Missouri District C ARES
Emergency Operations Plan

April 24, 2017

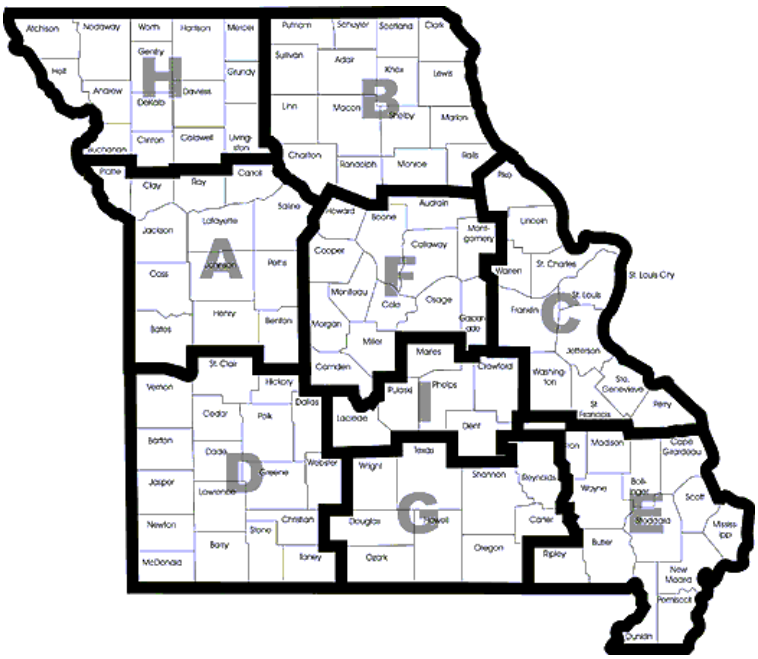
Includes the Missouri Counties of Franklin, Jefferson, Lincoln, Perry, Pike, St. Charles, St. Francois, St. Genevieve, St. Louis Metro, Warren, and Washington

Updated from 4/17/2010, 1/7/2011, 5/6/2011, 2/5/2012, 5/28/12& 10/22/12, 5/7/2013, 4/15/2014

1. Background

The Amateur Radio Service is authorized under Part 97 of the Federal Communications Commission's rules as a "voluntary non-commercial communication service, particularly with respect to providing emergency communications." The American Radio Relay League (ARRL) facilitates emergency communications through its Field Organization in general and the Amateur Radio Emergency Service (ARES®) in particular.

The ARES® is the emergency branch of the ARRL Field Organization. It operates under the direction of the Section Manager, an elected position within the Field Organization. There are 71 sections in the United States and its possessions. The State of Missouri is comprised of one section. Within the Missouri Section, there are 9 districts and 115 local jurisdictions including all 114 Missouri counties and the City of St. Louis. Each of the local jurisdictions should have an Emergency Coordinator (EC) assigned. These designated ECs report to their respective District Emergency Coordinator (DEC) in each of the 9 districts who in turn report to the Section Emergency Coordinator (SEC). An updated listing of Missouri Section ARES® leadership is kept at www.ares-mo.organd all members are encouraged to keep contact information for their respective areas on hand.



The ARES® operates to serve both governmental and non-governmental agencies through "Memoranda of Understanding" (MOUs). These MOUs are non-binding letters explaining the participating parties' roles and responsibilities and are initiated at both the national and section levels. Written MOUs need not be in place on a section or local level if they exist on a national level. District level MOUs must originate with the DEC and must be approved and signed by the DEC prior to their execution. MOUs transfer in-kind as new DECs are appointed unless specifically cancelled by the incoming DEC. Agencies signatory to MOUs are referred to as "Served Agencies."

It is the intention of this plan to provide guidelines for training and usage of Amateur Radio volunteer communicators. The District C ARES® organizations recognize the role of the Radio Amateur Civil Emergency Service (RACES) to government agencies as auxiliary

communications links during times of emergency. It is also the intention of this plan to provide for adequate training and preparation of ARES® operators to assist with the needs of the state and local government communications as required. It is the recommendation of this plan that all ARES® operators register with their local civil defense agencies. This fulfills the mandatory registration requirements of Part 97 for RACES operators. It will also provide a larger contingent of qualified operators that may be utilized during emergencies regardless of affiliation with ARES® or RACES. ARES® operators should be prepared to assist any agency whether government or private sector as dictated by the needs of any given situation.

The DEC shall establish the training standards for new ARES® volunteers and ensures that all new ARES® operators complete a basic curriculum for emergency communications training. The DEC shall also recommend training to enhance operability with served agencies including familiarization with the National Incident Management System (NIMS).The DEC shall ensure that all jurisdictions within the district have adequate training available and regular exercises so that the district as a whole maintains a high degree of readiness.

2. Purpose

The purpose of this plan is to outline the ARES® organization in the District C and present the basic information required for effective operation during an emergency. It will also contain addendums, which constitute the bulk of the "living document," as submitted by the various ECs. This plan is intended to be updated periodically, on an as-needed basis.

This plan is not intended to be the "last word" in emergency operations, but to be a resource in planning and operations. Recommendations for training are presented as a guideline to establish minimum standards for qualifying Amateur operators as ARES® operators. ARES® operator training will include items established by the Missouri State Emergency Management Agency for RACES operators. All training should be tailored to meet the needs of the agencies and communities served. Any additions, deletions or corrections affecting the section level should be brought to the attention of the DEC and District Training Coordinator. All submissions will be given due consideration for inclusion in updates as they are released.

3. Organization

The field services leadership of the Missouri Section is outlined as follows:

District C District Emergency Coordinator: William Grimsbo, N0PNP

Assistant District Emergency Coordinator for H.A.R.N.: Steve Wooten, KC0QMU

Assistant District C District Emergency Coordinator for Digital Modes and Networking:
Ken Humbertson, W0KAH

District Public Information Coordinator (PIO): TBD

District Training Coordinator: Training Committee

See complete District Organization and Contacts in Appendix 2.

Plan Activation

If an ARES® member determines that a true emergency situation exists, every effort should be made to notify the appropriate county EC so that information concerning an incident may be relayed through the ARES® structure and formal net operations established. If the appropriate county EC is unavailable, the chain of command should be followed. This does not preclude operators from contacting an emergency dispatch center or requesting assistance for smaller incidents, such as initial fire, medical, or traffic accident calls. Then, monitor the assigned Amateur Radio frequencies utilized in the affected area. This would include appropriate repeater output frequencies and predetermined high frequency net frequencies. If electrical service to a repeater is interrupted, stations should monitor the repeater output frequency or other predetermined simplex frequency, as directed by the local leadership and as outlined in this plan. All appointed Official Emergency Station (OES) operators shall monitor HF and VHF net frequencies if a declaration of emergency is imminent.

It is important that operators not interrupt existing emergency communications, but instead listen and only transmit if specific assistance is requested from that station or if a clear relay can be given in times of difficult copy. Operators should conform to established net protocols at all times. Deviating from established net procedures slows and confuses operations.

Calls for assistance from Served Agencies should be routed to the appropriate EC. This will result in the most efficient and appropriate response. Only under prior arrangements should individual ARES® members "self dispatch" on their own. All ARES® members shall have contact information for their leadership.

Alerting:

When an emergency arises the first knowledge of it is usually at the county level. The immediate response to an emergency is to call up local ARES® members and begin establishing communications. This may be accomplished by whatever system each EC has in place in their county. As soon as this is accomplished, the EC should inform his/her DEC and/or the SEC of the situation.

- The DEC and the SEC should be contacted by phone, if possible. In the event of any major disaster affecting all counties, the DECs and the SEC should monitor 3.963 or 7.263 MHz for updates and information if the local communications are inoperable. For everyone's assistance, the District C ARES® roster (issued separately by the DEC) contains phone numbers, pagers, and E-mail addresses to facilitate communicating with them when the need arises. These additions are intended to enhance the ability of the ARES® to provide communications assistance.

In the event of any widespread communications emergency, every EC, DEC and the SEC should have an HF station monitoring 3.963 MHz or 7.263 MHz (If the EC or DEC or SEC does not have the license privileges or capability to operate on these HF frequencies, they should make arrangements to appoint an OES, which has this capability within their county/district/section).

Wide Area Nets:

Operations have proven the need for wide-area administrative nets. Once emergency operations have begun and it is apparent that the State Emergency Operations Center (EOC) will be involved, or that there will be more than one (1) county involved, an HF station should be included in the operation of the County Control Station (CCS). The CCS can provide a link to the State EOC and allow inter-county communications and the coordination of manpower and assistance from other areas. This also allows the DEC and SEC to communicate directly with the area(s) involved. It should also be noted that the Missouri Emergency Packet Network (MEPN) packet network is available to provide a digital link to State Emergency Management in Jefferson City.

EC Guidelines:

When an emergency exists within the District, or when the DEC or Assistant District Emergency Coordinator (ADEC) begins wide area operations, the following operations guide will be followed by all ECs:

1. Each EC will stay in their county and be ready and available to provide assistance, as requested, by the DEC or ADEC, if the DEC is not available.
2. NO EC will leave their county without the express consent of their DEC or the ADEC
3. ECs will be responsible for the following:
    a. When there is an emergency in their county each EC is responsible for:
        i. Determining the extent of the problem and evaluating their manpower needs
        ii. Establish operations based on the guidelines in the District Emergency Operations Plan (EOP)
        iii. Notify your DEC and/or ADEC of the emergency
        iv. Establish operating schedules and request assistance from your DEC if required
        v. Keep your DEC and the ADEC up to date on the situation in your county
        vi. Keep logs and lists of involved Amateur operators
        vii. Keep and retain time stamped logs of radio operations including all message traffic ad tactical traffic passed by the NCO
        viii. Accountability of all responding operators and retain arrival and departure times in the event log
        ix. When operations are over, be sure all Amateur operators are notified and return home
    b. When notified of an emergency in another county or ARES® District:
        i. Be ready to assemble assistance from your county, if requested
        ii. Notify your AECs of the possible need to provide assistance to another area
        iii. Maintain communications with your DEC and/or ADEC
        iv. Notify your DEC and/or the ADEC of any changes in your location or any additional means of communicating with you
        v. Notify the DEC and/or the ADEC of any changes that would affect contacting you
            1) Additional or different pager numbers

2) Cell phone numbers
3) Fax numbers
4) Frequencies being used in your county.

c. When operations in your area are concluded be sure the following are accomplished prior to securing:
   i. Make sure all ARES® personnel are accounted for
   ii. Pass along our appreciation to all participants
   iii. Be sure all Amateur operators are notified that operations have concluded
   iv. Collect reports and logs from your AECs and control stations
   v. Make recommendations for certificates
   vi. File a report with your DEC and the ADEC (including an electronic copy of all relevant logs)

Personnel Notification:

The following criteria should be observed for all call-ups of ARES® Personnel. Please be sure to notify ALL the proper people immediately. In the event that a person is not available, notify either the alternate or the immediate superior of that person. This is vital to insure the proper operation of Amateur Radio during an emergency.

Occurrence:	**Notify:**
Public Service Events & Local Drills	Notify local ARES® personnel
Emergency in your County	Notify local ARES® Personnel, DEC/ADEC
Emergency Spreading to Adjacent County	Notify your DEC or ADEC adjacent County EC
When you need assistance	Notify your DEC and/or ADEC

When requesting assistance you will need to know the following information:

1. Number of Amateur operators required
2. How long will assistance be needed (you can estimate this)
3. What kind of equipment will be needed
4. What kind of physical and weather conditions in which they will be operating.

Logging:

ALL STATIONS WILL MAINTAIN COMPLETE LOGS.

All fixed stations operating during an emergency must maintain a complete log of their operations. This log will contain the TIME (local) of each message, the CALLSIGN of the contacted station and MESSAGE CONTENT of the message.

A copy of all FORMAL TRAFFIC will be kept and become part of the log.

Each log sheet will contain the OPERATING CALLSIGN, the location of the station, the call of the operator and be signed by the control operator.

Mobiles should log the STATION CALLED, TIME, and brief CONTENT of each message. Each log should contain the operator's call sign and date and operators signature.

ALL LOGS will be kept as a part of the ARES® records. If an operator requires copies for his/her own log, copies should be made and the originals remain with the ARES® EC. The ICS-133 form may be used for logging or any form that is dated with all entries referenced to local time. Refer to Appendix 4 for the ICS-133 form.

It is strongly recommended that all activated volunteers employ an ICS-214 Incident Activity Log to record all volunteer activities under any served agency or entity. This form is useful to the served agency in recovering costs of activations in the event that a disaster is declared. Refer to Appendix 4 for the ICS-214 form.

5. Training and Procedures

An annual test of the District C ARES® will be conducted in conjunction with the National Simulated Emergency Test (SET). This test will be conducted at various levels throughout the district. It is also recommended that local exercises be held as determined to be appropriate and coordinated with district or local agency participation whenever possible. It is recommended that one exercise annually in addition to SET be held to exercise interoperability and cross-jurisdictional response protocols.

The ARRL has provided courses for Emergency Communications training and certification. The courses are presented in two levels. The Level-1/Basic course is highly recommended as the basic training standard for new ARES® members in Missouri. New ARES® members are encouraged to complete Level-1/Basic training within one year of registration with their local ARES® group. Information on Level 1/Basic certification can be found at http://www.arrl.org/emergency-communications-training.Missouri Section leadership officials are strongly encouraged to complete EmComm Management Class EC-016.

In addition, the following courses are recommended for all ARES members:

FEMA Course #	Description
IS-100B	Introduction to Incident Command System
IS-200A	ICS for Single Resources and Initial Action Incidents
IS-700A	National Incident Management System – An Introduction
IS-800B	National Response Framework, An Introduction

Additional tests, drills, nets, and training will be carried out as directed by the individual ECs. These sessions allow tailoring of training requirements to the specific needs of the areas and Served Agencies. Consideration should be given to the needs of adjacent areas for maintaining a high state of readiness for mutual aid support. It is recommended that neighboring districts be invited to participate in any exercises held on a district basis.

6. Directed Net Operations

Directed nets are the backbone of the ARES® traffic handling operation. Directed nets operate with a Net Control Station (NCS) which maintains order on the net. Stations not directly involved with the operation of a directed net should stand by until the net is clear. At no time will a station transmit on a directed net except when called upon by the NCS, when checking in

during a non-roll call period or when a station has bona fide emergency or priority traffic.

Most net operations relating to emergencies are “tactical” in nature. They are generally directed nets and messages sent can be qualified as any exchange that does not utilize an established message format or form. The National Traffic System (NTS) message format should be utilized whenever practical but is not mandatory. Its use has a long history of reliable and accurate message exchange, however, ARES® personnel should use whatever priority based message format required by the served agency. ARES® members should become proficient in this message format and its usage. Also, good operating technique and keeping a log of your operation is of primary importance to ARES® and its served agency. Remember, it is the Served Agency’s needs that will determine what format will be used in any given situation.

7. Emergency Nets and Frequency Usage

The following frequencies are utilized within the District C for organized emergency nets. Contact may be attempted on these frequencies in the event that you are cut off from commercial telecommunications. Listen before transmitting! If an emergency net is in progress, do not interrupt! Monitor the frequency and follow the directions of the net control station.

HF

The Missouri Emergency Services Net (MESN) meets weekly following the Missouri Traffic Net on Sunday evenings at 6:30pm local time. Start listening after 6:15pm local.

Frequency Net Name
3963.0 kHz. MESN
7263.0 kHz. MESN (daytime alternate)

VHF Packet

Many members are active on packet. Although this system is not currently the best means of communicating across the district, it may be a viable method of getting low priority traffic to its destination.

There are several packet nodes set up through the district and APRS nodes are also active. The primary frequency for APRS is 144.390(S). The frequency commonly used for ARES packet is 145.07(S). This is also the frequency used to access the MEPN network. The system being assembled across Missouri is designated the Missouri Emergency Packet Network or MEPN. It is based on a 6 meter backbone with 2 meter node access for normal users. Details, including monthly updates, can be found at http://www.mersweb.org/nodes.htmhttp://www.mersweb.org/nodes.htm http://www.mersweb.org/nodes.htm

Winlink/RMS Express

Winlink 2000 (WL2K) is a network of amateur stations designed to pass e-mail messages by amateur radio. Similar to MESN and MEPN (described earlier), it is a network to get a message from point A to point B as efficiently and effectively as possible given whatever situation it is used.

RMS Express is the primary client software available for stations who set up at an EOC or in the field and allows one to connect to local or distant VHF/HF nodes in order to send emails to others if Internet is not available to you either because you're away from a connection or your local connection is unavailable.

RMS Express connects computer's sound cards to an HF radio via a variety of digital interfaces available or via simple homebrew designs. For VHF, you can use your standard Packet TNC or the same digital interface used for HF. If you have a CAT interface connected between your computer and radio, RMS Express will even set your radio to the correct frequency and mode when you select the node to connect to.

The preferred mode of operation for Winlink/RMS Express on HF is Pactor1, 2 or 3 This mode is faster than the soundcard modes and has the additional advantage that many EOC's, including SEMA have Pactor modems available. Pactor is the mode used by Winlink to forward messages between gateways when the Internet is down. The drawback is that there is only one source for Pactor modems, SCS. The modems cost as much as a quality HF radio, so not a lot of hams have them.

The RMS Express software resembles that of an email client where you can send/receive emails and even add small attachments. Keep in mind that using the radio to send emails is slower than your personal broadband Internet connection, but in an emergency, it can be much better than having nothing at all when needing to transmit critical information during an emergency.

To use RMS Express, you need to register for a winlink.org email address by having a valid amateur callsign. You may register your callsign and download RMS Express from www.winlink.org. Once installed, you can update the list of available nodes via the Internet for use when off-line. The information includes callsign, frequency and location.

The local VHF RMS Gateway in St. Charles County is W0PC-10 on 145.01, EM48pt. You may also check your Winlink account and send brief messages out if you're already using APRS and can get to a gateway. However sending messages via APRS should not be used for critical traffic as error-free delivery cannot be assured

The local UHF RMS Gateway in St Charles County, operating at 9600 baud, is W0KAH-10 on 441.025, EM48qs.

Additional RMS Gateways in the district are:
N0MTH-10 145.07 St. Louis County EM48um
KD0ZEA-10 145.07 Franklin County EM48pj
KC0TPS-12 145.07 St. Louis County EM48vg
The latest RMS list and map are available from Winlink.org at:
http://www.winlink.org/RMSChannels

NBEMS (Narrow Band Emergency Message System)

NBEMS is a sound card based system that offers excellent point to point communications and may be used as an alternative to Winlink/RMS Express. It can be used for both HF SSB as well as VHF/UHF FM. It has higher speed modes designed for VHF & UHF FM where the full audio passband is available for use. It has the additional capability of being useable through standard FM repeaters to extend useful range. Traditional packet requires digipeaters, or a network of nodes to extend range.

VHF / UHF Repeater Systems

VHF or UHF repeaters serve most communities within the section. This may be a viable means of contacting a desired person or someone who can in turn contact that person for you. ARES members are strongly encouraged to obtain a listing of the available repeaters in their area BEFORE an emergency occurs. An up to date list of coordinated repeaters in the District C is available on a website maintained by the Missouri Repeater Council (www.missourirepeater.org).

Some of the frequently used systems are in the following table:

Frequency (MHz)/ Offset	CTCSS	Description
147.240 (+)	141.3	Franklin County ARES®
147.075/147.105 (+)	141.3	Jefferson County ARES®
		Lincoln County ARES®
		Perry County ARES®
145.490(-)	141.3	St. Charles County ARES®
145.410(-)	141.3	St. Charles County ARES® Backup
147.030(+)	100.0	St. Francois County ARES®
146.625	100.0	St. Genevieve County ARES®
146.850(-)	141.3	St. Louis Metro ARES® Primary
145.350(-)	123.0	St. Louis Metro ARES® Secondary
147.330(+)	CSQ	Warren County ARES®
147.195(+)	100.0	Washington County ARES®

Some portions of the section are served by linked systems, which allow more widespread coverage. This may allow getting into or out of a metropolitan area to rural communities. Some systems may be susceptible to commercial power interruption and may not function during times of widespread or localized power outage. When power outages occur and repeaters being utilized for emergency communications stop working, it is recommended that the output frequency of the repeater be use in 'simplex' mode along with relay stations to handle all traffic. Once the repeater system is on the air again, the transition back to repeater operation is simple. This method should be practiced whenever possible in order to understand the geographical challenges presented and for training operators in relay operations. It is highly recommended that all repeaters used for ARES® operation should be equipped with emergency backup power systems.

VHF / UHF Simplex Frequencies

The Missouri section utilizes a set of predetermined simplex frequencies for "event or scene of action" operations. Use of the simplex mode minimizes exposure to power interruption, but also shortens effective communications range in most cases. A complete listing of frequencies and procedures for utilization can be found in the Missouri ARES® Interoperability Document contained in Addendum 1.Some of the most commonly utilized frequencies district-wide are listed as follows:

Mnemonic	Frequency	TX CTCSS	Primary area of usage
NATCall	146.520	CSQ	National VHF Calling Frequency
HUCall	446.000	CSQ	Statewide – UHF CALL
HVCall	146.550	CSQ	Statewide – VHF CALL

HMCall 52.550 CSQ Statewide – 6 M CALL

It is commonly known that ARES® serves many agencies. These allocations minimize interference across jurisdictional boundaries in the event that an emergency may exist close to or across jurisdictions.

The following tables list the District C planned use of the MOARES Interoperability channel assignments for the various jurisdictions within District C. The VHF table is designed to use simplex frequencies developed in the Statewide Interoperability Plan so each EC has two VHF simplex frequencies available for his jurisdiction without causing interference with adjacent District C jurisdictions or Districts B, E, F, and I.

County	Primary Frequency	CTCSS Rx / Tx	Mnemonic	Secondary Frequency	CTCSS Rx / Tx	Mnemonic
Franklin	147.405	CSQ/100.0	HVTac8	145.700	CSQ/100.0	HVTac3
Jefferson	147.450	CSQ/100.0	HVTac9	146.400	CSQ/100.0	HVTac4
Lincoln	146.400	CSQ/100.0	HVTac4	147.405	CSQ/100.0	HVTac8
Perry	145.600	CSQ/100.0	HVTac1	147.405	CSQ/100.0	HVTac8
Pike	145.700	CSQ/100.0	HVTac3	146.595	CSQ/100.0	HVTac7
St. Charles	146.595	CSQ/100.0	HVTac7	146.505	CSQ/100.0	HVTac6
St. Francois	146.400	CSQ/100.0	HVTac4	146.450	CSQ/100.0	HVTac9
St. Genevieve	146.505	CSQ/100.0	HVTac6	146.595	CSQ/100.0	HVTac7
St. Louis Metro	See Below					
Warren	145.650	CSQ/100.0	HVTac2	146.445	CSQ/100.0	HVTac5
Washington	145.650	CSQ/100.0	HVTac2	145.600	CSQ/100.0	HVTac1

St Louis Metro has also designated the following simplex frequencies for their use because of a larger need for additional frequencies:

HVTac10 - 147.510 MHz
HVTac11 - 146.415 MHz (Zone 1, north of Page Ave)
HVTac12 - 147.435 MHz (Zone 2, south of Page Ave, north of I-44)
HVTac13 - 146.535 MHz (Zone 3, south of I-44)
HVTac14 - 147.585 MHz (Zone 4, St. Louis City)

UHF interoperability frequencies recommended by jurisdiction are listed below:

County	Primary Frequency	CTCSS Rx / Tx	Mnemonic	Secondary Frequency	CTCSS Rx / Tx	Mnemonic
Franklin	445.975	CSQ/100.0	HUTac4	446.025	CSQ/100.0	HUTac5
Jefferson	446.050	CSQ/100.0	HUTac6	446.075	CSQ/100.0	HUTac7
Lincoln	446.025	CSQ/100.0	HUTac5	446.050	CSQ/100.0	HUTac6
Perry	445.950	CSQ/100.0	HUTac3	445.975	CSQ/100.0	HUTac4
Pike	445.950	CSQ/100.0	HUTac3	445.975	CSQ/100.0	HUTac4
St. Charles	446.075	CSQ/100.0	HUTac7	446.100	CSQ/100.0	HUTac8
St. Francois	446.100	CSQ/100.0	HUTac8	445.925	CSQ/100.0	HUTac2
St. Genevieve	445.975	CSQ/100.0	HUTac4	445.900	CSQ/100.0	HUTac1
St. Louis Metro	445.950	CSQ/100.0	HUTac3	445.975	CSQ/100.0	HUTac4
Warren	445.925	CSQ/100.0	HUTac2	445.900	CSQ/100.0	HUTac1
Washington	445.950	CSQ/100.0	HUTac3	445.900	CSQ/100.0	HUTac1

It is also suggested to try on local repeaters and national simplex calling frequencies if contact is not made on the frequencies outlined above.

Appendix 1

Missouri ARES®
Interoperability Plan

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* Reading this document

Please make note of your questions as you read the document. As you continue reading through some of the examples will make more sense as additional terms/contexts are defined. If terms/concepts are still not clear, please contact the author(s).

Ongoing development of this document is being done in the MO-ARES yahoo group. Alternately, you may email your comments/suggestions to Bryan at k0emt@arrl.net, http://www.dbbear.com/k0emt

* Why

Interoperability in this document refers to the ability of ARES groups and individuals involved in a coordinated response to communicate with each other.

In the event of an emergency or exercise, an interoperability plan can address connectivity issues and increase the effectiveness and speed of the response.

The idea is if you have these VHF frequencies in your rig, you will be able to start working as a communicator no matter where you are in the state. This plan is designed to augment your existing structure, not totally replace it. If you have an operational repeater or simplex net, by all means utilize it. However, please continue to monitor HVCall.

The APRS/Packet/DATA frequencies are meant to supplement your existing plan and the Missouri Emergency Packet Network (MEPN).

Example:

> Instead of having one Moniteau ARES op contacting Cole ARES to pass traffic for MARS on one frequency and another Moniteau op contacting Morgan ARES to pass MESN traffic on a different frequency (both with active directed nets- assuming we know the frequency on which to contact them) I could have one op go to "HVCall" and contact the Liaison stations for Cole and Morgan. Once they have made contact they could QSY to "Foxtrot" to pass the traffic, leaving the call frequency clear. "Morgan, QSY to Foxtrot, I'll call you. Moniteau, K0EMT."

If another county had something to pass through either of us, they only have to know one frequency to go to.

* Naming

Public Safety (PS) Interoperability frequencies are VTAC # and UTAC #. The ARES/Ham Radio frequencies are prefixed with an H to distinguish them from the PS frequencies.

To alleviate confusion, standard mnemonics shall be used in all equipment to refer to individual channels. These are listed in the table below. Should the equipment not be capable of alphanumeric channel mnemonics, the radio should be placarded to indicate the channel mnemonic and its corresponding position on the radio's selector switch.

** Naming Guide

V refers to 2M VHF
U refers to 70cm UHF
L refers to 6M 'Low Band' VHF, scene ops
M refers to 6M 'Mobile Low Band' VHF, wide area/mobile

* Frequencies

These frequencies were determined by cross referencing the ARRL band plan with the Missouri Repeater Council band plan.

** VHF 'Wide Area' Frequencies

Mnemonic	Frequency	TX CTCSS	Primary MSHP District
HVCall	146.550	CSQ	Statewide
HVStage	147.555	100.0	Statewide
HVAPRS	144.990	CSQ	Statewide
HVData	144.910	CSQ	Statewide
HVPacket	144.950	CSQ	Statewide

HVTac0	147.495	100.0	Primary Digital Voice Frequency
HVTac1	145.600	100.0	Alpha
HVTac2	145.650	100.0	Bravo
HVTac3	145.700	100.0	Charlie
HVTac4	146.400	100.0	Delta
HVTac5	146.445	100.0	Echo
HVTac6	146.505	100.0	Foxtrot
HVTac7	146.595	100.0	Golf
HVTac8	147.405	100.0	Hotel
HVTac9	147.450	100.0	India** UHF 'Scene' Frequencies

Mnemonic	Freq	TX CTCSS
HUCall	446.000	CSQ

HUAPRS	446.150	CSQ
HUData	446.200	CSQ
HUTac1	445.900	100.0
HUTac2	445.925	100.0
HUTac3	445.950	100.0
HUTac4	445.975	100.0
HUTac5	446.025	100.0
HUTac6	446.050	100.0
HUTac7	446.075	100.0
HUTac8	446.100	100.0

** 6M 'Wide Area/Mobile' Frequencies

Mnemonic	Freq	TX CTCSS	Primary MSHP District
HMCall	52.550	CSQ	Statewide
HMData	52.790	CSQ	Statewide
HMTac0	52.710	100.0	
HMTac1	52.310	100.0	Alpha
HMTac2	52.350	100.0	Bravo
HMTac3	52.390	100.0	Charlie
HMTac4	52.430	100.0	Delta
HMTac5	52.470	100.0	Echo
HMTac6	52.510	100.0	Foxtrot
HMTac7	52.590	100.0	Golf
HMTac8	52.630	100.0	Hotel
HMTac9	52.670	100.0	India

** 6M 'Scene' Frequencies

Mnemonic	Freq	TX CTCSS
HLCall	52.450	CSQ
HLTac1	52.530	100.0
HLTac2	52.730	100.0
HLTac3	52.690	100.0
HLTac4	52.650	100.0
HLTac5	52.610	100.0
HLTac6	52.570	100.0
HLTac7	52.750	100.0
HLTac8	52.330	100.0

** Portable Repeater Frequencies

To be determined

This will require coordination with the Missouri Repeater Council.

* Mode of Comms

20K0F3E, standard FM voice.

As NBFM becomes more prevalent in the future, this may be revised.

* Tone/CTCSS

Calling frequencies - NO PL, NO CTCSS, NO DCS

Tactical frequencies - PL/CTCSS 100.0

This Tone was chosen to avoid interference from or interfering with Public Safety entities using 156.7.

Do NOT use CTCSS unless needed to help manage QRM. ALWAYS transmit PL.

* Power Output

Users are strongly encouraged to increase antenna gain and directionality before increasing power.

No more power than the minimum needed to establish a near full-quieting circuit.

Adhere to the FCC regs requiring the use of the minimum power needed to establish the circuit and RF Safety limits.

** VHF - 2M and 6M

Base Station 200 watts max
Mobile Station 100 watts max
Field Station 50 watts max

Tactical Frequencies used 'On Scene' 5 watts max

** UHF
The UHF frequencies are intended for on scene operations. For this reason and to minimize the possibility of inference with other stations:

Base Station 35 watts max
Mobile Station 35 watts max
Field Station 35 watts max

Tactical Frequencies used 'On Scene' 5 watts max

* Time Out Timer

All stations not operating in mobile relay mode, where permitted, shall employ a time out timer set to limit transmission duration to a period of no greater than 60 seconds (1 minute).

All stations operating in mobile relay mode, where permitted, shall be configured to immediately drop transmit carrier upon cessation of input signal. Reasonable hysteresis time in squelching action of weak received signals, or in signals that have achieved a critical bit error rate (BER) is permitted. Prolonged "hang time" in excess of 500 ms is not permitted.

* Priority Levels:

1. Emergency or urgent operation involving imminent danger to life or property;

2. Disaster or extreme emergency operation for mutual aid and inter-agency communications;

3. Special event control, generally of a preplanned nature (including Task Force operations)

4. Joint training evolutions

To resolve contention within the same priority, assuming all radio equipment is exercising the lowest output and effective radiated power level practicable, the channel should go to the organization with the wider span of control/authority. This shall be determined by the SEC/DEC for the operation or by the levels of authority/government identified in the contention.

* Use

How could these frequencies be used?

** Calling

Pt to Pt contacts, Administrative level contacts NOT tactical comms.

After contact has been established, change frequency to the primary frequency of the calling party or the frequency directed. The calling party will then initiate the exchange.

(See example above and Primary Intra-District Comms below)

Alert paging and SCADA operations are not permitted on Calling or TAC channels. Temporary base station receivers shall not be muted by either selective calling alert mechanisms or DTMF signaling devices.

*** VHF

HVCall may be used to INITIATE contacts for:
District to District
County to County
Mobile/Rover to County
Incoming Amateur Radio response to IC or Amateur Radio section chief

HVCall IS THE PRIMARY CALLING CHANNEL OF THIS PLAN. Command/NCS should have someone assigned to monitor this frequency.

HUCall, HMCall and HLCall are secondary calling channels. Command/NCS may not be monitoring these frequencies.

*** UHF

HUCall similar to HVCall
Primarily Intra-County use and on site tactical use.

*** 6M

HMCall similar to HVCall
HLCall similar to HUCall

The 'M' frequencies are for Point to Point and Mobile operations.
The 'L' frequencies are intended for on scene tactical operations.

** Staging

HVStage is used by hams responding in to an area to check in to staging. When Mutual Aid Teams have been requested, this is where they will check in.

** Primary Intra-District Comms

*** APRS

HVAPRS is used for VHF APRS networks.
HUAPRS is used for local UHF APRS networks.

*** Packet

Packet is traditional Packet, NOT APRS.

*** Data

HMData is used for wide area inter-district networks.
HVData is used for intra-district networks.
HUData is used for 'scene' data links/networks.

Local area determines protocol, DCC guidelines should be followed. May be used for PSK31, MFSK, 9600baud Packet, APRS, JT44, NBEMS, etc.

Could be modulated with either FM or SSB depending upon stations mode capabilities.

If additional data channels are needed, stations could move up in10 KHz increments.

*** VHF

HVTac1-HVTac9 would be primarily for use within the District's Alpha-India for county to county traffic. Counties in District A would primarily change frequency to HVTac1 after making contact on the HVCall frequency.

*** UHF

Be aware that in your area HUTac1 - HUTac4 may be used as a repeater link frequency. HUTac5 - HUTac8 may be in use for digital comms. Determine this ahead of time so you can adjust your response appropriately.

Since the tactical frequencies are intended for use by low power portable stations within a limited geographic area, you should be able to use the same frequency at multiple locations.

** Suggested use of non-primary HVTac frequencies:

Note: You may also opt to use an existing repeater to support any of these tasks.

Also, keep in mind that spectrum is a shared resource. Do not interfere with any existing operation.

*** Command/Admin Net

Frequency for Administrative Net
NCS and IC are here
Command or Liaison should also monitor HVCall

*** Logistics/Resources

Person keeping track of Resources and coordinating procurement of material and personnel is here.

This person will work closely with Staging. Ideal is to have them co-located. Staging monitors HVStage.

*** Digital Voice Modes

A non-primary Tac frequency may be used for digital mode communications. This use should supplement HVPacket and HVAPRS. HVTac0 would be the ideal frequency to use first.

For instance, you have a team that is equipped with APCO 25 compliant gear. They are assigned to operate on HVTac0. The team leader is also monitoring/checked in to the Command/Admin net.

*** Tactical Frequencies

Intended for low power portables that have been assigned a specific task. For instance comms may be needed within a shelter location.

The shelter command should be monitoring and checked in to the Admin Net.

Shelter command should:
Determine if a Tactical frequency is needed
Determine a clear Tactical frequency
Advise NCS of the local use of the Tac frequency, by name
Continue monitoring their Tactical frequency
Continue monitoring their NCS assigned Net frequency
Advise NCS when the operation on the Tactical frequency has terminated

** Security

Frequencies published same as PS frequencies are published.

No security is implied. Systems may be readily monitored. Participants should recognize that the third man is always listening. Messages should be brief, to the point, and contain no more information than necessary.

** Distribution

You are encouraged to distribute this document to all ARES/RACES stations so that they are familiar with the plan and have their radios pre-programmed in the event of activation.

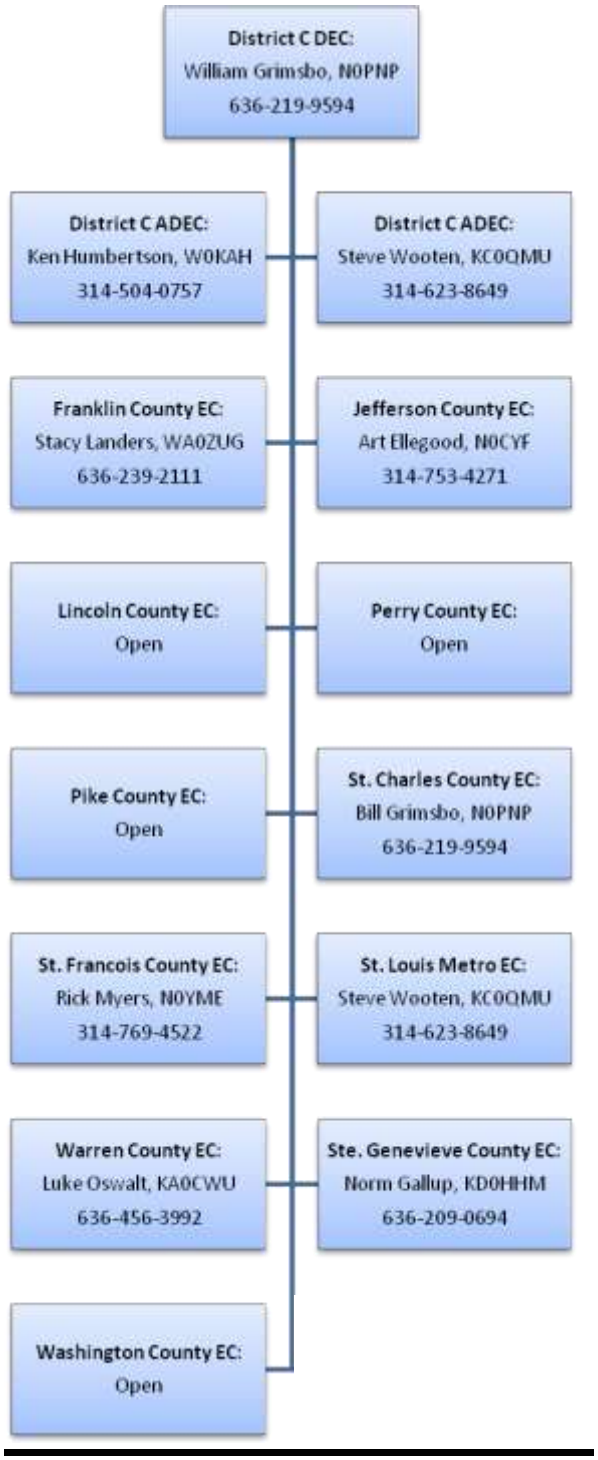
* Interoperability with Public Safety

An ARES/RACES Incident Commander or their designee may use the interoperability frequencies designated by the SIEC through the authority of their Served Agency. In addition to following the requirements of the SIEC MOU the ARES/RACES station should also follow their Served Agency's guidelines. The guidelines should be established with an MOU between the ARES/RACES team and the Served Agency.

Equipment used on these frequencies should be Part 90 type accepted.

Appendix 2

ARES Missouri District C Organization



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Washington Co.

Emergency Coordinator:
Open

Appendix 3

ICS Forms

ICS-214 Activity Log

1. Incident Name:	**2. Operational Period:** Date From: Date To: Time From: Time To:	
3. Name:	**4. ICS Position:**	**5. Home Agency**(and Unit)**:**

6. Resources Assigned:

Name	ICS Position	Home Agency (and Unit)

7. Activity Log:

Date/Time	Notable Activities

8. Prepared by: Name: _____ Position/Title: _____Signature: ____

ICS 214, Page 1	Date/Time: ___

1. Incident Name:	2. Operational Period: Date From: Date To: Time From: Time To:

7. Activity Log (continuation)**:**

Date/Time	Notable Activities

8. Prepared by: Name: _____ Position/Title: _ Signature: ____

ICS 214, Page 2	Date/Time: ___

ARES ICS-133 Radio Log

ARES RADIO LOG	1. INCIDENT NAME	2. DATE
3. OPERATOR LOCATION	4. FREQUENCY	

TIME	STATION	MESSAGE	OP INITIALS

LOGS REMAIN AT SITE UNTIL LAST DAY. FINAL ARES OPERATOR CLOSING THE OPERATIONS AT THIS LOCATION, COLLECT ALL RADIO LOGS AND RETURN TO COMMUNICATIONS COORDINATOR.
START NEW LOG FOR EACH DAY.

ICS 133	5. LOG PREPARED BY	6. RADIO OPERATOR(S)	7. PAGE NUMBER