Kansas State Interoperability Communication System

COMMUNICATIONS STANDARD OPERATING PROCEDURES

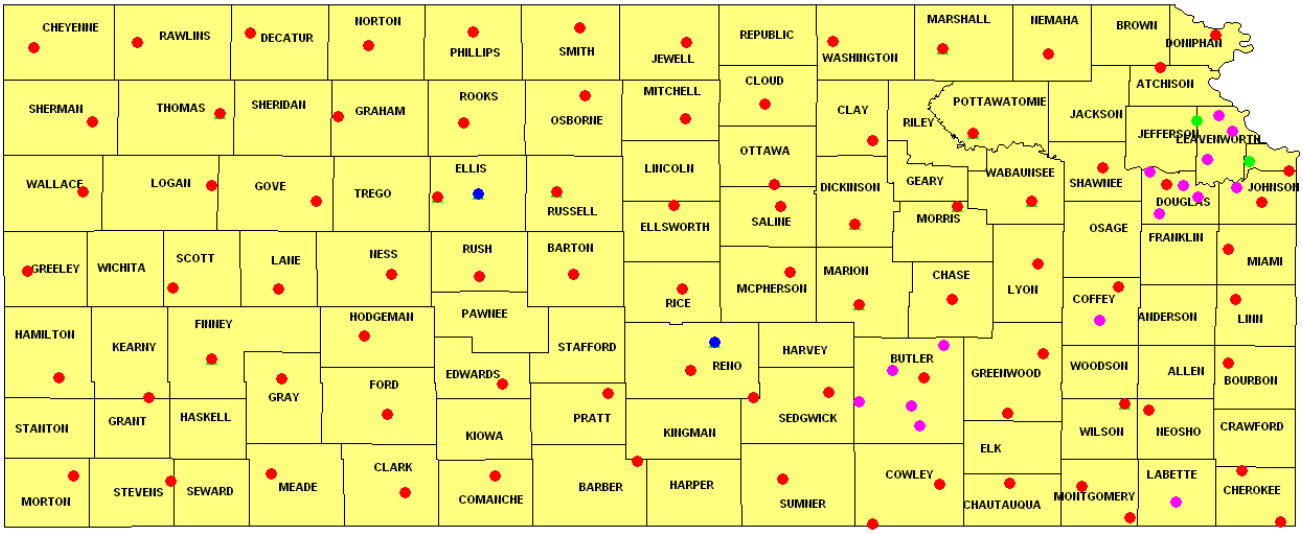


Table of Contents

1.0 RADIO SYSTEM OVERVIEW

The Kansas State Interoperable Communication System (KSICS) consists of 800 MHz tower sites owned by the Kansas Department of Transportation and many different local agencies throughout the state.

Beginning on June 1, 2005 the State of Kansas started a project to upgrade its current statewide 800 MHz conventional radio system to a statewide 800 MHz wide-area P25 compliant trunked radio system. The statewide wide-area trunked P25 compliant radio system in combination with the option to lease 800 MHz radios provided users who desire to operate in this environment greater communications flexibility and interoperability. In addition to the 800 MHz enhancement, KDOT also began installing at each of its 76 tower sites, a method for other non-800 MHz public safety and local governmental users to communicate. The method chosen for non-800 MHz users to achieve interoperable communications included the installation of the Motorola Motobridge audio gateway connected to low VHF radios, high VHF radios, UHF radios, and 800 MHz Mutual Aid radios. The frequencies selected for use in these frequency bands include either the national interoperability channels or designated public safety channels.

The enhanced 800 MHz communication system allowed first responders, the KHP and other emergency response agencies to communicate with each other effectively and seamlessly across the state. This statewide capability helps reduce response time and improve coordination during large area emergencies which frequently occur during severe weather and natural disasters such as tornadoes and floods, multi-agency responses to fires and hazmat releases, and the pursuit of criminal suspects across local jurisdictional boundaries, all of which will promote public safety. The enhancement project took seven years to install statewide and was completed June 1, 2012.

2.0 TRAINING & EXERCISE

Training on the KSICS system and the Motobridge system is offered through the Office of Emergency Communications within the State of Kansas Adjutant General's Department. To schedule training, users should review the OEC website www.kansastag.gov/OEC.asp for further information.

3.0 RADIO PROCEDURES

A. Purpose

The purpose of this document is for users to better understand the proper operation of a radio on the KSICS system and to maximize radio communication efficiency.

B. Procedures

1. Use of the Microphone

   Correct use of the microphone will assist in improving over-all efficiency. Always use a normal conversational voice level, do not use a loud voice or whisper, NEVER SHOUT. Shouting or an abnormally loud voice level will only cause harmful distortion and the broadcast will be difficult, if not impossible, to understand. Never speak too low, or in any direction except directly at the microphone. To do so will cause your voice to appear extremely weak to the person receiving the broadcast. It will make it very difficult for the receiver to copy and cause him/her to require repeats. Keep your voice level as constant as possible at a normal conversational level and speak distinctly and directly into the microphone. Maintain a distance of one to three inches between your mouth and the microphone. (Distance may need to be adjusted if using a desk mic or gooseneck mic)

2. Radio User Proficiency

   Good operating procedures and well-trained efficient personnel are required for any radio communications system to function effectively. As a user becomes more proficient, his/her value as one of the vital links in the radio system increases. This, in turn, causes the entire system to become more efficient and a more valuable tool for those who are dependent on the system.

3. Clear Speech / Use of 10-Codes

   Usage of 10-Codes during training exercises and disaster recovery are not permitted. Agencies are authorized to use 10-Codes for daily internal use.

4. Professional Communications

   Users of the communication system should try to communicate in a professional manner. The following are considered unacceptable:

   a. Slang, Humor, or Facetiousness Prohibited

   b. Citizen band (CB) radio terms and "lingo" are not acceptable. Slang words and phrases are not to be used. Humor or facetiousness is improper on the radio.

   c. Discourtesy, sarcasm or venting of animosities, even in voice inflection or modulation, will not be allowed.

   d. Courtesy is best expressed on the air by the tone of voice and manner of message presentation. Use of the words "thank you; you're welcome; or please", are not appropriate terms for radio broadcast.

5. Messages to be Concise

   The radio is not a telephone and will not be operated as such. Messages will be concise and to the point, while relaying all pertinent information.

6. Avoiding Interference with Transmissions

   All users will monitor the radio frequency/ talkgroup before transmitting in order to avoid interfering with or overriding another unit's transmission.

7. Personal Messages Prohibited

   The radio communication system is for official traffic and messages shall be brief and impersonal. Transmitting of personal messages is prohibited.

8. Radio Calls to other users of the radio communications system

   a. Every radio transmission will be initiated with the user or station identifier calling, followed by the user or station identifier of the called unit or station.

   b. Calling unit will wait for acknowledgement by the called unit, before proceeding with radio transmission.

9. Messages Concluded

   At the conclusion of a message received, the receiving unit will acknowledge receipt of the message as per their organization guidelines.

4.0 ICS Talkgroup Usage

A. ICS talkgroups are utilized for emergency training/events

1. KDEM –Call (KDEM staff duty officer monitored 24/7)
2. KDEM – 1 (Internal KDEM talkgroup only)
3. KDEM – 2 (Internal KDEM talkgroup only)
4. ICS 1 – ICS 20 (Talkgroups available on-scene incident communications as per direction of Incident Commander)
5. Command 1 – Command 4 (Talkgroups available for Incident command staff only)

B. Assigning an ICS Operations Channel

Assignment of ICS operational channels are through the Statewide Interoperability Coordinator (SWIC)/Kansas Division of Emergency Management Communication Leader. Users are to request channel access prior to utilization for training events. Tracking information will be located on the Kansas Office of Emergency Communications calendar. Emergency Channel usage will be coordinated through the ESF-2 and assigned COM-L. Contact information listed below.

www.kansastag.gov/OEC.asp SWIC (Primary)
http://www.kansastag.gov/KDEM.asp?PageID=368 Communication lead (Secondary)

5.0 RULES AND REGULATIONS

A. KSIC users will abide by all rules and regulations set by the Federal Communications Commission (FCC) including the following:

1. Station identifiers managed by KDOT.
2. It is unlawful, under CFR 47 Part 90 of the Federal Communications Code to:
    a. Transmit superfluous signals, messages, or communications of any kind on your radio transmitter.
    b. Use profane, indecent, or obscene language.

c. Willfully damage or permit radio apparatus to be damaged.

d. Cause unlawful or malicious interference with any other radio communications

e. Intercept and use or publish the contents of any radio message without the permission of the proper authorities in your department.

f. Make unnecessary or unidentified transmission.

g. Transmit without first making sure that the intended transmission will not cause harmful interference.

h. Deny access to your radio equipment if a properly licensed representative of the Federal Communications Commission asks to inspect it. The equipment must be made available for inspection at any reasonable hour.

i. Transmit a call signal, letter or numeral, which has not been assigned to your station or unit.

B. KSIC users shall also abide by the signed Shared-Use Agreements with the State of Kansas Secretary of Transportation.

6.0 RADIO EQUIPMENT FAILURE

A. In the event of communications failure, resulting in the inability to receive or transmit, the following procedure will be followed:

1. Users should contact their local radio department for assistance.

2. In the event of a KSICS system scheduled outage notification should be made in advance to users affected.

3. In the event of a non-scheduled KSICS outage users may experience conditions such as Out-of-Range, Site Trunking or Failsoft.

B. Non-Scheduled KSIC Outages

1. Out-of-Range indication on the radio indicates the inability to access the communications towers. This condition can be a multitude of different causes:

    - Power Outage
    - Non-Line of Site communications
    - Incorrect talkgroup affiliation

- Subscriber unit failure
- Weather

C. Site Trunking

Site Trunking is probably the most misunderstood component of the statewide 800 MHz system and of any shared communication system. When the system goes into Site Trunking, many users think that the radio system is down. This is an inaccurate perception. When the radio system goes into Site Trunking, it is still working, but with reduced capabilities.

Even though the system is working as designed, a system in Site Trunking can frustrate users out in the field and in the dispatch center. A clear understanding of Site Trunking concepts and practices will alleviate some of that frustration and can help users recognize when their radio goes into that mode.

Shared System 101

Each radio in a shared system, such as the Kansas 800 MHz P25system, affiliates with one tower site, one Zone Controller, and one talkgroup at a time. Sites are linked by T-1 lines, phone lines or microwave, which creates a network of repeated connectivity. Under normal circumstances, the system operates as a Wide Area network, which allows users to communicate not only with others affiliated with the same site, but also with those affiliated with other sites across the network. Users can communicate across cities, counties and even across the state.

What is Site Trunking?

When the T-1 line, phone line, or microwave link connectivity between the tower site and the master controller is interrupted, the tower site will continue to operate, but in a mode called Site Trunking. In this mode, the tower site continues to operate as a "trunk system" using the same talkgroups as before. Users that were affiliated with that site when it went into Site Trunking can continue to communicate with other users affiliated with the same site. They cannot, however, communicate with users affiliated at a different site and vice versa since the connectivity from the tower site to the master controller is temporarily interrupted.

How to Recognize Site Trunking

Field units may receive a visual indication on the radio screen (if equipped) and/or may hear a periodic audible indicator (if programmed) to indicate Site Trunking mode.

What Next?

Site Trunking should be short occurrences in most cases and nothing further will need to be done.

If the Site Trunking occurrence continues for ten (10) minutes or longer KHP dispatch should be notified at (785)827-4437 or *47 on a cellular telephone.

Users of the 800 MHz P25 system experiencing difficulties due to Site Trunking should contact their local radio department for assistance.

D. FAILSOFT

1. This condition indicates the user subscriber radio cannot affiliate with any talkgroup due to failure at the tower.

2. If condition exists for longer than ten minutes, KHP central dispatch should be notified at (785) 827-4437 or *47 on a cellular telephone.

7.0 INTEROPERABLE COMMUNICATIONS

A. Interoperable communications are required whenever multiple jurisdictions and/or multiple disciplines respond to an incident. Interoperable communications can be achieved in a number of different ways. The following procedures will be utilized to achieve interoperable communications.

1. Kansas State Interoperable Communications System (KSICS)

   i. Utilized for interoperability with users on the statewide 800 MHz P-25 digital trunked radio system. KSICS is not intended to be made interoperable with local level radio systems through the use of mobile gateway or console patches. Patching of local channels to talkgroups on the KSICS system is prohibited.

   ii. The KSICS system and the statewide interoperable template, give communications capabilities to command and operational personnel, responsible for responding to a regional incident requiring multiple jurisdictions and disciplines. It is intended to support multi-agency, multi-jurisdictional communication capabilities, when other means of communication are not adequate. KSICS serves as a communication system available to public safety users, state agencies and local agencies who have elected to migrate to it.

2. The following protocols will be utilized when KSICS is activated for interoperability purposes:

   i. NIMS compliant ICS structure will be utilized on the response.

   ii. Plain language will be utilized for radio communications in accordance with NIMS standards.

   iii. All radios will operate in a "clear" mode, if encryption enabled, unless otherwise directed.

   iv. The Incident Commander, or COML if assigned, will ensure that utilized talkgroups are monitored while in use.

3. The following list is a hierarchy of projected operational needs based on priority, with the first operation holding the highest priority. The list is provided for operational context for use of the KSICS system for interoperability.

   a. A large-scale emergency incident requiring multi-agency, multi-jurisdictional response.

b. Everyday response-level communications to emergency or urgent incidents that require mutual aid response from multiple agencies, when other common means of communication are not available.

c. Special event control activities, generally of a pre-planned nature, involving joint participation of two or more agencies.

d. Drill, maintenance, and test exercises.

4. Procedures for use of KSICS for interoperable communications.

   a. Select the talkgroups that will be utilized for the response.

      i. Local incidents should utilize regional, interoperability talkgroups (i.e., LE, EMGT, FIRE, EMS, PWKS) for small scale events.

      ii. Large multi-agency incidents or training should utilize ICS talkgroups (i.e., KDEM-A (ICS-1 through ICS-10, Command-1, and Command-2) and KDEM-B (ICS-11 through ICS-20, Command-3, and Command-4) for larger scale events of longer duration (i.e., more than one day.)

      iii. Users accessing Kansas Highway Patrol talkgroups should refer to their Shared-Use Agreement signed with the Kansas Department of Transportation.

   b. Notify responding units to the appropriate talkgroups and have the units switch to the designated interoperability resource. Confirm that responding units are operating on the appropriate talkgroup.

      i. Monitor the talkgroups to address requests as required.

      ii. Monitor the talkgroups for problems that may arise that may require technician intervention, or for system problems.

5. When the interoperability resources of KSICS are no longer required, the following deactivation procedures should be followed:

   a. An announcement that the KSICS interoperability resources are being operationally deactivated will be made over the talkgroup(s) being utilized.

   b. Prior to deactivation of the talkgroups, agencies should ensure that all personnel have returned to their appropriate home systems.

   c. After deactivation of the interoperability resources, normal operations should be resumed.

6. MOTOBRIDGE

   a. Utilized for interoperability with users on the statewide, P-25, digital, trunked KSICS radio system, and local radio system users in the VHF Low-band, VHF High-band, UHF, or 800 MHz spectrum.

   b. The intent of this procedure is to establish an orderly, workable radio resource for the use of operational, as well as command and control personnel.

   c. The MOTOBRIDGE system is a fixed-site interoperability gateway that is located on 76 tower sites owned by the Kansas Department of Transportation (KDOT). Like with any other radio system, actual coverage depends on issues such as terrain, frequency band, antenna height, weather, and functionality of the end-user radio equipment. Using both national and state interoperability channels, MOTOBRIDGE can connect or "patch" pre-determined channels between disparate radio systems. This can be accomplished on a single site (Bourbon VHF patched to Bourbon UHF) or across multiple sites (Bourbon VHF patched to Sumner 800 MHz).

   d. MOTOBRIDGE is intended for multi-disciplinary or multi-jurisdictional use when other common means of radio communications are not available. Generally, the system should be used by responders and critical facilities during activities that directly impact life safety and the preservation of property.

   e. MOTOBRIDGE channels may be temporarily used by agencies that have unexpectedly lost local communications infrastructure due to external forces. If the system is being used for this purpose, KDOT and KHP should be notified in order to avoid disruptions (such as maintenance) of service.

   f. The following protocols will be utilized when KSICS interoperability procedure is in effect:

      i. NIMS compliant ICS structure will be utilized on the response.

      ii. Plain language will be utilized for radio communications in accordance with NIMS standards.

      iii. Unit identification will consist of home city or county and agency, to avoid any confusion of units that might share the same identifier.

      iv. All radios will operate in a "clear" mode, if encryption enabled, unless otherwise directed.

v. The Incident Commander, or COML if assigned, will ensure that utilized talkgroups are monitored while in use.

g. The following list is a hierarchy of projected operational needs based on priority, with the first operation holding the highest priority. The list is provided for operational context for use of the KSICS system for interoperability.

i. A large-scale emergency incident requiring multi-agency, multi-jurisdictional response.

ii. Everyday response-level communications to emergency or urgent incidents that require mutual aid response from multiple agencies, when other common means of communication are not available.

iii. Special event control activities, generally of a pre-planned nature, involving joint participation of two or more agencies.

iv. Drill, maintenance, and test exercises.

h. Procedures for use of the MOTOBRIDGE system.

i. MOTOBRIDGE patch can be requested in a variety of ways including:

a. Radio by using a call-in channel

b. Telephone by calling KHP Dispatch at 785-827-4437 or *47 from a cell phone

c. Teletype to KHP from a Public Safety Answering Point (PSAP)

ii. Use the following procedure to initiate a MOTOBRIDGE patch via radio:

a. Contact “KHP Dispatch” on the designated call-in channel and identify by using home city/county + radio number (Logan County 601) or agency/facility name (Logan County Hospital). The requestor should also indicate their current location by county.

b. Once KHP answers request a MOTOBRIDGE patch then provide the bands and location(s) of the patch.

c. Remain on the call-in channel. As a courtesy, KHP will notify the requestor that the patch is ready and the appropriate tactical channels to be used. Once complete, users will switch to the tactical channels to communicate.

d. Example:
"Logan County 601 to KHP Dispatch from Wallace County"
"KHP Dispatch.... go ahead"
"Request MOTOBRIDGE patch"
"Go ahead with request"
"Patch Wallace UHF to Wallace VHF"
"Wallace VTAC12 and Wallace UTAC42 are patched and ready"

iii. Use the following procedure to initiate a MOTOBRIDGE patch via telephone:

a. Contact KHP Dispatch via telephone, utilizing either the 10 digit number (785-827-4437) or *47 on a cell phone.

b. Identify yourself by using home city/county and your agency or radio number.

c. Request a MOTOBRIDGE patch, providing bands and locations needed in the patch.

d. Remain on the telephone with KHP Dispatch until notification that the patch is ready and the appropriate tactical channels to be used is received. Once complete, users will switch to the tactical channels indicated to communicate.

iv. User the following procedure to initiate a MOTOBRIDGE patch via teletype to KHP from a PSAP.

a. Send a teletype to KHP (utilize the pneumonic for your troop area) containing the following information:

1. Nature of the activity requiring the patch. This sets the priority of the request for KHP dispatch.

2. Location(s) and band(s) needed to be patched.

3. A request that notification, with specific channels patched, be made.

b. Example:
HAVE OFFICERS WORKING A MANHUNT IN OUR
COUNTY, REQUESTING A MOTOBRIDGE PATCH.
PATCH REQUEST AS FOLLOWS:

RENO CO UHF
RENO CO VHF
RENO CO 800 DIGITAL EVENT

PLEASE ADVISE, WITH SPECIFIC CHANNELS
PATCHED, WHEN COMPLETE.

THANKS IN ADVANCE

v. Patch Coordination

a. In many cases, end users of a MOTOBRIDGE patch will be aware that the patch is being connected. This is accomplished by on-scene coordination through word of mouth or by other electronic means such as telephone or teletype. Every effort to coordinate a patch in the field should be taken.

b. In some cases, a patch may be requested without the targeted user's knowledge. Generally, this applies when a requestor does not have the means to notify or coordinate with the target user. This is known as a "cold call". In the event of a cold call, KHP Dispatch will make every effort to notify the target user. To do so, KHP Operators will need guidance from the requestor such as the agency, name or radio number of the target, and their agency contact information, if available. Unless notified of a cold call situation at the time of request, KHP Dispatch will assume that the patch has already been coordinated in the field. It is the responsibility of the requestor to ask for a cold call notification.

vi. When the interoperability resources of MOTOBRIDGE are no longer required, the following deactivation procedures should be followed:

a. An announcement that the MOTOBRIDGE interoperability resources are being operationally deactivated will be made over the patch.

b Prior to deactivation of the patch, agencies should ensure that all personnel have returned to their appropriate home systems.

c. Contact KHP Dispatch via call channel, telephone or teletype and request that the patch be discontinued. Patches will remain active until this request is received by KHP Dispatch.

d. After deactivation of the interoperability resources, normal operations should be resumed.

vii. License Requirements

a. All fixed-site MOTOBRIDGE base-stations and repeaters located on the KDOT towers are owned by KDOT and licensed through the FCC. Any

other base-station, control-station or repeater at the local level using the National or State Interoperability channels must be licensed by the FCC to the appropriate local government agency.

b. For mobile and portable use, the National Interoperability Channels are covered under a "blanket license". If an agency is ELIGIBLE for a FCC part 90 radio license, the National Interoperability Channels may be programmed into equipment without having the channels individually licensed to the agency. **The state VHF Low-Band channels (39.58/39.70) used by MOTOBRIDGE require an FCC license through a local agency for fixed-site and mobile / portable use.**

c. Users of the Digital Trunked Radio System require no local licensing for the use of the system, assuming that the proper documentation has been filed with KDOT. Licenses for these channels are coordinated and held by KDOT on behalf of the local agency.

i. Signaling

i. For the purpose of this document, signaling is defined as any non-voice signal produced by radio equipment to identify, notify, or otherwise dispatch and coordinate responders. Examples of signaling include, but are not limited to:

a. Paging

b. DTMF

c. Voice Encryption

d. Push-to-Talk identification

ii. MOTOBRIDGE uses nationally recognized interoperability channels designated for multi-jurisdictional and multi-disciplinary use. Currently there are no national signaling standards for these channels. The lack of standards could potentially lead to confusion and channel congestion. To avoid unnecessary confusion and to reduce channel congestion, signaling functions are not allowed on the MOTOBRIDGE system.

j. Training & Exercise

i. As with any other tool used by emergency responders, communications equipment and systems such as MOTOBRIDGE should be regularly trained and exercised upon to promote familiarity and ease of use. As a general rule, agencies should train and exercise on communications

equipment and protocol at least once annually. MOTOBRIDGE training could be as simple as a review of this document or subsequent training materials and a review of communications equipment to locate the channels used by the system.

ii. A group exercise at a staff meeting or similar event should involve a patch request to KHP and a brief test of the patch on the tactical channels. Similar MOTOBRIDGE exercises are encouraged during other types of events such as a county or region-wide disaster exercise. To ensure the exercise will not interfere with more urgent emergency operations, as a courtesy, KHP Dispatch should be notified prior to the start of the exercise.

iii. The Kansas Office of Emergency Communications (KS-OEC) provides instructor driven MOTOBRIDGE training. These courses will be held regionally at locations in each of the Kansas Homeland Security Regions. By request, KS-OEC staff will consider additional training events on a case-by-case basis. Contact information for the KS-OEC is www.kansastag.gov/OEC.asp

k. National and State Interoperability Channels

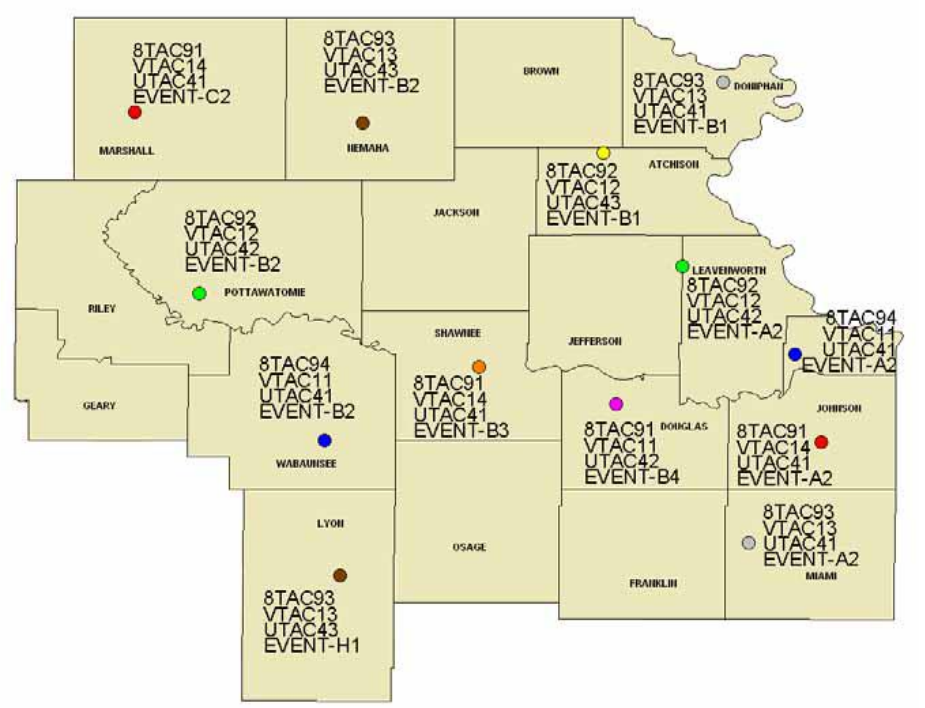
i. The following table identifies the National and State Interoperability channels utilized on MOTOBRIDGE:

LOW BAND FREQUENCIES (STATE FREQUENCIES)				
Channel Name	Mobile Rx.	Rx. P.L.	Mobile Tx.	Tx. P.L.
LCALLKS	39.5800	156.7	39.5800	156.7
LTACKS	39.7000	156.7	39.7000	156.7
VHF FREQUENCIES (NATIONAL FREQUENCIES)				
Channel Name	Mobile Rx.	Rx. P.L.	Mobile Tx.	Tx. P.L.
VCALL10	155.7525	156.7	155.7525	156.7
VTAC11	151.1375	156.7	151.1375	156.7
VTAC12	154.4525	156.7	154.4525	156.7
VTAC13	158.7375	156.7	158.7375	156.7
VTAC14	159.4725	156.7	159.4725	156.7
UHF FREQUENCIES (NATIONAL FREQUENCIES)				
Channel Name	Mobile Rx.	Rx. P.L.	Mobile Tx.	Tx. P.L.
UCALL40	453.2125	156.7	458.2125	156.7
UCALL40D	453.2125	156.7	453.2125	156.7

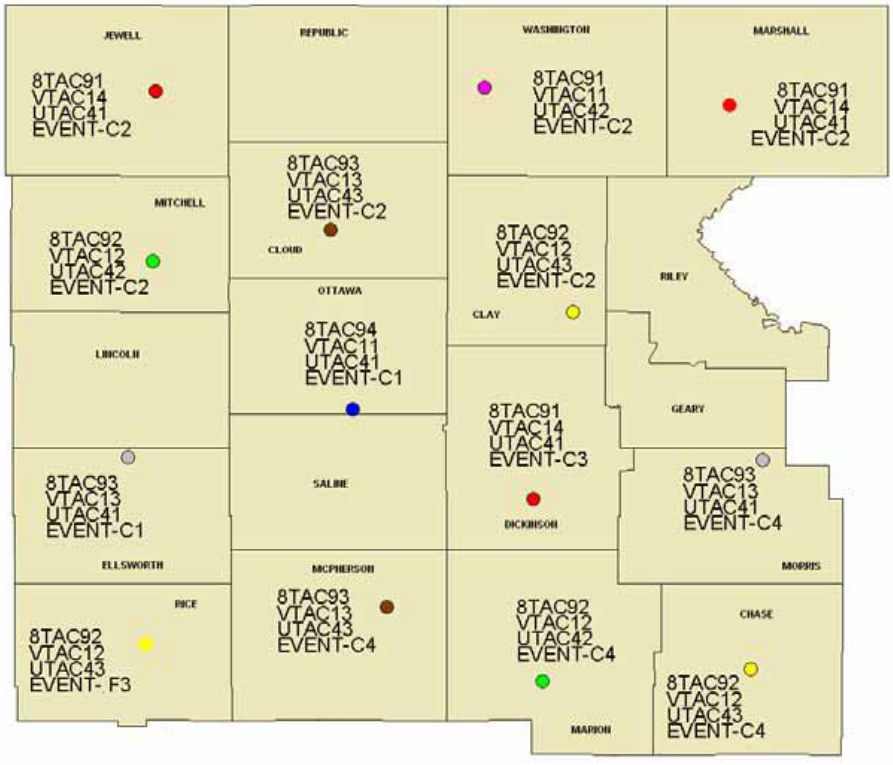
UTAC41	453.4625	156.7	458.4625	156.7
UTAC41D	453.4625	156.7	453.4625	156.7
UTAC42	453.7125	156.7	458.7125	156.7
UTAC42D	453.7125	156.7	453.7125	156.7
UTAC43	453.8625	156.7	458.8625	156.7
UTAC43D	453.8625	156.7	453.8625	156.7
800 MHZ. FREQUENCIES (NATIONAL FREQUENCIES)				
Channel Name	Mobile Rx.	Rx. P.L.	Mobile Tx.	Tx. P.L.
8CALL90	851.0125	156.7	806.0125	156.7
8CALL90D	851.0125	156.7	851.0125	156.7
8TAC91	851.5125	156.7	806.5125	156.7
8TAC91D	851.5125	156.7	851.5125	156.7
8TAC92	852.0125	156.7	807.0125	156.7
8TAC92D	852.0125	156.7	852.0125	156.7
8TAC93	852.5125	156.7	807.5125	156.7
8TAC93D	852.5125	156.7	852.5125	156.7
8TAC94	853.0125	156.7	808.0125	156.7
8TAC94D	853.0125	156.7	853.0125	156.7

D = Direct / Talkaround Channels

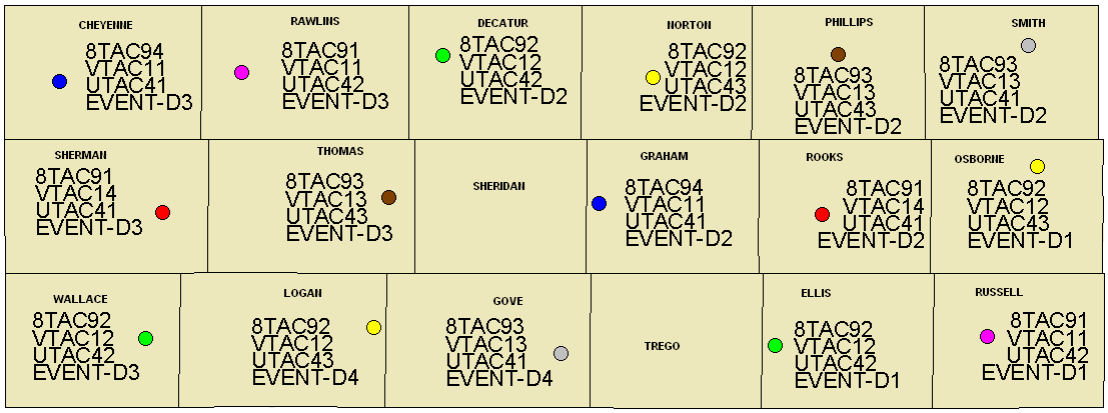
1. Northeast Kansas



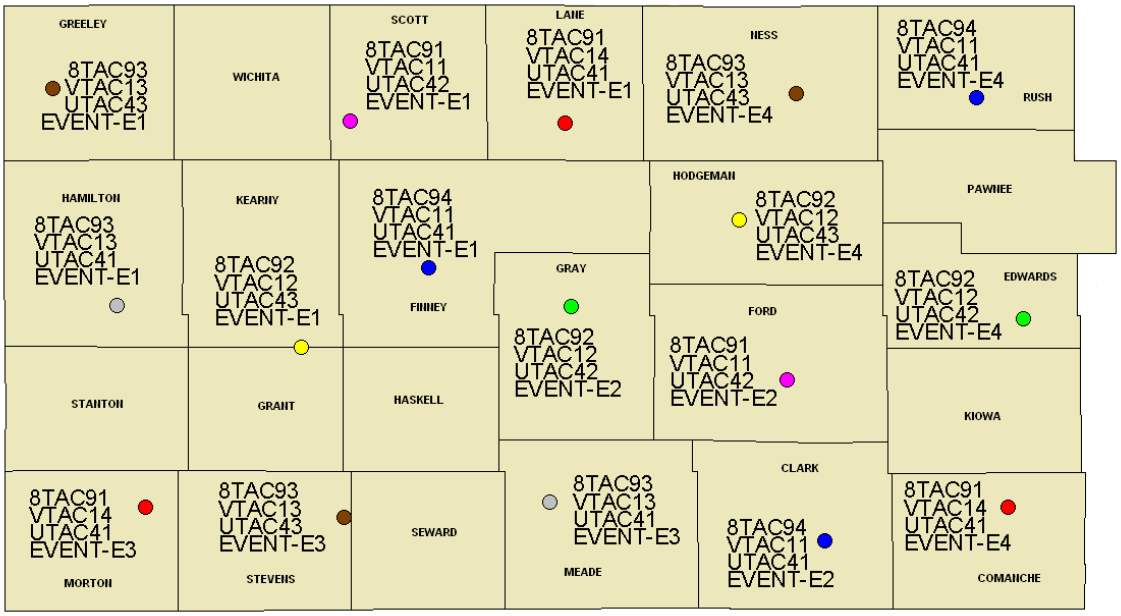
2. North Central Kansas



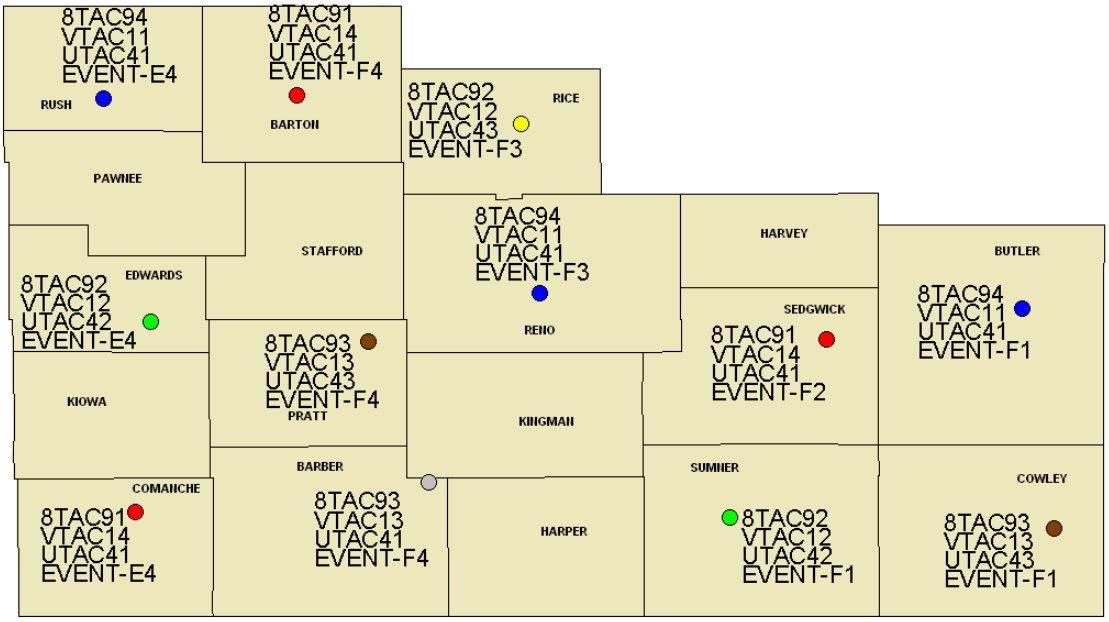
3. Northwest Kansas



4. Southwest Kansas



5. South Central Kansas



6. Southeast Kansas