



*Fort Worth P25 Radio System
Interoperability Resources—
Guidance for Operations Procedures*

February 2012

PREFACE

The City of Fort Worth (CFW), working in concert with municipalities operating on the CFW P25 Radio System, drafted this document to provide guidance for the development of operations procedures for the system's public safety radio communications interoperability resources. Specifically, this document is intended to guide the development of Standard Operating Procedures (SOP) and/or modifications of existing policies, procedures, and incident command or incident management systems, to ensure the effective use of these resources.

CFW participating municipal stakeholders have established an Interoperability Committee, comprised of agency representatives, to resolve any significant issues regarding management, planning and governance of the interoperability resources. Participating stakeholders are encouraged to develop and expand this document further, modifying it to better meet the CFW system users needs and to manage the impact of agency policies and procedures on the overall operation and use of the interoperability solution set. The document may also be used to educate personnel about establishing interoperable communications between participating agencies. Additional recommended actions for the P25 Interoperable Committee members to consider include—

- **Perform Periodic Reviews:** The Committee should meet regularly to review and refine the content of this guidance document and to discuss other key operations issues relating to interagency communications. Initially, meetings may be required monthly to complete the final version of the document, which will ultimately be a “living” document. Subsequently, it is recommended that meetings should be held at least quarterly to review content. The purpose of these periodic reviews would be to ensure that the various procedures included in the document accurately reflect current capabilities and limitations of the resources and provide current points of contact information. Dates and locations for subsequent meetings should be determined at the close of each Committee meeting.
- **Maintain Functions and Focus of the Committee:** Critical to the success of the Committee are proactive representatives from the participating agencies. The Committee leadership team will maintain control of relevant documents and information.

Record of Changes

The following table will document changes made to the operational guidance document. Changes should be recorded and incorporated into the document subsequent to periodic review by the Committee. The table should be distributed to participating agencies in the interim of the entire document being reprinted. The updated operational guidance document should be distributed periodically to participating agencies, at the discretion of the Interoperability Committee.

Date of Change	Change Entered By (Name/Agency Affiliation)	Change Entered (Section/Effectuated Text)
11/13/2012	James Tiwater/Fort Worth Police	Interconnected Systems Page 13
11/13/2012	James Tiwater/Fort Worth Police	Add Appendix E
02/19/2013	James Tiwater/Fort Worth Police	Add Hospital Interoperability Zone

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**CFW P25
Interoperability
Network
Introduction**

The CFW P25 Interoperability Network provides access to 50 Interoperable Communications talk groups for participating agencies. Participating agencies may leverage these P25 Interoperable talk groups as an interoperability network for inter-agency emergency response communications. The talk groups are presented as a shared resource for the participating agencies.

This document provides guidance on the use of the CFW P25 interoperability network (see Appendix B for conceptual depiction and expected coverage area). Specifically, it outlines procedures for accessing and using the interoperability channels. Throughout this document, it is assumed that all agencies with direct access will actively monitor the interoperability calling channel. Participating agencies will self-govern channel use according to guidelines established in this document and by the Interoperable Communications Committee.

**Agencies with
Access to CFW
Interoperability
Talk Groups**

The following agencies have direct access to the CFW interoperability talk groups as of implementation on 06/30/2013.

System Agencies
To Be Completed

Other agencies may also program and monitor the CFW interoperability talk groups via their own equipment after signing a Frequency Use Memoranda of Agreement (MOA) with the City of Fort Worth. For more information on the Frequency Use MOAs, please contact—

Craig Clark
ITS Radio Services Manger
817/392-2179
Craig.clark@fortworthgov.org

Channel Designations

The primary purpose of the CFW interoperability talk groups is inter-agency command and tactical level coordination. The CFW talk groups are designated for command and control and tactical operations to allow public safety agencies to coordinate resources and responses with other metropolitan area public safety agencies. There will be 39 Public Safety Interoperable talk groups allocated. Talk group designations are as follows:

NAME	Description
LAW IO CALL	Interoperability Calling Talk Group
LAW IO IC-1	Interoperability Incident Command 1
LAW IO IC-2	Interoperability Incident Command 2
LAW IO 1-10	Interoperability Talk Groups 1 through 10
NAME	Description
FIRE IO CALL	Interoperability Calling Talk Group
FIRE IO IC-1	Interoperability Incident Command 1
FIRE IO IC-2	Interoperability Incident Command 2
FIRE IO 1-10	Interoperability Talk Groups 1 through 10
NAME	Description
EMS IO CALL	Interoperability Calling Talk Group
EMS IO IC-1	Interoperability Incident Command 1
EMS IO IC-2	Interoperability Incident Command 2
EMS IO 1-10	Interoperability Talk Groups 1 through 10

In addition to the Public Safety Interoperable talk groups, the system will also include 11 talk groups designated for Public Works groups. These talk group designations are as follows:

NAME	Description
PW IO CALL	Interoperability Calling Talk Group
PW IO IC-1	Interoperability Incident Command 1
PW IO IC-2	Interoperability Incident Command 2
PW IO 1-8	Interoperability Talk Groups 1 through 8

In addition to the Public Safety and Public Works Interoperable talk groups there will be an additional 13 talk groups designated for interoperable communications between EMS first responders and area hospitals. These talk groups will be utilized for providing pre-arrival instructions as well as managing work flow between first responders and area hospitals during a mass casualty disaster event.

NAME	Description
HOSP CALL	Interoperability Calling Talk Group
HOSP IC-1	Interoperability Incident Command 1
HOSP IC-2	Interoperability Incident Command 2
HOSP IO 1 NE	Interoperability Talk Group NE Area Hospitals
HOSP IO 2 NW	Interoperability Talk Group NW Area Hospitals
HOSP IO 3 SE	Interoperability Talk Group SW Area Hospitals
HOSP IO 4 SW	Interoperability Talk Group SE Area Hospitals
HOSP IO 5 TRIAGE	Interoperability Talk Group Triage
HOSP IO 6 STAGING	Interoperability Talk Group Staging
HOSP IO Harris	Interoperability Talk Group Harris Downtown
HOSP IO JPS	Interoperability Talk Group JPS
HOSP IO Cooks	Interoperability Talk Group Cooks Childrens
HOSP IO All Saints	Interoperability Talk Group All Saints

Each series of Interoperability talk groups will be presented in a different zone. The first talk group in each zone will be the calling talk group. Public Safety Radios will have four zones, one for each group, LAW, FIRE, EMS and PW.

Public works radios will only have the LAW and FIRE & EMS IO Call talk groups programmed at the top of the PW IO zone. This will allow for Public Works groups to communicate with Public Safety Groups on the calling channel and have a Public Safety representative move to one of the PW IO talk groups for further conversation.

The Hospital zone will be a voluntary zone. Agencies are not required to input this zone into their templates nor monitor for radio calls. However, the usage of this zone for EMS or Fire Agencies who do patient transport is strongly encouraged.

The CFW talk groups should be used to coordinate resources and responses prior to, or en route to, an emergency incident scene. Participating agencies are strongly encouraged to monitor the IO Call talk group for calls, requests, and instructions. During significant events or regional emergencies all participating agencies should strive to provide dedicated dispatch staffing to monitor and coordinate operations on the talk groups.

Operational events should be moved from IO Call with Command and Control operations occurring on the IO IC-1 or IO IC-2 talk groups. Individual tactical operations should be assigned to one or more of the IO 1-10 talk groups.

Either of the IO IC talk groups may be designated for system-to-system “patching” for Command and Control operations. IO 1-10 may be patched for tactical use during working operations requiring interoperable communications among supporting local, state, and federal agencies.

Priority of Use

Only communications that are essential to inter-agency public safety activities are permissible. It is understood that users with lower level priorities shall yield to higher level priorities and command personnel. Appropriate traffic includes the following priority levels of use—

Level	Description
1	Disaster or extreme emergency operation for mutual aid and inter-agency communications
2	Emergency or urgent operation involving imminent danger to life or property
3	Special event control, normally preplanned (including Task Force operations)
4	Joint multi-agency, multi-disciplined drills or exercises and system and channel testing
5	Interagency communications during non-emergency events depending upon: <ul style="list-style-type: none"> a. Channel availability b. Nature of incident c. Scope of operation d. Number of departments involved

Abuse of the interoperability frequencies cannot be tolerated. The interoperability frequencies are licensed for authorized public safety communications transactions only and every effort should be made to eliminate all unnecessary traffic.

All telecommunications operators are encouraged to monitor and police these channels routinely, advising violators that the channels are restricted for official public safety purposes only.

Rules of Use

All participating authorized agency personnel may have access to the CFW interoperability talk groups; however, priority access and usage shall be given to command personnel who are directly involved in resource assignment, staging, and incident control and management. Command personnel should use their agencies' home systems to specifically direct tactical, operational, or other personnel from their agencies involved in an emergency response unless those operations are directly related to or could become a multiagency interoperable event.

The following rules of use shall govern interoperable communications between agencies—

1. Connectivity between agencies will be requested primarily for working emergency events as defined by the Interoperability Committee.
2. All agency users will identify themselves by their agency name and radio call sign/designator. For example, if “N211” from the Fort Worth Police Department has requested communications with Tarrant County Sherriff unit 500,” then “Fort Worth PD N211” will call “Tarrant County 500” on the designated talk group.
3. All radio traffic will be in plain American English language. The use of 10-Codes, signals, and agency-specific acronyms is highly discouraged.
4. All radio users are encouraged to work in the “clear” mode.
5. All participating agency personnel should familiarize themselves with the National Incident Management System (NIMS)¹. This coincides with the National Response Plan (NRP)², also formulated by the Department of Homeland Security (DHS). All Federal Government departments and agencies are now required to follow NIMS. The NIMS procedures are a series of best practices based in part on the Incident Command System (ICS), and are designed “to provide a consistent nationwide approach for federal, state, and local governments to work effectively and efficiently together...[t]o provide for interoperability and compatibility.”³

Activation Procedures

The CFW interoperability network is considered an “always on,” shared resource among participating agencies. If a participating agency intends to patch one of the CFW interoperability channel to its system, a notification should be broadcasted on the IO Call talk group prior to the initiation of the patch. A communications center contact list is provided in Appendix C, should agency personnel need to coordinate the use of the channels with other agencies.

¹ Key features of the NIMS plan are summarized on the DHS Web site.

<http://www.dhs.gov/dhspublic/display?content=3421> A video summary of the NIMS plan is also available.

² The latest version of the NRP is available at http://www.dhs.gov/interweb/assetlibrary/NRP_FullText.pdf

³ See *Department of Homeland Security, National Incident Management System, March 1, 2004, pp. 1–2.*

Deactivation Procedures

When the interoperability talk groups are no longer required, agencies should return to their appropriate home talk group assignments. If a patch of systems was initiated, the user coordinating the patch should notify their agency dispatcher to release the patch. The dispatcher releasing the patch should broadcast on the CFW IO CALL talk group advising users the event is concluded and which talk group is now back available.

On-Scene Procedures for Incident Command

Participating agencies should consider developing procedures for use of the CFW talk groups on-scene by incident command. Agencies must identify procedures for non-system users and the most effective use of the channel for immediate or sustained responses. As a reference, agencies should develop an asset inventory table of area resources available to incident command (see Appendix D for an asset inventory table).

Training

All users identified by partner agencies should receive instruction and practice in accessing the channels or talkgroups designated for their respective agency. Training should be conducted regularly, consistent with agency established guidelines, to refresh user familiarity, as well as to accommodate new personnel or newly formed specialized teams that may participate in emergency response activities.

Testing Procedures

To ensure that equipment components of the interoperability solution are operating properly, each agency shall participate in the following testing procedure—

1. The testing agency will conduct a radio roll call monthly on the 2nd Wednesday at 1000 hours, 1600 hours and 2200 hours.
2. Each agency will monitor the IO CALL talk group prior to the roll call.
3. The testing agency will initiate roll call by contacting each agency by name.
4. Each agency will respond when called, stating their agency name and that the transmission was successfully received.
5. The testing agency will document and maintain a checklist of agency responses for roll calls on each channel.
6. After the roll call list is complete, the testing agency will attempt to contact each non-responsive agency one additional time via radio.
7. The testing agency will make an official announcement, via radio, that the test is complete.
8. Agencies that do not respond to the roll call will be contacted by the testing agency by telephone to attempt to identify any issues or problems that precluded their participation in the test.
9. If the issue or problem can be identified, testing agency personnel will agree on who should take corrective action. If the issue or problem cannot be identified, the testing dispatch will contact the appropriate technical personnel at CFW IT Telecom to address the problem or issue.

The testing agency will also conduct a random test of the DFW IO Call talk groups once a quarter. Date and time is at the discretion of the testing agency and will aim to test different shifts and personnel. The dispatch will take into account those agencies without 24/7 channel monitoring capabilities as listed in the communications center contact list.

The purpose of such tests would be to maintain an appropriate level of proficiency among dispatchers and to check the audio quality of console connections, as well as the ability for dispatchers to relay and monitor information on the IO Call Talk Groups. See Appendix E for a testing log for recording roll call tests.

Interim Interoperability

The below listed plan enables existing interoperability with current system users and surrounding agencies during the 18 month transition window to digital that starts 06/30/2013 and ends 12/31/2014.

Smart X & Analog Introduction

To maintain existing levels of interoperable communications with City of Fort Worth users who are still on the analog system and for new users joining as a Smart X Solution, existing interoperable talk groups will be maintained on the City of Fort Worth Radio Templates and presented as both analog and digital with the Smart X system. These talk groups were previously made available to all system users during re-banding.

SMART X Talk Groups
INTEROP 4 & 5
TARRANT 1
TARRANT 2
E SE 2 (FWISD only)
S SE 2 (FWISD only)
C SE 2 (FWISD only)

Agencies with Access to Analog CFW Interoperability Talk Groups

Analog System Agencies
Fort Worth T (Transportation Authority)
Forest Hill Police & Fire
Kennedale Police & Fire
Haltom City Police & Fire
North Richland Hills Police & Fire
Tarrant County Sherriff Office
Tarrant County Constables Office
TCU Police
Burlington Northern Police
UNT Health Science Center Police
Medstar Ambulance
CareFlite Emergency Services
Texas Alcoholic Beverage Commission
Treasury Department (The Mint)
Watauga Police & Fire
Tarrant County College Police
Fort Worth Independent School District

Channel Designations

Analog IO Talk Groups
INTEROP 1-3
SSI
N-PTRL
E-PTRL
W-PTRL
S-PTRL
C-PTRL
FD CH 1

These Analog IO Talk Groups will be presented on the dispatch console and monitored by either a CFW Police or Fire dispatcher as a calling channel. These talk groups will be available as a patchable resource on the console.

Portable and Mobile Access to limited analog talk groups.

As the transition to the digital system for City of Fort Worth Public Safety agencies will begin in stages, an Analog Zone will be created on the portable templates. As Central and West Division are scheduled to begin the transition to the P25 system on 06/30/2012, those officers will need access to analog talk groups to prevent them being on a digital island. The above listed table of talk groups will be presented in this Analog Zone on the mobiles and portables. This zone will deviate from the traditional zone naming convention and will be named “OLD” to prevent confusion within the patrol groups.

As Fort Worth ISD will not be moving to the digital system at implementation, School Security Initiative officers will utilize the SSI analog talk group for daily operations. This group will continue to work on the analog talk group until Fort Worth ISD can make the transition.

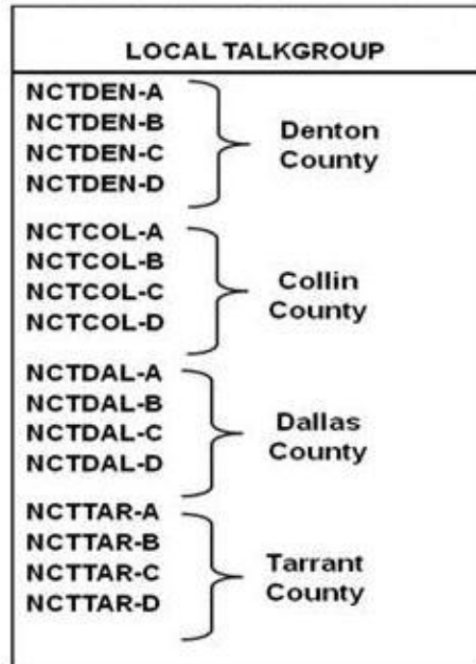
Rules of Usage

These talk groups should follow the same priority for use, rules of use, activation, deactivation, on scene procedure of incident command and training as the P25 Radio system guidelines listed above.

**CONNCT
Introduction**

To further expand existing levels of interoperable communications for City of Fort Worth P25 system public safety users, both the local and regional zones of the CONNCT (Communications Overlay Network of North Central Texas) will be added to all public safety templates. These 700MHz regional interoperability talk groups will provide knob turn interoperability with other 700MHz Overlay users with Tarrant and Denton County. Additionally, Collin and Dallas County agencies are available in a manual roaming scenario.

**Local Zone
CONNCT
Interoperability
Talk Groups**



The local zone allows for interoperable communications within range of a specific tower site. If units are within Tarrant County, they would be able to use the NCTTAR talk groups to communicate with other units within Tarrant County.

It is not possible for a unit near the Tarrant County Tower site to communicate with a unit that is within the area of the Dallas County Tower site.

**Regional Zone
CONNCT
Interoperability
Talk Groups**

REGIONAL TALKGROUP
NCTRG-A1
NCTRG-A2
NCTRG-B1
NCTRG-B2
NCTRG-C1
NCTRG-C2
NCTRG-D1
NCTRG-D2

**_1 Designation is for
SS1 located units**

**_2 Designation is for
SS2 located units**

The regional zone allows subject within the range of each system to communicate across tower site boundaries. Using NCTRG regional talk groups, users can communicate with any other user on that system regardless of proximity to the tower site.

System 1 is comprised of DFW Airport and the rest of Tarrant County with some intrusion into Southern Denton and Eastern Dallas Counties.

System 2 is comprised of Dallas County, Collin County and Denton County with some intrusion into Tarrant County.

The nature of the incident can be deciding factor in the use of the Regional Talk groups. Units participating in an incident where the Overlay System is utilized will be directed by the incident commander regarding which regional talk groups to use. However, by definition, if an incident is located such that it lies in the service area of more than one Overlay site, the regional talk groups will be used. When in use, the Regional Talk groups allow communications among units on the same Regional Talk group to converse to one another via any of the four sites that comprise

There is no automatic roaming between system 1 and system 2 regional talk groups. For communication with a unit on system 2, the radio must be manually changed to the system 2 regional talk group.

**FCC 800MHz
NPSPAC Band**

800 MHz NPSPAC
8CALL90
8TAC91
8TAC92
8TAC93
8TAC94

*Both repeated and direct talk groups will be included. Direct talk groups will conclude with a D in the naming convention.

**Basic Operational
Design/Activation &
Deactivation/Rules
of Usage**

The NPSPAC Mutual Aid talk groups are available for interoperable communications. All agencies should make arrangements to monitor 8CALL90 for requests for mutual aid. Additionally, the City of Fort Worth will monitor 8CALL90 and enable and disable repeaters as requested. Repeaters will be enabled based on the Region 40 NPSPAC plan. All repeaters should be kept in a repeat disabled mode unless being used. These talk groups will follow the rules of usage listed in the base plan. Activation and Deactivation of these talk groups will follow the Region 40 NPSPAC Plan.

**FCC 700MHz
National Public
Safety Band**

700MHz Nation Public Safety Band TV 63 + 68
7CALL50
7TAC51-7TAC56
7GTAC57
7LAW61-7LAW62
7FIRE63-7FIRE64
7MED65-7MED66

*Both repeated and direct talk groups will be included. Direct talk groups will conclude with a D in the naming convention.

**Basic Operational
Design**

The 700MHz National Public Safety Band talk groups are available for interoperable communications within range of a 700MHz radio system. The City of Fort Worth does not have a 700MHz radio system. However, the talk groups will be programmed into all dual band radios to provide interoperable communications should Fort Worth Personnel deploy to an area with a 700MHz radio system for mutual aid or disaster relief.

Dallas P25 ISSI

Dallas P25 ISSI
D-FW ISSI 1
D-FW ISSI 2
D-FW ISSI 3
D-FW ISSI 4

Basic Operational Design

P25 radio systems allow for interconnection and roaming between P25 Radio Systems similar in design to how a cellular phone roams between towers and systems. This interconnection is referred to ISSI or Inter RF Subsystem Interface.

By creating the ISSI talk groups, CFW system users will be able to talk back to the Fort Worth system on one of the ISSI talk groups on the Dallas Tower system within the Dallas P25 Systems Coverage area.

Users should be conscious that by using these talk groups resources on both the City of Fort Worth P25 Radio System and the City of Dallas P25 Radio System are being utilized and prolonged usage is discouraged.

However, these talk groups would allow CFW System users to maintain contact with dispatch and other users if they were involved in a prolonged pursuit that extended beyond the CFW System coverage area and into the Dallas System Coverage area. Likewise, Fire Services can utilize these same talk groups for mutual aid or disaster response that may take them outside of the coverage area of the CFW system but within the coverage area of the Dallas System. The ISSI talk groups would allow those emergency responders to talk back to the dispatcher from the Dallas coverage area.

P25 Interconnected Systems

P25 radio systems allow for interconnection and roaming between linked tower sites on the same hosted master switch. This also works similar in design to how a cellular phone roams between towers and systems. These interconnected sites use the CFW master switch but provide their own tower sites and frequencies.

Basic Operational Design

Users should be conscious that by external agencies using the CFW Law, Fire, EMS and PW IO talk group resources on an interconnected tower site uses one of the available frequency resources of that interconnected cities resource pool. Agencies should be cautious how these frequencies are being utilized and prolonged usage is discouraged.

However, these interconnected towers would allow CFW System users to maintain contact with dispatch and other users if they were involved in a prolonged pursuit that extended beyond the CFW System coverage area and into the interconnected tower site coverage area. Likewise, Fire Services can utilize these same talk groups for mutual aid or disaster response that may take them outside of the coverage area of the CFW system but within the interconnected tower site coverage area. Appendix E contains a list of interconnected system tower sites.

APPENDIX B—COMMUNICATIONS CENTER CONTACT LIST

Listed in the following table are the area communications centers' contacts and capabilities available for establishing interoperability.

Communications Center / Agency	Communications Center Contacts (Dispatch, Supervisor, Technician)	Operational Hours	ORI / TLETS Addresses	Supported Mutual-Aid Channels (Frequency/Name)
City of Fort Worth Police & Fire				
City of Fort Worth Public Works				

APPENDIX C—ASSET INVENTORY TABLE

Listed in the following table are the area communications centers' contacts and capabilities available for establishing interoperability.

Owning Agency	Type of Asset	Asset Location	Asset Capabilities	Frequency Band	System	Talkgroup/ Channel	Other Capabilities
City of Fort Worth	Fixed ACU1000	CFW Fire Station #35	(1) CFW Police and Fire Consoles	800MHz	Motorola	ACU1000	Can connect Denton County to CFW and/or Tarrant County
			(2) Denton County Sheriffs Consoles	800MHz	Motorola	FWACU35	
			(3) Tarrant County Sheriffs Consoles	800MHz	Motorola	ACU1000	
	Console Interface (Through back-room radio)	Bolt Primary Throckmorton Alternate	FW Police and Fire, Carswell JRB (Naval Air Station)	VHF	Motorola	NAS FD & NAS PD	
			FW Police and Fire, Arlington Dispatch	800MHZ	Motorola	ARLMUAID	
			FW Fire, Hurst Fire	800MHZ	Motorola	HURST FD	
			FW Fire, Euless Fire	800MHZ	Motorola	E-FIRE 1	
			FW Fire, Keller Fire	800MHZ	Motorola	K-FIRE 1	

APPENDIX D—TESTING LOG

The following table is a testing log for recording roll call test results of the CFW P25 interoperability talk groups.

Fort Worth P25 Interoperability Network Testing Log			
Participating Agency	CFW IO Call Response (Yes/No)	If "No" Response, List Technical or Operational Problem	Notes

APPENDIX E—INTERCONNECTED SYSTEM