Texas Statewide Interoperability Channel Plan

For FCC Designated Public Safety Interoperability Channels
150 MHz – 800 MHz Bands

Developed By

Texas Interoperable Communications Coalition (TxICC) and

The Texas Department of Public Safety (TxDPS)

Statewide Interoperability Coordinator (SWIC)

Revised March 11, 2024 (Change #24.1)

RECORD OF CHANGES
Texas Statewide Interoperability Channel Plan

CHANGE #	DATE OF CHANGE	CHANGE
Issued	4-1-2005	Initial Issue
1	4-6-2005	Deleted "narrowband" from phrase "narrowband 800", pg. 14
2	4-6-2005	Frequencies transposed in Figure 5, pgs. 15 & 30
3	4-6-2005	Deleted word "refarming" from "refarming order", pgs. 15 & 30
4	9-7-2006	Corrected error in 700 MHz channel frequencies, pgs. 13-14, & 29
5	6-10-2007	• General edit; simplify provision for encryption • Add new/changed channel labels • Clarify 1/1/2013 deadlines
6	9-25-2007	• Name of plan changed to add the word "Statewide" General edit • Modified background note and text to require P25 NLT 1/1/2013 • Added tactical repeaters • Dropped 700 MHz channels 1 MHz • Changed 800 MHz NPSPAC channels by 15 MHz
7	1-22-2008	• Corrected order of frequencies used in 8TAC95D and 8TAC96D • Extended transition date for P25 CAI digital until 1-1-2015 • Changed VTAC17 and VTAC19 availability date to 7/1/2008
8	6-9-2008	Removed Texas Government Code Chapter 411.0105 (Public Safety Radio Communications Council)
9	6-24-2008	Changed marine channel date due to FCC delay
10	11-5-2008	Removed Marine channels from plan due to FCC rule amendments
11	4-20-2009	Updated narrowbanding requirements for 1/1/2013
12	8-31-2011	Updated MOU language
13	3-6-2012	• Updated Modulation requirements • Removed Digital P25 Requirements • Added Fed VHF Repeaters • Changed Channel Coordination to IC, Updated SWIC

14	3-22-2012	• Changed Texas Law 1 to TXCALL1D and Texas Law 2 to TXCALL2D • Added 'Office of the Texas SWIC' or 'TxICC' to SIEC references • Removed references to P25 compliance by 2015 • Added reference to compelling reason exception for P25 • Clarified wideband and narrowband for modulation and encryption • Added footnote about how to access additional VHF Repeater Channels in an emergency • Updated tables to ensure headings were consistent throughout • Created separator line for Repeater Base Configuration in Tables 2 and 5 • Separated Table 3 into two tables, changing the Tactical Repeater Configuration to Table 4 • Created a new Table 6 for Use within Border Area for Rebanding Border communications • Changed Emission Designator to 20K0F3E for 800 NPSPAC Interoperability Channels • Updated MOU language to clarify VFD signatures
15	1-25-2013	Fixed Portable channel table on page 19/20 to properly show mobile and repeater channels
16	5-13-2014	• Added Mobile Satellite Talkgroup, section 8 • Updated MOU to include MSAT • Added Statewide Radio ID Plan, section 9 • Added Acronym List, section 10 • Removed wideband and narrowband references • Updated table numbers to align with section numbers • Added VTAC17&17D
17	5-27-2015	• Added recommended short list of VHF and 700 channels for programming • Added 7CALL70 and 7CALL70D channels • Added text that 700 MHz interoperability channels must always use P25 CAI digital conventional Modulation • Removed emission designators 11K2G2E and 11K3F3E • Updated Station Class field in 700 MHZ and 800 MHz channel tables from FX1T/MO to FB2T/MO and FX1T to FBT for direct channels • Indicated which 700 MHz channels should not be used within 70 miles of the US / Mexico border

18	12-7-2017	• Updated Statewide Coordinated P25 Radio Unit Identification (ID) Plan guidance • Added new 700 MHz Air-to- Ground Channels • Added new UHF and VHF Federal Interoperability Channels • Added reminder: Fixed base repeaters as secondary use – all frequencies • Updated MOU to reflect new Air- to-Ground and Federal Interop Channels • Changed section headings to match with NIFOG color shading • Updated VHF and 800 MHz CTCSS tones in compliance with the NIFOG
19	1-29-2018	• Updated Federal Agency table 4.4 with correct RX frequency • Updated FM emission for new Federal Agency channels from 11K25F3E to 11K2F3E (*note the emission is published in the NIFOG is incorrect) • Updated Federal Agency tables 4.5 and 5.3 to list CTCSS tones
20	10-30-2018	• Updates made to Statewide Coordinated P25 Radio Unit IDs – Current Range Allocations • Added placeholder for 150 & 450 MHz Federal Agency licenses – TBD • Updated 700 MHz Air-to-Ground license, which falls under the existing 700 MHz license
21	1-11-2019	• Updated Federal Agency license • Updated Texas Government Code Chapter reference from "411.0105 (Public Safety Radio Communications Council)" to "421.096 (Interoperability of Radio Systems)"
22	8-5-2019	• Updates made to reflect DPS Communications reorganization to Infrastructure Operations Division
22.1	6/10/2020	• Updated pg. 10 and ¶2.1,#6 to "on-scene communications" • Identified UAS Pilot to UAS Pilot Coordination channels in VHF, UHF, and 700 MHz • Corrected TX tone programming information for Federal LE16 channel • Clarified that 8TAC95D, 8TAC96D and 8TAC97D are not protected channels and can/will receive interference from licensed trunked radio systems • Updated information on the MSAT G-SMART talkgroup Removed MSAT access request from MOU, and MSAT Section 8 • Corrected pg 35 to reflect correct UAS Coordination channel as 7AG68D • Corrected ETCOG and DETCOG to 4M Radio ID Range

23	9/29/2020	• Added note that the only Mode allowed on 700MHz channels is P25 FDMA Ph 1 • Clarified TX and RX NAC codes for 700Mz Tables 6.1, 6.2 and 6.3 • Added note that no encryption is allowed on the 700 MHz calling channels • Updated Radio ID Plan map
24	2/21/2023	• Clarify channel for UAS Pilot to UAS Pilot, uncrewed aircraft • Clarify use of tones • Updated language to reference current NIFOG • Designated mobile-to-mobile calling channels • Updated Recommended Short List of VHF Interop Channels • Added VHF VSAR16 channel • Updated VHF Repeater Pair info, set priority order • Identified UHF frequency for UAS use • Updated 700 MHz channels, not available for use at US/Mexico Border • Updated Mobile Satellite (MSAT) Talkgroups, Access and Guidelines • Update SWIC
24.1	3/11/2024	• Updated Texas Department of Public Safety signatory information and other administrative corrections • Corrected VHF VTAC38 Repeater/Base configuration in Table 4.4

Texas Statewide Interoperability Channel Plan
For FCC Designated Public Safety Interoperability Channels 150 MHz – 800 MHz

Table of Contents

MEMORANDUM OF UNDERSTANDING
Texas Statewide Interoperability Channel Plan (TSICP)
V24.1 (Original issue, April 2005)

Texas Department of Public Safety

and the identified *Federal Agency, State Agency, Local Jurisdiction, or Emergency Service Organization*

Purpose

This Memorandum of Understanding (MOU) establishes permissions and guidelines for use of interoperability or mutual aid radio channels by:

- Local government jurisdictions and their associated emergency response agencies;

- State agencies in Texas and their associated emergency response organizations;

- Federal agency local units in Texas and their associated emergency response organizations;

- Local agency units in Texas and their associated emergency response organizations to use designated Federal interoperability channels, and;

- Private sector emergency response organizations licensed or otherwise entitled to operate in the Public Safety Pool as defined in Federal Communication Commission (FCC) Rules, Part 90 (47CFR, subpart B, paragraphs 90.15-90.20).

It imposes certain protocols, procedures, and obligations upon jurisdictions hereby authorized to use state-licensed radio channels held by the Texas Department of Public Safety (TxDPS).

This agreement supersedes any other previous versions of the MOU.

Authority

Execution of this agreement by state and local entities is authorized by Texas Government Code, Chapter 791 (local governments), Chapter 771 (state agencies), and Texas Government Code Chapter 421.096 (Interoperability of Radio Systems). This MOU satisfies FCC Part 90 rules for extending license privileges to others by agreement.

Federal agencies are permitted access to interoperability channels as authorized by the National Communications & Information Administration (NTIA) Manual, 47 CFR, Parts 2.102(c), 2.103; and 7.12. Federal agencies may execute this MOU and shall adhere to the attached guidelines.

Applicability

This MOU authorizes the use of certain radio frequencies by emergency response organizations as defined by the U.S. Department of Homeland Security's Emergency Communications Division and the Texas Department of Public Safety. Generally, this includes organizations in the following governmental disciplines:

Emergency Management	**Public Safety Communications**
Law Enforcement	**Public Health**
Fire Service	**Health Care**
Emergency Medical Services	**Hazardous Materials**
Public Works / Transportation	**Governmental Administration**

This MOU authorizes use of state-licensed frequencies for the purpose of coordination between emergency response agencies and resources. Such coordination may occur during interagency operations, en route travel, or on-incident communications in accordance with an Incident Communications Plan.

Background

The Texas 77th Legislature, in an effort to provide for effective emergency radio communications by state agencies, called for an Interagency Radio Work Group (IRWG) to develop a state agency communications network. That group developed a preliminary plan that was accepted by the state IRWG and the Sheriffs' Association of Texas on March 27, 2001.

Subsequently, the IRWG determined that the state agency communications network should be expanded to include all public safety agencies in the state. This was accomplished by IRWG's development of the IRCIP of January 2003.

In response to an FCC requirement for establishment of state / regional advisory committees, the Texas Interoperable Communications Coalition (TxICC) and the Texas Statewide Interoperable Communications Plan Executive Committee (SEC) were formally established as advisory committees to TxDPS.

The Texas Statewide Interoperability Channel Plan (TSICP), developed by the TxICC and included in this MOU, provides essential guidance for interoperable radio communications using <u>VHF, UHF, 700 MHz, 800 MHz, and mobile satellite radio equipment</u> for interagency coordination, en route travel, or on-incident communications.

Understandings

TxDPS will:
- Manage and maintain proper licenses for the use of the interoperability frequencies identified herein;
- Manage and maintain an accurate database of federal and state agencies and local government jurisdictions that have accepted and signed this MOU, and;
- Issue updates and revisions to the TSICP contained herein, upon request by the TxICC and the Texas Statewide Interoperability Coordinator.

Jurisdiction will:
- Participate in regional communications planning (generally arranged by a regional Council of Governments) that provides for regional radio communications interoperability.

- Manage use of the interoperability frequencies by its employees, ensuring compliance with the TSICP and federal / state / local laws, ordinances, and rules. Use the interoperability frequencies

authorized hereby for their intended purpose of coordination between emergency response agencies and resources. Such coordination may occur during interagency operations, en route travel, or at the scene of an incident.

- Use the interoperability frequencies for en route and on-scene communications in accordance with local and regional policies and procedures.

- Use the interoperability frequencies for on-incident communications in accordance with the Incident Communications Plan established by the on-scene Incident Command or COML.

- Prioritize use of the interoperability frequencies:

    1. Emergency or urgent operation involving imminent danger to life or property.
    2. Disaster or extreme emergency operation requiring extensive interoperability and inter-agency communications.
    3. Special event, generally of a pre-planned nature.
    4. Joint training exercises.
    5. Inter-agency and en route communications in accordance with local and regional policies and procedures.
    6. On-Scene tactical communications.

- Implement radio communications procedures consistent with the National Incident Management System (NIMS) and Incident Command System (ICS) including:

    o Use "plain language" without 10-codes or agency-specific codes or jargon.

    o Use the calling protocol: "Agency-Unit #, **this is** Agency-Unit #", rather than "Unit # **to** Unit #".

    Examples: ***"Bryan EMS 1605, this is Tyler Fire 2102"* or *"Incident Command, this is DPS 505"***

- Ensure that mobile, portable, and temporary base radios intended for use by agency leadership (officers) are configured with the appropriate in-band interoperability frequencies as found in the TSICP. This means that, as a minimum, the interoperable frequencies would be added to the day-to-day frequencies used by that entity.

- Ensure that interoperability calling channels are monitored at the incident command post on major incidents requiring significant aid from agencies beyond routine local interoperability. Calling channels should be monitored by appropriate dispatch centers when possible and practical within the affected regions. Monitoring shall include one or more of the following:

CALLING CHANNEL NAME	USE
VCALL10	Analog VHF Calling Channel
UCALL40	Analog UHF Calling Channel
7CALL50	Digital P25 700 MHz Calling Channel
8CALL90	Analog National Calling Channel

Incident command post monitoring may be implemented using cross-band repeaters, communications operator console patching, or VHF/UHF/700/800 MHz fixed or mobile gateway.

It is suggested that the band-relevant interoperable call channel listed above be included in the 'home zone' used for day-to-day operations. This will enable radio users to easily turn to the interoperable channel on their mobile or portable radio when needed.

The parties mutually agree:

- Jurisdiction and TxDPS agree that their mutual interests will be furthered by continued coordination between the jurisdiction and the Office of the Texas Statewide Interoperability Coordinator (SWIC).

- Jurisdiction and TxDPS agree that this Memorandum of Understanding may be cancelled at any time, by written notice to the other party, or by subsequent agreements.

- Only one MOU per Jurisdiction or Governing Body is required to cover the departments and/or sub-agencies of each jurisdiction, as long as each department or sub-agency is listed on an accompanying attachment.

The attached *TSICP v24.1 (Original Issue April 2005)* is incorporated into this MOU in its entirety. The TSICP may be revised by TSICP Strategic Advisory Group (SAG) and TxDPS as needed, and revisions will be provided to jurisdictions by TxDPS.

Should Jurisdiction elect to withdraw from this MOU because of TSICP revisions, notice shall be given by email to:

Texas Department of Public Safety,
Statewide Interoperability Coordinator
TXSWIC@dps.texas.gov

This **Memorandum of Understanding** was agreed to on this date: _____ , _____ , 20_____.
The v24.1 fillable form is available here: https://www.dps.texas.gov/section/infrastructure-operations/swic-document-library
*Please **complete this page only, sign, save, and then email** as attached file to txswic@dps.texas.gov.*

***WHO SHOULD EXECUTE THIS AGREEMENT**: Each jurisdiction must individually sign this agreement.*
- *An authorized representative of a City may sign for all public safety agencies in that city.*
- *A County may sign for volunteer fire departments (VFD) if the VFD is recognized in the county emergency management plan; however,*
- *A County CANNOT sign for all cities or other public safety agencies in the county that are not a part of county government since they are separate legal entities.*
- *A Council of Governments (COG) CANNOT sign for all jurisdictions within the COG.*

*Compliance with this TSICP and the SCIP are required to receive grant funds for communications equipment. **Agencies and programmers should verify the latest version of these documents are being referenced; they can be found at*** https://www.dps.texas.gov/section/infrastructure-operations/swic-document-library

FOR JURISDICTION

Jurisdiction Name: _____

Authorized Signature: _____

Print Name: _____

Title: _____

Jurisdiction Address: _____

County: _____

Phone: _____ e-mail: _____

Jurisdiction/Agency Radio Communications Contact: _____

Phone: _____ e-mail: _____

Indicate the NUMBER of mobile, portable, temporary base, and/or mobile relay radios to be operated under TxDPS licenses. For Federal Entity Interop and 700 Air-to-Ground channels, please mark the appropriate box with a checkmark or "X" if these channels are programmed or if programming is planned in the future.

	Mobile	Portable	Temporary Base-Mobile Relay	Federal Entity Interop Channels	700 Air-to-Ground Channels
150 MHz					N/A
450 MHz					N/A
700 MHz				N/A	
800 MHz NPSPAC				N/A	N/A

(This information is required by TxDPS as a condition of its licenses from the FCC.)

TEXAS DEPARTMENT OF PUBLIC SAFETY SWIC OFFICE SIGNATURE

Signature: _____
Karla Jurrens, Statewide Interoperability Coordinator, Innovation and Data Office
Phone: (281) 517-1240 Karla.Jurrens@dps.texas.gov

TEXAS DEPARTMENT OF PUBLIC SAFETY AUTHORIZING SIGNATURE

Signature: _____
Jared Vandenheuvel, Chief Innovation Officer, Innovation and Data Office
Texas DPS, 5805 N Lamar Blvd. Austin, TX 78752
Phone: (512) 289-8847 jared.vandenheuvel@dps.texas.gov

Background Note to Users of the Texas Statewide Interoperability Channel Plan

Nationwide, public safety communications is in a period of great change driven by FCC regulatory changes, new technology, and federal grant funding requirements.

Specifically:

- The Texas Interoperable Communications Coalition (TxICC) anticipates that all federal grants will soon require that communications equipment grant funds be spent only for P25-compliant digital-capable equipment and advises all jurisdictions to purchase P25-compliant equipment.

    - Natural and technological events such as Hurricanes Harvey, Katrina and Rita, Bastrop wildland fires, Law Enforcement events, Columbia Space Shuttle disaster, and Border Security Operations, continue to emphasize the need for common mutual aid/interoperability channels to be programmed in public safety radios. For interoperability to be effective, all public safety radio users must use a common naming convention (labels) for these channels. In response to the U.S. Congress and to U.S. Department of Homeland Security, a national ANSI standard has been established for use in all jurisdictions within the United States. These names are reflected in this document.

        https://npstc.org/download.jsp?tableId=37&column=217&id=3836&file=11042-2017_CommonChannelNamingDocument.pdf

- This Channel Plan is consistent with current regulatory requirements, technical standards, and grant guidelines as they are understood at the time of issue.

Texas Statewide Interoperability Channel Plan

For FCC Designated Public Safety Interoperability Channels 150 MHz–800 MHz

1. INTRODUCTION

This Channel Plan describes conditions and guidelines for use of state-licensed interoperability or mutual-aid radio channels by:

- Local government jurisdictions and their associated emergency response agencies
- Federal agency offices in Texas and their associated emergency response organizations, and
- Private emergency response organizations licensed or eligible to operate in the Public Safety Pool as defined in the Federal Communication Commission (FCC) Rules, Part 90, (47CFR, subpart B paragraphs 90.15-90.20). For further information on FCC public safety radio pool eligibility for statewide use of interoperability channels within Texas, see 47 CFR § 90.20(a) Public Safety Pool

License privileges are extended to organizations that have executed an acceptable Memorandum of Understanding (MOU) with the Texas Department of Public Safety (TxDPS). These licenses provide for:

- Operation of VHF, UHF, 700 MHz band, and 800 MHz band radio equipment on interoperability or mutual aid channels within the boundaries of Texas
- Operation of mobile, portable, temporary base, temporary repeater, and temporary control station radios only. Fixed-base stations, such as dispatch points, PSAP's, etc., must be separately licensed by the jurisdiction, agency, or private emergency response organization, and
- Permanently installed standby repeaters must be licensed separately.

By executing an acceptable MOU associated with this Texas Statewide Interoperability Channel Plan (TSICP), public safety entities may operate under existing FCC licenses issued to TxDPS:

Channel Band	FCC License
150 & 450 MHz	WQBC290
150 & 450 MHz Federal Agency	WRCD309
700MHz Narrowband	WPTZ776
700 MHz Air-to-Ground	WPTZ776
800 MHz Nationwide	WPGV572
800 MHz Mutual Aid	WQDW771

By signing this MOU, entities agree to only use the interoperability channels for the purposes outlined herein and are NOT to be used for routine day-to-day dispatch operations.

2. GENERAL CONDITIONS FOR USE OF TEXAS DEPARTMENT OF PUBLIC SAFETY LICENSED INTEROPERABILITY CHANNELS

By executing the MOU associated with this TSICP, signatories agree to abide by the following general conditions:

2.1. Operational

- Interoperability calling channels and tactical channels should be programmed into all mobile, portable, and temporary base radios operated by signatory agencies and organizations. At a minimum, the channels should be programmed into all radios that can reasonably be expected to be operated by an agency or organization leadership (officers, incident commanders, etc.).

- Use of the interoperability channels shall be limited to their designated purpose of coordination between emergency response agencies, dispatchers, and resources in the field. Such coordination may occur during en route travel, during exercises, or on-incident.

- The interoperability channels are not to be used for routine dispatch operations but may be used by dispatchers for communications with personnel in the field, in accordance with local and regional policies and procedures. The interoperability tactical channels may be used for day-to-day emergency operations in the absence of higher priority events.

- Use of the interoperability channels shall be prioritized as follows:

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

  2. Disaster or extreme emergency operation requiring extensive interoperability and inter-agency communications.

  3. Special event, generally of a pre-planned nature.

  4. Joint training exercises.

  5. Inter-agency and en route communications in accordance with local and regional policies and procedures.

  6. On-scene tactical communications.

- Use of the interoperability channels for on-incident communications shall be in accordance with an Incident Communications Plan established by the on-scene Incident Command. The controlling agency for an incident shall, through its Incident Command, assign and\or reassign interoperability channels for each operational period as required to support incident operations.

- Uncrewed Aircraft Systems (UAS) Pilot to Pilot Coordination channels have been identified and assigned in the VHF, UHF, and 700 MHz public safety bands. These channels are options to be used for UAS Pilot to UAS Pilot and Aircraft pilot coordination as directed by Incident Command, or COML.

  Note – for UAS only, not for any crewed aircraft.

- Radio communications procedures on the interoperability channels must be consistent with the National Incident Management System (NIMS) and Incident Command System (ICS) and shall be implemented, specifically including:

- o Use "plain or commonly understood language" without 10-codes or agency-specific codes/jargon, and

- o Use the calling order "Agency-Unit #, this is Agency-Unit #" calling order, rather than "Unit # to Unit #".

  Example: "Bryan 1605 this is Tyler 2102" or "Incident Command this is DPS 505"

- Interoperability channels may be used only for voice traffic with the exception of specifically-identified data-only channels (see Tables 5.1 and 5.2). Attention tones are permissible. However, other types of signaling- Two tone, alert paging, and SCADA operations are not permitted on interoperability calling or tactical channels. Mobile data operations may be conducted on 700 MHz channels labeled for data in the tables. User-initiated telephone interconnect, e.g., phone patch, is not permitted on the interoperability channels.

- All mobile and portable radio equipment should employ a time-out timer set to limit transmission duration to a period of no greater than 120 seconds (2 minutes).

- To alleviate confusion, the standard common naming convention channel names listed in this plan shall be used in all equipment to refer to individual channels. Previously used mutual-aid channel designations (Intercity, VTAC1, etc.), are no longer valid, and shall be removed from equipment in the field.

- Radios not capable of displaying alphanumeric channel labels should be placarded to indicate the channel names and their corresponding positions on the radio's channel selector switch.

- Standard channel naming nomenclature for FCC and NTIA-designated nationwide interoperability channels will be used for public safety voice communications. It is necessary to develop and employ a common set of channel names so that all responders to an incident know which channel to tune their radios to, as well as the band and primary use for the channel. The ANSI/APCO/NPSTC 1.104.2-2017 Standard Channel Nomenclature for the Public Safety Interoperability Channels is the standard used in Texas. https://npstc.org/download.jsp?tableId=37&column=217&id=3836&file=11042-2017_CommonChannelNamingDocument.pdf

- Some agencies have adopted a three-letter standardized list of abbreviations for Texas counties and Texas Regional Radio Systems to be used as a best practice in talkgroup naming. These abbreviations can be utilized in talkgroup names that use a County or System Name abbreviation. The Texas County Abbreviations standardized list is available in the SWIC Document Library: https://www.dps.texas.gov/IOD/interop/docs/countiesandradiosystemabbreviations.xlsx

2.2. Co-Channel and Adjacent Channel Interference

The statewide interoperability channels, Continuous Tone Coded Squelch System (CTCSS) tones, and Network Access Codes (NAC) are designated statewide under this plan and thus co-channel interference by/with other simultaneous incidents is possible. If effective radiated power (ERP) is limited to the minimum level required to maintain reliable communications at each incident, and given adequate geographic separation, coordinated co-channel operations at separate incidents and venues may be conducted successfully.

If interference to the interoperability channels from licensed users who are signatory to this plan occurs during an incident, those licensed users should consider their communications to be

secondary to emergency interoperability traffic on the interoperability channels.

Co-channel and adjacent channel interference issues during an incident or event must be resolved by the on-scene designated COM-L. TxDPS should immediately be notified of interference to the interoperability channels in order to assist in resolution of the problem.

2.3. Calling Channels

Initial radio contact during travel to or arrival at an emergency incident may be established on an appropriate interoperability calling channel.

- Calling channels designated as VCALL10, UCALL40, 7CALL50, and 8CALL90 are intended to provide for local and itinerant-user communications with local public safety dispatchers. TXCALL1D is designated as a mobile-to-mobile Calling Channel. TXCALL2D is designated as a Calling Channel for state and federal aircraft to/from a base station as well as options for UAS Pilot to UAS Pilot coordination as directed by Incident Command or COML. It also will serve as a backup to VCALL10 for other applications.

- **Agencies are encouraged to place the appropriate mobile-to-mobile direct channel in the highest channel position (typically "16") in each radio zone. This can help them immediately access a direct channel to communicate with other field units by turning their channel selector the highest numbered position, without changing zones. <u>This can be particularly valuable in emergencies when units lose coverage from their local system due to distance or building penetration factors. It is very important to train on the use situations of your portable and mobile radio.</u>**

    <u>Designated Direct Channels for this purpose are</u>:
    - **VHF: TXCALL1D**
    - **UHF: UTAC42D**
    - **700 MHz: 7GTAC57D**
    - **800 MHz: 8TAC95D**

- Additionally, the calling channels may be used by responding emergency resources seeking to make contact with the incident command post or staging area(s) at a large-scale incident.

- If a region (or an adjacent region) has jurisdictions that use VHF equipment, the channel VCALL10 should be monitored by appropriate dispatch centers when possible and practical within the affected regions.

- If a region (or an adjacent region) has jurisdictions that use UHF equipment, the channel UCALL40 should be monitored by appropriate dispatch centers when possible and practical within the affected regions.

- If a region (or an adjacent region) has jurisdictions that use 700 MHz band equipment, the channel 7CALL50 should be monitored by appropriate dispatch centers when possible and practical within the affected regions.

- If a region (or an adjacent region) has jurisdictions that use 800 MHz equipment, the channel 8CALL90 should be monitored by appropriate dispatch centers when possible and practical within the affected regions.

2.4. CTCSS Coded Squelch for VHF, UHF, and 800 MHz

CTCSS shall be used on the interoperability calling and tactical channels to mask interference, in accordance with the figures and dates listed in this plan.

The CTCSS tone of 156.7 Hz shall be used for all analog operation on VHF **simplex,** all UHF, and 800 MHz interoperability channels (including fixed, temporary, mobile, and portable analog transmitters). For VHF **repeater** CTCSS and channel programming, see Tables 4.3 and 4.4.

- CTCSS tone programming for VHF, UHF, and 800 MHz must be in compliance with the latest released version of the NIFOG.

- It is recommended that if the capability exists, a monitor button should be programmed to allow channel monitoring in open carrier squelch, per FCC Rules, Part 90.

Only the CTCSS tones identified in this channel plan are allowed on the interoperability channels within the state. These tones and codes shall not be changed, nor others added by an individual agency, communications vendor, or maintenance service provider.

2.5. Modulation and Encryption

This plan identifies allowable modulation and encryption on calling and tactical channels:

- VHF/UHF Analog Modulation at 2.5 kHz is mandatory on all calling and tactical channels to facilitate interoperability with legacy radio equipment in the field.

- 800 MHz Calling Channels: Analog Modulation at 4 kHz is mandatory on all calling and tactical channels to facilitate interoperability with legacy radio equipment in the field.

- 700 MHz interoperability channels must always use P25 CAI digital conventional Modulation.

- The TIA 102 standard is the Project 25 standard. The following list includes most but is not all encompassing of proprietary formats that do **not** meet the TIA 102 P25 standard: ASTRO 3600, DMR, EDACS, IDAS, MOTOTRBO, NEXEDGE, OPENSKY, and TETRA.

- For pre-planned events and unplanned incidents where communications security is an issue, encrypted P25 Phase 1 CAI modes are authorized on tactical channels. Specific encryption algorithms and encryption keys shall be as defined by the event COML.

2.6. Temporary Base and Repeater/Mobile Relay Stations

Temporary base stations and repeater/mobile relay stations are permitted by the MOU associated with this channel plan, with the following conditions or restrictions:

- Temporary base and repeater/mobile relay stations shall not be left in permanent operation and must be disabled upon conclusion of an incident or exercise. Permanently installed Standby Repeaters, if identified in regional interoperability plans, must be separately licensed for interoperability only. No license shall be acquired to use a frequency identified for interoperability for day-to-day use.

- Use of Temporary base and repeater/mobile relay stations for on-incident communications are coordinated with the Incident Communications Plan established by the on-scene Incident Command or COML.

- Temporary base stations and temporary repeater/mobile relays that are deployed under this plan may not exceed FCC licensed limitations:

	Transmitter Power	**Effective Radiated Power (ERP)**
o VHF	50	100
o UHF	100	200
o 700 MHz P25	35	35
o 800 MHz Temp Base	35	35
o 800 MHz Repeater	75	75

- Temporary base stations and repeater/mobile relay stations must incorporate automatic station identification, using the appropriate call sign(s) per FCC Rules, Part 90.

- Temporary base and repeater/mobile relay stations shall have a time-out timer limiting transmit duration to no greater than 120 seconds (2 minutes).

- Temporary base and repeater/mobile relay stations, when operating in the repeater mode, shall be configured to immediately drop transmit carrier upon cessation of input signal (no "hang time") Reasonable squelch hang time for weak received signals or signals that have achieved a critical bit error rate (BER) is permitted.

- Contact the Incident Command or COML for assistance. Further assistance can be requested by contacting the Office of the Texas SWIC. TXSWIC@dps.texas.gov

2.7. Conditions for Use of VHF and UHF Federal Entity Interoperability Channels

2.7.1.   Requirements per the MOU between the State of Texas and the FCC

Consistent with Section 4.3.16 of the NTIA Manual, the Parties agree that they shall abide by the following conditions for the use of the Federal Interoperability Channels listed in tables 4.5 and 4.6 for VHF, and tables 5.2 and 5.3 for UHF of this TSICP:

1. These channels are available for use among Federal agencies and between Federal

agencies and non-Federal entities with which Federal agencies have a requirement to operate.

2. These channels are available to non-Federal entities to enable joint Federal / non-Federal operations for law enforcement and incident response, subject to the condition that harmful interference will not be caused to Federal stations.

3. These channels are restricted to interoperability communications and are not authorized for routine or administrative uses as defined by the NTIA Manual.

4. Extended operations and congestion may lead to frequency conflicts. Coordination with NTIA (through sponsoring Federal agency) is required to resolve these conflicts.

5. Only narrowband emissions are to be used on the Federal Entity Interoperability Channels

6. This MOU does not authorize the provisioning or use of the frequencies listed in tables 4.4, 4.5, 5.2, and 5.3 in any permanent infrastructure.

7. Default operation should be carrier squelch receive; CTCSS 167.9 transmit. If the user can enable/disable CTCSS without reprogramming the radio, the indicated CTCSS tone also could be programmed for receive, and the user instructed on how and when to enable/disable.

Federal Agency Interoperability channels may NOT be used for State-to-State, State-to-Local, or Local-to-Local interoperability. A Federal entity must be involved when these channels are used, except during training and exercises as coordinated through the Texas SWIC.

2.7.2. Suggestions per the National Interoperability Field Operations Guide (NIFOG)

1. The "VHF Incident Response (IR) Federal Interoperability Channel Plan", the "UHF Incident Response (IR) Federal Interoperability Channel Plan", the "VHF Law Enforcement (LE) Federal Interoperability Channel Plan", and the "UHF Law Enforcement (LE) Federal Interoperability Channel Plan" show frequencies available for use by all Federal agencies to satisfy law enforcement and public safety incident response interoperability requirements. These frequencies will be referred to hereinafter as "Federal Interoperability Channels".

2. **The Federal Interoperability Channels are available for use among Federal agencies and between Federal agencies and non-federal entities with which Federal agencies have a requirement to operate.**

3. The channels are available to non-federal entities to enable joint Federal/non-federal operations for law enforcement and incident response, subject to the condition that harmful interference will not be caused to Federal stations. These channels are restricted to interoperability communications and are not authorized for routine or administrative uses.

4. Extended operations and congestion may lead to frequency conflicts. Coordination with NTIA is required to resolve these conflicts.

5. Only narrowband emissions are to be used on the Federal Interoperability Channels.

6. Equipment used (transmitters and receivers) must meet the standards established in Section 5.3.5.2 of the NTIA Manual:
   a. TIA/EIA 603-B for narrowband analog
   b. TIA TSB 102.CAAB-A for narrowband digital

7. A complete listing of conditions for use by Federal users can be found in Section 4.3.16 of the NTIA Manual.

8. Use of these frequencies within 75 miles of the Canadian border and 5 miles of the Mexican border require special coordination and, in some cases, will not be available for use.

2.7.3. Law Enforcement Plans
1. Frequencies 167.0875 MHz (Channel Name: LE A) and 414.0375 MHz (Channel Name: LE B) are designated as National Calling Channels for initial contact and will be identified in the radio as indicated in the Law Enforcement Federal Interoperability Channel Plans.
2. Initial contact communications will be established using narrowband analog FM emission (11K2F3E).
3. The interoperability channels will be identified in mobile and portable radios as indicated in the Law Enforcement Federal Interoperability Channel Plans with Continuous Tone-Controlled Squelch Systems (CTCSS) frequency 167.9 Hz and/or Network Access Code (NAC) $68F ($1679_{10}$).

2.7.4. Incident Response Plans
1. Frequencies 169.5375 MHz (Channel Name: NC 1) (paired with 164.7125 MHz) and 410.2375 MHz (Channel Name: NC 2) (paired with 419.2375 MHz) are designated as the calling channels for initial contact and will be identified in the radio as indicated in the Incident Response Federal Interoperability Channel Plans.
2. Initial contact will be established using narrowband analog FM emission (11K2F3E).
3. To ensure access by stations from outside the normal area of operation, Continuous Tone-Controlled Squelch Systems (CTCSS) will not be used on the calling channels.
4. The interoperability channels will be identified in mobile and portable radios as indicated in the "VHF Incident Response (IR) Federal Interoperability Channel Plan" and the "UHF Incident Response (IR) Federal Interoperability Channel Plan".

3. TRUNKED RADIO SYSTEMS

3.1. Statewide Coordinated P25 Radio Unit ID Range Management Plan

WHAT:
The Statewide Coordinated P25 Radio Unit ID[1] Range Management Plan is an effort to coordinate the distribution of unique identifiers for P25 subscriber radios across the state of Texas. P25 IDs are assigned to create service for a subscriber on a P25 network. P25 subscribers come in a variety of forms, including portable handheld radios, mobile radios, consolettes, and console operator positions.

The Project 25 Standard defines just over 16 million unit IDs which can be used by any one system. For proper operation, subscriber devices MUST be using a UNIQUE identifier, which functions exactly like a telephone number. The Statewide Coordination Plan pre-allocates the IDs in blocks by COG, which can then be further subdivided as desired.

The Statewide Coordinated P25 Radio Unit ID Plan ONLY applies to the coordination of ID Ranges, and does not address, and is not intended to, coordinate, allocate, or otherwise control the activation or allocation of individual Radio IDs.

WHY:
The purpose of this initiative is to reduce duplication of IDs across the state so that each P25 subscriber and mobile ID has a unique identifier, and such that each user can use the assigned P25 Unit ID no matter where they are operating in the state.

The Agencies that have implemented this approach have experienced a number of benefits:
- **Allows Distributed Governance and Local Control Over ID Ranges** – The primary goal of this approach is to achieve both the benefits of centralized coordination, while allowing local and regional controls over range management.
- **Improved Disaster Response Times** – This method greatly simplifies the mechanisms for enabling First Responders to operate on different systems throughout the State, saving precious time during disaster response.
- **One ID per Radio** – System owners only need to track one Radio Unit ID per radio, which makes tracking and managing radios, users, and radio programming profiles ("codeplugs") much easier.
- **Reduces Duplicate Radio Unit IDs** – Time and troubleshooting efforts are greatly reduced for radio system support teams.
- **Simplifies Management & Allocation** – Helps eliminate errors in assigning IDs because they are organized into the Radio Unit ID fleetmap[2] structure.
- **Easier to Connect Systems** – For systems that are already coordinated, this approach removes one of the significant obstacles to integrating systems, which is the need to coordinate and reprogram Radio Unit IDs in order to remove duplications.
- **Improves Recovery of Lost or Stolen radios, Reduces Security Risk** – Allows a lost, or stolen device to be disabled or inhibited across multiple networks increasing the likelihood of recovery and without worry of "disabling" an authorized local, radio subscriber unit.
- **Enables quick identification of a Home jurisdiction by ID Range** – Entities are able to determine the subscriber's jurisdiction by viewing the leading numbers of the P25 Unit ID because they are allocated by COG/Tribe/Jurisdiction.

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[1] The term "ID" is an abbreviation for "Identifier" in P25, a term rarely used and so just "ID" is used here.

[2] In this instance, fleetmap refers to P25 Radio Unit ID fleetmaps.

HOW:
Some COGs have begun allocating ID ranges from within their allocated range at the 'million level,' further dividing their range by creating ranges for counties and cities, as desired.

COGs that share an allocated 'million level' range with other COGs must first coordinate to determine which COG will have which block of ID ranges within the 'million level' range.

Once the COG-level ID range is known, each COG can determine how they prefer to address ID range ownership and range management. To implement the Plan, points of contact at the COG and, in many cases, county level must be identified to manage the allocation of ID ranges.

Some regions may have one point of contact to own the range at the COG level and manage all IDs that are assigned to agencies across the COG. In other areas, there may be multiple range owners within the geography range of the COG – at the county, city, and agency levels.

The graphic below is **only an example** to illustrate the concept of ID allocation beginning at the 'million level' range down to the agency level. This illustration uses a shorthand nomenclature; examples are shown at right.
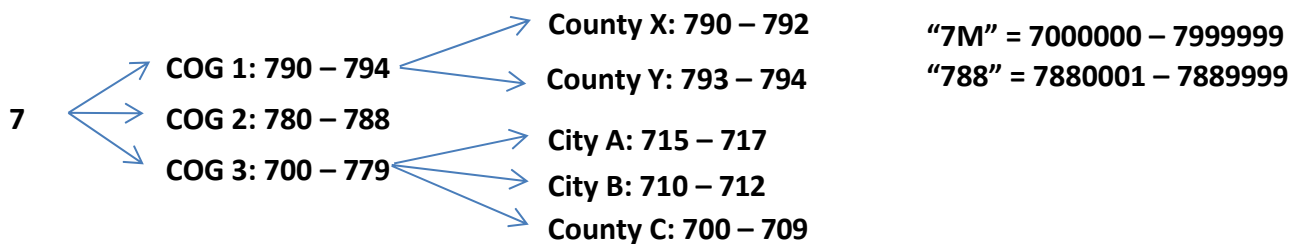
While the concept of dividing and allocating an ID range seems relatively simple, there needs to be strict attention to detail and specific tracking of ID range assignments to ensure successful ID range allocations. There are numerous real-world scenarios where ID range assignments were not carefully managed and extensive problems arose, from both a financial perspective and the level of effort to repair the problems.

- To prevent this from happening in other areas, tools are available to assist entities in allocating and managing ID ranges and to determine the appropriate point of contact to obtain a range of IDs. Contact the Office of the SWIC. TXSWIC@dps.texas.gov

WHEN:
The State has not established a deadline for migration to coordinated ID range management. For existing radios using uncoordinated IDs, the change requires radio reprogramming. Because it is understood that radios across the state may not be able to be reprogrammed immediately, it is strongly encouraged that entities reprogram radios with new IDs as their radios are programmed for other or additional reasons.

As radios are reprogrammed, it is EXTREMELY important that the entity reprogramming the radios obtain the latest version of the TSICP and verify if any necessary channel programming updates must be made to be in compliance with the TSICP. **Grant funding is evaluated based upon verification of radio programming compliance with the TSICP, including compliance with the Statewide Coordinated P25 Radio Unit ID Range Management Plan.**

The table below shows the allocation of Statewide Coordinated P25 Radio Unit IDs at the millions level or "M" ranges. The M range indicates the leading one or two digits and are allocated as below, as of the publication date of this document. A brief description of each range and an explanation of the acronyms is provided following the table.

Table 3.1: Statewide Coordinated P25 Radio Unit IDs – Current Range Allocations

Range Abbreviation	P25 UNIT ID RANGE		Geographical Allocation by COG
	Low	High	
Legacy (0M)	*0000001*	*0999999*	*uncoordinated*
1M	1000000	1999999	HGAC
2M	2000000	2999999	HGAC, BVCOG, ETCOG
3M	3000000	3999999	HGAC
4M	4000000	4999999	HGAC, DETCOG, ETCOG SETRPC
5M	5000000	5999999	State, Tribal & Federal Agencies
6M	6000000	6999999	AACOG, CBCOG
7M	7000000	7999999	ATCOG, NCTCOG, TEXOMA
8M	8000000	8999999	LRGVDC, LCRA
9M	9000000	9999999	PBRPC, RGCOG
10M	10000000	10999999	GCRPC, CAPCOG, CTCOG, HOTCOG
11M	11000000	11999999	STDC, MRGDC
12M	12000000	12999999	CVCOG, WCTCOG, NORTEX
13M	13000000	13999999	Reserved for system level temporary usage (ISSI)
14M	14000000	14999999	PRPC, SPAG
15M	15000000	15999999	Unallocated
16M	16000000	16077700	Unallocated

Range Allocation Descriptions

- **Legacy "0M"** – This is the range used by systems prior to or instead of the unique range allocation approach. These IDs are only 7 digits in length and lead with a "0" or null characters. This range is uncoordinated.

- **1M Range** – These IDs are coordinated and used by the Harris County TxWARN system and are allocated to cities and counties in the Harris-Galveston Area Council (HGAC) COG. The range is fully allocated and in active use on TxWARN.

- **2M Range** – The 2M IDs are coordinated by TxWARN and are used by the Brazos Valley Council of Governments (BVCOG), the Brazos Valley Wireless Access Communications System (BVWACS), the East Texas Medical Center (ETMC) and the Metropolitan Transit Authority (MTA).

- **3M Range** – The 3M IDs are coordinated by City of Houston and allocated to cities and counties in the Harris-Galveston Area Council (HGAC) COG. The range is fully allocated and in active use by City of Houston.

- **4M Range** – The 4M IDs are coordinated by City of Houston and are allocated to HGAC agencies, South East Texas Regional Planning Commission (SETRPC) East Texas COG (ETCOG) and Deep East Texas COG (DETCOG).

- **5M Range** – Texas DPS manages this range which is allocated to all Texas State Agencies, Tribal Agencies, and Federal Agencies.

- **6M Range** – The 6M Range is allocated to the Alamo Area Council of Governments (AACOG), supporting the greater San Antonio region, and Coastal Bend COG, (CBCOG), supporting a vulnerable part of the Gulf Coast. Part of this allocation geographically overlaps with LCRA range 8M.

- **7M Range** – The 7M Range is allocated to the North Central region surrounding the Dallas/Fort Worth area, North Central Texas COG (NCTCOG), the Ark-Tex COG (ATCOG) and the Texoma Council of Governments (TEXOMA). Primary ID range and coordination is provided by the CONNCT consortium and the Fort Worth Regional Radio System (FWRRS).

- **8M Range** – The 8M range is allocated to the LCRA P25 system and the Lower Rio Grande Valley Development Council (LRGVDC). The LCRA portion of this allocation geographically overlaps with other geographic ranges across the state.

- **9M Range** – The Rio Grande Council of Governments (RGCG) and Permian Basin Regional Planning Commission (PBRPC) have split this range into equal parts.

- **10M Range** – The 10M range begins the 8-digit IDs. The range has been allocated to the Central Texas COG (CTCOG), Heart of Texas COG (HOTCOG), Capital Area COG (CAPCOG), the Greater Austin Travis Regional Radio System (GATRRS), and the Golden Crescent Regional Planning Commission (GCRPC). Two counties, Karnes, and Wilson from AACOG have also been allocated to this range.

- **11M Range** – The 11M range is allocated to the South Texas Development Council (STDC) and the Middle Rio Grande Development Council (MRGDC) with county-by-county allocations.

- **12M Range** – Concho Valley COG (CVCOG), Nortex Regional Planning Commission (NORTEX) and West Central Texas COG (WCTCOG)

- **13M Range** – For temporary system use, including ISSI roaming.

- **14M Range** – The 14M range is allocated to the northern parts of the state, accommodating the Panhandle Regional Planning Commission (PRPC) and the South Plains Association of Governments (SPAG).

Note: The 15M and 16M ranges remain unallocated.
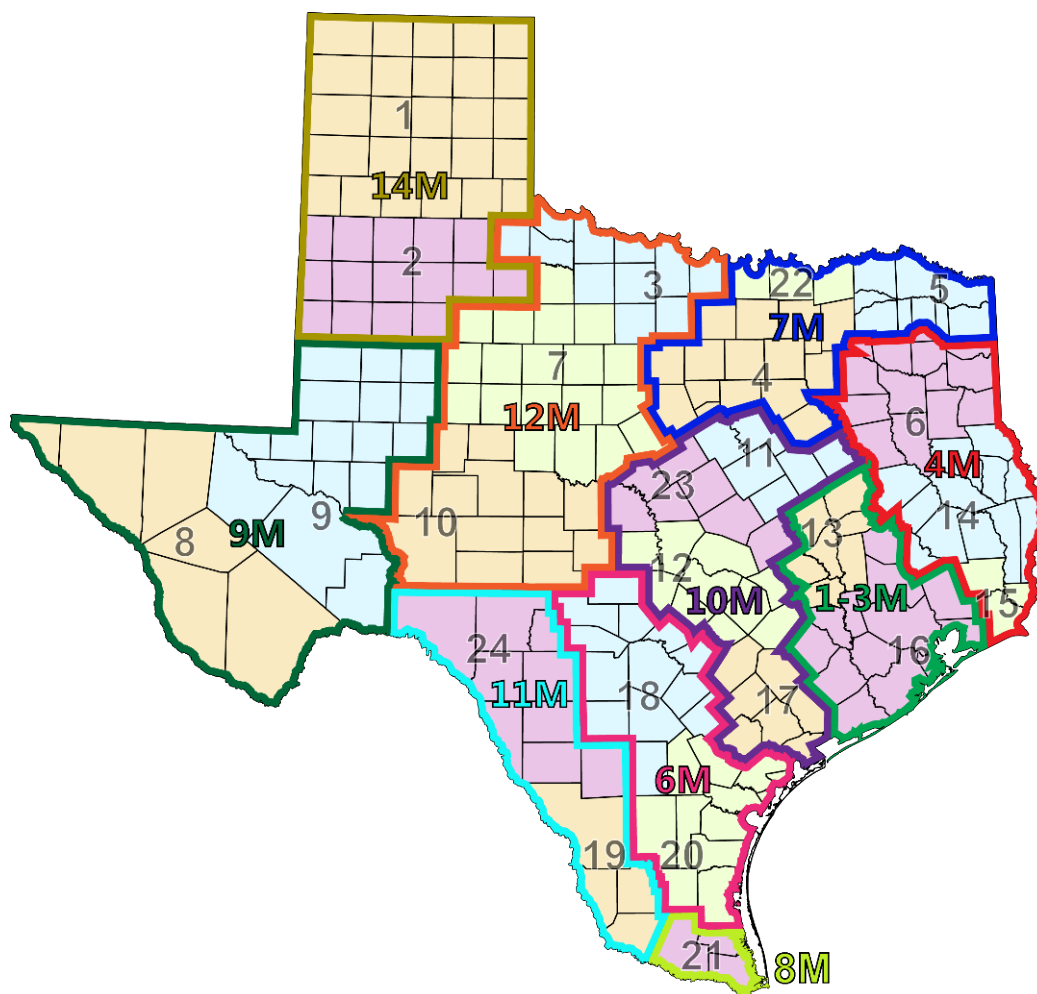
Coordinated P25 ID Allocations by COG

Notes & Assumptions
The following notes and assumptions are provided to explain the source and status of the Current Range table presented below.

- **Process Applies to ID Range Allocations** – This process has been developed to coordinate the assignment of the ID Ranges, rather than the activation of IDs into a device for operation on P25 Network(s).
  - o Many system owners provide and support both functions.
  - o Only system owners can authorize operation/Unit ID activations.
- **Subject to Change** – The range allocations will be updated and further defined by various stakeholder entities. Please contact the Texas SWIC Office for most current view.
- **Levels of Implementation Varies** – Some ranges are fully implemented and support thousands of operating radios, some ranges have not been implemented beyond this allocation document.
- **Please Submit Corrections & Suggestions** – Should you have a need for a range allocation, or you have an update to this suggested approach, please contact the Texas SWIC Office.

4. VHF 150 MHz Channels – SPECIFIC GUIDELINES

The VHF channels described in Table 4.2 are licensed for simplex or half-duplex operation as indicated. These may be used in accordance with regional interoperability plans. Table 4.1 includes the recommended "short list" of VHF interoperable channels.

All channels may be used in conjunction with a temporary patch or temporary gateway connection, provided that they do not cause interference. **None of the interoperability channels may be used for routine dispatch operations.**

Note the following:

- Table 4.1 outlines the recommended short list of VHF channels that all Texas public safety agencies should program into their VHF capable radios. For radios with limited channel capacity, these channels may be the only ones programmed. For larger-capacity radios, it is recommended that these channels be programmed into the **first VHF** zone in the radio.

  - With larger channel capacity radios, where possible, it is also recommended that other VHF zones are populated in numerical order, regardless of discipline association. (e.g., VFIRE24, VFIRE25, VFIRE26, VMED28, VMED29, VLAW31, VLAW32, etc.)

  - Users should also be aware that even though some channels have a discipline associated with the name (LAW, FIRE, MED, etc.), ALL disciplines can still use those channels when specified by the Incident Command or COML.

- The VHF interoperability channels VCALL10 through TXCALL1D are identified for interoperability use within Texas. The channel VCALL10 is designated by this plan as a multi-discipline, multi-agency public safety interoperability calling channel for all public safety agencies and other signatories to the MOU associated with this channel plan.

- The tactical channels, except where designed for use with state and federal aircraft ONLY, are identified by this plan as multi-discipline, multi-agency public safety interoperability tactical channels for all public safety agencies and other signatories to the MOU associated with this channel plan. The tactical channels may be used for day-to-day agency operations, secondary to users at higher priority incidents requiring interoperability. Additionally, these channels can only be used in the manner intended with this plan. Using them for local repeater inputs or outputs is not allowable.

- At large incidents, all of the tactical channels including those that are identified by discipline (Law, Fire, and Med) may be assigned by the on-scene commander as needed without regard to discipline.

- **VFIRE26 is designated for tactical Ground-to-Air/Air-to-Ground communications with State and Federal aircraft ONLY.**

- **VMED28, in addition to being a medical tactical and mutual aid channel, is also designated for Ground-to-Air communications with EMS helicopters and other aircraft that may be assigned to an incident or event.**

- TXCALL1D will be used as a calling channel for mobile-to-mobile applications. This will provide a common channel for an interagency/inter-discipline mobile to call another mobile, especially

while in travel status. It is recommended for all VHF mobile radios to have this calling channel programmed into them and have the ability to be monitored while in scan mode.

- TXCALL2D is designated as a Calling Channel for state and federal aircraft to/from a base station as well as options for UAS Pilot to UAS Pilot coordination, as directed by Incident Command or COML.

- Mobile Communications Platform (MCPs) should monitor VCALL10 at all times when in Operation. They should have equipment to transmit and receive all VHF interoperable simplex and repeater channels.

- National standards for interoperability channel names have been adopted so that all public safety equipment has a common naming convention. In accordance with APCO/NPSTC 1.104.2-2017, these labels are listed in the Tables below and all participating agencies must use these labels.

- Federal agency channels identified in tables 4.4 and 4.5 should only be used per the guidelines listed in pages 17 – 19 of this document.

Table 4.1: Recommended <u>Short List</u> of VHF Interoperability Channels for Texas Public Safety Agencies

- To enable efficient and effective use of interoperability channels when multiple disciplines and jurisdictions respond to an incident, it is recommended that this short list of channels be the first channels programmed into VHF radios.
- For agencies with radios that are limited to 16 channels, these may be the only channels programmed.
- For radios with larger channel capacity, it is recommended that these 16 channels be programmed into the first VHF zone, and the channels on the following tables to be programmed in remaining available zones.

Ch #	Label (Channel Name / Trunked Radio System Talkgroup)	RX Freq	RX Tone/NAC	TX Freq	TX Tone/NAC	Mode (A, D, M)	Use
1	VCALL10	155.7525	156.7	155.7525	156.7	A	Calling Channel
2	VTAC11	151.1375	156.7	151.1375	156.7	A	Generic Public Safety Tactical
3	VTAC12	154.4525	156.7	154.4525	156.7	A	Generic Public Safety Tactical
4	VTAC13	158.7375	156.7	158.7375	156.7	A	Generic Public Safety Tactical
5	VTAC14	159.4725	156.7	159.4725	156.7	A	Generic Public Safety Tactical
6	VFIRE21	154.2800	156.7	154.2800	156.7	A	Fire Tactical
7	VFIRE22	154.2650	156.7	154.2650	156.7	A	Fire Tactical
8	VFIRE23	154.2950	156.7	154.2950	156.7	A	Fire Tactical
9	VFIRE26	154.3025	156.7	154.3025	156.7	A	Fire Tactical and Air-to-Ground with State & Federal Aircraft ONLY
10	VMED28	155.3400	156.7	155.3400	156.7	A	Medical Tactical & Air-to-Ground with Medical Aircraft
11	VMED29	155.3475	156.7	155.3475	156.7	A	Medical Tactical
12	VLAW31	155.4750	156.7	155.4750	156.7	A	Law Enforcement Tactical
13	VLAW32	155.4825	156.7	155.4825	156.7	A	Law Enforcement Tactical
14	VTAC36	151.1375	156.7	159.4725	136.5	A	Generic Public Safety Repeater (Preferred 1 VHF)
15	TXCALL2D	155.3700	156.7	155.3700	156.7	A	Flight-following and Air-to-Ground with State/Federal Aircraft ONLY
16	TXCALL1D	154.9500	156.7	154.9500	156.7	A	Direct TAC Channel

Table 4.2: VHF 150 MHz <u>Simplex</u> Interoperability Channels (12.5 kHz)

Emission Designator 11K2F3E

Mobile and Portable Configuration*					
Label	**Receive**	**Transmit**	**Station Class**	**CTCSS RX /TX**	**Use**
VCALL10	155.7525	155.7525	FBT / MO	156.7 / 156.7	Calling Channel
VTAC11	151.1375	151.1375	FBT / MO	156.7 / 156.7	Tactical Channel
VTAC12	154.4525	154.4525	FBT / MO	156.7 / 156.7	Tactical Channel
VTAC13	158.7375	158.7375	FBT / MO	156.7 / 156.7	Tactical Channel
VTAC14	159.4725	159.4725	FBT / MO	156.7 / 156.7	Tactical Channel
VTAC17[3]	161.8500	157.2500	FBT / MO	156.7 / 156.7	Tactical Channel
VTAC17D[4]	161.8500	161.8500	FBT / MO	156.7 / 156.7	Tactical Channel
VSAR16	155.1600	155.1600	FBT / MO	127.3 / 127.3	SAR Common
VFIRE21	154.2800	154.2800	FBT / MO	156.7 / 156.7	Tactical Channel
VFIRE22	154.2650	154.2650	FBT / MO	156.7 / 156.7	Tactical Channel
VFIRE23	154.2950	154.2950	FBT / MO	156.7 / 156.7	Tactical Channel
VFIRE24	154.2725	154.2725	FBT / MO	156.7/ 156.7	Tactical Channel
VFIRE25	154.2875	154.2875	FBT / MO	156.7 / 156.7	Tactical Channel
VFIRE26	154.3025	154.3025	FBT / MO	156.7 / 156.7	Tactical Channel (for Air-to-Ground with state/federal Aircraft ONLY)
VMED28	155.3400	155.3400	FBT / MO	156.7 / 156.7	Tactical Channel (and for Air-to-Ground use)
VMED29	155.3475	155.3475	FBT / MO	156.7 / 156.7	Tactical Channel
VLAW31	155.4750	155.4750	FBT / MO	156.7 / 156.7	Tactical Channel
VLAW32	155.4825	155.4825	FBT / MO	156.7 / 156.7	Tactical Channel
TXCALL1D	154.9500	154.9500	FBT / MO	**156.7 / 156.7**	Direct TAC Channel
TXCALL2D	155.3700	155.3700	FBT / MO	**156.7 / 156.7**	Flight-following and Air-to-Ground with State/Federal Aircraft ONLY

Allowable uses for VTAC17 and VTAC17D: Base stations: 50 watts max, antenna HAAT 400 feet max. Mobile stations: 20 watts max, antenna HAAT 15 feet max. These channels are for tactical use and may not be operated on board aircraft in flight. These channels use narrowband FM and are available only in certain inland areas at least 100 miles from a major waterway. These channels use the same frequencies as VHF Marine channel 25, which uses wideband FM. Use only in authorized counties listed below. In these authorized areas, interoperability communications have priority over grandfathered public coast and public safety licensees.

VTAC17 and VTAC17D may ONLY be used in the following counties: Andrews Armstrong Bailey Borden Brewster Briscoe Callahan Carson Castro Childress Cochran Coke Collingsworth Concho Cottle Crane Crockett Crosby Culberson Dallam Dawson Deaf Smith Dickens Donley Ector Edwards El Paso Fisher Floyd Gaines Garza Glasscock Gray Hale Hall Hansford Hartley Haskell Hockley Howard Hudspeth Hutchinson Irion Jeff Davis Jones Kent Kimble King Kinney Knox Lamb Lipscomb Loving Lubbock Lynn Martin McCulloch Menard Midland Mitchell Moore Motley Nolan Ochiltree Oldham Parmer Pecos Potter Presidio Randall Reagan Reeves Roberts Runnels Schleicher Scurry Sherman Sterling Stonewall Sutton Swisher Taylor Terrell Terry Tom Green Upton Val Verde Ward Wheeler Winkler Yoakum **(extracted from the National Interoperability Field Operations Guide** https://www.dhs.gov/publication/fog-documents)

Table 4.3: VHF 150 MHz – __Mobile/Portable__ Radio Configuration for Repeater Usage (12.5 kHz) [5,6,7,8]

Emission Designator 11K2F3E

When programming mobile and portable radios for VTAC repeaters, be aware that the VTAC33-38 repeater pairs are made up of various combinations of the simplex channels VTAC11, VTAC12, VTAC13 and VTAC14. Attention must be given to programming the correct sub-audible tones.

CTCSS tone programming for VHF frequencies must be in compliance with the latest released version of the NIFOG.

Label	Receive	Transmit	Station Class	CTCSS RX /TX	Use
NOTE: The sub-audible tones of the following are different from simplex programming!					
Mobile and Portable Configuration					
Mobile and Portable Configuration for Primary Repeater Pair Use					
VTAC36 Preferred Repeater	151.1375 **VTAC 11**	159.4725 **VTAC 14**	FBT / MO	**156.7 / 136.5**	A – Tactical Repeater
VTAC37 Preferred Secondary Repeater Use – On Incident	154.4525 **VTAC 12**	158.7375 **VTAC 13**	FBT / MO	**156.7 / 136.5**	B – Tactical Repeater
Mobile and Portable Configuration for *Second* Alternate Repeater Pair Use *CANNOT BE USED IF PRIMARY REPEATER PAIRS ARE IN USE*					
VTAC33	159.4725 **VTAC 14**	151.1375 **VTAC 11**	FBT / MO	**156.7 / 136.5**	C – Tactical Repeater
VTAC34	158.7375 **VTAC 13**	154.4525 **VTAC 12**	FBT / MO	**156.7 / 136.5**	D – Tactical Repeater
Mobile and Portable Configuration for *Third* Alternate Repeater Pair Use *CANNOT BE USED IF 33,34,36,37,38 REPEATER PAIRS ARE USED*					
VTAC35	159.4725 **VTAC 14**	158.7375 **VTAC 13**	FBT / MO	**156.7/ 136.5**	E – Tactical Repeater
Mobile and Portable Configuration for *Forth* Alternate Repeater Pair Use *CANNOT BE USED IF 33,34,35,36,37 REPEATER PAIRS ARE USED*					
VTAC38	158.7375 **VTAC 13**	159.4725 **VTAC 14**	FBT / MO	**156.7 / 136.5**	F – Tactical Repeater

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[5] VTAC33-38 recommended for deployable tactical repeater use only (FCC Station Class FB2T). VTAC36-38 are preferred; VTAC33-35 should be used only when necessary due to interference.

[6] In an emergency, additional Department of Defense VHF Repeater Channels (below 150.8 MHz) can be made available through coordination with the Communications Coordination Group (CCG). Please contact the CCG through your local Disaster District Committee.

[7] Channel names in **red** highlight duplicated frequencies that are used make repeater pairs from VHF simplex VTAC channels. Follow the table to avoid frequency interference.

[8] VTAC36 repeater pair is the preferred repeater configuration for use in Texas

Table 4.4: VHF 150 MHz <u>Repeater Pair</u> Interoperability Channel Configuration (12.5 kHz)[5,6,7,8₂]

Emission Designator 11K2F3E

When assigning repeater channels, be aware that the VTAC33-38 repeater pairs are made up of various combinations of the simplex channels VTAC11, VTAC12, VTAC13 and VTAC14. Attention must be given to avoid assigning overlapping repeater channels and those simplex channels on the same incident or nearby incident.

CTCSS tone programming for VHF frequencies must be in compliance with the latest released version of the NIFOG.

Label	Receive	Transmit	Station Class	CTCSS RX /TX	Use
NOTE: The sub-audible tones of the following are different from simplex programming!					
Repeater / Base Configuration					
Primary Repeater Pair Use					
VTAC36 Preferred Repeater	159.4725 VTAC 14	151.1375 VTAC 11	FB2T	136.5 / 156.7	A – Tactical Repeater
VTAC37 Preferred Secondary Repeater Use – On Incident	158.7375 VTAC 13	154.4525 VTAC 12	FB2T	136.5 / 156.7	B – Tactical Repeater
Second Alternate Repeater Pair Use *CANNOT BE USED IF PRIMARY REPEATER PAIRS ARE IN USE*					
VTAC33	151.1375 VTAC 11	159.4725 VTAC 14	FB2T	136.5 / 156.7	C – Tactical Repeater
VTAC34	151.1375 VTAC 12	159.4725 VTAC 13	FB2T	136.5 / 156.7	D – Tactical Repeater
Third Alternate Repeater Pair Use *CANNOT BE USED IF 33,34,36,37,38 REPEATER PAIRS ARE USED*					
VTAC35	158.7375 VTAC 13	159.4725 VTAC 14	FB2T	136.5 / 156.7	E – Tactical Repeater
Fourth Alternate Repeater Pair Use *CANNOT BE USED IF 33,34,35, 36,37, REPEATER PAIRS ARE USED*					
VTAC38	159.4725 VTAC 14	158.7375 VTAC 13	FB2T	136.5 / 156.7	F – Tactical Repeater

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[5] VTAC33-38 recommended for deployable tactical repeater use only (FCC Station Class FB2T). VTAC36-38 are preferred; VTAC33-35 should be used only when necessary due to interference.

[6] In an emergency, additional Department of Defense VHF Repeater Channels (below 150.8 MHz) can be made available through coordination with the Communications Coordination Group (CCG). Please contact the CCG through your local Disaster District Committee.

[7] Channel names in **red** highlight duplicated frequencies that are used make repeater pairs from VHF simplex VTAC channels. Follow the table to avoid frequency interference.

[8] VTAC36 repeater pair is the preferred repeater configuration for use in Texas

Table 4.5: Federal Agency VHF Incident Response Interoperability Channels
Emission Designator 11F3E

Ch #	Label	RX Freq	RX Tone/NAC *	TX Freq	TX Tone/NAC	Mode (A, D, M)	Use
1	NC 1	169.5375	CSQ	164.7125	167.9	A	Incident Calling
2	IR 1	170.0125	CSQ	165.2500	167.9	A	Incident Command
3	IR 2	170.4125	CSQ	165.9625	167.9	A	Medical Evacuation Control
4	IR 3	170.6875	CSQ	166.5750	167.9	A	Logistics Control
5	IR 4	173.0375	CSQ	167.3250	167.9	A	Interagency Convoy
6	IR 5	169.5375	CSQ	169.5375	167.9	A	Incident Calling – Direct for NC 1
7	IR 6	170.0125	CSQ	170.0125	167.9	A	Incident Command – Direct for IR 1
8	IR 7	170.4125	CSQ	170.4125	167.9	A	Medical Evacuation Control – Direct for IR 2
9	IR 8	170.6875	CSQ	170.6875	167.9	A	Logistics Control – Direct for IR 3
10	IR 9	173.0375	CSQ	173.0375	167.9	A	Interagency Convoy – Direct for IR 4

Default operation should be carrier squelch receive; CTCSS 167.9 transmit. If the user can enable/disable CTCSS without reprogramming the radio, the indicated CTCSS tone also could be programmed for receive, and the user instructed how and when to enable/disable.

Table 4.6: Federal Agency VHF Law Enforcement Interoperability Channels

Ch #	Label	RX Freq	RX Tone/NAC *	TX Freq	TX Tone/NAC	Mode (A, D, M)	Use
1	LE A	167.0875	CSQ	167.0875	167.9 Tx, CSQ Rx	A	Calling
2	LE 1	167.0875	CSQ	162.0875	167.9 Tx, CSQ Rx	A	Tactical
3	LE 2	167.2500	$68F ($1679_{10}$)	162.2625	$68F ($1679_{10}$)	D	Tactical
4	LE 3	167.7500	$68F ($1679_{10}$)	162.8375	$68F ($1679_{10}$)	D	Tactical
5	LE 4	168.1125	$68F ($1679_{10}$)	163.2875	$68F ($1679_{10}$)	D	Tactical
6	LE 5	168.4625	$68F ($1679_{10}$)	163.4250	$68F ($1679_{10}$)	D	Tactical
7	LE 6	167.2500	$68F ($1679_{10}$)	167.2500	$68F ($1679_{10}$)	D	Tactical – Direct for LE2
8	LE 7	167.7500	$68F ($1679_{10}$)	167.7500	$68F ($1679_{10}$)	D	Tactical – Direct for LE3
9	LE 8	168.1125	$68F ($1679_{10}$)	168. 1125	$68F ($1679_{10}$)	D	Tactical – Direct for LE4
10	LE 9	168.4625	$68F ($1679_{10}$)	168.4625	$68F ($1679_{10}$)	D	Tactical – Direct for LE5

CTCSS on receive only if user selectable; else CSQ. **See "Conditions for Use of Federal Entity Interoperability Channels" on pages 19 – 20 of this document.**

All channels in these tables are NARROWBAND only.

5. UHF 450 MHz Channels – SPECIFIC GUIDELINES

The eight UHF channels described in Table 5.1 may be used in accordance with regional interoperability plans. However, users should recognize that in-coming resources from out-of-region may not yet be equipped with these channels.

All channels may be used in conjunction with a temporary patch or temporary gateway connection provided they do not cause interference. None of the interoperability channels may be used for routine dispatch operations. For UHF interoperability, the four repeater channels (with direct) described in Table 5.1 below will be used.

Note the following:

- The UHF interoperability channels UCALL40 through UTAC43 are identified for interoperability use within Texas. The channel UCALL40 is designated by this plan as a multi-discipline, multi-agency public safety interoperability calling channel for all public safety agencies and other signatories to the MOU associated with this channel plan.

- The tactical channels UTAC41 through UTAC43 are identified by this plan as multi-discipline, multi-agency public safety interoperability tactical channels for all public safety agencies and other signatories to the MOU associated with this channel plan. The tactical channels may be used as day-to-day emergency operations channels, secondary to users at higher priority incidents requiring interoperability. Additionally, these channels can only be used in the manner intended with this plan. Using them for local repeater inputs or outputs is not allowable.

- At large incidents, all tactical channels may be assigned by the on-incident Incident Command or COML as needed without regard to discipline.

- The channels UCALL40 and UCALL40D are designated as multi-discipline, multi-agency public safety interoperability calling channels for all public safety agencies and other signatories to the MOU associated with this channel plan.

- The UCALL40 channels are designated for interoperable UHF communications between mobile/portable radios and base stations, temporary base stations and Incident Command or COML.

- UTAC43D is designated as an option for UAS Pilot to UAS Pilot Coordination, as directed by Incident Command or COML.

- The tactical repeater channels UTAC41 – UTAC43 and talk-around channels UTAC41D-UTAC43D should be assigned by incident command or COML.

- National standards for interoperability channel names have been adopted so that all public safety equipment has s a common naming convention. In accordance with APCO/NPSTC 1.104.2-2017, these labels are listed in Table 5.1 and all participating agencies must use these labels.

- Federal agency channels identified in tables 5.2 and 5.3 should only be used per the guidelines listed in pages 21 – 22 of this document.

Table 5.1: UHF 450 MHz Interoperability Channels (12.5 kHz)

Emission Designator 11K2F3E

CTCSS tone programming for UHF channels must be in compliance with the latest released version of the NIFOG.

Label	Receive	Transmit	Station Class	CTCSS RX/TX	Use
Mobile and Portable Configuration					
UCALL40	453.2125	458.2125	FB2T / MO	156.7 / 156.7	Calling Channel (Repeater)
UCALL40D	453.2125	453.2125	FBT / MO	156.7 / 156.7	Calling Channel (Direct)
UTAC41	453.4625	458.4625	FB2T / MO	156.7 / 156.7	Tactical Repeater Channel
UTAC41D	453.4625	453.4625	FBT / MO	156.7 / 156.7	Tactical Repeater (Direct)
UTAC42	453.7125	458.7125	FB2T / MO	156.7 / 156.7	Tactical Repeater Channel
UTAC42D	453.7125	453.7125	FBT / MO	156.7 / 156.7	Tactical Repeater (Direct)
UTAC43	453.8625	458.8625	FB2T / MO	156.7 / 156.7	Tactical Repeater Channel
UTAC43D	453.8625	453.8625	FBT / MO	156.7 / 156.7	UAS Pilot to UAS Pilot Coordination
Repeater / Base Configuration					
UCALL40	458.2125	453.2125	FB2T	156.7 / 156.7	Mobile Command Post Calling Channel Base
UTAC41	458.4625	453.4625	FB2T	156.7 / 156.7	Incident Temporary Repeater Channels
UTAC42	458.7125	453.7125	FB2T	156.7 / 156.7	Incident Temporary Repeater Channels
UTAC43	458.8625	453.8625	FB2T	156.7 / 156.7	Incident Temporary Repeater Channels

Table 5.2: Federal Agency UHF Incident Response Interoperability Channels
Emission Designator 11F3E

Ch #	Label	RX Freq	RX Tone/NAC	TX Freq	TX Tone/NAC	Mode (A, D, M)	Use
1	NC 2	410.2375	CSQ	419.2375	167.9	A	Incident Calling
2	IR 10	410.4375	CSQ	419.4375	167.9	A	Ad hoc assignment
3	IR 11	410.6375	CSQ	419.6375	167.9	A	Ad hoc assignment
4	IR 12	410.8375	CSQ	419.8375	167.9	A	SAR Incident Command
5	IR 13	413.1875	CSQ	413.1875	167.9	A	Ad hoc assignment
6	IR 14	413.2125	CSQ	413.2125	167.9	A	Interagency Convoy
7	IR 15	410.2375	CSQ	410.2375	167.9	A	Incident Calling – Direct for NC 2 Calling
8	IR 16	410.4375	CSQ	410.4375	167.9	A	Ad hoc assignment – Direct for IR 10
9	IR 17	410.6375	CSQ	410.6375	167.9	A	Ad hoc assignment – Direct for IR 11
10	IR 18	410.8375	CSQ	410.8375	167.9	A	SAR Incident Command – Direct for IR 12

Default operation should be carrier squelch receive; CTCSS 167.9 transmit. If the user can enable/disable CTCSS without reprogramming the radio, the indicated CTCSS tone also could be programmed for receive, and the user instructed how and when to enable/disable.

Table 5.3: Federal Agency UHF Law Enforcement Interoperability Channels

Ch #	Label	RX Freq	RX Tone/NAC*	TX Freq	TX Tone/NAC	Mode (A, D, M)	Use
1	LE B	414.0375	CSQ	414.0375	167.9	A	Calling
2	LE 10	409.9875	CSQ	418.9875	167.9	A	Tactical
3	LE 11	410.1875	$68F (1679_{10})$	419.1875	$68F (1679_{10})$	D	Tactical
4	LE 12	410.6125	$68F (1679_{10})$	419.6125	$68F (1679_{10})$	D	Tactical
5	LE 13	414.0625	$68F (1679_{10})$	414.0625	$68F (1679_{10})$	D	Tactical
6	LE 14	414.3125	$68F (1679_{10})$	414.3125	$68F (1679_{10})$	D	Tactical
7	LE 15	414.3375	$68F (1679_{10})$	414.3375	$68F (1679_{10})$	D	Tactical
8	LE 16	409.9875	$68F (1679_{10})$	409.9875	167.9	D	Tactical – Direct for LE 10 Analog
9	LE 17	410.1875	$68F (1679_{10})$	410. 1875	$68F (1679_{10})$	D	Tactical – Direct for LE 11
10	LE 18	410.6125	$68F (1679_{10})$	410.6125	$68F (1679_{10})$	D	Tactical – Direct for LE 12

CTCSS on receive only if user selectable; else CSQ. **See "Conditions for Use of Federal Entity Interoperability Channels" on pages 19 – 2 of this document.** All channels in these tables are NARROWBAND only.

6. <mark>700 MHz Channels – SPECIFIC GUIDELINES</mark>

For 700 MHz interoperability, the 32 repeater channels, with their associated 32 direct channels, are described in Table 6.1 below. Table 6.1 includes the corresponding Tactical Repeater Configuration. Table 6.1 includes the recommended "short list" of 700 MHz channels.

Note the following:

- 700 MHz interoperability channels are identified by the FCC for interoperability use within Texas. All fixed 700 MHz interoperable channel locations must be reviewed by the Office of the Texas SWIC prior to implementation. Some of these interoperable channels may already be licensed by multiple agencies for interoperability use throughout the state.

- All 700 MHz interoperability channels are to be used as multi-discipline, multi-agency public safety interoperability calling channels for all public safety agencies and other signatories to the MOU associated with this channel plan. These channels are designated for interoperable 700 MHz communications between mobile/portable radios and base stations, temporary base stations, and on-scene Incident Command or COML.

- Table 6.1 outlines the recommended short list of 700 MHz channels that all Texas public safety agencies should program in their 700 MHz capable radios. For radios with limited channel capacity, these channels may be the only ones programmed. For larger-capacity radios, it is recommended that these channels be programmed into the **first** 700MHz zone in the radio.

  - Where possible, it is also recommended that additional 700MHz zones are populated in numerical order, with Direct channels following their associated repeater channel, regardless of discipline association. (E.g., 7LAW62D,7FIRE63, 7FIRE63D, 7FIRE64, 7FIRE64D, 7MED65, 7MED65D)

    - Numerical order programming should continue through additional zones as local agencies are able and interested in programming all 700 MHz channels in their radios.

  - Users should also be aware that even though some channels have a discipline associated with the name (LAW, FIRE, MED, etc.), ALL disciplines can still use that channel when specified by the Incident Command or COML.

- The tactical direct channels, repeater channels, and Air to Ground channels identified in Tables 6.2, 6.3 and 6.4 should be assigned on-scene by Incident Command or COML.

  - 7AG68D is to be used for UAS Pilot to UAS Pilot Coordination
  - 7AG88D is to be used for Air to Landing Zone Coordination outside 70 miles from Mexico Border.
  - 7AG67D is to be used for Air to Landing Zone Coordination within 70 miles of Mexico Border.

- Mode: Only P25 FDMA Phase 1 Common Air Interface may be used on 700 MHz channels
- TX NAC: $293 ($659_{10}$). RX NAC $F7E ($3966_{10}$) applies to all 700 MHz channels
- No Encryption is allowed on Calling Channels
- Channels in **red and with a "+" indicated in the "Use" column** are considered primary to Mexico and should not be used within 70 miles of the US / Mexico Border.
- National standards for interoperability channel names have been adopted so that all public safety equipment has s a common naming convention. In accordance with APCO/NPSTC 1.104.2-2017, these labels are listed in the Tables below and all participating agencies must use these labels.

Table 6.1: Recommended SHORT List 700 MHz Interoperability Channels for Texas Public Safety Agencies

To enable efficient use of channels when multiple disciplines and jurisdictions respond to an incident, it is recommended that this short list of channels be the first channels programmed into 700 MHz radios. For agencies with radios that are limited to 16 channels, these may be the only channels programmed. For radios with larger channel capacity, it is recommended that these 16 channels be programmed into the first 700 MHz zone, and the channels on the following tables to be programmed in remaining available zones.

Label	Receive	Transmit	Station Class	Use
7CALL50	769.24375	799.24375	FB2T	Temporary Calling Channel Repeater
7CALL50D	769.24375	769.24375	FBT / MO	Calling Channel (Direct)
7TAC51	769.14375	799.14375	FB2T	Temporary Tactical Repeater
7TAC51D	769.14375	769.14375	FBT / MO	Tactical Channel (Direct)
7TAC52	769.64375	799.64375	FB2T	Temporary Tactical Repeater
7TAC52D	769.64375	769.64375	FBT / MO	Tactical Channel (Direct)
7TAC53	770.14375	800.14375	FB2T	Temporary Tactical Repeater
7TAC53D	770.14375	770.14375	FBT / MO	Tactical Channel (Direct)
7TAC54	770.64375	800.64375	FB2T	Temporary Tactical Repeater
7TAC54D	770.64375	770.64375	FBT / MO	Tactical Channel (Direct)
7TAC55	769.74375	799.74375	FB2T	Temporary Tactical Repeater
7TAC55D	769.74375	769.74375	FBT / MO	Tactical Channel (Direct)
7TAC56	770.24375	800.24375	FB2T	Temporary Tactical Repeater
7TAC56D	770.24375	770.24375	FBT / MO	Tactical Channel (Direct)
7GTAC57	770.99375	800.99375	FB2T	Temporary Tactical Repeater
7GTAC57D	770.99375	770.99375	FBT / MO	Tactical Channel (Direct)

Mode: Only P25 FDMA Phase 1 Common Air Interface
TX NAC: $293 (659 $_{10}$). RX NAC $F7E (3966 $_{10}$) No Encryption on Calling Channels

- Channels in **red and with a "+" indicated in the "Use" column** are considered primary to Mexico and should not be used within 70 miles of the US / Mexico Border.

Table 6.2: 700 MHz Interoperability Channels (12.5 kHz)

Emission Designator 8K10F1E

Label	Receive	Transmit	Station Class	Use
7CALL50	769.24375	799.24375	FB2T / MO	Calling Channel
7CALL50D	769.24375	769.24375	FBT / MO	Calling Channel (Direct)
7TAC51	769.14375	799.14375	FB2T / MO	Tactical Repeater Channel
7TAC51D	769.14375	769.14375	FBT / MO	Tactical Channel (Direct)
7TAC52	769.64375	799.64375	FB2T / MO	Tactical Repeater Channel
7TAC52D	769.64375	769.64375	FBT / MO	Tactical Channel (Direct)
7TAC53	770.14375	800.14375	FB2T / MO	Tactical Repeater Channel
7TAC53D	770.14375	770.14375	FBT / MO	Tactical Channel (Direct)
7TAC54	770.64375	800.64375	FB2T / MO	Tactical Repeater Channel
7TAC54D	770.64375	770.64375	FBT / MO	Tactical Channel (Direct)
7TAC55	769.74375	799.74375	FB2T / MO	Tactical Repeater Channel
7TAC55D	769.74375	769.74375	FBT / MO	Tactical Channel (Direct)
7TAC56	770.24375	800.24375	FB2T / MO	Tactical Repeater Channel
7TAC56D	770.24375	770.24375	FBT / MO	Tactical Channel (Direct)
7GTAC57	770.99375	800.99375	FB2T / MO	Tactical Repeater Channel
7GTAC57D	770.99375	770.99375	FBT / MO	Tactical Channel (Direct)
7MOB59	770.89375	800.89375	FB2T / MO	Tactical Repeater Channel
7MOB59D	770.89375	770.89375	FBT / MO	Tactical Channel (Direct)
7LAW61	770.39375	800.39375	FB2T / MO	Tactical Repeater Channel
7LAW61D	770.39375	770.39375	FBT / MO	Tactical Channel (Direct)

Mode: Only P25 FDMA Phase 1 Common Air Interface
TX NAC: $293 (659 $_{10}$). RX NAC $F7E (3966 $_{10}$) No Encryption on Calling Channels

- Channels in **red and with a "+" indicated in the "Use" column** are considered primary to Mexico and should not be used within 70 miles of the US / Mexico Border.

Table 6.2 (cont.)
700 MHz Interoperability Channels (12.5 kHz)

Emission Designator 8K10F1E

Label	Receive	Transmit	Station Class	Use
7LAW62	770.49375	800.49375	FB2T / MO	Tactical Repeater Channel
7LAW62D	770.49375	770.49375	FBT / MO	Tactical Channel (Direct)
7FIRE63	769.89375	799.89375	FB2T / MO	Tactical Repeater Channel
7FIRE63D	769.89375	769.89375	FBT / MO	Tactical Channel (Direct)
7FIRE64	769.99375	799.99375	FB2T / MO	Tactical Repeater Channel
7FIRE64D	769.99375	769.99375	FBT / MO	Tactical Channel (Direct)
7MED65	769.39375	799.39375	FB2T / MO	Tactical Repeater Channel
7MED65D	769.39375	769.39375	FBT / MO	Tactical Channel (Direct)
7MED66	769.49375	799.49375	FB2T / MO	Tactical Repeater Channel
7MED66D	769.49375	769.49375	FBT / MO	Tactical Channel (Direct)
7DATA69	770.74375	800.74375	FB2T / MO	Tactical Data Repeater Channel
7DATA69D	770.74375	770.74375	FBT / MO	Tactical Data Channel (Direct)
7CALL70	773.25625	803.25625	FX1T / MO	Tactical Data Repeater Channel+
7CALL70D	773.25625	773.25625	FBT / MO	Tactical Data Channel (Direct)+
7TAC71	773.10625	803.10625	FB2T / MO	Tactical Repeater Channel+
7TAC71D	773.10625	773.10625	FBT / MO	Tactical Channel (Direct)+
7TAC72	773.60625	803.60625	FB2T / MO	Tactical Repeater Channel+
7TAC72D	773.60625	773.60625	FBT / MO	Tactical Channel (Direct)+
7TAC73	774.10625	804.10625	FB2T / MO	Tactical Repeater Channel+
7TAC73D	774.10625	774.10625	FBT / MO	Tactical Channel (Direct)+

Mode: Only P25 FDMA Phase 1 Common Air Interface
TX NAC: $293 (659 $_{10}$). RX NAC $F7E (3966 $_{10}$) No Encryption on Calling Channels

- Channels in **red and with a "+" indicated in the "Use" column** are considered primary to Mexico and should not be used within 70 miles of the US / Mexico Border.

Table 6.2 (cont.)
700 MHz Interoperability Channels (12.5 kHz)

Emission Designator 8K10F1E

Label	Receive	Transmit	Station Class	Use
7TAC74	774.60625	804.60625	FB2T / MO	Tactical Repeater Channel+
7TAC74D	774.60625	774.60625	FBT / MO	Tactical Channel (Direct)+
7TAC75	773.75625	803.75625	FB2T / MO	Tactical Repeater Channel+
7TAC75D	773.75625	773.75625	FBT / MO	Tactical Channel (Direct)+
7TAC76	774.25625	804.25625	FB2T / MO	Tactical Repeater Channel+
7TAC76D	774.25625	774.25625	FBT / MO	Tactical Channel (Direct)+
7GTAC77	774.85625	804.85625	FB2T / MO	Tactical Repeater Channel+
7GTAC77D	774.85625	774.85625	FBT / MO	Tactical Channel (Direct)+
7MOB79	774.50625	804.50625	FB2T / MO	Tactical Repeater Channel+
7MOB79D	774.50625	774.50625	FBT / MO	Tactical Channel (Direct)+
7LAW81	774.00625	804.00625	FB2T / MO	Tactical Repeater Channel+
7LAW81D	774.00625	774.00625	FBT / MO	Tactical Channel (Direct)+
7LAW82	774.35625	804.35625	FB2T / MO	Tactical Repeater Channel+
7LAW82D	774.35625	774.35625	FBT / MO	Tactical Channel (Direct)+
7FIRE83	773.50625	803.50625	FB2T / MO	Tactical Repeater Channel+
7FIRE83D	773.50625	773.50625	FBT / MO	Tactical Channel (Direct)+
7FIRE84	773.85625	803.85625	FB2T / MO	Tactical Repeater Channel+
7FIRE84D	773.85625	773.85625	FBT / MO	Tactical Channel (Direct)+

Mode: Only P25 FDMA Phase 1 Common Air Interface
TX NAC: $293 (659 $_{10}$). RX NAC $F7E (3966 $_{10}$) No Encryption on Calling Channels

- Channels in **red and with a "+" indicated in the "Use" column** are considered primary to Mexico and should not be used within 70 miles of the US / Mexico Border.

Table 6.2 (cont.)
700 MHz Interoperability Channels (12.5 kHz)

Emission Designator 8K10F1E

Label	Receive	Transmit	Station Class	Use
7MED86	773.00625	803.00625	FB2T / MO	Tactical Repeater Channel+
7MED86D	773.00625	773.00625	FBT / MO	Tactical Channel (Direct)+
7MED87	773.35625	803.35625	FB2T / MO	Tactical Repeater Channel+
7MED87D	773.35625	773.35625	FBT / MO	Tactical Channel (Direct)+
7DATA89	774.75625	804.75625	FB2T / MO	Tactical Data Repeater Channel+
7DATA89D	774.75625	774.75625	FBT / MO	Tactical Data Channel (Direct)+

Mode: Only P25 FDMA Phase 1 Common Air Interface
TX NAC: $293 (659 $_{10}$). RX NAC $F7E (3966 $_{10}$) No Encryption on Calling Channels

- Channels in **red and with a "+" indicated in the "Use" column** are considered primary to Mexico and should not be used within 70 miles of the US / Mexico Border.

Table 6.3: 700 MHz Interoperability Tactical Repeater Channels (12.5 kHz)

Emission Designator 8K10F1E

Label	Transmit	Receive	Station Class	Use
7CALL50	769.24375	799.24375	FB2T	Temporary Calling Channel Repeater
7TAC51	769.14375	799.14375	FB2T	Temporary Tactical Repeater
7TAC52	769.64375	799.64375	FB2T	Temporary Tactical Repeater
7TAC53	770.14375	800.14375	FB2T	Temporary Tactical Repeater
7TAC54	770.64375	800.64375	FB2T	Temporary Tactical Repeater
7TAC55	769.74375	799.74375	FB2T	Temporary Tactical Repeater
7TAC56	770.24375	800.24375	FB2T	Temporary Tactical Repeater
7GTAC57	770.99375	800.99375	FB2T	Temporary Tactical Repeater
7MOB59	770.89375	800.89375	FB2T	Temporary Tactical Repeater
7LAW61	770.39375	800.39375	FB2T	Temporary Tactical Repeater
7LAW62	770.49375	800.49375	FB2T	Temporary Tactical Repeater
7FIRE63	769.89375	799.89375	FB2T	Temporary Tactical Repeater
7FIRE64	769.99375	799.99375	FB2T	Temporary Tactical Repeater
7MED65	769.39375	799.39375	FB2T	Temporary Tactical Repeater
7MED66	769.49375	799.49375	FB2T	Temporary Tactical Repeater
7DATA69	770.74375	800.74375	FB2T	Temporary Tactical Data Repeater
7CALL70	773.25625	803.25625	FB2T	Temporary Calling Channel+
7TAC71	773.10625	803.10625	FB2T	Temporary Tactical Repeater+
7TAC72	773.60625	803.60625	FB2T	Temporary Tactical Repeater+
7TAC73	774.10625	804.10625	FB2T	Temporary Tactical Repeater+
7TAC74	774.60625	804.60625	FB2T	Temporary Tactical Repeater+

Mode: Only P25 FDMA Phase 1 Common Air Interface
TX NAC: $293 (659 $_{10}$). RX NAC $F7E (3966 $_{10}$) No Encryption on Calling Channels

- Channels in **red and with a "+" indicated in the "Use" column** are considered primary to Mexico and should not be used within 70 miles of the US / Mexico Border.

Table 6.3 (cont.)
700 MHz Interoperability Channels (12.5 kHz)

Emission Designator 8K10F1E

Label	Transmit	Receive	Station Class	Use
7TAC75	773.75625	803.75625	FB2T	Temporary Tactical Repeater+
7TAC76	774.25625	804.25625	FB2T	Temporary Tactical Repeater+
7GTAC77	774.85625	804.85625	FB2T	Temporary Tactical Repeater+
7MOB79	774.50625	804.50625	FB2T	Temporary Tactical Repeater+
7LAW81	774.00625	804.00625	FB2T	Temporary Tactical Repeater+
7LAW82	774.35625	804.35625	FB2T	Temporary Tactical Repeater+
7FIRE83	773.50625	803.50625	FB2T	Temporary Tactical Repeater+
7FIRE84	773.85625	803.85625	FB2T	Temporary Tactical Repeater+
7MED86	773.00625	803.00625	FB2T	Temporary Tactical Repeater+
7MED87	773.35625	803.35625	FB2T	Temporary Tactical Repeater+
7DATA89	774.75625	804.75625	FB2T	Temporary Tactical Data Repeater+

Mode: Only P25 FDMA Phase 1 Common Air Interface
TX NAC: $293 ($659_{10}$). RX NAC $F7E ($3966_{10}$) No Encryption on Calling Channels

- Channels in **red and with a "+" indicated in the "Use" column** are considered primary to Mexico and should not be used within 70 miles of the US / Mexico Border.

Table 6.4: 700 MHz Interoperability Channels (12.5 kHz) <u>Air-to-Ground</u>

Label	Mobile RX (MHz)	Mobile TX (MHz)	Use
7AG58	769.13125	799.13125	Air-Ground
7AG58D	769.13125	769.13125	Air-Ground
7AG60	769.63125	799.63125	Air-Ground
7AG60D	769.63125	769.63125	Air-Ground
7AG67	770.13125	800.13125	Air-Ground
7AG67D	770.13125	770.13125	Air-Ground Landing Zone#
7AG68	770.63125	800.63125	Air-Ground
7AG68D	770.63125	770.63125	UAS Pilot to UAS Pilot Coordination
7AG78	773.11875	803.11875	Air-Ground+
7AG78D	773.11875	773.11875	Air-Ground+
7AG80	773.61875	803.61875	Air-Ground+
7AG80D	773.61875	773.61875	Air-Ground+
7AG85	774.11875	804.11875	Air-Ground+
7AG85D	774.11875	774.11875	Air-Ground+
7AG88	774.61875	804.61875	Air-Ground+
7AG88D	774.61875	774.61875	NIFOG Air-Ground Landing Zone*+

#7AG67D is recommended for **Landing Zone** use within 70 miles of the US/Mexico border
* 7AG88D is recommended for **Landing Zone** use in the NIFOG.

TX NAC: $293 (659 $_{10}$). RX NAC $F7E (3966 $_{10}$). These channels are reserved for air-ground communications to be used by low-altitude aircraft and ground based stations: See FCC rule 90.531(7). (i) Airborne use of these channels is limited to aircraft flying at or below **457 meters (1500 feet) above ground level.** (ii) **Aircraft are limited to 2 watts effective radiated power (ERP)** when transmitting while airborne on these channels. (iii) Aircraft may transmit on either the mobile or base transmit side of the channel pair. (iv) States are responsible for the administration of these channels. *These are NOT nationwide interoperability channels.*

- Channels in **red and with a "+" indicated in the "Use" column** are considered primary to Mexico and should not be used within 70 miles of the US / Mexico Border.

7. 800 MHz Channels – SPECIFIC GUIDELINES

For 800 MHz interoperability, the repeater channels (with direct) described in Table 7.1 below will be used.

Note the following:

800 MHz interoperability channels are identified by the FCC for interoperability use within Texas. Some of these interoperable channels may already be licensed by multiple agencies for use throughout the state.

- The channel 8CALL90 is designated as a multi-discipline, multi-agency public safety interoperability calling channel for all public safety agencies and other signatories to the MOU associated with this channel plan.

- The tactical repeater channels 8TAC91 – 8TAC94 and talk-around channels 8TAC91D – 8TAC94D should be assigned on-scene by Incident Command or COML.

    o 8TAC94D is to be used for UAS Pilot to UAS Pilot Coordination to minimize interference, 8TAC repeaters should remain in an 'off' configuration unless in use for an incident, and should not be used for day-to-day operations

- 8TAC95D, 8TAC96D and 8TAC97D are to be used for multi-agency events, and not for day-to-day operations, and cannot interfere with licensed radio systems, and can expect interference from licensed radio systems

- National standards for interoperability channel names have been adopted so that all public safety equipment has s a common naming convention. In accordance with APCO/NPSTC 1.104.2-2017, these labels are listed in Tables 7.1 and 7.2 and all participating agencies must use these labels.

Table 7.1: 800 MHz Nationwide Interoperability Channels (20 kHz)
Emission Designator 16K0F3E

CTCSS tone programming for 800 MHz channels must be in compliance with the latest released version of the NIFOG.

Label	Receive	Transmit	Station Class	CTCSS RX/TX	Use
8CALL90	851.0125	806.0125	FB2T / MO	156.7 / 156.7	Calling Channel (Repeater)
8CALL90D	851.0125	851.0125	FBT / MO	156.7 / 156.7	Calling Channel (Direct)
8TAC91	851.5125	806.5125	FB2T / MO	156.7 / 156.7	Incident Temporary Repeater Channel
8TAC91D	851.5125	851.5125	FBT / MO	156.7 / 156.7	Tactical Channel (Direct)
8TAC92	852.0125	807.0125	FB2T / MO	156.7 / 156.7	Incident Temporary Repeater Channel
8TAC92D	852.0125	852.0125	FBT / MO	156.7 / 156.7	Tactical Channel (Direct)
8TAC93	852.5125	807.5125	FB2T / MO	156.7 / 156.7	Incident Temporary Repeater Channel
8TAC93D	852.5125	852.5125	FBT / MO	156.7 / 156.7	Tactical Channel (Direct)
8TAC94	853.0125	808.0125	FB2T / MO	156.7 / 156.7	Incident Temporary Repeater Channel
8TAC94D	853.0125	853.0125	FBT / MO	156.7 / 156.7	Tactical Channel (Direct)
8TAC95D	851.5500	851.5500	MO	156.7 / 156.7	Incident Control Channel (Direct)*
8TAC96D	853.0500	853.0500	MO	156.7 / 156.7	Incident Control Channel (Direct)*
8TAC97D	853.3500	853.3500	MO	156.7 / 156.7	Incident Control Channel (Direct)*
Repeater / Base Configuration					
8CALL90	806.0125	851.0125	FB2T	156.7	Mobile Command Post Calling Channel Base
8TAC91	806.5125	851.5125	FB2T	156.7	Incident Temporary Repeater Channels
8TAC92	807.0125	852.0125	FB2T	156.7	
8TAC93	807.5125	852.5125	FB2T	156.7	
8TAC94	808.0125	853.0125	FB2T	156.7	

*These low-power mobile/portable channels are only authorized for use during multi-agency response. Direct users can not interfere with licensed radio systems, and can expect interference from licensed radio systems, and may not be used in a repeater configuration nor patched with other channels through a gateway or patching device. ERP is limited to 20 watts and only mobile and portable operation is allowed. Base stations are not permitted.

8. Mobile Satellite (MSAT) Talkgroups

Obtaining Access to MSAT Talkgroups:
The Texas Division of Emergency Management (TDEM) is processing MSAT Talkgroup requests directly. To obtain access, please contact TDEM at MSAT@tdem.texas.gov.

• TDEM maintains an MSAT contact board in WebEOC.
   The board provides information on shared MSAT Talkgroups and can function as an online MSAT and Iridium satellite phonebook.
• Agencies can request edit rights to the board to allow updates to their MSAT / Iridium satellite data.
• Most agencies will be granted "Read Only" access to allow them to view and download the information.
• Agencies can contact their WebEOC administrators to get user access to the board.
   If agencies do not have access to WebEOC, agencies can submit a request to TDEM at MSAT@tdem.texas.gov
•MSAT Talkgroups formerly named DPS 1 through DPS 5, have been renamed to TDEM 1 through TDEM 5. DPS 6 remains as DPS 6.

Note: Authorization letters need to be obtained before scheduling on-air programming for the radios.

SPECIFIC GUIDELINES – Mobile Satellite (MSAT) Talkgroups

Table 8.1 below lists statewide, regional, and national MSAT talkgroups for use by Texas public safety agencies. Texas has two statewide mutual aid talkgroups: TXSMRT and INAGY.

TXSMRT is used for communication between Texas public safety agencies and private sector partners

INAGY is used **ONLY** by government agencies**.**

The talkgroups designated as SMART/SMRT (Satellite Mutual Aid Radio Talkgroup) are for multiagency coordination during large-scale events or disasters, potentially involving public safety agencies at the regional and national levels.

Each agency should determine which talkgroups are best suited for their agency's needs and purpose.

Table 8.1   Mobile Satellite Talkgroups

MSAT Talkgroup Name (7 char. Radio)	Legacy MSAT Talkgroup Name* (5 char. Radio)	Authorizing Agency	Agencies Supported	Use
00	00	TDEM Response / Operations	All Texas Public Safety and Private Sector Partners	Point-to-Point 4-digit DN call feature. No per-minute cost for DN calls
TDEM 1	DPS 1	TDEM Disaster Coordination	TDEM	Incident Command/ Calling Channel
TDEM 2	DPS 2	TDEM Response / Operations	TDEM	TDEM Daily Use
TDEM 3	DPS 3	LESD / Law Enforcement Channel – All Call	DPS / TDEM / LEO	LEO Incident Command / Calling Channel
TFS1	TFS1	TFS EOC	TFS	TFS Daily Use
TEEX1	TEEX1	TEEX	TTF1, TTF2, Quick Response Force & Water	TEEX-TTF1 Search and Rescue Calling Channel
STRAC1	STRC1	STRAC Comms	STRAC and San Antonio Area Public Safety	STRAC Daily Use Calling Channel
STRAC2	STRC2	STRAC Comms	STRAC Regional	Regional Medical
INAGY	INAGY	TFS EOC	TFS and Texas Public Safety Agencies	Interagency Coordination (Texas only)
TXSMRT	TXSMT	TDEM Response / Operations	All Texas Public Safety and Private Sector Partners (NGO)	Statewide Channel for Public and Private Sector
G-SMART	GSMRT	TDEM Response / Operations	Gulf Coast Regional Agencies	Gulf States Public Safety Mutual Aid Regional / National
SWSMART	SWSMT	Contra Costa (CA) Fire Protection District	Southwest Regional Agencies	Southwest Public Safety Mutual Aid
I-SMART	ISMRT	Seattle Public Utilities	Regional / National Agencies	Critical Infrastructure Mutual Aid
E-SMART	ESMRT	KY Dept. of Public Health	Regional / National Agencies	EMS Mutual Aid
F-SMART	FSMRT	Seattle Fire Dept.	Regional / National Agencies	Fire Service Mutual Aid
J-SMART	JSMRT	U.S. Dept. of Justice	All Gov't and Public Safety Regional / National Agencies	Public Safety Mutual Aid Regional
L-SMART	LSMRT	U. S. Marshals Service	All LE Regional / National Agencies	LE Enforcement Mutual Aid
U-SMART	USMRT	Montgomery Co. (MD) Fire & Rescue	All Urban Search and Rescue Regional / National Agencies	Urban Search and Rescue Mutual Aid
NPHST2	NPH	KY Dept. for Public Health	All Health Depts. And Medical Facilities Regional / National Agencies	Public Health Mutual Aid TG

# 9. INTEROPERABILITY CROSS-BAND SYSTEMS – SPECIFIC GUIDELINES

Cross-band interconnection between radio equipment operating under state-licensed channels is authorized with three conditions:

- Cross-band operation is authorized as required to interconnect channels identified in this channel plan and to interconnect other channels that may be required at the direction of the Incident Command or COML.

- Cross-band operation should conform to planning requirements, as established in a RICP, typically produced by a regional COG.

- Patching to/between interoperability tactical channels and local radio systems is permitted during incidents or events involving interagency personnel, if so directed by the Incident Command or COML. This is only allowed through concurrence from the system manager / dispatch center.

- 800 MHz NPSPAC (conventional) channels may be cross-banded with other interoperability channels. **Caution should be used when performing in-field cross-band connections with VHF/700/800 MHz trunked channels due to potential push-to-talk (PTT) delay**.

- Supervised gateways, console-initiated patching or cross-band repeating of tactical channels to tactical channels in other bands is permitted under positive control of a trained dispatcher or on-incident Communications Unit Leader (COML). A dispatcher or COML who establishes such a calling channel patch must be capable of disabling the patch in the event of unexpected or unacceptable interference on any of the patched calling channels.

Cross-band interconnections can be implemented in several ways:

9.1 Simple Cross-band Repeater

This approach interconnects two radios "back-to-back" such that received signals on either receiver are re-transmitted by the other transmitter.

FIGURE 9.1
AUDIO & PTT
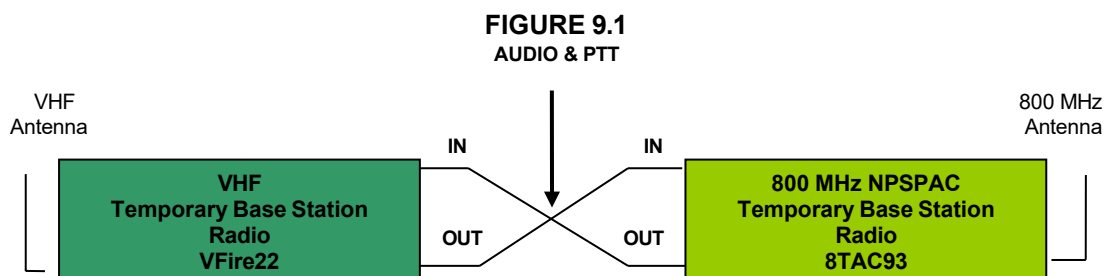
Simple Cross-Band Repeater

Operationally, the two channels selected will seem to be one channel, as long as all radio users are within the coverage "footprint" of the cross-band repeater and antennas. Some PTT delay should be expected. In this example, two tactical channels are interconnected to enable tactical communications between resources equipped with differing equipment.

9.2 Mobile Tactical Interconnect or Radio Interoperability Gateway

This approach interconnects several radios "back-to-back" so that received signals on any receiver are re-transmitted by all selected transmitters.

Operationally, all channels selected will seem to be one channel, as long as all radio users are within the coverage "footprint" of the antennas being used. Some PTT delay should be expected. In this example, several tactical channels are interconnected to enable tactical communications between resources equipped with differing equipment.

Mobile Tactical Interconnect or Radio Interoperability Gateway
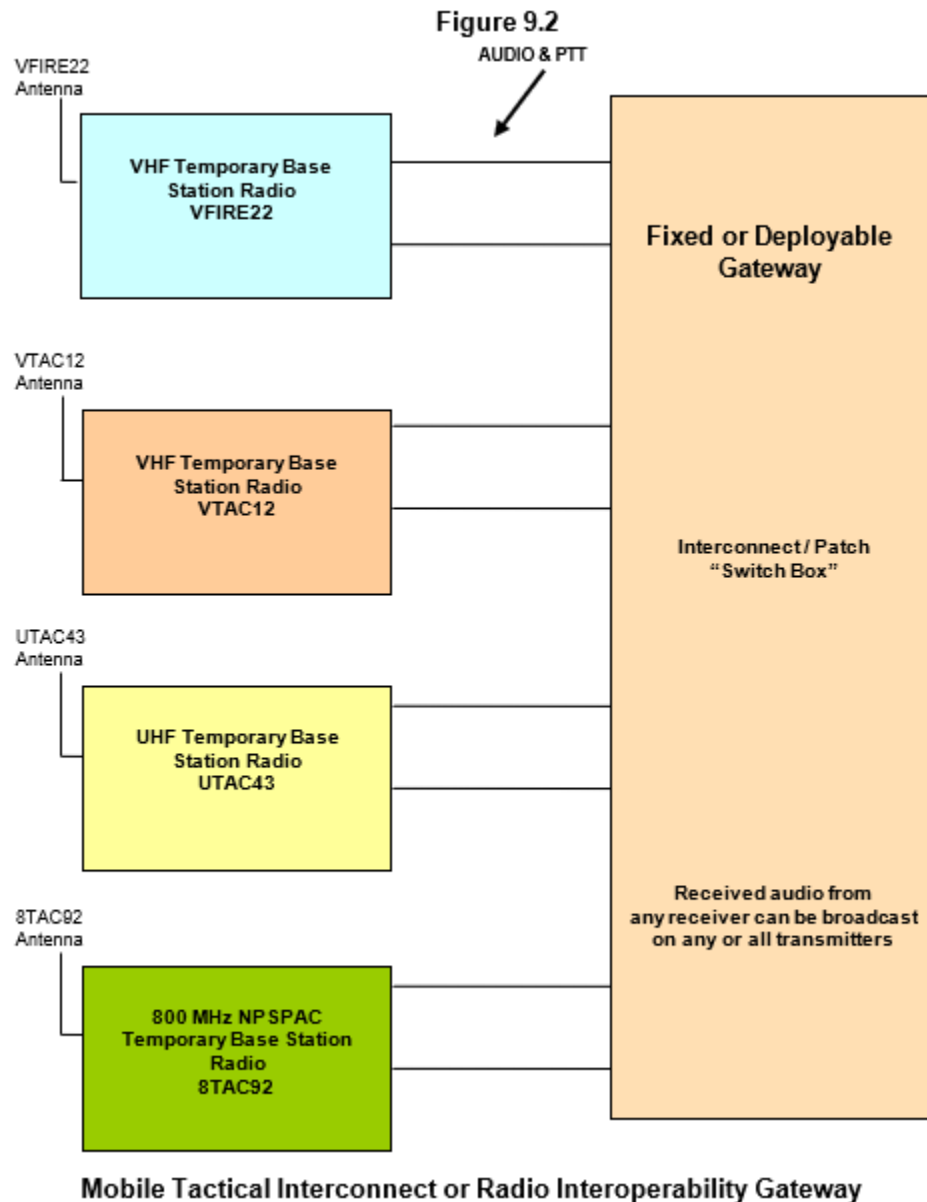
9.3 Dispatch Console Patching

Console patching utilizes dispatch point base radios and the patching capability of a common console system to accomplish the same interconnections described above. However, in the case of console patching, all radio users must be within the coverage "footprint" of the base station antenna at the dispatch point. Some PTT delay should be expected. Operationally, all channels patched by the dispatcher will seem to be one channel.

Figure 9.3
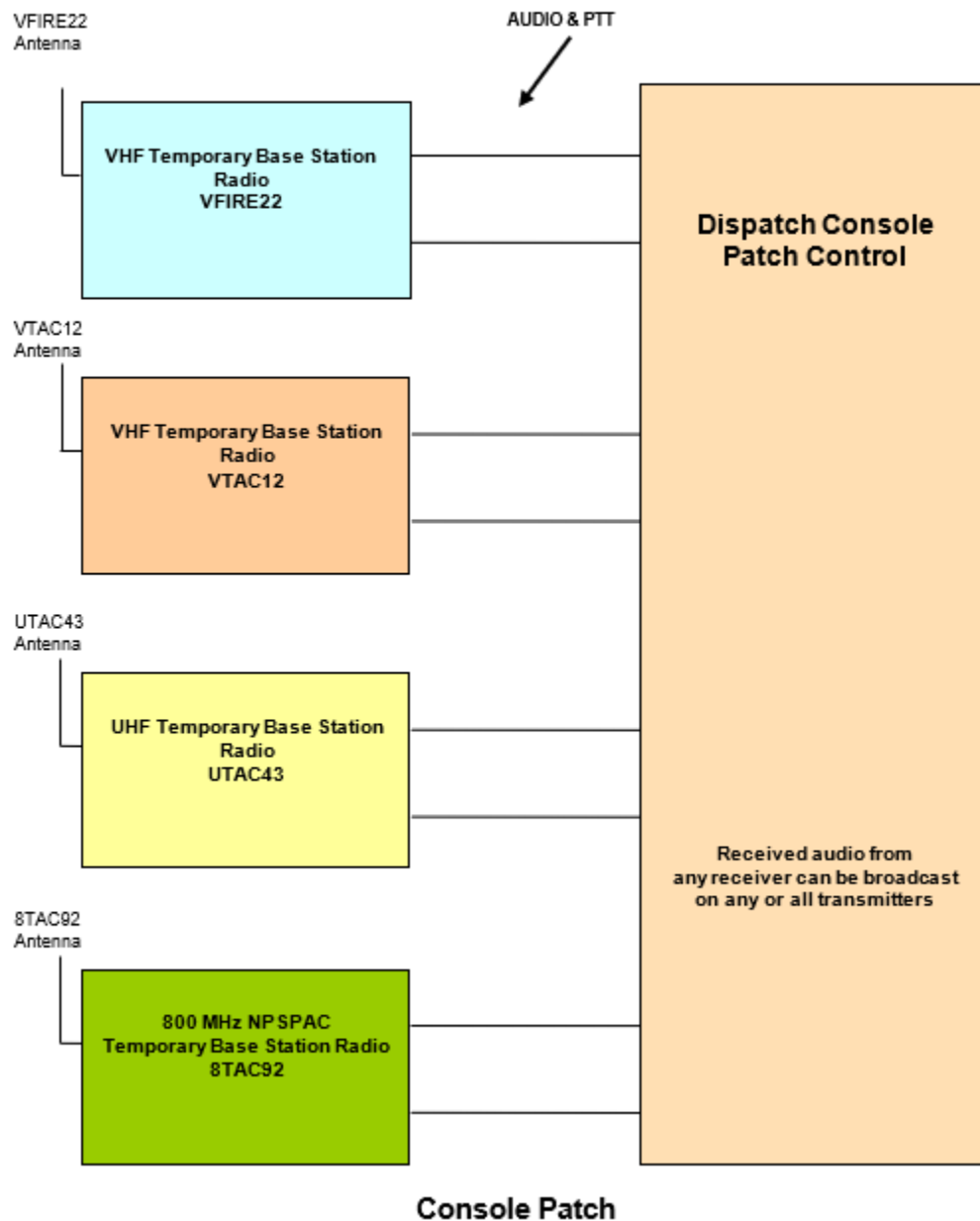
Console Patch

Note that console patching at fixed-site base stations is not authorized under state licenses for interoperability channels. Such installations must be licensed separately.

10. LIST OF ACRONYMS

Abbreviation	Description
AACOG	Alamo Area Council of Governments
ATCOG	Ark-Tex Council of Governments
AUXC	Auxiliary Communicator
BER	Bit Error Rate
BVCOG	Brazos Valley Development Council
BVWACS	Brazos Valley Wireless Access Communications System
CA	California
CAI	Common Air Interface
CAPCOG	Capital Area Council of Governments
CBCOG	Coastal Bend Council of Governments
CCG	Communications Coordination Group
CFR	Code of Federal Regulations
COG	Council of Government
COML	Communications Leader
CTCOG	Central Texas Council of Governments
CTCSS	Continuous Tone Coded Squelch System
COMT	Communications Technician
CVCOG	Concho Valley Council of Governments
DETCOG	Deep East Texas Council of Governments
DFW	Dallas / Ft. Worth
DN	Directory Number
EMS	Emergency Medical Service
ERP	Effective Radiated Power
ETCOG	East Texas Council of Governments
ETMC	East Texas Medical Center
FCC	Federal Communications Commission
GCRPC	Golden Crescent Regional Planning Commission
H-GAC	Houston-Galveston Area Council
HOTCOG	Heart of Texas Council of Governments
Hz	Hertz
ICS	Incident Command System
ILA	Inter-Local Agreement
INCM	Incident Communications Manager
INTD	Incident Tactical Dispatcher
IRWG	Interagency Radio Work Group
ITSL	IT Service Unit Leader
KHz	Kilohertz
KY	Kentucky
LA	Louisiana
LCRA	Lower Colorado River Authority
LE	Law Enforcement
LRGVDC	Lower Rio Grande Valley Development Council
MCP	Mobile Communications Platform
MD	Maryland
MHz	Megahertz
MOU	Memorandum of Understanding

MRGDC	Middle Rio Grande Development Council
MSAT	Mobile Satellite
MTA	Metropolitan Transit Authority
NAC	Network Access Codes
NCTCOG	North Central Texas Council of Governments
NGO	Non-Governmental Organization
NIFOG	National Interoperability Field Operations Guide
NIMS	National Incident Management System
NPSPAC	National Public Safety Planning Advisory Committee
NORTEX	Nortex Regional Planning Commission
NTIA	National Telecommunications and Information Administration
OPS	Operations
PBRPC	Permian Basin Regional Planning Commission
PRPC	Panhandle Regional Planning Commission
PSAP	Public Safety Answering Point
PTT	Push-To-Talk
RADO	Radio Operator
RGCOG	Rio Grande Council of Governments
SCADA	Supervisory Control and Data Acquisition
SCIP	Statewide Communications Interoperability Plan
SEC	SCIP Executive Committee
SETRPC	South East Texas Regional Planning Commission
SMART	Satellite Mutual Aid Radio Talkgroup
SPAG	South Plains Association of Governments
STDC	South Texas Development Council
STRAC	Southwest Texas Regional Advisory Council (Emergency Healthcare)
SWIC	Statewide Interoperability Coordinator
TCOG	Texoma Council of Governments
TDEM	Texas Division of Emergency Management
TEEX	Texas Engineering Extension Service (Training Academy)
TFS	Texas A&M Forest Service
TFS EOC	Texas A&M Forest Service Emergency Operations Center
TIA/EIA	Telecommunications Industry Association/Electronic Industries Alliance
TTF	Texas Task Force
TG	Talkgroup
THSP	Technical Specialist
TxDPS	Texas Department of Public Safety
TxICC	Texas Interoperable Communications Coalition
UAS	Uncrewed Aircraft System (Drones)
UHF	Ultra High Frequency
VFD	Volunteer Fire Department
VHF	Very High Frequency
WCTCOG	West Central Texas Council of Governments