
STATEWIDE EMERGENCY COMMUNICATIONS BOARD

May 26, 2016

12:30 P.M.

Chair: Mark Dunaski

MnDOT Arden Hills Training Center
1900 West County Road I Shoreview, MN 55126

Call in Number: 1-888-742-5095

Call in code: 2786437892#

MEETING AGENDA

Call to Order

Approval of Today's Agenda

Approval of Previous Meeting's Minutes

Announcements

Reports of Standing Committees:

Operations and Technical Committee (Thomson)

- | | |
|---|--------------------|
| 1. Norman County Participation Plan | <i>Action Item</i> |
| 2. St. Louis County Participation Plan Addendum | <i>Action Item</i> |
| 3. Standard 7.1.0 Audit/Monitoring Process | <i>Action Item</i> |
| 4. Standard 7.2.0 Response to Non-Compliance | <i>Action Item</i> |
| 5. Standard 7.3.0 The Appeal Process | <i>Action Item</i> |
| 6. AHEMS Logger Participation Change Request | <i>Action Item</i> |
| 7. Change Management Standard | <i>Action Item</i> |

Interoperability Committee (Thomson)

Legislative & Government Affairs Committee (Workman)

Steering Committee (Hartog)

- | | |
|---|--------------------|
| 1. Indian Affairs Council and Commissioner of Health membership on the SECB | <i>Action Item</i> |
|---|--------------------|

IPAWS Committee (Seal)

NG911 (Pankonie)

Interoperable Data Committee (Risvold)

- FirstNet Presentation (Tim Pierce, John Hunt, Jamel Vinson, Jacob Hershey)

Finance Committee (Gerlicher)

Reports – Other

- ARMER Project Status Report (MnDOT OSRC)
- ECN Update (Mines, DPS ECN)

- Status of SECB Initiatives
 - GIS Project
 - Text-to-911
 - 7.19 Upgrade
 - FirstNet

Old Business

New Business

Adjourn

STATEWIDE EMERGENCY COMMUNICATIONS BOARD

MEETING MINUTES

April 27, 2016

Attendance

Members:

MEMBER/ALTERNATE

Mark Dunaski (Chair)/Jackie Mines

Mukhtar Thakur/Tim Lee/Jim Mohn

Thomas Baden/Ed Valencia

Greg Salo/Todd Kanieski

Rochelle Schrofer/Tim Boyer

Vince Pellegrin/Thomas Humphrey

Bill Droste/ Vacant

Eric Anderson/Pat Novacek

Liz Workman/vacant

Jim McMahon/vacant

Chris Caulk/Darlene Pankonie

Dan Hartog/Scott Turner

/Jeff Marquart

Mike Gamache/Andrew Johnson

Mike Risvold/vacant

Cari Gerlicher/Dave Thomson

Ulie Seal/Vacant

T. John Cunningham

Joe Glaccum (Vice Chair)/vacant

Brad Hanson/Paul McIntyre

Jeff Jelinski/Nancy Schafer

REPRESENTING

DPS

MnDOT

MNIT

DNR

MN State Patrol

METC

League of MN Cities, Metro

League of MN Cities, Greater MN

Assoc. of MN Counties, Metro

Assoc. of MN Counties, Greater MN

MSA, Metro

MSA, Greater MN

MESB

MN Chiefs of Police Assoc., Metro

MN Chiefs of Police Assoc., Greater MN

MN Fire Chiefs Assoc., Metro

MN Fire Chiefs Assoc., Greater MN

MN Ambulance Assoc., Metro

MN Ambulance Assoc., Greater MN

Central MN ESB/Northeast ECB

CALL TO ORDER

Commissioner Dunaski calls the meeting to order at 3:05 p.m.

APPROVAL OF AGENDA

Chair Dunaski calls for a motion to approve the agenda.

Joe Glaccum makes a motion to amend the agenda to change SOAR/Change Management from an action item to a discussion item.

***Cari Gerlicher seconds the motion.
Motion carries.***

***Mike Risvold makes a motion to approve the agenda as amended.
Dan Hartog seconds the motion.
The motion carries to approve the agenda.***

APPROVAL OF PREVIOUS MEETING MINUTES

Chair Dunaski calls for a motion to approve the previous meeting minutes.

***Liz Workman makes a motion to approve the March meeting minutes.
Jeff Jelinski seconds the motion.
The motion carries to approve the minutes.***

ANNOUNCEMENTS

Chair Dunaski announces that after 34 years working for the Department of Public Safety he will be retiring on June 14. His last SECB meeting will be in May. He notes that working on this board has been one of the highlights of his career. He commends the board for its great work in advancing public safety communications across the state.

REPORTS OF STANDING COMMITTEES

OPERATIONS AND TECHNICAL COMMITTEE REPORT (GLACCUM)

Chair Glaccum introduces the request to add the EF Johnson VP400 and the Motorola APX8000 radios to the approved subscriber list. He explains that there is a workgroup under the OTC which tests equipment to see that it works well on the ARMER system. The workgroup tested these radios and found no issues.

***On behalf of the Operations and Technical Committee, Chair Glaccum makes a motion to add the two radios to the approved subscriber list.
Jim McMahon seconds the motion.
The motion carries.***

Chair Glaccum introduces the Marshall County Participation Plan. Marshall County has adequate coverage sites. The county is requesting 36 talkgroups, no channel additions, no site additions, and 367 user ID's across a three year span. The county will start off using control stations and when the county decides to migrate to MCC 7500s that request will be brought before the OTC.

***On behalf of the OTC, Chair Glaccum makes a motion to approve the Marshal County participation plan.
John Cunningham seconds the motion.***

Gerlicher asks if there is an urgency to when the county would need to migrate to MCC 7500s. Glaccum responds that there is not.

The motion carries.

Chair Glaccum introduces Standard 1.08.1 Change Management. The original Change Management Standard was deemed a bit cumbersome so a workgroup with representation from every region was formed to review it. The adoption of the new standard would sunset Standards 1.08.0 and 1.05.2. Glaccum explains that the Change Management Standard outlines a process to vet system change requests and associated costs.

On behalf of the OTC, Chair Glaccum makes a motion that Standard 1.08.1 Change Management be approved and that Standards 1.08.0 and 1.05.2 be sunsetted. Jeff Jelinski seconds the motion.

Mike Risvold makes a motion that this standard be tabled for further work based on some concerns expressed by some subsystem owners.

Workman seconds.

The motion carries.

Chair Glaccum introduces amendments to Standard 2.17.0 Multigroup/Announcement. The changes recommended by the Standards Workgroup are updated wording reflecting current practice.

On behalf of the OTC, Chair Glaccum makes a motion to approve Standard 2.17.0 as submitted. Jim McMahon seconds the motion. The motion carries.

Glaccum introduces revisions to Standard 3.32.0 Statewide Interoperable Plain Language Policy. Most of the changes were language clean-up. The example of an incident was changed from “during an ongoing terrorist event” to “high risk incident, such as active shooter.”

On behalf of the OTC, Chair Glaccum makes a motion to approve Standard 3.32.0 as submitted. Ulie Seal seconds the motion. Motion carries.

Glaccum presents the Mille Lac County Participation Plan Amendment. Mille Lacs County plans to add a six channel ASR site near the city of Wahkon. MnDOT had no objections to the technical plan.

On behalf of the OTC, Chair Glaccum makes a motion to approve the Mille Lacs County Participation Plan Amendment.

Gerlicher seconds.

Motion carries.

Chair Glaccum reports that the Scene of Action Repeater item is regarding a request from Stevens County to consider reallocating the use of Scene of Action talkgroups to help with coverage issues. The request was determined to be obligated to fall under the Change Management process. It does not need to be accepted by this board today but was presented at the OTC meeting to verify that the

item had begun the Change Management process.

Pat Novacek asks which frequencies will be used.

Chair Glaccum responds that the county would like to stay in the 800 frequency and use SOA3.

Jelinski comments that there has been a lot discussion about this request in the Central Region. He believes it will be a fix to the coverage issues in Stevens County and hopes that it will receive support.

INTEROPERABILITY COMMITTEE

The committee did not meet in April and there is no report.

LEGISLATIVE & GOVERNMENT AFFAIRS COMMITTEE (WORKMAN)

Chair Workman reports that the committee met in April and she thanks committee members for their participation. The committee has been able to achieve quorums.

The committee discussed the legislation that will accelerate the effective date of a sales tax exemption for joint powers boards, instrumentalities of local government and special taxing districts. A template letter was written and committee members were asked to send it to their representatives asking that they support the passage of this bill. Chair Workman received responses from Dakota County legislators stating support.

Chair Dunaski asks if the bill has had a hearing. Workman responds that it had a hearing in the Senate but she was not sure if it has happened yet in the House. It is moving forward and being closely followed.

STEERING COMMITTEE (HARTOG)

Chair Hartog reports that the Steering Committee did not meet in April.

IPAWS (SEAL)

Chair Seal reports that Todd, Red Lake and Renville Counties have entered into the application process with FEMA to become a Collaborative Operating Group (COG). (Alerting authorities authorized to use IPAWS are designated as a COGs.) There have been a number of workshops around the state to educate about IPAWS and the COG application process.

Chair Dunaski references a recent siren that was sounded in error in Hennepin County early in the morning. There were many media questions afterwards about updated technology for warnings and alerts. Chair Dunaski reports that he was fond of responding with information about IPAWS.

NG911 COMMITTEE (PANKONIE)

Chair Pankonie reports that the committee will meet later this week and that meetings are well attended. The committee is working on the RFP for the state NG911 network. The scoring is

complete now and contract negotiations will begin. The committee is also working on cyber security for PSAPs and a public education campaign for Text-to-911.

INTEROPERABLE DATA COMMITTEE (RISVOLD)

Chair Risvold introduces Tim Pierce from FirstNet. Tim Pierce says Televate is glad to be at the Minnesota Interoperable Communications Conference and notes that tomorrow morning the Vice Chair of the FirstNet Board, Jeffrey Johnson, will deliver the opening keynote. He notes that Johnson is a very energizing speaker. Pierce is looking forward to making a formal presentation to the board in May. He looks forward to discussion about the state plan process and what the next year will look like in detail and what the board's involvement will be. He reports that FirstNet recently held a State Point of Contact (SPOC) meeting with SPOCs and their teams from around the country to attend a two-day meeting of full immersion in FirstNet. He notes that Chair Risvold was at the meeting and asks him to comment.

Chair Risvold comments that the SPOC meeting was useful and a lot of good information was presented with updates on the timeframe, the RFP, and the out-in/opt-out decision. It is clear that outreach is necessary. He appreciated the invitation. Melinda Miller, Jackie Mines and Dave Deal also attended the SPOC meeting.

Melinda Miller from ECN gives a presentation on FirstNet. She reports that while the FirstNet RFP is under review, the committee plans to concentrate on education and outreach. After May 2017, FirstNet expects to deliver state plans with a finalization coming later in the year. She reports that there will be a two-sided information portal; on side for public safety and one side for the governor. She gives an example of what a state plan might look like.

Miller has invited regional representatives to attend a technical meeting in San Diego and some will attend a band class 14 demonstration at the White Sands Missile Range.

Information and outreach plans under consideration include creating FAQs specific to Minnesota, newsletters targeted to specific agencies, trade articles and a podcast. Miller will post a FirstNet 101 on GovLoop, which is a tool the government uses to communicate to government employees.

Consolation Task Teams have been formed and the first subject being considered is quality of service, priority and preemption. Miller shows a slide of what the network will look like. She gives the example of a six-lane highway with 300-400 possible users and thousands of idle users. Quality of service means you have a lane to yourself and the speed limit is 70 miles per hour and you are going 70 miles an hour. Priority means you have a lane to yourself. Preemption means everyone else must clear out of your lane. The other users will need to go slower so you can go faster.

Consultation Task Teams will also address identity management and access management.

The committee is looking at how it will evaluate the state plan when it is available. It is prioritizing the launch requirements that were previously determined and looking to see if anything has changed since those were written. The FirstNet RFP has 16 objectives and those will be looked at as well and compared to Minnesota's needs.

She adds that there will be outreach to federal agencies in Minnesota and further outreach to tribal

governments.

Chair Risvold thanks Miller. He adds that the RFP from FirstNet comes to a close at the end of May and FirstNet will announce in the fall who the partner will be. The RFP has generated a lot of interest from potential partners. FirstNet reports that they have fielded more than 400 questions.

FINANCE COMMITTEE REPORT (GERLICHER)

Chair Gerlicher reports that the Finance Committee did not meet in April.

REPORTS – OTHER

ARMER PROJECT STATUS REPORT (MNDOT OEC)

Mukhtar Thakur reports on the ARMER project status. There are 335 total sites and 326 sites on the air. The site numbers do not fully corroborate because some sites are not constructed yet but are on the air on temporary towers, for example. 95% of the state is covered and the project is on budget. Thakur adds that when all of the sites are completed it will be necessary to rebuild some of the sites that were built many years ago and need replacement.

Sites that are not on the air are:

Cromwell in Carlton County is under active construction and completion is expected this year.
Berner in Clearwater County is waiting for land acquisition and this is expected to be challenging.
Red Lake in Beltrami County is waiting for land acquisition and this is expected to be challenging.
Devil Fish in Cook County is under active construction and completion is expected this year.
Sawbill in Cook County is under active construction and completion is expected this year.
Cascade River in Cook County is under active construction and completion is expected this year.
Silver Island Lake in Lake County is waiting for land acquisition.
Lima Mountain in Cook County is waiting for land acquisition and this may be challenging because it involves both US Federal Service land and DNR land.
Madelia in Wagonwheel County is waiting for land acquisition.

Additional sites that are in land acquisition:

Lake Crystal in Blue Earth County;
Molde in St. Louis County;
Finland in Lake County and this is expected to be challenging.

Additional sites under construction are:

Duluth South in St. Louis County and completion is expected this year.
Eden Valley in Meeker County is out to bid.
Hawley in Clay County is out to bid.

There is a question and discussion about the system up-grade shut down times. Concerns were raised that the times that are scheduled – 10:00 a.m. and 2:00 p.m. – have a greater number of calls for service than during off hours. Chair Dunaski recommends that the committee that determined the shut-down times meet with the Fire Chiefs and Police Chiefs from this board to discuss the

concerns. A suggestion was made to include representatives from PSAPs as well. Chair Seal will take leadership on arranging the meeting.

ECN UPDATE

Jackie Mines reports that a new NG9-1-1 GIS newsletter will be forthcoming. She thanks the regions who have invited John Dooley to present on IPAWS. She also thanks John Dooley and the DPS Communications Department for creating a one-page handout about IPAWS for elected officials. She notes that it would be especially helpful to get the word out about FirstNet to police and fire chiefs. If any regions would like to arrange informational meetings with FirstNet, please contact Mines or Melinda Miller.

OLD BUSINESS

None.

NEW BUSINESS

None.

Meeting Adjourns at 3:55 p.m.

Norman County, Minnesota



ARMER Radio System Participation Plan

March 2016

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ARMER Participation Plan

I. Introduction

A. ARMER System Application – Norman County

Norman County, Minnesota, and the city and county agencies within the county, request approval for participation in and use of the State of Minnesota Allied Radio Matrix for Emergency Response (ARMER) radio system. The county and its agencies plan to be “Full Participants” in the ARMER system, and will migrate all primary voice communications services to the network, once fully implemented.

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

- Northwest Minnesota Regional Advisory Committee (NW RAC)
- Northwest Minnesota Regional Radio Board (NW RRB)
- State of Minnesota Emergency Communications Board (SECB) and Operations and Technical Committee (OTC)

Norman County’s plan has been developed based on the requirements and operational standards established for participation in and use of the ARMER radio system.¹ The county desires to contract as required with the Northwest Regional Radio Board and the State of Minnesota Department of Transportation (Mn/DOT) for use of the ARMER system once approved.

A list of the local city and county agencies within the county that plan to be included in the use of this system is provided in Section I.D of this planning document.

B. Project Summary

Norman County, Minnesota, and the public safety entities within Norman County have developed a plan for the replacement of the existing VHF public safety radio systems currently used by those agencies.

The primary goals of a new radio communications system are:

- Provide improved radio system reliability, coverage, and capacity
- Replacement of the existing VHF radio system equipment
- Provide expanded county and region wide interoperability between public safety agencies, whether utilizing VHF or 800 MHz radio systems

After a thorough review of the options available, the county has determined that an eventual migration to the 800 MHz ARMER radio system, utilizing the system’s multi-site, digital, and Trunking technologies

¹ All endnotes are attached at the end of the report (Attachment 2) under the heading of “References.”

would best meet the county agencies radio communications goals, and will provide the required level of interoperability between public safety agencies in the region.

The County's migration to ARMER is anticipated to be a 2 or 3-Phased approach, as follows:

- Phase 1: This initial phase may occur in 2016, and would include the Norman County Sheriff's Office and local police law enforcement operations migrating to the ARMER system on a full-time basis. The Sheriff's Office currently has an inventory of ARMER-capable multi-band (800 MHz and VHF) mobile and portable radios, which were purchased with grant funding over the past few years. These radios are capable of P25 Trunking operation on the 800 MHz ARMER radio system. New radios will be needed for local police agencies to migrate operations to the ARMER system.

The county's dispatch center currently utilizes Motorola MCC5500 radio control consoles, which are connected to two 800 MHz RF control stations, operating on the various Northwest Region talk groups. Additional RF control stations would be purchased and installed to allow the existing consoles to communicate on the new talk groups established for Norman County operations.

Fire and EMS operations would continue to operate on existing VHF systems, which are relatively new. However, a small number of ARMER-capable 800 MHz portable radios would be obtained for each Fire/EMS agency to allow use of the ARMER system and interoperability with neighboring county Fire/EMS agencies (outside of Norman County).

- Phase 2: This phase will be dependent on funding options available over the next few years: Fire/EMS operations would migrate to ARMER operations; all agencies would obtain the required inventory of 800 MHz mobile and portable radios, which would be used in conjunction with existing VHF radios.
- Phase 3: Will be considered a long-term plan, and again be dependent on agency needs and grant funding options. The existing MCC5500 radio dispatch consoles would be replaced with new MCC7500 consoles, along with microwave radio or fiber optic connectivity into the ARMER network. However, there are no plans for this phase at the time this plan is being prepared.

The primary points of contact for this project are:

Sheriff Jeremy Thornton
 Norman County Sheriff's Office
 15 – 2nd Ave East
 Ada, MN 56510
 218-784-7114 Phone
jeremy.thornton@co.Norman.mn.us

Rey Freeman
 RFCC
 13517 Larkin Drive
 Minnetonka, MN 55305
 952-541-0747 Phone
rfreeman@isd.net

C. Jurisdictional Coverage of System

The radio system is intended to provide radio communications throughout the entire geographic area of Norman County, Minnesota. Norman County is located in the northwest area of Minnesota, covering 877 square miles, with a population of approximately 6,639 people. The terrain of Norman County is relatively flat, with ground elevations ranging from 1,100 feet in the eastern areas to 850 feet in the far west along the Red River valley and North Dakota border.

D. Entities and Users Participating in the Planned System

It is the intent of Norman County and the agencies within to implement a shared radio system that will incorporate both public safety and additional governmental agencies. The list below contains all of the agencies included in the plan at this time.

Participating Public Safety Agencies	
Norman County Sheriff's Office	Norman County Ambulance
Ada Police Dept.	Norman Co Emergency Management
Ada Fire Dept.	Perley Fire and Rescue
Borup Fire Dept.	Shelly Fire and Rescue
Gary Fire and Rescue	Twin Valley Police Dept.
Halstad Fire Dept.	Twin Valley Fire Dept.
Halstad Rescue	Twin Valley Rescue
Hendrum Fire and Rescue	
Participating Public Works and School Departments	
Norman County Highway Department	Local School District

E. Existing VHF System Configuration

All existing Norman County voice radio systems operate on VHF (150-160 MHz) frequencies, providing radio channels for law enforcement, fire, and EMS/ambulance operations. The dispatch center is physically located at the Norman County Sheriff's Office in the city of Ada, Minnesota.

The existing Norman County radio system consists of multiple VHF base and repeater stations located at different tower sites around the county. Norman County operations had converted to a VHF P25 Digital system several years ago, and the system currently works well, providing good coverage in most areas of the county. The following primary tower sites are used for the Norman County system.

- Ada/Norman County Sheriff's Office
- Flom tower (south east county)
- Hendrum and Halstad water towers (west county)

All radio equipment located at the tower or other remote sites is controlled from the dispatch center via leased telephone circuits or VHF radio link through control stations.

The primary VHF radio system infrastructure equipment used by the county is a variety of newer base and repeater stations. All stations are in good operating condition, operating on P25 digital, narrowband (12.5 kHz) radio frequencies. A 2-position Motorola MCC5500 PC-based radio control console is used in the Norman dispatch center.

The radio system consists of separate VHF channels and base/repeater stations for Sheriff/law, and fire/EMS operations, which are located at the tower sites noted above, as well as at various fire halls throughout the county. The Sheriff/law radio network consists of multiple law repeater channels and sites, along with local Minnesota Statewide Emergency Frequency (MNSEF/VLaw31) stations. The fire/EMS radio networks consist of multiple stations located at the tower sites noted above, which provides tone-and-voice paging capabilities. The radio users and dispatchers manually select the proper tower site based on the radio or service location.

2. ARMER System Technical Review

A. System Design

During the local ARMER system implementation planning process, work was done to determine what type of configuration would be appropriate for the Norman County radio system. Since the basic structure of the ARMER system as a multicast digital trunked radio system will meet the needs of Norman County agencies, they plan to utilize the system in this planned multicast configuration.

Primary planning factors:

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

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 ARMER system plan that exists for the Norman County area includes three tower sites within the county borders, as well as additional sites outside the county borders that will provide some level of coverage within the county. The following sites are planned for within Norman County:

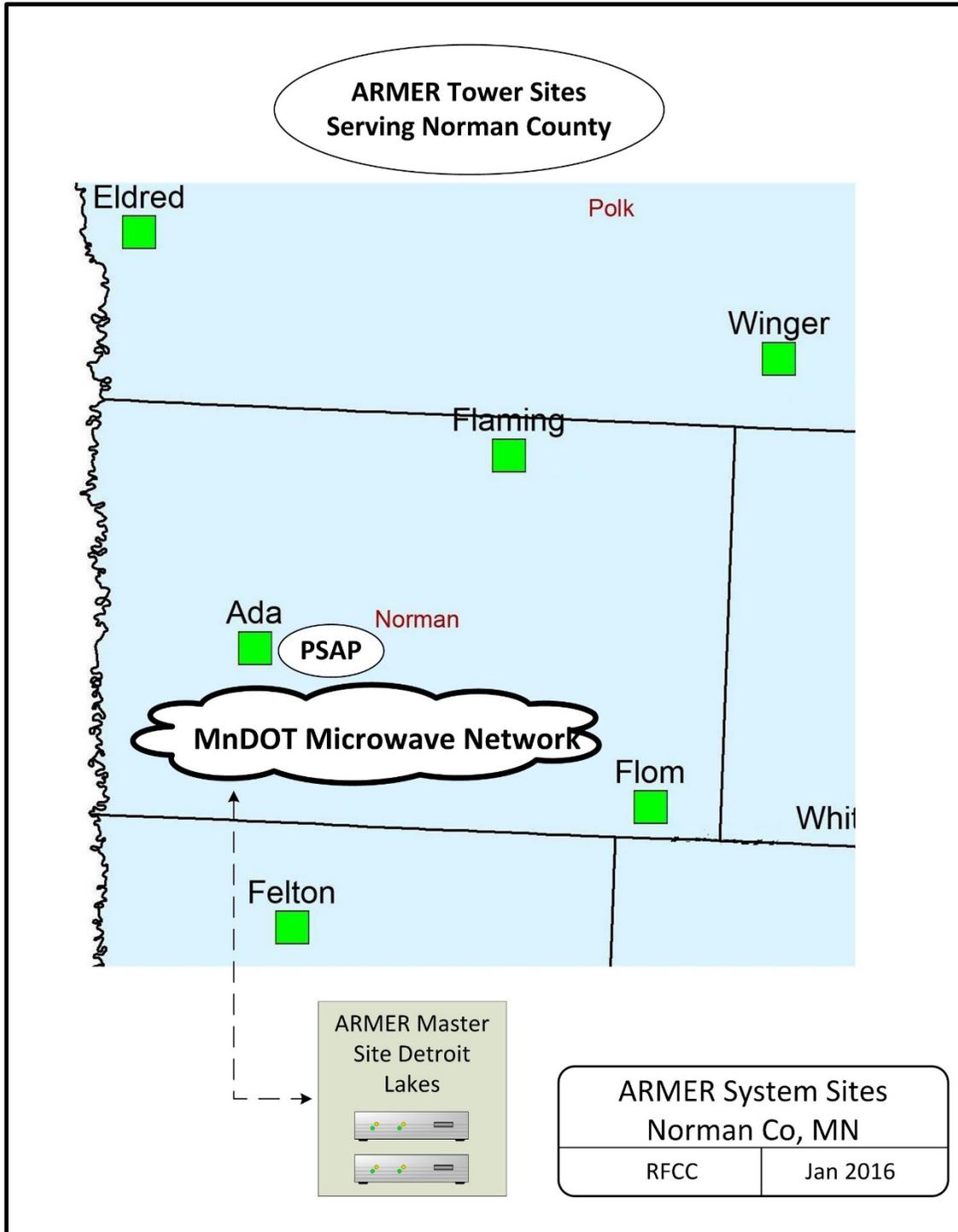
Ada	Flom	Flaming
-----	------	---------

The following sites are located outside of but near the county border and will provide coverage within Norman County:

Winger	Eldred	Felton
--------	--------	--------

Refer to the diagram on the next page for a high-level overview of the ARMER tower site details for the proposed system implementation for Norman County. Actual coverage maps are provided later in this plan document.

Norman County ARMER System Architecture



ii) Local Equipment Additions and Enhancements

The ARMER planning study conducted for Norman County determined that no additional local enhancement, tower sites (coverage), or channel capacity are required or planned. The ARMER tower sites planned for Norman County and surrounding areas are expected to provide the required level of reliable coverage for the county's agencies, and no additional tower sites should be needed.

A review of the number of radios planned for use in Norman County, along with the number of talk groups and expected radio traffic levels was conducted to determine if any additional 800 MHz channel capacity will be needed at the local ARMER tower sites. Considering these factors, and the resulting traffic loading calculations included in this ARMER Plan, no channel expansion should be needed at the ARMER sites serving the county.

iii) PSAP Console Planning and Logging

The Norman County dispatch center currently utilizes a two-position Motorola MCC5500 PC-based radio console control system. This console system is now connected to the county's existing VHF system equipment, as well as two (2) 800 MHz RF control stations, for use on the NW Region talk groups, as well as some statewide talk groups.

Phase 1 of the implementation plan, which may occur in 2016, will retain the existing Motorola 5500 consoles, and install additional RF control stations for access to the new talk groups established for Norman County.

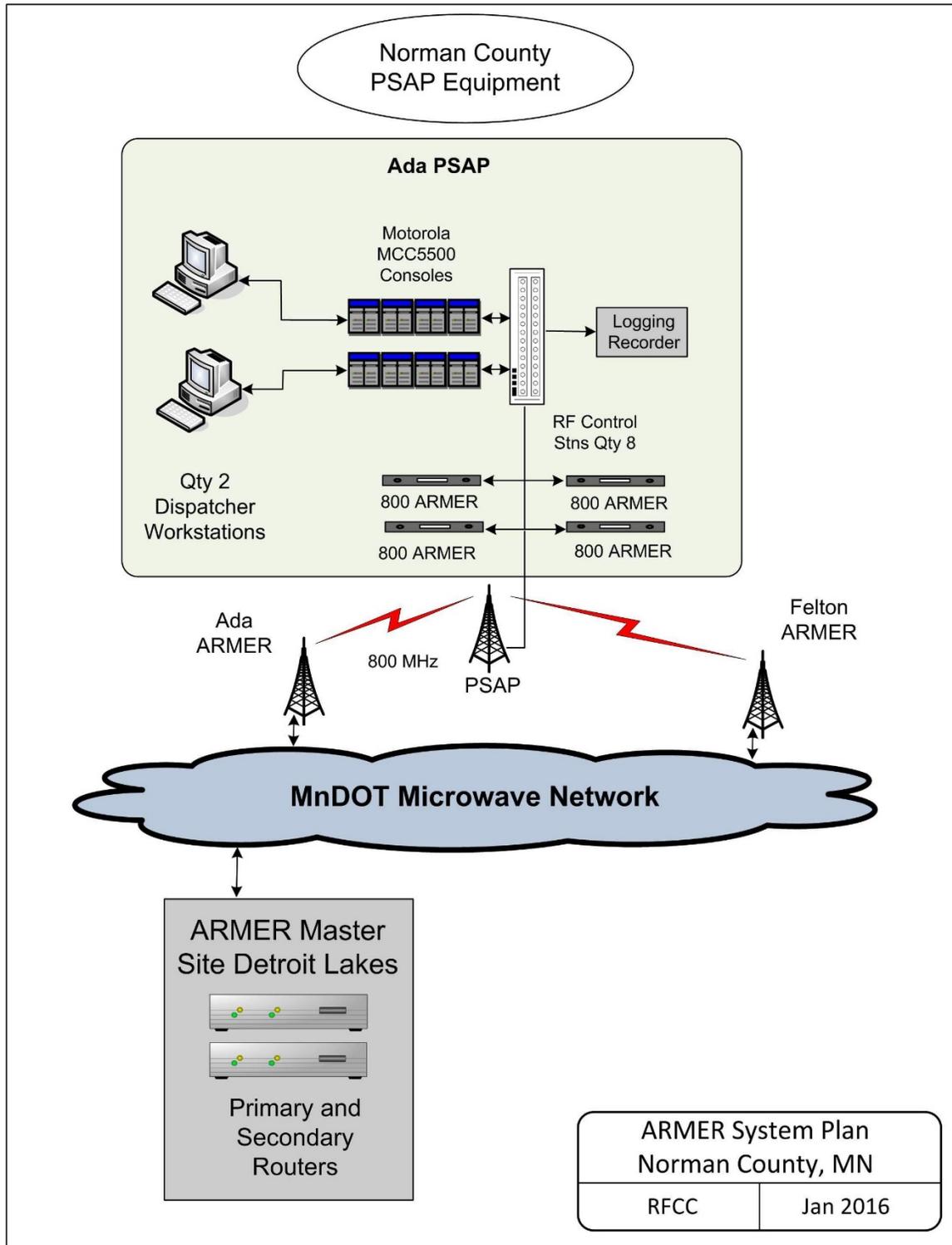
Phase 3 of the implementation plan, which is considered a long-term option (and is dependent on funding), will replace the existing consoles with a new Motorola MCC7500 console system for use with the ARMER system. The county would notify the NW Region, OTC and SECB at the time a Phase 3 transition was being planned. There are no plans for this option in the near future.

No Conventional Channel Gateway (CCGWs) ports are required for the county's initial PSAP implementation. The dispatch center will continue to use its existing local voice logging recorder for the recording of ARMER and conventional channel radio traffic. A limited number of ARMER talk groups will be recorded at the PSAP, and will be handled via local 800 MHz RF control stations.

iv) PSAP Connectivity

Connectivity between the Norman County dispatch center and the ARMER system is required for operation of the system talk groups, as well other non-trunked conventional channel resources. This will be accomplished via the 800 MHz RF control stations planned for the PSAP. No direct microwave or fiber optic link would be implemented until such time that a Phase 2 installation were to occur.

Norman County PSAP ARMER Architecture



v) Subscriber Radios

The 800 MHz subscriber (mobile and portable) radio inventory planning work conducted with Norman County agencies has identified the following maximum estimated quantities of radios to be utilized on the system:

Agency Type	Mobile	Portable	Base
Law Enforcement	12	13	7
Fire/EMS	49	87	9
Public Works	0	6	0
Totals	61	106	16

A maximum total of 183 mobile and portable radios, and control bases would be implemented in the system, if all agencies purchase and implement new 800 MHz radios. This includes the total potential for three year (or more) growth for the agencies within the county. A detailed inventory of the “minimum” and “maximum” mobile, portable and control stations being planned by Norman County and cost estimates is provided on the next page. Also shown are the estimated minimum and maximum quantities being considered, dependent on agency needs and funding available. Agencies throughout the county will be able to use this opportunity to purchase and implement standard radio types for use within the system, which will promote user commonality and interoperability between the various agencies.



Norman County MN ARMER Mobile/Portable Cost Estimate Worksheet

Total of 800 MHz Mobile and Portable Radio Equipment Required for System Implementation											Totals	Totals
Agency	Dual Band Mobile @ \$6,000	Mid-Tier Mobile Radios w/DES @ \$4,000	Mid-Tier Mobile Radios no DES @ \$3200	Mid-Tier Mob Radios Dual Control @ \$3800	Dual Band Portable @ \$6,000	Mid-Tier Port Radios w/DES @ \$3,300	Mid-Tier Port Radios no DES @ \$2500	Low-Tier Mobile Radios @ \$2,200	Low-Tier Portable Radios @ \$2,100	800 Mhz RF Control Stations @ \$6,000	Total Agency Radio Equipment Costs (Minimum)	Total Agency Radio Equipment Costs (Maximum)
Norman County Sheriff (existing)	6				5					2		
Norman County Sheriff (new)	1				2					4	\$ 42,000	
Ada Police Dept (new)	2				3						\$ 30,000	
Twin Valley Police Dept (existing)	2											
Twin Valley Police Dept (new)					2						\$ 12,000	
Emergency Mgmt	1					1				1	\$ 15,300	
Law Agency Totals (new)	4	0	0	0	7	1	0	0	0	5	\$ 99,300	
Law Agency Totals (max)	12	0	0	0	12	1	0	0	0	7		
Ada Fire Dept (min)			2			2					\$ 13,000	
Ada Fire Dept (max)			8			12				1		\$ 71,200
Borup Fire Dept (min)			2			2					\$ 13,000	
Borup Fire Dept (max)			3			8				1		\$ 42,000
Gary Fire/Rescue (min)			3			3					\$ 19,500	
Gary Fire/Rescue (max)			6			10				1		\$ 58,200
Halstad Fire Dept (min)			2			2					\$ 13,000	
Halstad Fire Dept (max)			8			7				1		\$ 54,700
Halstad Rescue (min)			1			2					\$ 9,800	
Halstad Rescue (max)			1			2					\$ 9,800	
Hendrum Fire/Rescue (min)			2			2					\$ 13,000	
Hendrum Fire/Rescue (max)			5			5				1		\$ 38,500
Norman Co Ambulance (existing)			2			2					\$ 13,000	
Norman Co Ambulance (min)			0			17				1		\$ 62,100
Perley Fire/Rescue (min)			2			2					\$ 13,000	
Perley Fire/Rescue (max)			5			8				1		\$ 48,400
Shelly Fire/Rescue (min)			2			2					\$ 13,000	
Shelly Fire/Rescue (max)			6			3				1		\$ 35,100
Twin Valley Fire (min)			2			2					\$ 13,000	
Twin Valley Fire (max)			6			12				1		\$ 64,800
Twin Valley Rescue (min)			1			3					\$ 13,100	
Twin Valley Rescue (max)			1			3					\$ 13,100	
Fire/EMS Agency Totals (min)	0	0	21	0	0	24	0	0	0	0	\$ 146,400	
Fire/EMS Agency Totals (max)	0	0	49	0	0	87	0	0	0	9		\$ 497,900
Norman County Highway Dept								4			\$ 8,600	\$ 8,600
Norman County Schools								2			\$ 4,300	\$ 4,300
Public Works Agency Totals	0	0	0	0	0	0	0	6	0	0	\$ 12,900	\$ 12,900
GRAND TOTALS (min)	12	0	21	0	12	25	0	6	0	7	\$ 258,600	
GRAND TOTALS (max)	12	0	49	0	12	88	0	6	0	16		\$ 510,800
Total Radios (min)	83											
Total Radios (max)	183											



vi) System Talk group Planning and ID Requirements

Norman County agencies have conducted several radio implementation meetings to discuss talk group requirements and have developed a preliminary fleet map for the implementation of the new system for county agencies. In addressing this issue, the following basic outline will be considered:

- Primary and secondary dispatch talk groups for law enforcement
- Primary and secondary dispatch talk groups for fire service
- Primary and secondary dispatch talk groups for EMS service
- Individual dispatch talk groups for non-traditional public safety agencies
- Countywide talk groups for special events
- Countywide talk groups for interoperability
- Individual talk group(s) for each participating agency
- Non-trunked tactical talk groups for “Scene of Action” use

Refer to Attachment I for a copy of the preliminary Norman County fleet map. A total of 40 talk groups have been identified for Norman County agencies’ near-term and long-term needs.

A total of 184 ARMER system IDs are expected for the Norman County implementation, which includes three year estimated totals:

- 176 for mobile and portable subscriber units total expected on the system for all agencies
- 8 for PSAP operations

vii) 800 MHz Frequency Planning

The ARMER system sites within Norman County will operate in a trunked multicast mode of operation. The state has planned for a group of five 800 MHz frequency pairs to be implemented at each site, and these channels will be shared by all users of the system/sites in the area. These users will include:

- Norman County agency users
- Neighboring county agency users
- State of Minnesota agency users

The county 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. However, a balance must be established between providing a sufficient number of channels and the cost of implementing those channels, as well as the increasingly limited number of 800 MHz frequencies available for the channels.

With a maximum radio inventory of approximately 367 local radio units planned for this system, it is expected that the planned five channels will be sufficient at the Norman County ARMER sites.

When neighboring county and state radios are added to this total, it is possible that a greater number of channels would be needed at the sites. To better calculate the expected traffic loading the Norman County

radio would have on the local tower sites, the industry-standard Erlang-C process has been used in this plan to determine the expected voice traffic on the ARMER system. This process can be used for both telephone and radio networks, where a shared and limited number of communications paths (trunks) are used to handle the voice traffic.

A full discussion of how this process works is beyond the scope of this plan; however, several critical factors are used to determine the expected radio traffic usage of the tower sites:

- Number of local (Norman County) radios
- Number of neighboring county agency radios that are likely to use any given tower site
- Number of State of Minnesota agency radios that are likely to use the sites
- Number of 800 MHz radio channels available at the site(s)
- Estimation of how many radios are in use/service at a point in time
- Average radio transmission length of time (in seconds)
- Average expected number of transmissions from the radios (per hour)

When these radio inventory and usage parameters are entered into the Erlang calculation formula, a resulting Grade of Service (GOS) parameter is generated, indicating the calculated or expected availability of the radio system channels for the radio users. This GOS number could also be viewed as a “likelihood of getting a busy signal” when pressing the transmit button on a radio. The lower the number, the better GOS.

Public Safety Wireless Network (PSWN), the governmental agency which establishes operational standards and recommendations for public safety radio communications, has established a minimum GOS for these radio systems at “equal or less than two percent.”

In other words, there should be less than a two percent chance that a radio user’s transmission would be blocked by the system due to radio traffic levels. This could also be viewed as “greater than 98 percent” chance of a radio user’s transmission being properly handled by the system when needed. This two percent GOS is considered a “Standard Busy Hour” level of usage. It should be noted that many agencies have elected to move beyond the PSWN recommendation and a common goal in Public Safety today is a GOS of 1 or better.

The parameters used for the Norman County radio traffic calculations are as follows:

- Quantity 183 Norman County radios (three year maximum)
- Quantity 100 neighboring county radios (interoperability use in Norman County)
- Quantity 100 State of Minnesota agency radios
- 33 percent estimate percentage of how many radios are in use/service at one time
- 8 seconds average radio transmission length of time (in seconds)
- .51 average expected number of transmissions from the radios (per hour)
- 1.5 seconds average busy time (in seconds)

The GOS is then calculated for each site, based on the number of radio channels planned for the sites, to show the impact of the differing number of channels that would be implemented at the sites.

This formula does not necessarily incorporate any parameter for the number of talk groups being planned for use by the local county agencies. The number of talk groups can have a dramatic effect on system loading, as the larger the number of talk groups, the greater potential for spreading the traffic among the RF channels. Nonetheless, it remains the most reliable method for calculating radio traffic levels.

The table shown below contains the predicted 800 MHz radio channel and tower site traffic loading for typical operational radio activity for the sites that are located within Norman County, based on the parameters in the previous data table:

Predicted 800 MHz Standard Voice Channel Traffic Loading for Norman County

Site and GOS	Number of Voice Channels Normal Conditions			
	1	2	3	4
Ada	27.3%	3.1%	0.2%	0.0%
Flaming	25.1%	2.6%	0.2%	0.0%
Flom	26.2%	2.8%	0.2%	0.0%

One channel at each site is allocated as the Control Channel, which is not used for voice and not reflected in the table above. As shown, a GOS of better than one percent is achieved with three channels per site (highlighted in yellow), less that the total quantity being installed by the state at each of the county sites. This would indicate that no additional channels should be needed at the Norman county ARMER sites.

The above calculations are again based on the PSWN “Standard Busy Hour” calculations, and do not account for the increased traffic loads that would be expected during emergency periods (tornado, large fire, multiple events). PSWN has established a recommendation of an additional 20 percent capacity for these events. Refer to the following table for the predicted ARMER system traffic loading and GOS for the

Norman County sites when the PSWN 20 percent additional emergency operations data is incorporated into the usage calculations.

Predicted 800 MHz Voice Channel Traffic Emergency Loading for Norman County

Site and GOS	Number of Voice Channels Emergency Conditions			
	1	2	3	4
Ada	51.7%	9.6%	1.4%	0.2%
Flaming	44.6%	7.6%	1.0%	0.1%
Flom	49.7%	9.1%	1.3%	0.1%

As shown, three voice channels remain adequate to maintain the minimum recommended GOS during emergency traffic periods at all sites. The State of Minnesota will be implementing four voice channels at all sites, so no additional channels should be needed at the ARMER sites. Because of the typical number of talk groups planned by Norman County agencies, we do not believe that Norman County’s implementation will have a significant impact on the system loading at the remaining sites, and should not be a factor requiring additional RF channel capacity. This also includes additional future capacity for the local sites in the event that other governmental agencies (schools, transportation) elect to join the system in the future.

The State of Minnesota has obtained the 800 MHz frequency assignments for the basic five channel configuration needed for the three tower sites within Norman County. The table on the following page is the current available 800 MHz frequency data for the Norman County ARMER tower sites. The channels listed as “Norman Co.” have been assigned to Norman County via the state’s 800 MHz NPSPAC channel plan, and while they have not yet been assigned to a specific site, they could be used for the system at some point. Channels and sites with a “PS” listed have been assigned a non-NPSPAC 800 MHz channel.

800 MHz Frequency Assignments for ARMER Sites in Norman County

Site	Chan 1	Chan 2	Chan 3	Chan 4	Chan 5
Norman County	5	25	62	197	217
Ada	73	223	PS	PS	PS
Flaming	112	PS	PS	PS	PS
Flom	35	103	131	165	224

(PS = Public Safety/Non-NPSPAC channels)

viii) Legacy VHF Equipment

The county will continue to operate and control a number of existing or updated VHF radio system channels, for local paging and interoperability. Emergency paging for fire and EMS operations is currently conducted via county-owned VHF system(s). These existing systems will be retained and modified or expanded as needed for improved paging coverage. This expansion will very likely include a relocation of some equipment to ARMER tower sites for improved coverage and reliability.

In addition, the existing law enforcement VHF repeater channels may be utilized for local interoperability between VHF and 800 MHz radio system users.

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 in more densely populated areas of the county
- Need to cover the geographic area with a reasonable number of 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 goal for Norman County is 95 percent "on-the-street/outdoor" reliability to a portable radio with a standard antenna held at a height of five feet above ground level.

ii) Coverage Propagation Mapping

The planning for this project included coverage modeling and propagation analysis work to determine if the basic tower site planning assumptions were valid and could be expected to result in a system that would meet Norman County's coverage needs.

These coverage maps were generated with the RadioSoft® ComStudy2® software program. The modeling for the coverage analysis was done with the 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 (tower over 300 feet)	1.25 inch Heliax®
Transmission Line Size (tower under 300 feet)	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®
Receive Transmission Length	Based on tower height
Field Unit Parameters	Value
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

Five predicted-coverage maps are provided in this plan; all maps utilize all tower sites within and outside of the county that provide coverage in the target service area:

1. State of Minnesota prepared coverage map for Norman County (from 2008).
2. Mobile (vehicle-mounted) radio coverage (prepared by RFCC)
3. On-Street portable radio coverage
4. In-building countywide coverage
5. In-building coverage in the City of Ada area

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. The first map presented in this plan is the predicted coverage map provided by the State of Minnesota for the Norman County geographical area.

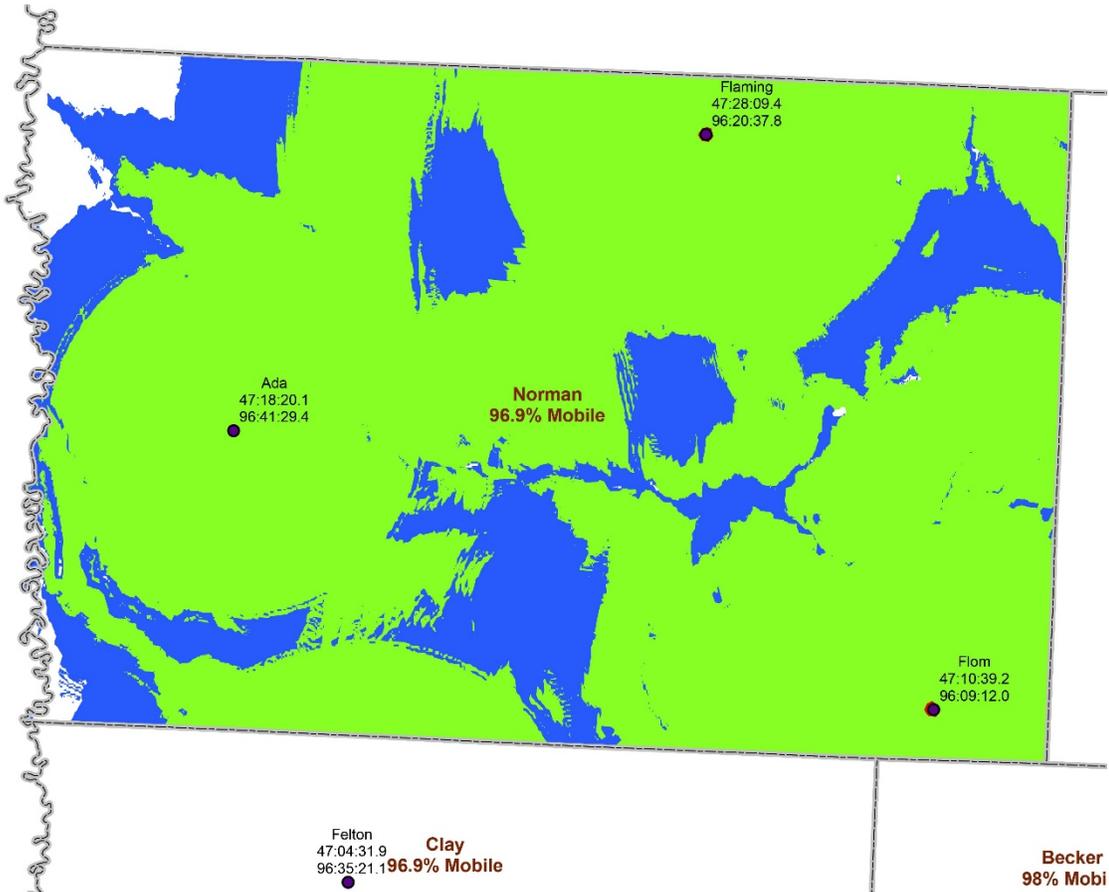
All maps were created using RadioSoft© ComStudy2© software program, and the modeling for the coverage analysis was done with the Longley-Rice and Okumura propagation models. The modeling parameters used by the State and RFCC are similar, however a somewhat different color-coding scheme is used. The State's maps use green areas represent a 40 dBu level of radio signal, which can generally be translated into a level where reliable portable and mobile radio coverage can be expected. The areas shaded in blue represent a 33 dBu level of radio signal, which typically reflects mobile (vehicle-mounted) radio coverage.

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. The only areas of the county where this is predicted to exist are in the far west and east corner of the county, and are not expected to be problematic.

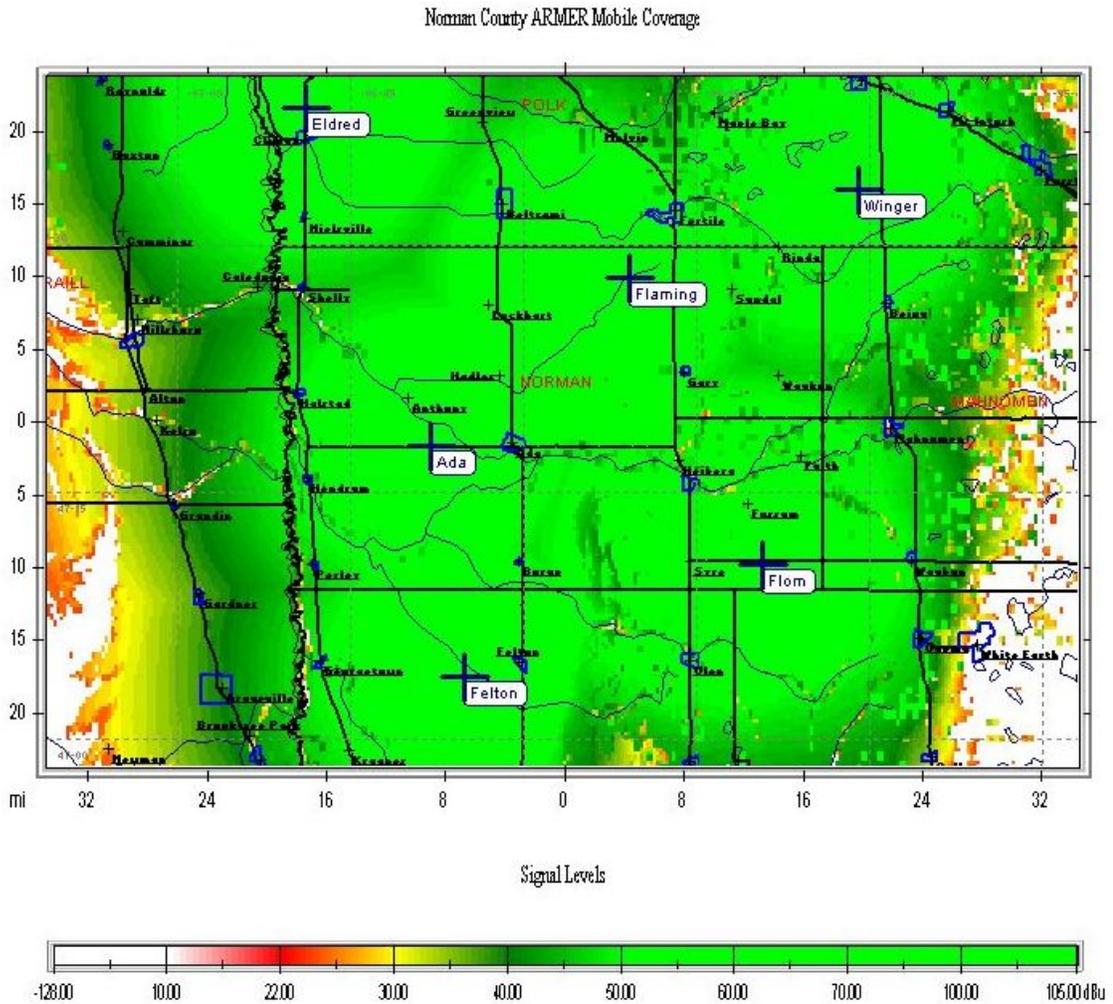


Map I: Norman County Predicted ARMER Coverage

(Originally provided by the State of Minnesota in 2008; this map is provided for reference only, and is considered outdated due to some changes in tower site locations that have been established since the time of original publication).

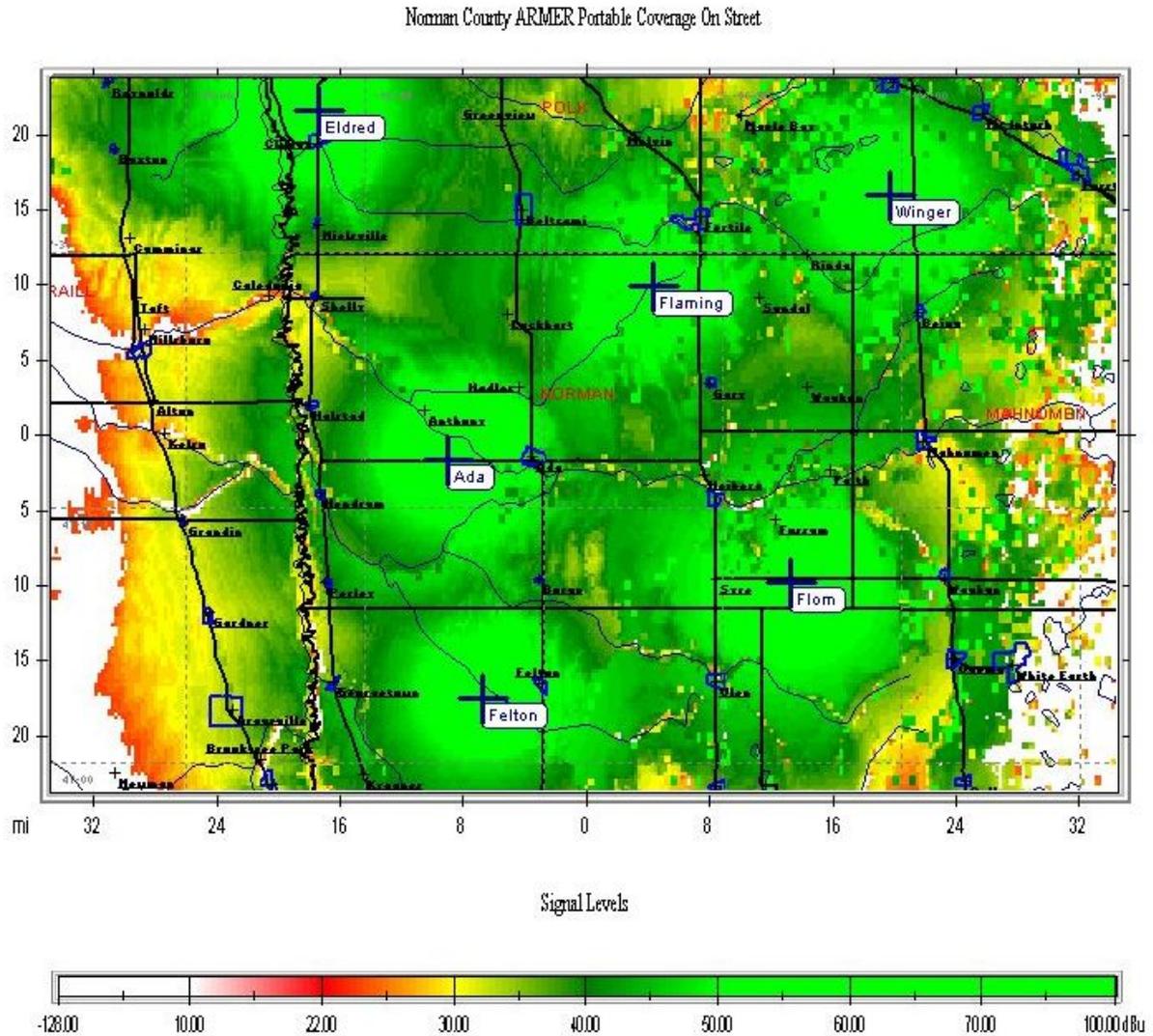


Map 2: The map shown below, prepared by RFCC for the county's ARMER planning process, demonstrates the predicted coverage to be expected for Mobile (vehicle-mounted) radios from the ARMER tower sites to be located within Norman County, including the first-tier sites outside the county borders.



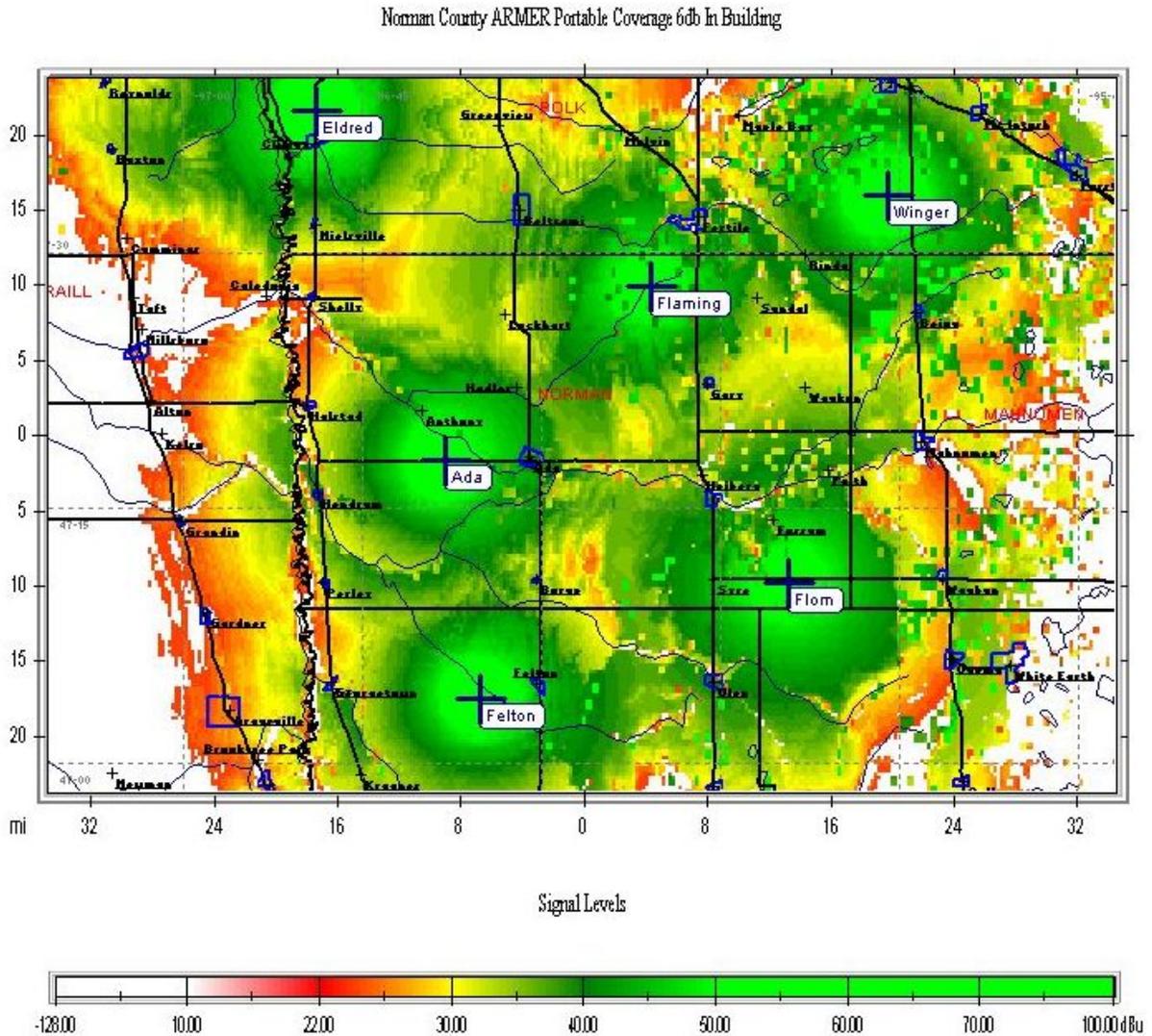
The predicted mobile radio coverage throughout all of the county is excellent with the planned tower sites, and coverage within the county is enhanced by tower sites outside of the county borders.

Map 3: The map shown below demonstrates the predicted coverage to be expected for portable (handheld) radios “On Street/Outdoors” from the ARMER tower sites to be located within Norman County, including the first-tier sites outside the county borders.



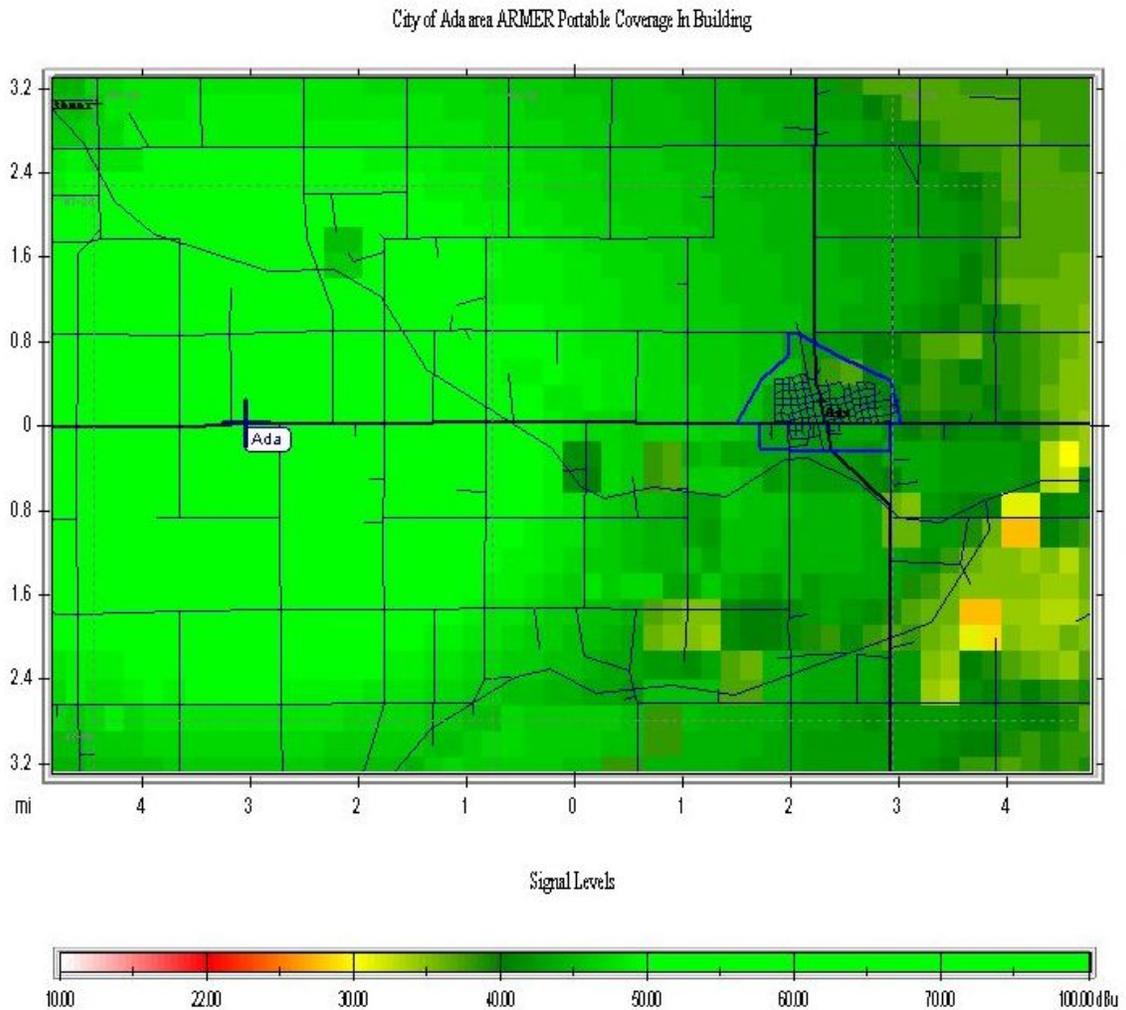
The predicted portable radio coverage throughout most of the county is very good with the planned tower sites, and coverage within the county is enhanced by tower sites outside of the county borders.

Map 4: The map shown below demonstrates the predicted in-building (6db loss) coverage to be expected for portable/hand held radios in Norman County from the ARMER system when all tower area sites in the region are included in the calculations.



The predicted 6db in-building coverage for Norman County is good in most areas, including the city of Ada (county seat). There are concerns in the far northwest and southwest corners of the county (Shelly and Perley), near the border with North Dakota. Refer to the map on the next page for more detail of the predicted coverage in the Ada area.

Map 5: This map demonstrates the predicted in-building (6db loss) portable radio coverage to be expected in the City of Ada (county seat) area from the ARMER system when all tower area sites in the region are included in the calculations.



The blue lines on the map indicate the city limits of Ada, and the dark blue lines indicate highways and main roads. The predicted in-building coverage should be good within the city, although this will depend on the type of building involved. The closest ARMER tower site (Ada) is 5 miles from town, but the terrain is relatively flat, allowing good signal propagation.

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.

The primary method of redundancy for Norman County operations will be the implementation of multiple 800 MHz RF control stations at the main PSAP location. This would typically include one control station for each primary public safety discipline, such as:

- Law operations
- Fire operations
- EMS operations

Because the planned PSAP equipment for Norman County will use 800 MHz RF control stations (vs. microwave, fiber optic or T-1 links), these stations will have access to multiple ARMER tower sites, and therefore the loss of one local site should not cause a loss of ARMER system access for the dispatch center.

If scenario 2 occurs, (local ARMER sites lose connectivity to the master site in Detroit Lakes, 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. This is due to the local sites and network operating in a multicast mode of operation (rather than simulcast).

The resulting effect on the dispatch center is the same; however, Norman County will be implementing multiple RF control stations at the dispatch center, with access to several of the tower sites within the county. The challenge with this approach is that the number of stations could be cumbersome and difficult to manage, depending on the number of talk groups incorporated in the backup station plan.

No final determination has been made for Norman County as to the specific number of 800 MHz RF control stations that will be implemented at the PSAP, but a final plan will be based on the county's final system planning.

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 and proper operation of the system.

Norman County agencies recognize this need, and are planning to enlist the services of independent contractors recognized by the state as proficient in the operation of the ARMER radio system. The program 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 Norman County's decision to migrate to the ARMER system. The areas specifically addressed are:

Internal: Between the many agencies within the general jurisdictional area of Norman County (i.e. law enforcement, fire service, and EMS agencies). The implementation of a common 800 MHz trunked radio system for all public safety agencies, as well as other units of local government, should resolve most interoperability communications issues that may currently exist. To make the ARMER system work effectively will require careful fleet map planning and the proper training of all radio system users.

External: Between the county agencies and other public safety (law, fire, and EMS) and government agencies operating both within and sharing borders with Norman County, to include the following:

- Clay County agencies
- Polk County agencies
- Mahnomon County agencies
- Becker County agencies
- Minnesota State Patrol, Mn/DOT, Department of Natural Resources (DNR) enforcement, and fire agencies
- Traill County North Dakota law and fire agencies
- Federal law enforcement and fire agencies

Most of the agencies within the Northwest Region of Minnesota have been moving forward with the ARMER participation planning and implementation process, which will improve communications

interoperability for those agencies. Norman County is currently bordered by county agencies operating both on 800/ARMER and VHF systems, which will require a combination of solutions to ensure reliable communications between all agencies in the region, regardless of radio system type. Norman County will have neighboring agencies operating on both types of systems for the foreseeable future.

- North Dakota agencies, which border the west side of Norman County, will remain on VHF long-term. As such, Norman County agencies will need to retain VHF capabilities for interoperability with these agencies.

To accommodate communications between agencies that may operate with Norman County that are not on the ARMER system in the short-term using legacy system technology, access to the ARMER radio system, a variety of interconnectivity options will be needed:

- The most basic requirement will be for Norman County to continue operation of their VLaw31 155.4750 MHz base station. This can be patched to an 800 MHz talkgroup via the PSAP console system when required.
- Some of the existing Norman County Law Enforcement repeater channels will be retained, and will become local “interoperability” channel resources, capable of being patched to the ARMER system, to allow local VHF radio users a simple and effective link to county agencies operating on the ARMER system.

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.

Norman County will adopt and comply with the standards published by both the State Radio Board and the Northwest Minnesota Regional Radio Board. Use of these standards will ensure that users in Norman County will adopt the same naming conventions, talkgroup usage, and other operational and technical standards that are in use throughout the state.

G. Alarms and Monitoring

Mn/DOT – ARMER will have the primary tower site alarm monitoring for sites in the county.

H. Maintenance

Maintenance of the primary ARMER tower sites within Norman County will be handled by the Mn/DOT staff. Norman County will contract with a local authorized service facility for maintenance of any additional 800 MHz system equipment planned for the Norman County implementation, including the PSAP equipment.

I. System Administration

Local system administration for Norman County will be the responsibility of the Norman County Sheriff's Office.

J. Other Local Enhancements

The primary local enhancements to the planned system implementation are:

- No tower site or 800 MHz channel expansion local enhancements are planned for this system implementation



3. Project Costs and Budget

Funding for implementation of the ARMER system within Norman County is being considered from three different sources:

- Local bonding
- Local levy
- Grant opportunities

Grant funding has been received for the purchase of a number of 800 MHz portable radios for the Sheriff's office. Funding for the remaining system infrastructure equipment has not yet been finalized, but is being reviewed by the county and considered for year 2016 or beyond.

Project Cost Estimates:

Item/Category	Estimated Costs (Phase 1)	Estimated Costs (Phase 2)	Estimated Costs (Phase 3, long term plan)
MCC5500 Console Modifications and 800 MHz RF Control Stations	\$85,000	NA	NA
MCC7500 Console and Connectivity (Future, long term)	NA	NA	\$375,000
800 MHz Subscriber Radios (Law Enforcement)	\$99,300	NA	NA
800 MHz Subscriber Radios (Fire & EMS – see Notes below)	\$146,400	\$351,500	NA
Project Management	\$ 10,000	\$ 5,000	\$20,000
Grand Total Estimated Costs	\$340,700	\$356,500	\$395,000

Notes: The Phase 1 costs shown for Fire/EMS agencies provides two 800 MHz ARMER-capable portable radios to each agency for basic ARMER system use.

Phase 2 provide all remaining 800 MHz ARMER mobile and portable radios for the Fire/EMS agencies within the county. The costs in Phase 1 and 2 should be added together to understand the total cost for Fire/EMS agency radios.

Phase 3 replaces the existing MCC5500 radio dispatch consoles with new MCC7500 consoles and provides connectivity into the ARMER network.

4. Project Implementation

A. Schedule

The implementation of the ARMER radio network for an organizational group the size of Norman County, with the number of agencies, tower sites, and quantity of radios being planned, is typically expected to require a 12-month period to complete. This process will encompass several work categories, including:

- Preliminary planning processes and approvals
- Funding approvals
- Detailed project planning and final system design
- Establish contract with vendor for equipment and services
- FCC licensing
- Equipment installation and configuration
- Radio user training
- System cut over

On the following page is an estimated schedule for the implementation of the ARMER system for Norman County agencies. Please note that the schedule only tentative at this time, and is subject to many factors, including Norman County securing the funding to move forward with the project.

B. System Cut Over Plan

Norman County would continue to utilize their existing VHF radio systems during the installation of the ARMER system equipment, as well as 800 MHz RF control stations on the ARMER system. The PSAP console equipment would be configured to operate both systems (legacy VHF and ARMER) until the ARMER system, as well as mobile and portable radios, are fully programmed, installed, and radio users trained for use of the new system.

Due to the expected overlap in timing with neighboring agencies, and the conversion from VHF to ARMER, the need for VHF radios will continue for several years. As such, county agencies will retain VHF radios in many vehicles, along with the new 800 MHz ARMER radios.

Norman County Draft Implementation Schedule

Implementation of the ARMER system for an agency typically requires 12 to 18 months from start to completion if new PSAP console equipment is required, and also depends on the number of radios and agencies involved in the process.

The Norman County ARMER implementation will be a “phased” process, as discussed earlier in this plan. The County is planning the Phase I implementation for 2016. The Phase 2 implementation (Fire and EMS agencies) will be considered in 2017, depending on the funding options available for the purchase of the required equipment. The Phase I process will allow the county’s law enforcement agencies to migrate quickly, to be followed by fire and EMS agencies as funding allows for the purchase of new ARMER-capable mobile and portable radio equipment. No plans for MCC7500 consoles in dispatch are included in this schedule.

Norman County Proposed ARMER Radio System Project Schedule

ID	Task Name	Start	End	Duration	2016												2017											
					Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	ARMER Participation Plan Development	11/6/2015	3/15/2016	18.6w	[Gantt bar from Jan to Mar 2016]																							
2	ARMER Plan Approvals (RRB, SRB/OTC)	3/15/2016	5/16/2016	9w	[Gantt bar from Mar to May 2016]																							
3	Phase 1 System Design & Planning	7/13/2016	8/9/2016	4w	[Gantt bar from Jul to Aug 2016]																							
4	Order Equipment from Vendor	8/18/2016	9/29/2016	6.2w	[Gantt bar from Aug to Sep 2016]																							
5	Equipment Installation	9/1/2016	10/18/2016	6.8w	[Gantt bar from Sep to Oct 2016]												Equipment Installation											
6	Mobile and Portable Radio Programming	10/3/2016	11/3/2016	4.8w	[Gantt bar from Oct to Nov 2016]												Mobile and Portable Radio Programming											
7	Radio User & Dispatcher Training	11/3/2016	11/17/2016	2.2w	[Gantt bar from Nov to Dec 2016]												Radio User & Dispatcher Training											
8	Phase 1 – System Cutover	12/1/2016	12/1/2016	.2w	[Gantt bar at Dec 1, 2016]												Phase 1 – System Cutover											
9	Phase 2 – Fire & EMS Radios	5/2/2017	6/1/2017	4.6w													[Gantt bar from May to Jun 2017]											
10	Order Equipment from Vendors	7/3/2017	8/1/2017	4.4w													[Gantt bar from Jul to Aug 2017]											
11	Equipment Order Processing & Mfgr	8/1/2017	9/19/2017	7.2w													[Gantt bar from Aug to Oct 2017]											
12	Equipment Delivery	9/1/2017	10/13/2017	6.2w													[Gantt bar from Sep to Nov 2017]											
13	Radio Installations	10/3/2017	12/4/2017	9w													[Gantt bar from Oct to Dec 2017]											
14	Radio Programming	10/2/2017	10/26/2017	3.8w													[Gantt bar from Oct to Nov 2017]											
15	Radio User Training	11/1/2017	11/14/2017	2w													[Gantt bar from Nov to Dec 2017]											
16	Fire & EMS Agency Cutover	12/4/2017	12/5/2017	.4w													[Gantt bar at Dec 4-5, 2017]											

Revised 2-16-2016

Attachment I: Norman County Fleet Map

	Law Enforcement Operations	TG Alias
1	Norman County Law 1	NR Law 1
2	Norman County Law 2	NR Law 2
3	Norman County Law 3 Encrypted	NR Law 3E
4	Norman County Law TAC 1	NR Law TAC 1
5	Norman County Law TAC 2	NR Law TAC 2
6	Norman County Law Car-Car	NR L C2C
7	Norman County Emergency Management	NR EM
8	Norman County Law Admin	NR LW Adm
	Fire and EMS Operations	TG Alias
9	Norman County Fire 1 (Main)	NR Fire 1
10	Norman County Fire 2	NR Fire 2
11	Norman County Fire TAC 1	NR F TAC 1
12	Norman County Fire TAC 2	NR F TAC 2
13	Norman County Fire TAC 3	NR F TAC 3
14	Norman County Fire TAC 4	NR F TAC 4
15	Norman County Fire TAC 5	NR F TAC 5
16	Norman County EMS 1 (Main)	NR EMS 1
17	Norman County EMS 2	NR EMS 2
18	Norman County EMS TAC 1	NR E TAC 1
19	Norman County EMS TAC 2	NR E TAC 2
	Local Interoperability	TG Alias
20	Norman County Announcement Group	NR ANNC ALL
21	Norman County Emergency Button	NR EM BT
22	Norman County Emergency 911	NR 911
23	Norman County Public Safety Statewide Roam	NR PS Roam
24	Norman County All Statewide Roam	NR All Roam
25	Norman County Public Safety Common 1	NR Com 1
26	Norman County Public Safety Common 2	NR Com 2
27	Norman County Public Safety Common 3	NR Com 3
28	Norman County Event 1	NR Event 1
29	Norman County Event 2	NR Event 2
30	Norman County Event 3	NR Event 3
31	Norman County Event 4	NR Event 4



Attachment 1: Norman County Fleet Map (continued)

	Public Works and Schools	TG Alias
32	Norman County Highway Operations 1	NR Hwy 1
33	Norman County Highway Operations 2	NR Hwy 2
34	Future County Agency use	NR TBD
35	Future County Agency use	NR TBD
36	Future Public Works 1	NR PW 1
38	Future Public Works 2	NR PW 2
39	Norman County School Transportation 1	NR School 1
40	Norman County School Transportation 2	NR School 2

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

Attachment 2: 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
2. Federal Engineering “Radio System Needs Assessment and Alternatives Report for Norman County” December, 2009
3. RadioSoft™ ComStudy2™ Terrain Database
4. ARMER Status Map, as posted at <http://www.srb.state.mn.us/> dated April 2, 2014
5. 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

**REQUEST FOR SPECIAL
WIDE AREA SITE ACCESS
FOR AN ARMER TALKGROUP**

Talkgroup/ Announcement Group Name(s): Norman County All Statewide Roam (NR All Roam)

If Announcement Group List all Contained Talkgroups: _____

Sites Requested:

- Statewide (Requires Statewide Radio Board Approval)
- Other (Specify Sites or Regions):

Talkgroup Owner Agency (Include Point of Contact Information):

Agency Name: Norman County Sheriff's Office
Contact Name: Sheriff, Norman County (Jeremy Thornton)
Address: 15 - 2nd Ave E
Ada, MN 56510
Phone: 218-784-7114
Email: Jeremy.thornton@co.Norman.mn.us

Talkgroup or Announcement Group Type (Check all that Apply):

- Shared
- Private
- Special Roaming Only Talkgroup – Occasional Use.
- Special Operations Tactical Talkgroup – Occasional Use. **If yes**, describe or list the counties or regions covered by a mutual aid agreement, memorandum of understanding, joint powers agreement, incident response plan or other relevant agreements here: _____
- Main Dispatch or Tactical Talkgroup – Day to Day Use. **If yes**, applicant must demonstrate that the users of this talkgroup conduct their “Normal Day to Day Business Operations” throughout the requested coverage area. Describe or list the counties or regions where the users of this talkgroup conduct their “Normal Day to Day Business Operations” here: _____

Describe the users, entities or agencies that will operate on this talkgroup:

The "NR All Roam" talk group is intended to allow all Norman County agency personnel (public works, public safety, school transportation) using the ARMER network the ability to contact Norman County dispatch when outside of the Norman County geographical service area, primarily if emergency assistance is needed.

Describe the type of operations that will occur on this talkgroup:

The anticipated use of this talk group would be by school buses when transporting students to and from sporting and band events outside the Pennington County geographical operating area.

Describe the anticipated frequency, duration and extent of use of this talkgroup:

The use of this talk group will be very minimal, perhaps one trip a week, again primarily for communications with Norman County dispatch if emergency situations are encountered and support is needed (bus breakdown, bad weather, student illness, etc). There will NOT be any routine dispatch or operational traffic on this talk group. Cell phones will remain a primary communications resource, but there remain many areas of poor cell phone coverage in the rural areas of Minnesota.

Describe why the Statewide Shared Incident Response talkgroups or other shared roaming talkgroups are not suitable to meet these operational requirements:

It is unlikely that the Norman County PSAP would be monitoring the various Statewide Shared Incident Response or Roaming talk groups, and the purpose for which Norman County units would need to communicate would not necessarily appear to fit the intended use of those talk groups.

 *4-21-2016*

Talkgroup Owner Agency Authorized Official – Signature & Date

Jeremy Thornton, Sheriff – Norman County MN

Printed Name and Title

**REQUEST FOR SPECIAL
WIDE AREA SITE ACCESS
FOR AN ARMER TALKGROUP**

Talkgroup/ Announcement Group Name(s): Norman County Public Safety Statewide Roam (NR PS Roam)

If Announcement Group List all Contained Talkgroups: _____

Sites Requested:

- Statewide (Requires Statewide Radio Board Approval)
- Other (Specify Sites or Regions):

Talkgroup Owner Agency (Include Point of Contact Information):

Agency Name: Norman County Sheriff's Office

Contact Name: Sheriff, Norman County (Jeremy Thornton)

Address: 15 - 2nd Ave. E.
Ada, MN 56510

Phone: 218-784-7114

Email: Jeremy.thornton@co.norman.mn.us

Talkgroup or Announcement Group Type (Check all that Apply):

- Shared
- Private
- Special Roaming Only Talkgroup – Occasional Use.
- Special Operations Tactical Talkgroup – Occasional Use. **If yes**, describe or list the counties or regions covered by a mutual aid agreement, memorandum of understanding, joint powers agreement, incident response plan or other relevant agreements here: _____
- Main Dispatch or Tactical Talkgroup – Day to Day Use. **If yes**, applicant must demonstrate that the users of this talkgroup conduct their “Normal Day to Day Business Operations” throughout the requested coverage area. Describe or list the counties or regions where the users of this talkgroup conduct their “Normal Day to Day Business Operations” here: _____

Describe the users, entities or agencies that will operate on this talkgroup:

The "NR PS Roam" talk group is intended to allow Norman County public safety agency personnel the ability to contact Norman County dispatch when outside of the Norman County geographical service area. It may also be used for two or more Norman County public safety personnel to communicate with each other when operating outside of the county geographical area (and outside the operational range of an SOA channel).

Describe the type of operations that will occur on this talkgroup:

The two most common uses of this talk group are 1) Prisoner transports, and 2) Communications between two or more Norman County field units when outside of the county geographical operating area.

Describe the anticipated frequency, duration and extent of use of this talkgroup:

The use of this talk group will be minimal, perhaps twice a week, primarily for prisoner transport. There will NOT be any routine dispatch or operational traffic on this talk group.

Describe why the Statewide Shared Incident Response talkgroups or other shared roaming talkgroups are not suitable to meet these operational requirements:

It is unlikely that the Norman County PSAP would be monitoring the various Statewide Shared Incident Response or Roaming talk groups, and the purpose for which Norman County units would need to communicate would not necessarily appear to fit the intended use of those talk groups.

 *4-21-2016*

Talkgroup Owner Agency Authorized Official – Signature & Date

Jeremy Thornton, Sheriff – Norman County MN

Printed Name and Title

St. Louis County Minnesota

ARMER Participation Plan Addendum 2 April 12, 2016

Bruce Hegrenes
Technical Supervisor
St. Louis County Sheriff Office
Emergency Communications Division

Executive Summary

The St. Louis County ARMER Participation Plan was completed and approved by St. Louis County Board, Northeast Region Advisory Committee, Northeast Region Radio Board, Minnesota Department of Transportation-Electronic Communications Division, Operations and Technical Committee of the State Emergency Communications Board and the State Emergency Communications Board in late 2010. The plan was changed in April of 2014 with Addendum 1. This addendum is an update to that plan due to additional review and equipment upgrades.

In this Addendum St. Louis County proposes to add an additional channel to the Virginia/Midway Simulcast. Two additional T1 ports are requested from the Zone 5 router for additional bandwidth. An additional BDA is proposed at a critical site.

2. ARMER System review and design

ii Local Equipment Additions and Enhancements

Virginia/Midway Simulcast

St. Louis County proposes to add one additional channel to the Virginia/Midway simulcast. One GCM8000 comparator will be added to the Virginia/Midway prime site. One additional GTR8000 will added to the Midway/Virginia, Hibbing, Chisholm, Idington, Erie Hill, Tower and Soudan sites in existing cabinets.

Bi-directional Amplifiers

FCC registered NFPA compliant bi-directional amplifier is proposed for the new Duluth Police office located in the new Transit Center in downtown Duluth.

vii) PSAP Console Planning and Logging

St. Louis PSAP

St. Louis County requests two additional T1 ports to be aggregated to the existing two T1s from the Zone 5 core router to the St. Louis County dual site routers for the existing MCC7500 12 position console for additional bandwidth. This will also provide additional shared connectivity to the previously approved Regional Recorder. T1 connectivity from St. Louis PSAP Zone 5 MSO will be provided by St. Louis owned dual path protected microwave links.

St. Louis County Emergency Operations Center (EOC)

Two additional Motorola MCC 7500 console positions are proposed for a total of four for the Emergency Operations Center (EOC) to be used as a regional dispatch training center.

Attachment 4 List of Participating Agencies

Public Service Agencies

Public Works

Add Mountain Iron Public Works

Interoperability

Add Minnesota Power

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

Document Section 7	Compliance and Conflict Resolution	Status: Complete
State Standard Number	7.1.0	
Standard Title	Audit/Monitoring Process	
Date Established	3/16/2001	SECB Approval: 8/28/2008
Replaces Document Dated	08/28/2008	
Date Revised	04/11/2016	

1. Purpose or Objective

The purpose of this standard is to describe the process by which users of the ARMER system will be audited to ensure compliance with the standards, policies, and procedures set forth by the Statewide Emergency Communications Board (SECB).

Audits may be routine or event-stimulated. This could be a review of resource usage or security compliance and may include monitoring of talkgroup activity.

2. Technical Background

- **Capabilities**
- **Constraints**

3. Operational Context

The SECB is charged with setting standards and determining protocols and procedures for the smoothest possible operations between and among users of the ARMER system.

The improper use of ARMER resources can have minor to grave consequences. These standards, protocols, and procedures have been set forth by teams consisting of radio users and managers to maximize service to Minnesota citizens and to minimize potential negative consequences. Responsible management of this resource requires that compliance be monitored and audited.

4. Recommended Protocol/ Standard

The SECB Chair, Statewide System Administrator, Operations and Technical Committee (OTC) Chair, Regional Emergency Communications Board (ECB)/Emergency Services Board (ESB) Chairs, or Sub-System Managers all may call for audits in response to an event or incident that caused damage to or had the potential to cause damage to users or resources of

the ARMER system. Events and incidents may include monitoring outcomes consistently showing non-compliance.

5. Recommended Procedure

The appropriate authority will, at their own discretion, assign a system manager, an internal team, or an external agency to conduct the appropriate level of an audit.

6. Management

The SECB Chair, acting on behalf of the Statewide Emergency Communications Board, will manage this process. Any action taken by staff shall be reported to the SECB Chair and shall be subject to review and/or appeal.

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

Document Section 7	Compliance and Conflict Resolution	Status: Complete
State Standard Number	7.1.0	
Standard Title	Audit/Monitoring Process	
Date Established	3/16/2001	SECRB Approval: 8/28/2008
Replaces Document Dated	2/19/2008 08/28/2008	
Date Revised	7/9/2008 04/11/2016	

1. Purpose or Objective

The purpose of this standard is to describe the process by which users of the ARMER system will be audited to ensure compliance with the standards, policies, and procedures set forth by the Statewide ~~Emergency Communications Radio~~ Board (~~SECB~~SRB).

Audits may be routine or event-stimulated. This could be a review of resource usage or security compliance and may include monitoring of talkgroup activity.

2. Technical Background

- **Capabilities**
- **Constraints**

3. Operational Context

The ~~SECB~~statewide ~~Radio Board~~ is charged with setting standards and determining protocols and procedures for the smoothest possible operations between and among users of the ARMER system.

The improper use of ARMER resources can have minor to grave consequences. These standards, ~~protocols, policies~~, and procedures have been set forth by teams consisting of radio users and managers to maximize service to Minnesota citizens and to minimize potential negative consequences. Responsible management of this resource requires that compliance be monitored and audited.

4. Recommended Protocol/ Standard

The ~~SECB~~ Chair, ~~Statewide~~ System Administrator, Operations and Technical Committee (OTC) Chair, Regional ~~Emergency Communications Board (ECB)/Emergency Services Board (ESB) Radio Board (RRB)~~ Chairs, or Sub-System Managers all may call for audits in response to an event or incident that caused damage to or had the potential to cause damage to users

or resources of the ARMER system. Events and incidents may include monitoring outcomes consistently showing non-compliance.

5. Recommended Procedure

The appropriate authority will, at their own discretion, assign a system manager, an internal team, or an external agency to conduct the appropriate level of an audit.

6. Management

The SECBRB Chair, acting on behalf of the Statewide Emergency Communications Radio Board, will manage this process. Any action taken by staff shall be reported to the SECBRB Chair and shall be subject to review and/or appeal.

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

Document Section 7	Compliance and Conflict Resolution	Status: Complete
State Standard Number	7.2.0	
Standard Title	Response to Non-Compliance	
Date Established	3/31/2001	SECB Approval: 8/28/08
Replaces Document Dated	08/28/2008	
Date Revised	04/11/2016	

1. Purpose or Objective

The purpose of this standard is to describe the consequences of non-compliance with ARMER Standards, Protocols, and Procedures.

2. Technical Background

- **Capabilities**
- **Constraints**

3. Operational Context

The Statewide Emergency Communications Board (SECB) is charged with setting standards and determining protocols and procedures for the smoothest possible operations between and among users of the ARMER system. A Regional Emergency Communications Board (ECB)/Emergency Services Board (ESB) is also charged with setting standards and may set more stringent criteria regarding non-compliance issues; however, a Regional Radio Board may not set less stringent criteria.

REVIEW BODY

ROLE

Operations and Technical Committee (OTC)	Peer review, fact finding, recommend action
Operations and Technical Committee (OTC)	Endorse/ sign-off on action
Statewide Emergency Communications Board (SECB)	Approval or disapproval of recommended action

4. Recommended Protocol/ Standard

Consequences of failure to comply with these standards, protocols, and procedures fall into three categories of non-compliance:

- a. **If an imminent threat** is perceived to affect the system that cannot wait for formal action by a committee, the following individuals would be empowered to take immediate, corrective action at their discretion, and the appropriate Regional ECB/ESB will be notified:
- Statewide Emergency Communications Board Chair and Vice Chair
 - Operations and Technical Committee (OTC) Chair and Vice Chair
- b. **Moderate to high potential for serious adverse affect** on participants and/or non-participants of the ARMER system.

- **First violation** Written order to immediately stop the non-compliant practice. Either the SECB Chair or owner agency of affected Systems/Sub-System may send this letter, with a copy to the OTC Chair in both cases. The governing body of the violating agency shall be notified of the violation.
- **Failure to correct problem and respond within 30 days or 2nd offense within 180 days** Suspension of user access on the ARMER system to the extent of time determined by the SECB Chair and the OTC Chair.
- **Failure to respond within 60 days or 3rd offense within 180 days** Revocation of user access on the ARMER system. This action must be recommended by the OTC and requires approval of the SECB.

- c. **Low potential for adverse affect** on participants and/or non-participants of the ARMER system:

- **First violation** Written warning calling attention to the non-compliant practice. The violator is asked to stop the non-compliant practice(s) or apply for a formal waiver or variance within 30 days. (See State Standard 1.5.0) The SECB Chair or owner agency may send the warning, with a copy to the OTC in both cases. The governing body of the violating agency shall be notified of the violation.
- **Failure to respond within 30 days or 2nd offense within 180 days** Written order to immediately stop the non-compliant practice or be subject to suspension or revocation of user privileges. The SECB Chair or the owner agency may send this letter, with a copy to the OTC Chair.
- **Failure to respond within 60 days or** Suspension or revocation of user privileges

3rd offense within 180 days

on the ARMER system. The specific penalty must be recommended by the OTC and requires the approval of the SECB and the OTC.

- d. The OTC will be the first review body for discovery or report of non-compliance.

All participants of the ARMER system, whether full or limited, have the right to appeal a procedure, a decision, or a sanction set forth by the OTC Chair or Vice Chair or the SECB Chair or Vice Chair.

5. Recommended Procedure

Non-compliance may come to the attention of various personnel as a result of routine monitoring, an audit, a report, complaint from radio users, or other sources. Regardless of how the issue arises, as soon as there is awareness of non-compliance:

- The individual discovering non-compliance is obliged to immediately report it to their Local System Manager or Administrator. If local management fails to resolve the situation within a reasonable time, the System Manager or Administrator will notify the OTC Chair and the SECB Chair.
- Concurrently, the System Manager or Administrator will notify the OTC Chair of the non-compliance.
- If the matter is determined to be urgent by either the OTC Chair or the SECB Chair, it will be placed on the next OTC agenda.
- Should immediate action be required, the non-compliant agency will be notified of:
 - The required action. This will include a request to explain the reason for non-compliance.
 - The date the matter will come before the OTC.
 - Their rights to request a variance or waiver and, ultimately, to appeal (See State Standard 7.3.0).
- The SECB will hear the issue and recommend corrective action or consequences.
- These will be communicated to the violator within ten days.
- The Local System Manager or Administrator will follow up to ensure that all next steps and/or corrective action has been completed within the time frame established.
- The SECB Chair will review results, follow up with the Local System Manager- or Administrator on next steps, study trends/impact, and take action if appropriate.

6. Management

The SECB Chair will manage this process. Any action taken by staff shall be reported to the SECB and shall be subject to review and/or appeal.

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

Document Section 7	Compliance and Conflict Resolution	Status: Complete
State Standard Number	7.2.0	
Standard Title	Response to Non-Compliance	
Date Established	3/31/2001	SECRB Approval: 8/28/08
Replaces Document Dated	12/12/07 08/28/2008	
Date Revised	7/9/08 04/11/2016	

1. Purpose or Objective

The purpose of this standard is to describe the consequences of non-compliance with ARMER Standards, Protocols, and Procedures.

2. Technical Background

- **Capabilities**
- **Constraints**

3. Operational Context

The Statewide [Emergency Communications Radio](#) Board ([SECRB](#)) is charged with setting standards and determining protocols and procedures for the smoothest possible operations between and among users of the ARMER system. A Regional [Emergency Communications Board \(ECB\)/Emergency Services Board \(ESB\) -Radio Board \(RRB\)](#) is also charged with setting standards and may set more stringent criteria regarding non-compliance issues; however, a Regional Radio Board may not set less stringent criteria.

REVIEW BODY

ROLE

Operations and Technical Committee (OTC)	Peer review, fact finding, recommend action
Operations and Technical Committee (OTC)	Endorse/ sign-off on action
Statewide Emergency Communications Radio Board (SECRB)	Approval or disapproval of recommended action

4. Recommended Protocol/ Standard

Consequences of failure to comply with these standards, protocols, and procedures fall into three categories of non-compliance:

a. **If an imminent threat** is perceived to affect the system that cannot wait for formal action by a committee, the following individuals would be empowered to take immediate, corrective action at their discretion, and the appropriate Regional [ECB/ESB Radio Board](#) will be notified:

- Statewide [Emergency Communications Radio](#) Board Chair and Vice Chair
- Operations and Technical Committee (OTC) Chair and Vice Chair

b. **Moderate to high potential for serious adverse affect** on participants and/or non-participants of the ARMER system.

- **First violation** Written order to immediately stop the non-compliant practice. Either the [SECRB](#) Chair or owner agency of affected Systems/Sub-System may send this letter, with a copy to the OTC Chair in both cases. The governing body of the violating agency shall be notified of the violation.
- **Failure to correct problem and respond within 30 days or 2nd offense within 180 days** Suspension of user [access privileges](#) on the ARMER system to the extent of time determined by the [SECRB](#) Chair and the OTC Chair.
- **Failure to respond within 60 days or 3rd offense within 180 days** Revocation of user [access privileges](#) on the ARMER system. This action must be recommended by the OTC and requires approval of the [SECRB](#).

c. **Low potential for adverse affect** on participants and/or non-participants of the ARMER system:

- **First violation** Written warning calling attention to the non-compliant practice. The violator is asked to stop the non-compliant practice(s) or apply for a formal waiver or variance within 30 days. (See State Standard 1.5.0) The [SECRB](#) Chair or owner agency may send the warning, with a copy to the OTC in both cases. The governing body of the violating agency shall be notified of the violation.
- **Failure to respond within 30 days or 2nd offense within 180 days** Written order to immediately stop the non-compliant practice or be subject to suspension or revocation of user privileges. The [SECRB](#) Chair or the owner agency may send this letter, with a copy to the OTC Chair.

- **Failure to respond within 60 days or 3rd offense within 180 days** Suspension or revocation of user privileges on the ARMER system. The specific penalty must be recommended by the OTC and requires the approval of the ~~SECRB~~ and the OTC.

d. The OTC will be the first review body for discovery or report of non-compliance.

All participants of the ARMER system, whether full or limited, have the right to appeal a procedure, a decision, or a sanction set forth by the OTC Chair or Vice Chair or the SECB Chair or Vice Chair.

d.

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5. Recommended Procedure

Non-compliance may come to the attention of various personnel as a result of routine monitoring, an audit, a report, complaint from radio users, or other sources. Regardless of how the issue arises, as soon as there is awareness of non-compliance:

- The individual discovering non-compliance is obliged to immediately report it to their ~~respective-Local~~ System Manager or Administrator. If local management fails to resolve the situation within a reasonable time, the ~~System M~~anager or Administrator will notify the OTC Chair and the ~~SECB~~ Chair.
- Concurrently, the System Manager or Administrator will notify the OTC Chair of the non-compliance.
- If the matter is determined to be urgent by either the OTC Chair or the ~~SECRB~~ Chair, it will be placed on the next OTC agenda.
- Should immediate action be required, the non-compliant agency will be notified of:
 - The required action. This will include a request to explain the reason for non-compliance.
 - The date the matter will come before the OTC.
 - Their rights to request a variance or waiver and, ultimately, to appeal (See State Standard 7.3.0).
- The ~~SECRB~~ will hear the issue and recommend corrective action or consequences.
- These will be communicated to the violator within ten days.
- The Local System Manager- or Administrator s will follow up to ensure that all next steps and/or corrective action has been completed within the time frame established.

- The [SECRB](#) Chair will review results, follow up with [the Local System Manager- or Administrator](#)s on next steps, study trends/impact, and take action if appropriate.

6. Management

The [SECRB](#) Chair will manage this process. Any action taken by staff shall be reported to the [SECRB](#) and shall be subject to review and/or appeal.

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

Document Section 7	Compliance and Conflict Resolution	Status: Complete
State Standard Number	7.3.0	
Standard Title	The Appeal Process	
Date Established	04/02/2001	SECB Approval: 8/28/08
Replaces Document Dated	08/28/2008	
Date Revised	04/11/2016	

1. Purpose or Objective

The purpose of this standard to describe the process by which a decision of the owner agency, Operations and Technical Committee (OTC), or the Statewide Emergency Communications Board (SECB) may be appealed.

2. Technical Background

- **Capabilities**
- **Constraints**

3. Operational Context

The SECB is charged with setting standards and determining protocols and procedures for the smoothest possible operations between and among users of the ARMER system.

4. Recommended Protocol/ Standard

All participants of the ARMER system, whether full or limited, have the right to appeal a procedure, a decision, or a sanction set forth by the OTC Chair or Vice Chair or the SECB Chair or Vice Chair.

5. Recommended Procedure

Step 1: APPEAL

- In the event of a dispute regarding the outcome of non-compliance procedure under State Standard 7.2.0, an aggrieved party may file a written appeal to reverse recommendations or sanctions within 30 days of issuance of directives or sanctions.
- Within ten days of receiving a request for appeal, the SECB shall provide written notice of the request to all involved parties and set a date for an appeal hearing by the full SECB Board within 45 days.

DECISION - The SECB, after a hearing on the matter, shall make a decision regarding the dispute within 60 days and transmit an order to all parties involved. Unless a request for mediation by an aggrieved party is received within 30 days, the action called for shall be implemented in accordance with the Order. Copies of the Order will be mailed to all affected parties, as well as the SECB Chair.

Step 2: MEDIATION

- If a dispute between an aggrieved party and the SECB is not satisfied by Step 1 (above), an aggrieved party may file a written request for mediation with the SECB Chair. This may be filed at any time prior to a deadline for action or within 30 days of a final action.
- Within ten days of receiving a request for mediation, the SECB shall provide written notice of the request for mediation to all parties involved. The SECB shall also provide a list of neutral parties experienced in the ARMER system, public safety, and public service issues. Within 30 days, the affected parties shall select a mediator from the list of neutrals, or someone else mutually acceptable to all parties, and submit to mediation for a period of 30 days.

If the parties are not able to mutually select a mediator, a mediator will be selected by the Chief Judge of the State Supreme Court.

- Any cost incurred throughout this process will be shared equally by all involved parties.

DECISION – The mediator will assist the parties in their attempt to achieve a negotiated agreement.

If no agreement is reached, the SECB’s previous sanctions, directives, or findings will remain in effect. The aggrieved parties may need to seek other remedies as provided by law.

The SECB Chair will maintain a master schedule and calendar for each event to ensure timely response.

6. Management

The SECB Chair, acting on behalf of the Statewide Emergency Communications Board, will manage this process.

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

Document Section 7	Compliance and Conflict Resolution	Status: Complete
State Standard Number	7.3.0	
Standard Title	The Appeal Process	
Date Established	04/02/2001	SECRB Approval: 8/28/08
Replaces Document Dated	05/24/01 08/28/2008	
Date Revised	12/12/07 04/11/2016	

1. Purpose or Objective

The purpose of this standard to describe the process by which a decision of the owner agency, ~~System Manager's Group (SMG)~~, Operations and Technical Committee (OTC), or the Statewide ~~Emergency Communications Radio~~ Board (~~SECRB~~) may be appealed.

2. Technical Background

- **Capabilities**
- **Constraints**

3. Operational Context

The ~~SECB tatewide Radio Board~~ is charged with setting standards and determining protocols and procedures for the smoothest possible operations between and among users of the ARMER system.

4. Recommended Protocol/ Standard

All participants of the ARMER system, whether full or limited, have the right to appeal a procedure, a decision, or a sanction set forth by ~~the OTC any committee~~ Chair ~~or Vice Chair~~ ~~or the SECB Chair or Vice Chair~~ ~~and the SRB Chair~~.

5. Recommended Procedure

Step 1: APPEAL

- In the event of a dispute regarding the outcome of non-compliance procedure under State Standard 7.2.0, an aggrieved party may file a written appeal to reverse recommendations or sanctions within 30 days of issuance of directives or sanctions.
- Within ten days of receiving a request for appeal, the ~~SECB~~ shall provide written notice of the request to all involved parties and set a date for an appeal hearing by the full ~~SECB tatewide Radio~~ Board within 45 days.

DECISION - The SECRB, after a hearing on the matter, shall make a decision regarding the dispute within 60 days and transmit an order to all parties involved. Unless a request for mediation by an aggrieved party is received within 30 days, the action called for shall be implemented in accordance with the Order. Copies of the Order will be mailed to all affected parties, as well as the SECRB Chair.

Step 2: MEDIATION

- If a dispute between an aggrieved party and the SECRB ~~Statewide Radio Board~~ is not satisfied by Step 1 (above), an aggrieved party may file a written request for mediation with the SECRB Chair. This may be filed at any time prior to a deadline for action or within 30 days of a final action.
- Within ten days of receiving a request for mediation, the SECRB shall provide written notice of the request for mediation to all parties involved. The SECRB shall also provide a list of neutral parties experienced in the ARMER system, public safety, and public service issues. Within 30 days, the affected parties shall select a mediator from the list of neutrals, or someone else mutually acceptable to all parties, and submit to mediation for a period of 30 days.

If the parties are not able to mutually select a mediator, a mediator will be selected by the Chief Judge of the State Supreme Court.

- Any cost incurred throughout this process will be shared equally by all involved parties.

DECISION – The mediator will assist the parties in their attempt to achieve a negotiated agreement.

If no agreement is reached, the SECRB's previous sanctions, directives, or findings will remain in effect. The aggrieved parties may need to seek other remedies as provided by law.

The SECRB Chair will maintain a master schedule and calendar for each event to ensure timely response.

6. Management

The SECRB Chair, acting on behalf of the Statewide Emergency Communications Radio Board, will manage this process.

Allina Health 
**EMERGENCY
MEDICAL SERVICES**

March 14, 2016
Metro Region Radio Board
Technical Operations Committee

To Committee Members,

Allina Health Emergency Medical Services (AHEMS) respectfully requests to modify its ARMER system participation plan. AHEMS is in the process of adding a Motorola AIS server on the ARMER system to accommodate for logging with a new Eventide logger. This configuration will be required due to the obsolescence of the Motorola Gold Elite console configurations.

Sincerely,



Victoria Peckman
Communications Technology Specialist
Allina Health Emergency Medical Services

To: SECB Operations and Technical Committee
From: Jim Stromberg, ARMER Program Manager
Date: April 12, 2016
Subject: Change Management Standards Revision

In November 2011 the OTC asked the ECN to work with the regions to explore updating the Change Management Standards. A working group was created and drafted the attached standard for your consideration. It is meant to replace the two existing standards, nos. 1.5.2 and 1.8.0.

Membership in the working group was solicited from all regions and MnDOT. I moderated the discussions and the group members are listed below. The majority of the work was done during one in-person meeting. Refinements were deliberated by email exchanges.

Neil Dolan (NW)	Heath Landsman (SW)	Mike Peterson (SE)
Bruce Hegrenes (NE)	John Matz (SW)	Jim Mohn (MnDOT)
Micah Myers (CM)	Keith Ruffing (SC)	Cathy Anderson (ECN)
Al Fjerstad (CM)	Adam Kruger (SC)	
John Gunderson (ME)	Rick Freshwater (SE)	

The new standard is the result of a fresh look at Change Management. The main differences between the new standards and the existing standards are:

- One of the existing standards addressed system changes and the other addressed operational changes. The processes were similar and referenced the same flow chart. The proposed standard combines system and operational changes into one standard.
- The current standards were complex and necessitated a flow chart. The proposed standard is cleaner and does not implement a flow chart.
- The current standards define major and minor changes and prescribe the process for each path. The proposed standard establishes one set of criteria and, if met, the proposal should follow the change management process.
- The proposed standard provides more detail regarding timing of proposals, particularly as they relate to budgeting.

The working group used the definition of a “major change” from the existing standards to define change management criteria for the proposed standard. The new language reads as follows:

Changes that have one or more of the following impacts on the ARMER backbone or impacting more than one emergency communication regions are subject to the procedures prescribed in this Standard:

- Changes impacting the majority of users
- Changes mandating the placement of resources in communications equipment
- Changes requiring updated user training
- Changes requiring reprogramming of console and/or subscriber equipment
- Changes resulting in costs beyond routine maintenance costs

The work group believes that this change management proposed standard will meet the needs of all emergency communication regions and the state.

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

Document Section 1	Management of System	Status: DRAFT
State Standard Number	1.08.1	
Standard Title	Change Management	
Date Established		SRB Approval:
Replaces Document Dated	1.08.0 (04/28/2011) and 1.05.2 (04/28/2011)	
Date Revised		

1. Purpose or Objective

This standard sets forth the process for considering operational and technical changes to the ARMER backbone. This process should ensure that change requests are managed, vetted, timed to correspond with budgets, and efficiently implemented.

2. Technical Background

Capabilities

This standard relates to future changes to the ARMER backbone but, in and of itself, is not a technical standard.

Constraints

The ARMER backbone is defined by Minnesota State Statute 403.21, subd. 9 and its definition limits the scope of this standard. The statute reads:

"System backbone" or "backbone" means a public safety radio communication system that consists of a shared, trunked, communication, and interoperability infrastructure network, including, but not limited to, radio towers and associated structures and equipment, the elements of which are identified in the region wide public safety radio communication system plan and the statewide radio communication plan under section 403.36.

3. Operational Context

The Statewide Emergency Communications Board (SECB) is responsible for:

- Ensuring that ARMER maximizes interoperability
- Establishing and enforcing performance and technical standards for ARMER
- Establishing and enforcing priorities or protocols that facilitate uniformity

The SECB adopts ARMER Standards, Protocols, and Procedures to achieve these goals. Changes to the ARMER system are sometimes necessary and those changes must receive due consideration for economic impacts, operational impacts, and other issues that may compromise the integrity and use of the system.

4. Recommended Protocol/ Standard

Changes that have one or more of the following impacts on the ARMER backbone or impacting more than one emergency communication regions are subject to the procedures prescribed in this Standard:

- Changes impacting the majority of users
- Changes mandating the placement of resources in communications equipment
- Changes requiring updated user training
- Changes requiring reprogramming of console and/or subscriber equipment
- Changes resulting in costs beyond routine maintenance costs

5. Recommended Procedure

Individuals or entities with a change suggestion that they believe may be subject to this standard should present their suggestion to the Operations and Technical Committee (OTC) of the SECB. Items brought directly to the SECB or to other committees of the SECB that appear subject to this standard should be directed to the OTC. Items may be brought to the OTC at any regular meeting.

After receiving a request to change the ARMER system, the OTC should make a determination if the suggestion is subject to this standard. If the OTC determines that the suggestion is subject to the terms of this standard, the OTC will ask the requestor to bring their request to specific entities for feedback and/or formal approval. The reviews shall scrutinize the change proposal by identifying pitfalls, considering variables, and identify alternatives. The OTC may establish a Workgroup to facilitate this process.

The OTC shall first assign the requestor to consult the Minnesota Department of Transportation (MnDOT) for technical review and the Emergency Communication Networks (ECN) for an operational and financial review of the request. The requestor may consult with MnDOT and the ECN prior bringing the request to the OTC and the input of MnDOT and the ECN may be provided when the request is first introduced.

Upon receipt of input from MnDOT and the ECN, the OTC will assign the requestor to consult the Finance and Steering Committees of the SECB and the Emergency Communication Boards of each potentially impacted region. The OTC may also require the requestor to consult other committees or workgroups of the SECB or any other entity the OTC deems necessary.

The OTC *may* consider and grant provisional authority (subject to SECB ratification) for portions or the entire change request to be enacted. Temporary authority will allow for prompt implementation and may provide data about the proposal to assist with a permanent decision.

The requesting entity should consult each of the entities identified by the OTC about their change request and follow through with those entities as directed. The requesting entity may modify their original request based on new information or suggestions received. The requesting entity should provide a status update to the OTC within six months and every three months afterward.

Upon return to the OTC, the requesting entity should provide a report detailing their follow up. Modifications to the original request may be offered. Supporting materials such as meeting minutes or letters of approval should be submitted at this time. Relevant parties should be present for testimony. The OTC may then commence deliberations about the request. Approved requests should be forwarded to the SECB for consideration.

Requesting entities may appeal decisions by the means provided in standard 7.3.0.

Suggestions approved by the SECB should be jointly managed by MnDOT and the ECN. Generally, MnDOT will manage technical items and the ECN will manage operational items. Concerns raised but not fully satisfied during the process should be considered as the change is implemented.

The ECN will be responsible for tracking requests subject to this standard.

The following points related to timing should be followed during the implementation of this standard:

- Change suggestions may be submitted to the OTC at any time and this standard may be applied at any time.
- The process established in this standard should be expected to take at least six months so change suggestions subject to this standard should be submitted at least six months prior to consideration.
- Approved changes involving reprogramming of consoles or user equipment may be held up to two years so that multiple changes may be consolidated into one reprogramming.

A timeline should be followed to ensure adequate timing to prepare and request funding. In the below table, Change Management matters follow a four-year timing cycle and letters represent years:

- Year AAAA: 2016, 2020, 2024, ...
- Year BBBB: 2017, 2021, 2025, ...
- Year CCCC: 2018, 2022, 2026, ...
- Year DDDD: 2019, 2023, 2027, ...

January 1, AAAA	<u>If allowing six months for this process</u> , this is the last day to <u>submit</u> changes subject to the Change Management standard to the OTC for consideration in the CCCC/DDDD Minnesota budget.
July 1, AAAA	Deadline for the SECB to approve requests subject and for the ECN to know financial needs to be considered for the CCCC/DDDD Minnesota Budget.
July 1, AAAA to January 1, BBBB	ECN to obtain Governor’s approval of ECN budget and to prepare budget request for state legislature.
January 1, BBBB to May 1, BBBB	ECN to present budget request to legislature.
June 1, BBBB	State legislature approves budgets.
July 1, BBBB to June 30, CCCC	Fiscal Year CCCC of CCCC/DDDD budget.
July 1, CCCC to June 30, DDDD	Fiscal Year DDDD of CCCC/DDDD budget.

When the requirements of this standard cannot be met by an entity, the entity must apply for a waiver and that waiver must be considered by the OTC.

6. Management

The OTC with administrative support from the ECN is responsible for supervising and managing this process.

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

Document Section 1	Management of System	Status: Complete
State Standard Number	1.5.2	
Standard Title	Changes to Operational Standards	
Date Established	3/19/2001	SECB Approval: 4/28/2011
Replaces Document Dated	3/3/2005	
Date Revised	03/01/2011	

1. Purpose or Objective

The purpose of this standard is to set forth the process by which changes to the system backbone operating procedures will be solicited, evaluated, and adopted for implementation.

2. Technical Background

- **Capabilities**
- **Constraints**

3. Operational Context

Among other responsibilities, the Statewide Emergency Communications Board (SECB) is responsible for:

- Defining the backbone of the system and the standards for system backbone performance necessary to ensure system wide development that maximizes interoperability throughout the system.
- Establishing and enforcing performance and technical standards for the operation of the system backbone.
- Establishing and enforcing priorities or protocols for the system that facilitate statewide uniformity.

The ARMER Standards, Protocols, and Procedures, developed by ARMER participants throughout the state, have been adopted by the Statewide Emergency Communications Board. Periodically, changes to the ARMER Standards will be required to maintain optimum system backbone operations. Those changes must receive due consideration for state and local economic impacts, operational impacts, and other issues that may compromise the integrity and use of the system backbone before those changes can be implemented.

Additions and changes to the ARMER backbone or the technical ARMER Standards, Protocols, and Procedures are governed by State Standard 1.8.0, "System Change Management." Additions and changes to a requesting entities' participation plan are

governed by State Standard 1.10.0, "Requesting Participation and Participation Plan Changes." Some additions and changes could need to be evaluated under more than one process.

4. Recommended Protocol/ Standard

All operational changes to the ARMER Standards, Protocols, and Procedures that impact system users or require a change must be evaluated and approved through this change control procedure, as depicted in Figure 1.

5. Recommended Procedure

Whenever possible, major operational changes will be made on an 18-24 month cycle. This will allow users to match their subscriber radio maintenance cycle to the major change cycle and minimize the number of times that major changes need to be incorporated. The SECB will determine when a new change planning process needs to be initiated. Minor changes may be made at any time.

Solicit & Evaluate

- Change proposals may be submitted at any time. Proposals should be submitted through the proposer's contracting entity (State Standard 1.9.0), a Regional Radio Board (RRB), or the Minnesota Department of Transportation (MnDOT). Change proposals should be submitted on the form provided on the Statewide Emergency Communications Board website and shall include a proposed implementation plan.
- The Division of Emergency Communication Networks (DECN) will collect suggestions for changes from the Regional Radio Boards and MnDOT. DECEN will present the collected suggestions at the next scheduled meeting of the Interoperability Committee (IOC), who shall determine if the proposed changes are major or minor.

Minor changes have the following characteristics:

- Minor changes affect a relatively minor number of users or are contained to one radio region.
- Minor changes generally do not contain mandates for other users.
- Minor changes do not require significant retraining of other users.
- Minor changes do not have a cost to other users.

Major changes have one or more of the following characteristics:

- Major changes impact the majority of users in multiple radio regions.
- Major changes mandate the placement of resources in communications equipment.
- Major changes require revisions to operational procedures.
- Major changes require updated user training.

- Major changes require reprogramming of console and subscriber equipment.

Examples of major changes include mandating the placement of statewide resources in consoles and subscriber units, mandating the creation of national IC zones in subscriber units, and the creation of a statewide vehicle pursuit standard.

- Minor changes may be referred to the Statewide Interoperability Coordinator for evaluation and recommendation. The Statewide Interoperability Coordinator shall perform the necessary evaluation and recommend an action to the Interoperability Committee. The Interoperability Committee may elect to vet the request through additional committees, the Regional Radio Boards, or other user groups. Upon receipt of a recommendation from the Interoperability Committee, the SECB may approve or deny the requested change.
- Major changes shall be held by the Interoperability Committee until they determine that the number and importance of proposed major changes warrants the initiation of a major change process. At that time, the Interoperability Committee will direct DECN to notify stakeholders a major change cycle is beginning. This will be done through a notice published on the Statewide Emergency Communications Board's website and distribution to the regional leadership. The solicitation period should last at least three months to allow sufficient time for regional committees to meet and forward ideas through their Regional Radio Boards.
- At the close of the solicitation period, DECN will schedule presentations by the major change proposers to the Interoperability Committee. Change proposals will be made available for public review on the Statewide Emergency Communications Board website at least one week prior to the Interoperability Committee meeting.
- The Interoperability Committee shall consider the proposed changes and determine which proposals have sufficient need and benefit to warrant further evaluation. If the Interoperability Committee determines that a change proposal does not warrant evaluation and rejects the proposal, the proponent of the change request may appeal the decision. (State Standard 7.3.0, "Appeal Process.")
 - Change proposals selected for further evaluation shall be assessed to discover and document the impacts of each proposed change, including the impacts of the proposed transition plan. The Interoperability Committee may exclude any of the following assessments or may add other assessments, depending upon the nature and complexity of the change proposals. For complex assessments, DECN may be authorized to utilize a professional facilitator for focus groups of discipline specific users (police, fire, EMS) to expedite the process.
 - Tabletop scenarios through Homeland Security Emergency Management (HSEM)

- State Communications Interoperability Plan (SCIP) conformity review
 - Tactical Interoperability Communications Plan (TICP) conformity review
 - Cost/benefit analysis
 - MnDOT technical review for backbone impacts
 - Operations and Technical Committee review and comment
 - Training needs assessment
 - Other stakeholder review groups
- The assessment process must be completed within 90 days of receipt of the request for assessment. Input received after 90 days may still be considered, but consideration is not guaranteed. The request for assessment from the Interoperability Committee is not asking for a recommendation on the change proposal but is meant to review how the proposed change will impact operations, finances, training, etc.
 - Once all assessments are received or 90 days has passed, DECN and MnDOT staff and the facilitator will assemble the comments and prepare a summary document for public review and comment.

Plan and Approve

- The completed change proposals should be vetted by all the radio board regions. The discipline associations (Police Chiefs, Fire Chiefs, Sheriffs, Minnesota Ambulance Association, state agencies, etc.) and other interested stakeholders shall be notified of the pending changes and shall be afforded an opportunity to provide comments. DECN and MnDOT, along with regional/discipline association representatives to the SECB Committees and working groups, will be responsible for facilitating discussions and gathering comments. DECN and MnDOT will provide a summary of all comments received.
- If there is a cost to the change proposals, DECN and MnDOT staff will pass the recommendations through the Finance Committee, who will be responsible for determining how the costs should be allocated, securing Regional Radio Board agreement in any regional or local costs.
- Once the cost allocation is approved, or if there are not costs to allocate, DECN and MnDOT staff will present the change proposals to the Interoperability Committee for final review and recommendation. DECN and MnDOT summary shall include a draft change plan addressing comments received.
- The Interoperability Committee shall review the comments, recommend approval or denial of each change proposal, and create a change plan for approval by the Board.
- The change plan, including transition steps and schedules, will be made available for review and comment at the Regional Boards prior to presentation to the Statewide Emergency Communications Board.

- The SECB shall review the recommendations of the OTC and the Interoperability Committee and may approve the change recommendations, reject the change recommendations, or return the recommendation to committee for further review.

Create & Implement

- This phase will vary in length, depending upon the transitional plan adopted by the Board. The change plan may also involve multiple changes on different implementation schedules.
- Activities in this phase may include code plug development, radio programming, procedure writing and implementation, training development and implementation, physical construction, equipment replacement, or other activities as outlined in the change plan. Entities named in the plan will be responsible for completing the changes in the plan as per the approved schedule and reporting their status, in writing, to DECN.
- DECN will report on the status of the implementation to the SECB.

6. Management

The Interoperability Committee and DECN staff will manage this process for major change requests. The State Interoperability Coordinator will manage the minor change process.

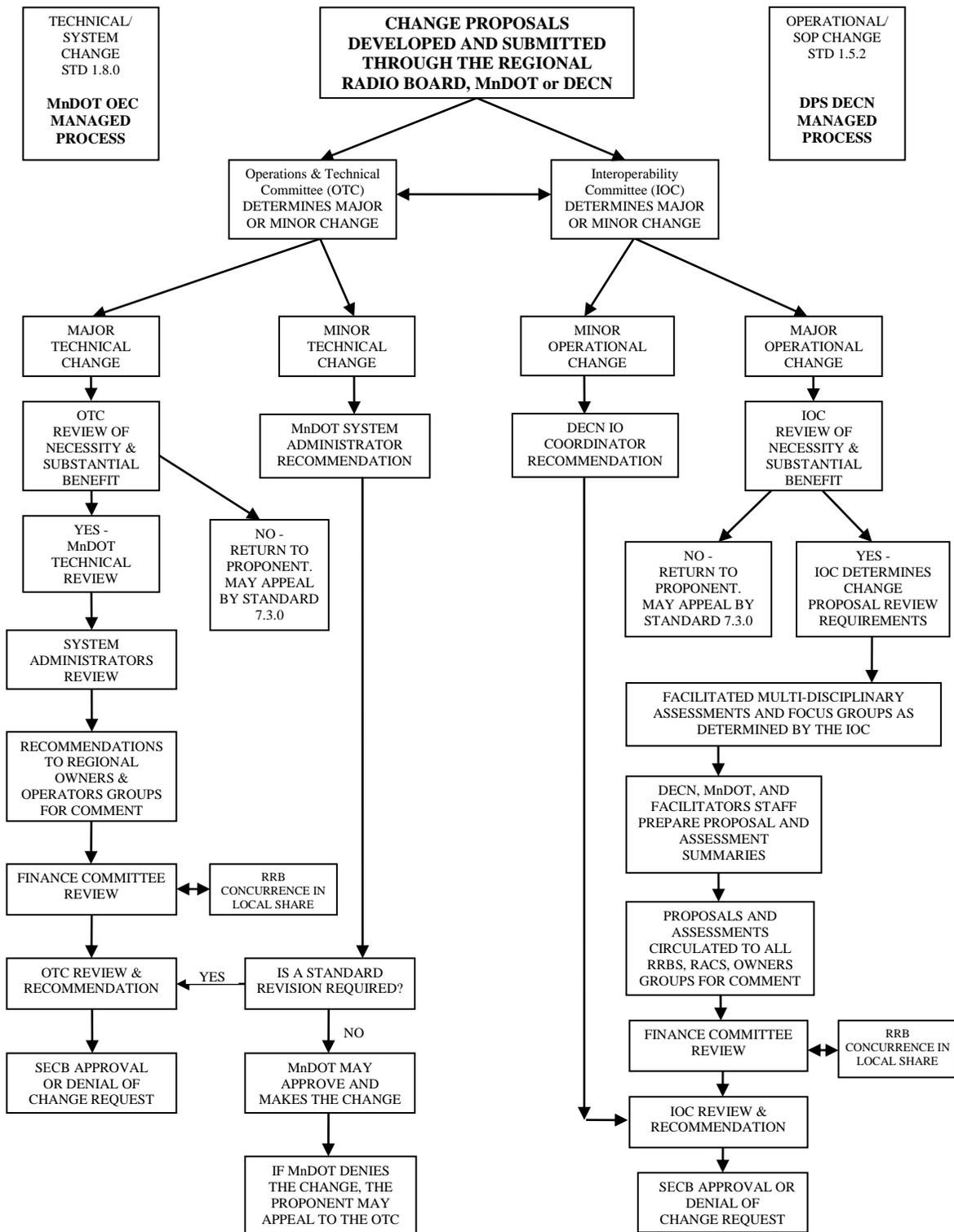


Figure 1 Change Management Process

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

Document Section 1	Management of System	Status: Complete
State Standard Number	1.8.0	
Standard Title	System Change Management	
Date Established		SRB Approval: 04/28/2011
Replaces Document Dated		
Date Revised	02/04/2011	

1. Purpose or Objective

The purpose of this standard is to establish the procedure for managing and approving moves, additions, upgrades, and other changes to the ARMER system backbone.

2. Technical Background

- **Capabilities**
- **Constraints**

3. Operational Context

Among other responsibilities, the Statewide Emergency Communications Board (SECB) is responsible for:

- Defining the backbone of the system and the standards for system backbone performance necessary to ensure system wide development that maximizes interoperability throughout the system.
- Establishing and enforcing performance and technical standards for the operation of the system backbone.
- Establishing and enforcing priorities or protocols for the system that facilitate statewide uniformity.

The Standards, Protocols, and Procedures have been developed by ARMER participants through statewide and regional committees and boards and have been adopted by the SECB. Periodically, changes to the ARMER State Standards or the ARMER backbone will be required to maintain optimum system backbone operations. Those changes must receive due consideration for state and local economic impacts, operational impacts, and other issues that may compromise the integrity and use of the system backbone before those changes can be implemented.

Additions and changes to the Standards, Protocols, and Procedures that affect standard operating procedures (SOPs) are governed by State Standard 1.5.2. Additions and changes

to a requesting entity's participation plan are governed by State Standard 1.10.0. Some additions and changes could need to be evaluated under more than one process.

4. Recommended Protocol/ Standard

All requests for changes to the Standards, Protocols, and Procedures or any other change that affect the system backbone shall be submitted, evaluated, and approved through this change management procedure, depicted in Figure 1.

5. Recommended Procedure

Change proposals may be submitted at any time. Proposals should be submitted through the proposer's contracting entity (State Standard 1.9.0), a Regional Radio Board (RRB), or the Minnesota Department of Transportation (MnDOT). Change proposals should be submitted on a standard form provided on the SECB website and shall include a proposed implementation plan.

MnDOT will collect suggestions for changes from the RRBs and present the collected suggestions to the next scheduled meeting of the Operations and Technical Committee (OTC), who shall determine if the proposed changes are major or minor.

Minor changes have the following characteristics:

- They do not result in measurable impacts to the performance of the system backbone.
- They do not impact users of the system backbone with additional training effort or changed operational procedures.
- They do not create costs to the backbone or users beyond routine maintenance costs.

Major changes are all changes that are not minor. Major changes require a more rigorous review, because they are likely to require the expenditure of fiscal and human resources on the system backbone and by the system users. Examples of major changes are:

- vendor software upgrades that require backbone connected hardware to be replaced
- implementation of a new radio technology that forces subscriber unit reprogramming
- backbone technology improvements that cost more than the maintenance budget can accomplish

Minor changes may be referred to the Statewide System Administrator for evaluation and recommendation. The Statewide System Administrator shall perform the necessary evaluation and recommend an action to the OTC. The OTC may elect to vet the request through additional committees, the RRBs, or other user groups. Upon receipt of a recommendation from the OTC, the SECB may approve or deny the requested change.

Major changes shall be held by the OTC until such time as the OTC determines that the number and importance of proposed major changes warrants the initiation of a major change process. Depending upon the nature of the change request, the OTC may elect to direct MnDOT to notify stakeholders that a major change cycle is beginning through a notice published on the SECB website and be distributed to the regional leadership. The solicitation period should last at least three months to allow sufficient time for regional committees to meet and forward ideas through their RRBs.

At the close of the solicitation period, MnDOT will coordinate with the major change proposers to present their requested changes to the OTC. Change proposals will be made available for public review on the SECB website at least one week prior to the OTC meeting

The OTC shall consider the proposed changes and determine which proposals have sufficient need and benefit to warrant further evaluation. If the OTC determines that a change proposal does not warrant evaluation and rejects the proposal, the proponent of the change request may appeal the decision, per State Standard 7.3.0.

MnDOT staff, supplemented with other resources as required, will assess the requests forwarded by the OTC. The assessment should include:

- conformance with the Plan and the technical and operational standards previously adopted by the SECB
- previous experience with the change on the ARMER system
- how the change will affect operations
- the extent of programming and infrastructure changes
- the merit or benefits of the proposed change
- the cost of the proposed change including operational and maintenance costs
- how long will the change take to accomplish
- what other alternatives could accomplish the requested change
- impact on future system capacity and development plans
- legislation needed

The results of the assessment will be distributed by MnDOT to the System Administrators for additional review and comments. If contradictory issues are identified by the System Administrators, the request shall be returned to the OTC for reconsideration of necessity and benefit.

MnDOT will summarize the changes recommended and create a change proposal, including transition steps and schedules. The change proposal should be vetted at all RRBs. MnDOT, along with regional representatives to the SECB Committees and working groups, will be responsible for facilitating discussions and gathering comments. MnDOT will summarize all comments received.

If there is a cost to the change proposals, MnDOT and the Division of Emergency Communication Networks (DECN) will first pass the recommendations through the Finance

Committee, who will be responsible for determining how the costs should be allocated and securing RRB agreement in any regional or local costs.

Once the cost allocation is approved, or if there are not costs to allocate, MnDOT and the DECN will present the change proposals to the OTC for review and recommendation.

The SECB shall review the recommendations of the OTC and may approve the change recommendations, reject the change recommendations, or return the recommendation to committee for further review.

MnDOT or other responsible entities will implement the change plan. Activities in this phase may include construction of new infrastructure, replacement of existing infrastructure, hardware and software upgrades, programming, or other activities required by the plan. The change plan may also involve multiple changes on different implementation schedules.

MnDOT will report on the status of the implementation to the SECB.

6. Management

The OTC and MnDOT will manage the process for major technical change requests. The Statewide System Administrator will manage minor change request process.

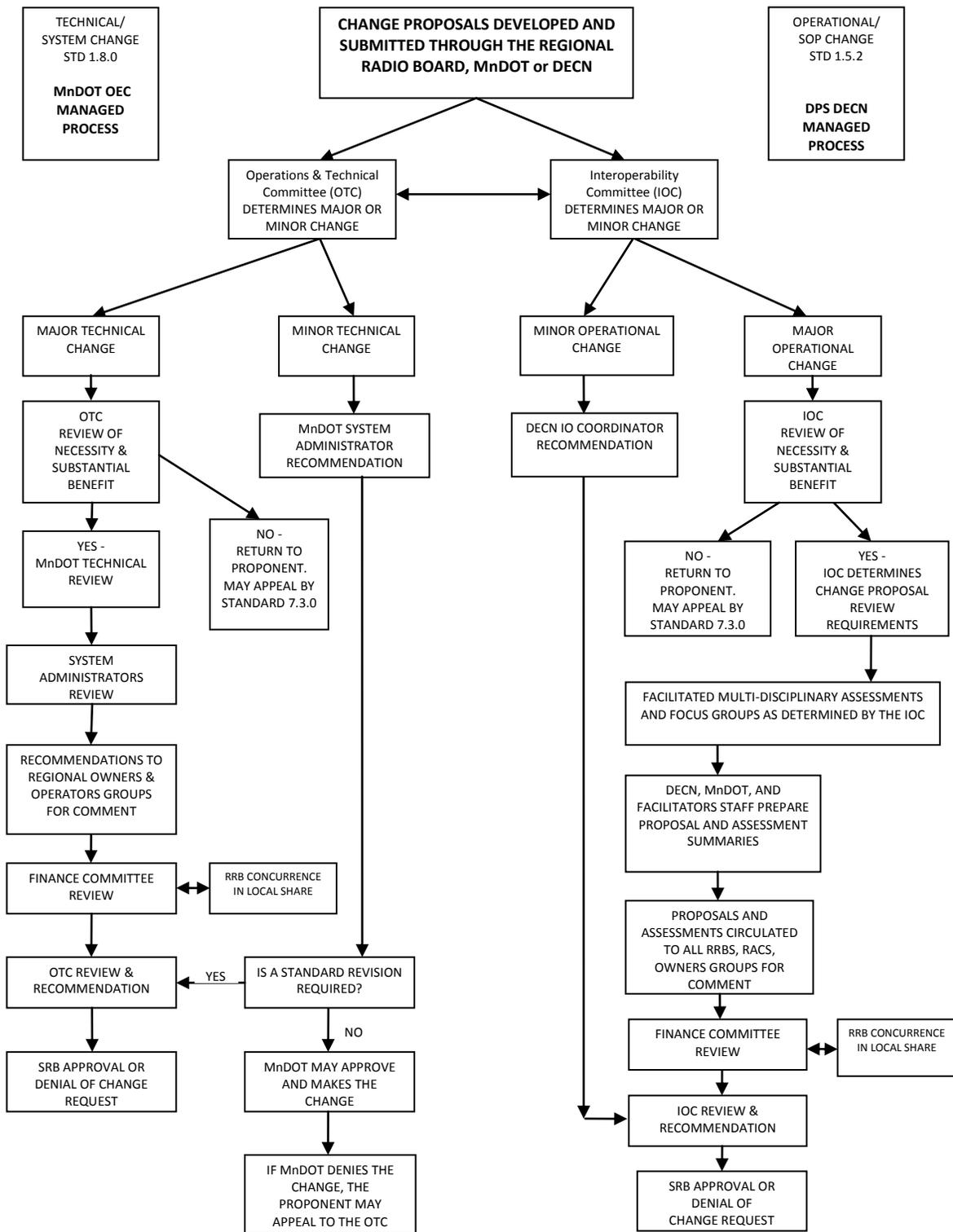


Figure 1 Change Management Process



FirstNet®



Minnesota Governance Body Meeting

Working together to bring broadband to Public Safety Entities

**May 26, 2016
Shoreview, Minnesota**

Agenda & Goals



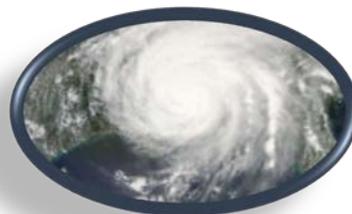
Topic	Goal
FirstNet Overview	<i>FirstNet will Listen and Learn</i>
Minnesota Consultation to Date	<i>Recap and consider continued data collection (optional)</i>
FirstNet State Plan	<i>Identify potential issues and set expectations for Minnesota review process</i>
The Governor's Decision	<i>Discuss process, timeline, and risks</i>
Preparing for Adoption	<i>Overview of Consultation Task Teams</i>
Questions	<i>Answer questions and begin preparing for Executive Consultation</i>

By the End of the Meeting, We Will Ask You to...



- **Carefully consider the responsibilities, risks and timelines associated with the Governor's decision**
- **Consider and establish a clear decision-making process to meet 90 day review period**
- **Consider how to educate individuals/bodies who will inform the Governor**
 - Formal Executive Consultation – Fall 2016
 - Ad Hoc executive briefings (as requested)

A New Model for Public Safety



“Following numerous major events and other significant disasters that demonstrate communications failures, we know that a new model is necessary.... Required is a national architecture for public-safety wireless communications.”

Chief Jeff Johnson - Congressional Testimony, May 2011

- Network demanded by public safety for priority and interoperability
- Made possible by the successful fight for D-Block 700 MHz spectrum
- FirstNet created by Law to develop and implement a single nationwide public safety broadband network
- Network will be public/private partnership to limit agency risk, speed deployment and meet public safety unique needs

Compelling Value to Public Safety



“FirstNet must provide a service that is compelling to public safety in order to earn your business.”

FirstNet Chairwoman Sue Swenson

- FirstNet will be a new nationwide LTE cellular service provider
- Agencies will pay **monthly use fees** consistent with current commercial model
- Provide **mission critical** service with priority & ruthless preemption
- Support **mobile devices** including air cards, smart phones and tablets
- Support **existing & new applications** (CAD/RMS, Video, etc.)

An Urgent Need



“While we still have much work to do, FirstNet has set the stage by moving forward with urgency. We are now one deployment cycle away from having a nationwide public safety broadband network.”

FirstNet President TJ Kennedy

- **Key Accomplishments**
 - ✓ Released Strategic Program Roadmap
 - ✓ Completed 55 Initial Consultations
 - ✓ Participated in more than 340 stakeholder events in calendar year 2015
 - ✓ Released RFP; answered more than 400 questions
- **Key Upcoming Milestones**
 - Conduct focused consultation with expanded outreach
 - Award RFP for network partnership
 - Architect State Plans process and elements

RFP Statement of Objectives



Building, Deployment, Operation & Maintenance of the NPSBN



Financial Sustainability



First Responder User Adoption



Device Ecosystem



Applications Ecosystem



Accelerated Speed to Market



User Service Availability



Service Capacity



Cyber Security



Priority Services



Integration Of Opt-out State RANs



Integration of Existing Commercial/ Federal/ Tribal/State/ Local Infrastructure To Support NPSBN Services



Life-cycle Innovation



Program and Business Management

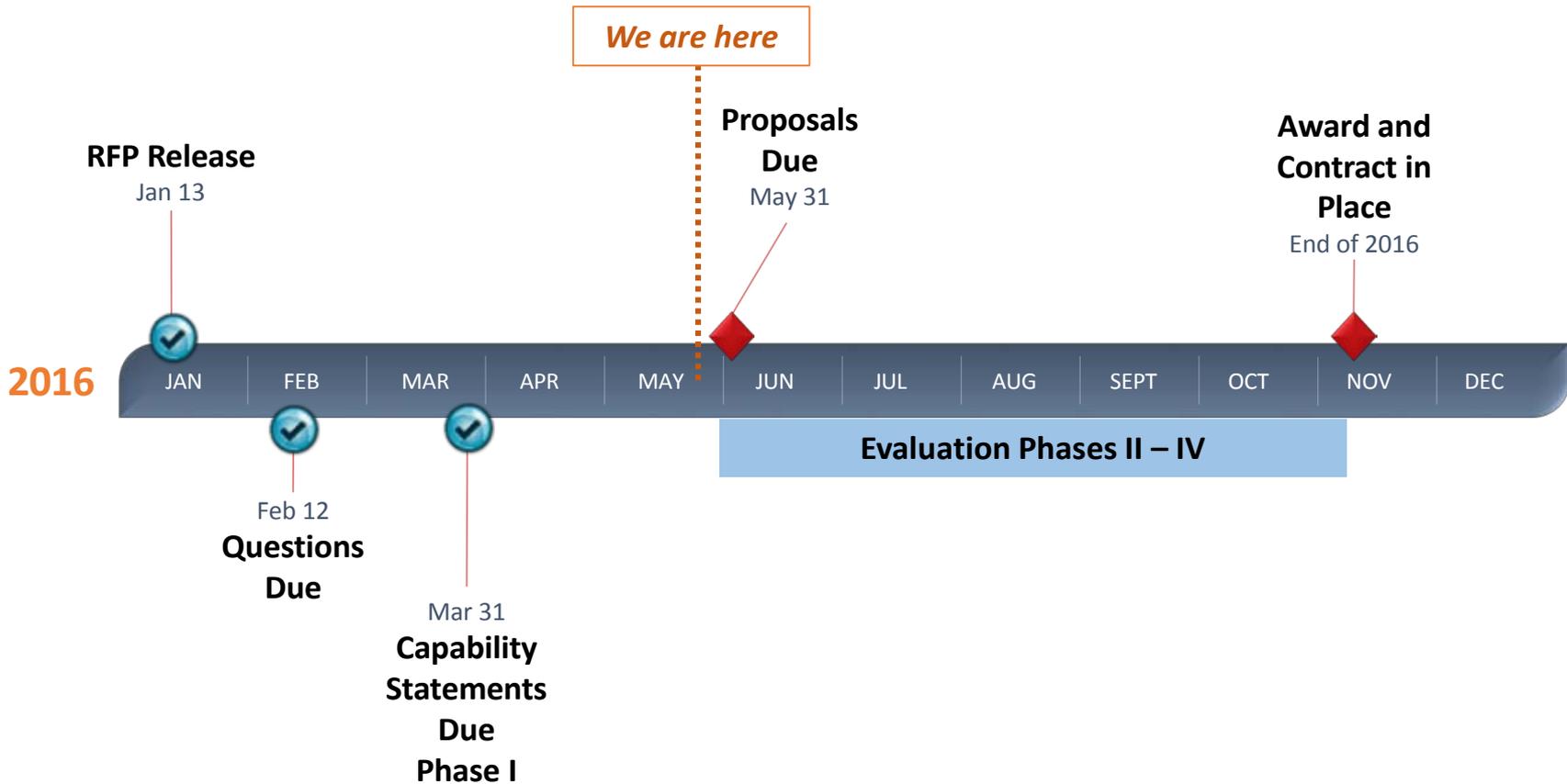


Customer Care and Marketing



Facilitation of FirstNet's Compliance With The Act & Other Laws

Evaluation Phase Has Kicked Off





Recap of Minnesota Consultation to Date



1. Minnesota Initial Consultation Meeting

- September 24, 2014, in St. Paul, Minnesota
- > 49 attendees

2. Additional Minnesota Specific Meetings/Communications

- Data Collection Call (October 2015)
- SPOC Kickoff Meeting (February 2016)
- Updates on CTT (March 2016)

Minnesota Submission Summary



1,300+

Agency Surveys



11,600+ Nationwide



23,600+

State Public Safety Personnel Represented

1.6 Million Nationwide

150 MB

Submitted

15.1 GB Nationwide

3,120

CAD Files Used to Modify Coverage Objective

~400

Sheriffs, Fire and Police Chiefs, EMTs, Officers, Fire Fighters, and Tribal First Responders took part in coverage reviews



Pre-Acquisition Data Collection

(Due September 30, 2015)

- **Strongly Encouraged by FirstNet**
- **Informed RFP** (*Aggregated Nationwide and Full Submission in Reading Room*)
- **Considered in evaluation of bidders**
- **Helps State better understand its needs and environment**

Ongoing Data Collection (Optional)

(Due September 30, 2016)

- **Optional / State Decision**
- **Further Inform State Plan** (*If received by September 30, 2016*)
- **Considered for product and enhancement decisions**
- **Helps State better understand its needs and environment**



FirstNet State Plan Development & Delivery Process

“SEC. 6302. STATE AND LOCAL IMPLEMENTATION.

(e) STATE NETWORK.—

(1) NOTICE.—Upon the completion of the request for proposal process conducted by the First Responder Network Authority for the construction, operation, maintenance, and improvement of the nationwide public safety broadband network, the First Responder Network Authority shall provide to the Governor of each State, or his designee—

- (A) notice of the completion of the request for proposal process;*
- (B) details of the proposed plan for buildout of the nationwide, interoperable broadband network in such State; and*
- (C) the funding level for the State as determined by the NTIA.”*



What the Law
requires...

What the States
are looking for...



What the RFP
will produce...

What the FCC &
NTIA need ...

One Portal / Two Purposes



Public Safety Entities



COVERAGE

Band 14 coverage, possible non-Band 14 coverage, and deployable options



APPLICATIONS AND FEATURES

Public Safety-facing applications, Quality of Service, Priority and Pre-emption (QPP), ICAM and Mission Critical services



SERVICES

Plans, pricing, procurement options, security, and customer support



DEVICES AND ACCESSORIES

Band 14 device portfolio, accessories, and wearables

Governor

POLICY COMPLIANCE

FirstNet policies on coverage, security, performance and other matters must be planned for and adhered to in Opt-Out scenarios.

TIMEFRAME/COST

Opt-Out proposals must be comparable in terms of deployment timeframe and cost. Cost comparison metrics will be included.

INTEROPERABILITY

Alternative RAN proposals must have and maintain interoperability with the FirstNet core throughout the terms of agreement. Network policies and equipment specifications will be included.

State Plan Portal Analogy



I would like to rent a room.



Do I want to build and operate the franchise in my State?



State Plans Consultation in 2016



J-18 Delivery Mechanism Objectives
J-19 State Plan Template

**FirstNet
RFP
Release**



*Jan
2016*

*April
2016*

As Scheduled

*Nov
2016*



**State Plans
Prep**

**FirstNet
Contract
Award**



**Governance
Group
Meetings**



**SPOC Team
Interactions**



**Executive
Consultation**



State Plans Development and Delivery



FirstNet Contract Award



Develop State Plans & Prepare for Delivery

Feedback Received



Final Prep for Delivery to Governor

State Plan Delivery to Governor (90 Day Review)

Nov 2016

Set during contract negotiation

Fixed timeframe

ASAP

Release of Draft State Plans



State Plan Draft Review





The Governor's Decision

"SEC. 6302. STATE AND LOCAL IMPLEMENTATION.

(e) STATE NETWORK.—

(2) STATE DECISION.—Not later than 90 days after the date on which the Governor of a State receives [a State Plan], the Governor shall choose whether to—

(A) participate in the deployment of the nationwide, interoperable broadband network as proposed by the First Responder Network Authority; or

(B) conduct its own deployment of a radio access network in such State."

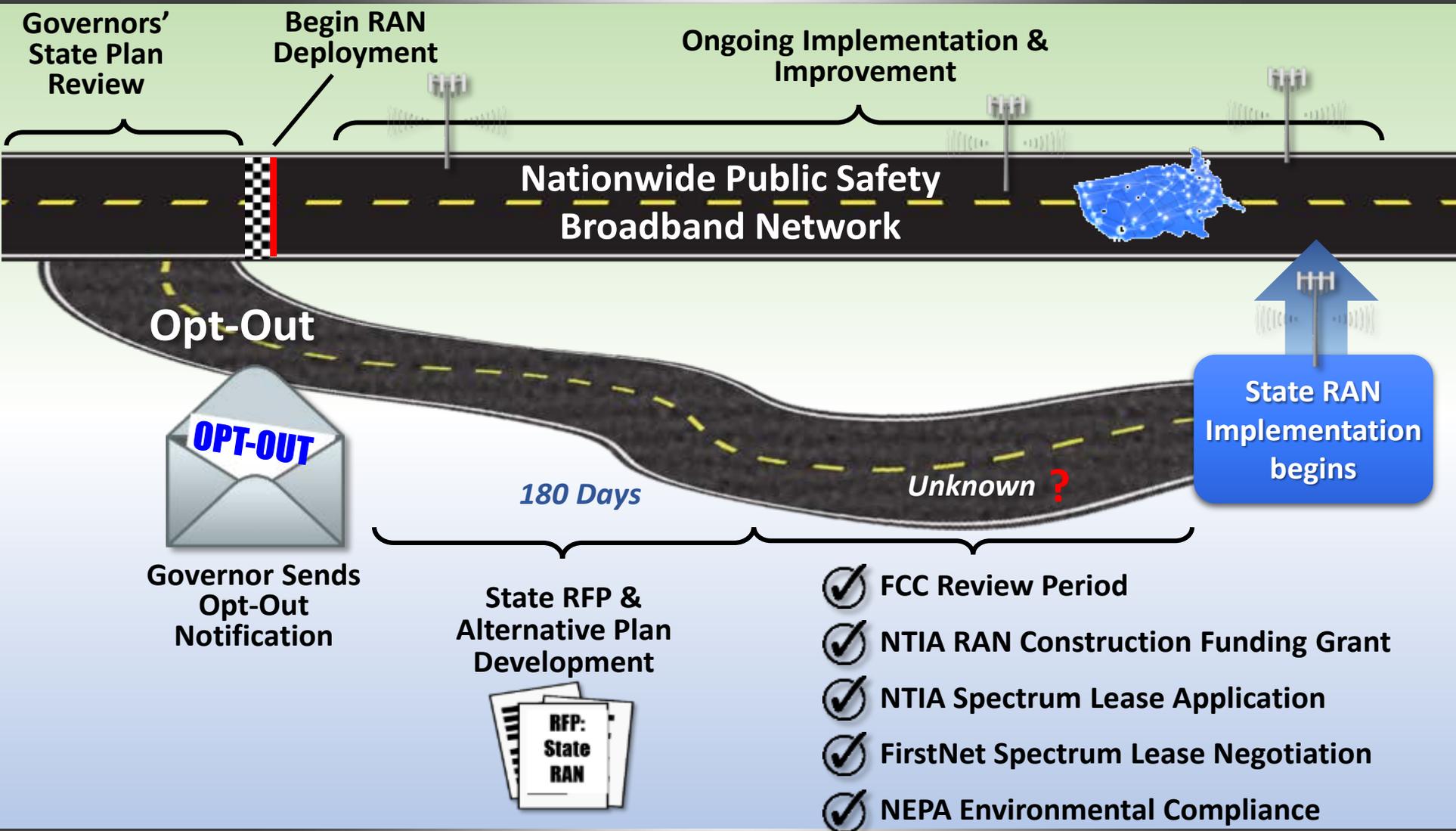


Responsibilities and Decisions



	Decision	Responsibility	
 <p>BAND-14 CORE</p>	<p>N/A</p>	<p>✓ FirstNet</p> <ul style="list-style-type: none"> <input type="checkbox"/> QPP <input type="checkbox"/> Customer Care <input type="checkbox"/> Applications 	
 <p>RAN DEPLOYMENT</p>	<p>Governor Decides:</p> <ul style="list-style-type: none"> <input type="checkbox"/> FirstNet Plan, or <input type="checkbox"/> Opt-Out 	<ul style="list-style-type: none"> <input type="checkbox"/> FirstNet, or <input type="checkbox"/> Governor 	
<p>WIRELESS SERVICES, PRODUCTS & APPLICATIONS</p> 	<p>Public Safety Entities Decide:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Adopt, or <input type="checkbox"/> Don't Adopt 	<p>Public Safety Entities</p> <ul style="list-style-type: none"> ✓ Enterprise Users ✓ Individual Users 	

Governor's Decision: Timeline



Governor Considerations



Issue	Governor Consideration
1. Timeline Risks	<i>What are the implications of a delay for public safety in the state?</i>
2. RAN Deployment	<i>Short and long-term (25 years) budget outlook? Legislative approval?</i>
3. Ongoing RAN Cost	<i>Will expected state user fees offset the planned and unplanned RAN costs?</i>
4. Technical	<i>What is the state's current technical capacity to handle all network interoperability risks?</i>
5. Operational Risks	<i>Can the state oversee an LTE network deployment?</i>

- **Carefully consider the responsibilities, risks and timelines associated with the Governor's decision**
- **Consider and establish a clear decision-making process to meet 90 day review period**
- **Consider how to educate individuals/bodies who will inform the Governor**
 - Formal Executive Consultation – Fall 2016
 - Ad Hoc executive briefings (as requested)



Preparing for Adoption Consultation Task Teams

"SEC. 6206. POWERS, DUTIES, AND RESPONSIBILITIES OF THE FIRST RESPONDER NETWORK AUTHORITY.

(2) STATE AND LOCAL PLANNING.—

(A) REQUIRED CONSULTATION.—In developing requests for proposals and otherwise carrying out its responsibilities under this Act, the First Responder Network Authority shall consult with regional, State, tribal, and local jurisdictions...with regard to the—

- i. construction of core network & any radio access network build out;*
- ii. placement of towers;*
- iii. coverage areas of the network, whether at the regional, State, tribal, or local level;*
- iv. adequacy of hardening, security, reliability, & resiliency requirements;*
- v. assignment of priority to local users;*
- vi. selection of entities seeking access to or use of the nationwide public safety interoperable broadband network*
- vii. training needs of local users."*



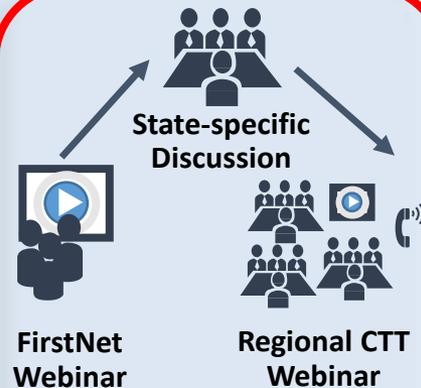
2016 Consultation Elements



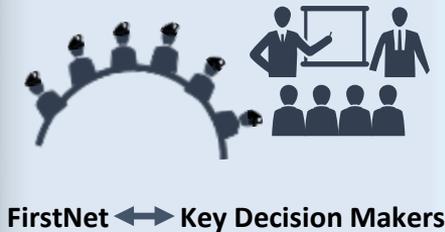
SPOC
Engagement
Meeting



Governance
Body
Meeting



Consultation
Task
Teams (CTTs)

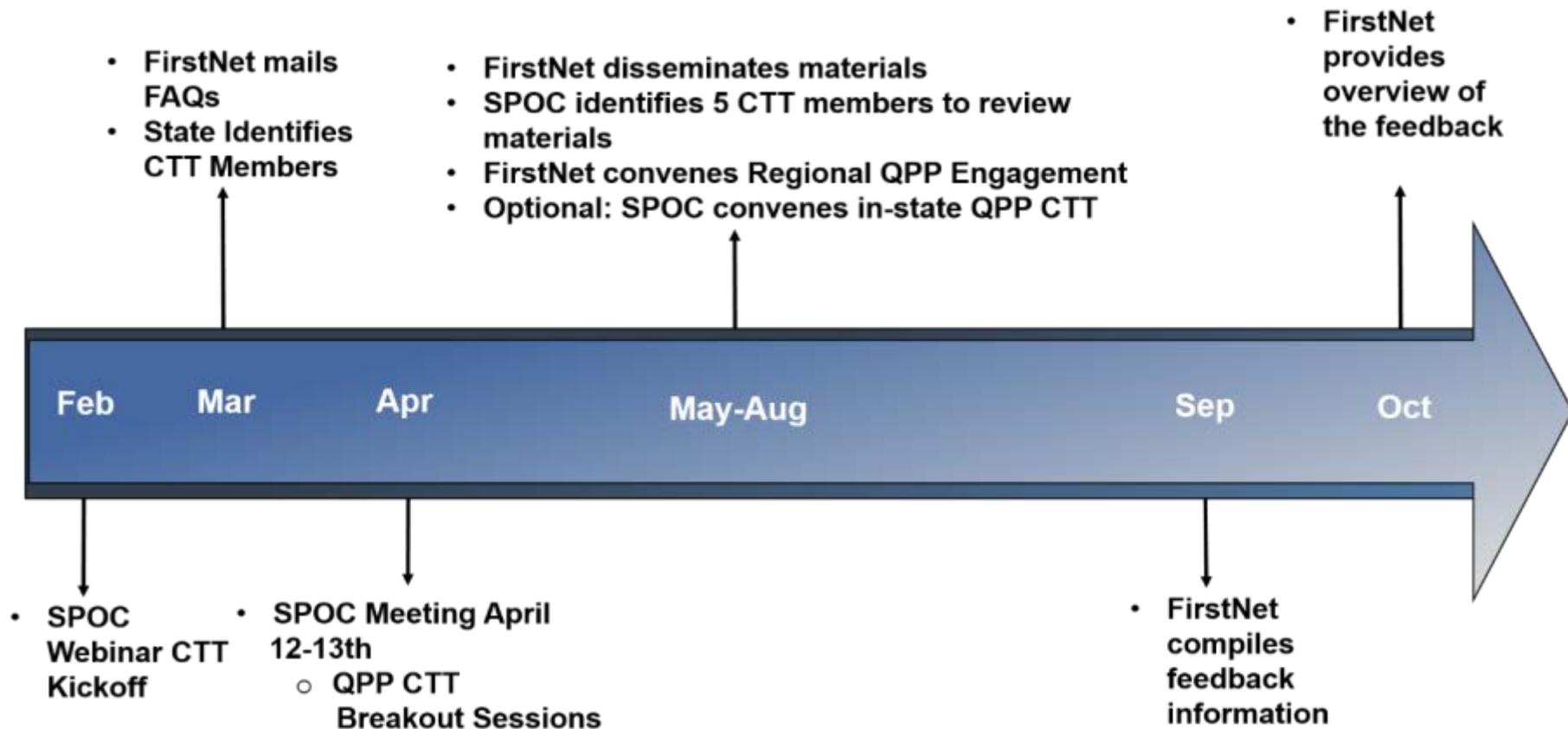


Executive
Consultation
Meeting

EXPANDED NATIONAL OUTREACH

EXPANDED FEDERAL CONSULTATION

The First CTT: Quality of Service, Priority, and Preemption (QPP)



Statutory Requirement – “SEC. 6206. (c) (2) (A) (vii) training needs of local users”

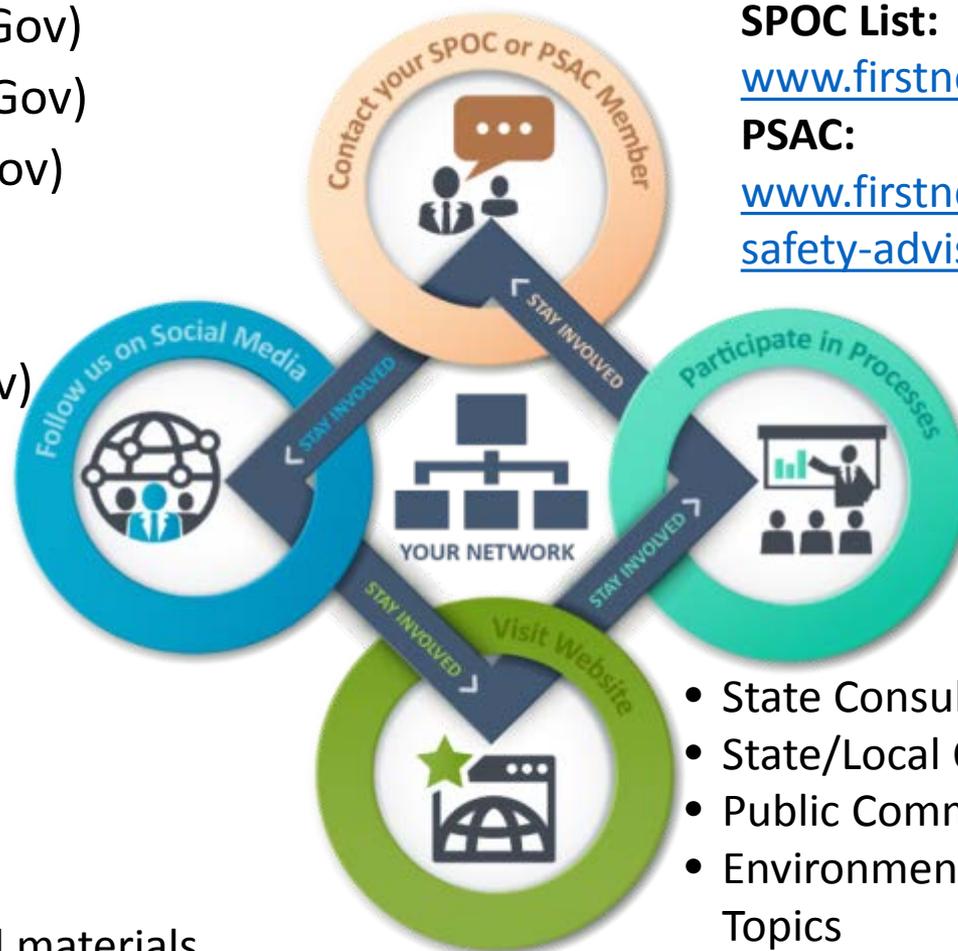
- ✓ Is there standardized training programs (beyond the agency level) on the use of mobile data?
 - ✓ State Training Academy?
- ✓ How would new mobile data applications/device training be integrated into your programs?
- ✓ Is training limited to initial use or is refresher training required/provided?
- ✓ Is evaluation of mobile data applications included in regular exercises?

- CTTs will help inform our policies and plans as we move into adoption of FirstNet services
- Your opinions on the value proposition of QPP and how to best incorporate that value into our services is of critical importance to us
- Please share points of contact for who we should be following up with regarding delivering training and training needs

Staying in Touch with FirstNet



-  Twitter (@FirstNetGov)
-  Google+ (+FirstNetGov)
-  YouTube (FirstNetGov)
-  Flickr (FirstNetGov)
-  LinkedIn
-  Tumblr (FirstNetGov)



SPOC List:

www.firstnet.gov/consultation

PSAC:

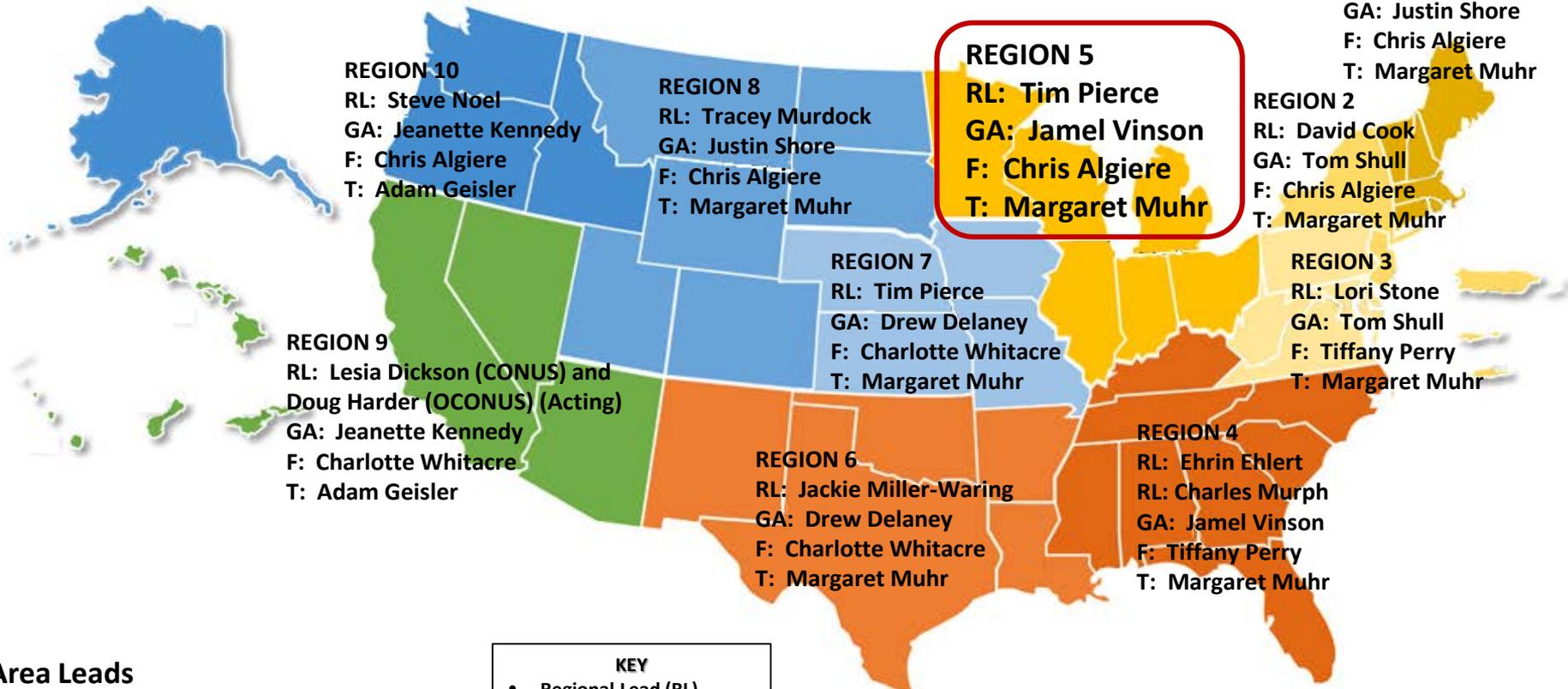
www.firstnet.gov/about/public-safety-advisory-committee

www.firstnet.gov

- Fact Sheets
- Blogs
- Presentations
- Current Events
- Board meetings and materials

- State Consultation
- State/Local Outreach Activities
- Public Comment
- Environmental & Historic/Cultural Topics
(PEIScomments@firstnet.gov)

FirstNet Support Team



Area Leads

Regions 1-5: Jeffrey King
Regions 6-10: Steve Smith

- KEY**
- Regional Lead (RL)
 - Government Affairs (GA)
 - Federal (F)
 - Tribal (T)



FirstNet®



Questions?

Allied Radio Matrix for Emergency Response



ARMER

Project Status Report

Reporting Period April 1, 2016 through May 1, 2016

Executive Summary

Overall Status:

	Green (Controlled)	Yellow (Caution)	Red (Critical)	Reason for Deviation
Budget	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>	
Schedule	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/>	Land acquisition delays will impact completion of some sites
Scope	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>	

ARMER
Backbone
97%
On-the-air

Controls

Issue Status:

Change Status:

- No pending plan changes

Accomplishments

Accomplishments during this Reporting Period:

- The following sites went on the air:

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

Budget

Construction Budget Status as of May 1, 2016

Project Funding	Original Budget	Spent to Date	Unspent Balance Remaining	Encumbered	Available Balance
Phase 3	\$45,000,000	\$44,952,397.19	\$47,602.82	\$0.00	*COMPLETE
SRB Funds (FY 09)	\$1,902,831.00	\$1,902,831.00	\$0	\$0	COMPLETE
Phase 456 (FY 09)	61,996,957.89	\$61,981,069.99	\$15,887.90	\$15,887.90	\$ 0.00
Phase 456 (FY 10)	\$62,015,407.77	\$61,912,097.77	\$103,310.00	\$103,310.00	\$ 0.00
Phase 456 (FY 11, 12, 13)	\$61,987,634.34	\$53,797,875.57	\$8,189,758.77	\$3,202,710.79	\$ 4,987,047.98
Total Phase 456	\$186,000,000.00	\$177,691,043.33	\$8,308,956.67	\$3,321,908.69	\$ 4,987,047.98
Projected Contingency as of May 1, 2016					\$282,047.98

Comments:

Scheduled Milestones / Deliverables

Status updated May 1, 2016

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

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

- o Finland
- o Duluth South
- o Eden Valley
- o Lake Crystal

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

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

Completion Targets

ARMER all Phases:

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

Ongoing ARMER System Work

Motorola System Upgrade

- 7.15 upgrade scheduled to begin May 2016. Software loads are in process. Many 7500 consoles re complete. Upgrade ops to be on site 2nd week in May.
- Motorola 2016-2020 Support services contract is completed.
- Working on contracts for billing with local agencies involved in 7.19 equipment replacements under the Motorola contract.
- Notice for 2016 Motorola SUAll local agency billing amounts were sent out.
- SUAllPlus 7.19 equipment upgrades. Over the next 5 years before we can go to Motorola system release 7.19 all circuit based simulcast and Quantar based ASR sites need to be upgraded. The hardware and services are all included in our current SUAllPlus contract. We have meet with the agencies that this involves and we have come up with the following tentative implementation schedule for these upgrades:

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

Planned system upgrades during this contract period are:

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

Site improvements

- Still working on the addition of card key reader to the equipment shelters. Parts are in. Working on installs, 95% of the sites completed.
- We are continuing our review of our leased sites/land. Plans had always been to build towers in these areas, but to get the project moving we leased sites to get on the air. In review of some of

the land and lease cost it would make sense to find land in these areas and build towers. Also looking at long term land lease from private parties, would prefer to have towers we own on state, County or City owned land.

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

Microwave improvements

- At this point we have identified one bad path where an intermediate microwave site is needed. So we are looking to add a microwave site somewhere in the Cromwell area to split the Lawler – Moose Lake link. Working with the County, a site has been identified. Need to work through the acquisition and easements.
- We are also working to get the DC power systems updated at all sites to improve system reliability. Battery system installs are complete.
- Still reviewing microwave performance, ongoing.

VHF interop layer

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

Old towers that need replacement

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

ARMER Construction Budget (Remaining Work)

Unencumbered Fund Balance (As of May 1, 2016)					\$4,987,047.98
Site Name <small>(Green - site on air)</small>	County	Description	Land/ Construction	Estimate to Complete	Balance
Finland	Lake	Replace Tower	Envir	\$440,000.00	\$4,547,047.98
NE Lake County	Lake	New tower	DNR/Envir	\$930,000.00	\$3,617,047.98
Lima Mt	Cook	New tower	DNR/Envir	\$880,000.00	\$2,737,047.98
Red Lake	Beltrami	New tower	Indent Land	\$505,000.00	\$2,232,047.98
Lake Crystal	Blue Earth	New tower	Envir/Lease	\$575,000.00	\$1,657,047.98
Madelia	Watonwan	New tower	Envir	\$350,000.00	\$1,307,047.98
Molde	St Louis	Replace fire tower	DNR/Envir	\$320,000.00	\$987,047.98
Berner	Clearwater	New tower	Indent Land	\$505,000.00	\$482,047.98
PENDING WORK					
Site clean up, shelter and tower removals				\$200,000.00	\$282,047.98
				\$0.00	\$282,047.98
TOWER REPLACEMENTS (This work being held until above projects completed)					
Freedhem	Replace tower			\$600,000.00	
Middle River	Replace tower			\$600,000.00	
Theif River Falls	Replace tower			\$600,000.00	
Windom	Replace tower			\$600,000.00	
Virginia	Replace tower			\$600,000.00	
Cass Lake	Replace tower			\$600,000.00	
Viola	Replace tower			\$600,000.00	
Kimball	Replace tower			\$600,000.00	
Hoffman	Replace tower			\$600,000.00	
New London	Replace tower			\$600,000.00	
Woodland	Replace tower			\$600,000.00	
Littlefork	Replace tower			\$600,000.00	
Roosevelt	Replace tower			\$600,000.00	
Hewit: Land Purchase, replace tower.				\$500,000.00	
Scandia: Need to look at land purchase.				\$100,000.00	
Geneva: Need to look at land purchase, new tower ?				\$500,000.00	
Mapleton: Find land and build new tower				\$500,000.00	
Red Wing: Land purchase				\$100,000.00	



Minnesota NG9-1-1 GIS News

May, 2016

Issue #3

In This Issue:

- SECB
- Feature Article: MRCC
- NG9-1-1 GIS Standards - Update
- Data Readiness Profiles
- WERM
- Upcoming Events
- Neighboring States

Useful Links:

DPS/ECN

Minnesota Department of Public Safety – Emergency Communications Networks GIS Information

MnGeo

Minnesota Geospatial Information Office

SECB

State Emergency Communications Board

NENA

National Emergency Number Association

FirstNet

First Responder Network Authority

Contact Us:

Adam Iten, NG9-1-1 Project Manager

adam.iten@state.mn.us

or 651-201-7559

SECB

The Minnesota Department of Public Safety, Emergency Communication Networks division (ECN) is responsible for oversight of public safety communications including the 9-1-1 system in the state and the migration to a Next Generation 9-1-1 (NG9-1-1) system. Established in 2004 by the Minnesota Legislature, the 20-member **Statewide Emergency Communications Board (SECB)** provides guidance to ECN by helping it set the vision, priorities and technical roadmap for interoperable voice communications, NG9-1-1, Integrated Public Alert and Warning (IPAWS) and wireless broadband for public safety across the state. The board's priorities include:

- 1) Ensuring that advances in technology will be implemented across the state to enhance the ability for all residents to call for help
- 2) Providing confidence that responders statewide have the ability to communicate with each other during an emergency
- 3) Enabling all counties to effectively alert and warn residents and visitors of impending danger

This unique board consists of both urban and rural members representing multiple public safety disciplines from all corners of the state.

The SECB relies on *committees* and *workgroups* consisting of subject matter experts to advise it on a wide array of issues. The NG9-1-1 Committee makes recommendations to the SECB regarding the design, policy and procedures needed to implement NG9-1-1 statewide. It is supported by the input from the GIS Work Group and GIS Data Standards Work Group whose members include state, county, Public Safety Answering Point (PSAP) and local GIS experts. The SECB must approve and adopt all policy and standards recommended by the committees before implementation. More information about the SECB's strategic plan can be found at <https://dps.mn.gov/entity/srb/Pages/default.aspx>.

I would also like to introduce with this issue of the newsletter a guest article prepared by Geoff Maas of the Metropolitan Council. Geoff provides us with information about the Metro Regional Centerline Collaborative – a very important program in the Twin Cities metropolitan area that will help guide the structure and content of GIS road data used statewide in NG9-1-1. We invite members of the 9-1-1 community to share information about their efforts to build-out NG9-1-1 in future releases of this newsletter. Thank you Geoff!

Jackie Mines, Director, DPS-ECN

Metropolitan Roads Centerline Consortium

By Geoff Maas, MetroGIS Coordinator

At present, there is no authoritatively-sourced, publicly-available GIS road centerline dataset that meets the core business needs of local, regional and state agencies in Minnesota.

The [Metro Regional Centerline Collaborative](#) (MRCC) was established to address this issue for the Twin Cities metropolitan area by facilitating the creation and sustained maintenance of a local/regional road centerline dataset that will meet the needs of partner agencies. It is a ground-breaking, collaborative project involving technical and managerial GIS staff from the seven metropolitan counties (Anoka, Carver, Dakota, Hennepin, Ramsey, Scott and Washington), the [Metropolitan Emergency Services Board](#) (MESB) and the [Metropolitan Council](#). Senior advisors from the [Minnesota Department of Transportation](#) (MnDOT) and the [Minnesota Geospatial Information Office](#) (MnGeo) have also participated in the project, providing insight into state agency needs.



Specific needs to be addressed. During the business case documentation phase of the project, begun in May 2014, all partners agreed the desired road centerline dataset should be designed to satisfy the following major core uses:

- Vehicular routing
- Address geocoding (the dataset will contain both assigned *and* theoretical address ranges)
- Next Generation 911 call routing and location validation
- Emergency services dispatching
- Support for linear reference system use
- Cartographic representation of road features

They also agreed that no road dataset can be “all things to all agencies”. However, MRCC participants are working to ensure that the defined core needs are met with individual agencies and users having the ability to append their program-specific attributes to the data so they can meet their internal business requirements.

Guiding Principles of the MRCC Project. There are three over-arching principles that guide the MRCC project:

1. The acknowledgement that local jurisdictions—cities and counties—know their roadways best and will therefore produce the most current, accurate and authoritative road network data possible.
2. Developing and maintaining a road dataset that is standardized across many local jurisdictions saves time and money and reduces duplicative efforts by local, regional, state and emergency services interests requiring similar data.
3. An authoritative, standardized and continually updated road centerline dataset serves as a foundational layer of the state’s geospatial data infrastructure. Agencies from all levels of government working together to make this data a reality is a sound investment and wise commitment of their time and resources.

Key actions to date. Over the course of 2014, the MRCC documented core business needs identified by participating partners and developed a draft data specification intended to meet those needs. In late 2014-early 2015, a sample dataset - based on the draft specification, was developed and shared with the state’s geospatial community. The community was asked to provide comments and suggestions regarding the sample dataset. Over 50 government agencies and other interests provided input to the MRCC team who reviewed their comments and then made modifications to the data specification as needed.

The ‘First Build’. In August 2015, participating counties began their ‘First Build’ of the regional dataset (Figure 1). Each county committed staff resources to: alter their road centerline data to meet the MRCC specification; populate 40-60% of the required attributes; work diligently to edge-match road centerlines data along county borders and document the process. By December 2015, participating counties had successfully delivered their ‘First Build’ version of the dataset. Hennepin County then performed a validation and audit of the dataset, which revealed a number of opportunities for enhancement and refinement.

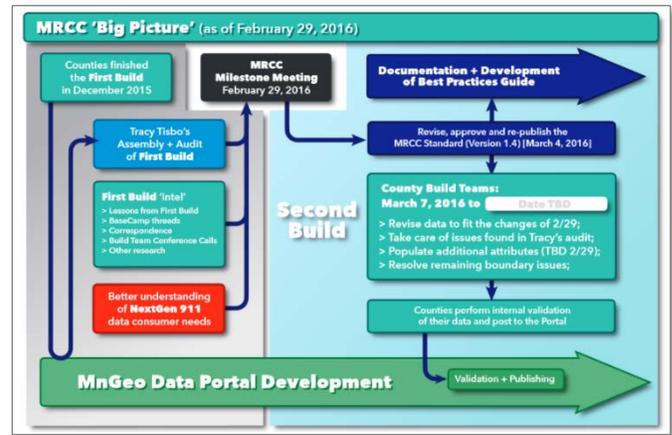


Figure 1: MRCC First Build Migration

The ‘Second Build’. On February 29, 2016, members of the MRCC project team and representatives from Greater Minnesota, the state’s NextGen 911 effort, the Minnesota Department of Natural Resources and MnDOT gathered for a ‘Milestone Meeting’ (Figure 2). The purpose of the meeting was to make key decisions on refining the MRCC specification (upgrading to Version 1.4) and agreeing on specific tasks and goal dates for putting together a fully realized, metro road centerline dataset.

During the meeting the seven metropolitan county partners agreed to a goal date of September 30, 2016, for completing a ‘Second Build’ of the dataset which would incorporate needed improvements and refinements revealed during the ‘First Build’. Counties also expressed their desire to populate as many remaining attributes as possible and to make the updated dataset available for download, use and review by the broader geospatial community.



Figure 2: MRCC Second Build Meeting

Current MRCC project planning specifies goals of monthly dataset updates by the counties, and making the data available via the [Minnesota Geospatial Commons](#) after September 30. The MRCC team also anticipates that during October-November of this year, a new round of comments regarding the usability and applicability of the ‘Second Build’ of the MRCC road dataset and data specification will be requested from stakeholders across the state. The project team will compile and review these comments at the end of 2016.

Availability of the MRCC road data. During the course of 2014 and 2015, all seven metropolitan counties adopted free and open public geospatial data policies (see <http://www.metrogis.org/projects/free-open-data.aspx>). As a result, the MRCC road dataset will be available to the public at no charge and without licensure. While the driving purpose behind the data’s creation was to meet clearly expressed county data needs, i.e. a standardized dataset that is uniform across seven counties, edge matched and routable, it is widely acknowledged that this data will be of tremendous value to all consumers of Minnesota geospatial data. As the MRCC dataset is used and tested by the geospatial community, the project team encourages users to submit comments, critiques and suggestions to ensure continual improvement to both its data specification and resulting road data.

The MRCC project team also encourages other non-metro counties, regions, agencies and stakeholders across Minnesota to build upon its work so others do not have to replicate its data model development process. The

MRCC does not claim to completely understand all of the unique road centerline data needs of stakeholders in Greater Minnesota. However, the MRCC specification can easily be extended to accommodate features such as national and state forest roadways, tribal nation roadways and so on. The MRCC project team hopes that their work will augment and support larger statewide road dataset development efforts in the future.

The MRCC project represents a unique, inter-agency and inter-jurisdictional collaborative to create an authoritatively-sourced, publicly-available GIS road centerline dataset that meets the core business needs of local, regional and state agencies in Minnesota. Potentially the road centerline dataset could be of significant value to the citizens, government and greater geospatial community of Minnesota. Its creation speaks to the MRCC continued leadership, vision and willingness to provide key decision making and technical task support to the collaborative. For this effort Hennepin County provided a project manager, Ann Houghton, from its GIS Office, while the Metropolitan Council provided the services of the [MetroGIS](#) Coordinator Geoff Maas to facilitate documentation and communications. Matt Koukol, GIS Manager of Ramsey County, has served as the lead technical advisor for the effort.

MRCC Project Resources and Contacts. All relevant project materials and documentation on the MRCC effort can be found on the Centerlines project page on the MRCC website: <http://www.metrogis.org/projects/centerlines-initiative.aspx>

Questions about the MRCC project can be directed to the following individuals:

Ann Houghton, Hennepin County
GIS Office Project Manager
MRCC Project Manager

Matt Koukol, Ramsey County
Enterprise GIS Manager
MRCC Senior Technical Advisor

Geoff Maas, Metropolitan Council
MetroGIS Coordinator
MRCC Research and
Communications Liaison

ann.houghton@hennepin.us

matt.koukol@co.ramsey.mn.us

geoffrey.maas@metc.state.mn.us

NG9-1-1 GIS Standards - Update

The Minnesota NG9-1-1 GIS Standards Workgroup met a major milestone in late March – completing the draft publication, *Minnesota Next Generation 9-1-1 GIS Data Standards* (Figure 3).

Consistent, accurate and timely geospatial data is required to route 9-1-1 calls to the correct PSAP, to display a caller’s location in tactical PSAP mapping systems and provide valuable life-saving information to emergency response personnel. Because the required NG9-1-1 GIS data will be harvested from and maintained by local authoritative sources whenever possible, standards are needed to ensure that the data can be consumed efficiently and with confidence that it will meet Emergency Call Routing Function (ECRF) and Location Validation Function (LVF) requirements.

The primary purpose of this document is to specify a statewide standard for each required GIS dataset. The secondary core goal is to identify additional common data elements necessary to support multiuse, statewide GIS datasets – those datasets that local GIS agencies may only have to submit once.

This standards document was created through a collaborative effort involving many agencies, including DPS-ECN, MnGeo, the Minnesota

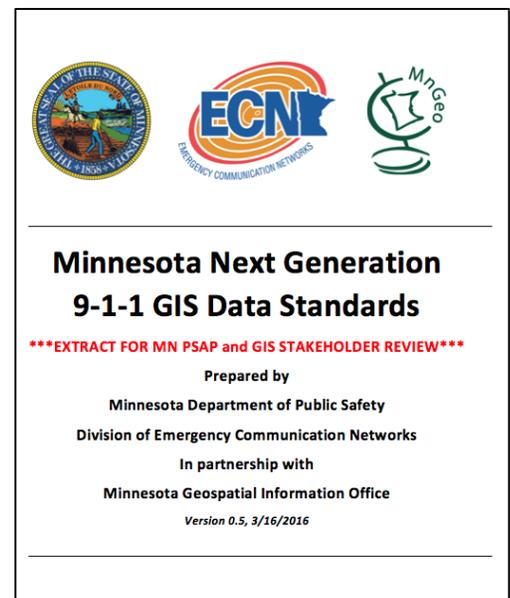


Figure 3: NG9-1-1 Draft Standards

NG9-1-1 GIS Standards Workgroup, the MESB, and the MRCC (see article by Geoff Maas in this issue). It will create a solid foundation for NG9-1-1 GIS dataset development in Minnesota. At its core, this document follows the draft [NENA Standard for NG9-1-1 GIS Data Model](#) and as such, may be amended in the future as the NENA standards are finalized and made public.

This draft of Minnesota’s standards document is focused on **roads centerlines**. It includes sections describing the NG9-1-1 GIS data model (Figures 4 and 5), Data Requirements, Data Synchronization, Spatial Accuracy and Attribute Accuracy. A comprehensive appendix incorporates detailed descriptions of field names, domains and associated attribute data. Best practices and examples round out the Appendix.

Figure 4: - State Road Centerline Field Names

Descriptive Name	Field Name	M/C/O	Type	Width	Description
Source of Data	SOURCE	M	T	75	Name of the 9-1-1 GIS Authority responsible for submitting road centerlines to the State for use in the ECRF and LVF. Example: STEARNS COUNTY
Date Updated	EDITED_DT	M	D		Date (and time) that the record was created or whose geometry or attributes was last modified. If no date exists in the original local data, then the current date should be used. Format: MM/DD/YYYY HH:MM:SS AM/PM

Figure 5: State Road Centerline Field Domains

Element	ID	Descriptive Name	Field Name	Requirements	Type	Width	Responsibility	Domain Name	
1 Identification	1.1	Route ID	ROUTE_ID	Optional	Text	16	State/MnDOT	<NA>	
	1.2	Road Centerline Unique ID	UNIQUE_ID	Mandatory	Text	100	Local	<NA>	
2 Effective Date	2.1	Route System	ROUTE_SYS	Optional	Text	2	Local/State	MnDOT_Route_System	
	2.2	Route Direction	ROUTE_DIR	Optional	Text	1	State/MnDOT	Route_Direction	
3 Linear Reference	2.3	Directional Route ID							
	2.4	Local to State							
	2.5	Primary Status							
	3.1	Street Name Pre Modifier							
	3.2	Street Name Pre Directional							
4 Expiration Date	3.3	Street Name Pre Type							
	3.4	Street Name							
	3.5	Street Name Post Type							
	3.6	Street Name Post Directional							
	3.7	Street Name Post Modifier							
	3.8	Full Street Name							
	3.9	Alternate Street Name 1							
	3.10	Alternate Street Name 2							
	3.11	Alternate Street Name 3							
	3.12	Fully Spelled Out Street Name Post Directional							
	3.13	Fully Spelled Out Street Name Post Type							
	3.14	Fully Spelled Out Street Name Pre Directional							
	3.15	Fully Spelled Out Street Name Pre Type Separator							
	5 Road Centerline ID	4.1	Left FROM Address						
		4.2	Left TO Address						
4.3		Right FROM Address							

Draft MN NG9-1-1 GIS Data Standards
Proposed Review, Comment, and Approval Timeline

3/18/2016

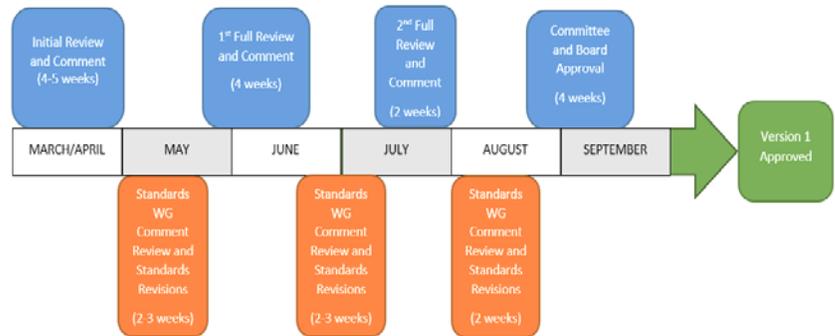


Figure 6: GIS Data Standards Timeline

This document has been delivered to PSAP and GIS managers across the state for their initial review and comment by the end of April. A full review of the draft standards will be expanded to include NG9-1-1 vendors and other states starting this June. In addition to incorporating revisions recommended through the vetting process, future updates to this document will include specifications for address points and polygonal GIS data such as PSAP, law, fire and ambulance service areas. Formal approval of the completed document by the MESB, NG9-1-1 GIS Subcommittee, NG9-1-1 Committee, SECB, and [Minnesota Statewide Geospatial Advisory Council](#) will not occur until September 2016 (Figure 6).

Data Readiness Profiles

A major initiative underway at MnGeo is the assessment of key geospatial data needed to support the implementation of NG9-1-1. This effort includes collecting and evaluating updated street centerlines, address points, PSAP boundaries as well as Master Street Address Guide (MSAG), Automatic Location Information (ALI) and English Language Translation (ELT) tabular data for four ECN regions (Figure 7) in the state - beginning with the Northeast and more recently Northwest, Central and Southeast. The nine-county Twin Cities metropolitan area is being evaluated by MESB.



Figure 7: ECN Regions

Building upon criteria identified first by MESB and augmented with information extracted from the ECN/MnGeo PSAP Request for Information survey (see [Issue #1](#)) as well as results from tests performed by MnGeo, staff have created a “readiness profile” consisting of nearly 90 characteristics (Figure 8) for each PSAP in a region. Characteristics include the number of MSAG entries existing in a county; the number of MSAGs that use Postal Standard Suffix Abbreviations; the number of unique MSAG street names that exist in a county.

Profile	Aitkin County	Carlton County	Cass County	Cook County
# of MSAG entries as of Q4 2015	0	0	0	0
MSAG uses Postal Standard Suffix Abbreviations?	Postal	Postal	Postal	Other
MSAG uses ordinals?	Ordinals	Ordinals	Ordinals	Other
MSAG uses Jurisdictional Community names				
MSAG uses Jurisdictional Community names: Exceptions				
# of unique MSAG street names	1260	1423	2531	533
# of Centerline segments	4973	3808	8311	2230
# of unique Centerline street names	1249	1491	2710	1035
# of fields streetnames are parsed.(Field Names)	5 (PRE_DIR, PREFIX, STR_NAME, SUFFIX, POST_DIR)	4 (FDPRE, FNAME, FTYPE, FDSUF)	5 (PRE_DIR, PRE_TYPE, STREET_NAM, STREET_TYP, SUF_DIR)	4 (FDPRE, FNAME, FTYPE, FDSUF)
Are postal community names spelled out?	Yes(LCITY & RCITY)	NO (LCITY & RCITY)	YES??? (COMM_L & COMM_N) Contains blank records. Unsure is the best available data	NO (LCITY & RCITY) Many Blanks. Also the city names are in code version.
Are street names completely spelled out Up to addressing authority	Incomplete	Incomplete	Incomplete	Incomplete
Do Post Types follow standard USPS Standardize Street Post Types	YES	YES	NO	NO
Are the pre modifiers spelled out? Parsed Address Needed	Incomplete	Incomplete	Incomplete	Incomplete
Are the post modifiers spelled out? Parsed Address Needed	Incomplete	Incomplete	Incomplete	Incomplete
Are the pre and post directional abbreviated correctly?	YES	YES	YES	YES

Figure 8: PSAP Data Readiness Profiles

As each region is completed, abbreviated versions of these profiles will be prepared and shared with project partners. DPS-ECN and MnGeo staff will then meet with PSAP and GIS managers in each region to review and discuss the reports and strategize as to how best to create the needed data. It is anticipated that the readiness profiles will be completed for the entire state by the end of 2016, if not earlier. Future issues of this newsletter will include more information and samples of the profile summaries.

Wireless Emergency Routing Management (WERM)

DPS-ECN has been working with MN.IT and West (formerly Intrado) to develop a secure, web-based application that will streamline the manual, wireless provisioning process that has been in used since the introduction of wireless calls to 9-1-1 back in the mid-1990s.

The existing provisioning process, while state of the art upon its inception, is very labor intensive. It involves multiple repetitions of moving data, in the form of spreadsheets, between wireless carriers operating in Minnesota, West, DPS-ECN or MESB, and PSAPs. This manual process introduces numerous opportunities for error.

Currently, wireless carriers initiate the process to add, move, make a technology change to, or decommission a specific cell tower site/sector by recording the site and sector information on a spreadsheet and making a recommendation as to which PSAP should receive the calls. The carrier then forwards the spreadsheet to West’s Wireless Provisioning Team who, after performing their required tasks, sends it to MESB - if the sites/sectors are located within the Twin Cities nine county metropolitan area. For sites/sectors located within Greater Minnesota, the spreadsheets are sent to DPS-ECN. Upon receipt of the spreadsheet (Figure 9), MESB and/or DPS-ECN work with PSAP staff responsible for wireless routing changes when tower site/sectors under their jurisdiction requiring updating. Once all the appropriate fields are completed by the PSAP, the information flow reverses itself, eventually ending up with the carrier who submitted the original request.

Upon receipt of the spreadsheet (Figure 9), MESB and/or DPS-ECN work with PSAP staff responsible for wireless routing changes when tower site/sectors under their jurisdiction requiring updating. Once all the appropriate fields are completed by the PSAP, the information flow reverses itself, eventually ending up with the carrier who submitted the original request.

PSAP to complete these Columns*												
Provide and Format the Address as you prefer it to appear on the PSAP display. (Important Note: Format is subject to your Local Exchange Carrier requirements, PSAP equipment and solution.)												
Carrier Recommended Routing (PSAP)	PSAP To Receive Wireless 9-1-1 Calls	MN Routing PSAP	Wireless ESN	Carrier	MN Abbreviated Street	MN Sector Description	MN Abbreviated Community	MN State Patrol Station ID	Location-(Building)	Comments	Request Reason	Beam Width
St Louis County Psap												53.8
St Louis County Psap												53.8
St Louis County Psap												53.8
St Louis County Psap												64.5
St Louis County Psap												65.2
St Louis County Psap												64.5
St Louis County Psap												65.2
St Louis County Psap												64.5
St Louis County Psap												65.2
This section to be completed with information that corresponds with your local exchange carrier's information. If you choose to have your Wireless MSAG look like a Wireline MSAG, then please put the pertinent information in the appropriate columns. If you choose to have the entire address in the Street Field/Name (example: 123 E. Main St - NW Sector) please ensure that your CAD system can accept this												

Figure 9: PSAP Change Request Form

The Wireless E9-1-1 Routing Management (WERM) application (Figure 10), which is expected to go-live in mid-May, has been designed to streamline the provisioning process. Wireless carriers and PSAP “End Users” will soon be able to exchange information through a secure web-based application.

When one or the other needs to take action on a tower site/sector, an automatic email will be generated in WERM alerting the recipient of the site/sector that requires attention. Files containing revised information will be transferred on a nightly basis, which will result in more timely updates of additions, moves and changes to wireless tower sites/sectors. The spreadsheet is replaced with a window (Figure 11) containing both drop down menus and open fields with set field lengths to minimize entry errors.

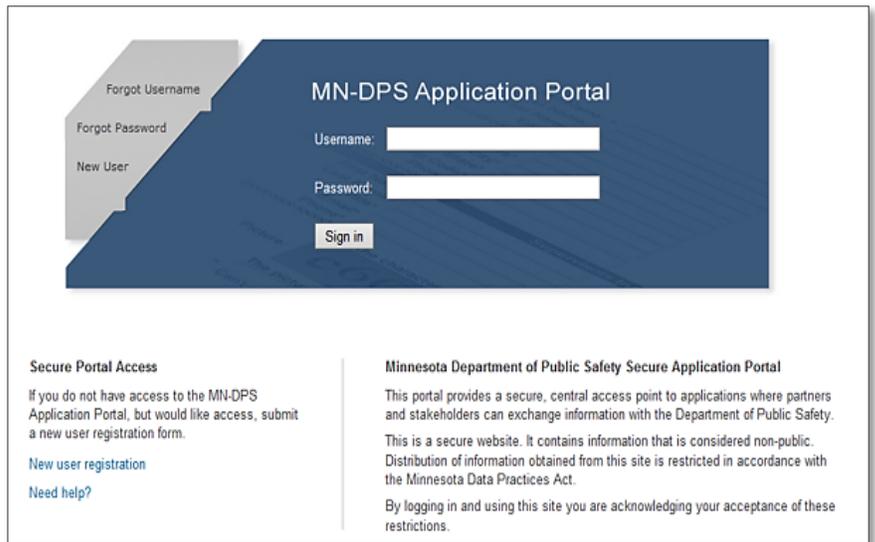


Figure 10: WERM Portal

Cell Sector Details

Cell Site and Sector Summary

Date Received: 4/4/2014	Carrier: AT&T MOBILITY	Request Reason: UPDATE
Sector Identifier: MNATT7S-2	Sector Identifier Type: SECTOR ID	Technology: UMTS
Site Address: 5677 LAKE PLEASANT AVE	Latitude/Longitude: 57.32345678 / 55.22345678	

Sector Details

Sector ID: MNATT7S-2	Sector Compass: NE	ESRN First 5 Digits: 32345
Cell Identity: CELLID	Sector Azimuth: 99	ESRN Last 5 Digits: 89876
Beam Width: 120	Sector Radius: 9 <= radius <= 15	

Routing Information

Region GREATER MN	PSAP Location BENTON COUNTY PSAP	Wireless ESN 0390
MN Abbreviated Street <input type="text"/>	MN Sector Descriptor <input type="text"/>	MN Abbreviated Community <input type="text"/>
MN State Patrol Station ID 2630	Routing Status PENDING	

Notes for Carrier

Last Sent to Carrier: 1/1/0001

Figure 11: Cell Sector Details

PSAP End Users will also have access to an associated map (Figure 12) that provides cell site details based on the latitude/longitude of the cell tower site to aid the routing decision.

Regional “Points of Contact” (POC) and PSAP End Users have already been identified. Regional POCs will serve as subject matter experts and will be the first point of contact for the PSAP End Users when they have questions or identify problems with the application. Regional POCs have already participated in an interactive web based training session. Site visits are underway in all seven DPS-ECN regions to introduce PSAP End Users as well as

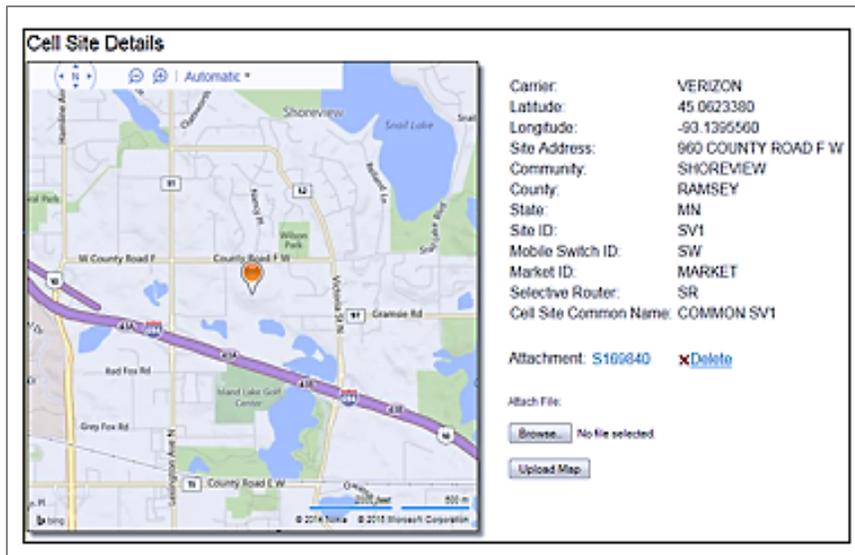


Figure 12: Cell Site Map

Regional POCs to the application and to spend one-on-one time answering their provisioning questions. Following each regional visit, PSAP End Users will have an opportunity to explore and become familiar with the application once they register and obtain a username and password. The application will be using mock data between now and the “go-live date” in mid-May.

Once operational, data maintained via WERM will be displayed on the ALI (Automatic Location Identification) screen in the PSAP when a wireless 9-1-1 call is answered. This is critical information for 9-1-1 call takers and is needed to help pinpoint the location of wireless callers. Having accurate information, updated in a timely manner whenever tower adds/moves and other changes occur, is essential.

Data contained in WERM will not only be used in the PSAP for locating wireless 911 callers, it will be shared with GIS staff working on the state’s NG9-1-1 effort. Minnesota’s FirstNet project will also consume the data as part of its wireless coverage area assessment.

Special thanks to MN.IT project manager Shannon O’Keefe for her diligence in bringing this lengthy project to fruition.

For more information, contact Dana Wahlberg at 651-201-7546 or Dana.Wahlberg@state.mn.us

Upcoming Events

Notable upcoming DPS-ECN NG9-1-1 events:

- ❖ May 9, 2016: GIS/LIS Consortium Spring Workshops, U of M – Minneapolis, MN
 - Preparing for NG911 Workshop - Vic Barnett/Ramsey County, MN
- ❖ May 12, 2016: NG9-1-1 GIS Subcommittee Meeting
- ❖ May 18, 2016: NG9-1-1 Committee Meeting
- ❖ May 26, 2016: SECB Meeting
- ❖ May 25-26: Upper Midwest Geospatial Conference (UMGEOCON 2016), La Crosse, WI

Neighboring States

For more information about NG9-1-1 efforts in the states surrounding Minnesota, visit:

[Iowa Enhanced 9-1-1](#)

[North Dakota ND911](#)

[South Dakota 9-1-1](#)

If you have a news item pertaining to NG9-1-1 that you would like to share in future publications of this newsletter, please contact:

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