Missouri District D ARES
Emergency Operations Plan
November 19, 2015

Includes the Missouri Counties of:

Barry, Barton, Cedar, Christian, Dade, Dallas, Greene, Hickory, Jasper, Lawrence, McDonald, Newton, Polk, Saint Clair, Stone, Taney, Vernon, and Webster

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.org and 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 D 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 Emergency Management 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 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 D 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 D District Emergency Coordinator: Cecil Higgins, AC0HA
Assistant District Emergency Coordinator : TBD
District Public Information Coordinator (PIO): TBD
District Training Coordinator: TBD
See complete District Organization and Contacts in Appendix 2.

4. 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.
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-deploy" on their own, otherwise self-deployment should not happen . All ARES® members shall have contact information for their leadership and deployment will be assigned by the county EC or district DEC.

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 all counties, the DECs and the SEC should monitor 3.973 or 7.273 MHz (District D HF Net) for updates and information if the local communications are inoperable.
For everyone's assistance, the District D 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 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 Operating System
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. 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.
5) E-Mail

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

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/ADEC & Adjacent Co. 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.

5. Training and Procedures
An annual test of the District D 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-100 Introduction to Incident Command System
IS-200a ICS for Single Resources and Initial Action Incidents
IS-700 National Incident Management System – An Introduction
IS-800B National Response Framework, An Introduction
IS-802 Emergency Support Functions (ESF) #2 - Communications

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. Its use has a long history of reliable and accurate message exchange. ARES® members should become proficient in the ARRL NTS message format and its usage as well as the IS213 and IS214 forms. Also, good operating technique and keeping a log of your operation is of primary importance**. Remember, it is the Served Agency’s needs that will determine what will be used in any given situation.**

7. Emergency Nets and Frequency Usage

The following frequencies are utilized within the District D 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)

District D HF Net

3.973.0 kHz District D HF Net
7.273.0 kHz District D HF Net (Secondary)
(Sundays 1600 weekly)

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. The frequency commonly used for ARES® packet is 145.09(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.htm

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 D 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:
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
HVCall	146.550	CSQ	Statewide - PRIMARY CALLS
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.

Repeater Frequency (MHz)/Offset CTCSS Description

145.210 (-) 162.2	Barry/Lawrence County ARES®
-	Barton County ARES®
-	Cedar County ARES®
145.230 (-) 162.2	Christian County ARES®
-	Dade County ARES®
-	Dallas County ARES®
147.225 (+) 162.2	Greene County ARES®
147.255 (+) 162.2	Hickory County ARES® Backup
147.210 (+) 91.5	Jasper County ARES®
-	McDonald County ARES®
146.805 (-) 127.3	Newton County ARES®
147.060 (+) 107.2	Polk County ARES®
-	Saint Clair County ARES®
145.345 (-) 162.2	Stone County ARES®
147.195(+) No Tone	Taney County ARES®
-	Vernon County ARES®
146.865 (-) 156.7	Webster County ARES®
145.490 (-) 136.5	Skywarn® Springfield
147.120 (+) 107.2	Skywarn® (Secondary)

The following tables list the District D planned use of the MOARES Interoperability channel assignments for the various jurisdictions within District D. 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 D jurisdictions or Districts A, F, I, and G.

District D has also designated the following simplex frequencies for their use because of a larger need for additional frequencies:

HVTac10 147.510 CSQ/100.0	HVTac13 146.535 CSQ/100.0
HVTac11 146.415 CSQ/100.0	HVTac14 147.585 CSQ/100.0
HVTac12 147.435 CSQ/100.0	

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

The recommended District D frequencies for emergency use are listed by County below. These frequencies are RECOMMENDED as Primary Simplex frequencies but all HVTac or HUTac frequencies may be used if needed.

HVTac by County:

Barry	147.405 CSQ/100.0	HVTac8	145.700 CSQ/100.0	HVTac3
Barton	145.650 CSQ/100.0	HVTac2	146.400 CSQ/100.0	HVTac4
Cedar	146.595 CSQ/100.0	HVTac7	146.445 CSQ/100.0	HVTac5
Christian	145.600 CSQ/100.0	HVTac1	147.405 CSQ/100.0	HVTac8
Dade	145.700 CSQ/100.0	HVTac3	146.595 CSQ/100.0	HVTac7
Dallas	145.505 CSQ/100.0	HVTac6	145.650 CSQ/100.0	HVTac2
Greene	146.400 CSQ/100.0	HVTac4	146.450 CSQ/100.0	HVTac9
Hickory	146.505 CSQ/100.0	HVTac6	146.595 CSQ/100.0	HVTac7
Jasper	146.445 CSQ/100.0	HVTac5	145.650 CSQ/100.0	HVTac2
Lawrence	147.450 CSQ/100.0	HVTac9	146.400 CSQ/100.0	HVTac4
McDonald	145.650 CSQ/100.0	HVTac2	146.445 CSQ/100.0	HVTac5
Newton	145.650 CSQ/100.0	HVTac2	145.600 CSQ/100.0	HVTac1
Polk	146.400 CSQ/100.0	HVTac4	147.405 CSQ/100.0	HVTac8
Saint Clair	146.595 CSQ/100.0	HVTac7	146.505 CSQ/100.0	HVTac6
Stone	145.505 CSQ/100.0	HVTac6	147.405 CSQ/100.0	HVTac8
Taney	146.445 CSQ/100.0	HVTac5	145.650 CSQ/100.0	HVTac2
Vernon	147.405 CSQ/100.0	HVTac8	145.650 CSQ/100.0	HVTac2
Webster	145.600 CSQ/100.0	HVTac1	146.400 CSQ/100.0	HVTac4

HUTac by County:

Barry	445.975 CSQ/100.0	HUTac4	446.025 CSQ/100.0	HUTac5
Barton	446.050 CSQ/100.0	HUTac6	446.075 CSQ/100.0	HUTac7
Cedar	446.025 CSQ/100.0	HUTac5	446.050 CSQ/100.0	HUTac6
Christian	445.950 CSQ/100.0	HUTac3	445.975 CSQ/100.0	HUTac4
Dade	445.950 CSQ/100.0	HUTac3	445.975 CSQ/100.0	HUTac4
Dallas	446.075 CSQ/100.0	HUTac7	446.100 CSQ/100.0	HUTac8
Greene	446.100 CSQ/100.0	HUTac8	445.925 CSQ/100.0	HUTac2
Hickory	445.975 CSQ/100.0	HUTac4	445.900 CSQ/100.0	HUTac1
Jasper	446.025 CSQ/100.0	HUTac5	445.925 CSQ/100.0	HUTac2
Lawrence	445.950 CSQ/100.0	HUTac3	445.975 CSQ/100.0	HUTac4
McDonald	445.925 CSQ/100.0	HUTac1	445.900 CSQ/100.0	HUTac2
Newton	445.950 CSQ/100.0	HUTac3	445.900 CSQ/100.0	HUTac1
Polk	446.075 CSQ/100.0	HUTac7	445.975 CSQ/100.0	HUTac4
Saint Clair	445.925 CSQ/100.0	HUTac2	446.025 CSQ/100.0	HUTac5
Stone	446.075 CSQ/100.0	HUTac7	445.975 CSQ/100.0	HUTac4
Taney	445.925 CSQ/100.0	HUTac2	446.025 CSQ/100.0	HUTac5
Vernon	446.025 CSQ/100.0	HUTac5	445.925 CSQ/100.0	HUTac2
Webster	445.950 CSQ/100.0	HUTac3	445.975 CSQ/100.0	HUTac4

Skywarn®/Weather Spotting

As the ARRL has a MOU with the National Weather Service/NOAA. District D ARES® will, upon request from or agreement with the Region D NOAA Weather Office, provide TRAINED spotter communications. These ARES® personal will be required to complete weather spotter training prior to their County EC assigning them to that task. Proof of completion of an approved national weather spotter training program is required. Frequencies used will be determined by the Skywarn® Net Control. The Skywarn® Repeater (N0NWS) primary frequency is:
145.490 (-) PL 136.5 Springfield Regional Repeater
145.350 (-) PL 91.5 Joplin Skywarn® link Repeater

Large Scale Disaster/Event

In the case of a large scale Disaster or Event, the South Missouri Linked Repeater System Organization (Nixa Amateur Radio Club (NARC), the Southwest Amateur Radio Group (SWARG), the Missouri Highway Patrol Amateur Radio Club (KM0HP), the Greene County EMA and the Vernon County EMA) has granted permission for District D ARES® to utilize their linked repeater system. This system may only be called into service by an EC or DEC for District D.

The Linked repeater system frequencies are as follows:

147.015 (+)	pl162.2	Springfield repeater
442.150 (+)	pl 162.2	Crane link
145.390 (-)	pl 91.5	Granby link
145.450 (-)	pl 91.5	Nevada link
444.975 (+)	pl 107.2	Arcola link (Future Expansion)
146.665 (-)	pl 162.2	Branson link (Future Expansion)

District D Linked Repeater Net
Every Friday Evening 7:30 pm (Central)

(UPDATE 11-2015)

District D 6 Meter Net
Every Monday Evening 7:30 pm (Central)

Transmit Frequency: 53.270
Receive Frequency: 51.570
Tone: 162.2 Hz

Appendix 1

Missouri ARES Interoperability Plan

Revised 2003 Aug 21

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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
MCall 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, etc.

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

If additional data channels are needed, stations could move up in 10 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 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. 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:

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Appendix 2

ARES® Missouri Section District D Organization

ARES® District D Contact

District D District Emergency Coordinator:
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Pittsburg, MO 65724
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higgins.cecil@gmail.com