies	95	26327	15.9%
------------------	----	-------	-------

Non Metro Agencies	181	19586	11.8%
--------------------	-----	-------	-------

Metro Agencies	333	117897	71.1%
----------------	-----	--------	-------

Total			
	165810	100%	

# LTAC7E

	User Total	PTT Total	Usage
State Agencies - MN	12	843	2.0%

Federal Agencies	48	13244	31.6%
------------------	----	-------	-------

Non Metro Agencies	119	6084	14.5%
--------------------	-----	------	-------

Metro Agencies	108	21789	51.9%
----------------	-----	-------	-------

Total			
	41960	100%	

# LTAC8E

	User Total	PTT Total	Usage
State Agencies - MN	22	4382	4.7%

Federal Agencies	40	41055	44.2%
------------------	----	-------	-------

Non Metro Agencies	113	17244	18.6%
--------------------	-----	-------	-------

Metro Agencies	82	30201	32.5%
----------------	----	-------	-------

Total			
	92882	100%	

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

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

### 1. Purpose or Objective

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

### 2. Technical Background

#### ▪ Capabilities

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

#### ▪ Constraints

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

Deleted: LTAC8E

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

Deleted: LTAC8E

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

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

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

### **3. Operational Context**

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

### **4. Recommended Protocol/ Standard**

#### **LTAC1 through LTAC4 TALKGROUPS**

<b><u>TG Requirements</u></b>	<b><u>For Whom?</u></b>
<u>Required</u>	<u>All Law Enforcement Users &amp; PSAP</u>
<u>Recommended</u>	
<u>Optional</u>	
<u>Not Allowed</u>	<u>Non-law Enforcement</u>
<u>Site Access</u>	<u>System Wide – All Sites</u>

<b><u>Cross Patch Standard</u></b>	<b><u>YES / NO</u></b>	<b><u>To TalkGroups</u></b>
<u>Soft Patch</u>	<u>Optional</u>	<u>As Needed</u>
<u>Hard Patch</u>	<u>No</u>	

#### **LTAC5E through ~~LTAC10E~~ TALKGROUPS**

<b><u>TG Requirements</u></b>	<b><u>For Whom?</u></b>
<u>Required</u>	<u>All Law Enforcement users with Encrypted Radios</u>
<u>Recommended</u>	<u>All Law Enforcement PSAPs</u>
<u>Optional</u>	
<u>Not Allowed</u>	<u>All others</u>

<b><u>Cross Patch Standard</u></b>	<b><u>YES / NO</u></b>	<b><u>To TalkGroups</u></b>
<u>Soft Patch</u>	<u>Optional</u>	<u>Encrypted TGs only</u>
<u>Hard Patch</u>	<u>No</u>	

#### **SIU1E through SIU4E TALKGROUPS**

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

<b><u>Cross Patch Standard</u></b>	<b><u>YES / NO</u></b>	<b><u>To TalkGroups</u></b>
<u>Soft Patch</u>	<u>No</u>	
<u>Hard Patch</u>	<u>No</u>	

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

Deleted: LTAC8E

#### Console Resource Requirements and Patching

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

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

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

Deleted: LTAC8E

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

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

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

Deleted: LTAC8E

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

#### Dual Naming

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

Deleted: LTAC8E

## **5. Recommended Procedure**

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

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

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

Deleted: LTAC8E

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

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

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

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

## **6. Management**

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

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

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

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



# 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 68<sup>th</sup> 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 talkgroups 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



---

MEMO

To : Metro Region System Administrators, PSAP Managers  
From: Ron Jansen  
Date: September 16, 2016  
RE: VHF Overlay

Greetings,

The current VHF system in the Metro Region will undergo some significant changes on October 3<sup>rd</sup>. This update was discussed in depth and approved the MESB board and with MnDOT personnel. The current voted system resources will be removed and replaced with individual "stand alone" resources. This will allow these resources to be used simultaneously across the region as opposed to only being available for one incident at a time.

On October 3<sup>rd</sup>, or shortly thereafter, each console configuration will need to:

1. Have the old VHF resources modules removed
2. Have the new resource module(s) added to the configurations. These resources will be specific to the location of the Dispatch Center. For example Dakota County may choose to have multiple VLAW31 resources from the south side of the region and would not need to have VLAW31 resources associated to the North side of the region.
3. Each Console position will then need to be rebooted for these changes to take effect.

You should work with your local System Administrator to get this accomplished in a timely manner.

Please note that after October 3<sup>rd</sup> the old VHF resources will no longer function.

Best Regards,  
Ron



---

MEMO

To : Metro Regional Status Board Users

From: Ron Jansen

Date: September 16, 2016

RE: Dual Naming Conventions on the Status Board Application

Greetings,

I have received a number of inquiries as to when the dual naming of the Metro Region interoperability talkgroups (ME-TAC's) will be removed from the Status Board. The Status Board application currently does not allow for any of the resources names to be edited. So in order to update the names the resources would have to be deleted and new ones created. This will cause all of the currently scheduled reservations to be erased and lost. There is also a concern that all of the Profiles may have to be recreated as well. I have requested this be put on the agenda for the next Statewide Status board meeting for discussion.

I will send out an update when more information or a resolution is available.

Best Regards,

Ron



**METROPOLITAN  
EMERGENCY SERVICES BOARD**

2099 UNIVERSITY AVENUE WEST  
SUITE 201  
SAINT PAUL, MINNESOTA  
55104-3431

PHONE 651-643-8395  
FAX 651-603-0101  
[WWW.MN-MESB.ORG](http://WWW.MN-MESB.ORG)

## MEMO

**To:** Ulie Seal, Metro Radio TOC Chair  
**Fr:** Troy Tretter, MESB Radio Services Coordinator  
**Date:** September 15<sup>th</sup>, 2016  
**RE:** Change Management Proposal, Metro Interoperability Zone Changes

---

Ron Jansen and I presented the proposed radio change management submissions to the 911 TOC on September 15, 2016. The questions listed below were accepted by the Radio TOC in July 2016.

I've added the summary response to each question asked to the committee. The Metro Radio Technical Operations Committee (RTOC) accepted into change management, proposals for changes to the Metro region interoperability zone.

The items presented as being accepted into change management:

- Adding (2) additional ME-TAC interoperability channels
- Adding (2) encrypted ME-TAC interoperability channels
- Creating a regional field to PSAP hailing channel (ME-CALL)

1. Is there a need for a regional hailing channel for field units to hail the PSAP?  
*The PSAP not using their 911-hailing talkgroup supported adding if they removed their 911 hailing talkgroup. The consensus of the committee was there was not a need, mainly because most PSAP use their 911-hailing talkgroup or their County-Roam channel. No issues with using MSP-CALL have been reported.*
2. Should METCOM be opened up for field units?  
*Overwhelmingly this was no, they said they have enough radio traffic on METCOM from PSAP to PSAP traffic, that adding more traffic would be distracting.*
3. Is there a need for more ME-TAC channels?

There was reluctance to add more channels, but members expressed there are times that ME-TAC's are in use, and there are no other alternate channels that are available to use for regional interoperability. It was requested that a cost analysis should be done to estimate how much reprogramming would cost to implement. The idea of 2 clear and 2 encrypted was accepted as the right number to add.

4. Is there a need for encrypted ME-TAC channels, if so would the PSAP's need/want to monitor them?  
Responses were yes if their units were using them, otherwise they would not monitor them. They would like the ability to have them programmed in consoles.
5. Should the Encrypted channels be limited to Law Enforcement Only?  
All said that yes, they should be limited to Law Enforcement only. A question was asked if we would allow waivers for EMS personnel assigned as SWAT team medics or we just make that part of the standard as having the ability to have them programmed.
6. Should the additional unencrypted (clear) ME-TAC's be available for everyone or restricted to public safety?  
Questions 6 & 7 were asked concurrently.
7. Currently ME-TAC1-4 are available for public safety only, and ME-TAC5-8 are available for everyone, should this change?  
It was recommended that all clear channels be open to all, ex: ME-TAC 1-10, and ME-TAC11E & 12E, be Law Enforcement Only. One PSAP Manager said it is too confusing to know what current ME-TAC channels can and cannot be used. They would rather have them open to all. "It shouldn't take a COML to figure out what ME-TAC channels we can use."

Troy Tretter  
Radio Services Coordinator  
Metropolitan Emergency Services Board