STATE OF MINNESOTA

Tactical Interoperable Communications

Field Operations Guide

NOTICE

Public Safety Sensitive

Version 4.0
July 2023

Interoperability

"The ability of Public Safety responders to share information via voice and data communications systems on demand, in real time, when needed and as authorized."

Emergency Communications Division,
Cybersecurity and Infrastructure Security Agency

Public Safety Sensitive

Information gathered in this Field Operations Guide (FOG) is designated as Public Safety Sensitive and should be handled as sensitive information. Reproduction of this document, in whole or in part, without prior approval from the State of Minnesota is prohibited.

The attached materials are disseminated on a need-to-know basis and, when unattended, should be stored in a secure area that offers sufficient protection against theft, compromise, inadvertent access, and unauthorized disclosure.

For copies of, or questions regarding this FOG contact the Minnesota Statewide Interoperability Coordinator (SWIC):		
John Cunningham	651-201-7162	john.cunningham@state.mn.us

Minnesota Statewide Emergency Communications Board's Vision:

The safety of Minnesota's emergency responders, citizens, and visitors is accomplished through the state-of-the-art interoperable public safety communications systems.

Minnesota Statewide Emergency Communications Board's Mission:

Enable emergency responders and citizens to communicate easily and respond immediately in critical emergency situations by providing reliable and robust systems for interoperable communications across counties, state, federal and tribal regions.

Letter of Introduction

The State of Minnesota Interoperable Communications Field Operations Guide (MN-FOG) is a collection of technical reference material to aid Communications Unit personnel in establishing solutions to support communications during emergency incidents and planned events. The MN FOG includes information from the Minnesota Statewide Communication Interoperability Plan (SCIP) and other communication documents; formatted as a pocket-sized guide.

The MN-FOG contains local, territory, and national interoperability channels. These channels should be programmed into all public safety radios in the appropriate frequency band. If geographic restrictions on some channels preclude their use within Minnesota, they may offer an interoperability option when responding out of territory where the restrictions do not apply.

John Cunningham
Statewide Interoperability Coordinator
Minnesota Department of Public Safety
john.cunningham@state.mn.us
651-201-7162

Table of Contents

Chap. 1 About the MN-FOG

Ch. 1.1 Purpose

The purpose of the MN-FOG is to increase effectiveness and efficiency in establishing interoperable communications during incident response. This is achieved by creating a consistent knowledge base of interoperable communications channels and networks, identifying other interoperable communication resources available to establish interoperable communications, and providing a helpful tool for pre-planning and interoperable communications training and exercises.

The MN-FOG works towards the Minnesota SCIP vision of achieving interoperability in the State of Minnesota by providing emergency responders with information to achieve interoperability across the State.

The MN-FOG:

- Increases efficiency in establishing interoperable communications during incidents.
- Creates a consistent knowledge base of interoperable communications frequencies and networks.
- Provides helpful tools for pre-planning and interoperable communications training and exercises.

All frequency information in the MN-FOG is presented in the format as it applies to programming mobile and portable radios.

Ch. 1.2 Oversight and Revision Process

The MN-FOG is a living document that will be updated as required or necessary.

Minnesota's Statewide Emergency Communications Board (SECB) oversees the MN FOG while the Minnesota Statewide Interoperability Coordinator (SWIC) facilitates the update process and manages all comments, corrections, updates, and questions to this Guide.

As participating agencies experience changes in the availability of interoperable communication resources, they are requested to notify the SWIC to assist the SWIC with the update process. In addition, the SWIC will cause an annual review of the MNFOG.

Chap. 2 INTEROPERABILITY "WATCH OUT" SITUATIONS

- *INCIDENTS USING CHANNELS IN MORE THAN ONE BAND.*
- *UNABLE TO COMMUNICATE CRITICAL INFORMATION DUE TO RADIO CONGESTION.*
- *UNFAMILIAR WITH RADIO SYSTEM(S) OR ASSIGNED RADIO FUNCTIONALITY.*
- *INSTRUCTIONS AND ASSIGNMENTS NOT CLEAR.*
- *HAVE NO OR INADEQUATE COMMUNICATION WITH RESPONDERS OR SUPERVISORS.*
- *DISPATCH TO DISPATCH CHANNEL PATCHING.*
- *INADEQUATE NUMBER OF TACTICAL CHANNELS AVAILABLE OR ASSIGNED.*
- *MULTIPLE CONVERSATIONS ON THE SAME TALKGROUP OR CHANNEL.*
- *RADIO SYSTEMS USED FOR INTEROPERABILITY DO NOT COMPLETELY SUPPORT THE INCIDENT AND LACK GOOD RADIO COVERAGE.*
- *HIGH LEVELS OF BACKGROUND NOISE.*
- *EMERGENCY BUTTON ACTIVATION – WHO IS RECEIVING THE NOTIFICATION?*
- *MULTIPLE AGENCIES PERFORMING RADIO PROGRAMMING AT THE INCIDENT.*
- *ORGANIZATIONS IN THE SYSTEM DO NOT USE THE SAME VOCABULARY.*
- *MOBILE GATEWAY DEVICES BEING USED IN A STRATEGIC (WIDE AREA) RATHER THAN TACTICAL (LOCAL) ENVIRONMENT.*

- *Multiple mobile gateways available at the incident.*
- *A single Communications Unit Leader (COML) for the incident is not identified.*
- *Working in the deep interior of a building, parking garage or underground.*

Chap. 3 STATEWIDE ARMER INTEROPERABILITY

Statewide, regional, local, and specialty talkgroups exist to foster interoperability between Allied Radio Matrix for Emergency Response (ARMER) users. These charts identify state and some specialty interoperability talkgroups.

Ch. 3.1 COMMON, EMERGENCY MEDICAL SERVICES (EMS)/HOSPITAL, AND OTHER STATEWIDE INTEROPERABLE TALKGROUPS

Ch. 3.1(a) Common Statewide Interoperable Talkgroups

COMMON STATEWIDE INTEROPERABLE TALKGROUPS			
NAME	AVAILABILITY	PURPOSE	NOTES
STAC1 – 12	All Users	Any	1
STAC13E – 14E	All users (with encrypted radios)	Any	2
LTAC1 – 4	All law enforcement users	Law enforcement use only	3
LTAC5E – 12E	All law enforcement users (with encrypted radios)	Law enforcement use only	3
MSP CALL	All users (subscriber radios & MSP Dispatch only)	Statewide hailing	4

- Required in all ARMER radios.
- Encryption is required in all ARMER encrypted radios.
- Required in all ARMER encrypted law enforcement radios.
- Minnesota State Police (MSP) monitors and will relay any call to correct PSAP

Ch. 3.1(b) EMS/Hospital Interoperable Talkgroups

EMS/Hospital Interoperable Talkgroups			
Name	**Availability**	**Purpose**	**Notes**
EMH-SED	EMS only	Interoperability between EMS and ED	1
EMS-SMRCC	EMS only	EMS hailing of MRCC	2
EMRCC	EMS only	East Metro EMS	3
WMRCC	EMS only	West Metro EMS	4

- For patching EMS to hospital emergency departments
- Hailing only
- East Metro MRCC (Regions Hospital)
- West Metro MRCC (Hennepin EMS)

MRCC = Medical Resource Control Center

Ch. 3.1(c) Other Statewide Interoperable Talkgroups

Other Statewide Interoperable Talkgroups			
Name	**Availability**	**Purpose**	**Notes**
SIU1E – 4E	Law enforcement users only	Sensitive investigations	1
TC-OP-1	Tribal entities only	Tribal command and control	
DRO-1 – 4	Disaster relief organizations and cache radios	Disaster relief organizations	2
MNDO	Dispatch, emergency operations centers (EOCs), field units with need	Hailing and communication with Minnesota Duty Officer	3
SEMTAC	All users	Emergency Management	4

OTHER STATEWIDE INTEROPERABLE TALKGROUPS			
NAME	AVAILABILITY	PURPOSE	NOTES
• Encrypted recommended in SIU (taskforce) radios. • Disaster Relief Organizations (DRO) 1: Red Cross DRO 2: Salvation Army DRO 3 & 4: Shared • Minnesota Duty Officer prefers telephone call (651-649-5451) • Emergency Managers and EOC Interoperability			

Ch. 3.2 ARMER RF RESOURCES

All ARMER sites utilize one control channel and at least four channels to carry voice. The following is a list of total channels at each site. The ARMER system utilizes six zone controllers and each ARMER talkgroup is “Home Zone Mapped” to one of these zones.

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

Ch. 3.2(a) ZONE 1 – Metro (not Hennepin or Ramsey Counties)

Site Name (site #)..... Total # RF channels including control channel.

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

Ch. 3.2(b) ZONE 2 – Southwest and Metro (Hennepin and Ramsey Counties)

Site Name (site #)..... Total # RF channels including control channel.

Beaver Creek (38).....5
Brewster (25) 5
Canby (93).....5
Chandler (36) 5
Clarkfield (94) 5
Danube (85) 6
Echo (95) 5
Granite Falls (97).....5
Granite Falls LE (80).....5
Hardwick (29).....5
Hector (86) 6
Hennepin East (1)..... 24
Hennepin West (2)..... 17
Holland (90) 5
Ivanhoe (92).....6
Jackson (78).....5
Jeffers (34) 5
Kanaranzi (39) 5
Lake Benton (88).....6
Lakefield (24).....5
Madison (96).....5
Marshall (33).....5
Marshall (75).....5
Milan (98) 5
Minneota (77) 5
Montevideo (81) 5
Morton (87) 6
Mountain Lake (35).....5
Olivia (79) 5
Ramsey (3) 22
Rushmore (27).....5
Russell (89).....5
Slayton (26).....5
Tracy (91) 5
Trosky (37) 5
Vesta (32).....5
Wanda (31) 5
Windom (30) 5
Windom (76) 5
Woods (99).....5
Worthington (28).....5

Ch. 3.2(c) ZONE 3 – Southeast and South Central

Site Name (site #)..... Total # RF channels including control channel.

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

Ch. 3.2(d) ZONE 4 – Central

Site Name (site #)..... Total # RF channels including control channel.

Aldrich (99).....5
Amor (96).....6
Appleton (3).....5
Avon (21) 6
Barnesville (89).....5
Belgrade (23) 6
Benson (1).....5
Browns Valley (2) 5
Cold Spring (34).....6
Comstock (88).....5
Correll (28) 5
Dumont (78).....5
Eagle Lake (90).....6
Enfield (40)..... 11
Erdahl (83).....6
Erhard (91).....6
Farming (20).....6
Fergus Falls (24).....5
Fergus Falls (92).....6
Freeport (4)..... 6
Garfield (97) 6
Gilman (49)..... 8
Glenwood (6) 5
Grove (22)..... 6
Hanson Silo (33) 7
Henning (27)..... 5
Herman (7) 6
Hewitt (97)..... 5
Hoffman (8) 6
Holdingford (79)..... 6
Holloway (10)..... 5
Johnson (26)..... 5
Kent (77)..... 5
Kimball (11)..... 8
Lincoln (12)..... 6
Litchfield (43) 10
Long Prairie (13) 5
Luce (94)..... 6
Morris (14) 6
Nashua (25).....5
New London (15)..... 7
New York Mills (95) 6
Onamia (81).....6
Parkers Prairie (93).....6
Paynesville (35) 6
Royalton (42) 10
Saint Cloud (41) 10
Sauk Centre (36) 6
Schumacher (86).....5
Sebeka (98) 5
Starbuck (82).....5
Terrace (16) 5
Wahkon (9) 6
West Union (17).....6
Wheaton (18).....5
Willmar (19) 7

Ch. 3.2(e) ZONE 5 – Northeast

Site Name (site #)..... Total # RF channels including control channel.

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

Ch. 3.2(f) ZONE 6 – Northwest

Site Name (site #)..... Total # RF channels including control channel.

Ada (20) 5
Alice, ND (34) 5
Alida (76).....5
Amenia, ND (32)..... 5
Angus (16).....5
Bagley (77) 5
Baudette (11).....5
Bemidji Fire Tower (80) 6
Bemidji West (31).....5
Berner (28) 5
Buffalo, ND (33).....5
Carp (12) 5
Cass County, ND (40)...5
Cormorant (25) 6
Crookston (17).....5
Detroit Lakes (66).....6
Donaldson (4) 5
Dorothy (91).....5
East Grand Forks (18)..5
Eldred (19) 5
Fargo, ND (40). 10
Faunce (9).....5
Felton (27).....5
Flaming (21).....5
Flom (22) 5
Gardner, ND (35). 5
Gatzke (15).....5
Greenbush (5).....5
Grygla (88).....5
Hawley (26) 5
High Landing (89) 5
Hines (78).....5
Holmseville (65).....5
Holt (85).....5
Island Lake (79).....5
Juggler Lake (72) 5
June Berry (6).....5
Kabekona (71).....5
Kindred, ND (36).....5
Lake Bronson (1) 5
Lengby (75) 5
Lude (13).....5
Lancaster (2).....5
Mahnomen (74).....5
Mantrap (70).....5
Marcoux (23).....5
Middle River (86) 5
Moorhead (24) 8
Nevis (69) 5
Northcote (3) 5
Plummer (92) 5
Red Lake (84).....5
Roosevelt (10).....5
Roseau (7) 5
Saum (81).....5
Strandquist (87).....5
Thief River Falls (90).....5
Thorhult (82) 5
Trail (29) 5
Warren (30) 5
Warroad (8) 5
Waskish (83) 5
White Earth (67).....5
Winger (73).....5
Winner Silo (14) 5
Wolf Lake (68).....5

Ch. 3.3 Regional ARMER Interoperability

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

Regional Interoperable Talkgroups are permitted to affiliate with all repeater sites within their region, plus one ring of sites encircling their region.

Ch. 3.3(a) Northwest (NW) Regional Interoperable Talkgroups

Northwest (NW) Regional Interoperable Talkgroups		
Name	**Availability**	**Notes**
NW CALL	All NW Region Users	Hailing NW Region PSAPs & PSAP to PSAP
NE 2 – 12	All NW Region Users	
NW13E & 14E	All NW Region Users	
NW Angle	All NW Region Users	

Ch. 3.3(b) Northeast (NE) Regional Interoperable Talkgroups

Northeast (NE) Regional Interoperable Talkgroups		
Name	**Availability**	**Notes**
NE CALL	All NE Region Users	Hailing NE Region PSAPs & PSAP to PSAP
NE 2 – 12	All NE Region Users	
NE EM TAC	All NE Region Users	Emergency Management

Ch. 3.3(c) Central (CM) Regional Interoperable Talkgroups

CENTRAL (CM) REGIONAL INTEROPERABLE TALKGROUPS		
NAME	**AVAILABILITY**	**NOTES**
CM CALL	All CM Region Users	Hailing CM Region PSAPs & PSAP to PSAP
CM 2 – 12	All CM Region Users	
CM-EMS-HAIL	All CM Region Users	EMS Hailing
CM EM	All CM Region Users	Emergency Management
CM 2LE – 5LE	CM Law Enforcement Only	
CM 6E – 12E	All CM Region Users	

Ch. 3.3(d) Twin Cities Metro (ME) Regional Interoperable Talkgroups

TWIN CITIES METRO (ME) REGIONAL INTEROPERABLE TALKGROUPS		
NAME	**AVAILABILITY**	**NOTES**
MSP CALL	All Users	Metro & Statewide Hailing (MSP)
ME TAC 1 – 10	All ME Region Users	
ME TAC 11E – 12E	ME Law Enforcement Only	Encrypted

Ch. 3.3(e) Southwest (SW) Regional Interoperable Talkgroups

SOUTHWEST (SW) REGIONAL INTEROPERABLE TALKGROUPS		
NAME	**AVAILABILITY**	**NOTES**
SW CALL	All SW Region Users	Hailing SW Region PSAPs & PSAP to PSAP
SW 2 – 13	All SW Region Users	
SW-HOS-14	All SW Region Users	EMS
SW-R5EMTAC15	All SW Region Users	Emergency Management
SW-ENC-1 – 4	SW Law Enforcement Only	

Ch. 3.3(f) South Central (SR) Regional Interoperable Talkgroups

SOUTH CENTRAL (SR) REGIONAL INTEROPERABLE TALKGROUPS		
NAME	**AVAILABILITY**	**NOTES**
SR CALL	All SR Region Users	Hailing SR Region PSAPs & PSAP to PSAP
SR 2 – 12	All SR Region Users	Any
SR 1 LE – 6LE	SR Region Law Enforcement Users Only	
SR 7E – 12E	All SR Region Users	

Ch. 3.3(g) Southeast (SE) Regional Interoperable Talkgroups

Southeast (SE) Regional Interoperable Talkgroups		
Name	**Availability**	**Notes**
SE CALL	All SE Region Users	Hailing SE Region PSAPs & PSAP to PSAP
SE 2 – 13	All SE Region Users	Any
SE 14E – 15E	All SE Region Users	Encrypted

Ch. 3.4 Conventional Resource ARMER Enhancement

Conventional Resource ARMER Enhancements (CRAEs) patch a conventional RF resource to a dedicated ARMER talkgroup for the purpose of providing radio coverage in specifically defined areas insufficiently served by the trunked ARMER network.

Ch. 3.4(a) Approved CRAE Sites

Approved Conventional Resource ARMER Enhancements			
Location	**Conventional Resource**	**ARMER Resource**	**Notes**
Princeton High School (Mille Lacs County)	8TAC91 (simplex)	MI-Princeton HS	Serves only the High School area
Hancock School (Stevens County)	8TAC91 (Duplex Repeater)		Serves the Hancock School area for approximately a two-mile radius
Chokio Fire Hall (Stevens County)	8TAC91 (Duplex Repeater)		Serves the Chokio area approximately two-mile radius

Ch. 3.5 Conventional ARMER Interoperability

Scene of Action (SOA) channels are available for use in ARMER radios. These channels are not on the trunked radio system and are generally not repeated or monitored. They provide antenna-to-antenna, line-of-sight communications. These 800 MHz SOA channels are only licensed for use in Minnesota.

Ch. 3.5(a) 800 MHz Scene of Action Channels

800 MHz Scene of Action Channels			
Name	**Frequency (TX)**	**Frequency (RX)**	**Notes**
8SOA-1	853.9250	853.9250	
8SOA-2	853.9375	853.9375	
8SOA-3	853.9500	853.9500	
8SOA-4	853.9625	853.9625	Jail sally port communications
FSOA-1	853.9750	853.9750	Fire & EMS use only
FSOA-2	853.9875	853.9875	Fire & EMS use only

- Digital/Narrowband/TX/RX NAC $293 (hex)
- May not be encrypted.
- 8SOAs are required in all ARMER radios.
- FSOAs are required in all Fire Service and EMS radios.

Ch. 3.5(b) 700 MHz Scene of Action Channels

700 MHz Scene of Action Channels			
Name	Frequency (TX)	Frequency (RX)	Notes
7SOA-1	769.00625	769.00625	
7SOA-2	769.01875	769.01875	
7SOA-3	769.03125	769.03125	
7SOA-4	769.04375	769.04375	
7SOA-5	769.05625	769.05625	
7SOA-6	769.06875	769.06875	
7SOA-7	774.93125	774.93125	
7SOA-8	774.94375	774.94375	
7SOA-9	774.95625	774.95625	
7SOA-10	774.96875	774.96875	
7SOA-11	774.98125	774.98125	
7SOA-12	774.99375	774.99375	

- Digital/Narrowband/TX/RX NAC $293 (hex)
- Recommended to be programmed in ARMER portable radios. If programmed, must be in clear mode.
- If programmed in clear mode, may also be programmed encrypted, but in a separate zone. If encrypted, 7SOA11 & 12 must use the state DES encryption key (CKR1992).
- Two-watt maximum ERP
- 7SOAs are not Non-Federal National Interoperability Channels but are available nationally and may be used similarly to Minnesota in digital or analog mode.
- Many existing ARMER radios do not have 700 MHz antennas.

Chap. 4 INTEROPERABILITY BEST PRACTICES

Ch. 4.1 COMMUNICATIONS UNIT LEADER POSITION BEST PRACTICES

The following checklist tasks should be followed by all Communications Unit staff members (COMU) before, during, and after an incident or planned event.

Ch. 4.1(a) Pre-Deployment (Plan and Prepare)

During the pre-deployment or planning phase of the incident, the following tasks should be completed by the COML or designated person:

- ☐ Identify and provide ready access to any applicable interoperable communications plans and reference information such as the Incident Action Plan, Incident Communications System-205 (ICS-205) (Incident Radio Communications Plan), and Field Operations Guides (FOGs).
- ☐ Maintain or have access to an up-to-date directory for:
  - ☐ Communications Unit staff [e.g., Communications Unit Technician (COMT), COML, etc.] to provide communications support as needed during an incident or event.
  - ☐ Agency points of contact (POC) for interoperable communications.
  - ☐ Available communications assets, such as mobile communications vehicles, gateways, and radio caches.

- ☐ Radio systems, channels, and talkgroups that can be used to provide interoperable communications during a critical incident.
- ☐ Procedures and contact numbers for the request of communications resources.

☐ Establish an accountability process to track assignment and return of deployable resources such as radio caches and accessories.

☐ Maintain copies of planning documents, resource directories, and accountability forms so they are readily accessible during a deployment.

☐ Ensure all deployable resources include supporting documentation such as user guides and instructions, as well as frequently used accessories such as radio holsters and spare batteries.

☐ Whenever possible, ensure agency radios are programmed to include applicable interop channels and talkgroups.

☐ Ensure radio equipment is tested and aligned on a regular basis and is updated to the last stable software version and firmware.

☐ Strive to foster close working relationships with area agencies and communications staff.

☐ Support the inclusion of a communications component during drill, exercise, and incident planning.

☐ Participate in interoperable communications tabletop and/or functional exercises that should be conducted on a regular basis.

- ☐ Exercises to include administrative, field, supervisory and dispatch personnel.
- ☐ Exercise evaluations and after-action reports are developed after each exercise.
- ☐ Improvement plans are developed and implemented as needed.

Ch. 4.1(b) During Deployment (Execute)

During the deployment or active phase of the incident, the following tasks should be completed by the COML or designated person:

- ☐ Obtain an incident briefing from the Logistics Section Chief or Incident Commander as appropriate. Briefing should include:
  - ☐ Location and extent of the incident.
  - ☐ Numbers and types of responders involved in the incident.
  - ☐ Current communications resources employed to support the incident including channels and talkgroups.
  - ☐ Current and anticipated communications requirements and challenges.
- ☐ Provide technical information, as required, on the following issues:
  - ☐ Adequacy of communications system currently in use.
  - ☐ Geographic limitation on communications equipment.
  - ☐ Equipment capabilities.
  - ☐ Amount and types of equipment available.

- ☐ Anticipated problems in the use of communications equipment.

☐ Assess communications systems in use; advise on communications capabilities and limitations, including:

- ☐ Conventional and trunked radio systems, channels, and talkgroups.
- ☐ Data communications requirements and capabilities.
- ☐ Needs assessment for broadband wireless and/or satellite-based data communications resources.
- ☐ Anticipated problems in the use of communications equipment.

☐ Prepare and implement an Incident Communications Plan (ICS Form 205):

- ☐ Obtain a current organizational chart.
- ☐ Determine the most hazardous tactical activity; ensure adequate communications.
- ☐ Administer communications assignments to all other Operations elements, including volunteer, contract, or mutual aid.
- ☐ Identify and address the communications needs for Command, Operations, and Logistics units.
- ☐ Establish and post specific procedures for use of the Incident Command Post communications equipment.

☐ Organize and staff the Communications Unit as appropriate to the size and needs of the incident, including:

- ☐ Stand up an Incident Communications Center (if needed) and assign an Incident Communications Center Manager (INCM) and Radio Operators (RADO) as needed.

☐ Identify and staff a Staging Area for assignment and distribution of deployable communications resources, such as radio caches and gateways.

☐ Ensure that responders can operate their assigned communications equipment and that assigned channels and talkgroups are readily available.

☐ Document malfunctioning communications equipment and facilitate repairs.

☐ Manage the activation and deactivation of console patches and interoperability repeaters where applicable.

☐ Manage personnel rotation and relief as needed during lengthy deployments.

Ch. 4.1(c) Post-Deployment (Recover)

Upon completion of the incident, the following tasks should be completed by the COML or designated person:

☐ Ensure that all activated equipment, such as gateways, channel patches and interoperable repeaters are disabled or returned to a standby condition.

☐ If notification of the incident was made to the State Watch Officer, notify them that the incident has ended.

- ☐ Any channels or talkgroup assignments made through the Hotline staff should be relinquished at this time.

- ☐ Supervise the return and inspection of any assigned resources.
  - ☐ Use the existing accountability process to check in the equipment as needed.
  - ☐ Document damaged or missing equipment or accessories and identify the assignee.
- ☐ Keep a record of extraordinary occurrences such as:
  - ☐ Missing equipment or accessories.
  - ☐ Damaged equipment or accessories.
  - ☐ Malfunctions or technical issues during the incident.
  - ☐ Injuries to Communications Unit staff.
- ☐ Conduct a hotwash as soon as practicable with any COMU staff present during the incident.
- ☐ Prepare a written after-action review with recommendations and attend incident after-action meetings, as necessary.
- ☐ Replacement or repair of missing, damaged, or malfunctioning equipment, if applicable.

Ch. 4.2 PLAIN LANGUAGE

All interoperable communications during multi-agency, multi-discipline incidents will be in plain language. Radio codes, acronyms, and abbreviations should not be used as they may cause confusion between agencies. All verbal requests for assistance or backup must state the reason for the request.

Ch. 4.3 Unit Identification

Field units will announce their home agency and unit number during interoperable communication situations (e.g., "Saint Paul Engine 1"). Specialized unit "type" may also be included if appropriate to the incident or event.

Ch. 4.4 Radio Tests

Any station/unit conducting a radio test on an interoperability channel or talkgroup shall use the following language to avoid any confusion by those monitoring the channel/talkgroup:

"Radio test on [name of channel/talkgroup]. [Agency/Unit Number or radio service] clear."

Ch. 4.5 Encryption

Encryption is a process used to electronically encode and decode a voice message with an encryption algorithm using a specific encryption key.

- Except where operational security requirements determine otherwise, channels and talkgroups used for interoperable communications should not be encrypted.

Ch. 4.6 Broadband Data Communications Interface

Public Safety Broadband is an emerging technology that leverages specially regulated frequencies to provide IP-based data communications designated for use by public safety practitioners and can provide additional capabilities for both voice and data transmissions, especially during critical incidents or disasters.

Public Safety broadband devices or other equipment using cellular data or other wireless data systems for providing Radio over IP (RoIP) services should not be considered as mission-critical replacements for Project 25 (P25) voice communications.

Chap. 5 GUIDELINES FOR INTEROPERABLE RADIO COMMUNICATIONS

Ch. 5.1 USE OF INTEROPERABILITY CHANNELS

All radio transmissions on interoperability channels are for official use only. The radio frequencies may legally be used under the following circumstances:

- The user agency retains a Federal Communications Commission (FCC) license or a National Telecommunications and Information Administration (NTIA) authorization for these frequencies, or the user is covered by another authority's license.
- A "Letter of Authorization" is granted by the State Frequency Coordinator allowing an agency to use any interoperability frequencies licensed to the State of Minnesota. For information, please e-mail ecn@state.mn.us
- The FCC issues a "Special Temporary Authorization" for the use of Federal channels in a particular area/event. Please see the National Interoperability Field Operations Guide (NIFOG) for a listing of Federal channels.
- The use of the frequency is necessary for the IMMEDIATE protection of life or property. When necessary, radio users may use prudent measures beyond the specifics of their license.

Note: The MN-FOG does not grant authority to operate on a given radio frequency. Such authority is created as identified above.

Ch. 5.2 Licensing of Interoperability Channels

All radio transmitters, both base and mobile, require a current FCC license or a letter of authorization from the licensee before being placed in operation.

Ch. 5.3 Channel/Talkgroup Names

To avoid confusion during interoperable communications, standardized channel/talkgroup names should be stated in widely used terms (e.g., "8TAC91" or "VLAW31"). Channel/talkgroup numbers corresponding to specific physical locations should not be used unless the resource cannot display alphanumeric characters (e.g., "Channel 1" or "Channel A14").

Ch. 5.4 Identification Process

- During interoperable communications, units must use their home agency name, unit type and agency-assigned unit identifier during transmissions (e.g., "Morris Engine 1"). These should not be shortened and should include the entire set of letters and/or numbers.
- Base stations shall identify themselves by using their agency name along with any other usual identifier.

Ch. 5.5 Channel Monitor

Personnel should monitor mutual aid channels prior to transmitting to minimize the possibility of interference with communications in progress.

Ch. 5.6 PRIORITY LEVELS

Statewide interoperability systems are governed by priority levels that must always be respected. Priority is given to disaster and emergency operations, urgent operations, special events, and drills, tests, and exercises. When a higher priority use is required, all lower priority traffic yields the frequency in areas where interference could occur. Check the interoperability system plans for each interoperability channel's priority levels.

Priority levels for these systems are as follows:

- **Priority 1:** Disaster and extreme emergency operations for mutual aid and interagency communications
- **Priority 2:** Emergency or urgent operations involving imminent safety of life or protection of property
- **Priority 3:** Special event control activities, such as a planned event involving the participation of two or more agencies
- **Priority 4:** Drills, tests, and exercises
- **Priority 5:** Single agency secondary communications

Ch. 5.7 Out-of-Area/Itinerant Mobiles

Personnel are encouraged to monitor mutual aid channels based on their capabilities. Typically, these channels are the only means for personnel traveling outside their normal jurisdiction to obtain assistance or to report traffic collisions, fires, or other hazards.

Ch. 5.8 Plain Language

All interoperable communications during multi-agency, multi-discipline incidents will be in plain language (See Appendix C). Radio codes, acronyms, and abbreviations should not be used as they may cause confusion between agencies. All verbal requests for assistance or backup must state the reason for the request.

- Plain words such as “help,” “assistance,” and “back-up” may have different operational meanings to different agencies.
- The words “emergency traffic” should be used in the context of a life-threatening situation.
- The word “help” should not be used alone unless in the context of a life-threatening situation.
- Requests for assistance or backup should clarify the reason for the request.
- All verbal requests for assistance or backup should specify the reason(s) for the request and be acknowledged by the receiving station.

Ch. 5.9 Wireless Broadband

- Not every incident requires deploying a full site on wheels. If you believe your incident or planned event will require additional coverage or capacity, reach out to the wireless carrier.

- In a large incident you may request the State EOC Emergency Support Function – 2 (ESF – 2) desk to assist with your request for coverage enhancements or deployment of additional resources.
- For planned events or demonstration equipment, you should submit your request well in advance, typically 30 days or more.

Ch. 5.10 Typical Information Required for Requesting Deployable Cellular Infrastructure:

- What are the communications needs?
- What issues or problems are you facing?
- Where is the coverage needed? Number of users and/or devices?
- What will the devices be doing?
- What are the incident conditions, including environmental concerns and size of incident?
- What are the terrain and access conditions?
- Is the roadway accessible?
- Height/weight restrictions, is the turning radius adequate?
- Will there be an escort required?
- Where is the desired site setup?
- Is the site secure?
- Level, clear area with 100' x 100' minimum space with southern view of sky?

Ch. 5.11 Typical Customer Support Request Information

Short Summary of situation:

- Incident Name and Location
- Requesting Agency Name:
- Support Location Address or Lat/Long:
- Start and End Dates
- Point of Contact, including Name, Phone, and Email (if available):
- If Data support is needed:
- Connection Type (Wired, Wi-Fi)
  - Expected indoor coverage requirements (Square feet) and number of users.
  - Expected indoor coverage requirements (Square feet) and number of users.
- Power Availability (Commercial, Generator)
- Cellular coverage requirements (Quantity and Type of devices needed)

Ch. 5.12 Cellular Network and Broadband Carrier Support

Mobile Network Operators/Cellular Providers maintain resources to support public safety operable and interoperable communication efforts during emergency, non-emergency, emergent and planned events. If there is a request to use deployable broadband solution(s) for a planned event, contact should be made to the appropriate broadband provider at one of the numbers listed below at least 60 days prior to the date of the event. Emergency and urgent requests can be made when needed.

Ch. 5.12(a) FirstNet Response Operations Group (ROG)

Ch. 5.12(a-1) Request Procedures

- Call the 24/7 FirstNet Help Desk: **800-574-7000.**
- Be prepared to provide your FAN (Foundation Account Number).
- Initial all information will be referred to the FirstNet Response Operations Group at AT&T who will process the request on behalf of AT&T.

Wireless Service Provider	24/7 Phone	Website
FirstNet	800-574-7000	www.firstnet.com

Services Offered:

Agencies subscribing to FirstNet services can request deployable support 24/7 for disasters, critical incidents, and planned events.

Services provided at no cost to FirstNet subscriber agencies, including associated support costs (fuel, personnel, satellite airtime).

More than 100 assets dedicated to FirstNet users, built with 4G LTE solutions, which are strategically distributed throughout the United States

- Satellite-connected Cells on Light Trucks (SatCOLTs)
- Satellite Cells on Wheels (SatCOWs)
- Emergency Communications Vehicles
- FirstNet One (aerostat)
- Compact Rapid Deployables (CRDs)
- Mobile Deployment Kits
- Cel-Fi Go Red Kits (FirstNet Cellular Signal Booster)

- *14-hour window for arrival and operational status for emergent incident responses*
- *30-day notice required for planned events*
- *Deployables are intended to support FirstNet users with FirstNet capable devices – not consumer cellular traffic.*

Ch. 5.12(a-2) FirstNet Central: Uplift Portal and Incident Management

www.firstnetcentral.firstnet.com

FirstNet Central is a web portal for FirstNet's public safety users and offers a collection of administrative tools, training resources, and operational tools on a single platform. FirstNet Central is designed to help public safety and emergency management entities with increased situational awareness, identify potential impact to operations, and guide decisions on use of resources.

Ch. 5.12(a-3) FirstNet Assist App

www.firstnet.com/apps/featured-apps/firstnet-assist.html

FirstNet Assist is a free mobile app for Apple iOS or Android that is used to access or interact with different elements of FirstNet Central. The FirstNet Assist app is accessed using the same login as FirstNet Central. Users can check the app to see if there are any Uplift Incidents tied to the incident or event they are responding to, and request to have their device uplifted if desired.

Ch. 5.12(b) T-Mobile Response Team

T-Mobile is prepared and ready to provide data, voice, and cellular solutions to organizations within incident impacted areas and groups responding to the areas devastated by any incident. T-Mobile stands ready to assist during response and recovery efforts.

Wireless Service Provider	24/7 Phone	Email
T-Mobile Emergency Response Team	**888-639-0020** GETS Users: 254-295-2220	ERTRequests@T-Mobile.com

Services Offered

T-Mobile provides data, voice, and cellular solutions to organizations within incident impacted areas and groups responding to the areas devastated by any incident. T-Mobile may assist during response and recovery efforts.

- Mobile infrastructure for cellular service – Cells on Wheels (COWS),
- Cells on Light Trucks (COLTs), Satellite-connected Cells on Light Trucks (SatCOLTs)
- Small Cell solutions.
- Mobile Command Trailers
- Commercial Wi-Fi
- Satellite-connected deployables – VSAT (Satellite Antenna)
- Satellite IP Trailers
- Basic Phones, Smartphones, and Hotspots
- CradlePoint Routers
- Mutualink Interoperability solution

- *Satellite performance up to 45 Mbps downlink x 10 Mbps Wireline Connection (Ethernet).*

Ch. 5.12(c) Verizon Response Team

Verizon Response Team is a national, rapid deploy, professionally trained team who solve routine and complex communication challenges in all environments.

Wireless Service Provider	24/7 Phone	Email
Verizon Emergency Response Team	**800-981-9558**	www.Verizon.com/business/solutions/public-sector/public-safety/programs/Verizon-response-team/

Services Offered

Verizon Response Team is a national, rapid deploy, professionally trained team who solve routine and complex communication challenges in all environments.

- Cells on Wheels (COWs)
- Cells on Light Trucks (COLTs)
- Satellite Picocell on Trailers
- Satellite-connected deployables
- VSAT (Satellite Antenna)
- Satellite IP Trailers
- Rugged deployables
- Purpose-built, weatherproof, military grade with a built in 4G LTE solution that combines high-power charging mAh battery.
- UAS 107 Licensed Drones for situational awareness.
- Loaner phones and data devices
- Enterprise-grade 4G LTE routers with directional antenna solutions
- Emergency communication and charging centers.
- Pre-event planning and site assessments
- Verizon Security Assistance Team support – missing persons/search and rescue

Chap. 6 NON-FEDERAL INTEROPERABILITY CHANNEL PLAN

Ch. 6.1 CHANNEL SELECTION

When identifying and selecting channels and talkgroups to use for an incident or event, it is important to note that there are several factors that should be considered prior to finalizing the communications plan.

- Localized incidents may be able to make better use of locally defined channels or talkgroups reserved for specific localities. Use of local interoperability or mutual aid channels reduces the likelihood of multiple users operating on the same channel or talkgroup.
- Avoid local assignment of Statewide Interoperability Channels and Talkgroups for routine interoperable communications as they are in daily use.

Ch. 6.1(a) National Interoperability Channels - VHF Low Band

VHF NATIONAL INTEROPERABILITY CHANNELS Low Band – LLAW & LFIRE					
Assignment	Channel Name	Mob. RX		Mob. TX	
		Freq. (MHz)	CTCSS/NAC	Freq. (MHz)	CTCSS/NAC
Law Enforcement	LLAW1	39.460	156.7	45.860	156.7
Law Enforcement	LLAW1D	39.460	156.7	39.460	156.7
Fire *	LFIRE2	39.480	156.7	45.880	156.7
Fire *	LFIRE2D	39.480	156.7	39.480	156.7
Law Enforcement	LLAW3	45.860	156.7	39.460	156.7

Law Enforcement	LLAW3D	45.860	156.7	45.860	156.7
Fire *	LFIRE4	45.880	156.7	39.480	156.7
Fire	LFIRE4D	45.880	156.7	45.880	156.7
Proposed for use. Frequency 39.48 MHz is pending FCC assignment for exclusive fire intersystem use.					
Use emission – 16K0F3E (5 KHz deviation wideband analog FM)					

Ch. 6.1(b) National Interoperability Channels (VHF-High)

VHF NATIONAL INTEROPERABILITY CHANNELS
VHF Tactical Simplex – VCALL & VTAC

CAUTION: Ensure coordination between VTAC simplex and repeater operations. These frequencies are used to create the tactical repeater channels listed for VTAC33-38.

Assignment	Channel Name	Mob. RX		Mob. TX	
		Freq. (MHz)	CTCSS/NAC	Freq. (MHz)	CTCSS/NAC
Calling	VCALL10	155.7525	156.7	155.7525	156.7
Tactical*	VTAC11	151.1375	156.7	151.1375	156.7
Tactical*	VTAC12	154.4525	156.7	154.4525	156.7
Tactical	VTAC13	158.7375	156.7	158.7375	156.7
Tactical	VTAC14	159.4725	156.7	159.4725	156.7

- Authorized emission – 11K0F3E (2.5 KHz deviation narrowband analog FM) – 47 CFR §90.20(d)(80)
- Encryption may not be used – 47 CFR §90.20(i)
- Limited to 3 watts ERP North of Line A or East of Line C.
- VCALL10, VTAC11-14 utilize a 156.7 Hz CTCSS Mobile TX tone which differs from the VTAC33-38 Tactical Repeater Channels which utilize a 136.5 CTCSS Mobile TX tone.

* VTAC11-12 may not be used in Puerto Rico or the US Virgin Islands

VHF NATIONAL INTEROPERABILITY CHANNELS
VHF Tactical Repeater – VTAC

***CAUTION*:** Ensure coordination between VTAC simplex and repeater operations. These frequencies are created by utilizing the frequencies listed for VTAC11-14.

Assignment	Channel Name	Mob. RX		Mob. TX	
		Freq. (MHz)	CTCSS/NAC	Freq. (MHz)	CTCSS/NAC
Tac Rptr (VTAC 14/11)	VTAC33*	159.4725	156.7	151.1375	136.5
Tac Rptr (VTAC 13/12)	VTAC34*	158.7375	156.7	154.4525	136.5
Tac Rptr (VTAC 14/13)	VTAC35	159.4725	156.7	158.7375	136.5
Tac Rptr (VTAC 11/14)	VTAC36*	151.1375	156.7	159.4725	136.5
Tac Rptr (VTAC 12/13)	VTAC37*	154.4525	156.7	158.7375	136.5
Tac Rptr (VTAC 13/14)	VTAC38	158.7375	156.7	159.4725	136.5

- Authorized emission – 11K0F3E (2.5 KHz deviation narrowband analog FM) – 47 CFR §90.20(d)(80)
- Encryption may not be used – 47 CFR §90.20(i)
- Limited to 3 watts ERP North of Line A or East of Line C.
- VTAC33-38 utilize a 136.5 CTCSS Mobile TX tone which differs from the VTAC11-14 Simplex Channels which utilize a 156.7 CTCSS Mobile TX tone.
- VTAC33-35 are the reverse of VTAC 36-38 to allow for mitigation of any potential co-site interference.
- VTAC36-38 are preferred; VTAC33-35 should be used only when necessary due to interference.

* VTAC33-34, and VTAC 36-37 may not be used in Puerto Rico or the US Virgin Islands

VHF NATIONAL INTEROPERABILITY CHANNELS
VHF Inland – VTAC17

LICENSING REQUIRED: These frequencies are NOT covered by the "Blanket Authorization" for nationwide interoperability channels. Use of these channels must be licensed or authorized by STA.

Assignment	Channel Name	Mob. RX		Mob. TX	
		Freq. (MHz)	CTCSS/NAC	Freq. (MHz)	CTCSS/NAC
Tactical	VTAC17	161.8500	156.7	157.2500	156.7
Tactical	VTAC17D	161.8500	156.7	161.8500	156.7

- For VTAC17/VTAC17D only: Base stations: 50 watts max, antenna HAAT 400 feet max. Mobile stations: 20 watts max, antenna HAAT 15 feet max. These channels are for tactical use and may not be operated on board aircraft in flight. These channels use 2.5 kHz deviation narrowband Analog FM and are available only in certain inland areas at least 100 miles from a major waterway.
- These channels use the same frequencies as VHF Marine channel 25, which uses 5 kHz deviation wideband Analog FM. Use only where authorized. See map provided on pg. 32 of the NIFOG. In these authorized areas, interoperability communications have priority over grandfathered public coast and public safety licensees. See 47 CFR §90.20(g)(3).
- Authorized emission – 11K0F3E (2.5 KHz deviation narrowband analog FM) – 47 CFR §90.20(d)(80)
- Limited to 3 watts ERP North of Line A or East of Line C.
- Can be used only in the counties of: Kittson, Lake of the Woods, Marshall, Pennington, Polk, Red Lake and Roseau.

Ch. 6.1(c) National Mutual Aid and Common Channels - VHF High Band

VHF PUBLIC SAFETY MUTUAL AID AND COMMON CHANNELS

LICENSING REQUIRED: These frequencies are NOT covered by the "Blanket Authorization" for nationwide interoperability channels. Use of these channels must be licensed or authorized by STA. Availability subject to other licensed users in the same area.

Assignment	Channel Name	Mob. RX		Mob. TX	
		Freq. (MHz)	CTCSS/NAC	Freq. (MHz)	CTCSS/NAC
SAR Common*	VSAR16	155.1600	127.3	155.1600	127.3
Fire Mutual Aid *(Not available in Puerto Rico and the US Virgin Islands)*	VFIRE21	154.2800		154.2800	
	VFIRE22	154.2650		154.2650	
	VFIRE23	154.2950		154.2950	
	VFIRE24	154.2725		154.2725	
	VFIRE25	154.2875		154.2875	
	VFIRE26	154.3025		154.3025	
EMS Mutual Aid	VMED28	155.3400	CSQ	155.3400	156.7
	VMED29	155.3475		155.3475	
Law Enforcement Mutual Aid	VLAW31	155.4750		155.4750	
	VLAW32	155.4825		155.4825	

- CTCSS tones vary by jurisdiction. Rules for use of these channels are contained in 47 CFR 90.20. EXCEPT for VSAR16, the recommended CTCSS tones are 156.7 receive and transmit for all channels on this page for interoperability; local use may specify other tones.

Ch. 6.1(d) VHF Marine Channels

VHF MARINE CHANNELS*			
Channel	**Usage**	**Mob. RX & TX**	
		Freq. (MHz)	**CTCSS / NAC**
16	International Distress, Safety and Calling	156.8000 W	CSQ
17	State & local govt maritime control	156.8500 W	CSQ
21A	U.S. Coast Guard assigned	157.0500 W	CSQ
23A	U.S. Coast Guard assigned	157.1500 W	CSQ
81A	Environmental protection ops or as assigned	157.0750 W	CSQ
83A	U.S. Coast Guard assigned	157.1750 W	CSQ

- Use VHF Marine channel 16 to make contact (30 seconds max), then move to the appropriate working channel as directed by the local USCG Sector Commander. Non-maritime use of any VHF Maritime channel requires FCC Special Temporary Authority or appropriate license. VHF marine channels use wideband FM. Emission 16K00F3E.

Direction from USCG, FCC, or FAA overrides information in this table.
This table does not convey authority to operate.

Ch. 6.1(e) National Interoperability Channels - UHF Band

UHF NATIONWIDE INTEROPERABILITY CHANNELS UCALL & UTAC					
Assignment	**Channel Name**	**Mob. RX**		**Mob. TX**	
		Freq. (MHz)	**CTCSS/NAC**	**Freq. (MHz)**	**CTCSS/NAC**
Calling	UCALL40	453.2125	156.7	458.2125	156.7
Calling Direct	UCALL40D	453.2125	156.7	453.2125	156.7
Tactical Repeater	UTAC41	453.4625	156.7	458.4625	156.7
Tactical Direct	UTAC41D	453.4625	156.7	453.4625	156.7
Tactical Repeater	UTAC42	453.7125	156.7	458.7125	156.7
Tactical Direct	UTAC42D	453.7125	156.7	453.7125	156.7
Tactical Repeater	UTAC43	453.8625	156.7	458.8625	156.7
Tactical Direct	UTAC43D	453.8625	156.7	453.8625	156.7

- Authorized emission – 11K0F3E (2.5 KHz deviation narrowband analog FM) – 47 CFR §90.20(d)(80)
- Encryption may not be used – 47 CFR §90.20(i)
- Limited to 3 watts ERP North of Line A or East of Line C.

Ch. 6.1(f) National UHF Med Channels

UHF MEDICAL (MED, EMS) CHANNELS					
LICENSING REQUIRED: These frequencies are NOT covered by the "Blanket Authorization" for nationwide interoperability channels. Availability subject to other licensed users in the same area.					
Assignment	**Channel Name**	**Mob. RX**		**Mob. TX**	
		Freq. (MHz)	**CTCSS/NAC**	**Freq. (MHz)**	**CTCSS/NAC**
Dispatch*	MED-9	462.9500	See Notes	467.9500	See Notes
	MED-9D	462.9500	" "	462.9500	" "
Dispatch*	MED-92	462.9625	" "	467.9625	" "

UHF MEDICAL (MED, EMS) CHANNELS

LICENSING REQUIRED: These frequencies are NOT covered by the "Blanket Authorization" for nationwide interoperability channels. Availability subject to other licensed users in the same area.

Assignment	Channel Name	Mob. RX		Mob. TX	
		Freq. (MHz)	CTCSS/NAC	Freq. (MHz)	CTCSS/NAC
	MED-92D	462.9625	" "	462.9625	" "
Dispatch*	MED-10	462.9750	" "	467.9750	" "
	MED-10D	462.9750	" "	462.9750	" "
Dispatch*	MED-102	462.9875	" "	467.9875	" "
	MED-102D	462.9875	" "	462.9875	" "
Medical	MED-1	463.0000	" "	468.0000	" "
Medical (Direct)	MED-1D	463.0000	" "	463.0000	" "
Medical	MED-12	463.0125	" "	468.0125	" "
Medical (Direct)	MED-12D	463.0125	" "	463.0125	" "
Medical	MED-2	463.0250	" "	468.0250	" "
Medical (Direct)	MED-2D	463.0250	" "	463.0250	" "
Medical	MED-22	463.0375	" "	468.0375	" "
Medical (Direct)	MED-22D	463.0375	" "	463.0375	" "
Medical	MED-3	463.0500	" "	468.0500	" "
Medical (Direct)	MED-3D	463.0500	" "	463.0500	" "
Medical	MED-32	463.0625	" "	468.0625	" "
Medical (Direct)	MED-32D	463.0625	" "	463.0625	" "
Medical	MED-4	463.0750	" "	468.0750	" "
Medical (Direct)	MED-4D	463.0750	" "	463.0750	" "
Medical	MED-42	463.0875	" "	468.0875	" "
Medical (Direct)	MED-42D	463.0875	" "	463.0875	" "
Medical	MED-5	463.1000	" "	468.1000	" "

UHF MEDICAL (MED, EMS) CHANNELS

LICENSING REQUIRED: These frequencies are NOT covered by the "Blanket Authorization" for nationwide interoperability channels. Availability subject to other licensed users in the same area.

Assignment	Channel Name	Mob. RX		Mob. TX	
		Freq. (MHz)	CTCSS/NAC	Freq. (MHz)	CTCSS/NAC
Medical (Direct)	MED-5D	463.1000	" "	463.1000	" "
Medical	MED-52	463.1125	" "	468.1125	" "
Medical (Direct)	MED-52D	463.1125	" "	463.1125	" "
Medical	MED-6	463.1250	" "	468.1250	" "
Medical (Direct)	MED-6D	463.1250	" "	463.1250	" "
Medical	MED-62	463.1375	" "	468.1375	" "
Medical (Direct)	MED-62D	463.1375	" "	463.1375	" "
Medical	MED-7	463.1500	" "	468.1500	" "
Medical (Direct)	MED-7D	463.1500	" "	463.1500	" "
Medical	MED-72	463.1625	" "	468.1625	" "
Medical (Direct)	MED-72D	463.1625	" "	463.1625	" "
Medical	MED-8	463.1750	" "	468.1750	" "
Medical (Direct)	MED-8D	463.1750	" "	463.1750	" "
Medical	MED-82	463.1875	" "	468.1875	" "
Medical (Direct)	MED-82D	463.1875	" "	463.1875	" "

* Used primarily for dispatch; may be used for mutual aid. 47CFR90.20(d)(65).

- Recommended CTCSS tones are 156.7 Hz receive and transmit for all channels on this page for interoperability; local use may specify other CTCSS tones as required by local plan.

Ch. 6.1(g) Nationwide Interoperability Channels (700 MHz)

700 MHZ NATIONWIDE INTEROPERABILITY CHANNELS		
TX NAC: $293 ($659_{10}$)	RX NAC $F7E ($3966_{10}$).	Default Talk Group ID: $0001 ($1_{10}$)
"$" indicates hexadecimal value, "10" subscript indicates decimal value.		

Assignment	Channel Name	Mob. RX		Mob. TX	
		Freq. (MHz)	CTCSS/NAC	Freq. (MHz)	CTCSS/NAC
Calling Channel *	7CALL50	769.24375	$F7E	799.24375	$293
Calling Channel *	7CALL50D	769.24375	$F7E	769.24375	$293
General Public Safety	7TAC51	769.14375	$F7E	799.14375	$293
General Public Safety	7TAC51D	769.14375	$F7E	769.14375	$293
General Public Safety	7TAC52	769.64375	$F7E	799.64375	$293
General Public Safety	7TAC52D	769.64375	$F7E	769.64375	$293
General Public Safety	7TAC53	770.14375	$F7E	800.14375	$293
General Public Safety	7TAC53D	770.14375	$F7E	770.14375	$293
General Public Safety	7TAC54	770.64375	$F7E	800.64375	$293
General Public Safety	7TAC54D	770.64375	$F7E	770.64375	$293
General Public Safety	7TAC55	769.74375	$F7E	799.74375	$293
General Public Safety	7TAC55D	769.74375	$F7E	769.74375	$293
General Public Safety	7TAC56	770.24375	$F7E	800.24375	$293
General Public Safety	7TAC56D	770.24375	$F7E	770.24375	$293
Other Public Safety	7GTAC57	770.99375	$F7E	800.99375	$293
Other Public Safety	7GTAC57D	770.99375	$F7E	770.99375	$293
Mobile Repeater	7MOB59	770.89375	$F7E	800.89375	$293
Mobile Repeater	7MOB59D	770.89375	$F7E	770.89375	$293
Law Enforcement	7LAW61	770.39375	$F7E	800.39375	$293
Law Enforcement	7LAW61D	770.39375	$F7E	770.39375	$293
Law Enforcement	7LAW62	770.49375	$F7E	800.49375	$293

700 MHZ NATIONWIDE INTEROPERABILITY CHANNELS

TX NAC: $293 ($659_{10}$)	RX NAC $F7E ($3966_{10}$).	Default Talk Group ID: $0001 ($1_{10}$)

"$" indicates hexadecimal value, "10" subscript indicates decimal value.

Assignment	Channel Name	Mob. RX		Mob. TX	
		Freq. (MHz)	CTCSS/NAC	Freq. (MHz)	CTCSS/NAC
Law Enforcement	7LAW62D	770.49375	$F7E	770.49375	$293
Fire	7FIRE63	769.89375	$F7E	799.89375	$293
Fire	7FIRE63D	769.89375	$F7E	769.89375	$293
Fire	7FIRE64	769.99375	$F7E	799.99375	$293
Fire	7FIRE64D	769.99375	$F7E	769.99375	$293
EMS	7MED65	769.39375	$F7E	799.39375	$293
EMS	7MED65D	769.39375	$F7E	769.39375	$293
EMS	7MED66	769.49375	$F7E	799.49375	$293
EMS	7MED66D	769.49375	$F7E	769.49375	$293
Mobile Data ***	7DATA69	770.74375	$F7E	800.74375	$293
Mobile Data ***	7DATA69D	770.74375	$F7E	770.74375	$293
Calling Channel **	7CALL70	773.25625	$F7E	803.25625	$293
Calling Channel **	7CALL70D	773.25625	$F7E	773.25625	$293
General Public Safety	7TAC71	773.10625	$F7E	803.10625	$293
General Public Safety	7TAC71D	773.10625	$F7E	773.10625	$293
General Public Safety	7TAC72	773.60625	$F7E	803.60625	$293
General Public Safety	7TAC72D	773.60625	$F7E	773.60625	$293
General Public Safety	7TAC73	774.10625	$F7E	804.10625	$293
General Public Safety	7TAC73D	774.10625	$F7E	774.10625	$293
General Public Safety	7TAC74	774.60625	$F7E	804.60625	$293
General Public Safety	7TAC74D	774.60625	$F7E	774.60625	$293
General Public Safety	7TAC75	773.75625	$F7E	803.75625	$293
General Public Safety	7TAC75D	773.75625	$F7E	773.75625	$293

700 MHZ NATIONWIDE INTEROPERABILITY CHANNELS

TX NAC: $293 ($659_{10}$)	RX NAC $F7E ($3966_{10}$).	Default Talk Group ID: $0001 ($1_{10}$)

"$" indicates hexadecimal value, "10" subscript indicates decimal value.

Assignment	Channel Name	Mob. RX		Mob. TX	
		Freq. (MHz)	CTCSS/NAC	Freq. (MHz)	CTCSS/NAC
General Public Safety	7TAC76	774.25625	$F7E	804.25625	$293
General Public Safety	7TAC76D	774.25625	$F7E	774.25625	$293
Other Public Safety	7GTAC77	774.85625	$F7E	804.85625	$293
Other Public Safety	7GTAC77D	774.85625	$F7E	774.85625	$293
Mobile Repeater	7MOB79	774.50625	$F7E	804.50625	$293
Mobile Repeater	7MOB79D	774.50625	$F7E	774.50625	$293
Law Enforcement	7LAW81	774.00625	$F7E	804.00625	$293
Law Enforcement	7LAW81D	774.00625	$F7E	774.00625	$293
Law Enforcement	7LAW82	774.35625	$F7E	804.35625	$293
Law Enforcement	7LAW82D	774.35625	$F7E	774.35625	$293
Fire	7FIRE83	773.50625	$F7E	803.50625	$293
Fire	7FIRE83D	773.50625	$F7E	773.50625	$293
Fire	7FIRE84	773.85625	$F7E	803.85625	$293
Fire	7FIRE84D	773.85625	$F7E	773.85625	$293
EMS	7MED86	773.00625	$F7E	803.00625	$293
EMS	7MED86D	773.00625	$F7E	773.00625	$293
EMS	7MED87	773.35625	$F7E	803.35625	$293
EMS	7MED87D	773.35625	$F7E	773.35625	$293
Mobile Data ***	7DATA89	774.75625	$F7E	804.75625	$293
Mobile Data ***	7DATA89D	774.75625	$F7E	774.75625	$293

- Authorized emission – 8K10F1E (Digital P25 Phase I Modulation) – 47 CFR §90.548(a)(1)
- Utilize normal squelch in programming which will use the default talkgroup - $0001 ($1_{10}$).
- AES Encryption permitted on all but the two nationwide interoperability calling channel.

700 MHZ NATIONWIDE INTEROPERABILITY CHANNELS		
TX NAC: $293 ($659_{10}$)	RX NAC $F7E ($3966_{10}$).	Default Talk Group ID: $0001 ($1_{10}$)
"$" indicates hexadecimal value, "10" subscript indicates decimal value.		

Assignment	Channel Name	Mob. RX		Mob. TX	
		Freq. (MHz)	CTCSS/NAC	Freq. (MHz)	CTCSS/NAC

Must have an accessible switch or other readily accessible control that permits the radio user to disable encryption. 47 CFR §90.553

* Recommended as PRIMARY calling channel for 700 MHz Band.

**Recommended as SECONDARY calling channel for 700 MHz Band.

*** Voice communications are permitted on 7DATA89 / 7DATA869D on a secondary basis – 90.531(b)(1)(i).

Ch. 6.1(h) National Air-Ground Channels (700 MHz)

700 MHZ NATIONWIDE AIR-GROUND CHANNELS					
LICENSING REQUIRED: These frequencies are NOT covered by the "Blanket Authorization" for nationwide interoperability channels. Use of these channels must be licensed or authorized by STA					
Assignment	**Channel Name**	**Mob. RX**		**Mob. TX**	
		Freq. (MHz)	**CTCSS/NAC**	**Freq. (MHz)**	**CTCSS/NAC**
Air – Ground	7AG58	769.13125	$F7E	799.13125	$293
Air – Ground	7AG58D	769.13125	$F7E	769.13125	$293
Air – Ground	7AG60	769.63125	$F7E	799.63125	$293
Air – Ground	7AG60D	769.63125	$F7E	769.63125	$293
Air – Ground	7AG67	770.13125	$F7E	800.13125	$293
Air – Ground	7AG67D	770.13125	$F7E	770.13125	$293
Air – Ground	7AG68	770.63125	$F7E	800.63125	$293
Air – Ground	7AG68D	770.63125	$F7E	770.63125	$293
Air – Ground	7AG58	769.13125	$F7E	799.13125	$293
Air – Ground	7AG58D	769.13125	$F7E	769.13125	$293

700 MHZ NATIONWIDE AIR-GROUND CHANNELS

LICENSING REQUIRED: These frequencies are NOT covered by the "Blanket Authorization" for nationwide interoperability channels. Use of these channels must be licensed or authorized by STA

Assignment	Channel Name	Mob. RX		Mob. TX	
		Freq. (MHz)	CTCSS/NAC	Freq. (MHz)	CTCSS/NAC
Air – Ground	7AG60	769.63125	$F7E	799.63125	$293
Air – Ground	7AG60D	769.63125	$F7E	769.63125	$293
Air – Ground	7AG78	773.11875	$F7E	803.11875	$293
Air – Ground	7AG78D	773.11875	$F7E	773.11875	$293
Air – Ground	7AG80	773.61875	$F7E	803.61875	$293
Air – Ground	7AG80D	773.61875	$F7E	773.61875	$293
Air – Ground	7AG85	774.11875	$F7E	804.11875	$293
Air – Ground	7AG85D	774.11875	$F7E	774.11875	$293
Air – Ground	7AG88	774.61875	$F7E	804.61875	$293
Air – Ground (LZ)*	7AG88D	774.61875	$F7E	774.61875	$293

*7AG88D is recommended for Landing Zone Use

- TX NAC: $293 ($659_{10}$). RX NAC $F7E ($3966_{10}$). These channels are reserved for air-ground communications to be used by low-altitude aircraft and ground-based stations: See FCC rule 90.531(7). (i) Airborne use of these channels is limited to aircraft flying at or below 457 meters (1500 feet) above ground level. (ii) Aircraft are limited to 2 watts effective radiated power (ERP) when transmitting while airborne on these channels. (iii) Aircraft may transmit on either the mobile or base transmit side of the channel pair. (iv) States are responsible for the administration of these channels.
- Utilize normal squelch in programming which will use the default talkgroup - $0001 ($1_{10}$).

Ch. 6.1(i) 700 MHz Low Power Itinerant Channels

700 MHZ LOW POWER ITINERANT CHANNELS					
LICENSING REQUIRED: These frequencies are NOT covered by the "Blanket Authorization" for nationwide interoperability channels. Use of these channels must be licensed or authorized by STA					
Assignment	**Channel Name**	**Mob. RX**		**Mob. TX**	
		Freq. (MHz)	**CTCSS/NAC**	**Freq. (MHz)**	**CTCSS/NAC**
Low Power - PS	7-US-01	769.05625	156.7 / $F7E	799.05625	156.7 / $293
Low Power - PS	7-US-01D	769.05625	156.7 / $F7E	769.05625	156.7 / $293
Low Power - PS	7-US-02	769.06875	156.7 / $F7E	799.06875	156.7 / $293
Low Power - PS	7-US-02D	769.06875	156.7 / $F7E	769.06875	156.7 / $293
Low Power - PS	7-US-03	774.99375	156.7 / $F7E	804.99375	156.7 / $293
Low Power - PS	7-US-03D	774.99375	156.7 / $F7E	774.99375	156.7 / $293

LICENSING NOTES: These Channels may be licensed for national itinerant mobile use as station class MOI. These channels may be used in either Analog or Digital mode and are limited to 2 watts (ERP)

- Licensees are responsible for the administration of these channels.
- Utilize normal squelch in programming which will use the default talkgroup - $0001 ($1_{10}$).

Ch. 6.1(j) 700 MHz Nationwide Deployable Trunked System Channels

700 MHZ NATIONWIDE DEPLOYABLE TRUNKED SYSTEM CHANNELS

LICENSING REQUIRED: these frequencies are **NOT** covered by the "blanket authorization" for nationwide interoperability channels. Use of these channels must be licensed or authorized by STA.

Common Nationwide System ID:	Common Nationwide WACN:
$101 ($257_{10}$)	**$BF7CC**

"$" indicates hexadecimal value, "10" subscript indicates decimal value.

Assignment	Channel Name	Mob. RX		Mob. TX	
		Freq. (MHz)	CTCSS/NAC	Freq. (MHz)	CTCSS/NAC
	A	769.23125	----------	799.23125	----------
	B	769.38125	----------	799.38125	----------
	C*	769.73125	----------	799.73125	----------
	D*	769.88125	----------	799.88125	----------
Primary Control Ch.	E	774.51875	----------	804.51875	----------
Secondary Control Ch.	F	774.86875	----------	804.86875	----------

*Not available for use above the A-Line in Pennsylvania, New York, and Vermont.

- NRPC is the curator of the common nationwide system keys. To apply for system keys, contact the NRPC: nrpc.us
- Additional working channels separate from this list can be allocated locally to deployable systems subject to individual RPC approval.
- Each deployable trunk system should coordinate their unique NAC Code with the NRPC.

Ch. 6.1(k) 700 MHz Nationwide Deployable Trunked System Talkgroups

700 MHZ NATIONWIDE DEPLOYABLE TRUNKED SYSTEM TALKGROUPS				
Recommended Talkgroups - Zone "YY Deploy" – System ID $101				
Pos.	**Channel Name**	**Eligible Users/Usage**	**Talkgroup ID (Dec)**	**Talkgroup ID (Hex)**
1	CALL YY	Calling / Initial Contact TG	201	$C9
2	CMD YY	Pre-designated Command TG	202	$CA
3	TAC YY3	General / Tactical Use TG	203	$CB
4	TAC YY4	General / Tactical Use TG	204	$CC
5	TAC YY5	General / Tactical Use TG	205	$CD
6	TAC YY6	General / Tactical Use TG	206	$CE
7	TAC YY7	General / Tactical Use TG	207	$CF
8	TAC YY8	General / Tactical Use TG	208	$D0
9	TAC YY9	General / Tactical Use TG	209	$D1
10	TAC YY10	General / Tactical Use TG	210	$D2
11	TAC YY11	General / Tactical Use TG	211	$D3
12	TAC YY12	General / Tactical Use TG	212	$D4
13	TAC YY13	General / Tactical Use TG	213	$D5
14	TAC YY14	General / Tactical Use TG	214	$D6
15	TAC YY15	General / Tactical Use TG	215	$D7
16	EMER YY	EMERGENCY USE TG	216	$D8
Common Nationwide System ID: **$101 ($257_10)**			Common Nationwide WACN: **$BF7CC**	
"$" indicates hexadecimal value, "$_{10}$" subscript indicates decimal value.				

- Each deployable trunk system should coordinate their unique NAC Code with the NRPC.
- Duplicate unit IDs with deployable trunked radio systems are a possibility. Subscriber programming resources may be needed to mitigate duplicate ID's.

700 MHZ NATIONWIDE DEPLOYABLE TRUNKED SYSTEM TALKGROUPS

Recommended Talkgroups - Zone "ZZ Deploy" – System ID $101

Pos.	Channel Name	Eligible Users/Usage	Talkgroup ID (Dec)	Talkgroup ID (Hex)
1	CALL ZZ	Calling / Initial Contact TG	101	$65
2	CMD ZZ	Pre-designated Command TG	102	$66
3	TAC ZZ3	General / Tactical Use TG	103	$67
4	TAC ZZ4	General / Tactical Use TG	104	$68
5	TAC ZZ5	General / Tactical Use TG	105	$69
6	TAC ZZ6	General / Tactical Use TG	106	$6A
7	TAC ZZ7	General / Tactical Use TG	107	$6B
8	TAC ZZ8	General / Tactical Use TG	108	$6C
9	TAC ZZ9	General / Tactical Use TG	109	$6D
10	TAC ZZ10	General / Tactical Use TG	110	$6E
11	TAC ZZ11	General / Tactical Use TG	111	$6F
12	TAC ZZ12	General / Tactical Use TG	112	$70
13	TAC ZZ13	General / Tactical Use TG	113	$71
14	TAC ZZ14	General / Tactical Use TG	114	$72
15	TAC ZZ15	General / Tactical Use TG	115	$73
16	EMER ZZ	EMERGENCY USE TG	116	$74

Common Nationwide System ID:	Common Nationwide WACN:
$101 ($257_10)	**$BF7CC**

"$" indicates hexadecimal value, "$_{10}$" subscript indicates decimal value.

- Each deployable trunk system should coordinate their unique NAC Code with the NRPC.
- Duplicate unit IDs with deployable trunked radio systems are a possibility. Subscriber programming resources may be needed to mitigate duplicate ID's.

Ch. 6.1(I) P25 Digital Codes

P25 Digital Codes	
NAC – Network Access Codes	
$293 ($659_{10}$)	Default NAC
$F7E ($3966_{10}$)	Receiver will un-squelch with any incoming NAC
$F7F ($3967_{10}$)	A repeater with this NAC will allow incoming signals to be repeated with the NAC intact
TGID – Talkgroup ID	
$0001 ($1_{10}$)	Default TGID, should be used in systems where no other talkgroups are defined
$0000 ($0_{10}$)	No-one or a talkgroup with no users – used for individual call
$FFFF ($65535_{10}$)	Reserved as a talkgroup which includes everyone
UID – Unit ID	
$000000	No-one. This value is never assigned to a radio unit
$000001-$98767F	For general use.
$989680-$FFFFFE	For talk group use or other special purposes.
$FFFFFF	Designates everyone – used when implementing a group call with a TGID
Note: Project 25 System Administrators should be aware of possible Unit ID conflicts when conducting operations with neighboring jurisdictions. System administrators should coordinate Unit IDs with agencies likely to operate on their system(s) to address any radio Unit ID conflicts. "$" indicates hexadecimal values, "10" subscript indicates decimal value.	

Ch. 6.1(m) Nationwide Interoperability Channels (800 MHz)

800 MHZ NATIONWIDE INTEROPERABILITY CHANNELS					
Assignment	Channel Name	Mob. RX		Mob. TX	
		Freq. (MHz)	CTCSS/NAC	Freq. (MHz)	CTCSS/NAC
Calling	8CALL90	851.0125	156.7	806.0125	156.7
Calling Direct	8CALL90D	851.0125	156.7	851.0125	156.7
Tactical Repeater	8TAC91	851.5125	156.7	806.5125	156.7
Tactical Direct	8TAC91D	851.5125	156.7	851.5125	156.7
Tactical Repeater	8TAC92	852.0125	156.7	807.0125	156.7
Tactical Direct	8TAC92D	852.0125	156.7	852.0125	156.7
Tactical Repeater	8TAC93	852.5125	156.7	807.5125	156.7
Tactical Direct	8TAC93D	852.5125	156.7	852.5125	156.7
Tactical Repeater	8TAC94	853.0125	156.7	808.0125	156.7
Tactical Direct	8TAC94D	853.0125	156.7	853.0125	156.7

- Recommended authorized emission – 14K0F3E (4.0 kHz deviation NPSPAC analog FM) – 47 CFR §90.617(a)(1) and 47 CFR §90.619(a)(5)(i). The FCC rules allow 5 KHz deviation for the 8CALL / 8TAC interoperability channels - 47 CFR §90.209(b)(5). Some Regional Planning Committees (RPCs) may limit their region to 4KHz.
- Encryption may not be used – 47 CFR §90.20(i)

Chap. 7 FEDERAL INTEROPERABILITY CHANNEL PLAN

Ch. 7.1 FEDERAL INCIDENT RESPONSE AND INTEROPERABILITY CHANNELS

Ch. 7.1(a) Federal VHF Incident Response Channels

VHF INCIDENT RESPONSE (IR) FEDERAL INTEROPERABILITY CHANNELS

LICENSING REQUIRED: These frequencies are NOT covered by the "Blanket Authorization" for nationwide interoperability channels. **For Interoperability with Federal Stations Only.**

Suggested Assignment	Channel Name	Mob. RX		Mob. TX	
		Freq. (MHz)	CTCSS/NAC	Freq. (MHz)	CTCSS/NAC
Incident Calling	NC 1	169.5375	CSQ	164.7125	167.9
Incident Command	IR 1	170.0125	CSQ	165.2500	167.9
Medical Evacuation	IR 2	170.4125	CSQ	165.9625	167.9
Logistics Control	IR 3	170.6875	CSQ	166.5750	167.9
Interagency Convoy	IR 4	173.0375	CSQ	167.3250	167.9
Incident Calling (Direct)	IR 5	169.5375	CSQ	169.5375	167.9
Inc. Command (Direct)	IR 6	170.0125	CSQ	170.0125	167.9
Medical Evac. (Direct)	IR 7	170.4125	CSQ	170.4125	167.9
Logistics Control (Direct)	IR 8	170.6875	CSQ	170.6875	167.9
Interagency Convoy (Dir,)	IR 9	173.0375	CSQ	173.0375	167.9

- See "Conditions for Use of Federal Interoperability Channels" on pages 19-22 (NIFOG).
- Default operation should be carrier squelch receive; CTCSS 167.9 transmit. If the user can enable/disable CTCSS without reprogramming the radio, the indicated CTCSS tone also could be programmed for receive, and the user instructed how and when to enable/disable.

Ch. 7.1(b) Federal UHF Incident Response Channels

UHF INCIDENT RESPONSE (IR) FEDERAL INTEROPERABILITY CHANNELS

LICENSING REQUIRED: These frequencies are NOT covered by the "Blanket Authorization" for nationwide interoperability channels. **For Interoperability with Federal Stations Only.**

Suggested Assignment	Channel Name	Mob. RX		Mob. TX	
		Freq. (MHz)	CTCSS/NAC	Freq. (MHz)	CTCSS/NAC
Incident Calling	NC 2	410.2375	CSQ	419.2375	167.9
Ad hoc Assignment	IR 10	410.4375	CSQ	419.4375	167.9
Ad hoc Assignment	IR 11	410.6375	CSQ	419.6375	167.9
SAR Incident Command	IR 12	410.8375	CSQ	419.8375	167.9
Ad hoc Assignment	IR 13	413.1875	CSQ	413.1875	167.9
Interagency Convoy	IR 14	413.2125	CSQ	413.2125	167.9
Incident Calling (Direct)	IR 15	410.2375	CSQ	410.2375	167.9
Ad hoc (Direct for IR 10)	IR 16	410.4375	CSQ	410.4375	167.9
Ad hoc (Direct for IR 11)	IR 17	410.6375	CSQ	410.6375	167.9
SAR Inc. Command (Dir.)	IR 18	410.8375	CSQ	410.8375	167.9

- See "Conditions for Use of Federal Interoperability Channels" on pages 19-22 (NIFOG).
- Default operation should be carrier squelch receive; CTCSS 167.9 transmit. If the user can enable/disable CTCSS without reprogramming the radio, the indicated CTCSS tone also could be programmed for receive, and the user instructed how and when to enable/disable.

Ch. 7.1(c) Federal VHF Law Enforcement Channels

VHF LAW ENFORCEMENT (LE) FEDERAL INTEROPERABILITY CHANNELS

LICENSING REQUIRED: These frequencies are NOT covered by the "Blanket Authorization" for nationwide interoperability channels. **For Interoperability with Federal Stations Only.**

Suggested Assignment	Channel Name	Mob. RX		Mob. TX	
		Freq. (MHz)	CTCSS/NAC	Freq. (MHz)	CTCSS/NAC
Calling (Analog)	LE A	167.0875	CSQ	167.0875	167.9
Tactical (Analog)	LE 1	167.0875	CSQ	162.0875	167.9
Tactical	LE 2	167.2500	$68F	162.2625	$68F
Tactical	LE 3	167.7500	$68F	162.8375	$68F
Tactical	LE 4	168.1125	$68F	163.2875	$68F
Tactical	LE 5	168.4625	$68F	163.4250	$68F
Tactical (Direct for LE2)	LE 6	167.2500	$68F	167.2500	$68F
Tactical (Direct for LE3)	LE 7	167.7500	$68F	167.7500	$68F
Tactical (Direct for LE4)	LE 8	168.1125	$68F	168.1125	$68F
Tactical (Direct for LE5)	Chap. 1 E 9	168.4625	$68F	168.4625	$68F

- See "Conditions for Use of Federal Interoperability Channels" on pages 19-22 (NIFOG).
- CTCSS on receive only if user selectable; else CSQ.
- "$" indicates hexadecimal value.

Ch. 7.1(d) Federal UHF Law Enforcement Channels

UHF LAW ENFORCEMENT (LE) FEDERAL INTEROPERABILITY CHANNELS					
LICENSING REQUIRED: These frequencies are NOT covered by the "Blanket Authorization" for nationwide interoperability channels. **For Interoperability with Federal Stations Only.**					
Suggested Assignment	**Channel Name**	**Mob. RX**		**Mob. TX**	
		Freq. (MHz)	**CTCSS/NAC**	**Freq. (MHz)**	**CTCSS/NAC**
Calling (Analog)	LE B	414.0375	CSQ	414.0375	167.9
Tactical (Analog)	LE 10	409.9875	CSQ	418.9875	167.9
Tactical	LE 11	410.1875	$68F	419.1875	$68F
Tactical	LE 12	410.6125	$68F	419.6125	$68F
Tactical	LE 13	414.0625	$68F	414.0625	$68F
Tactical	LE 14	414.3125	$68F	414.3125	$68F
Tactical	LE 15	414.3375	$68F	414.3375	$68F
Tactical (Direct for LE 10)	LE 16	409.9875	CSQ	409.9875	167.9
Tactical (Direct for LE 11)	LE 17	410.1875	$68F	410.1875	$68F
Tactical (Direct for LE 12)	LE 18	410.6125	$68F	410.6125	$68F

- See "Conditions for Use of Federal Interoperability Channels" on pages 19-22 (NIFOG).
- CTCSS on receive only if user selectable; else CSQ.
- "$" indicates hexadecimal value.

Ch. 7.1(e) Federal/Non-Federal SAR Command Interoperability Plan

FEDERAL/NON-FEDERAL SAR COMMAND INTEROPERABILITY PLAN					
	Channel Name	Mob. RX		Mob. TX	
		Frequency (MHz)	CTCSS / NAC	Frequency (MHz)	CTCSS / NAC
CONNECT WITH GATEWAY	IR 12*	410.8375	CSQ	419.8375	167.9
	VTAC14	159.4725	156.7	159.4725	156.7
	UTAC43	453.8625	156.7	458.8625	156.7
	8TAC94	853.0125	156.7	808.0125	156.7
	VHF Marine Ch. 17**	156.8500 W	CSQ	156.8500 W	----------

- This table does not convey authority to operate.
- Always monitor and verify the channels are not in use prior to operating.
- If a repeater is not available, substitute the corresponding talk-around channel: IR 18 for IR 12, UTAC43D for UTAC43, 8TAC94D for 8TAC94.

*See Conditions for Use of Federal Interoperability Channels on pages 19-22 (NIFOG).

**Use of VHF Marine Ch. 17 requires an FCC STA and use emission – 16K0F3E (5 kHz deviation wideband analog FM).

Ch. 7.1(g) Federal/Non-Federal Search and Rescue

FEDERAL/NON-FEDERAL SAR OPERATIONS INTEROPERABILITY PLAN	
Direction from USCG, FCC, or FAA overrides information in this table. This table does not convey authority to operate	
Suggested SAR Function	**Channel/Frequency (MHz)**
Ground Operations	155.1600 MHz (VSAR16 – License Required) 2.5 kHz deviation narrowband analog FM
Maritime Operations*	157.0500 MHz or 157.1500 MHz (VHF Marine 21A or 23A) as specified by USCG Sector Commander
Air Operations – Civilian	123.100 MHz AM (may not be used for tests or exercises)
Air Operations – USCG/Military	345.0 MHz AM for initial contact only, then move to 282.8 MHz AM or other working channel
Air Rescue Assets to Air Rescue Assets (deconfliction)	As charted on standard air chart or MULTICOM 122.850 MHz (south or west sector) & 122.900 MHz (north or east sector), or as specified by FAA. 122.850 MHz may not be used for tests or exercises.
Ground to Air SAR Working Channel	157.1750 MHz VHF Marine 83A (21A, 23A, or 81A alternates as specified by local USCG Sector Commander **)
Ground to Maritime SAR Working Channel	157.0500 MHz VHF Marine 21A (23A, 81A, or 83A alternates as specified by local USCG Sector Commander **)
Maritime/Air/Ground SAR Working Channel	157.1750 MHz VHF Marine 83A (21A, 23A, or 81A are alternates as specified by local USCG Sector Commander **)
EMS/Medical Support	155.3400 MHz (VMED28 – License Required) 2.5 kHz deviation narrowband analog FM

FEDERAL/NON-FEDERAL SAR OPERATIONS INTEROPERABILITY PLAN	
Direction from USCG, FCC, or FAA overrides information in this table. This table does not convey authority to operate	
Suggested SAR Function	**Channel/Frequency (MHz)**
Hailing1 & DISTRESS only – Maritime/Air/Ground	156.8000 MHz VHF Marine 16 *

- VHF marine channels use emission 16K0F3E (5 kHz deviation analog FM).

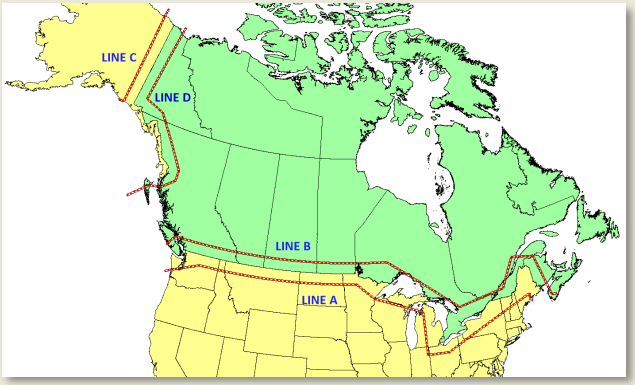
* Use VHF Marine Ch.16 to make contact (30 seconds max.), then move to appropriate working channel as directed by local USCG Sector Commander. Non-maritime use of any VHF Marine channel requires FCC Special Temporary Authority or appropriate license.

** VHF Marine channels: **16=156.8000 21A=157.0500 22A=157.1000 23A=157.1500 81A=157.0750 82A=157.1250 83A=157.1750**

Chap. 8 MISCELLANY

Ch. 8.1 US-CANADA FREQUENCY COORDINATION LINES A-D

Lines A and C are intended to minimize frequency conflict between countries. Line A spans from the Pacific Ocean in Washington State to the Atlantic Ocean in Maine along the border between the United States and Canada. The exact position of the line with respect to the border varies, however in most places it is about 75 miles/ 120 km from the border (Line B is the corresponding line on the Canadian side of the Border). Line C exists in Alaska and a complementary Line D exists in Canada along the border between the United States and Canada. Due to sparse population, Line C issues occur less frequently. These coordination lines are defined in FCC Rule §1.928(e).



Ch. 8.2 25 Cities Project Federal Interoperability Channels

The 25 Cities Federal Interoperability Channels are VHF channels that use FBI fixed infrastructure to provide wide area coverage for federal, state, and local public safety users. There are currently 56 channels, overseen by 31 FBI Field Offices. The primary use of the channels is for interoperable communications during both pre-planned and emergency events. The channels may also be available for internal agency communications. All pre-planned use must be coordinated with the local FBI Telecommunications Manager. All federal, state, and local public safety agencies are encouraged to program the 25 Cities frequencies into their land mobile radio subscriber devices.

Most 25 Cities VHF channels are accessible by non-VHF users via permanent or ad hoc patching capabilities provided to many agencies as part of the 25 Cities Project. Please note that in certain cities, the channels use the VHF Law Enforcement (LE) Federal Interoperability frequencies: Baltimore (BA LE 3); Boston (BS LE 4); Charlotte (CE LE 4); Honolulu (HNL LE 2, HNL LE 3, HNL LE 4, HNL LE 5); Kansas City (KC FIOLE2); Milwaukee (MW LE 4, MW LE3 GB, MW LE2 MA); Newark (NK FIO LE 2); Richmond (RH LE4); San Juan/Puerto Rico (SJ LE 2 ME, SJ LE 3 YQ, SJ LE 4 CS, SJ LE 5 CP, and SJ LE 2 STT), and Washington, D.C. (DC LE 2).

To program the channels, please request the complete list of 25 Cities frequencies from the 25 Cities Program Manager:
Brian Zuniga, DOJ / FBI
703-985-1165
BOZUNIGA@FBI.GOV

For specific information about a particular channel, please contact the FBI Telecommunications Manager, at the provided FBI Field Office telephone number.

REGION	CHANNEL NAME	SYSTEM DESCRIPTION	PHONE
ATLANTA	ATL FIO	VHF P25 350-watt voted repeater system, 4 receive sites	770-216-3000
BALTIMORE	BA LE 3	VHF P25 350-watt voted repeater system, 5 receive sites	410-265-8080
BOSTON	BPD FIO	VHF analog 125-watt voted repeater system, 15 receive sites	857-386-2000
	BS LE 4	VHF P25 multicast 350-watt repeater system	
	BK FIO	VHF analog 125-watt voted repeater system, 7 receive sites - Brockton	
CHARLOTTE	CE LE 4	VHF P25 125-watt standalone repeater	704-672-6100
CHICAGO	CGCOM-N	VHF P25 multicast 125-watt voted repeater system, 20 receiver sites x3	312-421-6700
	CGCOM-C		
	CGCOM-S		
	CGTAC-N	VHF P25 multicast 125-watt voted repeater system, 20 receiver sites x3	
	CGTAC-C		
	CGTAC-S		
DALLAS	DFW-E	VHF P25 350-watt voted repeater system, 9 receiver sites	972-559-5000
	DFW-W	VHF P25 350-watt voted repeater system. 7 receiver sites	
DENVER	DEN IO-N	VHF P25 multicast 125-watt voted repeater system x5	303-629-7171
	DEN IO-E		
	DEN IO-C		
	DEN IO-S		
	DEN IO-W		

REGION	CHANNEL NAME	SYSTEM DESCRIPTION	PHONE
DETROIT	8TAC92	800 MHz wideband analog standalone repeater x2	313-965-2323
	8TAC94		
EL PASO	ELP FIO-W	VHF P25 multicast 300-watt voted repeater x2	915-832-5000
	ELP FIO-E		
HONOLULU	HNL FIO	VHF P25 125-watt standalone repeater x7	808-566-4300
	HNL FIO2		
	HNL LE 5		
	HNL-PJKK		
	HNL LE2		
	HNL LE3		
	HNL LE4		
HOUSTON	HOU CMD	VHF P25 350-watt voted repeater system, 14 receiver sites x2	713-693-5000
	HOU PAT		
JACKSONVILLE	JAX FIO	VHF P25 350-watt voted repeater system, 8 receiver sites	904-248-7000
KANSAS CITY	KC LE2	VHF P25 125-watt voted repeater system, 4 receiver sites	816-512-8200
LOS ANGELES	LA FIO1	VHF P25 350-watt voted repeater system, 8 receiver sites x3	310-477-6565
	LA FIO2		
	LA FIO3		
MIAMI	MIA FIO	VHF P25 350-watt voted repeater system, 14 receiver sites	754-703-2000

REGION	CHANNEL NAME	SYSTEM DESCRIPTION	PHONE
MILWAUKEE	MW LE4	VHF P25 350-watt voted repeater system, 3 receiver sites	414-276-4684
	MW LE3	VHF P25 125-watt standalone repeater - Beloit	
	MW LE3	VHF P25 125-watt standalone repeater – Green Bay	
	MW LE2	VHF P25 125-watt standalone repeater - Madison	
MINNEAPOLIS	FED-MP	VHF P25 multicast 350-watt voted repeater system, 9 receiver sites	763-569-8000
	FED-SP	VHF P25 125-watt voted repeater system, 9 receiver sites	
NEW HAVEN/ HARTFORD	CFEDCOM-N	VHF P25 multicast 125-watt voted repeater system, 12 receiver sites x4	203-777-6311
	CFEDCOM-S		
	CFEDCOM-E		
	CFEDCOM-W		
NEW ORLEANS	NOLA FIO	VHF P25 350-watt voted repeater system, 13 receiver sites	504-816-3000
NEWARK	NK LE 2	VHF P25 350-watt voted repeater system, 12 receiver sites	973-792-3000
NEW YORK	NYC FIO	VHF P25 multicast 350-watt voted repeater system, 32 receiver sites x3	212-384-1000
	NYC FIO-N		
	NYC FIO-S		
	NYC FIO-E	125-watt voted repeater system, 32 receiver sites	
	NYC FIO2	VHF P25 350-watt voted repeater system, 14 receiver sites	

REGION	CHANNEL NAME	SYSTEM DESCRIPTION	PHONE
NORFOLK	HRN FIOP DRI	VHF P25 multicast 350-watt repeater system, 10 receiver sites	757-455-0100
	HRN FIOP TOA	VHF P25 multicast 125-watt repeater system, 10 receiver sites	
ORLANDO	ORL FIO	VHF P25 350-watt voted repeater system, 9 receiver sites	813-253-1000
PHILADELPHIA	PH FIO	VHF P25 350-watt voted repeater system, 12 receiver sites	215-418-4000
RICHMOND	RH LE4	VHF P25 multicast 350-watt voted repeater system, 8 sites	804-261-1044
	RH FIO	VHF P25 100-watt voted repeater system, 8 sites	
SAN DIEGO	CALAW1	VHF analog simplex voted receiver system with transmitters controlled by RCS dispatcher. 9 receiver sites x2	858-320-5380
	V LAW 31		
	CALAW8	800 MHz analog NPSPAC standard (16K0F3E) simplex voted receiver system with transmitters controlled by RCS dispatcher, 10 receiver sites	
	CAFIRE1	800 MHz analog NPSPAC standard (16K0F3E) simplex voted receiver system with transmitters controlled by RCS dispatcher, 10 receiver sites	
SAN FRANCISCO	SF FED-ED	VHF P25 multicast 125-watt voted repeater system, 10 receiver sites x4	415-553-7400
	SF FED-ES		
	SF FED-ET		
	SF FED-EW		
	SF MA-V/MA-U	VHF P25, UHF P25 125-watt standalone crossband repeaters. X2	
	SF FED-V/FED-U		

REGION	CHANNEL NAME	SYSTEM DESCRIPTION	PHONE
SAN JUAN	SJ LE 2	VHF P25 multicast 350-watt voted repeater system; Inputs rebroadcast at all sites x3	787-754-6000
	SJ LE 3		
	SJ LE 4		
	SJ LE 5	VHF P25 multicast 110-watt voted repeater system; Inputs rebroadcast at all sites	
	SJ LE2	VHF P25 multicast 110-watt voted repeater system; Inputs rebroadcast at all sites (St. Thomas)	
ST. LOUIS	STL CALL	VHF P25 350-watt voted repeater system, 9 receiver sites x 2	314-589-2500
	STL TAC		
TAMPA	TAM FIO	VHF P25 350-watt voted repeater system, 7 receiver sites	813-253-1000
WASHINGTON DC	DC IO-1	VHF P25 350-watt voted repeater system, 9 receiver sites x2	202-278-2000
	DC LE 2		
NATIONWIDE	J-SMART	Ligado Satellite Interoperability Talkgroup MSAT Satellite Radio PTT/one-to-many	1-888-664-6727 Network Innovations

Chap. 9 National Reserved Slot Location Numbers (SLN)

The National Law Enforcement Communications Center (NLECC), a subdivision of Customs and Border Protection, generates and distributes national interoperability keys for Slot Location Numbers (SLNs) 1-20.

Any agencies that plan on utilizing encryption as part of their interoperability plans should contact their SWIC for guidance (cisa.gov/safecom/ncswic- membership). Encryption key management is the administration of policies and procedures for protecting, storing, organizing, and distributing encryption keys. Effective encryption key management is crucial as it ensures that encryption does not impede the operability or interoperability of radio system users. Documents outlining best practices can be found at: cisa.gov/safecom/blog/2016/10/12/fpic-releases-encryption-documents or by contacting CISA through your SWIC. Slot Location Numbers (SLN)

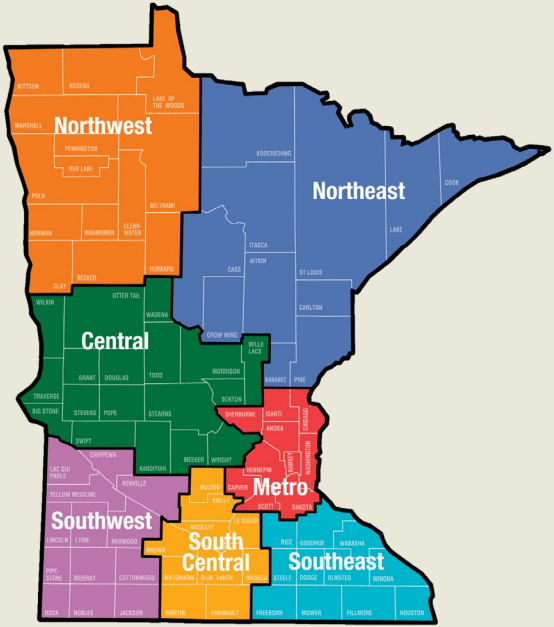
National Reserved Slot Location Numbers					
SLN	**ALG**	**Usage**	**SL Name**	**Crypto Period**	**Authorized Users**
1	DES	Pub. Safety Interoperable	ALL IO D	Annual	All Network Users
2	DES	Federal Interoperable	FED IO D	Annual	All Federal Network Users
3	AES	Public Safety Interoperable	ALL IO A	Annual	All Network Users
4	AES	Federal Interoperable	FED IO A	Annual	All Federal Network Users

National Reserved Slot Location Numbers					
SLN	**ALG**	**Usage**	**SL Name**	**Crypto Period**	**Authorized Users**
5	DES	Nat'l Law Enforcement State & Local	NLE IO D	Static	All Federal, State, and Local LE
6	AES	Nat'l Law Enforcement State & Local	NLE IO A	Static	All Federal, State, and Local LE
7	AES	US–Canadian Federal LE Interoperability	FED CAN	Static	All US & Canadian Federal LE
8	AES	US-Canadian Public Safety Interoperability	USCAN PS	Static	All US & Canadian PS Users
9	DES	National Tactical Event	NTAC D	Single Event Use	All Federal, State, & Local Public Safety
10	AES	National Tactical Event	NTAC A	Single Event Use	All Federal, State, & Local Public Safety
11	DES	Multiple Public Safety Disciplines	PS IO D	Static	All Federal, State, & Local Public Safety
12	AES	Multiple Public Safety Disciplines	PS IO A	Static	All Federal, State, & Local Public Safety
13	DES	National Fire, EMS, & Rescue	NFER D	Static	All Fire, EMS, & Rescue Users
14	AES	National Fire, EMS, & Rescue	NFER A	Static	All Fire, EMS, & Rescue Users
15	DES	National Task Force Operations	FED TF D	One Time Usage	Federal Task Force
16	AES	National Task Force Operations	FED TF A	One Time Usage	Federal Task Force

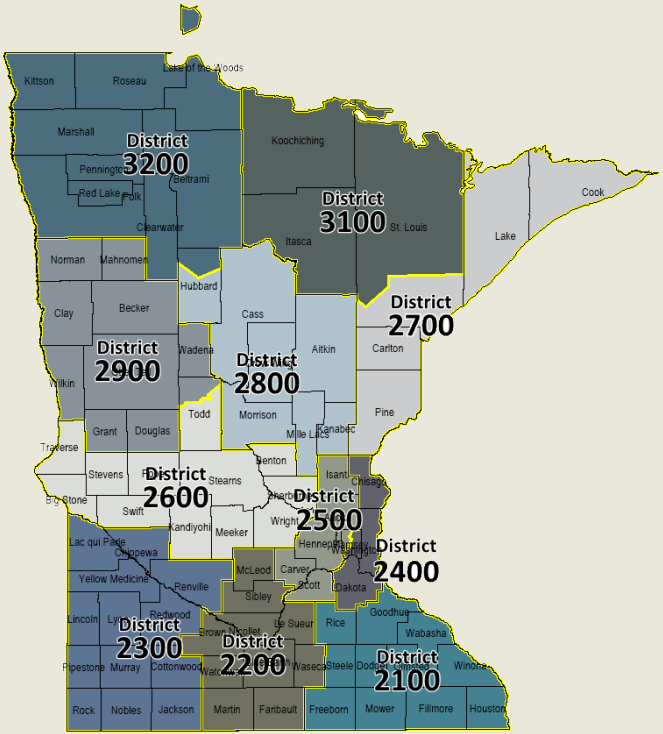
National Reserved Slot Location Numbers					
SLN	**ALG**	**Usage**	**SL Name**	**Crypto Period**	**Authorized Users**
17	DES	National Law Enforcement Task Force	NLE TF D	One Time Usage	All Federal, State and Local LE
18	AES	National Law Enforcement Task Force	NLE TF A	One Time Usage	All Federal, State and Local LE
19	AES	Fed–INTL LE Interoperability	FED INTL	When Needed	Federal and Visiting Int'l LE
20	AES	Public Safety – INTL LE Interoperability	PS INTL	When Needed	All US and Visiting Int'l Public Safety

Chap. 10 Minnesota State Maps

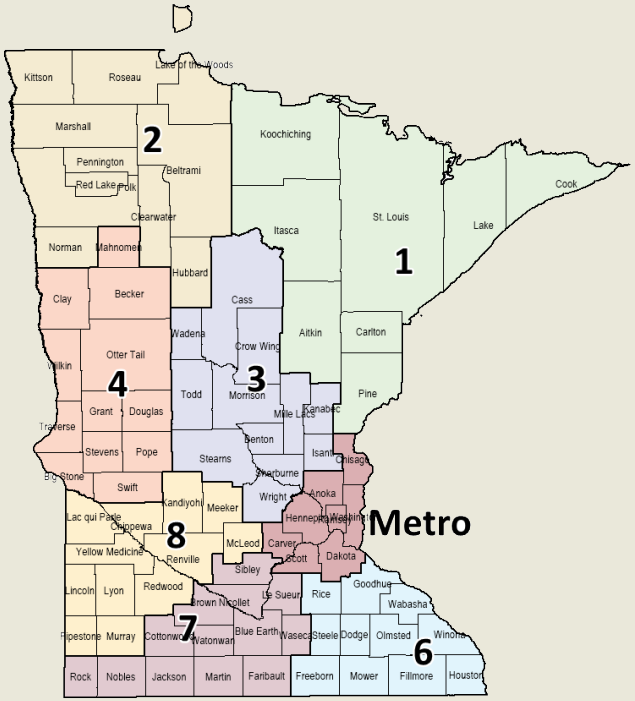
Ch. 10.1 Minnesota Statewide Emergency Communications Board Regions



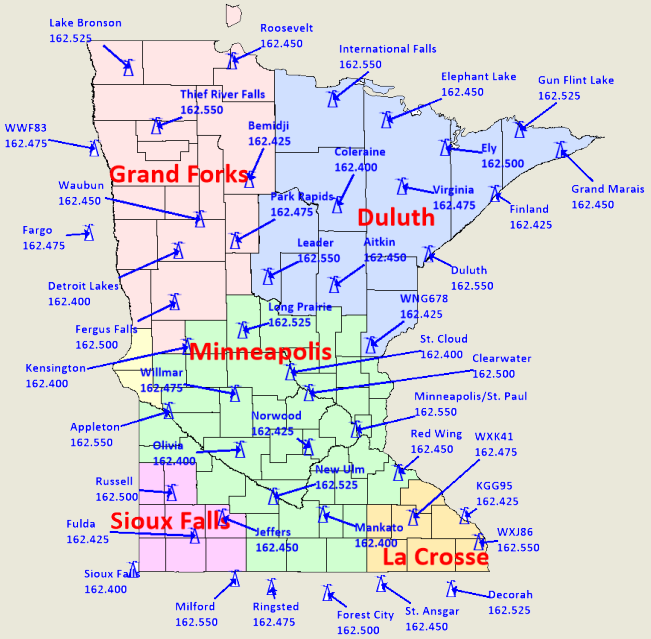
Ch. 10.2 MINNESOTA STATE PATROL DISTRICTS



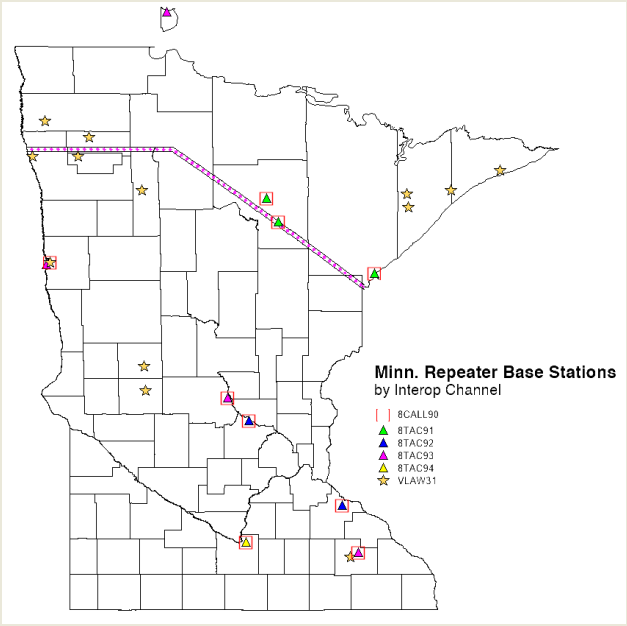
Ch. 10.3 MINNESOTA DEPARTMENT OF TRANSPORTATION DISTRICTS



Ch. 10.4 Minnesota National Weather Service Radio Sites and Forecast Offices Map



Ch. 10.5 Minnesota Interoperability Repeater Base Station by Channel with Line A Map



Chap. 11 State and Regional Communications Resources

Ch. 11.1 State Resources

Ch. 11.1(a) Interoperability Repeaters and Base Stations

Interoperability Repeaters and Base Stations				
Location	Site ID Site Name	Agency Phone	Freq. Band	Channels
None identified				

Ch. 11.1(b) Gateways

Transportable Gateways			
Owning Agency	Location Kept	24/7 Phone	Make/Model
MN National Guard	Inver Grove Heights, Fort Snelling	651-268-8860	ACU-2000

Ch. 11.1(c) Transportable Repeaters

Transportable Repeaters				
Owning Agency	24/7 Phone	Location	Band	Channel(s)
MN National Guard	651-268-8860	Duluth, Camp Ripley, and metro	VHF, UHF, 800 MHz	

Ch. 11.1(d) Radio Caches

RADIO CACHES						
AGENCY	24/7 PHONE	VHF	UHF	700/800 MHZ	800 MHZ	OTHER
None identified						

Ch. 11.1(e) Data Communications Devices

TRANSPORTABLE DATA COMMUNICATIONS DEVICES				
RESPONSIBLE AGENCY	24/7 PHONE	DESCRIPTION	QTY.	CELLULAR NO. (CTN)
None identified				

Ch. 11.1(f) Mobile Communications Units

MOBILE COMMUNICATIONS UNITS					
UNIT ID	24/7 PHONE	LOCATION STORED	GATEWAY OR CACHE	SEATING DISP.	SEATING CONF
MNNG JCP1 and JCP2 (Trailer)	651-268-8860	Inver Grove Heights, Fort Snelling	ACU-2000		
MNNG JCP3 (F750 Mounted)	651-268-8860	Duluth, MN	ACU-2000		
MNNG RCP1	651-268-8860	Inver Grove Heights, Fort Snelling	ACU-M		
MNNG RCP2, RCP3 and RCP 4	651-268-8860	Fort Snelling, Duluth, Camp Ripley	ACU-M		

Mobile Communications Units					
Unit ID	24/7 Phone	Location Stored	Gateway or Cache	Seating Disp.	Seating Conf
MNNG Disaster Incident Response Emergency Communication Terminal (DIRECT)	651-268-8860	Inver Grove Heights	Vocality/ WAVE		
MNANG Joint Incident Site Communications Capabilities (JISCC)	651-268-8860	Fort Snelling	ACU 5000		
55th WMD-CST Unified Command Suite (UCS)	651-268-8860	Fort Snelling	ACU 2000, TIDUS		
55th WMD-CST ADVON (Advanced Echelon)	651-268-8860	Fort Snelling	ACU-T, ICIRI		
55th WMD-CST DSK (Dismounted Strike Kit)	651-268-8860	Fort Snelling	N/A		

Ch. 11.1(g) Other Mobile Equipment (Cell Phone Cache, Mobile Generator, etc.)

Other Mobile Equipment			
County	24/7 Phone	Device Name	Device Type
None identified			

Ch. 11.1(h) *Regional Auxiliary Communications Channels*

Regional Auxiliary Communications Channels					
County	Frequency	Offset	Tone	Callsign	Location
None identified					

Ch. 11.1(i) Amateur Radio Contacts

Amateur Radio Contacts				
Agency	Name	24/7 Phone	Email	Call Sign
MNNG	MSgt Derrick Tuomi	218-788-7474	derrick.tuomi@us.af.mil	KE0LHY
MNNG	MSgt Tyler Stodola	218-788-7497	tyler.stodola@us.af.mil	KC9OXK

Ch. 11.1(j) Communication Unit Personnel

Communication Unit Personnel				
County	Agency	Name	24/7 Phone Email	COMU Position(s)
Statewide	MNNG	SFC Phillip Goldsberry	612-422-4230 phillip.j.goldsberry.mi.@army.mil	COMT
Statewide	MNNG	MSG Graham Lorence	612-393-6318 Graham.lorence.2@us.af.mil	CONT
Statewide	MNNG	MSG Thomas Simota	651-775-6938 thomas.j.simota.mil@army.mil	COML, COMT

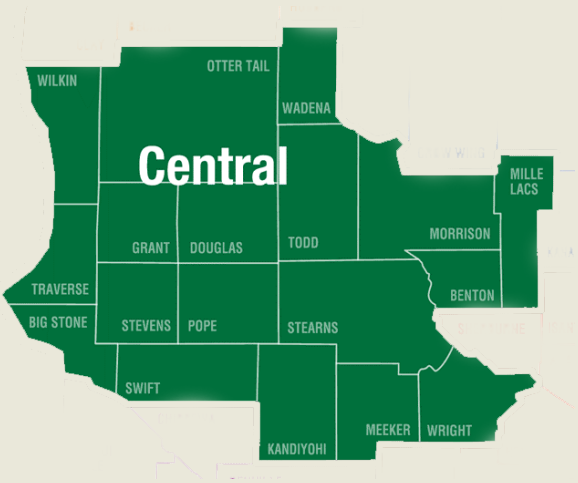
Ch. 11.1(k) CASM Administrators

CASM ADMINISTRATORS			
COUNTY	AGENCY	NAME	24/7 PHONE EMAIL
Statewide	MN DPS	John Dooley	651-201-7099 john.dooley@state.mn.us

Ch. 11.2 CENTRAL REGION

The Central Region Emergency Communications Board serves the following Minnesota counties:

Benton
Big Stone
Douglas
Grant
Kandiyohi
Meeker
Mille Lacs
Morrison
Otter Tail
Pope
Stearns
Stevens
Swift
Todd
Traverse
Wadena
Wilkin
Wright



Ch. 11.2(a) Interoperability Repeaters and Base Stations

INTEROPERABILITY REPEATERS AND BASE STATIONS				
LOCATION	SITE ID SITE NAME	AGENCY PHONE	FREQ. BAND	CHANNELS
None identified				

Ch. 11.2(b) Gateways

TRANSPORTABLE GATEWAYS			
OWNING AGENCY	LOCATION KEPT	24/7 PHONE	MAKE/MODEL
Todd County Emergency Management	Todd County Sheriff's Office	320-732-2157	ACU-M 1000

Ch. 11.2(c) Transportable Repeaters

TRANSPORTABLE REPEATERS				
OWNING AGENCY	24/7 PHONE	LOCATION	BAND	CHANNEL(S)
Central Region*		Alexandria	VHF, 800 MHz	
*Part of Minnesota's Strategic Technology Reserve. Transportable 50' tower with VHF and 800 MHz crossband repeater. POC Douglas County PSAP.				

Ch. 11.2(d) Radio Caches

RADIO CACHES						
AGENCY	24/7 PHONE	VHF	UHF	700/800 MHz	800 MHz	OTHER
Todd County Emergency Management Todd Co. SO	320-732-2157			12		
Central Region*				30		
*Stored in Alexandria, point of contact is Douglas County PSAP. Motorola XTS1500 programmed with ARMER and 800 MHZ National interoperable channel.						

Ch. 11.2(e) Data Communications Devices

TRANSPORTABLE DATA COMMUNICATIONS DEVICES				
RESPONSIBLE AGENCY	24/7 PHONE	DESCRIPTION	QTY.	CELLULAR NO. (CTN)
None identified				

Ch. 11.2(f) Mobile Communications Units

MOBILE COMMUNICATIONS UNITS					
UNIT ID AGENCY	24/7 PHONE	LOCATION STORED	GATEWAY OR CACHE	SEATING	
				DISP.	CONF
Todd County Command Trailer	320-732-2157	Todd County Sheriff's Office	ACU-M 1000	5	0

Ch. 11.2(g) Other Mobile Equipment (Cell Phone Cache, Mobile Generator, etc.)

OTHER MOBILE EQUIPMENT			
COUNTY	24/7 PHONE	DEVICE NAME	DEVICE TYPE
None identified			

Ch. 11.2(h) *Regional Auxiliary Communications Channels*

Regional Auxiliary Communications Channels					
County	Frequency	Offset	Tone	Callsign	Location
Douglas	146.790	-0.6 MHz	CSQ	W0ALX	Alexandria
Kandiyohi	146.910	-0.6 MHz	CSQ	W0SW	Willmar
Meeker	147.300	+0.6 MHz	146.2	K0MCR	Litchfield
Mille Lacs	145.350	-0.6 MHz	141.3	KD0JOU	Milaca
Mille Lacs	444.700	+5 MHz	146.2	K0SCA	Princeton
Morrison	147.135	+0.6 MHz	123.0	W0REA	Little Falls
Stearns	145.270	-0.6 MHz	D172	KD0YLG	Paynesville MN
Stearns	147.015	+0.6 MHz	100.0	W0SV	Collegeville
Stearns	147.015	+0.6 MHz	100.0	W0SV	Collegeville
Stearns	147.105	+0.6 MHz	85.4	K0STC	Avon
Stearns	443.850	+5 MHz	D172	KD0YLG	St. Cloud
Todd	146.655	-0.6 MHz	CSQ	KC0TAF	Long Prairie
Todd	147.120	+0.6 MHz	123.0	N0WN	Bertha
Todd	444.750	+5 MHz	CSQ	N0WN	Bertha
Wadena	147.330	+0.6 MHz	CSQ	N0WN	Sebeka

Ch. 11.2(i) Amateur Radio Contacts

Amateur Radio Contacts				
County	Name	24/7 Phone	Email	Call Sign
Todd	Michael Wisniewski	320-732-3201	KC0TAF@gmail.com	KC0TAF
Stearns	Chris Schultz			

Ch. 11.2(j) Communication Unit Personnel

COMMUNICATION UNIT PERSONNEL				
COUNTY	AGENCY	NAME	24/7 PHONE EMAIL	COMU POSITION(S)
Douglas	Alexandria PD	Tina McPherson	320-762-8151 tmcpherson@alexandriapolice.com	COML
Douglas		Keith Polipnick	keithp@co.douglas.mn.us	COML
Kandiyohi		Stacey (Ace) Bonnema	320-235-5133 Ace.bonnema@kcmn.us	COML
Morrison		Scott MacKissock	320-632-0187 scottm@co.morrison.mn.us	COML
Stearns		Brandon Larson	320-650-3304 Brandon.Larson@ci.stcloud.mn.us	COML, COMT
Stearns	St Cloud	Christopher Schultz	507-351-2113 Christopher.schultz@ci.stcloud.mn.us	COMT, AUXC

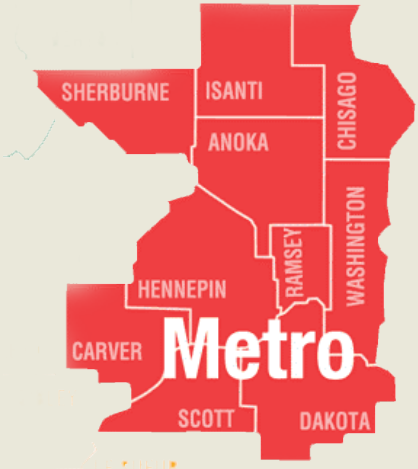
Ch. 11.2(k) CASM Administrators

CASM ADMINISTRATORS			
COUNTY	AGENCY	NAME	24/7 PHONE EMAIL
None identified			

Ch. 11.3 METROPOLITAN REGION

The Metropolitan Emergency Communications Board serves the following Minnesota counties:

Anoka
Carver
Chisago
Dakota
Hennepin
Isanti
Ramsey
Scott
Sherburne
Washington



Ch. 11.3(a) Interoperability Repeaters and Base Stations

Interoperability Repeaters and Base Stations				
Location	Site ID Site Name	Agency Phone	Freq. Band	Channels
Forest Lake		SEMARC 651-208-0889	VHF	147.180 PL 100
Newport		SEMARC 651-208-0889	VHF	147.180 PL 74.4
Cottage Grove		SEMARC 651-208-0889	VHF	146.985
Stillwater		Stillwater Amateur Radio Association 651-439-1272	VHF	147.060 PL DCS 026N
St. Paul		MAGIC Repeater Club 651-308-3441	VHF	145.170 PL 100

Ch. 11.3(b) Gateways

Transportable Gateways			
Owning Agency	Location Kept	24/7 Phone	Make/Model
Dakota County	Dakota Communications Center	651-322-8646	JPS ACU-T

Ch. 11.3(c) Transportable Repeaters

Transportable Repeaters				
Owning Agency	24/7 Phone	Location	Band	Channel(s)
Dakota County	651-322-8646	Dakota Co. SO	800 MHz	1

TRANSPORTABLE REPEATERS				
OWNING AGENCY	24/7 PHONE	LOCATION	BAND	CHANNEL(S)
Washington County *	651-439-9381	Washington County Public Works North	800 MHz	1
* Mounted on 106' Tower Trailer, equipped with 100 w repeater for 8CALL90 and 8TAC91-94				

Ch. 11.3(d) Radio Caches

RADIO CACHES						
AGENCY	24/7 PHONE	VHF	UHF	700/800 MHz	800 MHz	OTHER
Washington County Sheriff's Office	651-439-9381			45[1] 30 [2]		
Hennepin County Sheriff's Office	612-596-1957	67		168		
[1] 45 700/800 MHz are non-Encrypted. [2] 30 700/800 MHz are Encrypted						

Ch. 11.3(e) Data Communications Devices

TRANSPORTABLE DATA COMMUNICATIONS DEVICES				
RESPONSIBLE AGENCY	24/7 PHONE	DESCRIPTION	QTY.	CELLULAR NO. (CTN)
None identified				

Ch. 11.3(f) Mobile Communications Units

Mobile Communications Units					
Unit ID	24/7 Phone	Location Stored	Gateway or Cache	Seating Disp.	Seating Conf
None identified					

Ch. 11.3(g) Other Mobile Equipment (Cell Phone Cache, Mobile Generator, etc.)

Other Mobile Equipment			
County	24/7 Phone	Device Name	Device Type
None identified			

Ch. 11.3(h) *Regional Auxiliary Communications Channels*

Regional Auxiliary Communications Channels					
County	Frequency	Offset	Tone	Callsign	Location
Anoka	146.670	-0.6 MHz	114.8	W0EF	Blaine
Chisago	147.315	+0.6 MHz	91.5	K0GOI	North Branch
Dakota	147.210	+0.6 MHz	100.0	W0BU	Burnsville
Dakota	442.550	+5 MHz	114.8	KC0NPA	West St Paul
Hennepin	145.43	-0.6 MHz	127.3	WC0HC	Edina
Hennepin	444.175	+5 MHz	127.3	WC0HC	Golden Valley
Hennepin	147.000	+0.6 MHz	114.8	K0LTC	Maple Plain
Hennepin	146.700	-0.6 MHz	127.3	WC0HC	Minneapolis
Hennepin	146.760	-0.6 MHz	114.8	W0EF	St. Louis Park
Isanti	145.210	-0.6 MHz	114.8	N0GEF	Crown

Regional Auxiliary Communications Channels					
County	Frequency	Offset	Tone	Callsign	Location
Isanti	443.325	+5 MHz	146.2	KB0QYC	Isanti
Ramsey	147.120	+0.6 MHz	CSQ	W0MR	Maplewood
Ramsey	145.170	-0.6 MHz	100	K0GOI	St Paul
Sherburne	145.490	-0.6 MHz	146.2	K0SCA	Big Lake
Sherburne	146.970	-0.6 MHz	114.8	K0CJD	Elk River
Washington	147.060	+0.6 MHz	D026	W0JH	Bayport
Washington	147.180	+0.6 MHz	74.4	W0CGM	Cottage Grove
Washington	146.985	-0.6 MHz	CSQ	W0CGM	Hastings

Ch. 11.3(i) Amateur Radio Contacts

Amateur Radio Contacts				
County	Name	24/7 Phone	Email	Call Sign
Dakota	Dick Roberts	651-208-0889	N0UC@comcast.net	N0UC
Ramsey	Terry Larouche	651-308-3441	N0GOI@Centurylink.net	K0GOI
Washington	Joe Hibberd	651-491-4753	Joehibberd11@gmail.com	W3QLC
Washington	Joe Heitzinger		jrheitzinger@msn.com	KC0OIO
Washington	John Regan	651-491-6611	jeregan3@gmail.com	KA0HYR

Ch. 11.3(j) Communication Unit Personnel

COMMUNICATION UNIT PERSONNEL				
COUNTY	AGENCY	NAME	24/7 PHONE EMAIL	COMU POSITION(S)
Chisago	Chisago Co	Jon Eckel	Jon.eckel@chisagocounty.us	
Dakota	Dakota Co	Ron Jansen	651-322-8646 ron.jansen@co.dakota.mn.us	COML, COMT
Hennepin	Edina Fire	Andrew LaVenture	952-826-1600 alaventure@edinamn.gov	COML, AUXCOMM
Hennepin	Hennepin Co Emergency Mgmt.	Dan Anderson	612-578-1372 dan.anderson@hennepin.us	COML COMT AUXC
Hennepin	Metropolitan Airports Commission	Sara Boucher-Jackson	612-673-5219 Sara.Boucher-Jackson@mspmac.org	COML INTD
Hennepin	Metropolitan Airports Commission	Craig Brekke	612-726-5577 Craig.Brekke@mspmac.org	COML
Hennepin	North Memorial Healthcare	Jerome Erickson	612-530-7633 jerry.erickson@northmemorial.com	COML COMT
Hennepin	Metropolitan Airports Commission	Thomas Groninga	612-726-5577 Thomas.Groninga@mspmac.org	COML
Hennepin	Hennepin Healthcare	Scott Huppert	612-347-2141 Scott.Huppert@hcmed.org	COML
Hennepin	Hennepin Co EMS	Daniel Kalwitter	612-873-7522 Daniel.Kalwitter@hcmed.org	COML

COMMUNICATION UNIT PERSONNEL				
COUNTY	AGENCY	NAME	24/7 PHONE EMAIL	COMU POSITION(S)
Hennepin	Minneapolis	Rod Olson	612.209-3313 Rodney.Olson@minneapolismn.gov	COML
Hennepin	Hennepin Co Emergency Mgmt.	Michael Ostlund	612-596-0253 Michael.Ostlund@hennepin.us	COMT, AUXC
Hennepin	Metropolitan Airports Commission	Kya Wagner	760-908-7193 Kya.Wagner@mspmac.org	COMT
Washington	Washington Co ARES	John Regan	651-491-6611 reregan3@gmail.com	RADO, AUXCOMM
Washington	Washington Co Sheriff's Office	Nate Timm	651-430-7683 Nate.Timm@co.washington.mn.us	COML, COMT, AUXC, COML / AUXC Instructor

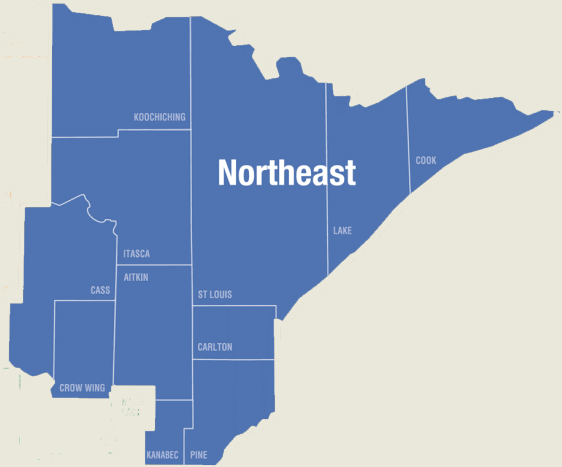
Ch. 11.3(k) CASM Administrators

CASM ADMINISTRATORS			
COUNTY	AGENCY	NAME	24/7 PHONE EMAIL
None identified			

Ch. 11.4 NORTHEAST REGION

The Northeast Emergency Communications Board serves the following Minnesota counties:

Aitkin
Carlton
Cass
Cook
Crow Wing
Itasca
Kanabec
Koochiching
Lake
Pine
Saint Louis



Ch. 11.4(a) Interoperability Repeaters and Base Stations

Interoperability Repeaters and Base Stations				
Location	Site ID Site Name	Agency Phone	Freq. Band	Channels
Duluth		St. Louis County PSAP 218-625-3581		8CALL90, 8TAC91

Ch. 11.4(b) Gateways

Transportable Gateways			
Owning Agency	Location Kept	24/7 Phone	Make/Model
St. Louis County PSAP	2030 N Arlington Avenue, Duluth, MN	218-625-3581	JPS (Raytheon) ACU – T Gateway

Fixed Gateways			
Owning Agency	Location Kept	24/7 Phone	Make/Model
St. Louis County PSAP		218-625-3581	ISSI - MN-ARMER Motorola 8000 / WI -EFJ WISCOM

Ch. 11.4(c) Transportable Repeaters

TRANSPORTABLE REPEATERS				
OWNING AGENCY	24/7 PHONE	LOCATION	BAND	CHANNEL(S)
St. Louis County PSAP	218-625-3581	Duluth MN	VHF, 800	VTA14R/IR2/LE2/C 8CALL90/8TAC91-94
NE Region*	218-625-3581	Duluth MN	VHF, 800	
*Part of Minnesota's Strategic Technology Reserve. Transportable 50' tower with VHF and 800 MHz crossband repeater.				

Ch. 11.4(d) Radio Caches

RADIO CACHES						
AGENCY	24/7 PHONE	VHF	UHF	700/800 MHZ	800 MHZ	OTHER
Lake County Sheriff's Office	218-834-8385	*14 **50				
St. Louis County PSAP	218-625-3581				30	
Mille Lacs Band	320-532-3430	163				
Northeast Region***	218-625-3581			30		
*14 radios with ARMER template **50 radios, non-P-25 ***Part of Minnesota Strategic Technology Reserve. Radios stored in Duluth, and the point is the St. Louis, County PSAP. Motorola XTS1500 radios programmed with ARMER and 800 MHz National Interoperability channels.						

Ch. 11.4(e) Data Communications Devices

TRANSPORTABLE DATA COMMUNICATIONS DEVICES				
RESPONSIBLE AGENCY	24/7 PHONE	DESCRIPTION	QTY.	CELLULAR NO. (CTN)
None identified				

Ch. 11.4(f) Mobile Communications Units

MOBILE COMMUNICATIONS UNITS					
UNIT ID AGENCY	24/7 PHONE	LOCATION STORED	GATEWAY OR CACHE	SEATING DISP.	SEATING CONF
St. Louis County Emergency Command Vehicle 600 SLC EOC	218-625-3581	Duluth MN		2	4

Ch. 11.4(g) Other Mobile Equipment (Cell Phone Cache, Mobile Generator, etc.)

OTHER MOBILE EQUIPMENT			
COUNTY	24/7 PHONE	DEVICE NAME	DEVICE TYPE
St. Louis County	218-625-3581	Generator	Portable generator – 2200W Generac

Ch. 11.4(h) *Regional Auxiliary Communications Channels*

Regional Auxiliary Communications Channels					
County	Frequency	Offset	Tone	Callsign	Location
*Bayfield, WI	146.700	-0.6 MHz	103.5	N0BZZ	Bayfield
Aitkin	147.360	+0.6 MHz	203.5	N0BZZ	Aitkin
Aitkin	443.200	+5 MHz	114.8	N0BZZ	Tamarack
Carlton	443.100	+5 MHz	103.5	KB0YHX	Cloquet
Carlton	147.000	-0.6 MHz	103.5	W0GKP	Mahtowa
Cook	444.250	+5 MHz	151.4	W0BBN	Grand Marais
Cook	146.655	-0.6 MHz	151.4	W0BBN	Grand Portage
Cook	146.730	-0.6 MHz	151.4	W0BBN	Gunflint Lake
Cook	146.895	-0.6 MHz	151.4	W0BBN	Maple Hill
Cook	146.865	-0.6 MHz	151.4	W0BBN	Tofte
Crow Wing	146.700	-0.6 MHz	141.3	W0UJ	Brainerd
Crow Wing	443.925	+5 MHz	110.9	W0UJ	Nisswa
Itasca	146.880	-0.6 MHz	CSQ	K0GPZ	Coleraine
Itasca	147.165	+0.6 MHz	114.8	KB0QYC	Coleraine
Itasca	147.075	+0.6 MHz	CSQ	K0GPZ	Marcel
Kanabec	147.240	+0.6 MHz	146.2	KD0CI	Ogilvie
Koochiching	146.910	-0.6 MHz	103.5	N0NKC	Big Falls
Koochiching	146.970	-0.6 MHz		K0HKZ	International Falls
Koochiching	444.900	+5 MHz	103.5	KA0WRT	Littlefork
Lake	147.300	+0.6 MHz	114.8	KB0QYC	Isabella
Lake	147.270	+0.6 MHz	103.5	WB0DGK	Two Harbors
Lake	147.270	+0.6 MHz	103.5	WB0DGK	Wales
Pine	146.910	-0.6 MHz	146.2	KE0ACL	Duxbury
Pine	147.570	+0.6 MHz	146.2	KB0QYC	Hinckley
Pine	444.575	+5 MHz	146.2	KB0QYC	Hinckley
St Louis	147.360	+0.6 MHz	162.2	N0BZZ	Cook

Regional Auxiliary Communications Channels					
County	Frequency	Offset	Tone	Callsign	Location
St Louis	146.940	-0.6 MHz	103.5	W0GKP	Duluth
St Louis	147.060	+0.6 MHz	110.9	KC0IPA	Duluth
St Louis	444.100	+5 MHz	103.5	W0GKP	Duluth
St Louis	444.300	+5 MHz	103.5	N0EO	Duluth
St Louis	146.640	-0.6 MHz	151.4	K5PFF	Ely
St Louis	147.195	+0.6 MHz	151.4	K0VRC	Ely
St Louis	443.500	+5 MHz	141.3	K5PFF	Gilbert
St Louis	147.330	+0.6 MHz	151.4	N0BZZ	Proctor
St Louis	147.060	+0.6 MHz	103.5	K5PFF	Virginia

Ch. 11.4(i) Amateur Radio Contacts

Amateur Radio Contacts			
County	Name	24/7 Phone Email	Call Sign
St. Louis	Doug Nelson	218-391-5874 aa0aw@chartermi.net	AA0AW
St. Louis	Ray Barnes	218-428-2510 ke0zn@outdrs.net	KE0ZN
St. Louis	Grant Forsyth	218-390-4072 forsythgrantc@gmail.com	KC0WUP
St. Louis	Paul Dallavia	218-290-9570 kc0wdq@gmail.com	KC0WDQ

Ch. 11.4(j) Communication Unit Personnel

COMMUNICATION UNIT PERSONNEL				
COUNTY	AGENCY	NAME	24/7 PHONE EMAIL	COMU POSITION(S)
Lake	Lake Co Sheriff's Office	Steve Olson	218-830-8835 steve.olson@co.lake.mn.us	COML, INCM, INTD
St. Louis	St. Louis Co 911 Communications	J. Matthias	218-216-5445 matthiasj@stlouiscountymn.gov	COML
St. Louis	St. Louis Co Emergency Management	D. Johnson	218-343-5760 johnsond@stlouiscountymn.gov	COML

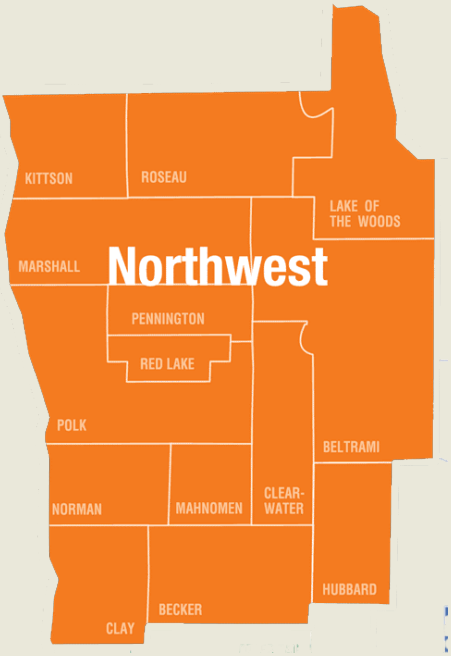
Ch. 11.4(k) CASM Administrators

CASM ADMINISTRATORS			
COUNTY	AGENCY	NAME	24/7 PHONE EMAIL
None identified			

Ch. 11.5 NORTHWEST REGION

The Northwest Emergency Communication Board serves the following Minnesota counties:

Becker
Beltrami
Clay
Clearwater
Hubbard
Kittson
Lake of the Woods
Mahnomen
Marshall
Moorhead, City of
Norman
Pennington
Polk
Red Lake
Red Lake Nation
Roseau
White Earth Nation



Ch. 11.5(a) Interoperability Repeaters and Base Stations

Interoperability Repeaters and Base Stations				
Location	Site ID Site Name	Agency Phone	Freq. Band	Channels
None identified				

Ch. 11.5(b) Gateways

Transportable Gateways			
Owning Agency	Location Kept	24/7 Phone	Make/Model
None identified			

Ch. 11.5(c) Transportable Repeaters

Transportable Repeaters				
Owning Agency	24/7 Phone	Location	Band	Channel(s)
NW Region*		Thief River Falls	VHF 800 MHz	
*Part of Minnesota Strategic Technology Reserve. Transportable 50' tower with VHF and 800 MHz crossband repeater.				

Ch. 11.5(d) Radio Caches

Radio Caches						
Agency	24/7 Phone	VHF	UHF	700/800 MHz	800 MHz	Other
Northwest Region*				30		

Radio Caches						
Agency	24/7 Phone	VHF	UHF	700/800 MHz	800 MHz	Other
*Part of Minnesota's Strategic Technology Reserve. Located at Thief River Falls, point of contact is Dave Olson, Pennington County. Motorola XTS1500 portable radios programmed with ARMER and 800 MHz interop talkgroups.						

Ch. 11.5(e) Data Communications Devices

Transportable Data Communications Devices				
Responsible Agency	24/7 Phone	Description	Qty.	Cellular No. (CTN)
None identified				

Ch. 11.5(f) Mobile Communications Units

Mobile Communications Units					
Unit ID	24/7 Phone	Location Stored	Gateway or Cache	Seating	
				Disp.	Conf
None identified					

Ch. 11.5(g) Other Mobile Equipment (Cell Phone Cache, Mobile Generator, etc.)

Other Mobile Equipment			
County	24/7 Phone	Device Name	Device Type
None identified			

Ch. 11.5(h) *Regional Auxiliary Communications Channels*

Regional Auxiliary Communications Channels					
County	Frequency	Offset	Tone	Callsign	Location
Beltrami	145.450	-0.6 MHz	CSQ	KB0MM	Bemidji
Beltrami	146.730	-0.6 MHz	CSQ	W0BJI	Bemidji
Beltrami	444.025	+5 MHz	71.9	W0BJI	Bemidji
Clay	145.350	-0.6 MHz	123.0	W0ILO	Moorhead
Clay	444.875	+5 MHz	123.0	W0ILO	Moorhead
Hubbard	147.390	+0.6 MHz	CSQ	K0NLC	Camp Wilderness
Hubbard	147.300	+0.6 MHz	CSQ	K0GUV	Park Rapids
Kittson	145.470	-0.6 MHz	123	KA0NWV	Karlstad
Lake of the Woods	147.210	+0.6 MHz	123.0	N0MHO	Angle Inlet
Otter Tail	146.925	-0.6 MHz	CSQ	N0WN	Deer Creek
Otter Tail	146.640	-0.6 MHz	CSQ	K0QIK	Fergus Falls
Pennington	146.850	-0.6 MHz	123	WB0WTI	Thief River Falls
Polk	146.700	-0.6 MHz		KC0SD	Fisher
Polk	147.270	+0.6 MHz	123.0	W0BJI	Lengby
Roseau	147.090	+0.6 MHz	123.0	KC0IGT	Wannaska

Ch. 11.5(i) Amateur Radio Contacts

Amateur Radio Contacts			
County	Name	24/7 Phone Email	Call Sign
Clay	Jarod Jacobsen	218-979-1182 jarod_jacobsen@yahoo.com	W0JPJ
Clay	Mark Jensen	701-361-8315	KK0V
Clay	Brad Leeser	701-261-2344	KE0LDS
Clay	Seth Swenson	701-388-7429 kc0ode@hotmail.com	KC0ODE

Ch. 11.5(j) Communication Unit Personnel

COMMUNICATION UNIT PERSONNEL				
COUNTY	AGENCY	24/7 PHONE	EMAIL	COMU POSITION(S)
None identified				

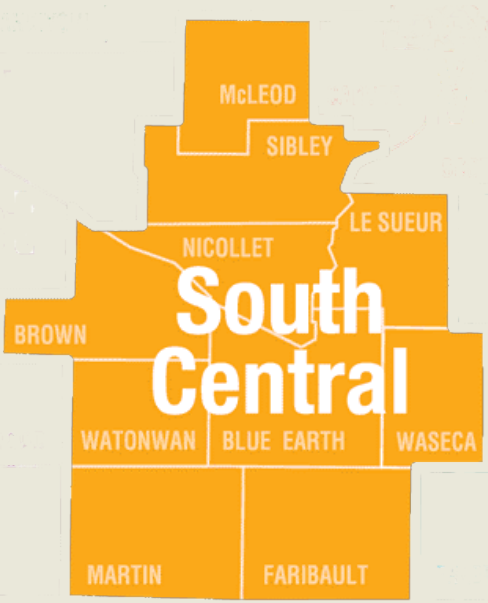
Ch. 11.5(k) CASM Administrators

CASM ADMINISTRATORS			
COUNTY	AGENCY	NAME	24/7 PHONE EMAIL
NW Region	All NW Region	Brian Zastoupil	bzastoupil@rrrdc.com

Ch. 11.6 SOUTHCENTRAL REGION

The Southcentral Emergency Communications Board serves the following Minnesota counties:

Blue Earth
Brown
Faribault
Le Sueur
Martin
McLeod
Nicollet
Sibley
Waseca
Watonwan



Ch. 11.6(a) Interoperability Repeaters and Base Stations

Interoperability Repeaters and Base Stations				
Location	Site ID Site Name	Agency Phone	Freq. Band	Channels
None identified				

Ch. 11.6(b) Gateways

Transportable Gateways			
Owning Agency	Location Kept	24/7 Phone	Make/Model
None identified			

Ch. 11.6(c) Transportable Repeaters

Transportable Repeaters				
Owning Agency	24/7 Phone	Location	Band	Channel(s)
Blue Earth County ARES	507-720-4707		UHF	443.650/448.650 DPL 271/NAC 555

Ch. 11.6(d) Radio Caches

Radio Caches						
Agency	24/7 Phone	VHF	UHF	700/800 MHz	800 MHz	Other
South Central ECB via Blue Earth Co. SO	507-304-4863					
South Central Region*				30		
*Part of Minnesota Strategic Technology Reserve. Motorola XTS1500 portable radios programmed with ARMER interoperability talkgroups and 800 National interoperability channels.						

Ch. 11.6(e) Data Communications Devices

Transportable Data Communications Devices				
Responsible Agency	24/7 Phone	Description	Qty	Cellular No. (CTN)
Blue Earth Co. ARES	507-720-4707	Portable tower on wheels – trailer – 40 ft height	1	

Ch. 11.6(f) Mobile Communications Units

Mobile Communications Units					
Unit ID	24/7 Phone	Location Stored	Gateway or Cache	Seating Disp.	Seating Conf
SR-911	507-304-4863	Mankato, MN	ACU-1000	2	0

Ch. 11.6(g) Other Mobile Equipment (Cell Phone Cache, Mobile Generator, etc.)

Other Mobile Equipment			
County	**24/7 Phone**	**Device Name**	**Device Type**
Blue Earth	507-304-4863		STR Transportable Tower w/ Repeater

Ch. 11.6(h) *Regional Auxiliary Communications Channels*

Regional Auxiliary Communications Channels					
County	**Frequency**	**Offset**	**Tone**	**Callsign**	**Location**
Blue Earth	147.240	+0.6 MHz	136.5	W0WCL	Mankato
Faribault	147.000	+0.6 MHz	136.5	N0PBA	Blue Earth
Le Sueur	444.225	+5 MHz	136.5	KC0LSR	Le Center
Martin	444.350	+5 MHz	136.5	KC0CAP	Fairmont
McLeod	147.375	+0.6 MHz	146.2	KB0WJP	Hutchinson
Nicollet	147.135	+0.6 MHz	100	N0ANE	St Peter
Sibley	146.805	-0.6 MHz	141.3	KC0QNA	Gaylord
Sibley	443.825	+5 MHz	141.3	KC0QNA	Green Isle
Waseca	146.715	-0.6 MHz	141.3	KB0UJL	Waseca

County Amateur Radio Repeater Channels						
County	**Channel Name**	**Rx Freq.**	**Rx Tone**	**TX Freq.**	**Tx Tone**	**Comments**
Waseca		146.715	141.3	146.115	141.3	
Waseca		442.300	141.3	447.300	141.3	Analog only
Waseca		146.940	Open	146.340	Open	

County Amateur Radio Repeater Channels						
County	Channel Name	Rx Freq.	Rx Tone	TX Freq.	Tx Tone	Comments
Blue Earth		147.840	136.5	147.240	136.5	Mankato VHF
Blue Earth		448.650	114.8	443.650	114.8	Mankato UHF
Blue Earth		147.645	136.5	147.045	136.5	Mankato Hospital

Ch. 11.6(i) Amateur Radio Contacts

Amateur Radio Contacts			
County	Name	24/7 Phone Email	Call Sign
Waseca	Joe Fritz	507-837-9239 joedfritz@gmail.com	WA0OFZ
Waseca	Bob Pearce	507-837-9194 ki0ke@icloud.com	KI0KE
Waseca	Keith Sykora	507-461-3317 wa0jgt@icloud.com	WA0JGT
Waseca	Merlin Williams	612-750-5578 mrlin@mewai.com	KD0V
Waseca	Jon Wynnemer	507-835-4681 wb0zfh@hotmail.com	WB0ZFH

Ch. 11.6(j) Communication Unit Personnel

COMMUNICATION UNIT PERSONNEL				
COUNTY	AGENCY	NAME	24/7 PHONE EMAIL	COMU POSITION(S)
Blue Earth	Minnesota State University Mankato	Adam Kruger	507-389-2111 adam.kruger@mnsu.edu	COMC
Blue Earth	St. Clair Fire Dept.	Angie Wicks		COML
Blue Earth	Mankato Dept of Public Safety	Adam Gray	507-387-8385 agray@mankatomn.gov	COML
Nicollet	BEC ARES / Blue Earth	Keith Ruffing	507-931-1550 keithr@saintpetermn.gov	COMC

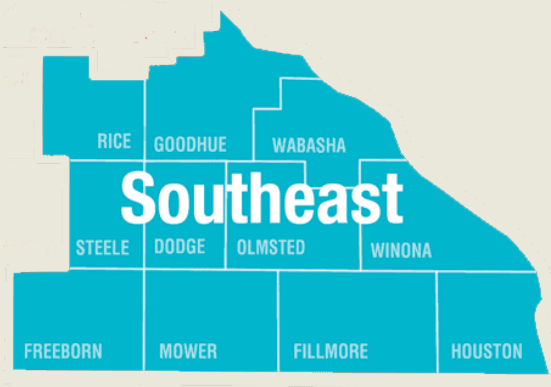
Ch. 11.6(k) CASM Administrators

CASM ADMINISTRATORS			
COUNTY	AGENCY	NAME	24/7 PHONE EMAIL
None identified			

Ch. 11.8 SOUTHEAST REGION

The Southeast Emergency Communication Board serves the following Minnesota counties:

Dodge
Filmore
Freeborn
Goodhue
Houston
Mower
Olmsted
Rice
Steele
Wabasha
Winona



Ch. 11.8(a) Interoperability Repeaters and Base Stations

INTEROPERABILITY REPEATERS AND BASE STATIONS				
LOCATION	SITE ID SITE NAME	AGENCY PHONE	FREQ. BAND	CHANNELS
Goodhue County PSAP	WISCOM			WI-SCALL1, WI-STAC2 WI-STAC3, WI-STAC4 RCALL51, RTAC52 RTAC53, GD TRVL
Goodhue County PSAP	Pierce County			PC LAW 1, PC LAW 2 PC FIRE, PC EM WI MARC 1, PC COM
Goodhue County PSAP	MARINE			MARINE 14 MARINE 16 1st Student (Red Wing)
Goodhue County PSAP	Prairie Island			OPS1 (FIRE), OPS2 OPS3, EPLAN1, ICP RAD1

Ch. 11.8(b) Gateways

TRANSPORTABLE GATEWAYS			
OWNING AGENCY	LOCATION KEPT	24/7 PHONE	MAKE/MODEL
Prairie Island PD		651-267-4000	JPS ACU-M[1]
[1] Two XTS portable, One APX portable adapters			

Ch. 11.8(c) Transportable Repeaters

Transportable Repeaters				
Owning Agency	24/7 Phone	Location	Band	Channel(s)
None identified				

Ch. 11.8(d) Radio Caches

Radio Caches						
Agency	24/7 Phone	VHF	UHF	700/800 MHz	800 MHz	Other
Southeast Region*				30		
Goodhue County Sheriff's Office	651-385-3155			12[1]	12[2]	
Mower County Sheriff's Office	507-434-2709			11[3]	11[3]	
Winona County Sheriff's Office				30[5]		

*Part of Minnesota's Strategic Technology Reserve. Motorola XTS1500 portable radios programmed with ARMER interoperability talkgroups and 800 MHz National interoperability channels.

[1]12 - 700/800 MHz Portables (APX6000)
[2]12 - 800 MHz Portables (XTS2500)
[3]11 - 700/800 MHz Portables (APX7000 Encrypted)
[4]11 - 700/800 MHz Portables (APX7000 Non-Encrypted)
[5]30 - 800 MHz Portables (XTS2500)

Ch. 11.8(e) Data Communications Devices

TRANSPORTABLE DATA COMMUNICATIONS DEVICES				
RESPONSIBLE AGENCY	24/7 PHONE	DESCRIPTION	QTY.	CELLULAR NO. (CTN)
Goodhue	651-385-3155	Cradlepoint IBR1700 (Verizon & FirstNet)	1	
Goodhue	651-385-3155	Cradlepoint IBR900 (Verizon)	1	
Mower	507-434-2709	Cradlepoint IBR900 (FirstNet)	1	
Winona		Cradlepoint IBR900 (FirstNet)	1	

Ch. 11.8(f) Mobile Communications Units

MOBILE COMMUNICATIONS UNITS					
UNIT ID	24/7 PHONE	LOCATION STORED	GATEWAY OR CACHE	SEATING DISP.	SEATING CONF
Rochester EM50	507-328-6800	Rochester	ACU 1000	6	5

Ch. 11.8(g) Other Mobile Equipment (Cell Phone Cache, Mobile Generator, etc.)

OTHER MOBILE EQUIPMENT			
COUNTY	24/7 PHONE	DEVICE NAME	DEVICE TYPE
Mower	507-434-2709	Mobile Generator/ Surveillance Cameras	

Ch. 11.8(h) *Regional Auxiliary Communications Channels*

Regional Auxiliary Communications Channels					
County	Frequency	Offset	Tone	Callsign	Location
Fillmore	147.015	+0.6 MHz	110.9	W0VGW	Wykoff
Goodhue	147.360	+0.6 MHz	136.5	KD0ZSA	Dennison
Goodhue	147.300	+0.6 MHz	136.5	AA0RW	Red Wing
Goodhue	442.250	+5 MHz	136.5	AA0RW	Red Wing
Houston	146.970	-0.6 MHz	131.8	W9UP	La Crescent
Mower	146.730	-0.6 MHz	100.0	W0AZR	Austin
Olmsted	146.820	-0.6 MHz	100.0	W0MXW	Rochester
Olmsted	147.255	+0.6 MHz	100.0	KD0EBO	Rochester
Olmsted	146.625	-0.6 MHz	100.0	W0MXW	Rochester
Steele	145.490	-0.6 MHz	100.0	K0HNY	Owatonna
Steele	147.105	+0.6 MHz		WB0VAJ	Owatonna
Steele	444.450	+5 MHz	100.0	WB0VAK	Owatonna
Wabasha	146.745	-0.6 MHz	136.5	WA0UNB	Wabasha
Winona	146.640	-0.6 MHz	100.0	W0NE	Winona

Ch. 11.8(i) Amateur Radio Contacts

Amateur Radio Contacts				
County	Name	24/7 Phone	Email	Call Sign
Goodhue	Jeff Ekblad			
Olmsted	John Dalin	507-624-0195		
Olmsted	Steve Weibke	507-254-3993		
Winona	Dan Goltz	507-459-2008	dgoltz@hbci.com	

Ch. 11.8(j) Communication Unit Personnel

COMMUNICATION UNIT PERSONNEL				
COUNTY	AGENCY	NAME	24/7 PHONE EMAIL	COMU POSITION(S)
Dodge	Dodge Co SO	Tyler Vermeersch	507-635-6200	COMT
Goodhue	Goodhue Co SO	Rachel Dahl	651-764-4431 Rachel.robinson@co.goodhue.mn.us	INCM, INTD-t
Goodhue	Goodhue Co SO	Benjamin Lawson	651-764-0820	COMT-t, INTD-t
Goodhue	Goodhue Co SO	Chad Steffen	651-755—0800 Chad.Steffen@co.goodhue.mn.us	COML, COMT
Mower	Mower Co SO	Capt. Dave Pike	507-434-2709	COML, COMT
Olmsted	Olmsted Co SO	Mike Burton	507-328-7018	COML

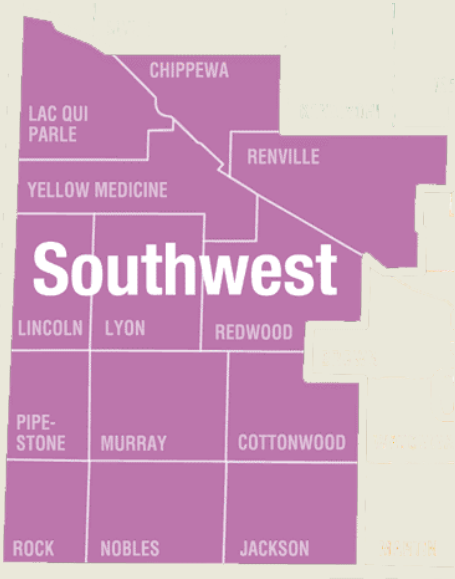
Ch. 11.8(k) CASM Administrators

CASM ADMINISTRATORS			
COUNTY	AGENCY	NAME	24/7 PHONE EMAIL
Goodhue	Goodhue Co SO	Chad Steffen	651-764-4140 Chad.Steffen@co.goodhue.mn.us

Ch. 11.9 SOUTHWEST (SW) EMERGENCY COMMUNICATIONS BOARD

The Southwest Emergency Communication Board serves the following Minnesota counties:

Chippewa
Cottonwood
Jackson
Lac Qui Parle
Lincoln
Lyon
Murray
Nobles
Pipestone
Redwood
Renville
Rock



Ch. 11.9(a) Interoperability Repeaters and Base Stations

Interoperability Repeaters and Base Stations				
Location	Site ID Site Name	Agency Phone	Freq. Band	Channels
None identified				

Ch. 11.9(b) Gateways

Transportable Gateways			
Owning Agency	Location Kept	24/7 Phone	Make/Model
None identified			

Ch. 11.9(c) Transportable Repeaters

Transportable Repeaters				
Owning Agency	24/7 Phone	Location	Band	Channel(s)
SW Region *	507-537-7666	Marshall	VHF/800	VTAC14, 8TAC91, 8TAC92, 8TAC93, 8TAC94
*Part of Minnesota's Strategic Technology Reserve. Transportable 50' tower with VHF and 800 MHz cross-band repeater. Located in Marshall, point of contact is Lyon County Sheriff's Office				

Ch. 11.9(d) Radio Caches

Radio Caches						
Agency	24/7 Phone	VHF	UHF	700/800 MHz	800 MHz	Other
SW Region	507-537-7666			30*		

* Part of Minnesota's Strategic Technology Reserve. Located in Marshall, point of contact is Lyon County Sheriff's office. Motorola XTS 1500 Portable radios programmed with ARMER and 800 MHz interop talkgroups.

Ch. 11.9(e) Data Communications Devices

Transportable Data Communications Devices					
Device Name	Description	Qty	Responsible Agency	24/7 Phone	Cellular No. (CTN)
None identified					

Ch. 11.9(f) Mobile Communications Units

Mobile Communications Units					
Unit ID	24/7 Phone	Location Stored	Gateway or Cache	Seating Disp.	Seating Conf
SW Communications Truck	507-537-7666	Marshall, MN	ACU-1000 25 UHF 9 VHF	2	

Ch. 11.9(g) Other Mobile Equipment (Cell Phone Cache, Mobile Generator, etc.)

Other Mobile Equipment			
County	24/7 Phone	Device Name	Device Type
None identified			

Ch. 11.9(h) *Regional Auxiliary Communications Channels*

Regional Auxiliary Communications Channels					
County	Frequency	Offset	Tone	Callsign	Location
Chippewa	147.120	+0.6 MHz	146.2	NY0I	Montevideo
Cottonwood	147.255	+0.6 MHz	141.3	W0DRK	Windom
Lac qui Parle	146.730	-0.6 MHz	100.0	K0LQP	Dawson
Lac qui Parle	146.730	-0.6 MHz	146.2	K0LQP	Madison
Lyon	146.955	-0.6 MHz	141.3	W0WX	Marshall
Murray	146.790	-0.6 MHz	141.3	W0DRK	Slayton
Murray	147.150	+0.6 MHz	141.3	W0DRK	Tracy
Nobles	146.670	-0.6 MHz	141.3	K0QBI	Worthington
Pipestone	147.075	+0.6 MHz	141.3	W0DRK	Pipestone
Redwood	146.865	-0.6 MHz	141.3	KB0CGJ	Wabasso
Redwood	444.525	+5 MHz	141.3	KB0CGJ	Wabasso
Yellow Medicine	147.225	+0.6 MHz	141.3	W0YMC	Granite Falls

Ch. 11.9(j) Amateur Radio Contacts

AMATEUR RADIO CONTACTS			
COUNTY	NAME	24/7 PHONE EMAIL	CALL SIGN
Lyon	Alex Peterson	507-530-0567 k0apradio@gmail.com	K0APR

Ch. 11.9(k) Communication Unit Personnel

COMMUNICATION UNIT PERSONNEL				
COUNTY	AGENCY	NAME	24/7 PHONE EMAIL	COMU POSITION(S)
Lyon	City of Marshall EMA	Alex Peterson	507-829-4766 alex.peterson@ci.marshall.mn.us	COMT, AUXCOMM, Cache THSP, Gateway THSP
Yellow Medicine	Upper Sioux Police	Dan DeSmet	507-829-0665 dand@uppersiouxpolice-nsn.gov	COML

Ch. 11.9(I) CASM Administrators

CASM Administrators			
County	**Agency**	**Name**	**24/7 Phone Email**
Lyon	City of Marshall	Alex Peterson	507-829-4766 alex.peterson@ci.marshall.mn.us
Yellow Medicine	Upper Sioux Police	Dan DeSmet	507-829-0665 dand@uppersiouxpolice-nsn.gov

Chap. 12 Minnesota Neighboring State and Provinces

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

Ch. 12.1 Iowa

Interoperability Capabilities - Iowa	
Resource	**Notes**
VCALL10 VTAC11 – 14	Required to be programmed in all VHF-capable public safety radios
UCALL40 UTAC41 – 43 (repeated & simplex)	Required to be programmed in all UHF-capable public safety radios
7CALL50 7TAC51 – 55 (repeated & simplex)	Required to be programmed in all 700 MHz-capable public safety radios
8CALL90 8TAC91 – 94 (repeated & simplex)	Required to be programmed in all 800 MHz-capable public safety radios
VFIRE21	Required to be programmed in all VHF-capable public safety radios
VFIRE23	Not used. VFIRE21 used for statewide fire mutual aid.
VMED28	Required to be programmed in all VHF-capable public safety radios
VLAW31	Required to be programmed in all VHF-capable public safety radios

INTEROPERABILITY CAPABILITIES - IOWA	
RESOURCE	NOTES
155.3700 (MNCOMM)	State point to point channel

- Iowa has historically used VHF radio systems but is transitioning to a statewide700 MHz Interoperability radio system. Some metropolitan areas have begun to move to this system. Rural areas, particularly along the Minnesota border, may transition in the future.
- Iowa Interoperable Communications is governed by the Iowa Statewide Interoperability Communications System Board (ISICSB) (dps.iowa.gov/divisions/commissioners-office/interoperability-communications/iowa-statewide-interoperable-communications-board)

Ch. 12.2 MANITOBA

Manitoba law enforcement and EMS serving along the Manitoba-Minnesota border use an 800 MHz radio system called FleetNet. While eligible to program 800 MHz National Interoperability Channels (8TACs), these channels are not currently programmed. General fire service units may use FleetNet or VHF and little is known about interoperability resources. Canadian Interagency Forest Fire Centre (CIFCC) units possess VCALL10 and VTAC11.

Ch. 12.3 MICHIGAN

Minnesota does not share a land border with Michigan, but Minnesota is the closest state to Isle Royale National Park, a Michigan island in Lake Superior. Isle Royale communications are primarily VHF, but the MPSCS (similar to ARMER) has a repeater on the island and law enforcement has access to 800 MHz radios. All VHF radios have VHF National Interoperability Channels, and all 800 MHz radios have 800 MHz National Interoperability Channels. There are no 8CALL or 8TAC repeaters on Isle Royale.

Michigan's Public Safety Communications System (MPSCS) website can be accessed at michigan.gov/mpscs/.

Ch. 12.4 NORTH DAKOTA

INTEROPERABILITY CAPABILITIES – NORTH DAKOTA	
RESOURCE	NOTES
VCALL10	Staging Area Manager Net [Zone 5 / Channel 5]
VTAC11	Unified Incident Command [Zone 5 / Channel 1]
VTAC12	
VTAC13	Operations Section Chief [Zone 5 / Channel 4]
VTAC14	EMS Tactical 2 [Zone 5 / Channel 15]
VFIRE23	Statewide Fire Mutual Aid [Zone 5 / Channel 94]
VMED28	Statewide EMS Mutual Aid and Command [Zone 5 / Channel 13]
VLAW31	Statewide Law Enforcement [Zone 5 / Channel 3]
155.3700 (MNCOMM)	Law Enforcement Command [Zone 5 / Channel 6]
8CALL90	Minnesota maintains a repeater in Moorhead that serves the Fargo/Moorhead area

INTEROPERABILITY CAPABILITIES – NORTH DAKOTA	
RESOURCE	NOTES
8TAC91	Minnesota maintains a repeater in Moorhead that serves the Fargo/Moorhead area
MSP-NDHP	An ARMER talkgroup hard patched to North Dakota Highway Patrolfor interoperability with North Dakota Highway Patrol Dispatch (State Radio)

North Dakota's Interoperable Communications is governed by Statewide InteroperabilityExecutive Committee (SIEC) (www.nd.gov/itd/statewide-alliances/siec/about-us).

Ch. 12.5 ONTARIO

- Ontario Public Safety utilizes a VHF (138 MHz) trunked radio system called FleetNet and has created a talkgroup known as PP-INT-2 for interoperability with Minnesota.
- The Minnesota State Patrol controls the patch to PP-INT-2 and may patch any ARMER resource available to MSP Dispatch to PP-INT-2.
- The PP-INT-2 resource is available to Ontario Provincial Police Provincial Communication Centre (PCC) located in Thunder Bay, Ontario. The PCC may add the Ministry of Natural Resources (forest service) to the interoperability patch.

- The PP-INT-2 resource is available to the Kenora Central Ambulance Communication Centre (CACC) located in Kenora, Ontario. The CACC may add fire resources to the interoperability patch.

Ch. 12.6 South Dakota

Interoperability Capabilities – South Dakota	
Resource	**Notes**
VCALL10	Emergency use only. In all public safety radios. Backup channel for air ambulance-to-ground communications.
VTAC11-14	Emergency use only. In all public safety radios.
VFIRE23	Statewide fire channel. Mutual Aid 2. (VFIRE22 is Mutual Aid 1)
VMED28	Statewide EMS channel 3
VLAW31	Statewide law enforcement

- South Dakota operates a statewide VHF trunked network (~23,000 subscriber radios)
- South Dakota's Field Operations Guide: http://www.sdpscc.sd.gov/comminfo.aspx
- South Dakota Public Safety Communications Council (governance): www.sdpscc.sd.gov
- South Dakota PSAPs with ARMER control stations:
  - Brookings
  - Flandreau
  - Milbank
  - Sioux Falls
  - Sisseton
  - Watertown

Ch. 12.7 WISCONSIN

INTEROPERABILITY CAPABILITIES – WISCONSIN	
RESOURCE	**NOTES**
VCALL10	Public safety interoperability calling channel
VTAC11-14	Public safety interagency tactical communications (analog and digital)
VFIRE21	"FG White" (analog, TX/RX tones of 74.4)
VFIRE22	"IFERN" (analog, TX/RX tones of 210.7) VFIRE22 (tone 156.7) unlikely to be found in WI fire radios
VFIRE23	"FG Blue" (analog, TX/RX tones of 85.4) VFIRE23 (MN tone 156.7) unlikely to be found in WI fire radios
VFIRE24	"FG Black" (analog, TX/RX tones of 94.8)
VFIRE25	"FG Gray" (analog, TX/RX tones of 136.5)
VMED28	"EMS B" (analog, TX tone of D156, RX: CSQ)
VLAW31	Statewide law enforcement
153.8300 (MN-FIRG3)	"FG Red" (analog, TX/RX tones of 69.3)
153.8375	"FG Gold" (analog, TX/RX tones of 91.5)
155.2800	"EMS C" (analog, TX tone of D156, RX: CSQ)
155.3700 (MNCOMM)	State point to point channel
155.4000	"EMS A" (analog, TX tone of D156, RX: CSQ)
WISMIN1	ARMER talkgroup hard patched to WISCOM talkgroup STAC5
WISMIN2	ARMER talkgroup hard patched to WISCOM talkgroup RTAC54

- Wisconsin Interoperability Initiative (http://www.interop.wi.gov/index.asp).
- WISCOM contact: WisComTech@dot.wi.gov

- Wisconsin Interoperability contact: DOJInteroperability@doj.state.wi.gov
- Wisconsin Field Operations Guide: Microsoft Word - WI FOG_2.2_2021_Final_Full Size.docx

  https://wem.wi.gov/wp-content/library/response/WI_FOG_2.3_2021_Final_Full Size.pdf

Chap. 13 Strategic Technology Reserves

Ch. 13.1 General Information

The SECB established the Strategic Technology Reserve. It may be accessed by contacting the Administrative Contact listed or by contacting the Minnesota Duty Officer. See Page 163.

Borrowers are responsible for lost or damaged equipment. Exercising of the STR at routine events and trainings is encouraged.

Ch. 13.2 Cache Radios—Portable Radios

Asset	Qty.	Owner	Location	Name Phone/Email
Motorola XTS-1500 portable radios	30	NW Region	Thief River Falls	Dave Olson Pennington Co.
	30	NE Region	Duluth	St. Louis Co. PSAP
	30	CM Region	Alexandria	Douglas Co.
	30	SW Region	Marshall	Todd Roelfsema Lyon Co.
	30	SR Region	Mankato	Tim Mohr Blue Earth Co.
	30	SE Region	Rochester	Olmsted Co.

- Programmed with ARMER interoperability talkgroups, and
- 800 MHz National Interoperability channels.
- Caches include battery chargers

Ch. 13.3 TRANSPORTABLE TOWER AND/OR REPEATER

Asset	Owner	Location	Name Phone/Email
Transportable Tower(50') with VHF and 800 MHz Crossband Repeater	NW Region	Thief River Falls	Dave Olson Pennington Co.
	NE Region	Duluth	St. Louis Co. PSAP
	CM Region	Alexandria	Douglas Co.
	ME Region	Bloomington	MESB
	SW Region	Marshall	Todd Roelfsema Lyon Co.
	SR Region	Mankato	Tim Mohr Blue Earth Co.
	SE Region	Rochester	Olmsted Co.
Transportable Tower (50') with VHF Antenna	Greater NW EMS	Thief River Falls	Dave Olson Pennington Co. or Brian Zastoupil

- Towing Requirements: 2" receiver, 2⅝" ball, 7-pin flat blade connector (round plug)
- Repeater is a stand-alone system designed to be used with the STR tower/trailer but can be deployed on its own.
- 800 MHz repeater with 8CALL90 and 8TAC91-94 channels
- VHF repeater with VTAC14R, IR2, and LE2 channels
- Standalone repeater modes for both bands simultaneously or crossband patched 800-to-VHF.
- The STR repeater does not interact with or connect to ARMER

(unless patched through a special, non-standard procedure). It provides simultaneous repeat of VHF and 800 MHz signals, as well as a cross-band capability. System can operate on anyone VHF channel and any one 800 MHz channel simultaneously, but no more than one channel in VHF and no more than one channel in 800 MHz at any one time.

- Licensed for use anywhere in Minnesota (WQOX912 & WQPE747). No Special Temporary Authority (STA) necessary unless exceeding license. To apply for an Emergency STA, call the FCC at 202-418-1122.

Ch. 13.4 SATCOW

The HCSO Satellite Equipped Communications Site on Wheels (SATCOW) consists of three separate trailer units that are deployed together as a package.

Ch. 13.4(a) Communications Trailer

- An 8 channel 800 MHz ARMER trunked radio site
- Mobile router wireless access point.
- A 1.8-meter satellite dish providing two encrypted fractional T-1s for the ARMER voice and data sites and a high-speed Internet connection.
- Nationwide 800 MHz mutual aid conventional repeaters
- VHF and UHF portable repeaters.
- National Guard/Military communications radios
- Over-the-air digital TV.
- Voice over Internet Protocol (VoIP) telephones with a 612-area code.

- Cross-connect panels for distributing voice, data and video circuits to the Incident Command and Incident Communications Center vehicles.
- Houses portable radio and laptop equipment caches and includes a technical support work area in the forward bay.
- Satellite equipment provides a link from the HCSO Golden Valley Radio Site to the trailer.
- Radios operating in a disaster response area can be linked directly to the ARMER radio network.
- Serves as a distribution point and support center for cache radios, laptops, batteries, etc.
- Can be deployed to disasters and other incidents to provide radio and MDC support to the community and the response personnel.

Ch. 13.4(b) Tower Trailer

- The SATCOW tower trailer has a 109' collapsible radio tower and an electrical trailer with a 125 KVA emergency power generator.
- The electrical trailer provides a high intensity metal halide light tower, primary power for the SATCOW trailer, plus a 200-amp distribution box with multiple 30- and 50-amp shore power cords.

Ch. 13.4(c) Mobile Incident Communications Center (ICC)

- Self-contained vehicle with five radio dispatch positions, complete with consoles and headsets.
- Contains numerous mobile radios capable of communications on all public safety bands as well as military, amateur radio, and aircraft bands.
- Has an ACU-1000 gateway device used to patch various radio systems together and three onboard portable repeaters.
- Primary response vehicle for the Sheriff's Office Communication Response Team (CRT) and is typically staffed by a combination of full-time personnel and volunteer members of the HCSO Mobile Amateur Radio Corps (MARC), who serve as cache radio specialists and radio operators/incident dispatchers at disasters and preplanned events.
- The HCSO Communications Response Team and Strategic Technology Reserve can be requested for emergency response by contacting the HCSO 911 Communications Division (763-525-6210).

Chap. 14 State and Specialized Agency Resources

The below items are included in the MNFOG at the request of the listed agencies.

Ch. 14.1 Minnesota National Guard

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

Ch. 14.1(a) Emergency Support Requests

County Sheriff or Mayor of a city of the first-class requests National Guard Assistance from the Minnesota Duty Officer who contacts the Division of Homeland Security and Emergency Management (HSEM) to process the request. HSEM coordinates with the National Guard and the Governor on all requests.

Governor approves/disapproves request for National Guard support. National Guard contacts local sheriff/police chief/tribal leader to coordinate mission requirements. Coordination with primary POC can start at any time and is encouraged. Turnaround time is typically 6 to 12 hours after the Governor's approval until a platform is on site. Systems can also be requested for exercises by contacting the POC.

Ch. 14.1(b) Resources

Asset	Location	Name Phone/Email
JCP3	148th Fighter Wing, Duluth	MSST Graham Lorence Minnesota National Guard 651-282-4411 FirstNet Cell: 612-393-6318 Graham.Lorence.2@us.af.mil
RCP2	133rd Airlift Wing Saint Paul	
RCP3	148th Fighter Wing Duluth	
JISCC T59	133rd Airlift Wing Saint Paul	
CRD 1	*Inver Grove Heights*	
CRD 2	148th Fighter Wing, Duluth	

Ch. 14.1(d) Joint Communications Platform (JCP)

The JCP system is a mobile set of communications equipment that provides voice, video, and data connectivity to the public and Minnesota National Guard Network. It also provides interoperability between military and non-military radios. This equipment set is designed to provide on-site and reach-back communications capabilities for the Incident Commander, first responders, and with state and federal command authorities and centers.

Ch. 14.1(e) Remote Communications Platform (RCP)

The RCP system is a mobile communications tower mounted on a 4x4 truck chassis. It is equipped with wireless data antenna arrays and military and civilian radio systems (UHF, VHF & 800 MHz Repeaters) to extend communications. The RCP is self-sufficient with on board power generation and climate controlled all weather cabinets. It is mission capable within 60 minutes of arrival on site.

Ch. 14.1(f) Joint Incident Site Communications Capabilities (JISCC)

The JISCC system is a modular set of communications equipment that provides voice, video, and data connectivity to the public and Department of Defense (DoD) Network. It also provides interoperability with non-military radios. This is a National Guard Bureau funded platform, so it takes a few more steps to deploy.

Ch. 14.1(g) Disaster Incident Response Emergency Comms Terminal (DIRECET)

Similar to the JISCC but utilizing tactical Army Satellite capabilities.

Ch. 14.2 MINNESOTA INTERAGENCY FIRE CENTER (MIFC)

MIFC houses the Northeast Interagency Fire Cache and staff members from the cooperating agencies of the Minnesota Incident Command System (MNICS). MIFC services include Dispatch Coordination Center, Wildfire Aviation Management, and the Northeast Fire Cache.

MIFC manages two communications cache resources: state-owned resources and Northeast Fire Cache resources. Both are primarily dedicated to wildland firefighting but may be available for other needs.

Requests for MIFC communications resources may be made through MIFC's Dispatch or the Minnesota Duty Officer. The administrative contact for MIFC communications resources is Forestry Radio Coordinator.

Minnesota Interagency Fire Center (MIFC)
402 SE 11th Street, Grand Rapids, MN 55744
218-327-4436 (Public Number)
218-327-4558 (24/7 Dispatch)

Ch. 14.3 STATE OWNED RESOURCES

Asset	Quantity	Notes
VHF Portables	325	
VHF Mobiles	85	B/K GMH and DMH units
Communications Trailer with 30' x-tension poles.	2	Two mobiles, 5 portables kit, along with cables, antennas' etc. in each unit.
Transportable Tower 50' VHF Antenna	1	Crank up lift – VHF antennas
Transportable Tower 100' VHF Antenna	1	Electric lift – VHF antennas

Asset	Quantity	Notes
VHF Repeaters (Daniels)	4	2 units – MT-3E; 2 units – MT4E (UHF linked)
ICOM A-6 Portables	54	AM Portables for Aviation use
GlobalStar Sat Phones	9	GlobalStar Sat Phones with spare batteries

Ch. 14.4 Northeast Fire Cache Resources

Radio Starter Kit available from National Interagency Incident Communications Division (NIICD) NE States/Region use (C1-L1).

Kit contents:

- 48 VHF portable radios
- 16 UHF portable radios
- VHF repeater and links
- UHF repeater and links
- Ground VHF AM base station & aircraft links

Ch. 14.5 Aviation

Aerial operations in Minnesota are limited to the Minnesota State Patrol, air ambulances, Minnesota Interagency Fire Center, and Civil Air Patrol (CAP).

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

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

The Minnesota Interagency Fire Center (MIFC) operates aerial firefighting operations on VHF. MIFC has 54 portable AM aviation-band radios in their cache. See the MIFC section (pages 143-144) of the MNFOG for additional information.

CAP is an ARMER participant for land operations only. Its airborne operations utilize VHF CAP frequencies.

The EMSAIRCOM ARMER talkgroup is dedicated to communications between helicopter communication centers. It may be used for day-to-day, interagency urgent or emergency mutual aid situations. It is also a means for hailing another dispatch center, to re-direct non- emergency communications to an alternative talkgroup of their choice, and to advise the helicopter communications center that is responsible to secure a Landing Zone for an incoming helicopter.

Ch. 14.6 MARINE

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

MONITORED MARINE CHANNELS						
NAME	FREQUENCY (TX)	CTCSS (TX)	FREQUENCY (RX)	CTCSS (RX)	ANALOG / DIGITAL	NOTES
Marine 14	156.7000 W	CSQ	156.7000 W	CSQ	Analog	See Note 1
Marine 16	156.8000 W	CSQ	156.8000 W	CSQ	Analog	Distress & Safety
ME RVR HAIL	ARMER					See Note 2
ME RVR OPS	ARMER					See Note 2

[1] Monitored by Army Corp of Engineers Mississippi River Locks and Dams
[2] Metro-only resources providing water patrol, fire rescue, Coast Guard, and conservation officers a common talkgroup to facilitate a coordinated response to incidents on the waterwaysof the Metro Region.

RAILROAD

Some railroad police and hazardous response teams are authorized ARMER participants. Their to-day operations are on VHF but select law enforcement and disaster response teams use ARMER for interoperability.

Name	Frequency (TX)	Frequency (RX)	Notes
073	161.2050	161.2050	National Railroad Mutual Aid Channel

- Analog / Narrowband / CTCSS (TX/RX) SCQ
- Not encrypted
- In R&O 16-113A1 from the FCC dated August 23, 2016, railroad police are authorized "railroad police officers empowered to carry out law enforcement functions to use public safety interoperability channels in the VHF (150-174 MHz and 220-222 MHz), UHF (450-470 MHz), 700 MHz narrowband (769-775/799-805 MHz), and 800 MHz National Public Safety Planning Advisory Committee (NPSPAC) bands (806-809/851-854 MHz)."

In response to a Public Notice from the FCC, on November 17, 2016, the SECB assumed responsibility to administer VHF and UHF Nationwide Interoperability Channels (VTACs & UTACs). The SECB does not restrict railroad police from using any Nationwide Interoperability Channels in Minnesota (V-, U-, 7-, or 8-TACs).

The following railroads are ARMER participants:

- CP Railway (law enforcement & hazmat response team)
- BNSF Railway (law enforcement)
- CN Railway (law enforcement)

Chap. 15 Amateur Radio ARES/RACES Resources

The amateur radio community may be a key component and play a significant role in interoperable communications in response to public safety or emergency response. As the State of Minnesota prepares to build appropriate protocols and policies, amateur radio operators are encouraged to use amateur radio best practices in providing or offering support.

Ch. 15.1 Statewide ARES/RACES Frequencies

Statewide ARES/RACES Frequencies					
Channel Name	**Freq.**	**Offset**	**Tone**	**Callsign**	**Comments**
Nat'l Simplex VHF	146.520	Simplex			
Nat'l Simplex UHF	446.000	Simplex			

Ch. 15.2 Regional ARES/RACES Simplex Channels

County Channel Name	Frequency	Offset	Tone	Callsign	Comments
HV-CALL	146.520	Simplex			
HV-ALPHA	147.525	Simplex	203.5 Hz		
HV-BRAVO	146.415	Simplex	203.5 Hz		
HV-CHARLIE	147.435	Simplex	203.5 Hz		
HV-DELTA	146.565	Simplex	203.5 Hz		
HV-ECHO	147.495	Simplex	203.5 Hz		
HV-FOXTROT	146.475	Simplex	203.5 Hz		
HV-GOLF	146.595	Simplex	203.5 Hz		
HV-HOTEL	147.550	Simplex	203.5 Hz		
HV-INDIA	146.445	Simplex	203.5 Hz		

County Channel Name	Frequency	Offset	Tone	Callsign	Comments
HV-JULIET	147.465	Simplex	203.5 Hz		
HV-APRS	144.390	Simplex			Nationwide APRS
HV-PACKET	145.670	Simplex			Statewide Packet
HV DATA	145.950	Simplex			Digital (FL Digi)
HU-CALL	446.000	Simplex			
HU-ALPHA	442.300	Simplex	203.5 Hz		
HU-BRAVO	444.325	Simplex	203.5 Hz		
HU-CHARLIE	443.000	Simplex	203.5 Hz		
HU-DELTA	446.025	Simplex	203.5 Hz		
HU-ECHO	444.725	Simplex	203.5 Hz		
HU-FOXTROT	445.975	Simplex	203.5 Hz		
HU-APRS	441.050	Simplex			
HU-DATA	446.200	Simplex			

Chap. 16 Tribal Interoperability

Specific talkgroups and national interoperability channels have been identified for interoperability with Tribal Nations.

Ch. 16.1 TC-OPS-1 Talkgroup

All tribes share access to a statewide tribal-only talkgroup known as TC-OPS-1. It is not a requested talkgroup at all sites so all traffic may not be heard by scanning.

Ch. 16.2 ARMER Tribal Interoperable Zone

An ARMER Tribal Interoperability Zone prescribing specific talkgroups (STAC 7, STAC 12, NE 7, NW 7, SE 7, SW 7, and CM 7) for tribal interoperability may be programmed into some tribal radios.

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

Ch. 16.4 VHF Conventional Tribal Interoperable Zone

Channel	Name	Purpose	Notes
1	IR 2	Federal Medical Evac. Control	
2	IR 6	Federal Incident Command	
3	IR 7	Federal Medical Evac. Control	IR2 simplex
4	IR 8	Logistics Control	
5	VCALL10		
6	VTAC11		
7	VTAC12		
8	VTAC13		
9	VTAC14		
10	VTAC33		
11	VTAC34		
12	SAR NFM (VSAR16)	Public Safety SAR common	
13	MNCOMM	Hail channel near Canadian border	
14	VFIRE23	Fire Only	
15	VMED28	Medical Only	
16	VLAW31	Law Enforcement Only	

Chap. 17 PSAPs and Other Important Numbers

Center Name	City Location	24/7 Phone
International		
BNSF Railway	Fort Worth, TX	800-432-5452
CN Railway	Montreal, QC	800-465-9239
CP Railway	Calgary, AB	800-716-9132
Federal		
Federal Bureau of Investigation	Brooklyn Center	612-376-3200
State		
Minnesota Duty Officer	St. Paul	651-763-7000 800-422-0798
Minnesota Interagency Fire Center (MIFC)	Grand Rapids	218-327-4558
Minnesota State Patrol	Roseville	651-582-1509
Minnesota State Patrol	Rochester	507-285-7410

County	Center Name	City Location	24/7 Phone
Aitkin	Aitkin Co.	Aitkin	218-927-7400
Anoka	Anoka Co.	Anoka	763-427-1212
Becker	Becker Co.	Detroit Lakes	218-847-2661
Beltrami	Beltrami Co.	Bemidji	218-333-9111
Beltrami	Red Lake Nation	Red Lake	218-679-3313
Benton	Benton Co.	Foley	320-968-7201
Big Stone	Big Stone Co.	Willmar	320-839-3558
Blue Earth	Blue Earth Co.	Mankato	507-387-5601
Brown	Brown Co.	New Ulm	507-233-6720
Carlton	Carlton Co.	Carlton	218-384-3843
Carver	Carver Co.	Chaska	952-361-1231
Carver	Ridgeview Medical	Waconia	952-442-4722

County	Center Name	City Location	24/7 Phone
Cass	Cass Co.	Walker	218-547-1424
Chippewa	Chippewa Co.	Montevideo	320-269-2121
Chippewa	Yellow Medicine Co.	Granite Falls	320-564-2130
Chisago	Chisago Co.	Center City	651-257-4100
Clay	Clay Co.	Fargo	701-451-7660
Clearwater	Clearwater Co.	Bagley	218-694-6226
Cook	Cook Co.	Grand Marais	218-387-3030
Cottonwood	Cottonwood Co.	Windom	507-831-1375
Crow Wing	Crow Wing Co.	Brainerd	218-829-4749
Dakota	Dakota Co.	Rosemount	651-322-2323
Dodge	Dodge Co.	Mantorville	507-635-6200
Douglas	Douglas Co.	Alexandria	320-762-8151
Faribault	Faribault Co.	Blue Earth	507-526-6180
Fillmore	Fillmore Co.	Preston	507-765-3874
Freeborn	Freeborn Co.	Albert Lea	507-377-5200
Goodhue	Goodhue Co.	Red Wing	651-385-3155
Grant	Grant Co.	Elbow Lake	218-685-8280
Hennepin	Bloomington	Bloomington	952-888-4401
Hennepin	Eden Prairie	Eden Prairie	952-949-6200
Hennepin	Edina	Edina	952-826-1600
Hennepin	Fort Snelling (133rd MN AIR National Guard)	Fort Snelling	612-713-2001
Hennepin	Fort Snelling (934th US Air Force Reserve)	Fort Snelling	612-713-1102
Hennepin	Hennepin Co.	Plymouth	952-258-5321
Hennepin	Hennepin EMS (HCMC)	Minneapolis	612-347-2140
Hennepin	Mayo Clinic	Rochester	507-255-2808
Hennepin	Metro Transit Control Center (MTC)	Minneapolis	612-349-7317

County	Center Name	City Location	24/7 Phone
Hennepin	Metropolitan Airports Commission (MAC)	Minneapolis	612-726-5577
Hennepin	MHealth Fairview EMS	St. Paul	651-232-1755
Hennepin	Minneapolis	Minneapolis	612-348-0005
Hennepin	North Memorial	Minneapolis	763-520-2897
Hennepin	St. Louis Park	St. Louis Park	952-924-2618
Hennepin	University of Minnesota	Minneapolis	612-624-7828
Houston	Houston Co.	Caledonia	507-725-3379
Hubbard	Hubbard Co.	Park Rapids	218-732-3331
Isanti	Isanti Co.	Cambridge	763-689-2141
Itasca	Itasca Co.	Grand Rapids	218-326-3477
Jackson	Jackson Co.	Jackson	507-847-4420
Kanabec	Kanabec Co.	Mora	320-679-8400
Kandiyohi	Kandiyohi Co.	Willmar	320-235-1260
Kittson	Kittson Co.	Hallock	218-843-3535
Koochiching	Koochiching Co.	International Falls	218-283-4416
Lac Qui Parle	Lac Qui Parle Co.	Madison	320-598-3720
Lake	Lake Co.	Two Harbors	218-834-8385
Lake of the Woods	Lake of the Woods Co.	Baudette	218-634-1143
Le Sueur	Le Sueur Co.	Le Center	507-357-4440
Lincoln	Lincoln Co.	Ivanhoe	507-694-1664
Lyon	Lyon Co.	Marshall	507-537-7666
Mahnomen	Mahnomen Co.	Mahnomen	218-935-2255
Marshall	Marshall Co.	Warren	218-745-5411
Martin	Martin Co.	Fairmont	507-238-4481
McLeod	McLeod Co.	Glencoe	320-864-3134
Meeker	Meeker Co.	Litchfield	320-693-5400
Mille Lacs	Mille Lacs Co.	Milaca	320-983-8257
Morrison	Morrison Co.	Little Falls	320-632-9233

County	Center Name	City Location	24/7 Phone
Mower	Mower Co.	Austin	507-437-9400
Murray	Murray Co.	Slayton	507-836-6168
Nicollet	Nicollet Co.	St. Peter	507-931-1570
Nobles	Nobles Co.	Worthington	507-372-8430
Norman	Norman Co.	Ada	218-784-7114
Olmsted	Olmsted Co.	Rochester	507-328-6800
Otter Tail	Otter Tail Co.	Fergus Falls	218-998-8555
Pennington	Pennington Co.	Thief River Falls	218-681-6161
Pine	Pine Co.	Pine City	320-629-8438
Pipestone	Pipestone Co.	Pipestone	507-825-6700
Polk	Polk Co.	Crookston	218-281-0431
Pope	Pope Co.	Glenwood	320-634-5411
Ramsey	Allina Medical Transport	St. Paul	651-222-0555
Ramsey	Ramsey Co.	St. Paul	651-266-7703
Red Lake	Red Lake Co.	Red Lake Falls	218-253-2996
Redwood	Redwood Co.	Redwood Falls	507-637-4036
Renville	Renville Co.	Olivia	320-523-1161
Rice/Steele	Rice Steele Combined Co.	Owatonna	507-451-8232
Rock	Rock Co.	Luverne	507-283-5000
Roseau	Roseau Co.	Roseau	218-463-1421
Scott	Scott Co.	Shakopee	952-445-1411
Sherburne	Sherburne Co.	Elk River	763-765-3595
Sibley	Sibley Co.	Gaylord	507-237-4330
St. Louis	St. Louis Co.	Duluth	218-625-3581
Stearns	Stearns Co.	St Cloud	320-251-4240
Stevens	Stevens Co.	Morris	320-208-6500
Swift	Swift Co.	Benson	320-843-3133
Todd	Todd Co.	Long Prairie	320-732-2157
Traverse	Traverse Co.	Weaton	320-422-7800

County	Center Name	City Location	24/7 Phone
Wabasha	Wabasha Co.	Wabasha	651-565-3361
Wadena	Wadena Co.	Wadena	218-631-7600
Waseca	Waseca Co.	Waseca	507-835-0500
Washington	Washington Co.	Stillwater	651-439-9381
Watonwan	Watonwan Co.	Saint James	507-375-3121
Wilkin	Wilkin Co.	Breckenridge	218-643-8544
Winona	Winona Co.	Winona	507-457-6368
Wright	Wright Co.	Buffalo	763-682-7600

Chap. 18 Technical Reference

Ch. 18.1 Tone Coded Squelch (CTCSS)

CTCSS (Continuous Tone Coded Squelch System) Tones and Codes					
Freq. (Hz)	Mot. PL	ICOM #	Freq. (Hz)	Mot. PL	ICOM #
67.0	XZ	01	136.5	4Z	21/04
69.3**	WZ	--	141.3	4A	22/13
71.9	XA	02	146.2	4B	23/05
74.4	WA	03	151.4	5Z	24/14
77.0	XB	04	156.7	5A	25/06
79.7	WB	05	162.2	5B	26
82.5	YZ	06	167.9	6Z	27/07
85.4	YA	07	173.8	6A	28
88.5	YB	08	179.9	6B	29
91.5	ZZ	09	186.2	7Z	30
94.8	ZA	10	192.8	7A	31
97.4	ZB	11	203.5	M1	32
100.0	1Z	12/09	206.5	8Z	--
103.5	1A	13/08	210.7	M2	33
107.2	1B	14/10	218.1	M3	34
110.9	2Z	15/01	225.7	M4	35
114.8	2A	16/11	229.1	9Z	--
118.8	2B	17	233.6	M5	36
123.0	3Z	18/02	241.8	M6	37
127.3	3A	19/12	250.3	M7	38
131.8	3B	20/03	254.1	0Z	--

** 69.4 in some radios

Ch. 18.2 DIGITAL CODED SQUELCH (DCS)

DCS (Digital Coded Squelch) CODES							
NORM.	INVERT.	NORM.	INVERT.	NORM.	INVERT.	NORM.	INVERT.
023	047	155	731	325	526	516	432
025	244	156	265	331	465	523	246
026	464	162	503	332	455	526	325
031	627	165	251	343	532	532	343
036	172	172	036	346	612	546	132
043	445	174	074	351	243	565	703
047	023	205	263	364	131	606	631
051	032	212	356	365	125	612	346
053	452	223	134	371	734	624	632
054	413	225	122	411	226	627	031
065	271	226	411	412	143	631	606
071	306	243	351	413	054	632	624
072	245	244	025	423	315	654	743
073	506	245	072	431	723	662	466
074	174	246	523	432	516	664	311
114	712	251	165	445	043	703	565
115	152	252	462	446	255	712	114
116	754	255	446	452	053	723	431
122	225	261	732	454	266	731	155
125	365	263	205	455	332	732	261
131	364	265	156	462	252	734	371
132	546	266	454	464	026	743	654
134	223	271	065	465	331	754	116

DCS (Digital Coded Squelch) CODES							
NORM.	INVERT.	NORM.	INVERT.	NORM.	INVERT.	NORM.	INVERT.
143	412	274	145	466	662		
145	274	306	071	503	162		
152	115	311	664	506	073		
032	051	315	423				

Ch. 18.4 P25 Digital Codes

NAC – NETWORK ACCESS CODES	
$293	Default NAC
$F7E	Receiver will unsquelch with any incoming NAC
$F7F	A repeater with this NAC will allow incoming signals to be repeated with the NAC intact
TGID – TALKGROUP ID	
$0001	Default
$0000	No one, talkgroup with no users - used for individual call
$FFFF	Talkgroup which includes everyone
UNIT ID	
$000000	No one – never associated with a radio unit
$000001-$98767F	For general use
$989680-$FFFFFE	For talkgroup use or other special purposes
$FFFFFF	Designates everyone – used when implementing a group call with a TGID3

Chap. 19 Status Board, State, and Federal, Agencies

Ch. 19.1 FEMA Region V

Minnesota is included in FEMA Region V which maintains a region-wide interoperable assets list.

FEMA Region V States:

- *Minnesota*
- *Wisconsin*
- *Illinois*
- *Michigan*
- *Indiana*
- *Ohio*

The FEMA Region V Interoperable Assets list is kept by SWIC.

Ch. 19.2 MINNESOTA'S STATE EMERGENCY OPERATIONS CENTER (SEOC)

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

Location	Telephone
445 Minnesota Street Saint Paul, MN 55101-5137	651-201-7483

Ch. 19.2(a) State Activation Levels:

Level I Full Activation with Federal Support

Initiated by a Presidential Disaster Declaration for Minnesota and includes full federal ESF support.

Level II Full State Activation

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

Level III Partial Activation

Activation with Command Staff and General Staff. Activation of appropriate agencies or Incident Command System (ICS) sections to closelymonitor a developing situation or incident with limited impact. Actions may include preparing to or

providing any necessary assistance as needed.

Level IV Monitoring

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

Ch. 19.2(b) SEOC RF Resources

- ARMER – 800 MHz – monitoring SEMTAC, capable of all statewide TAC's includingencrypted.
- FNARS (FEMA National Radio System) an HF (High Frequency) long distance communications system, using ALE (Automatic Link Engagement) to provide connectivity between FEMA Headquarters, FEMA Regional offices, and all the State Emergency Operations Centers.
- Amateur Radio – The State EOC has both VHF / UHF capability and HF capability.

Ch. 19.3 STATUS BOARD

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

The status board should be updated as talkgroups and channels are claimed so that the resources are not assumed to be available and claimed for another event.

Status Board is available at statusboard.dps.mn.gov/account/logon. To request access to Status Board or training resources, contact ECN Standards and Training Coordinator.

Ch. 19.3(a) Minnesota Duty Officer (MDO)

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

The MDO keeps a list of contacts for each Emergency Communication/ Services Board region and will facilitate connecting requestors of communications personnel and assets with the correct regional contact. The regional contact will assist the requestor in fulfilling the communications needs.

MDO Contact Information:

Phone:	651-649-5451	**Fax:**	651-296-2300
Toll-free:	800-422-0798	**Sat Phone:**	254-543-6490
Ops Center:	651-793-5451	**ARMER:**	MNDO Talkgroup

Chap. 20 Phonetic Alphabet, Morse Code, and Sign Language

Letter	Phonetic	Morse Code	Sign
A	Adam	•—	
B	Boy	—•••	
C	Charles	—•—•	
D	David	—••	
E	Edward	•	
F	Frank	••—•	
G	George	——•	
H	Henry	••••	
I	Ida	••	
J	John	•———	

Letter	Phonetic	Morse Code	Sign
K	King	— • —	
L	Lincoln	• — • •	
M	Mary	— —	
N	Nora	— •	
O	Ocean	— — —	
P	Paul	• — — •	
Q	Queen	— — • —	
R	Robert	• — •	
S	Sam	• • •	
T	Tom	—	
U	Union	• • —	

Letter	Phonetic	Morse Code	Sign
V	Victor	•••—	
W	William	•——	
X	X-ray	—••—	
Y	Young	—•——	
Z	Zebra	——••	
1	One	•————	
2	Two	••———	
3	Three	•••——	
4	Four	••••—	
5	Five	•••••	

Letter	Phonetic	Morse Code	Sign
6	Six	—••••	
7	Seven	——•••	
8	Eight	———••	
9	Nine	————•	
0	Zero	—————	

Chap. 21 Integrated Public Alert and Warning System (IPAWS) Messaging Guidance

Public messaging has become more important in today's connected society. The following guidance should help you understand what is needed to be able to put a successful message out to the public.

- Guidelines for issuing public alerts and warnings
- Emergency Alert System (EAS) or Wireless Emergency Alerts (WEA) Checklist for Alert Originators
- Five key elements of a message

Ch. 21.1 Guidelines for Issuing Public Alerts and Warnings

Situation	Distribution Method(s)	Message Circumstances
Life Safety High Priority, High Risk Incident **(CDW)**	IPAWS - EAS IPAWS - WEA Mass Notification System Social Media Media Release	• Active shooter • Dam breach • Large, escalating hazardous materials. • Pipeline • Water supply contamination
Requiring Evacuation (EVI)	IPAWS - EAS IPAWS - WEA Mass Notification System Social Media Media Release	• Flooding • Dam breach • Hazardous materials • Wildfire

Situation	Distribution Method(s)	Message Circumstances
Requiring People to **Stay Where They Are (SPW)**	IPAWS - EAS IPAWS - WEA Mass Notification System Social Media Media Release	• Hazardous materials • Environmental health hazard (e.g., Air quality)
Priority Information (CEM)	IPAWS - WEA Mass Notification System Social Media Media Release	• 9 1 1 service disruption • Emergency closure of major roadways • No travel advised. • Location of confirmed NWS-issued warnings
Priority Public Safety Information to **Follow Up on Previous Alert**	IPAWS - WEA Mass Notification System Media Release	• Awareness/Impact – Following NWS- issued alert (e.g., areas to avoid, detours) • Awareness/Impact – Following CEM (e.g., downed power lines, road closures, shelter locations)
Prepare for Expected Event / Post-Event General Information	Mass Notification System Social Media Media Release	• Community preparedness message • Town hall meeting • Generalized public safety message

Ch. 21.2 ALERT SYSTEM (EAS OR WEA) CHECKLIST FOR ALERT ORIGINATORS

In general, the following conditions should be considered in determining whether the issuance of an EAS or a WEA is warranted:

EAS / WEA Activation Checklist

Yes	No	
___	___	Is this a sudden, unforeseen, or unpredictable situation?
___	___	Does the situation pose an imminent threat to life or property?
___	___	Does the situation have the potential to adversely affect a significant population or geographic area?
___	___	Does the situation require that the public be told immediately to seek shelter or take other protective actions?
___	___	Are other means of disseminating information inadequate to ensure rapid delivery of the information?

Important: Do not activate EAS or WEA if the answer to any of these questions is "No."

Ch. 21.3 5 KEY ELEMENTS OF A MESSAGE

Message Element	Element Description
Source	Citizens want to know who the message is from!
Hazard	What is the danger?
Guidance	What should the recipient do? Be brief and use plain language for guidance.
Location	Where is the hazard?
Termination Time	When is the hazard expected to be over or no longer relevant?

Chap. 22 NOTES

NOTES

24 HR STATE DUTY OFFICER – CALL 800-422-0798 FOR RESOURCE REQUESTS