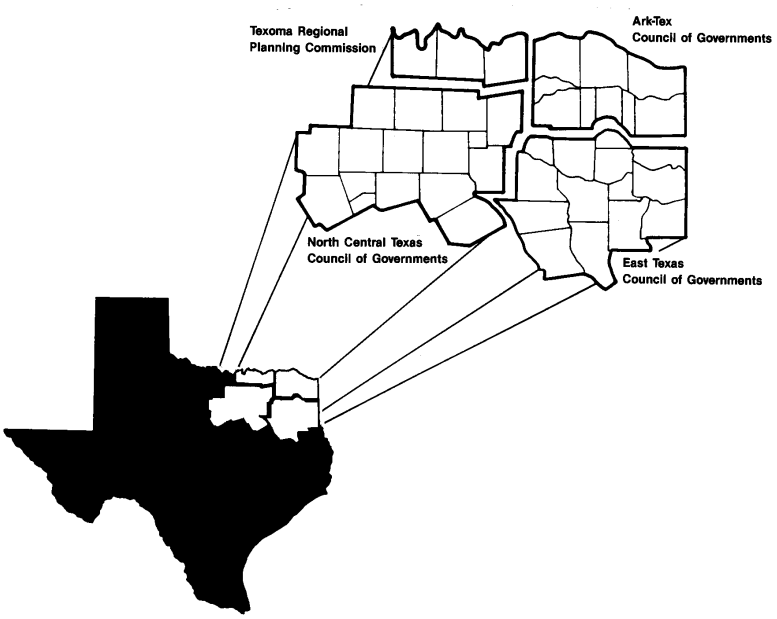
700 MHz Public Safety Radio Communications Plan

North Central and North East Texas



Coordinated by North Central Texas Council of Governments

PUBLIC SAFETY 700 MHz
RADIO COMMUNICATIONS PLAN

Region 40
Date of Plan Approval
Amendment Dates
Website Link

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Scope

Introduction

This is the second major planning thrust for Region 40. The first was to meet the Federal Communications Commission (FCC) requirements for the NPSPAC spectrum. This planning thrust was precipitated by the establishment of the 700 MHz public safety band.

The FCC announced the allocation of 24 MHz in the 700 MHz radio spectrum subsequent to the Public Safety Wireless Advisory Committee (PSWAC) report that established need requirements throughout the country. Interoperability within and among public safety and public service providers was identified in the PSWAC report as a basic minimum essential requirement.

Subsequent to the PSWAC the FCC established a Federal Advisory Committee called the National Coordination Committee (NCC). The NCC was created to address interoperability, technology, and implementation issues to be considered for the 700 MHz spectrum. The FCC required that a Regional Plan outlining the use of public safety radio frequencies be complete and approved of by the FCC before any agency within a region would receive channels from this new allocation. The Regional 40 Plan conforms to the NCC planning guidelines. The Region 40 Plan committee's membership represents a cross-section of public safety and public service users. A Region Planning Committee membership list is contained in Appendix (B).

Purpose

The purpose of the Regional Plan is to insure that maximum public benefit is derived from use of the 700 MHz spectrum by eligible agencies. Further, the plan was developed to guide eligible entities through the application process and provide an equitable means of settling disputes concerning frequency allocations should they arise.

Regional Plan Summary

First, Region 40 includes an area of North Central and North East Texas that includes 42 counties (as listed in Appendix C). This area encompasses four COG's (Councils of Governments) namely, North Central Texas Council of Governments (NCTCOG), Texoma Regional Planning Commission, Ark-Tex Council of Governments and the East Texas Council of Governments. There are 42 counties within Region 40. The 42 county area typifies geographical diversity from its rich farmland in the northeast to fairly hilly semi-mountainous terrain in the western part of the region. Much of the Region's area is extensive from the standpoint of public safety officer coverage. There are times when only a few law enforcement officers may be responsible for covering an area greater than 900 square miles. Rural fire departments often operate without sufficient resources, including communications. Region 40 encompasses 31,193 square miles.

The broad classifications of entities eligible to apply for spectrum are defined in accord with NCC definitions. Next, to garner their participation in and support of the planning process,

an attempt was made to contact all eligible agencies. These attempts are documented. The authority by which the Regional Planning Committee undertook these planning efforts is reviewed. A discussion follows of the process by which the initial spectrum allocation was made. Finally, a detailed discussion of the application process is given. This includes guidelines for spectrum use, application requirements, the application review process and dispute resolution. Also included is a discussion of the future planning process.

The Region 40 Committee accepts the Computer Assisted Pre-Coordination Resource and Database (CAPRAD) database initial allocation based on population density and call volume by county. It has been noted by the committee that this allocation closely matches the description of Designated Statistical Areas by the US Department of Management and Budget Bulletin. The Committee will use the CAPRAD database when allocating frequency resources in Region 40.

Interoperability guidelines and usage must be in accordance with the requirements of the State Interoperability Executive Committee (SIEC). Any conflict between the interoperability rules for National Calling and Tactical channels in this plan and SIEC guidelines, the SIEC guidelines will prevail.

2.0 Regional Planning Committee Leadership

At the time of transmittal of this plan to the FCC, the following individuals served in the listed leadership roles. Further discussion about the roles of the various leaders and their positions in the committee are detailed in Appendix A of this document. Leadership positions are appointed voting members of the committee.

Regional Chairperson	Wanda McCarley Director of Operations, Tarrant County 911 District 2600 Airport Freeway, Fort Worth Texas 76111 Office: 817-820-1185 Mobile: 918-988-2408 Email: wanda@tc911.org
Regional Vice-Chairperson	Blank Agency Department Address Phone numbers Email:

3.0 Regional Planning Committee Membership

The RPC strives to include a diverse and active set of planning committee members who represent the region as a whole, from rural agencies to large urban agencies. This allows the committee to truly represent the committee from which the members are drawn from.

3.1 Membership, Meetings and Voting procedures

The RPC shall have two classes of members: 'voting' and 'non-voting.' Voting members shall consist of one representative from any agency engaged in public safety activities eligible to hold a radio license under USC 47 CFR 90.20, 47 CFR 90.523, or 47 CFR 2.103. An agency shall be allowed one vote. Voting members may not vote on issues involving their entity or agency's political organization or jurisdiction.

Non-voting members are all others seeking membership and interested in furthering the goals of public safety communications and / or who's entity is not eligible to hold a license under USC 47 CFR 90.20, 47 CFR 90.523, or 47 CFR 2.103.

Representatives, full or part-time, of Commercial Communications related Companies, Manufactures, Consultants, Engineering Companies, Radio Service Companies or other non-governmental, non-eligible public safety license holders will not be considered as voting members nor will be eligible to represent the Region as an official representative of the Region and will not be listed or provided any management authorization within any official websites or processing platform utilized for Region business. Commercial representatives may participate in region public meetings and provide advisory information as request by the Region Chairperson and/or Executive Board by vote.

New members may be added by application. Application forms are available from the RPC Chair or Vice Chair. Membership shall be granted upon approval of application until resignation or removal.

Registration of an active member on CAPRAD is also required within 30 days of membership approval by the region and the Chairperson.

In addition to any powers and rights as are vested in them by law or these bylaws, the members shall have such other powers and rights as membership may determine.

a. A member may be suspended or removed with cause by vote of a majority of members after reasonable notice and opportunity to be heard.

b. A member may resign by written notice to the Chairperson.

c. The annual meeting of the members shall be set by the Chairperson and shall be held in Region 40 in a central location that will provide the maximum opportunity for regional participation.

d. Regular meetings of the RPC may be called by the Chairperson or the Vice-Chairperson or upon written application of two or more members.

e. Reasonable notice of time and place of RPC meetings shall be given each member. Such notice need not specify the purpose of the meeting unless there is to be considered at the meeting (i) amendment to these by-laws or (ii) removal or suspension of an officer.

It shall be reasonable and sufficient to notify members of the time and place of RPC meetings at least ninety (90) days prior to a meeting at the usual or last known business

address on record with the RPC Secretary. Meeting notifications will be accomplished according to NCC instructions and requirements.

Members shall keep the Leadership informed of their most current address/telephone information (including e-mail) so they may be kept properly informed of committee activities.

At any meeting of the RPC members, 20 percent of the voting members of record shall constitute a quorum.

Each voting member shall have one vote so long as a quorum is present. A simple majority of votes cast shall decide any issue except DISSOLUTION.

Regional Chairperson	Wanda McCarley Director of Operations, Tarrant County 911 District 2600 Airport Freeway, Fort Worth Texas 76111 Office: 817-820-1185 Mobile: 918-988-2408 Email: wanda@tc911.org
Regional Vice-Chairperson	Blank Agency Department Address Phone numbers Email:

As outlined in the RPC bylaws, from time to time, as described in the RPC By-Laws (Appendix "A"), these positions will be subject to re-election. At any such time that one of these positions changes, the Chair will be responsible for taking the following actions:

- Providing notice to the FCC of the changes
- Providing notice to the NRPC of the changes
- Modifying the Region 40 web site to reflect the changes. (if available).

Such changes will not be considered Plan modifications, and will not require that this document be reissued to the FCC for public notice and comment cycles

4.0 Regional Profile

To appreciate Region 40's diversity and general economic composition, the following briefly profiles the State of Texas as a whole.

STATE PROFILE

Population

The State's population reached 21,799,893 in 2002 according to latest U.S. Bureau estimates. By 2040 the population is expected to reach 35 million.

The majority of people-82%-live in the major metropolitan centers of the State; Houston, Dallas, Fort worth, Austin, and San Antonio. The states increase in population was found in these same areas for the most part.

Employment

The State added 2,488,400 non-farm jobs since the 1990 census and this helps support the claim that Texas leads all states in net job creation. The state's expanding population and economy have benefited the Texas construction sector, which has added 239,900 jobs since January 1990. Texas employment in finance and insurance has increased by 25.3 percent since January 1990. Texas employs far more people in the mining sector (which includes oil and gas production) than any other state. While the state has experienced a net decline in mining jobs since January 1990, the sector has enjoyed relative stability compared to the "boom" and "bust" cycles of earlier decades. The services sector includes a wide range of industries from architectural engineering, software and film production to hotels, hospitals, and dry cleaners. The services sector is Texas' largest, employing 7.7 million people.

Labor and Management Diversity

In 1997, there were more than 240,000 Hispanic-owned firms in Texas, and together these enterprises recorded sales and receipts of nearly $39.5 billion. Black-owned firms in Texas numbered just over 60,000 in 1997 and recorded sales and receipts exceeding $6.8 billion. As a group, the 75,000-plus Texas firms owned by Asians, Pacific Islanders, American Indians, and Alaskan Natives saw sales and receipts of $22.2 billion in 1997.

Income

Metropolitan per capita income varies considerably across the state. Texas' two largest metro areas, the Dallas PMSA and the Houston PMSA, have large concentrations of jobs in financial and business services as well as high-paying manufacturing jobs in electronics, motor vehicles, chemicals, machinery, and aerospace. These two metros have the highest per capita incomes of any of the state's metropolitan areas. In contrast, the metropolitan areas located along the border with Mexico have per capita income levels that rank among the lowest in the state.

Gross State Product

The Texas gross state product (GSP) is forecast by the Comptroller of Public Accounts to reach $924.55 billion (in current dollars) in 2005. Since the 1986 recession, the Texas economy has been steadily diversifying. The service sector's share of GSP increased from 14.7 percent in 1986 to 20.5 percent in 2001, while manufacturing fell slightly from 14.1 percent of the economy in 1986 to 13.1 percent in 2001. Mining's share of Texas GSP (i.e., primarily oil and gas extraction) has been as high as 19.6 percent in 1981. Mining declined from 8.8 percent in 1986 to 6.2 percent in 2001.

Real Estate

Despite the downturn in the national economy, median sales prices for existing single-family homes in Texas metropolitan areas are remaining relatively steady. According to recent figures from the National Association of Realtors, as of the second quarter of 2003, home prices in the Austin metro increased slightly from $151,700 (first quarter 2003) to $161,200, still the highest among reporting metropolitan areas in Texas. Austin was

followed by Dallas which had a median sales price of $139,900. Houston was next in the rankings with a median sales price of $136,900 in the second quarter of 2003.

International Trade & Investment

The NAFTA trade area, East Asia, and the European Union are the leading destinations for Texas exports. The state's largest export market continues to be its NAFTA trading partners, Mexico and Canada, which accounted for 54.0 percent of total state exports during 2002. East Asia accounted for 12.0 percent of the state's total exports. Taiwan became the top destination for Texas exports in East Asia. Exports to Taiwan increased 42.3 percent from $2.6 billion in 2001 to $3.7 billion in 2002, ranking Taiwan third overall behind Mexico and Canada. Texas exports to the European Union (EU) accounted for 9.9 percent of total state exports for 2002, slightly down from the 2001 export values. Texas exports to the EU went from $10.7 billion in 2001 to $9.5 billion in 2002. The United Kingdom remains the principal destination for Texas Exports in the European Union.

Research and Development

Several Texas universities and research institutions are leaders in electronics, medical, biotechnology, aerospace, advanced materials, and energy-related research. In 2001, Texas was in third place nationwide for producing the most patents, trailing behind California and New York. Texas' patent generation rate has increased significantly as new information technology industries have emerged and as traditional industries (e.g., oil and gas exploration and production) have used advanced research to maintain a competitive advantage in world markets.

Transportation

The importance of international business can be seen in increased air passenger traffic at Texas airports between 1998 and 2000. The state's two largest airports, Dallas-Fort Worth International (DFW) and George Bush Intercontinental in Houston (IAH), serve as major hubs for connecting flights within the domestic air system.

With the increasing importance of global business linkages, the growth in international air traffic at Texas' two largest airports outpaced overall growth from 1995 to 1999. While IAH now handles more international passengers than any other airport in the state, DFW, one the nation's top four domestic hubs, remains much larger. As of May 2003, DFW and IAH were the sixth and fourteenth busiest airports in the world.

DEFINITION OF REGION 40, ITS BOUNDARIES, COUNTIES AND CITIES

Region 40, North Central and North East Texas, includes four COG's (Councils of Governments) namely, North Central Texas Council of Governments (NCTCOG), Texoma Regional Planning Commission, Ark-Tex Council of Governments and the East Texas Council of Governments. There are 42 counties within Region 40. The 42 county area typifies geographical diversity from its rich farmland in the northeast to fairly hilly semi-mountainous terrain in the western part of the region. Much of the Region's area is extensive from the standpoint of public safety officer coverage. There are times when only a few law enforcement officers may be responsible for covering an area greater than 900

square miles. Rural fire departments often operate without sufficient resources, including communications. Region 40 encompasses 31,193 square miles.

List of counties within Region 40

ARK-TEX COG

Bowie	Franklin	Morris
Cass	Hopkins	Red River
Delta	Lamar	Titus

EAST TEXAS COG

Anderson	Henderson	Smith
Camp	Marion	Upshur
Cherokee	Panola	Van Zandt
Gregg	Rain	Wood
Harrison	Rusk	

NCTCOG

Collin	Hunt	Rockwall
Dallas	Johnson	Somervell
Denton	Kaufman	Tarrant
Ellis	Navarro	Wise
Erath	Palo Pinto	
Hood	Parker	

TEXOMA RPC

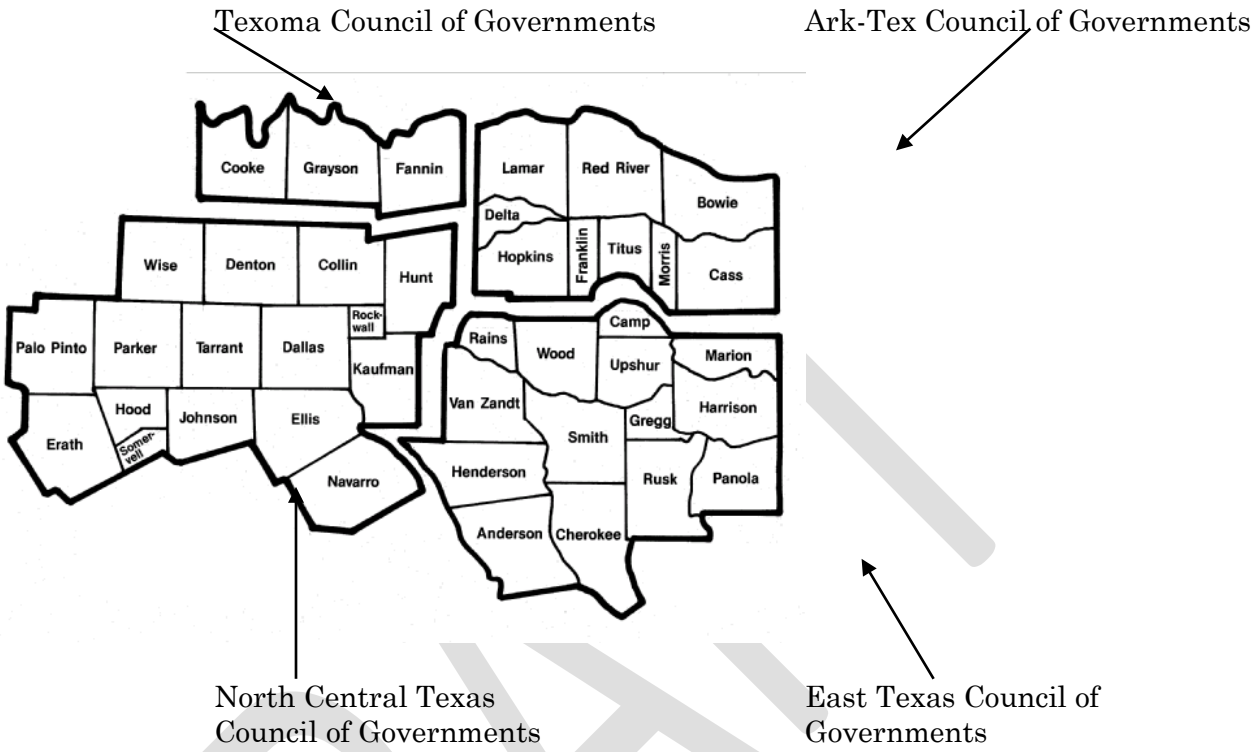
Cooke
Fannin
Grayson

All Counties Within Region 40 Listed Alphabetically

Anderson	Grayson	Panola
Bowie	Gregg	Parker
Camp	Harrison	Rains
Cass	Henderson	Red River
Cherokee	Hood	Rockwall
Collin	Hopkins	Rusk
Cooke	Hunt	Smith
Dallas	Johnson	Somervell
Delta	Kaufman	Tarrant
Denton	Lamar,	Titus
Ellis	Marion	Upshur
Erath	Morris	Van Zandt
Fannin	Navarro	Wise
Franklin	Palo Pinto	Wood

Region 40's boundaries and counties are depicted by the map below:

Map of Region 40



Region 40 (North Central Texas) has seven (7) adjacent regions. They are as follows:

Region 04, Arkansas
Region 18, Louisiana
Region 34, Oklahoma
Region 49, Central Texas
Region 50, West Texas
Region 51, East Texas - Houston
Region 52, Texas Panhandle

Regional Profiles

(Cities are included in the Counties presented)

Ark-Tex Council of Governments

Serves 10 counties; Lamar, Red River, Delta, Hopkins, Franklin, Titus, Morris Bowie, Cass, and Miller. Miller County extends into Arkansas where nearly 40,000 persons reside. The area encompasses 6400 square miles and a population of 270,488. More than 40 cities are included in the area. The region's largest city is Texarkana, located in Bowie County. (See Appendix A for more on this region's jurisdictions).

North Central Texas Council of Governments

is a sixteen-county metropolitan region centered on Dallas and Fort Worth. The region has a population of 5.2 million (which is more than the population of 30 states), and an area of approximately 12,800 square miles (which is larger than nine states). The area is characterized by high tech industries, recreation, cultural facilities, heavy real estate interests, medical research industry, and a quickly recovering economy. Much of the above is the result of the Dallas-Fort Worth Airport and its impact on business as one of the major transportation hubs in the world.

Only minutes outside the metropolitan area of Dallas-Fort Worth is a more rural landscape concentrating on agribusiness; cattle raising, crop growing, and farming of all kinds. This part of the region abounds in lakes where water recreation is a major business. (See Appendix A for more on this region's jurisdictions).

East Texas Council of Governments

serves 14 counties and more than 70 cities in 10,021 square miles. Its population exceeds 700,000, which is divided equally between urban and rural. The largest city is Longview with a population of 73,344. The region abounds in scenic beauty with its many lakes and forests. (More on East Texas jurisdictions may be found in Appendix A).

Texoma Regional Planning Commission

has a population of 178,200 and serves an area of 2736 square miles. It serves persons in three counties, Cook, Grayson, and Fannin and 31 cities. This area is characterized by light industry, cattle raising, and agriculture. Many residents from this region commute to the Dallas-Fort Worth area for employment and entertainment purposes. (More on this region's jurisdictions is found in Appendix A).

In previous NPSPAC 821 MHz frequency allotments, spectrum amounts disproportionate to population densities were allocated due to differing methodologies used in adjacent NPSPAC Regions and the timing of adjacent regions plan filing and approval. This resulted in a minimum number of

channels available for Region 40 particularly in the urban centers. In the 700 MHz band, county allotments for both narrowband channels have been developed based on population densities relative to adjacent Regions.

5.0 Notification Process

The notification process for the RPC meetings was primarily accomplished through e-mail. The original meeting included a notice published on the NCTCOG Website, State Fire Marshall website, Radio Resource Magazine Website and Public Safety Communications Magazine website, as well as official notification to the Federal Communications Commission. Subsequent e-mails were distributed to all attendees and re-distributed to e-mail lists of interested persons as well as requesting that interested parties be resent this information. Radio communications issues were and still are at the forefront for most Public Safety agencies. Meeting noticed and meeting notes were taken at each meeting (see Appendix "F").

The Division of Homeland Security and Emergency Management (HSEM) is a division of the (user agency). A member of the HSEM attended the initial meeting. The Department of Transportation maintains and operates the communications system for the Department of Public Safety. The Department of Transportation has been an integral part of the planning process.

The five original meetings were held in 2002.

- Meeting 1-June 26, 2002, held at the North Central Texas Council of Governments
- Meeting 2-October 2, 2002, held at the North Central Texas Council of Governments
- Meeting 3-February 24, 2003, held at the North Central Texas Council of Governments
- Meeting 4-May 6, 2003, held at the North Central Texas Council of Governments
- Meeting 1-July 17, 2002, held at the Dallas Fort Worth International Airport Department of Public Safety Facility.

6.0 Regional Plan Administration

6.1 Operations of the Regional Plan Committee

This committee will use Robert's Rules of Order to conduct meetings. All decisions will be by clear consensus vote with each Public Safety Agency having one vote. The meetings are open to all persons and a public input time is given for anyone to express a viewpoint or to have input to the planning.

Workgroups may be formed as needed to work on specific issues. For the initial planning, three workgroups were formed – Implementation/Outreach, Interoperability and Technology & Planning. Workgroups are intended to work on details of specific issues and make recommendations to the full committee. Any changes to the Regional plan must be voted and approved by the full Regional Plan Committee. Workgroups are open to any who want to participate. The Chair of the Regional Plan Committee appoints the Chair for each workgroup.

A minimum of one meeting per year will be held of the full committee. This will be announced and advertised 90 days in advance by the Committee Chair. Normal time for this meeting will be in January each year.

Beginning two years after Federal Communications Commission approval of this Regional Plan, the Chair shall call a meeting of the Committee to elect a Chair, Vice Chair and Secretary to serve for two years. There is no limit to the number of terms that may be served.

If the Chair is unable to serve a complete term the Vice Chair will serve as Chair until the next election meeting. If both the Chair and Vice Chair are unable to serve their full terms one or the other should strive to call a special meeting of the Committee to elect replacements. If for some reason, neither the Chair nor the Vice Chair can call the special meeting; the State or any County within the region may call for a special meeting, giving at least 90 days notice, to elect replacements.

6.2 Procedure for Requesting Spectrum Allotments

Upon FCC approval of this Plan, Region 40 will announce to the region that 700 MHz public safety channels are available in the Region and that channels have been assigned to pool allotments to counties within the Region. All available methods will be used to notify public safety entities of channel availability in the Region.

Priority

All requests will be considered on a first come, first served basis. Region 40 supports the National Coordination Committee Pre-Assignment Rules and Recommendations, and will use these guidelines as a template to determine if an application submitted to the Regional Planning Committee meets Regional Planning standards. It is recommended that applicants familiarize themselves with these recommendations prior to submitting applications for Region 40 700 MHz public safety system implementation.

Other consideration taken into consideration for determination of priority of application will be:

a. Users who are involved in the protection of life and property,
b. Multi-agency shared systems that multiple agencies agree to construct a common infrastructure (i.e. State, City, County, and others),
c. Large agencies with multiple divisions constructing a common system for all to use (i.e. a large city or county with multiple divisions),
d. Trunked use of the frequencies,
e. Approved funding to construct the system using the 700 MHz frequencies,
f. A statement of the future intentional actions of any currently licensed channels that will be replaced by a new 700 MHz system, and how it may benefit other agencies in the Region by releasing these channels back into the Public Safety pool.

Technical Documentation

Agencies will need to fully document technical information, sites, tower heights, area of coverage, ERP of transmitter sites, along with any other technical information required for RPC subcommittee review and coordinator review. Agencies are expected to construct systems with maximum signal levels in their coverage area and minimum signal levels in co-channel user's coverage areas. Coverage area in the context of this plan will be defined as the geographical boundaries of agency(s) served by the system plus eight miles. The RPC realizes that radio signals don't stop at political borders. Our attempt is to maximize the use of the frequencies by packing as many users as possible per channel.

CAPRAD

The FCC has not mandated the use of the CAPRAD database but many regions utilize it to initiate and receive 700 MHz license applications and to store associated documentation that accompanies each 700 MHz license application. Region 40 choses to strongly encourage NEW applicants to use the CAPRAD system to initiate a license request. However, CAPRAD can sometimes create issues in submission and applicants must submit these license applications to each region in the manner that best promotes timely regional review of these applications. Therefore, paper copies, emailed copies or any other FCC application filing mechanisms will also be accepted at this time. This is also true for modifications or application updates. The Region reserves the right to modify this decision as CAPRAD matures in usage.

In general and unless otherwise noted and determined to be in the best interest of the region, the Region 40 Regional Planning Committee will adhere to the published National Coordination Committee Implementation Guidelines for 700 MHz Public Safety Regional Planning Committees, when applicable.

APPLICATION

When applying for new 700 MHz channels, the Regional Planning Committee looks forward to 700 MHz applicants working with neighboring agencies to promote and continue the establishment of interoperability within their community and allow for the equitable distribution of existing spectrum

allocations to promote efficient frequency use when applying for 700 MHz spectrum. Region 40 expects applicants to be cognizant of the fact that moving to the 700 MHz band may create a degree of isolation between themselves and neighboring agencies, and Region 40 looks forward to working with these applicants on a case-by-case basis on how to maintain spectrum availability in their area, while continuing to promote interoperable communications.

To request channels from Region 40, a full application package must be completed and submitted to the Regional Planning Committee by the applicant. 700 MHz regional planning committees need to work with applicants in the process of application submission with regard to CAPRAD as it is limited to the type of applications it can receive. Some applications that need to be submitted to regional planning committees cannot be submitted via the CAPRAD database due to the technical limitations inherent in the current database.

The application must include:

- An FCC Form 601,
- A short description of the proposed system,
- A justification for the additional spectrum,
- An interference prediction map using the current version of TIA/EIA TSB 88 guidelines, Maps showing all interference predicted in the proposed system,
- Documents indicating agency-funding commitments sufficient to fund the development of the proposed system(s)
- An indication as to when they will migrate from their existing system to the new system.

The Chair will distribute the request to all other appropriate agencies with allotments in the plan for review and approval electronically. Absent a protest, the Regional Planning Committee will approve the application and submit it through the CAPRAD database, if possible, to the applicant's preferred FCC-certified frequency coordinator for processing. This process meets the requirements of Rule 90.176 (c).

If technically possible, the CAPRAD database will reflect the approved application and place the channels for the proposed system in "pre-license" status. 700 MHz Regional planning committees are encouraged to work with applicants and the limitations of the CAPRAD database to develop a process for 700 MHz application submission that is in the best interest of the applicant and allows the region to respond to the applicant in a timely, effective manner.

ALLOCATION DISPUTE

An agency may protest a proposed system within 30 calendar days of the original distribution. Protests will only be considered if the allocation does not conform to plan criteria or objecting agency or the Chairperson can show

harmful interference is likely based on the information submitted by the agency requesting the new allocation. If an agency with pre-licensed/Region approved co-channel or adjacent channel allocations objects to a proposed allocation due to concerns about potential interference, the objecting agency may request field tests be done to confirm or refute interference potential.

The completion of these field tests will be required for Regional application approval. Any costs associated with field tests or any other requirement to obtain Region 40 plan approval is the responsibility of the agency submitting application to Region 40.

The parties involved must resolve the allocation dispute and notify the Region Chair within 14 calendar days. If the parties involved cannot resolve the allocation dispute within that timeframe, then a special full Committee meeting will be scheduled to consider and vote on the protest. If approved, the application will be submitted through the CAPRAD database to the applicant's chosen FCC-certified frequency coordinator for processing.

6.3 Procedure for Frequency Coordination

For details outlining recommended pre-coordination practices see Appendix M.

Before applicants submit an application to one of the FCC recognized frequency coordinators, the application must be reviewed by members of the the Regional Planning Committee. The Committee will review the application to ensure it complies with all elements of the Regional Plan. This will NOT be a review to ensure the application form meets FCC requirements for filing.

The applicants must submit a copy of the FCC application and supporting documents to the Regional Plan Chair. An interference prediction map must be included in the documentation. TIA/EIA TSB88-A (or latest version) guidelines will be used to produce the interference map. The map must show all interference predicted using TSB88-A guidelines. Any agency with co-channel or adjacent channel allotments may request field tests of signal levels to verify interference signal levels. Agencies must be prepared to conduct these field tests if a request is made.

The frequency meetings will be held as needed to review applications. In some instances to save time and ensure timely processing of requests, these reviews and comments can be obtained from the Committee electronically. The FCC certified frequency coordinators will be notified of the meetings.

6.4 Adjacent Region Spectrum Allocation and Coordination

Region 40 shares borders with Region 04-Arkansas, Region 18-Louisiana, Region 34-Oklahoma, Region 49-Central Texas, Region 50-West Texas, Region 51 South East Texas and Houston, and Region 52-Texas Panhandle. Region 40 will coordinate channel allocations with all its bordering regions by using the CAPRAD database. This tool will ensure adjacent state notification as well as FCC Certified Frequency Coordinator notification.

The Chair will send final draft copies of this plan to the conveners or Chair, as appropriate, to each adjacent region. Adjacent regions should be able to satisfy voice and narrowband data requests along their border areas with Region 40. If any region has problems satisfying requests in an adjacent area, the Region 40 RPC pledges to work with this region or any of the other surrounding regions to resolve any issues on a case by case basis.

6.5 Regional Plan Updates

In 2014, the FCC released Report and Order 14-172, Reserve Channel Reclassifications. The following are exerpts from that Report and Order

Discussion (FCC 14-172)
Paragraph 39. We conclude that the 700 MHz Reserve Channels should be added to the General Use pool and made available for multiple uses under RPC administration. The demand for 700 MHz narrowband spectrum has significantly increased in recent years, particularly in large urban areas. Some 700 MHz licensees have channel requirements that have surpassed what was envisioned in the original channel allotment process. Moreover, in Los Angeles, Washington DC, and other major metropolitan areas, the Reserve Channels offer much-needed capacity for relocating T-Band public safety licensees as required by the Public Safety Spectrum Act.

Paragraph 40. To accommodate these spectrum demands, we adopt the following overall approach. Rather than dedicating the Reserve Channels exclusively for use with deployable systems, we require the RPCs to administer the Reserve Channels subject to the following.

In the non T-Band areas, up to eight 12.5 kilohertz channels may be dedicated for temporary deployable trunked use and the rest for General Use, including low-power vehicular repeaters. In the T-Band markets, all twenty-four Reserve Channels will be available for General Use with priority given to relocating T-Band incumbents that commit to return an equal amount of T-Band channels.

The RPCs shall submit channel plans consistent with this Report and Order within six months from publication in the Federal Register.112 We encourage

T-Band licensees transitioning to the former Reserve Channels to consider using spectrally efficient 6.25 kHz technology given the limited number (24) of available former Reserve Channels.

Regional Planning Committees, per the FCC language above, have a number of options to consider when repurposing the former Reserve Channels within their regions. Those regions that include T-Band areas must prioritize the assignment of all 24 Reserve Channels to those T-Band licensees.

Due to this report and order, the Region 40 RPC has chosen to allow the use of channels 37-38, 61-62, 117-118, 141-142, 883-884, and 939-940, to be designed for use as nation wide deployable trunking channels consistent with the NPSTC/NRPC recommendation to the FCC utilizing the recommended system and unit identifiers from NPSTC/NRPC.

In addition, the Region 40 700 MHz RPC has chosen to utilize the remaining channels as "floating allotments" to supplement the existing General Use allotments in each region with priority assignment to T-Band users within the Region on the following frequencies: **77-78, 157-158**, 197-198, 221-222, 237-238, 277-278, 301-302, 317-318, 643-644, 683-684, 699-700, 723-724, 763-764, 779-780, 803-804, 843-844, **859-860 and 923-924**. Allowing these remaining channels to supplement the existing General Use allotments utilized within the region will promote maximum flexibility of the use of these channels in each region by T-Band users. Once all T-Band public safety users requirements are met, the channels will then be available to all remaining eligible applicants.

7.0 System Design/Efficiency Requirements

7.1 Interference Protection

The frequency allotment list will be based on an assumption that systems will be engineered on an interference-limited basis, not a noise floor-limited basis. Agencies are expected to design their systems for maximum signal levels within their coverage area and minimum levels in the coverage area of other co-channel users. Coverage area is normally the geographical boundaries of the Agency(s) served plus a three to five mile area beyond.

Systems should be designed for minimum signal strength of 40 dBμ in the system coverage area while minimizing signal power out of the coverage area. TIA/EIA TSB88 (latest version) will be used to determine harmful interference assuming 40 dBμ, or greater, signal in all systems coverage areas. This may require patterned antennas and extra sites compared to a design that assumes noise limited coverage.

7.2 Spectrum Efficiency Standards

Initial allotments may be made on the basis of 25 kHz, 12.5 KHz or 6.25 KHz channels. At present, all allotments are made in 12.5 KHz groups. To maximize spectrum utilization, prudent engineering practices and receivers of the highest quality must be used in all systems. Given a choice of radios to choose from in a given technology family, agencies should use the units with the best specifications. This plan will not protect agencies from interference if their systems are under-constructed (i.e; areas with the established service area having minimum signal strength below 40 dBu), or the systems utilize low quality receivers. The applicant's implementation of prudent engineering practices will be encouraged by the Regional Planning Committee at all times.

At some point in time, it may be prudent for users of radio equipment to meet the requirement of one voice channel per 6.25 KHz of spectrum. When applying for channels within Region 40, the applicants should know that regions have discretion on enforcing channel bandwidth and voice efficiency requirements for their region. As 6.25 kHz migration and technology evolves, instances where an agency creates any "orphaned" 6.25 kHz channels should realize that these channels would be allocated to nearby agencies requesting channels to maintain consistent grouping and utilization of 25 kHz blocks within the region.

Region 40 encourages small agencies to partner with other agencies in multi-agency or regional systems as they promote spectrum efficiency and both small and large agency capacity needs can be met. Loading criteria can also be achieved in multi-agency systems that will allow greater throughput for all agencies involved than that which could be achieved individually.

7.3 Orphaned Channels

The narrowband pool allotments with Region 40 will have a channel bandwidth of 12.5 kHz. These 12.5 kHz allotments have been characterized as "Technology Neutral" and flexible enough to accommodate multiple technologies utilizing multiple bandwidths. If agencies choose a technology that requires greater than or less than a12.5KHz channel bandwidth for their system, there is the potential for residual, "orphaned channels" of 6.25 kHz or 12.5 kHz bandwidth immediately adjacent to the assigned channel within a given county area.

An orphan channel may be used at another location within the county area where it was originally approved, if it meets co- and adjacent channel interference criteria. Region 40 will utilize **"county areas"** as guidelines for channel implementation with the area of Region 40. The definition of **"county area"** in this plan is the geographical/political boundaries of a given county, plus a distance of up to 10 miles outside of the county.

If the channel, or a portion of a channel, is being moved into a "county area" that is within 30 miles of an adjacent region, Region 40 will receive concurrence from the affected region. By extending the "county area" by a designated distance, it is anticipated this will increase the possibility that orphaned channel remainders will still be able to be utilized within the "county area", and reduce the potential for channel remainders to be forced to lay dormant and used with a county channel allotment. These movements will be documented on the National Public Safety Telecommunications Council CAPRAD database.

If the "orphaned channel" remainder does not meet co-channel and adjacent channel interference criteria by moving it within the "county area" as listed above, and it is determined by the region that the "orphaned channel" cannot be utilized in the region without exceeding the distance described in the "county area" listed above, Region 40 will submit a plan amendment to the FCC to repack the channel to a location where its potential use will maintain maximum spectral efficiency. This FCC plan amendment will require affected region concurrence.

When in the best interest of public safety communications and efficient spectrum use within the Region, the Region 40 Regional Planning Committee shall have the authority to move orphan channel allotments, and/or co-/adjacent-channel allotments affected by the movement of orphan channels, within its "county areas", which are defined above. This is to retain spectrum efficiency and/or minimize co-channel or adjacent channel interference between existing allotments within the region utilizing disparate bandwidths and technologies.

8.0 Allocation of Narrowband "General Use" Spectrum

8.1 Introduction

The Region 40 Technology and Planning Subcommittee recommends that allotments be made on the basis of one 12.5 KHz channel for each voice channel requests and two 12.5 KHz channels for each narrowband data channel request. This recommendation is approved by the full Committee and is part of this plan. Allotments will be made in 12.55 KHz groups to allow for various digital technologies to be implemented. All agencies requesting spectrum during the initial filing window (see Section "6.5") will be allocated channels if plan requirements are met. In order to promote spectrum efficiency, Region 40 will ensure that systems allocated 12.5 KHz channel blocks will utilize all of the channel and not "orphan" any portions of a system designated channel (See Section "7.3").

8.2 Low Power Secondary Operations

To facilitate portable operation by any licensee, and to provide channels for such operation without impacting the use of primary channels, certain low power secondary use will be permitted. Any public safety entity otherwise licensed to use one or more channels under this Plan may receive authorization to license any additional channel for secondary use, subject to the following criteria:

- All operation of units on such authorized channels will be considered secondary to other licenses on both co-channel and adjacent channels,
- No channels on, or adjacent to, those designated in the Plan for wide area operation and/or mutual aid use will be authorized,
- Channels will be authorized for use in specific areas only, such areas to be within the licensees authorized operational area,
- Maximum power will be limited to 6 watts ERP,
- Use aboard aircraft is prohibited,
- Applications for channels may be submitted to the Committee for consideration at any time and must be accompanied by a showing of need. The Committee may select and authorize licensing of these secondary use channels after consideration of potential interference to co-channel and adjacent channel allotments, allocations and licensees. Authorization may be granted for use of any suitable channel, without prior allotment or allocation to the requesting agency,
- In the event the channels authorized for low power secondary operation are needed by others during any window opening for reassignment, no protection will be afforded to the licensed secondary user, and they may be required to change frequencies or surrender licenses to prevent interference to primary use channels.

8.3 Low Power Channels

The FCC in the 700 MHz band plan set aside channels 1 - 8 paired with 961 – 968 and 949 – 958 paired with 1909 – 1918 for low power use for on-scene incident response purposes using mobiles and portables subject to Commission-approved regional planning committee regional plans. Transmitter power must not exceed 2 watts (ERP).

Channels 9 –12 paired with 969 – 972 and 959 – 960 paired with 1919 – 1920 are licensed nationwide for itinerant operation. Transmitter power must not exceed 2 watts (ERP).

These channels may operate using analog operation. To facilitate analog modulation this plan will allow aggregation of two channels for 12.5 kHz

bandwidth. On scene temporary base and mobile relay stations are allowed (to the extent FCC rules allow) with an antenna height limit of 6.1 meter (20 feet) above the ground. However, users are encouraged to operate in simplex mode whenever possible. This plan does not limit use to only analog operations, these channels are intended for use in a wide variety of applications that may require digital modulation types.

In its dialog leading up to CFR §90.531 allocating the twenty-four low power 6.25 kHz frequency pairs (of which eighteen fall under RPC jurisdiction), the Federal Communications Commission (FCC) suggested that there is a potential for multiple low power applications, and absent a compelling showing, a sharing approach be employed rather than making exclusive assignments for each specific application because low power operations can co-exist [in relatively close proximity] on the same frequencies with minimal potential for interference due to the 2 watt power restriction.

Simplex operations may occur on either the base or mobile channels. Users are cautioned to coordinate on scene use among all agencies involved. Users should license multiple channels and be prepared to operate on alternate channels at any given operational area.

8.4 Priority for Receiving Spectrum Allocations

Priority for channel allocations will be made on a first come first served basis. Cooperative multi-agency system implementations will be given priority over non-shared single agency systems.

When applying for the new 700 MHz channels, the RPC expects applicants to relinquish any amount of any currently used spectrum and make that spectrum available for use by other agencies in Region 40 upon beneficial use of an implemented 700 MHz radio system. This currently licensed spectrum may be in any public safety band.

Agencies with a primary voice communication system operating under a NPSPAC band 800 MHz license, which are requesting 700 MHz channels for system expansion, are not asked to relinquish this spectrum but will be asked to include this spectrum that is already licensed into the loading requirements for a radio system as defined in this plan. The reason for this requested inclusion is that most, if not all, radio equipment developed for the 700 MHz band is expected to be also capable of operation on any existing 800 MHz NPSPAC licensed systems already in use and will likely to be include in justification of the loading of NPSPAC channels. Without this inclusion, it would theoretically be possible for an agency to double its frequency spectrum allocations by applying for an equivalent number of 700 MHz channels, for each 800 MHz channel that it has already licensed and justified loading criteria for, and reuse the same mobile or portable users for both bands, to both planning committees, in (your region name). Although separated in FCC

rules and regulations, Region 40 will work with NPSPAC planning committees to attempt to make the most efficient use of spectrum for Public Safety in Region 40.

Agencies are encouraged to relinquish frequencies that will no longer be used as soon as possible in accordance with FCC rules and regulations.

The number of channels an applicant should retain would be an amount required to provide minimum interoperable communications to surrounding jurisdictions. In order to promote the interests of agencies that will benefit from an applicant submitting a request for 700 MHz spectrum, it is requested that the applicant submit a list of all channels and licenses held on existing public safety channels, and those channels that will be expected to be unlicensed when full beneficial use of 700 MHz channels are realized. The RPC will only distribute this information, and not decide if it is sufficient or not. It must be stressed that the Region 40 Regional Planning Committee supports and promotes multi-agency systems that allow for regional/wide area coverage within the region.

8.5 Channel Loading

The RPC recognizes the FCC's increased focus on spectral efficiency standards versus absolute loading of each 700 MHz frequency assignment. It is however, the goal of the RPC to encourage efficient utilization of each frequency channel irrespective of bandwidth and the NRPC therefore provides the following channel loading recommendations:

- Each applicant for a 700 MHZ trunked system should design their system for a minimum of 70 mobile and portable radios, for each 12.5 kHz voice channel that will be placed in service within five (5) years of the initial plan approval date.

- Single conventional channels should be designed for a minimum load of 70 radios per 12.5 kHz channel. Mobile, portable, data, and control stations will all be considered within this count.

- Rural areas will be evaluated by the RPC based on need versus loading and the RPC has the power to allow an exception if the RPC and the applicant can establish a need in the area.

In some regions, channel loading will eventually be required to migrate to a voice efficiency of 70 units per 6.25 kHz channel, when further narrowband technologies are available and if the FCC at some point requires that voice efficiencies meet 6.25 kHz per voice path. Regional discretion on channel loading and bandwidth is directly proportional to channel availability and need.

8.6 Dispute Resolution – Intra-Regional

In the event an agency disputes the ***implementation of this plan*** or parts of this plan after FCC approval, the agency must notify the Chair of the dispute in writing. **This section does not apply to protests over new spectrum allotments (see section 6.2).** The Chair will attempt to resolve the dispute on an informal basis. If a party to the dispute employs the Chair, then the Vice Chair will attempt resolution. In such cases the Chair shall be deemed to have a conflict of interest and will be precluded from voting on such matters. If after 30 days the dispute is not resolved, the Chair (or Vice Chair) will send the dispute to a Dispute Resolution Committee, previously appointed by the Chair and consisting of a member from the State of Texas and at least five members from the jurisdictions in Region 40. That committee will select its own Chair,

The Regional Plan Chair (or Vice Chair) will represent the Region in presentations to the Dispute Resolution Committee. The Committee will hear input from the disputing agency, any effected agencies and the Region Chair. The Committee will then meet in executive session to prepare a recommendation to resolve the dispute. Should this recommendation not be acceptable to the disputing agency/agencies, the dispute and all written documentation from the dispute will be forwarded to the National Regional Planning Council. As a last resort, the dispute will be forwarded to the Federal Communications Commission for final resolution.

9.0 Interoperability Channels

9.1 Introduction

The ability for agencies to effectively respond to mutual aid requests directly depends on their ability to communicate with each other. Region 40 is subject to many natural disasters and mutual aid is common among agencies. This Plan seeks to facilitate the communications necessary for effective mutual aid.

The State of Texas will administer the 700 MHz interoperability channels via the State Interoperability Executive Committee (SIEC) under National Coordination Committee's (NCC) guidelines. The Region 40 700 MHz Regional Planning Committee will work with the Texas State Interoperability Executive Committee and (x number) members of the Region 40 700 MHz Regional Planning Committee will participate in the Texas State Interoperability Executive Committee (SIEC) and they will represent Region 40. If at any time the State SIEC is unable to function in the role of administering the interoperability channels in the 700 MHz band, the State SIEC will notify the Commission of its inability to administer the 700 MHz Interoperability channels. This regional planning committee will administer these interoperability channels in the interim until further direction as to

these responsibilities being assigned to the 700 MHz regional planning committee is provided by the Commission. Should the FCC approve of the transfer of these administration duties to the respective 700 MHz regional planning committee, then this committee will assume this role and notify the FCC in writing of its acceptance in the change of administrative duties.

9.2 Tactical Channels

Region 40 will not set aside additional channels for interoperability use within the region. It is anticipated the FCC designated interoperability channels will be sufficient to provide interoperability (voice and data) within Region 40.

All mobile and portable units operating under this Plan and utilizing 700 MHz channels must be programmed with the a minimum of 16 700 MHz interoperability channels. The channel display in these radios will be in accordance with the NCC guidelines that have common alphanumeric nomenclature to avoid any misinterpretation of use within Region 40. The State of Texas SIEC is the final authority on the interpretation of the distribution of the 700 MHz interoperability channels.

9.3 Deployable Systems

This Plan strongly supports use of deployable systems, both conventional and trunked. Deployable systems are prepackaged systems that can deploy by ground or air to an incident to provide additional coverage and capacity on interoperability channels. This will minimize the expense of installing extensive fixed infrastructure and recognizes the difficulty of providing complete coverage of the region due to environmental constraints.

Agencies should have conventional deployable systems capable of being tuned to any of the interoperability tactical channels. Those agencies that are part of a multiagency trunked system and commonly provide mutual aid to each other are encouraged to have trunked deployable systems that operate on the tactical channels designated by the FCC for this use. The SIEC will develop the operational details for deploying these systems.

It is expected that the tactical channels set aside for trunked operation will be heavily used by deployable systems. Therefore, the tactical channels cannot be assigned to augment general use trunked systems.

9.4 Monitoring of Calling Channels

700 MHz licensees will be responsible for monitoring interoperable calling channels. The SIEC will develop operational guidelines for this function. Appendix "K" will include NCC documents that display required Interoperability guidelines.

10.0 Applicant Requirements and Evaluation

10.1 Introduction

The applicant evaluation criteria established in the NCC process, and as further defined in this plan, will be followed for approval. All requests will be considered on a first come, first served basis. In cases, where specific frequency allotments are required by numerous applicants at the same time, the applicant evaluation matrix point system will be utilized to determine the successful applicant. In all cases, area of coverage, technical requirements, and channel loading criteria will be applied. Exceptions may apply upon unique circumstances, after review and approval by the RPC. Deviations from FCC rules are not to be approved unless a fully justified waiver request has been presented to the RPC. The Region 40 RPC will evaluate and process applications within thirty (30) days after notified of receipt by CAPRAD.

The matrix has been prepared to enable consistent evaluation of plans and applications. Variations within the parameters of this plan and submitted applications and/or plans may require extensive evaluation. Therefore, it shall be responsibility of the RPC to evaluate each situation on its own merit.

Each applicant for a trunked system shall certify that a minimum of 70 field radios for each 12.5 kHz channel will be placed in service within five (5) years of the initial plan approval date unless otherwise designated by the RPC. If that is not the case, then less than fully loaded channels shall be returned to the allotment pool and the licensee shall modify their license accordingly. Conventional channels shall be loaded to 70 mobile units per channel. Where an applicant does not load a channel to 70 radio/subscriber units, the channel will be available for assignment to other licensees. Mobile, portable and control stations will be considered as mobile units and an exception to this rule can only be granted by the Region 40 RPC.

10.1 Application Requirements

Each application must contain the following:

- FCC ULS 601 Form(s),
- Explanation of the systems future growth for all agencies involved in the system, including how the system will be loaded and what equipment type and quantity is planned to be purchased to load the system,
- Explanation of the budget commitment for the proposed system,
- State of compliance that the applicant's agency will conform with interoperability requirements of the SIEC plan,

- Any documentation that identifies intended radio channels the agency/entity will be abandoning through the FCC licensing processes, after full beneficial system use of allocated 700 MHz channels, for informational purposes only, and the benefit of other Entities with Region 40,
- Documentation that will assist the evaluation of the application.

The application will be forwarded to the Applicant's designated coordinator for technical review and any appropriate information will be uploaded to CAPRAD. Upon approval by the coordinator the Applicant may submit to the FCC for licensure. Any conflicts encountered during the licensing process, after Regional approval, the application will be returned to the RPC for resolution with the applicant.

10.2 Evaluation Matrix Point System

In the event that future spectrum requests conflict and all cannot be accommodated, the following matrix will be used to determine priority for allotment. This matrix will only be used if two requests are received in the same time frame. Otherwise, the first come first served procedure of the 700 MHz planning section of the document will be used.

Priority is given to users fundamentally involved with the protection of Life and Property.

Priority is given to shared multi-agency systems. These systems can be either a group of separate departments within a large agency or groups of agencies operating together under a large blanket agency.

Immediate documented funding must be available to construct the system using these 700 MHz frequencies.

This process, if required, will be treated as a dispute, and the procedures outlined in the dispute resolution of the plan will apply while using the above criteria to allocate the frequencies.

10.3 Application Processing

All applications will be processed in the most expeditious manner possible by the RPC. After Region 40 approval, the applications will be sent to the coordinator requested by the applicant. All documentation required by the designated coordinator selected in this process will be available through the CAPRAD system. Subsequent to coordination approval the FCC will grant the license(s) to the applicant.

11.0 Process for Handling Unformed Regions

The Region 40 RPC recommends that all Regions use the following pre-planning methodology to facilitate coordination with adjacent Regions. This procedure will provide a spectrum allotment for adjacent Regions that do not immediately form a Committee.

Counties or other geographic subdivisions within 70 miles of the Regional border need to share spectrum with the adjacent Region(s). The sharing indicated is inherent in the CAPRAD Packing Program, as it views all counties nationwide as separate entities while ignoring state borders. With all criteria being equal, this ensures all counties are provided sufficient spectrum in accordance with their surrounding counties. The appropriate ratio of channels shall be allotted to counties in adjacent regions based upon each county's population. A 25 kHz building block will be used to distribute spectrum between the regions. A description of the demographics of the affected border areas shall be included.

The requirements for adjacent region concurrence will require a waiver if the adjacent region has not yet formed. The Region filing the Plan must use the pre-planning procedure outlined above. The waiver request must be filed concurrently with the Plan and contained in the cover letter.

12.0 Future Planning

12.1 Database Maintenance

The CAPRAD pre-coordination database has developed channel allotments in each county area within Region 40 using criteria such as current population, 2010 Census data, height above average terrain (HAAT) and public safety use curves generated by the Public Safety Wireless Advisory Committee (PSWAC) to provide spectrally efficient frequency allotments. Region 40 will continue to use the CAPRAD pre-coordination database for other 700 MHz spectrum as it becomes available.

12.2 Inter-Regional Dispute Resolution Process

In the event that a dispute arises between Region 40 and an adjacent Region or Regions, regarding spectrum allocations or implementation, which cannot be resolved within 60 days, the parties to the dispute will request a hearing by the National Regional Planning Oversight Committee.

All 7 adjacent Regions have signed the Region 40 dispute resolution. See Appendix "J" for details and Inter-Regional Dispute Resolution Agreements signed by the adjacent Regions.

13.0 Certification

This section is required. An example is provided below:

I hereby certify that all planning committee meetings, including subcommittee or executive committee meetings were open to the public. A summary of the deliberations of the Committee pursuant to adopting this Plan can be found in Appendix "F", Meeting attendance, agendas and other events.

Regional Chairperson	Wanda McCarley Director of Operations, Tarrant County 911 District 2600 Airport Freeway, Fort Worth Texas 76111 Office: 817-820-1185 Mobile: 918-988-2408 Email: wanda@tc911.org

Appendix A-By-laws

REGION 40'S BYLAWS

THE BYLAWS OF REGION 40 PUBLIC SAFETY PLANNING COMMITTEE
700 MHz Public Safety Band.
Approved October 2, 2002

ARTICLE I
NAME AND PURPOSE

1.1 Name and Purpose: The name of this Regional Planning Committee shall be the Region 40 Public Safety Planning Committee. Its primary purpose is to foster cooperation, planning and development of regional plans and the implementation of these plans for the 700 MHz Public Safety Band.

ARTICLE II
MEMBERS

For purposes of this Article, the term "member", unless otherwise specified, refers to both voting and non-voting representatives from within the 42 county North Central and Northeast Texas planning area.

2.1 Number, Election, and Qualification: The Regional Planning Committee shall have two categories of members, "voting members" and "non-voting members". New members may be added at any meeting of the Regional Planning Committee.

Voting Members: Voting members shall consist of one representative from any single agency engaged in public safety that is eligible to hold a license under 47 CFR 90.20, 47 CFR 90.523, or 47 CFR 2.103 Each eligible agency shall be allowed one vote. In voting on any issue the individual must identify himself/herself and the agency he or she represents.

Non-Voting Members: Non-voting members are all others seeking membership and interested in furthering the goals of public safety communications and / or who's entity is not eligible to hold a license under USC 47 CFR 90.20, 47 CFR 90.523, or 47 CFR 2.103.

2.2 Tenure: Each member shall hold membership from the date of acceptance until resignation or removal by the entity or the Region 40 Planning Committee.

2.3 Suspension and Removal: A representative may be removed by action of the representative's entity or removed with cause by a majority vote of attending voting committee members after reasonable notice and opportunity to be heard.

2.4 Resignation: A representative may resign by delivering a signed written resignation to any elected officer of the Regional Planning Committee or submitting same in person at any Regional Planning Committee meeting.

2.5 Meetings: Meetings shall be held at the facilities of the North Central Texas Council of Governments in Arlington, Texas.

2.5 Special Meetings: Special meetings may be held at any time and at any place within the Region 40 planning area. Special meetings may be called by the chairman or the vice-chairman, or in case of death, absence, or incapacity of the first two officers, by written application of five or more members.

2.6 Call and Notice: The time and place for meetings will be announced at least 21 days in advance.

It shall be reasonable and sufficient notice of the time and place for special meetings to be mailed to members at least five days prior to a called special meeting or a notice sent by email/facsimile at least three days prior to a called special meeting. Such notices must be addressed to the appropriate person at the addresses of record contained in the membership roster of members of the committee. It is the responsibility of the individual member to insure that the address of record is correct. Email is an acceptable form of notification for those who have email addresses.

2.7 Quorum: At any meeting, one officer and a minimum of 10 voting members shall constitute a quorum. Failure to seat a quorum may result in adjournment and the resetting of a future meeting date.

2.8 Action by Vote: Each voting member, representing a particular agency, shall have one vote in accordance with Article 2.1. Each agency is responsible to notify Region 40, through NCTCOG, by signature of the agency's voting representative. In case of a dispute of credentials, the officers, acting as a credentials committee, will determine the authorized voter representative. When a quorum is present at any meeting, a majority of the votes properly cast by voting members present shall decide any question, including election to any office unless stated otherwise in these bylaws.

2.9 Action by Writing: Any action permitted to be taken at any meeting may be taken without a meeting if a majority of the members entitled to vote consent to the action in writing. The written consents must be signed and shall be filed with the records of any actions taken. Such consents shall be treated for all purposes as a vote taken at a meeting. Email consents are not acceptable.

2.10 Proxy Voting: Voting members may vote either in person or by written proxy specifically dated for the meeting at which the proxy is to be executed. The proxy must indicate the name of the voting member who is entitled to execute the proxy, the date of the meeting for which the proxy is intended, and the signature of the voting member in whose name the vote will be cast. A legal proxy shall be counted as a voter in attendance and is therefore considered a part of the quorum count. Voting members carrying a proxy must file the proxy with the secretary prior to any business for which the proxy vote may be cast. Any proxy will terminate at the final adjournment of the meeting for which the proxy was written.

2.11 Special Interest Voting: At no time can a voting member vote on his/her own application. A voting member cannot have a commercial interest in any of his/her region and/or adjacent region's applications on which he/she is reviewing, approving, and/or voting.

ARTICLE III
OFFICERS AND AGENTS

3.1 Number and Qualifications: The officers of the Region 40 Public Safety Planning Committee shall be a chairman, vice-chairman, and a secretary/treasurer. All officers must be qualified as a voting member

3.2 Election: The chairman and vice-chairman shall be elected at the convening meeting. The secretary/treasurer shall be elected following approval of these bylaws.

3.2 Tenure: The officers' tenure shall be at least one year or until the October meeting held within one year from the adoption of these bylaws, or until their successor, if any, is chosen. Regular elections shall be held at the October meeting each calendar year. There is no term limit on officers.

3.3 Chairman and Vice-Chairman: The chairman shall direct the business of the Region 40 Public Safety Planning Committee and, subject to the control of the voting members, shall have general charge and supervision of the affairs of the Regional Planning Committee. The Chairman shall preside at all meetings of the Regional Planning Committee and shall cast the deciding vote in any case of a tie vote on any issue. The Vice-Chairman shall have all the powers and duties of the chairman during the absence of the chairman or in the event of his or her inability to act.

3.4 Secretary/Treasurer: The secretary/treasurer shall attend to the financial affairs of the Regional Planning Committee and provide assistance to members by recording the Committee's business, notifying the Committee of meetings, facilitating meeting and planning activities, and providing other assistance, as needed. Secretary/treasurer responsibilities will be conducted by NCTCOG.

3.5 Suspension and Removal: Any officer may be suspended, with cause, by vote of a majority of the voting members of record.

3.6 Resignation: An officer may resign by delivering his or her signed written resignation to any other officer or to the North Central Texas Council of Governments. Such resignation becomes effective upon receipt unless specified to be effective at some other time. Acceptance by the Regional Planning Committee is not required for it to be effective unless it so states.

3.7 Vacancies: If an office becomes vacant, the Regional Planning Committee may elect a successor at any meeting, special or regular. The term of the elected successor shall be until his/her successor is elected. A regular election shall be held at the October meeting next.

ARTICLE IV
AMENDMENTS

These bylaws may be altered, amended, or replaced in whole or in part by vote as follows:
The voting members may, by a two-thirds vote of a quorum, alter, amend, or repeal any bylaw adopted by the Regional Planning Committee. The Regional Planning Committee may otherwise adopt, alter, amend or repeal any provision of these bylaws, which may be or become in conflict with Federal Communications Commission regulation**,** by a majority of the quorum.

ARTICLE V
DISSOLUTION

This Regional Planning Committee may be dissolved by the consent of two-thirds plus one of the voting members at a special meeting called for such purpose. The Federal Communications Commission shall be notified of such action.

ARTICLE VI
RULES OF PROCEDURES

The conducting of business for the Region 40 Public Safety Planning Committing meetings, unless otherwise in conflict with these bylaws, shall be governed by Robert's Rules of Order, newly revised 1990 edition, ninth edition, Sarah Corbin Robert, Henry M. Robert III, and William J. Evans.

Appendix B-700 MHz Regional Planning Committee Membership List

Appendix C-List of Counties/Cities in the 700 MHz Region

Place	Place
Anderson County	**Hood County**
Elkhart town	Brazos Bend city
Frankston town (partial)	Cresson city (partial)
Palestine city	DeCordova city
Bowie County	Granbury city
De Kalb city	Lipan city
Hooks city	Tolar city
Leary city	**Hopkins County**
Maud city	Como town
Nash city	Cumby city
New Boston city	Sulphur Springs city
Red Lick city	Tira town
Redwater city	**Hunt County**
Texarkana city	Caddo Mills city
Wake Village city	Campbell city
Camp County	Celeste city
Pittsburg city	Commerce city
Rocky Mound town	Greenville city
Cass County	Hawk Cove city
Atlanta city	Josephine city (partial)
Avinger town	Lone Oak city
Bloomburg town	Neylandville town
Domino town	Quinlan city
Douglassville town	Royse City city (partial)
Hughes Springs city (partial)	Union Valley city
Linden city	West Tawakoni city
Marietta town	Wolfe City city
Queen City city	**Johnson County**

Cherokee County	Alvarado city
Alto town	Briaroaks city
Bullard town (partial)	Burleson city (partial)
Cuney town	Cleburne city
Gallatin city	Coyote Flats city
Jacksonville city	Cresson city (partial)
New Summerfield city	Cross Timber town
Reklaw city (partial)	Crowley city (partial)
Rusk city	Fort Worth city (partial)
Troup city (partial)	Godley city
Wells town	Grandview city
Collin County	Joshua city
Allen city	Keene city
Anna city	Mansfield city (partial)
Blue Ridge city	Rio Vista city
Carrollton city (partial)	Venus town (partial)
Celina city (partial)	**Kaufman County**
Dallas city (partial)	Combine city (partial)
Fairview town	Cottonwood city
Farmersville city	Crandall city
Frisco city (partial)	Dallas city (partial)
Garland city (partial)	Forney city
Hebron town (partial)	Grays Prairie village
Josephine city (partial)	Heath city (partial)
Lavon city	Kaufman city
Lowry Crossing city	Kemp city
Lucas city	Mabank town (partial)
McKinney city	Mesquite city (partial)
Melissa city	Oak Grove town
Murphy city	Oak Ridge town
Nevada city	Post Oak Bend City town
New Hope town	Rosser village
Parker city	Scurry town
Plano city (partial)	Seagoville city (partial)

Princeton city	Seven Points city (partial)
Prosper town (partial)	Talty town
Richardson city (partial)	Terrell city
Royse City city (partial)	**Lamar County**
Sachse city (partial)	Blossom city
St. Paul town	Deport city (partial)
Trenton city (partial)	Paris city
Van Alstyne city (partial)	Reno city
Weston city	Roxton city
Wylie city (partial)	Sun Valley city
Cooke County	Toco city
Callisburg city	**Marion County**
Gainesville city	Jefferson city
Lindsay city	**Morris County**
Muenster city	Daingerfield city
Oak Ridge town	Hughes Springs city (partial)
Pilot Point city (partial)	Lone Star city
Valley View city	Naples city
Dallas County	Omaha city
Addison town	**Navarro County**
Balch Springs city	Angus city
Carrollton city (partial)	Barry city
Cedar Hill city (partial)	Blooming Grove town
Cockrell Hill city	Corsicana city
Combine city (partial)	Dawson town
Coppell city (partial)	Emhouse town
Dallas city (partial)	Eureka city
DeSoto city	Frost city
Duncanville city	Goodlow city
Farmers Branch city	Kerens city
Ferris city (partial)	Mildred town
Garland city (partial)	Mustang town
Glenn Heights city (partial)	Navarro town
Grand Prairie city (partial)	Oak Valley town

Grapevine city (partial)	Powell town
Highland Park town	Retreat town
Hutchins city	Rice city
Irving city	Richland town
Lancaster city	Streetman town (partial)
Lewisville city (partial)	**Palo Pinto County**
Mesquite city (partial)	Gordon city
Ovilla city (partial)	Graford city
Richardson city (partial)	Mineral Wells city (partial)
Rowlett city (partial)	Mingus city
Sachse city (partial)	Strawn city
Seagoville city (partial)	**Panola County**
Sunnyvale town	Beckville city
University Park city	Carthage city
Wilmer city	Gary City town
Wylie city (partial)	Tatum city (partial)
Delta County	**Parker County**
Cooper city	Aledo city
Pecan Gap city (partial)	Annetta North town
Denton County	Annetta South town
Argyle city	Annetta town
Aubrey city	Azle city (partial)
Bartonville town	Cool city
Carrollton city (partial)	Cresson city (partial)
Celina city (partial)	Fort Worth city (partial)
Coppell city (partial)	Hudson Oaks city
Copper Canyon town	Millsap town
Corinth city	Mineral Wells city (partial)
Corral City town	Reno city (partial)
Cross Roads town	Sanctuary town
Dallas city (partial)	Springtown city (partial)
Denton city	Weatherford city
DISH town	Willow Park city
Double Oak town	**Rains County**

Flower Mound town (partial)	Alba town (partial)
Fort Worth city (partial)	East Tawakoni city
Frisco city (partial)	Emory city
Grapevine city (partial)	Point city
Hackberry town	**Red River County**
Haslet city (partial)	Annona town
Hebron town (partial)	Avery town
Hickory Creek town	Bogata city
Highland Village city	Clarksville city
Justin city	Deport city (partial)
Krugerville city	Detroit town
Krum city	**Rockwall County**
Lake Dallas city	Dallas city (partial)
Lakewood Village city	Fate city
Lewisville city (partial)	Garland city (partial)
Lincoln Park town	Heath city (partial)
Little Elm city	McLendon-Chisholm city
Northlake town	Mobile City city
Oak Point city	Rockwall city
Pilot Point city (partial)	Rowlett city (partial)
Plano city (partial)	Royse City city (partial)
Ponder town	Wylie city (partial)
Prosper town (partial)	**Rusk County**
Providence Village town	Easton city (partial)
Roanoke city (partial)	Henderson city
Sanger city	Kilgore city (partial)
Shady Shores town	Mount Enterprise city
Southlake city (partial)	New London city
The Colony city	Overton city (partial)
Trophy Club town (partial)	Reklaw city (partial)
Westlake town (partial)	Tatum city (partial)
Ellis County	**Smith County**
Alma town	Arp city

Bardwell city	Bullard town (partial)
Cedar Hill city (partial)	Hideaway city
Ennis city	Lindale city
Ferris city (partial)	New Chapel Hill city
Garrett town	Noonday city
Glenn Heights city (partial)	Overton city (partial)
Grand Prairie city (partial)	Troup city (partial)
Italy town	Tyler city
Mansfield city (partial)	Whitehouse city
Maypearl city	Winona town
Midlothian city	**Somervell County**
Milford town	Glen Rose city
Oak Leaf city	**Tarrant County**
Ovilla city (partial)	Arlington city
Palmer town	Azle city (partial)
Pecan Hill city	Bedford city
Red Oak city	Benbrook city
Venus town (partial)	Blue Mound city
Waxahachie city	Burleson city (partial)
Erath County	Colleyville city
Dublin city	Crowley city (partial)
Hico city (partial)	Dalworthington Gardens city
Stephenville city	Edgecliff Village town
Fannin County	Euless city
Bailey city	Everman city
Bonham city	Flower Mound town (partial)
Dodd City town	Forest Hill city
Ector city	Fort Worth city (partial)
Honey Grove city	Grand Prairie city (partial)
Ladonia town	Grapevine city (partial)
Leonard city	Haltom City city
Pecan Gap city (partial)	Haslet city (partial)
Ravenna city	Hurst city
Savoy city	Keller city

Trenton city (partial)	Kennedale city
Whitewright town (partial)	Lake Worth city
Windom town	Lakeside town
Franklin County	Mansfield city (partial)
Mount Vernon town	Newark city (partial)
Winnsboro city (partial)	North Richland Hills city
Grayson County	Pantego town
Bells town	Pelican Bay city
Collinsville town	Reno city (partial)
Denison city	Richland Hills city
Dorchester city	River Oaks city
Gunter city	Roanoke city (partial)
Howe town	Saginaw city
Knollwood city	Sansom Park city
Pilot Point city (partial)	Southlake city (partial)
Pottsboro town	Trophy Club town (partial)
Sadler city	Watauga city
Sherman city	Westlake town (partial)
Southmayd city	Westover Hills town
Tioga town	Westworth Village city
Tom Bean city	White Settlement city
Trenton city (partial)	**Titus County**
Van Alstyne city (partial)	Miller's Cove town
Whitesboro city	Mount Pleasant city
Whitewright town (partial)	Talco city
Gregg County	Winfield city
Clarksville City city (partial)	**Upshur County**
East Mountain city (partial)	Big Sandy town
Easton city (partial)	Clarksville City city (partial)
Gladewater city (partial)	East Mountain city (partial)
Kilgore city (partial)	Gilmer city
Lakeport city	Gladewater city (partial)
Longview city (partial)	Ore City city

Warren City city (partial)	Union Grove city
White Oak city	Warren City city (partial)
Harrison County	**Van Zandt County**
Hallsville city	Canton city
Longview city (partial)	Edgewood town
Marshall city	Edom city
Scottsville city	Fruitvale city
Uncertain city	Grand Saline city
Waskom city	Van city
Henderson County	Wills Point city
Athens city	**Wise County**
Berryville town	Alvord town
Brownsboro city	Aurora city
Caney City town	Boyd town
Chandler city	Bridgeport city
Coffee City town	Chico city
Enchanted Oaks town	Decatur city
Eustace city	Fort Worth city (partial)
Frankston town (partial)	Lake Bridgeport city
Gun Barrel City city	New Fairview city
Log Cabin city	Newark city (partial)
Mabank town (partial)	Paradise city
Malakoff city	Rhome city
Moore Station city	Runaway Bay city
Murchison city	Springtown city (partial)
Payne Springs town	**Wood County**
Poynor town	Alba town (partial)
Seven Points city (partial)	Hawkins city
Star Harbor city	Mineola city
Tool city	Quitman city
Trinidad city	Winnsboro city (partial)
	Yantis town

Appendix D-Sample Cover Letter to Adjacent Regional Chairs to obtain 700 MHz plan approval

Chair Region_____
Address

Dear_____

Attached is the final 700 MHz Regional Plan for Region (your region #). Please review and respond within 60 days of receipt. For your convenience, I have attached a sample Adjacent Region Concurrence letter that you can use to formally acknowledge your Regions approval of Region (your region #)'s Plan. If you have any questions, do not hesitate to contact me.

I have also attached an Inter-Regional Dispute Resolution Agreement that must be signed by you and must accompany my Regional Plan when filed with the FCC. As we have discussed, this agreement simply formalizes the process we will use to ensure concurrence to any frequency allocations in our region borders and the steps we will take to resolve any disagreements.

Thank you for your time and attention to this matter.

Sincerely;

(Chairperson Name)
Chair, Region (your region #)

Appendix E-Adjacent Region Concurrence Notice

Information for this section may be taken from your Region's 800 MHz Plan and be inserted in this 700 MHz Plan, as appropriate

Appendix F-Regional Planning Committee Meeting Minutes

AGENDAS AND MEETING SUMMARIES

REGION 40, 700 MHz REGIONAL PLANNING MEETING
North Central Texas Council Of Governments
June 26, 2002
9:00 A.M.- 11:30 A.M.
Transportation Board Room

WORKING AGENDA*

Welcome and Introductions (Fred introduces Dan and Peter as Manager of Communications; Peter as Assistant Director and Chief Telecommunications Officer. Plus, Chair of Region 40, Regional Review Committee, and member of same. Also, I will mention that Peter is acting as the Convener of this meeting, as prescribed by the FCC, prior to establishing a 700 MHz planning initiative. I will indicate that you both will be presenting material and responding to questions. I will then turn it over to Peter.)

Status of FCC Rules for 700 MHz Band. (Peter continues.)

Review Work of Public Safety National Coordination Committee (Peter or Dan.)

Encourage Participation on Regional Planning Committee (I will be happy to do so, but that's your call.)

Elect Committee Chair and Vice-Chair (Nominations will come from the floor.)

Purpose of Regional Plan (To meet FCC requirements which will lead to the release of frequencies from the 700 MHz band.)

Process of Plan Development (Once Chair and VC are elected, attendees will be invited to participate in the writing of the plan. Dan and other Region 40 committee members have been through this before, but the effort will take more manpower than the existing committee.)

Planning Sub-Committees (Will mention that the planning sub-committees will be: Technology and Planning, Interoperability, Implementation.)

Solicitation of Involvement (It's at this time when we ask for their help to serve on the planning committee and help to develop the plan leading to the distribution of 700s. I or one of my staff will distribute the Interest to Serve form and ask that the forms be returned by July 9 or so. Also, I would hope that some would hand the forms in before they leave)
Role of NCTCOG in Planning Process (FK indicates that NCTCOG will make meeting arrangements, send out notices, help the committee draft sections of the plan, etc.)

Adjourn

SUMMARY
Region 40, 700 MHz Regional Planning Meeting
Peter Ungar, Convener
North Central Texas Council of Governments
June 26, 2002
9:00 A.M. – 11:30 A.M.
Transportation Board Room

Welcome and Introductions
Fred Keithley welcomed the attendees and thanked them. He introduced himself as Director of Community Services for NCTCOG and introduced Suzanne Solomon, 9-1-1 Special Projects Coordinator, as the secretary for this meeting. Mr. Keithley introduced Dan Scrivner as the Chairman of the Region 40 Regional Review Committee, handling 800 megahertz band, and Manager of Communications for the City of Dallas. He then introduced Peter Ungar, who convened the meeting as prescribed by the FCC, as the Assistant Director and Chief Telecommunications Officer for the City of Fort Worth. Joe Blair, the first Vice Chairman of Region 40, was also in attendance. Mr. Keithley encouraged participants to ask questions whenever they wished and to not hold them to the end of the meeting.

Status of FCC Rules for 700 MHz Band, Review Work of Public Safety National Coordination Committee

Mr. Ungar explained that under the FCC rules, this is a public and open meeting, which is why there is a recording and a secretary to take minutes. The purpose of the meeting is to review the status of the FCC rules for the 700 MHz bandwidth, to review the work to date of the Public Safety National Coordination Committee, to establish a Regional Planning Committee, to elect a Chairperson, and to establish procedural rules and bylaws, sometime in the near future.

Encourage Participation on Regional Planning Committee

Purpose of Regional Plan
The purpose and goal of this Regional Planning Committee will be to manage and develop a plan which allocates the available 700 MHz spectrum to the public safety community in FCC's Region 40 area (Northern Texas Region, composed of 42 counties of the Northeast, North and North Central Texas area. The region is characterized by the large urban metropolitan Dallas/Fort Worth area as well as less populated rural jurisdictions and smaller communities.)

The 700 MHz spectrum may not be available for approximately four years, but the Regional Plan needs to be developed in advance of the spectrum allocations by the Federal Communications Commission (FCC). Region 40 touches four other RPCs: Regions 49, 50, 51 and 52.

Process of Plan Development
Television channels 60 through 69 (746-806 MHz) will be reallocated. The FCC's goals are to alleviate the current LMR (Land Mobile Radio) congestion in other bands, to provide public safety access to new technologies, to promote interoperability and to satisfy PSWAC (Public Safety Wireless Advisory Committee) requirements.

24 MHz of 60 MHz will be allocated to public safety. Eligibility requirements are that it be used only for protection of life, health or property. Non-governmental organizations may be eligible but will need a letter of support. This opportunity is currently open to all four current Public Safety Frequency Coordinators.

A 746-806 MHz band illustration was shown to demonstrate the bandwidth being offered.

The general use of the 24 MHz being allocated to Public Safety will be administered through the Regional Planning Committees. 7.7 MHz will be narrowband, and 4.8 MHz will be wideband. It will also be used for purposes of interoperability.

The National Coordination Committee (NCC) was established in 1999 to develop recommendations for digital standards and use of the Interoperability Channels. The NCC submitted its first report to the FCC on February 25, 2000. The NCC was tasked to develop a National Plan and recommend interoperability standards. They proposed 0.8 MHz narrowband interoperability (32 @ 12.5 kHz) and proposed 0.8 MHz interoperability guard (either side of I/O channel, 64 @ 6.25 kHz). They also proposed 1.8 MHz wideband interoperability (18 @ 50 kHz).

Additionally, the NCC proposed 2.4 MHz narrowband as a "block grant" to each state, 0.3 MHz narrowband as low power (analog) on-scene/itinerant, and 5.4 MHz wideband reserve. Narrowband channels can be aggregated to

25 kHz bandwidth, and wideband channels can be aggregated to 150 kHz bandwidth.

The NCC recommended that Project 25, Phase I as the digital I/O standard, and that trunking be permissible but not mandatory on the I/O channels. The 4th FCC R&O adopted the Project 25, Phase I as the digital standard on January 11, 2001. The second year (2001) work was to develop receiver standards, continue work on wideband standards, and finalize the National Plan Template and Regional Planning Guidelines.

The Regional Plan required for licensing on the General Use Channels was approved. The National Plan Template was adopted in May of 2001, and Regional Plans must still be developed.

States were required to notify the FCC by December 31, 2001 if they were planning to administrate the 700 MHz I/O channels. Administration involves holding the license, resolving licensing issues and developing a statewide interoperability plan. If the FCC did not receive notice, administration of the interoperability channels reverted to the Regional Planning Committee as of January 1, 2002. The State of Texas did apply, and received approval to administer the interoperability channels.

Television channels must be cleared for use. An illustration was shown demonstrating where the spectrum is currently available in the nation for this use. Dallas, Fort Worth, Plano and Arlington do not have this spectrum available because PAX and one other station are currently using that bandwidth.

There are television incumbency rules in place to protect the incumbent analog and new digital television receivers in the spectrum until the broadcast transition ends. The deadline is December 31, 2006 to end analog broadcasts. By market, exceptions may be granted by the FCC. For example, if less than 85% of households in that market have digital television services, that market will be granted an exception. If at least one of four national television network affiliates are not broadcasting digital, that would be considered an exception. If the license is within 120 kilometres of Canada or Mexico, some special limitations apply in those areas as well.

To summarize the current status in the United States, in 1997, the spectrum was reallocated to Public Safety. In 2000, Band Manager spectrum was focused for private wireless use. In 2001, the narrowband Project 25 standard was adopted. A wideband standard is under development in TIA, the target 1 H 2003. Each state has a 700 MHz license. Over half the Regions have started planning – in Texas, there are six Regional Planning Committees. Three are actively working, two are beginning, and one is currently not committed.

Several spectrum-clearing issues have been identified. Both co-channel and adjacent channel television stations must be cleared. The current clearing deadline is December 31, 2006, but current law allows going beyond that date. Public Safety must compete with broadcasters, cable operators and content providers in Congress. Canadian channel 60-69 clearing and a US/Canadian agreement are also needed for the border areas.

Question: Why are some lobbying to delay the deadline?
Mr. Ungar: It's expensive. Television stations switching from analog to digital will cost them from five to six million dollars. Also, the market penetration isn't there. Everyone is pushing digital televisions, but the consumers are not yet finding them cost effective. A digital television costs two to five thousand dollars, whereas an analog television may cost only one or two hundred dollars.

Question: What area does PAX cover? What about the areas that don't get PAX?
Mr. Ungar: TV-PAX-68 covers a huge geographical area. Though the signal might not be received on a television, it will still be there with a strength that might impact your communications. It might not be strong enough for the television to translate, but strong enough to mess with Public Safety communications.

Planning Subcommittees and Solicitation of Involvement
The Regional Planning Committee is following the process outlined by the FCC, and is not doing anything radical. We need to elect chairs and officers, to establish sub-committees for implementation and outreach. The RPC needs to develop by-laws using the by-laws from the existing Region 40 committee as a starting point.

Mr. Scrivner addressed the implementation and outreach category. When the Regional Planning Committees began work in 1987, the FCC criticized some regions, not Region 40, for limiting the involvement of the local committees in allocating the bandwidth. So this time, the Regional Planning Committee must be certain that everyone who wishes to be involved, is involved.

Elect Committee Chair and Vice-Chair

The floor was turned over to Mr. Keithley for the nominations.

Mr. Keithley made it clear that the Council Of Governments wants to elect the best officers possible, so the COG is present at this meeting as a facilitator/coordinator. This meeting is really to encourage the participants to nominate, to understand that from this point forward, the committee has about a year to two years of planning. The planning will require drafting and editing, convening and arriving at a final draft which will, once completed, go forward to the FCC. Without that, there will be no 700 MHz frequencies for

local public safety agencies in Region 40. The officer elected needs good knowledge of the material, good leadership capabilities, and a keen understanding of the process.

At this time, Mr. Keithley opened the floor for nominations for someone to lead the planning process and arrive at a well thought-out, comprehensive plan.

Question: How many people per agency can vote, how will you accept nominating or voting, or actual membership in the voting process?
Peter Ungar: Once the planning committee, chair, and vice chair are selected, voting members of the committees of region 40 must be employed by an agency that holds current radio licenses. There is only one vote per agency.

Gerard Eades, City of Arlington nominated Dan Scrivner for Chair. The nomination was seconded Gary Price, ETCOG.
Mr. Peter Ungar was also nominated for chair. The nomination was seconded.

The majority vote favored Mr. Dan Scrivner, and he was elected the Chairman of the Region 40 Planning Committee.

Mr. Keithley opened the floor for nominations for Vice Chair of the Region 40 Planning Committee.

Captain Robert Boudreaux, City of Irving, was nominated for Vice Chair. The nomination was seconded.

Mr. Peter Ungar was nominated for Vice Chair. The nomination was seconded.

The majority vote favored Peter Ungar, and he was elected the Vice-Chairman of the Region 40 Planning Committee.
The Role of NCTCOG in the Planning Process
Next, details of the Region 40 700 MHz Regional Planning Committee (RPC) were described. Mr. Ungar stated that voting members of the committees of Region 40 must be employed by an agency that holds current radio licenses. There is only one vote per agency. He said, also, that the committee should suggest a secretary/treasurer, at a later date.

Question: How many votes will state agencies receive?
Mr. Ken Yoder, State Frequency Coordinator, answered that Mr. Robert Pletcher, Program Director for DPS will represent the state and vote for all state agencies. Mr. Pletcher is Chairman of the state's Interagency Radio Work Group (IRWG).

NCTCOG, in behalf of the committee, will notify adjacent regions of its meetings. The Chair should attend adjacent regions' meetings, if possible. Written approval of this region's plan by adjacent regions is required.

Sub Committees will include Technology and Planning, Interoperability, and Implementation.

Mr. Keithley passed around a sheet with the subcommittees on it. The subcommittees need people who will write, convene, and have time to commit to the planning initiative. The forms may be left with the Council of Governments today or mailed or faxed back to NCTCOG. Invitations, totaling 720 were sent to local governments, state governments, and all adjacent regions

Question: Are members of committee limited to FCC licensed persons?
Mr. Keithley: Not necessarily. Although they would not be permitted to vote, additional expertise is welcome from the communications industry.

Mr. Ungar: In order to vote, you must be a documented FCC license holder and a service provider. If a city's fire department has a license and the police department has another license, they are considered two agencies. The FCC has stipulated this, but it was requested that that be reconsidered. It is possible for a city to get three votes, if each agency in the city holds its own FCC license.

Question: Can a voter elect an alternate to vote on his or her behalf?
Mr. Keithley: Yes, they can designate a proxy, or several proxies to be at meetings that the voting member cannot attend.

As a method of contact, a public website is being developed. A list server is also being considered. These will help facilitate the distribution of information.

Mr. Scrivner stated that the North Central Texas Council of Governments will handle plan development and program coordination. NCTCOG will handle meeting notifications, drafting the Planning Committees' work, and other logistical matters regarding the 700mhz coordination. Mr. Scrivner thanked the attendees for trusting him with chairing this planning effort. It needs to be tailored to our region, to prove to the FCC that this has been made all-encompassing to everyone who fits the definition of public safety. It will take technical expertise to implement. This will be a fair and impartial process, as all have vested interests in the result. It is critical to the future of public safety that this is done properly. Those who have signed up for committees will be contacted by NCTCOG well in advance of the first meeting.

Dan Scrivner thanked the participants, NCTCOG, and Peter Ungar for his work in

convening the meeting.

Respectfully submitted,

Fred Keithley, Region 40 Coordinator)
(*Questions may be addressed at any time)

AGENDA
MEETING
REGION 40, 700 MHz
COMMUNICATIONS PLANNING COMMITTEE
Wednesday October 2, 2002
NCTCOG Offices

Approve Summary Notes from June 26, 2002 Meeting (*Action Item*) (Handout)

Discuss and Approve Draft Planning Committee Bylaws (*Action Item*) (Handout)

Announce Chairs of Sub-Committees (Appointed by Chairman Scrivner for Interoperability, Technical and Planning, and Implementation Sub-Committees) (*Information Item*) (Handout of volunteers per sub-committee)

Present the *State of 700 MHz Planning Nationwide* (*Information Item*)

Other Business

Next Meeting

Adjourn

SUMMARY
Region 40, 700 MHz Meeting
Communications Planning Committee
Wednesday, October 2, 2002, 1:30pm
NCTCOG Offices

Pre-committee Business: Fred Keithley apologized to the Committee for the confusion regarding the time the meeting was scheduled. He then stated that a lot of the email addresses were questionable from the last meeting and messages from NCTCOG to Committee members were "undelivered", as a result. He asked the members to once again sign in and leave their business card so that all email addresses would be correct in the future. Much of the future meeting correspondence will take place via email.

Mr. Keithley turned the meeting over to the Committee Chairman Scrivner, to conduct the rest of the business.

Approve Summary Notes from June 26, 2002 Meeting
Mr. Scrivner called the meeting officially to order, welcoming participants to the second meeting of Region 40, and thanking them for their attendance. A motion was made and seconded to approve the meeting summary notes from the previous meeting; no corrections or comments were made, notes were approved unanimously.

Discuss and Approve Draft Planning Committee Bylaws
Suggestion was made that paragraph 3.1, secretary/treasurer be stricken, because NCTCOG, who serves as the Committee's treasurer and secretary, cannot be voting member.

Mr. Scrivner said that the bylaws were structured around a suggested format from NPSTC.

Question: "how many votes the state of Texas will receive?". It will receive one, according to the bylaws, under "Voting".

Comment: every entity under an agency, as long as they had a license, would be permitted to vote. It is up to the committee how that stipulation should be interpreted. Mr. Blair clarified that the intent was for every agency eligible to hold an FCC license would be eligible to vote. Mr. Keithley asked for clarification: "if a city had a different license for each entity (Fire, Police, EMS), would they have one vote or three votes?" Mr. Keithley raised the issue that some cities do not have all three agencies and therefore could not hold three licenses.

Mr. Scrivner reminded the committee that the stipulation from the FCC is that the entity (city or county, in this case) must only need to be eligible; it does not necessarily need to hold the license. Mr. Scrivner believed that this differing number of votes per city would not cause a great amount of dissent.

In the new definition of Public Safety, any agency, which qualifies for a government license, will qualify as Public Safety.

Motion to strike secretary/treasurer from paragraph 3.1 and 3.2 was made. Mr. Scrivner stated that 3.2 also mentions voting. Motion and second were made. No further discussion. Motion carried unanimously.

Motion to approve the modified bylaws was requested by Mr. Scrivner. Motion to accept bylaws as modified was made, and seconded. No further discussion. Motion carried unanimously.

Mr. Keithley thanked Mr. Joe Blair for his hard work on the bylaws, as did Mr. Scrivner.

Announce Chairs of Sub- committees: Appointed by Chairman Scrivner for Interoperability, Technical and Planning, and Implementation (Outreach) Chairman Scrivner asked Gerard Eads to chair the Interoperability Sub-committee. Pam Palmisano was selected chair of the Outreach Sub-committee, and Peter Ungar was asked to serve as chair of the Technical and Planning Sub-committee. Mr. Scrivner indicated that the chairs would contact those who signed up interested in participating in the various Sub-committees. If you have not signed up and wish to help, please make your desires known to the chairs of the committees.

The State of 700 MHz Planning Nationwide
Mr. Scrivner introduced Betty Rhinehart from Motorola, who gave a presentation on the current status of 700 MHz planning. Ms. Rhinehart has worked very closely with the FCC during her tenure with Motorola. A few of the highlights from her presentation included:

Report from Recent NCC Meeting, consisted of Technical Sub-committee, Interoperability Sub-committee, Implementation Sub-committee:

1.Technical Sub-committee:
TIA recommended Scalable Adaptable Modulation (SAM) as wideband I/O standard.

2.Interop Subcommittee:
Develop common nomenclature for IO channels, all bands.
Recommend that SIECs manage all IO spectrum, not just 700mhz.
Recommend use of ICS for all but day-to-day IO.

3. Implementation Sub- committee:
Minor modifications to guidelines.
Discussed channel-loading criteria.
NPSTC support office conducting training on the CAPRAD database

B. Syracuse Research developing a program to pre-populate the CAPRAD database:
Syracuse Research CAPRAD Pre-Population proposal
Allot frequencies in 25khz bandwidth would have 250 KHz separation to minimize combined loss.
Each county system would have at least four voice and one data channels.
Terrain factors would be used for best frequency reuse.
Regions can modify the NYSTEC allocation, if desired.
Input from targeted Regional Chairs (CA, MO, NY) is necessary.

The goal is to have CAPRAD pre-population completed by end of January 2003.
Loading Criteria should be Specified per 25 KHz of spectrum, instead of Based on individual emissions or initial technical choice.
Given the integrated design of voice and data systems, voice and data loading should be evaluated together using consistent criteria.
Recommend a loading criteria of 200 users per 25khz of spectrum for both voice and integrated data. Data- loading should be based on current rules.

C. NCC implementation subcommittee prepared the following document to be used by regional planning agencies:
GUIDELINES, SUGGESTION ON HOW TO ADDRESS EACH OF THE REGIONAL PLAN ELEMENTS
-draft bylaws,
-draft dispute resolution process,
-a report on DTV transition,
-a final checklist.
-start/finalize regional plans NOW!
-approved regional plans provide impetus to force broadcast TV out of the band sooner.
-protect incumbent analog and new digital TV receivers in the 746-806 MHz band until broadcast transition ends. Deadline is December 31, 2006 to end analog broadcasts. Market exceptions may be granted by FCC, because less than 85 percent of the households are served by digital TV services. At least one of four Nat'l TV network affiliates is not broadcasting digital.
--Licenses within 120km of Canada and Mexico are subject to future agreements with those countries. Canada has allotted DTV to all full.
-Full access, can TV be moved out faster?
-Ongoing FCC policy discussions,
-Voluntary negotiations between TV incumbents and eventual geographic licensees
-Will commercial carriers in 30mhz segments help buy/push out incumbent TV broadcasters?
-Auction has been delayed indefinitely
-Many commenters in the 800 MHz re-banding docket are proposing that this spectrum go to public safety/federal.
-Also imposed deadlines on TV set manufacturers. 36" and larger has to have 80% of them have DTV tuners, and following year, 100%.

-Rep Billy Tauzin (*R-LA) is sponsoring a house bill to make 12/31/06 a date certain for both co- and adjacent channel TV to vacate the band.
-Need companion Senate bill

Mr. Scrivner asked about sending regions to be trained on database, and who might fund that? Part of the funding would be used for that. Hopefully, more funding will be allocated, but presently, the additional funds have only been for regions that hadn't yet requested their initial funds. First classes are all filled up, but more will take place in 2003; they take place monthly.

Mr. Scrivner asked; if the push is for channel loading area, rather than site specific. What defines an area? Ms. Rhinehart said that has more to do with simulcast loading criteria, as opposed to a multicast. The area would be the size of a simulcast cell. The database does not favor nor disfavor simulcast over multicast – it works nearly the same, except that in multicast, you have to load more units into one location, as opposed to simulcast, where only one would be needed.

Mr. Scrivner thanked Ms. Rhinehart for her presentation.

Other Business / None.

Next Meeting / Tentatively scheduled for after the first of the year. Committee members will be notified when a final date is set.

Adjourn.
REGION 40, 700 MHz PLANNING COMMITTEE MEETING

NCTCOG OFFICES
FEBRUARY 24, 2003
1:00 P.M.

AGENDA

APPROVAL OF OCTOBER 2 MEETING SUMMARY NOTES

REPORT FROM IMPLEMENTATION SUB-COMMITTEE

REPORT FROM INTEROPERABILITY SUB-COMMITTEE

REPORT FROM PLANNING AND TECHNOLOGY SUB-COMMITTEE

TEXAS INTERMEDIATE INTEROPERABILITY PROPOSAL : Bob Pletcher
Developed by the Texas Interagency Radio Work Group

OTHER BUSINESS

NEXT MEETING DATE

SUMMARY
REGION 40, 700 MHz PLANNING COMMITTEE
MEETINGS
FEBRUARY 24, 2003
NCTCOG OFFICES

SUMMARY OF SUB-COMMITTEE MEETINGS
Sub-committees' Meeting

As planned, the three sub-committees met in the morning of the 24th to review their planning responsibilities and begin to frame their part of the plan. All persons wanting to serve on the sub-committees convened in the Boardroom, joined their respective committees, and were shown to their meeting rooms.

The **Interoperability Sub-committee**, chaired by Gerard Eads, met at 10:30 in the Committee Room to review the Chairman's power point presentation and to prepare for reporting out at the 1:00 General Session. (*To be covered under General Session Summary, below)*

The **Technology and Planning Sub-committee**, chaired by Peter Ungar, met at 10:30 in the 4th floor Board Room to review the Committee's charge and prepare for reporting out to the General Session at 1:00. (*To be covered under General Session Summary, below*)

The **Implementation (Outreach) Committee,** chaired by Capt. Pam Palmisano, met in the 4th floor Committee Room at 10:30 to review their work and prepare for reporting out to the General Session at !:00. (*To be covered under General session Summary, below)*

GENERAL SESSION SUMMARY

The meeting began sharply at 1:00 p.m. and was conducted by Chairman Scrivner. He welcomed everyone to the 3rd planning meeting of Region 40, 700 MHz, and suggested that the meeting move as quickly as possible to conclude before the pending severe weather set in. He expressed his appreciation for the excellent attendance at both the Sub-committee sessions as well as at the General Session. More than 45 persons attended the General Session.

Chairman Scrivner stated that he hoped this would be a starting point for developing the 700MHz plan that will eventually position local public safety agencies to receive improved communications.

Approval of the October 2 Meeting Summary: Chairman Scrivner called for any comments as to the October 2 Summary notes and hearing none, called for a motion to approve them. A motion was made and seconded and the motion passed unanimously.

Report from the Interoperability Sub-committee: Chairman Scrivner requested Gerard Eads to report on the discussion from earlier that morning when the Sub-committee met. Mr. Eads reviewed the discussion points as follows:

The purpose of the Sub-committee was stated as, "To develop the Interoperability section of the 700 MHz Plan".
The Sub-committee proposed to invite some vendors to show their capabilities. This display would not be for the Region 40 Committee alone, but would be open for all public safety personnel from throughout the Region 40 area.

Discussed also, was the need for effective management of the 700s. There must be control of the repeaters so that effective inter-agency communications would be assured.
There is the question of coordination of the 700 and 821 MHz plans, once the 700 plan is complete. How will the interop frequencies be managed? The Sub-committee will have to recommend options from which a workable solution will be found.

There may be grant funds for this planning operation.
Mr. Eads suggested that the full Committee may wish to examine the Region 5, Los Angeles plan which may be complete, but not yet approved.

The next Sub-committee meeting is scheduled for April 14, 10:00 a.m., NCTCOG's Committee Room. (same room as on February 24).

Report from the Implementation Sub-committee: Chairperson, Pam Palmisano, reported some of the Implementation Sub-committee's discussion as follows:

The Sub-committee's charge is to contact and encourage as many persons as possible to participate in the planning process.

The Sub-committee will serve as a point of information to other jurisdictions so that as broad an audience as possible may have the opportunity to participate and understand the plan.
NCTCOG was encouraged to develop a web site for the 700 MHz planning and include any notes (Minutes) that may be generated during Region 40 meetings.

The Sub-committee requested Fred Keithley to furnish as many names, addresses, and email addresses of public safety personnel, as possible.

Report from the Technology and Planning Sub-committee: Sub-committee chairman, Peter Ungar, reported on the discussion of the sub-committee to include the following:

The Sub-committee suggested that this region may need to shift to a new paradigm as to the use of spectrum. The shift might be away from just considering the use of additional voice channels to data, voice, and video.

Also, it was suggested that industry representatives may wish to be called in to tell us where this region should be five to ten years from now.

The 700 plan should be visionary and not "business as usual" when it comes to the use of the new spectrum.

The Sub-committee will have the first rough draft of its part of the plan by the next Sub-committee meeting now scheduled for April 14, 10:00 a.m., in NCTCOG's 4th floor Boardroom. (same room as on February 24).

The Texas Intermediate Interoperability Proposal item was explained by Chairman Scrivner in the absence of the Robert Pletcher, the Texas Radio Work Groups Chairman. Chairman Scrivener explained that state agencies like DPS, TxDOT, and others will use VHF frequencies for interagency communications in that they already use those frequencies. The state group believes this to be an intermediate solution until a better plan is developed. Pat Worsham, TxDOT, helped explain the state group's approach to use existing frequencies that are available throughout Texas.

Other Business: Chairman Scrivner asked if there were other business to discuss. He wrapped the meeting by thanking all who attended and encouraged them to return to the next meeting that will be announced at a later date. He reminded them that the entire plan is due in completed form by October '03 and that it will take an effort on everyone's part to meet that deadline.

Next Meeting Dates:

The Interoperability Subcommittee and the Technology and Planning Subcommittee will meet:
ON: April 14, 2003
FROM: 10:00 – 11:30 a.m.
AT: The North Central Texas Council of Governments
616 Six Flags Drive, Arlington
Interoperability Subcommittee - 2nd Floor Committee Room
Technology and Planning Subcommittee - 4th Floor Board Room

General Session meeting with the following subcommittees also meeting:
ON: May 6, 2003
FROM: 10:00 – 11:30 a.m. *Subcommittee meetings*
1:00 – 3:00 p.m. *General Session*
AT: The North Central Texas Council of Governments
616 Six Flags Drive, Arlington

Interoperability Subcommittee - 2nd Floor Committee Room
Technology and Planning Subcommittee - 4th Floor Board Room
General Session – 2nd Floor Board Room

Website. This information may be found at
www.nctcog.org/hs/radio/index.html

Respectfully submitted,

Fred Keithley

AGENDA
MAY 6, 2003
NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS'
EXECUTIVE BOARD ROOM
1:00 P.M.

WELCOME

INFORMATIONAL ITEMS

SUB-COMMITTEE REPORTS
-INTEROPERABILITY
-PLANNING AND TECHNOLOGY
-IMPLEMENTATION

REQUEST FOR PROPOSAL: DESIGN OF INTEROPERABILITY NETWORK

PROGRESS REPORT: STATE PLAN DEVELOPMENT: ROBERT PLETCHER, TEXAS INTERAGENCY WORK GROUP

BRIEF ANNOUNCEMENT: DALLAS AREA RAPID TRANSIT

ACTION ITEM

FUNDING FOR DATABASE TRAINING

OTHER BUSINESS

SUMMARY
REGION 40 700 MHz PLANNING COMMITTEE ITEMS
FROM MEETING OF MAY 6, 2003
NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS
ARLINGTON, TEXAS

MORNING SESSION: Sub-committees Meet

The Sub-committees met at 10:00 a.m. to discuss future activities. A brief review of what transpired follows:

Interoperability Sub-committee: The Interop Sub-committee was convened by Sub-committee Chairman Gerard Eads and expressed the need to appoint a "working group" of 5-7 persons who would responsible for drafting the section on Interoperability. Appointments to the Group would be made by the Interoperability Chairman and announced well before the next Region 40 meeting.

It was noted that several different "solutions" to inter-agency/personnel communications are now on the market and that one role of the Interop Committee will be to examine and recommend to Region 40 the best solution for this region. A solution may be one of immediate or short term until a more comprehensive and longer- range solution is developed. All members recognized the need for substantial funding support to implement the long-range solution, especially if it is built around 700 MHz.

Robert Pletcher, Charman of the Texas Interagency Radio Work Group, (IRWG), reviewed the State agencies' initiative to achieve interoperability through the use of existing VHF frequencies. He explained that most of the state agencies, including the Department of Public Safety, use VHF, as do many local public safety agencies throughout Texas. IRWG sees this initiative as an immediate solution to interoperability, until a better one is determined. The Committee pointed out, however, that the VHF solution does not solve the problem of many agencies that use other frequencies on 800 and 450 MHz bands.

Mr. Keithley asked Mr. Pletcher about timelines, direction, and coordination as the state develops its part of the state plan. Mr. Pletcher remarked that the state would follow much of what the regions in Texas were doing and that Region 40 would be welcome at the IRWG table anytime the state committee met. It was agreed that a representative from Region 40's Interop Sub-committee would be there.

It was noted by Fred Keithley that an agreement to develop a RFP for systems design has been assigned and the specifications for the RFP should be ready to review by the first of June. The RFP will request from consultants

the design of an intermediate interoperability system and specifications that will support network development in the future.

There being no further business, the Interop Sub-committee adjourned at 12:30 p.m.

Planning and Technology Sub-committee (PTS): The PTS convened by Sub-committee Chairman Peter Ungar, reviewed their charge to assure that FCC guidelines for the development of the Region 40 plan are followed and inclusive of all requirements.

Mr. Ungar handed out the first draft of the plan recognizing that components, such as Interoperability still needed to be included. The Sub-committee reviewed his work and made suggestions, as needed. The Sub-committee will return at a future date with more substantive remarks.

There being no further business, the Sub-committee adjourned at 11:30 a.m.

Implementation (Outreach) Sub-committee: Captain Pam Palmisano, Chairperson of the Implementation Sub-committee convened the meeting to discuss databases and the methods used to get the word out to as many Region 40 jurisdictions as possible. Hard copy, e-mail and fax have been used to communicate with possible planning participants since the planning began. The Sub-committee has always been conscientious about outreach and continues to look for ways to be as inclusive as possible.

After discussing their outreach activities and seeing no further business, the Sub-committee adjourned at 11:30 a.m.

AFTERNOON SESSION: Full Region 40 Meeting (1:00 p.m.)
Chairman Dan Scrivner opened the meeting by welcoming more than 50 attendees. Chairman Scrivner asked for each of the Sub-committees to report the business they conducted during the morning sessions of sub-committee meetings.

Sub-committee Reports
Interoperability: (Please see comments noted in the Morning Session.)
Planning and Technology: (Please see comments noted in Morning Sessions.)
Implementation, (Outreach): (Please see comments noted in Morning Session.)

Request for Proposal: Design of Interoperability Network
Persons attending were informed that a small contract was assigned to develop an RFP for the design of an interoperability system. The RFP should be ready by the first of July 03. The RFP will include specifications for the implementation of equipment and network modifications, if any. The design

will be a blueprint for the development of an operational interoperability communications system if sufficient resources become available.

Progress Report: State Plan Development
Robert Pletcher, Chairman of the Texas Interagency Radio Work Group (IRWG), reported that state agencies were going to operate under the VHF band for interoperability because most of them already have that capability. Also, Mr. Pletcher noted that some Federal and local public safety agencies continue to operate over the VHF channel, as well. The IRWG sees this solution as an immediate solution, but not necessarily a permanent one to interoperable communications.

Mr. Pletcher encouraged Region 40 to be represented at each IRWG meeting to stay informed of state initiatives and future developments regarding interoperability. (Also, see comments above in Morning Session).

Brief Announcement: Dallas Area Rapid Transit (DART)

A representative from DART suggested that NEXTEL rebanding should be of concern to local agencies because of potential interference issues. (DART notes are on file should anyone wish to see them).

Funding for Database Training
Chairman Scrivner explained that before 700 MHz frequencies could be distributed, someone should be trained on the database. It was noted that Ken Yoder, State Frequency Coordinator, would assume this position but would need training in Colorado. A motion to help pay for Mr. Yoder's expenses was made by Joe Blair and seconded by Gerard Eads; the motion passed without questions.

Other Business
Chairman Scrivner suggested that the next two meetings be held at locations other than the Council of Governments.

There being no further business, Region 40 adjourned at 2:30 p.m.

Respectfully submitted,

Fred Keithley, Region 40 Coordinator

AGENDA
Meeting of Region 40
700 MHz Regional Planning
July 17, 2003

1. Approval of the Draft Regional Plan
2. Report on Selection of Consultant to Develop a System for Interoperability
3. Report on Efforts of Federal Agencies to Implement an Interoperability System
4. Progress Report on SEIC
5. Discussion of 4.9 GHz Allocation for Public Safety
6. Other Business
7. Schedule for Subsequent Region 40 Meetings
8. Adjourn

SUMMARY
REGION 40 BUSINESS
JULY 17, 2003
DFW PUBLIC SAFETY BUILDING
2:00 P.M.

REGION 40 met at the DFW Public Safety building July 17 at 2:00 p.m. Tommy Sheehan, Director of Public Safety welcomed those in attendance.

The following items reflect Committee consideration of the agenda, as written.

Plan Approval. The first order of business was to request approval of the draft 700 MHz Plan for the Region 40 area. Dan Scrivner, Chairman of Region 40, provided a brief overview of the Plan, stating that its purpose is to be used as a way to manage the distribution of 700 MHz frequencies once they are released for public safety. Several were raised:
On interoperability, "What does the plan include?" Chairman Scrivner answered that Project 25 standards will be included in all radios, and all radios will have interoperability capability.
Will the interoperability be conventional or digital? Mr. Scrivner answered that both will be included.
Who can apply for the frequencies? The frequencies are for public safety. Sean Hughes asked if NCTCOG could be given several interop channels to which local agencies could apply. This would assure that inter-regional communications would take place, if needed. It would be the responsibility for public safety agencies to seek their licenses from COG. COG would manage the plan. Mr. Scrivner answered that there is nothing in the Plan that would preclude that arrangement.

Mr. Scrivner pointed out that the State will write the plan based on much that is in the regional plans. The state will license the frequencies.
A question was raised about funding. Gerard Eads answered that the Plan addresses the management of 700 MHz licensing throughout Region 40 and does not address funding or operational matters.

There being no further questions, Chairman Scrivner called the question. Pat Worsham, Department of Transportation, moved to accept the plan as drafted. Pam Palmisano, Captain, Collin County Sheriff's Department, seconded the motion. The motion passed unanimously. The draft plan will be refined before it is forwarded to the FCC for approval.

Chairman Scrivner then took a few moments to thank the members of Region 40 for their work and review of the Plan, as well as a few members in particular: Pam Palmisano, Gerard Eads, Peter Ungar, and Fred Keithley.

Interoperable Communications Consultant. Chairman Scrivner informed the Committee that NCTCOG has commissioned RCC Consultants Inc to develop recommendations leading to immediate, intermediate, and long-range solutions to effective interoperable communications. RCC will meet with as many public safety agencies as possible during its development of the recommendations.

Federal Agency Assistance. Chairman Scrivner also informed the Committee of a meeting on June 30 during Department of Justice representatives met with many public safety personnel at NCTCOG to determine interoperable communications needs. The intent of the meeting was to determine whether the region was prepared to implement interop solutions immediately. DOJ made the offer to fund and implement whatever solution was feasible for the region, and do so now. Public safety representatives needed more time to review the matter. DOJ said that it would return later in the year once local representatives had developed consensus.

SEIC Informational Item. Robert Pletcher, Chairman of the Texas Interagency Radio Work Group, complimented Region 40 for achieving a milestone, approval of the 700 MHz Plan. Mr. Pletcher informed the Committee that Capitol Area Planning Council received funds to pilot an interop project using emerging technology.
He mentioned also, that DPS would be responsible for managing 700 MHz interop channels. He stated that the TEIC Board will be composed of state agency representatives and the Chairs of the regional communications bodies, like Region 40.

4.9 GHz. Chairman Scrivner indicated that local public safety agencies could license for their jurisdictional area. Also, he said that the regions need to develop plans on the use of the channels, even though jurisdictions do not have to have a license. Chairman Scrivner asked for a volunteer to chair the 4.9 GHz planning committee. No volunteers were immediately identified.

Other Business: Project 25 was discussed briefly by Chairman Scrivner. He indicated that HB 1, says that grant funds should be spent first on Project 25 equipment. He asked if the region should adhere to this standard or evaluate its use on a case-by-case basis, since the terminology is permissive. Chief Varner, Carrollton Fire Department, stated that P25 is not compatible with Smart Zone, their system and that it is not flexible to use across the board. It was agreed that Region 40 would monitor the situation.

Fred Keithley thanked Chairman Scrivner for his leadership in developing the 700 MHz Plan, as well as the Committee members who provided much assistance towards its completion.

There being no further business, the Committee adjourned.

Respectfully submitted,

Fred Keithley,
Director of Community Services, NCTCOG
Region 40 Coordinator

AGENDA
REGION 40 COMMITTEE MEETING
TUESDAY DECEMBER 2, 2003
COLLIN COUNTY SHERIFF'S OFFICE
2:00 P.M

WELCOME

APPROVE MEETING SUMMARY FROM JULY 17, 2003

PRESENT FINAL 700 MHz PLAN

CONVENE 4.9 GHZ COMMITTEE AND APPOINT CHAIR

PRESENT ABBREVIATED INTEROPERABLE COMMUNICATIONS PLAN
(FULL PLAN WILL BE PRESENTED DECEMBER 9, 1:30, NCTCOG OFFICES)

DETERMINE LOCATION AND DATE OF NEXT MEETING

OTHER BUSINESS

ADJOURN

SUMMARY OF REGION 40 MEETING

DECEMBER 2, 2003

COLLIN COUNTY SHERIFF'S FACILITY

Region 40 Chairman Dan Scrivner, welcomed the attending members of Region 40 and called the meeting to order at 2:00 p.m., December 2, 2003. Mr. Scrivner then asked for a motion to accept the Summary (minutes) of the July 17, 2003 meeting. Gerard Eads, City of Arlington, motioned to accept the Summary. Pam Palmisano, Collin County Sheriff's Department, seconded the motion which passed unanimously.

Presentation of Final 700 MHz Plan.

Chairman Scrivner announced that, with the exception of some minor additional material, the Plan has been completed. He mentioned that one major item still remaining is to seek approval from the surrounding regions; Regions 04, 18, 34, 49, 50, 51, and 52. He pointed out that several of the regions had not started the planning process and that Region 40 would request a waiver from the FCC to activate the Plan without approval from Regions 4, 34, 51, and 52.

He thanked the Chairs of the subcommittees; Pam Palmisano, Implementation/Outreach; Gerard Eads, Interoperable Communications; and Peter Ungar, Technology and Planning, and their subcommittee members who worked on the various sections of the Plan. He then thanked Fred Keithley for his work in coordinating the plan development process and brining the Plan's sections together into one cohesive document. Mr. Scrivner asked if there were questions or comments on the Plan. Hearing none, he addressed the next agenda item.

Convene the 4.9 GHz Committee and Appoint a Chairman

Chairman Scrivner introduced the next item and pointed out that Region 40 should develop a plan on the use of 4.9 GHz spectrum. He appointed Ron Goldsmith, City of Plano, to Chair this effort and ask others to assist. Mr. Scrivner indicated that the State will license these channels. He was asked when the plan will be due and replied that the rules are found in the rule-making documents of the FCC.

Abbreviated Presentation of Interoperable Communications Plan

Chairman Scrivner indicated that the North Central Texas Council of Governments had commissioned RCC Consultants to assess the interoperable communications needs of the 16-county NCTCOG region and develop recommendations which would assist local public safety agencies in achieving

interoperability. He mentioned that the Report is nearly complete and that many good systems have been identified to help remedy interoperable communications weaknesses. He announced that the Report would be presented December 9 at 1:30, NCTCOG offices, Arlington, Texas. The consultant will respond to questions from public safety officials and other interested persons attending the meeting.

Determine Location of Next Meeting

Chairman Scrivner indicated that it was his intent to hold Region 40 meetings at locations throughout the Region 40 area and that the next meeting may be held in an East Texas area to be announced. The meeting will be held in sometime in the first quarter of 2004.

Other Business

Mr. Scrivner asked if there were other business that members of Region 40 wished to discuss. Hearing of none, the meeting was adjourned at 2:45 p.m.

Appendix H-Region 40 Channel Allotments

County	Channel Number	Base Frequency	Mobile Frequency
Anderson County	97-98	769.60625	799.60625
Anderson County	137-138	769.85625	799.85625
Anderson County	179-180	770.11875	800.11875
Anderson County	219-220	770.36875	800.36875
Anderson County	349-350	771.18125	801.18125
Anderson County	413-414	771.58125	801.58125
Anderson County	477-478	771.98125	801.98125
Anderson County	525-526	772.28125	802.28125
Anderson County	565-566	772.53125	802.53125
Anderson County	609-610	772.80625	802.80625
Anderson County	665-666	773.15625	803.15625
Anderson County	741-742	773.63125	803.63125
Anderson County	785-786	773.90625	803.90625
Anderson County	831-832	774.19375	804.19375
Anderson County	871-872	774.44375	804.44375
Anderson	913-914	774.70625	804.70625

County			
Bowie County	**13-14**	**769.08125**	**799.08125**
Bowie County	**81-82**	**769.50625**	**799.50625**
Bowie County	**173-174**	**770.08125**	**800.08125**
Bowie County	**213-214**	**770.33125**	**800.33125**
Bowie County	**253-254**	**770.58125**	**800.58125**
Bowie County	**365-366**	**771.28125**	**801.28125**
Bowie County	**405-406**	**771.53125**	**801.53125**
Bowie County	**473-474**	**771.95625**	**801.95625**
Bowie County	**549-550**	**772.43125**	**802.43125**
Bowie County	**593-594**	**772.70625**	**802.70625**
Bowie County	**633-634**	**772.95625**	**802.95625**
Bowie County	**701-702**	**773.38125**	**803.38125**
Bowie County	**757-758**	**773.73125**	**803.73125**
Bowie County	**825-826**	**774.15625**	**804.15625**
Bowie County	**865-866**	**774.40625**	**804.40625**
Bowie County	**905-906**	**774.65625**	**804.65625**
Bowie County	**945-946**	**774.90625**	**804.90625**
Camp	**47-48**	**769.29375**	**799.29375**

County			
Camp County	**121-122**	**769.75625**	**799.75625**
Camp County	**175-176**	**770.09375**	**800.09375**
Camp County	**217-218**	**770.35625**	**800.35625**
Camp County	**321-322**	**771.00625**	**801.00625**
Camp County	**367-368**	**771.29375**	**801.29375**
Camp County	**419-420**	**771.61875**	**801.61875**
Camp County	**489-490**	**772.05625**	**802.05625**
Camp County	**545-546**	**772.40625**	**802.40625**
Camp County	**629-630**	**772.93125**	**802.93125**
Camp County	**671-672**	**773.19375**	**803.19375**
Camp County	**749-750**	**773.68125**	**803.68125**
Camp County	**861-862**	**774.38125**	**804.38125**
Camp County	**901-902**	**774.63125**	**804.63125**
Camp County	**947-948**	**774.91875**	**804.91875**
Cass County	**129-130**	**769.80625**	**799.80625**
Cass County	**249-250**	**770.55625**	**800.55625**
Cass County	**349-350**	**771.18125**	**801.18125**
Cass County	**389-390**	**771.43125**	**801.43125**
Cass County	**445-446**	**771.78125**	**801.78125**
Cass County	**529-530**	**772.30625**	**802.30625**

Cass County	**581-582**	**772.63125**	**802.63125**
Cass County	**741-742**	**773.63125**	**803.63125**
Cherokee County	**13-14**	**769.08125**	**799.08125**
Cherokee County	**121-122**	**769.75625**	**799.75625**
Cherokee County	**161-162**	**770.00625**	**800.00625**
Cherokee County	**211-212**	**770.31875**	**800.31875**
Cherokee County	**297-298**	**770.85625**	**800.85625**
Cherokee County	**373-374**	**771.33125**	**801.33125**
Cherokee County	**421-422**	**771.63125**	**801.63125**
Cherokee County	**461-462**	**771.88125**	**801.88125**
Cherokee County	**501-502**	**772.13125**	**802.13125**
Cherokee County	**545-546**	**772.40625**	**802.40625**
Cherokee County	**617-618**	**772.85625**	**802.85625**
Cherokee County	**749-750**	**773.68125**	**803.68125**
Cherokee County	**877-878**	**774.48125**	**804.48125**
Cherokee County	**941-942**	**774.88125**	**804.88125**
Collin County	**51-52**	**769.31875**	**799.31875**
Collin County	**91-92**	**769.56875**	**799.56875**
Collin County	**217-218**	**770.35625**	**800.35625**

Collin County	**257-258**	**770.60625**	**800.60625**
Collin County	**297-298**	**770.85625**	**800.85625**
Collin County	**337-338**	**771.10625**	**801.10625**
Collin County	**393-394**	**771.45625**	**801.45625**
Collin County	**445-446**	**771.78125**	**801.78125**
Collin County	**521-522**	**772.25625**	**802.25625**
Collin County	**565-566**	**772.53125**	**802.53125**
Collin County	**609-610**	**772.80625**	**802.80625**
Collin County	**661-662**	**773.13125**	**803.13125**
Collin County	**701-702**	**773.38125**	**803.38125**
Collin County	**757-758**	**773.73125**	**803.73125**
Collin County	**797-798**	**773.98125**	**803.98125**
Collin County	**837-838**	**774.23125**	**804.23125**
Collin County	**913-914**	**774.70625**	**804.70625**
Cooke County	**13-14**	**769.08125**	**799.08125**
Cooke County	**121-122**	**769.75625**	**799.75625**
Cooke County	**321-322**	**771.00625**	**801.00625**
Cooke County	**361-362**	**771.25625**	**801.25625**

Cooke County	**409-410**	**771.55625**	**801.55625**
Cooke County	**489-490**	**772.05625**	**802.05625**
Cooke County	**537-538**	**772.35625**	**802.35625**
Cooke County	**589-590**	**772.68125**	**802.68125**
Cooke County	**629-630**	**772.93125**	**802.93125**
Cooke County	**789-790**	**773.93125**	**803.93125**
Cooke County	**829-830**	**774.18125**	**804.18125**
Cooke County	**879-880**	**774.49375**	**804.49375**
Dallas County	**41-42**	**769.25625**	**799.25625**
Dallas County	**81-82**	**769.50625**	**799.50625**
Dallas County	**125-126**	**769.78125**	**799.78125**
Dallas County	**169-170**	**770.05625**	**800.05625**
Dallas County	**209-210**	**770.30625**	**800.30625**
Dallas County	**285-286**	**770.78125**	**800.78125**
Dallas County	**325-326**	**771.03125**	**801.03125**
Dallas County	**365-366**	**771.28125**	**801.28125**
Dallas County	**405-406**	**771.53125**	**801.53125**
Dallas County	**469-470**	**771.93125**	**801.93125**

Dallas County	**511-512**	**772.19375**	**802.19375**
Dallas County	**553-554**	**772.45625**	**802.45625**
Dallas County	**593-594**	**772.70625**	**802.70625**
Dallas County	**633-634**	**772.95625**	**802.95625**
Dallas County	**673-674**	**773.20625**	**803.20625**
Dallas County	**713-714**	**773.45625**	**803.45625**
Dallas County	**785-786**	**773.90625**	**803.90625**
Dallas County	**825-826**	**774.15625**	**804.15625**
Dallas County	**865-866**	**774.40625**	**804.40625**
Dallas County	**905-906**	**774.65625**	**804.65625**
Dallas County	**945-946**	**774.90625**	**804.90625**
Delta County	**89-90**	**769.55625**	**799.55625**
Delta County	**135-136**	**769.84375**	**799.84375**
Delta County	**215-216**	**770.34375**	**800.34375**
Delta County	**259-260**	**770.61875**	**800.61875**
Delta County	**335-336**	**771.09375**	**801.09375**
Delta County	**379-380**	**771.36875**	**801.36875**
Delta County	**421-422**	**771.63125**	**801.63125**

Delta County	**469-470**	**771.93125**	**801.93125**
Delta County	**509-510**	**772.18125**	**802.18125**
Delta County	**551-552**	**772.44375**	**802.44375**
Delta County	**595-596**	**772.71875**	**802.71875**
Delta County	**869-870**	**774.43125**	**804.43125**
Denton County	**17-18**	**769.10625**	**799.10625**
Denton County	**57-58**	**769.35625**	**799.35625**
Denton County	**97-98**	**769.60625**	**799.60625**
Denton County	**137-138**	**769.85625**	**799.85625**
Denton County	**177-178**	**770.10625**	**800.10625**
Denton County	**245-246**	**770.53125**	**800.53125**
Denton County	**345-346**	**771.15625**	**801.15625**
Denton County	**385-386**	**771.40625**	**801.40625**
Denton County	**457-458**	**771.85625**	**801.85625**
Denton County	**529-530**	**772.30625**	**802.30625**
Denton County	**577-578**	**772.60625**	**802.60625**
Denton County	**617-618**	**772.85625**	**802.85625**
Denton County	**745-746**	**773.65625**	**803.65625**

Ellis County	**133-134**	**769.83125**	**799.83125**
Ellis County	**175-176**	**770.09375**	**800.09375**
Ellis County	**241-242**	**770.50625**	**800.50625**
Ellis County	**341-342**	**771.13125**	**801.13125**
Ellis County	**397-398**	**771.48125**	**801.48125**
Ellis County	**461-462**	**771.88125**	**801.88125**
Ellis County	**517-518**	**772.23125**	**802.23125**
Ellis County	**561-562**	**772.50625**	**802.50625**
Ellis County	**601-602**	**772.75625**	**802.75625**
Ellis County	**669-670**	**773.18125**	**803.18125**
Ellis County	**719-720**	**773.49375**	**803.49375**
Ellis County	**759-760**	**773.74375**	**803.74375**
Erath County	**17-18**	**769.10625**	**799.10625**
Erath County	**93-94**	**769.58125**	**799.58125**
Erath County	**205-206**	**770.28125**	**800.28125**
Erath County	**285-286**	**770.78125**	**800.78125**
Erath County	**325-326**	**771.03125**	**801.03125**
Erath County	**365-366**	**771.28125**	**801.28125**
Erath County	**433-434**	**771.70625**	**801.70625**
Erath County	**517-518**	**772.23125**	**802.23125**
Erath County	**589-590**	**772.68125**	**802.68125**
Erath County	**629-630**	**772.93125**	**802.93125**
Erath County	**709-710**	**773.43125**	**803.43125**

Erath County	**789-790**	**773.93125**	**803.93125**
Erath County	**837-838**	**774.23125**	**804.23125**
Erath County	**915-916**	**774.71875**	**804.71875**
Fannin County	**19-20**	**769.11875**	**799.11875**
Fannin County	**129-130**	**769.80625**	**799.80625**
Fannin County	**173-174**	**770.08125**	**800.08125**
Fannin County	**241-242**	**770.50625**	**800.50625**
Fannin County	**357-358**	**771.23125**	**801.23125**
Fannin County	**437-438**	**771.73125**	**801.73125**
Fannin County	**493-494**	**772.08125**	**802.08125**
Fannin County	**557-558**	**772.48125**	**802.48125**
Fannin County	**625-626**	**772.90625**	**802.90625**
Fannin County	**709-710**	**773.43125**	**803.43125**
Fannin County	**827-828**	**774.16875**	**804.16875**
Franklin County	**57-58**	**769.35625**	**799.35625**
Franklin County	**139-140**	**769.86875**	**799.86875**
Franklin County	**283-284**	**770.76875**	**800.76875**
Franklin County	**353-354**	**771.20625**	**801.20625**

Franklin County	**401-402**	**771.50625**	**801.50625**
Franklin County	**447-448**	**771.79375**	**801.79375**
Franklin County	**513-514**	**772.20625**	**802.20625**
Franklin County	**565-566**	**772.53125**	**802.53125**
Franklin County	**637-638**	**772.98125**	**802.98125**
Franklin County	**837-838**	**774.23125**	**804.23125**
Franklin County	**941-942**	**774.88125**	**804.88125**
Grayson County	**45-46**	**769.28125**	**799.28125**
Grayson County	**85-86**	**769.53125**	**799.53125**
Grayson County	**165-166**	**770.03125**	**800.03125**
Grayson County	**205-206**	**770.28125**	**800.28125**
Grayson County	**289-290**	**770.80625**	**800.80625**
Grayson County	**329-330**	**771.05625**	**801.05625**
Grayson County	**377-378**	**771.35625**	**801.35625**
Grayson County	**429-430**	**771.68125**	**801.68125**
Grayson County	**501-502**	**772.13125**	**802.13125**
Grayson County	**545-546**	**772.40625**	**802.40625**
Grayson County	**601-602**	**772.75625**	**802.75625**

Grayson County	**667-668**	**773.16875**	**803.16875**
Grayson County	**781-782**	**773.88125**	**803.88125**
Grayson County	**821-822**	**774.13125**	**804.13125**
Grayson County	**873-874**	**774.45625**	**804.45625**
Grayson County	**941-942**	**774.88125**	**804.88125**
Gregg County	**17-18**	**769.10625**	**799.10625**
Gregg County	**91-92**	**769.56875**	**799.56875**
Gregg County	**135-136**	**769.84375**	**799.84375**
Gregg County	**209-210**	**770.30625**	**800.30625**
Gregg County	**253-254**	**770.58125**	**800.58125**
Gregg County	**299-300**	**770.86875**	**800.86875**
Gregg County	**345-346**	**771.15625**	**801.15625**
Gregg County	**417-418**	**771.60625**	**801.60625**
Gregg County	**465-466**	**771.90625**	**801.90625**
Gregg County	**541-542**	**772.38125**	**802.38125**
Gregg County	**605-606**	**772.78125**	**802.78125**
Gregg County	**705-706**	**773.40625**	**803.40625**
Gregg County	**745-746**	**773.65625**	**803.65625**

Gregg County	**789-790**	**773.93125**	**803.93125**
Gregg County	**833-834**	**774.20625**	**804.20625**
Gregg County	**879-880**	**774.49375**	**804.49375**
Gregg County	**919-920**	**774.74375**	**804.74375**
Harrison County	**41-42**	**769.25625**	**799.25625**
Harrison County	**83-84**	**769.51875**	**799.51875**
Harrison County	**169-170**	**770.05625**	**800.05625**
Harrison County	**281-282**	**770.75625**	**800.75625**
Harrison County	**357-358**	**771.23125**	**801.23125**
Harrison County	**425-426**	**771.65625**	**801.65625**
Harrison County	**517-518**	**772.23125**	**802.23125**
Harrison County	**561-562**	**772.50625**	**802.50625**
Harrison County	**621-622**	**772.88125**	**802.88125**
Harrison County	**665-666**	**773.15625**	**803.15625**
Harrison County	**713-714**	**773.45625**	**803.45625**
Harrison County	**781-782**	**773.88125**	**803.88125**
Harrison County	**821-822**	**774.13125**	**804.13125**
Harrison County	**909-910**	**774.68125**	**804.68125**

Henderson County	**89-90**	**769.55625**	**799.55625**
Henderson County	**129-130**	**769.80625**	**799.80625**
Henderson County	**205-206**	**770.28125**	**800.28125**
Henderson County	**257-258**	**770.60625**	**800.60625**
Henderson County	**337-338**	**771.10625**	**801.10625**
Henderson County	**389-390**	**771.43125**	**801.43125**
Henderson County	**441-442**	**771.75625**	**801.75625**
Henderson County	**489-490**	**772.05625**	**802.05625**
Henderson County	**529-530**	**772.30625**	**802.30625**
Henderson County	**569-570**	**772.55625**	**802.55625**
Henderson County	**637-638**	**772.98125**	**802.98125**
Henderson County	**677-678**	**773.23125**	**803.23125**
Henderson County	**753-754**	**773.70625**	**803.70625**
Henderson County	**797-798**	**773.98125**	**803.98125**
Henderson County	**837-838**	**774.23125**	**804.23125**
Henderson County	**917-918**	**774.73125**	**804.73125**
Hood County	**121-122**	**769.75625**	**799.75625**
Hood County	**361-362**	**771.25625**	**801.25625**

Hood County	**413-414**	**771.58125**	**801.58125**
Hood County	**467-468**	**771.91875**	**801.91875**
Hood County	**509-510**	**772.18125**	**802.18125**
Hood County	**549-550**	**772.43125**	**802.43125**
Hood County	**671-672**	**773.19375**	**803.19375**
Hood County	**757-758**	**773.73125**	**803.73125**
Hood County	**827-828**	**774.16875**	**804.16875**
Hood County	**869-870**	**774.43125**	**804.43125**
Hood County	**909-910**	**774.68125**	**804.68125**
Hopkins County	**49-50**	**769.30625**	**799.30625**
Hopkins County	**97-98**	**769.60625**	**799.60625**
Hopkins County	**177-178**	**770.10625**	**800.10625**
Hopkins County	**245-246**	**770.53125**	**800.53125**
Hopkins County	**361-362**	**771.25625**	**801.25625**
Hopkins County	**433-434**	**771.70625**	**801.70625**
Hopkins County	**517-518**	**772.23125**	**802.23125**
Hopkins County	**559-560**	**772.49375**	**802.49375**
Hopkins County	**617-618**	**772.85625**	**802.85625**

Hopkins County	**665-666**	**773.15625**	**803.15625**
Hopkins County	**707-708**	**773.41875**	**803.41875**
Hopkins County	**759-760**	**773.74375**	**803.74375**
Hopkins County	**823-824**	**774.14375**	**804.14375**
Hopkins County	**909-910**	**774.68125**	**804.68125**
Hunt County	**59-60**	**769.36875**	**799.36875**
Hunt County	**121-122**	**769.75625**	**799.75625**
Hunt County	**281-282**	**770.75625**	**800.75625**
Hunt County	**321-322**	**771.00625**	**801.00625**
Hunt County	**369-370**	**771.30625**	**801.30625**
Hunt County	**409-410**	**771.55625**	**801.55625**
Hunt County	**477-478**	**771.98125**	**801.98125**
Hunt County	**539-540**	**772.36875**	**802.36875**
Hunt County	**589-590**	**772.68125**	**802.68125**
Hunt County	**631-632**	**772.94375**	**802.94375**
Hunt County	**671-672**	**773.19375**	**803.19375**
Hunt County	**741-742**	**773.63125**	**803.63125**
Hunt County	**789-790**	**773.93125**	**803.93125**

Hunt County	**861-862**	**774.38125**	**804.38125**
Hunt County	**901-902**	**774.63125**	**804.63125**
Hunt County	**947-948**	**774.91875**	**804.91875**
Johnson County	**13-14**	**769.08125**	**799.08125**
Johnson County	**55-56**	**769.34375**	**799.34375**
Johnson County	**95-96**	**769.59375**	**799.59375**
Johnson County	**179-180**	**770.11875**	**800.11875**
Johnson County	**219-220**	**770.36875**	**800.36875**
Johnson County	**259-260**	**770.61875**	**800.61875**
Johnson County	**299-300**	**770.86875**	**800.86875**
Johnson County	**349-350**	**771.18125**	**801.18125**
Johnson County	**389-390**	**771.43125**	**801.43125**
Johnson County	**429-430**	**771.68125**	**801.68125**
Johnson County	**493-494**	**772.08125**	**802.08125**
Johnson County	**533-534**	**772.33125**	**802.33125**
Johnson County	**573-574**	**772.58125**	**802.58125**
Johnson County	**613-614**	**772.83125**	**802.83125**
Johnson County	**741-742**	**773.63125**	**803.63125**

Johnson County	**799-800**	**773.99375**	**803.99375**
Johnson County	**839-840**	**774.24375**	**804.24375**
Kaufman County	**53-54**	**769.33125**	**799.33125**
Kaufman County	**93-94**	**769.58125**	**799.58125**
Kaufman County	**139-140**	**769.86875**	**799.86875**
Kaufman County	**249-250**	**770.55625**	**800.55625**
Kaufman County	**295-296**	**770.84375**	**800.84375**
Kaufman County	**353-354**	**771.20625**	**801.20625**
Kaufman County	**417-418**	**771.60625**	**801.60625**
Kaufman County	**501-502**	**772.13125**	**802.13125**
Kaufman County	**581-582**	**772.63125**	**802.63125**
Kaufman County	**621-622**	**772.88125**	**802.88125**
Kaufman County	**663-664**	**773.14375**	**803.14375**
Kaufman County	**749-750**	**773.68125**	**803.68125**
Kaufman County	**873-874**	**774.45625**	**804.45625**
Kaufman County	**941-942**	**774.88125**	**804.88125**
Lamar County	**41-42**	**769.25625**	**799.25625**
Lamar County	**83-84**	**769.51875**	**799.51875**

Lamar County	**161-162**	**770.00625**	**800.00625**
Lamar County	**209-210**	**770.30625**	**800.30625**
Lamar County	**293-294**	**770.83125**	**800.83125**
Lamar County	**345-346**	**771.15625**	**801.15625**
Lamar County	**389-390**	**771.43125**	**801.43125**
Lamar County	**457-458**	**771.85625**	**801.85625**
Lamar County	**529-530**	**772.30625**	**802.30625**
Lamar County	**573-574**	**772.58125**	**802.58125**
Lamar County	**713-714**	**773.45625**	**803.45625**
Lamar County	**753-754**	**773.70625**	**803.70625**
Lamar County	**877-878**	**774.48125**	**804.48125**
Lamar County	**917-918**	**774.73125**	**804.73125**
Marion County	**15-16**	**769.09375**	**799.09375**
Marion County	**89-90**	**769.55625**	**799.55625**
Marion County	**207-208**	**770.29375**	**800.29375**
Marion County	**363-364**	**771.26875**	**801.26875**
Marion County	**409-410**	**771.55625**	**801.55625**
Marion County	**469-470**	**771.93125**	**801.93125**

Marion County	**509-510**	**772.18125**	**802.18125**
Marion County	**589-590**	**772.68125**	**802.68125**
Marion County	**635-636**	**772.96875**	**802.96875**
Marion County	**829-830**	**774.18125**	**804.18125**
Marion County	**915-916**	**774.71875**	**804.71875**
Morris County	**59-60**	**769.36875**	**799.36875**
Morris County	**137-138**	**769.85625**	**799.85625**
Morris County	**257-258**	**770.60625**	**800.60625**
Morris County	**297-298**	**770.85625**	**800.85625**
Morris County	**343-344**	**771.14375**	**801.14375**
Morris County	**397-398**	**771.48125**	**801.48125**
Morris County	**461-462**	**771.88125**	**801.88125**
Morris County	**501-502**	**772.13125**	**802.13125**
Morris County	**569-570**	**772.55625**	**802.55625**
Morris County	**609-610**	**772.80625**	**802.80625**
Morris County	**791-792**	**773.94375**	**803.94375**
Morris County	**835-836**	**774.21875**	**804.21875**
Navarro County	**17-18**	**769.10625**	**799.10625**

Navarro County	**57-58**	**769.35625**	**799.35625**
Navarro County	**123-124**	**769.76875**	**799.76875**
Navarro County	**171-172**	**770.06875**	**800.06875**
Navarro County	**215-216**	**770.34375**	**800.34375**
Navarro County	**289-290**	**770.80625**	**800.80625**
Navarro County	**361-362**	**771.25625**	**801.25625**
Navarro County	**433-434**	**771.70625**	**801.70625**
Navarro County	**507-508**	**772.16875**	**802.16875**
Navarro County	**549-550**	**772.43125**	**802.43125**
Navarro County	**629-630**	**772.93125**	**802.93125**
Navarro County	**701-702**	**773.38125**	**803.38125**
Navarro County	**745-746**	**773.65625**	**803.65625**
Navarro County	**821-822**	**774.13125**	**804.13125**
Navarro County	**867-868**	**774.41875**	**804.41875**
Navarro County	**909-910**	**774.68125**	**804.68125**
Palo Pinto County	**45-46**	**769.28125**	**799.28125**
Palo Pinto County	**165-166**	**770.03125**	**800.03125**
Palo Pinto County	**249-250**	**770.55625**	**800.55625**

Palo Pinto County	**297-298**	**770.85625**	**800.85625**
Palo Pinto County	**341-342**	**771.13125**	**801.13125**
Palo Pinto County	**393-394**	**771.45625**	**801.45625**
Palo Pinto County	**441-442**	**771.75625**	**801.75625**
Palo Pinto County	**497-498**	**772.10625**	**802.10625**
Palo Pinto County	**539-540**	**772.36875**	**802.36875**
Palo Pinto County	**581-582**	**772.63125**	**802.63125**
Palo Pinto County	**621-622**	**772.88125**	**802.88125**
Palo Pinto County	**661-662**	**773.13125**	**803.13125**
Palo Pinto County	**701-702**	**773.38125**	**803.38125**
Palo Pinto County	**751-752**	**773.69375**	**803.69375**
Palo Pinto County	**865-866**	**774.40625**	**804.40625**
Palo Pinto County	**905-906**	**774.65625**	**804.65625**
Panola County	**95-96**	**769.59375**	**799.59375**
Panola County	**321-322**	**771.00625**	**801.00625**
Panola County	**393-394**	**771.45625**	**801.45625**
Panola County	**457-458**	**771.85625**	**801.85625**
Panola County	**525-526**	**772.28125**	**802.28125**

Panola County	**565-566**	**772.53125**	**802.53125**
Panola County	**613-614**	**772.83125**	**802.83125**
Panola County	**759-760**	**773.74375**	**803.74375**
Panola County	**827-828**	**774.16875**	**804.16875**
Panola County	**913-914**	**774.70625**	**804.70625**
Parker County	**59-60**	**769.36875**	**799.36875**
Parker County	**129-130**	**769.80625**	**799.80625**
Parker County	**173-174**	**770.08125**	**800.08125**
Parker County	**213-214**	**770.33125**	**800.33125**
Parker County	**281-282**	**770.75625**	**800.75625**
Parker County	**381-382**	**771.38125**	**801.38125**
Parker County	**453-454**	**771.83125**	**801.83125**
Parker County	**525-526**	**772.28125**	**802.28125**
Parker County	**565-566**	**772.53125**	**802.53125**
Parker County	**605-606**	**772.78125**	**802.78125**
Parker County	**677-678**	**773.23125**	**803.23125**
Parker County	**781-782**	**773.88125**	**803.88125**
Parker County	**821-822**	**774.13125**	**804.13125**

Parker County	**861-862**	**774.38125**	**804.38125**
Parker County	**941-942**	**774.88125**	**804.88125**
Rains County	**17-18**	**769.10625**	**799.10625**
Rains County	**207-208**	**770.29375**	**800.29375**
Rains County	**255-256**	**770.59375**	**800.59375**
Rains County	**299-300**	**770.86875**	**800.86875**
Rains County	**385-386**	**771.40625**	**801.40625**
Rains County	**425-426**	**771.65625**	**801.65625**
Rains County	**465-466**	**771.90625**	**801.90625**
Rains County	**505-506**	**772.15625**	**802.15625**
Rains County	**549-550**	**772.43125**	**802.43125**
Rains County	**605-606**	**772.78125**	**802.78125**
Rains County	**675-676**	**773.21875**	**803.21875**
Rains County	**833-834**	**774.20625**	**804.20625**
Rains County	**915-916**	**774.71875**	**804.71875**
Red River County	**17-18**	**769.10625**	**799.10625**
Red River County	**125-126**	**769.78125**	**799.78125**
Red River County	**339-340**	**771.11875**	**801.11875**

Red River County	**383-384**	**771.39375**	**801.39375**
Red River County	**441-442**	**771.75625**	**801.75625**
Red River County	**485-486**	**772.03125**	**802.03125**
Red River County	**541-542**	**772.38125**	**802.38125**
Red River County	**605-606**	**772.78125**	**802.78125**
Red River County	**673-674**	**773.20625**	**803.20625**
Red River County	**745-746**	**773.65625**	**803.65625**
Red River County	**785-786**	**773.90625**	**803.90625**
Rockwall County	**13-14**	**769.08125**	**799.08125**
Rockwall County	**99-100**	**769.61875**	**799.61875**
Rockwall County	**163-164**	**770.01875**	**800.01875**
Rockwall County	**203-204**	**770.26875**	**800.26875**
Rockwall County	**243-244**	**770.51875**	**800.51875**
Rockwall County	**331-332**	**771.06875**	**801.06875**
Rockwall County	**381-382**	**771.38125**	**801.38125**
Rockwall County	**453-454**	**771.83125**	**801.83125**
Rockwall County	**533-534**	**772.33125**	**802.33125**
Rockwall County	**573-574**	**772.58125**	**802.58125**

Rockwall County	**615-616**	**772.84375**	**802.84375**
Rockwall County	**679-680**	**773.24375**	**803.24375**
Rockwall County	**831-832**	**774.19375**	**804.19375**
Rockwall County	**879-880**	**774.49375**	**804.49375**
Rockwall County	**919-920**	**774.74375**	**804.74375**
Rusk County	**57-58**	**769.35625**	**799.35625**
Rusk County	**99-100**	**769.61875**	**799.61875**
Rusk County	**139-140**	**769.86875**	**799.86875**
Rusk County	**293-294**	**770.83125**	**800.83125**
Rusk County	**339-340**	**771.11875**	**801.11875**
Rusk County	**387-388**	**771.41875**	**801.41875**
Rusk County	**433-434**	**771.70625**	**801.70625**
Rusk County	**473-474**	**771.95625**	**801.95625**
Rusk County	**551-552**	**772.44375**	**802.44375**
Rusk County	**593-594**	**772.70625**	**802.70625**
Rusk County	**633-634**	**772.95625**	**802.95625**
Rusk County	**701-702**	**773.38125**	**803.38125**
Rusk County	**839-840**	**774.24375**	**804.24375**

Smith County	**45-46**	**769.28125**	**799.28125**
Smith County	**85-86**	**769.53125**	**799.53125**
Smith County	**125-126**	**769.78125**	**799.78125**
Smith County	**173-174**	**770.08125**	**800.08125**
Smith County	**241-242**	**770.50625**	**800.50625**
Smith County	**285-286**	**770.78125**	**800.78125**
Smith County	**325-326**	**771.03125**	**801.03125**
Smith County	**405-406**	**771.53125**	**801.53125**
Smith County	**449-450**	**771.80625**	**801.80625**
Smith County	**493-494**	**772.08125**	**802.08125**
Smith County	**533-534**	**772.33125**	**802.33125**
Smith County	**573-574**	**772.58125**	**802.58125**
Smith County	**625-626**	**772.90625**	**802.90625**
Smith County	**669-670**	**773.18125**	**803.18125**
Smith County	**717-718**	**773.48125**	**803.48125**
Smith County	**757-758**	**773.73125**	**803.73125**
Smith County	**825-826**	**774.15625**	**804.15625**
Smith County	**865-866**	**774.40625**	**804.40625**

Smith County	**905-906**	**774.65625**	**804.65625**
Smith County	**945-946**	**774.90625**	**804.90625**
Somervell County	**85-86**	**769.53125**	**799.53125**
Somervell County	**127-128**	**769.79375**	**799.79375**
Somervell County	**167-168**	**770.04375**	**800.04375**
Somervell County	**215-216**	**770.34375**	**800.34375**
Somervell County	**289-290**	**770.80625**	**800.80625**
Somervell County	**329-330**	**771.05625**	**801.05625**
Somervell County	**377-378**	**771.35625**	**801.35625**
Somervell County	**421-422**	**771.63125**	**801.63125**
Somervell County	**489-490**	**772.05625**	**802.05625**
Somervell County	**529-530**	**772.30625**	**802.30625**
Somervell County	**583-584**	**772.64375**	**802.64375**
Somervell County	**623-624**	**772.89375**	**802.89375**
Somervell County	**675-676**	**773.21875**	**803.21875**
Somervell County	**717-718**	**773.48125**	**803.48125**
Somervell County	**795-796**	**773.96875**	**803.96875**
Somervell County	**863-864**	**774.39375**	**804.39375**

Somervell County	**919-920**	**774.74375**	**804.74375**
Tarrant County	**49-50**	**769.30625**	**799.30625**
Tarrant County	**89-90**	**769.55625**	**799.55625**
Tarrant County	**161-162**	**770.00625**	**800.00625**
Tarrant County	**201-202**	**770.25625**	**800.25625**
Tarrant County	**253-254**	**770.58125**	**800.58125**
Tarrant County	**293-294**	**770.83125**	**800.83125**
Tarrant County	**333-334**	**771.08125**	**801.08125**
Tarrant County	**373-374**	**771.33125**	**801.33125**
Tarrant County	**437-438**	**771.73125**	**801.73125**
Tarrant County	**477-478**	**771.98125**	**801.98125**
Tarrant County	**541-542**	**772.38125**	**802.38125**
Tarrant County	**585-586**	**772.65625**	**802.65625**
Tarrant County	**625-626**	**772.90625**	**802.90625**
Tarrant County	**665-666**	**773.15625**	**803.15625**
Tarrant County	**705-706**	**773.40625**	**803.40625**
Tarrant County	**753-754**	**773.70625**	**803.70625**
Tarrant County	**793-794**	**773.95625**	**803.95625**

Tarrant County	**833-834**	**774.20625**	**804.20625**
Tarrant County	**877-878**	**774.48125**	**804.48125**
Tarrant County	**917-918**	**774.73125**	**804.73125**
Titus County	**43-44**	**769.26875**	**799.26875**
Titus County	**93-94**	**769.58125**	**799.58125**
Titus County	**165-166**	**770.03125**	**800.03125**
Titus County	**243-244**	**770.51875**	**800.51875**
Titus County	**289-290**	**770.80625**	**800.80625**
Titus County	**329-330**	**771.05625**	**801.05625**
Titus County	**373-374**	**771.33125**	**801.33125**
Titus County	**413-414**	**771.58125**	**801.58125**
Titus County	**453-454**	**771.83125**	**801.83125**
Titus County	**525-526**	**772.28125**	**802.28125**
Titus County	**577-578**	**772.60625**	**802.60625**
Titus County	**623-624**	**772.89375**	**802.89375**
Titus County	**677-678**	**773.23125**	**803.23125**
Titus County	**719-720**	**773.49375**	**803.49375**
Titus County	**913-914**	**774.70625**	**804.70625**

Upshur County	**53-54**	**769.33125**	**799.33125**
Upshur County	**179-180**	**770.11875**	**800.11875**
Upshur County	**381-382**	**771.38125**	**801.38125**
Upshur County	**437-438**	**771.73125**	**801.73125**
Upshur County	**477-478**	**771.98125**	**801.98125**
Upshur County	**553-554**	**772.45625**	**802.45625**
Upshur County	**597-598**	**772.73125**	**802.73125**
Upshur County	**661-662**	**773.13125**	**803.13125**
Upshur County	**799-800**	**773.99375**	**803.99375**
Upshur County	**871-872**	**774.44375**	**804.44375**
Van Zandt County	**165-166**	**770.03125**	**800.03125**
Van Zandt County	**213-214**	**770.33125**	**800.33125**
Van Zandt County	**291-292**	**770.81875**	**800.81875**
Van Zandt County	**333-334**	**771.08125**	**801.08125**
Van Zandt County	**377-378**	**771.35625**	**801.35625**
Van Zandt County	**457-458**	**771.85625**	**801.85625**
Van Zandt County	**515-516**	**772.21875**	**802.21875**
Van Zandt County	**557-558**	**772.48125**	**802.48125**

Van Zandt County	**613-614**	**772.83125**	**802.83125**
Van Zandt County	**709-710**	**773.43125**	**803.43125**
Van Zandt County	**781-782**	**773.88125**	**803.88125**
Van Zandt County	**829-830**	**774.18125**	**804.18125**
Van Zandt County	**911-912**	**774.69375**	**804.69375**
Wise County	**207-208**	**770.29375**	**800.29375**
Wise County	**353-354**	**771.20625**	**801.20625**
Wise County	**425-426**	**771.65625**	**801.65625**
Wise County	**465-466**	**771.90625**	**801.90625**
Wise County	**513-514**	**772.20625**	**802.20625**
Wise County	**557-558**	**772.48125**	**802.48125**
Wise County	**597-598**	**772.73125**	**802.73125**
Wise County	**637-638**	**772.98125**	**802.98125**
Wise County	**717-718**	**773.48125**	**803.48125**
Wise County	**901-902**	**774.63125**	**804.63125**
Wise County	**947-948**	**774.91875**	**804.91875**
Wood County	**133-134**	**769.83125**	**799.83125**
Wood County	**201-202**	**770.25625**	**800.25625**
Wood County	**251-252**	**770.56875**	**800.56875**
Wood County	**341-342**	**771.13125**	**801.13125**
Wood County	**393-394**	**771.45625**	**801.45625**
Wood County	**443-444**	**771.76875**	**801.76875**
Wood	**497-498**	**772.10625**	**802.10625**

County			
Wood County	**537-538**	**772.35625**	**802.35625**
Wood County	**585-586**	**772.65625**	**802.65625**
Wood County	**703-704**	**773.39375**	**803.39375**
Wood County	**743-744**	**773.64375**	**803.64375**
Wood County	**793-794**	**773.95625**	**803.95625**
Wood County	**875-876**	**774.46875**	**804.46875**

Appendix J-700 MHz Texas SIEC Plan

The State of Texas State Interoperability Plan is administered by the Texas Department of Public Safety. The plan includes numerous frequency bands beyond 700 MHz and may be found at this link

https://casmnextgen.com/pslib/index.php/webview?docid=56

Appendix K – 700 MHz Interoperability/Channel Nomenclature

Table of 700 MHz Interoperability Channels

For Specific Uses/Services
*** - Mandatory**

16 CHANNEL SETS	DESCRIPTION	LABEL
Channel 23 & 24	*General Public Safety Services (secondary trunked)*	*7TAC58*
Channel 103 & 104	*General Public Safety Services (secondary trunked)*	*7TAC62*
Channel 183 & 184	*General Public Safety Services (secondary trunked)*	*7TAC66*
Channel 263 & 264	*General Public Safety Services (secondary trunked)*	*7TAC70*
Channel 39 &40	Calling Channel *	7CAL59
Channel 119 & 120	General Public Safety Service *	7TAC63
Channel 199 & 200	General Public Safety Service	7TAC67
Channel 279 & 280	Mobile Data	7DAT71
Channel 63 & 64	Emergency Medical Service	7EMS60
Channel 143 & 144	Fire Service	7FIR64
Channel 223 & 224	Law Enforcement Service	7LAW68
Channel 303 & 304	Mobile Repeater *	7MOB68
Channel 79 & 80	Emergency Medical Service	7EMS61
Channel 159 & 160	Fire Service	7FIR65
Channel 239 & 240	Law Enforcement Service	7LAW69
Channel 319 & 320	Other Public Service *	7TAC73
Channel 657 & 658	*General Public Safety Services (secondary trunked)*	*7TAC74*
Channel 737 & 738	*General Public Safety Services (secondary trunked)*	*7TAC78*
Channel 817 & 818	*General Public Safety Services (secondary trunked)*	*7TAC82*
Channel 897 & 898	*General Public Safety Services (secondary trunked)*	*7TAC86*
Channel 681 & 682	Calling Channel *	7CAL75
Channel 761 & 762	General Public Safety Service *	7TAC79
Channel 841 & 842	General Public Safety Service	7TAC83
Channel 921 & 922	Mobile Data	7DAT87
Channel 641 & 642	Emergency Medical Service	7EMS76
Channel 721 & 742	Fire Service	7FIR80
Channel 801 & 802	Law Enforcement Service	7LAW84
Channel 881 & 882	Mobile Repeater *	7MOB88
Channel 697 & 698	Emergency Medical Service	7EMS77
Channel 777 & 778	Fire Services	7FIR81
Channel 857 & 858	Law Enforcement Service	7LAW85
Channel 937 & 938	Other Public Services*	7TAC89

Project 25 Common Air Interface
Interoperability Channel Technical Parameters

Certain common P25 parameters need to be defined to ensure digital radios operating on the 700 MHz Interoperability Channels can communicate. This is analogous to defining the common CTCSS tone used on NPSPAC analog Interoperability channels.

Network Access Code

In the Project 25 Common Air Interface definition, the Network Access Code (NAC) is analogous to the use of CTCSS and CDCSS signals in analog radio systems. It is a code transmitted in the pre-amble of the P25 signal and repeated periodically throughout the transmission. Its purpose is to provide selective access to and maintain access to a receiver. It is also used to block nuisance and other co-channel signals. There are up to 4096 of these NAC codes. For ease of migration in other frequency bands, a NAC code table was developed which shows a mapping of CTCSS and CDCSS signals into corresponding NAC codes. Document TIA/EIA TSB102.BAAC contains NAC code table and other Project 25 Common Air Interface Reserve Values.

The use of NAC code $293 is required for the 700 MHz Interoperability Channel NAC code.

Talk group ID

In the Project 25 Common Air Interface definition, the Talk group ID on conventional channels is analogous to the use of talk groups in trunking. In order to ensure that all users can communicate, all units should use a common Talk group ID.

Recommendation: Use P25 default value for Talk group ID = $0001

Manufacturer's ID

The Project 25 Common Air Interface allows the ability to define manufacturer specific functions. In order to ensure that all users can communicate, all units should not use a specific Manufacturer's ID, but should use the default value of $00.

Message ID

The Project 25 Common Air Interface allows the ability to define specific message functions. In order to ensure that all users can communicate, all units should use the default Message ID for unencrypted messages of $0000000000000000000.

Encryption Algorithm ID and Key ID

The Project 25 Common Air Interface allows the ability to define specific encryption algorithms and encryption keys. In order to ensure that all users can communicate, encryption should not be used on the Interoperability Calling Channels, all units should use the default Algorithm ID for unencrypted messages of $80 and default Key ID for unencrypted messages of $0000. These same defaults may be used for the other Interoperability channels when encryption is not used.

Use of encryption is allowed on the other Interoperability channels. Regional Planning Committees need to define appropriate Message ID, Encryption Algorithm ID, and Encryption Key ID to be used in the encrypted mode on Interoperability channels.

Appendix K – Inter-Regional Coordination Procedures and Resolution of Disputes Template

I. INTRODUCTION
   a. This is a mutually agreed upon Inter-Regional Coordination Procedures Agreement (Agreement by and between the following 700 MHz Regional Planning Committees,
   -Regions 4, 18, 34, 49, 50, 51 and 52

II. INTER-REGIONAL COORDINATION AGREEMENT
   a. The following is the specific procedure for inter-Regional coordination which has been agreed upon by Regions 40, 4, 18, 34, 49, 50, 51 and 52, which will be used by the Regions to coordinate with adjacent Regional Planning Committees.
      i. An application-filing window is opened or the Region announces that it is prepared to begin accepting applications on a first-come/first-served basis.
      ii. Applications by eligible entities are accepted.
      iii. An application-filing window (if this procedure is being used) is closed after appropriate time interval.
      iv. Intra-Regional review and coordination takes place, including a technical review resulting in assignment of channels.
      v. After intra-Regional review, a copy of those frequency-specific applications requiring adjacent Region approval, including a definition statement of proposed service area, shall then be forwarded to the adjacent Region(s) for review. This information will be sent to the adjacent Regional, chairperson(s) using the CAPRAD database.
      vi. The adjacent Region reviews the application. If the application is approved, a letter of concurrence shall be sent, via the CAPRAD database, to the initiating Regional chairperson within thirty (30) calendar days.
         1. Dispute Resolution

1) If the adjacent Region(s) cannot approve the request, the adjacent Region shall document the reasons for partial or non-concurrence, and respond within 10 (Ten)-calendar days via email. If the applying Region cannot modify the application to satisfy the objections of the adjacent Region then, a working group comprised of representatives of the two Regions shall be convened within thirty (30) calendar days to attempt to resolve the dispute. The working group shall then report its findings within thirty (30) calendar days to the Regional chairperson's email (CAPRAD database). Findings may include, but not be limited to:

   a. Unconditional concurrence;
   b. Conditional concurrence contingent upon modification of Applicant's technical parameters; or

c. Partial or total denial of proposed frequencies due to inability to meet co-channel/adjacent channel interference free protection to existing licensees within the adjacent Region.

2) If the Inter-Regional Working Group cannot resolve the dispute, then the matter shall be forwarded for evaluation to the National Regional Planning Council (NRPC). . Each Region involved in the dispute shall include a detailed explanation of its position, including engineering studies and any other technical information deemed relevant. The NPOC will, within thirty (30) calendar days, report its recommendation(s) to the Regional chairpersons via the CAPRAD database. The NPOC's decision may support either of the disputing Regions or it may develop a proposal that it deems mutually advantageous to each disputing Region.

vii. Where adjacent Region concurrence has been secured, and the channel assignments would result in no change to the Region's currently Commission approved channel assignment matrix. The initiating Region may then advise the applicant(s) that their application may be forwarded to a frequency coordinator for processing and filing with the Commission.

viii. Where adjacent Region concurrence has been secured, and the channel assignments would result in a change to the Region's currently Commission approved channel assignment matrix, then the initiating Region shall file with the Commission a *Petition to Amend* their current Regional plan's frequency matrix, reflecting the new channel assignments, with a copy of the *Petition* sent to the adjacent Regional chairperson(s).

ix. Upon Commission issuance of an *Order* adopting the amended channel assignment matrix, the initiating Regional chairperson will send a courtesy copy of the *Order* to the adjacent Regional chairperson(s) and may then advise the applicant(s) that they may forward their applications to the frequency coordinator for processing and filing with the Commission.

III. CONCLUSION

a. IN AGREEMENT HERETO, Region 04, Region 18, Region 34, Region 49, Region 50, Region 51 and Region 52 do hereunto set their signatures the day and year first above written.

Respectfully,

[All signatures to agreement]

Date: _____

Appendix M-Simplified 700 MHz Pre-Assignment Rules and Recommendations

Simplified 700 MHz Pre-assignment Rules Recommendation

Introduction

A process for doing the initial block assignments of 700 MHz channels before details of actual system deployments is required. In this initial phase, there is little actual knowledge of what specific equipment is to be deployed and where the sites will be. As a result, a high level simplified method is proposed to establish guidelines for frequency coordination. When actual systems are deployed, additional details will be known and the system designers will be required to select specific sites and supporting hardware to control interference.

Overview

Assignments will be based on a defined service area of each applicant. For Public Safety entities this will normally be a geographically defined area such as city, county or by a data file consisting of line segments creating a polygon that encloses the defined area.

For co-channel assignments, the **40 dBμ** contour will be allowed to extend beyond the defined service area by 3 to 5 miles, depending on the type of environment, urban, suburban or low density. The interfering co-channel **5 dBμ** will be allowed to touch but not overlap the 40 dBμ contour of the system being evaluated. All contours are (50-50).

For **adjacent and alternate channels, the interfering channels 60 dBμ** will be allowed to touch but not overlap the 40 dBμ contour of the system being evaluated. All contours are (50,50).

Discussion

The FCC limits the maximum field strength to 40 dB relative to 1μV/m (customarily denoted as 40 dBμ). It is assumed that this limitation will be applied similarly to the way it is applied in the 821-824/866/869 MHz band. That is, a 40 dBμ field strength can be deployed up to a defined distance from the edge of the service area, based on the size of the service area or type of applicant, i.e. city, county or statewide system. This is important as the potential for interference from CMRS infrastructure demands that public safety systems have adequate margins for reliability in the presence of interference. The value of 40 dBμ corresponds to a signal of -92.7 dBm, received by a half-wavelength dipole (λ/2) antenna. The thermal noise floor for a 6.25 kHz receiver would be in the range of -126 dBm, so there is a margin of approximately 33 dB available for "noise limited" reliability. Figure 1 shows show the various interfering sources and how they accumulate to form a composite noise floor that can be used to determine the "reliability" or probability of achieving the desired performance in the presence of various interfering sources with differing characteristics.

Allowing for a 3 dB reduction in the available margin due to CMRS OOBE noise lowers the reliability and/or the channel performance of Public Safety systems. TIA TR8 made this allowance during the meetings in Mesa, AZ, January 2001. In addition, there are various channel bandwidths with different performance criteria and unknown adjacent and alternate channel assignments need to be accounted for. The co-channel and adjacent/alternate sources are shown in the right hand side of Figure 1. There would be a single co-channel source, but potentially several adjacent or alternate channel sources involved.

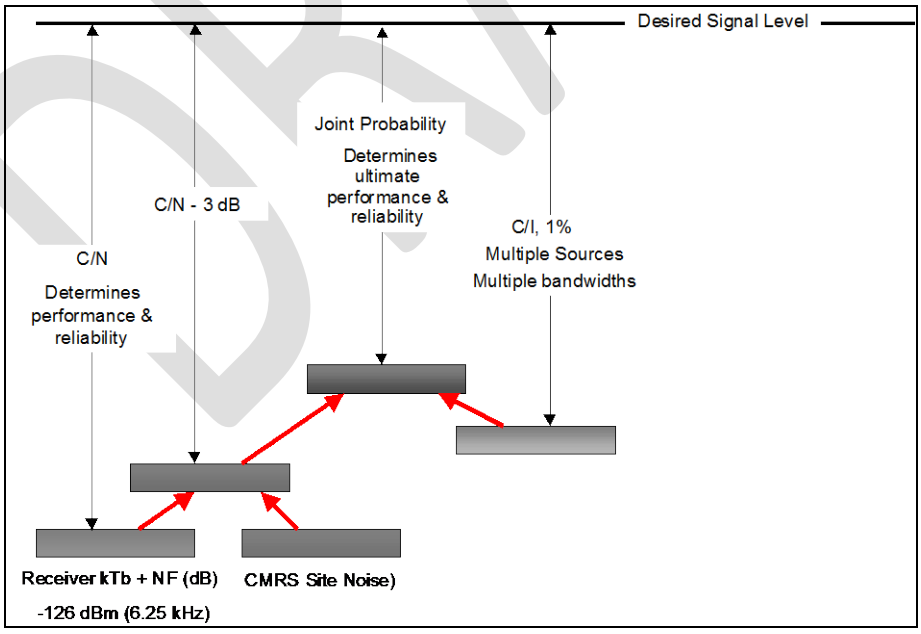


Figure 1 - Interfering Sources Create A "Noise" Level Influencing Reliability

It is recommended that co-channel assignments limit the C/I at the edge (worst case mile) be sufficient to limit that interference to <1%. A C/I ratio of 26.4 dB plus the required capture value required to achieve this goal.[1]. A 17 - 20 dB C/N is required to achieve channel performance. Table 1 shows estimated performance considering the 3 dB noise floor rise at the 40 dBμ signal level. Performance varies due to the different Cf/N requirements of the different modulations and channel bandwidths. These values are appropriate for a mobile on the street, but are considerably short to provide reliable communications to portables inside buildings.

[1] See Appendix A for an explanation of how the 1% interference value is defined and derived.

Comparison of Joint Reliability for various configurations				
Channel Bandwidth	6.25 kHz	12.5 kHz	12.5 kHz	25.0 kHz
Receiver ENBW (kHz)	6	6	9	18
Noise Figure(10 dB)	10	10	10	10
Receiver Noise Floor (dBm)	-126.22	-126.22	-124.46	-121.45
Rise in Noise Floor (dB)	3.00	3.00	3.00	3.00
New Receiver Noise Floor (dB)	-123.22	-123.22	-121.46	-118.45
40 dBu = -92.7 dBm	-92.7	-92.7	-92.7	-92.7
Receiver Capture (dB)	10.0	10.0	10.0	10.0
Noise Margin (dB)	30.52	30.52	28.76	25.75
C/N Required for DAQ = 3	17.0	17.0	18.0	20.0
C/N Margin (dB)	**13.52**	**13.52**	**10.76**	**5.75**
Standard deviation (8 dB)	8.0	8.0	8.0	8.0
Z	1.690	1.690	1.345	0.718
Noise Reliability (%)	**95.45%**	**95.45%**	**91.06%**	**76.37%**
C/I for <1% prob of capture	36.4	36.4	36.4	36.4
I (dBu)	3.7	3.7	3.7	3.7
I (dBm)	-129.0	-129.0	-129.0	-129.0
Joint Probability (C & I)	**94.2%**	**94.2%**	**90.4%**	**75.8%**
40 dBu = -92.7 dBm @ 770 MHz				

Table 1 Joint Probability For Project 25, 700 MHz Equipment Configurations.

To analyze the impact of requiring portable in building coverage, several scenarios are presented. The different scenarios involve a given separation from the desired sites. Then the impact of simulcast is included to show that the 40 dBμ must be able to fall outside the edge of the service area. From the analysis, recommendations of how far the 40 dBμ extensions should be allowed to occur are made.

Table 2 Estimates urban coverage where simulcast is required to achieve the desired portable in building coverage. Several assumptions are required to use this estimate.

- Distance from the location to each site. Equal distance is assumed.
- CMRS noise is reduced when entering buildings. This is not a guarantee as the type of deployments is unknown. It is possible that CMRS units may have transmitters inside buildings. This could be potentially a large contributor unless the CMRS OOBE is suppressed to TIA's most recent recommendation and the "site isolation" is maintained at 65 dB minimum.
- The 40 dBμ is allowed to extend beyond the edge of the service area boundary.
- Other configurations may be deployed utilizing additional sites, lower tower heights, lower ERP and shorter site separations.

Estimated Performance at 2.5 miles from each site				
Channel Bandwidth	6.25 kHz	12.5 kHz	12.5 kHz	25.0 kHz
Receiver Noise Floor (dBm)	-126.	-126.	-124.	-118.

	20	20	50	50
Signal at 2.5 miles (dBm)	-72.7	-72.7	-72.7	-72.7
Margin (dB)	53.50	53.50	51.80	45.80
C/N Required for DAQ = 3	17.0	17.0	18.0	20.0
Building Loss (dB)	20	20	20	20
Antenna Loss (dBd)	8	8	8	8
Reliability Margin	8.50	8.50	5.80	-2.20
Z	1.0625	1.0625	0.725	-0.275
Single Site Noise Reliability (%)	85.60%	85.60%	76.58%	39.17%
Simulcast with 2 sites	97.93%	97.93%	94.51%	62.99%
Simulcast with 3 sites	99.70%	99.70%	98.71%	77.49%
Simulcast with 4 sites	99.96%	99.96%	99.70%	86.30%

Table 2, Estimated Performance From Site(s) 2.5 Miles From Typical Urban Buildings.

Table 2 shows for the example case of 2.5 miles that simulcast is required to achieve public safety levels of reliability. The difference in performance margin requirements would require more sites and closer site to site separation for wider bandwidth channels.

Figures 2 and 3 show how the configurations would potentially be deployed for a typical site with 240 Watts ERP. This is based on:

- 75 Watt transmitter, 18.75 dBW
- 200 foot tower
- 10 dBd 180 degree sector antenna +10.0 dBd
- 5 dB of cable/filter loss. - 5.0 dB

  23.75 dBW ≈ 240 Watts (ERPd)

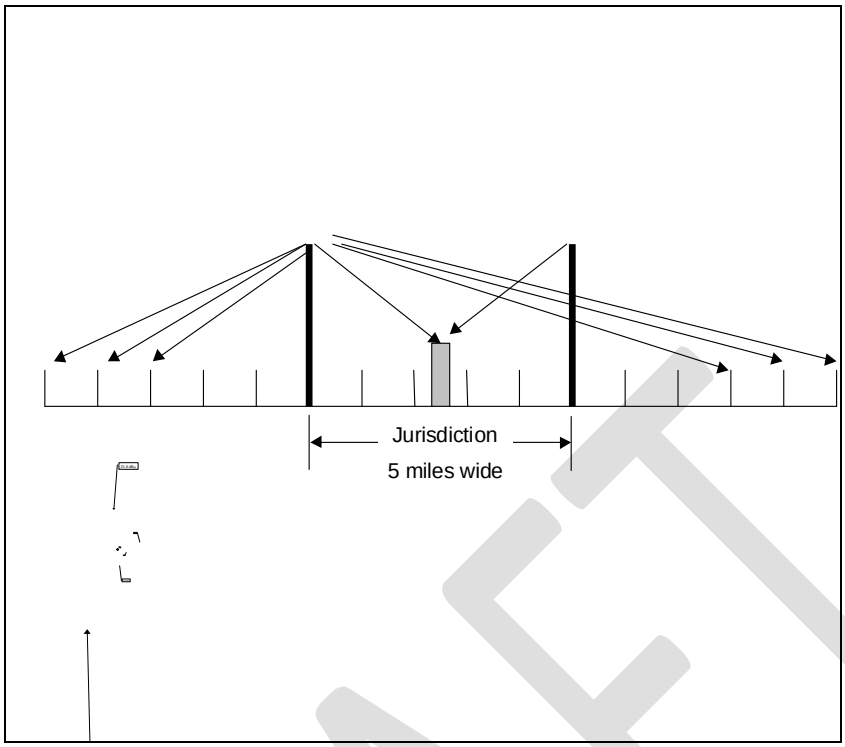


Figure 2 - Field Strength From Left Most Site.

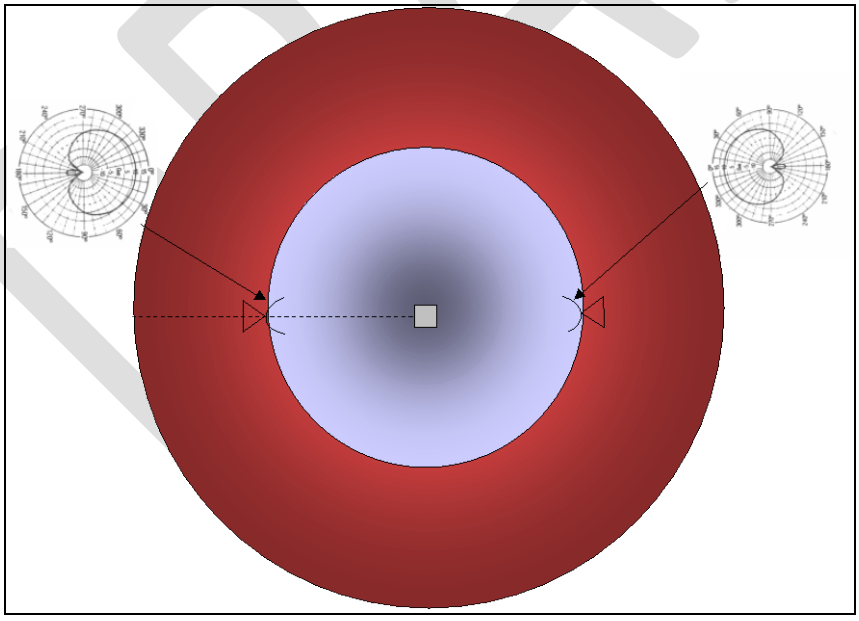


Figure 3 - Antenna Configuration Required To Limit Field Strength Off "Backside"

Figure 2 is for an urbanized area with a jurisdiction of a 5 mile circle. To provide the necessary coverage to portables in buildings at the center of the

jurisdiction requires that the sites be placed along the edge of the service area utilizing direction antennas opriented toward the center of the service area (Figure 3). In this case, at 5 miles beyond the edge of the service area, the sites would produce a composite field strength of approximately 40 dBμ. Since one site is over 10 dB dominant, the contribution from the other site is not considered. The control of the field strength behind the site relies on a 20 dB antenna with a Front to Back Ratio (F/B) specification as shown in Figure 3. This performance may be optomistic due to back scatter off local obstructions in urbanized areas. However, use of antennas on the sides of buildings can assist in achieving better F/B ratios and the initial planning is not precise enough to prohibit using the full 20 dB.

The use of a single site at the center of the service area is not normally practical. To provide the necessary signal strength at the edge of the service area would produce a field strength 5 miles beyond in excess of 44 dBμ. However, if the high loss buildings were concentrated at the service area's center, then potentially a single site could be deployed, assuming that the building loss sufficiently decreases near the edge of the service area allowing a reduction in ERP to achieve the desired reliability.

Downtilting of antennas to control the 40 dBμ is not practical as the difference in angular discrimination from a 200 foot tall tower at 2.5 miles and 10 miles is approximately 0.6 degrees.

Tables 3 and 4 represent the same configuration, but for less dense buildings. In these cases, the distance to extend the 40 dBm can be determined from Table Z. Recommendations are made in Table 6.

Estimated Performance at 3.5 miles from each site				
Channel Bandwidth	6.25 kHz	12.5 kHz	12.5 kHz	25.0 kHz
Receiver Noise Floor (dBm)	-126.20	-126.20	-124.50	-118.50
Signal at 2.5 miles (dBm)	-77.7	-77.7	-77.7	-77.7
Margin (dB)	48.50	48.50	46.80	40.80
C/N Required for DAQ = 3	17.0	17.0	18.0	20.0
Building Loss (dB)	15	15	15	15
Antenna Loss (dBd)	8	8	8	8
Reliability Margin	8.50	8.50	5.80	-2.20
Z	1.0625	1.0625	0.725	-0.275
Single Site Noise Reliability (%)	**85.60%**	**85.60%**	**76.58%**	**39.17%**
Simulcast with 2 sites	97.93%	97.93%	94.51%	62.99%
Simulcast with 3 sites	99.70%	99.70%	98.71%	77.49%
Simulcast with 4 sites	99.96%	99.96%	99.70%	86.30%

Table 3 - Lower Loss Buildings, 3.5 Mile From Site(s)

Estimated Performance at 5.0 miles from each site				
Channel Bandwidth	6.25 kHz	12.5 kHz	12.5 kHz	25.0 kHz
Receiver Noise Floor (dBm)	-126.20	-126.20	-124.50	-118.50
Signal at 2.5 miles (dBm)	-82.7	-82.7	-82.7	-82.7
Margin (dB)	43.50	43.50	41.80	35.80
C/N Required for DAQ = 3	17.0	17.0	18.0	20.0
Building Loss (dB)	10	10	10	10
Antenna Loss (dBd)	8	8	8	8
Reliability Margin	8.50	8.50	5.80	-2.20
Z	1.0625	1.0625	0.725	-0.275
Single Site Noise Reliability (%)	**85.60%**	**85.60%**	**76.58%**	**39.17%**
Simulcast with 2 sites	97.93%	97.93%	94.51%	62.99%
Simulcast with 3 sites	99.70%	99.70%	98.71%	77.49%
Simulcast with 4 sites	99.96%	99.96%	99.70%	86.30%

Table 4 - Low Loss Buildings, 5.0 Miles From Site(s)

Note that the receive signals were adjusted to offset the lowered building penetration loss. This produces the same numerical reliability results, but allows increasing the site to building separation and this in turn lowers the magnitude of the "overshoot" across the service area.

Table 5 shows the field strength for a direct path and for a path reduced by a 20 dB F/B antenna. This allows the analysis to be simplified for the specific example being discussed.

Overshoot Distance (mi)	Field Strength (dBμ)	20 dB F/B (dBμ)
1	73.3	53.3
2	63.3	43.3
2.5	60.1	40.1
3	57.5	37.5
4	53.3	33.5
5	50.1	30.1
…	…	
10	40.1	
11	38.4	
12	37.5	
13	36.0	
14	34.5	
15	33.0	

Table 5 - Field Strength Vs. Distance From Site

This allows the overshoot to be 11 miles so the extension of the 40 dBm can be 4 miles for surbanized territory . For the more rural territory, the limit is the signal strength off the back of the antenna. So the result is that for various types of urbanized areas the offset of the 40 dBm should be:

Type of Area	Extension (mi.)
Urban (20 dB Buildings)	5
Suburban (15 dB Buildings)	4
Rural (10 dB Buildings)	3

Table 6 - Recommended Extension Distance Of 40 Dbμ Field Strength

The 40 dBμ can then be constructed based on the defined service area without having to perform an actual prediction. Since the 40 dBμ is beyond the edge of the service area, some relaxation in the level of I is reasonable. Therefore a 35 dB ration is recommended and is consistent with what is currently being licensed in the 821-824/866-869 MHz Public Safety band.

Co-Channel Recommendation

- Allow the constructed 40 dBμ (50,50) to extend beyond the edge of the defined service area by the distance indicated in Table 6.
- Allow the Interfering 5 dBμ (50,50) to intercept but not overlap the 40 dBμ contour.

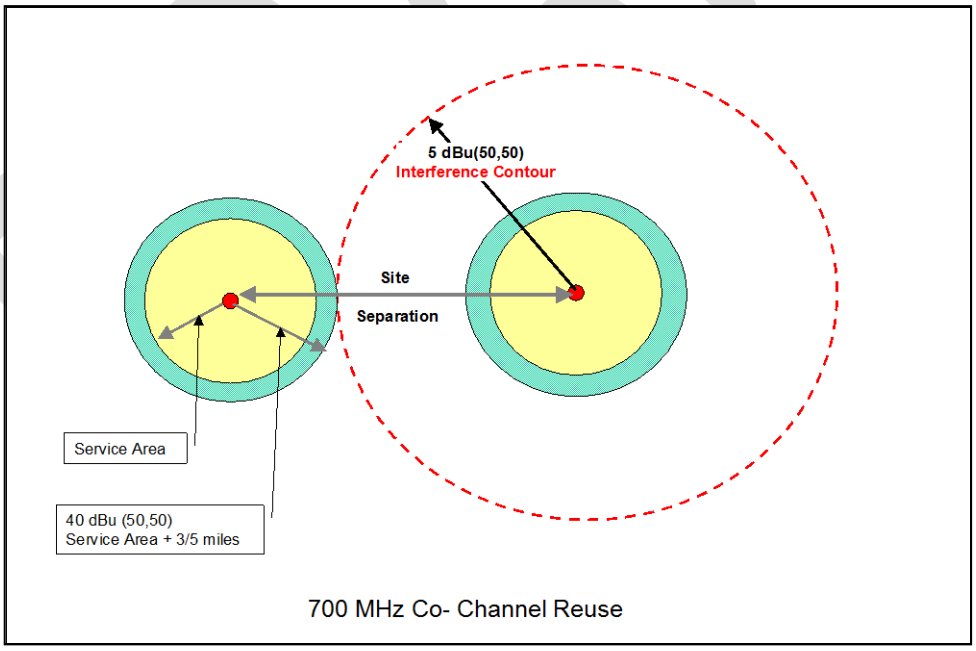


Figure 4 - Co-Channel Reuse Criterion

Adjacent and alternate Channel Considerations

Adjacent and alternate channels are treated as being noise sources that alter the composite noise floor of a victim receiver. Using the 47 CFR § 90.543 values of ACCP can facilitate the coordination of adjacent and alternate channels. The C/I requirements for <1% interference can be reduced by the value of ACCPR. For example to achieve an X dB C/I for the adjacent channel that is -40 dBc a C/I of [X-40] dB is required. Where the alternate channel ACP value is -60 dBc, then the C/I = [X-60] dB is the goal for assignment(s). There is a compounding of interference energy, as there are numerous sources, i.e. co channel, adjacent channels and alternate channels plus the noise from CMRS OOBE.

There is insufficient information in 47 CFR § 90.543 to include the actual receiver performance. Receivers typically have "skirts" that allow energy outside the bandwidth of interest to be received. In addition, the FCC defines ACCP differently than does the TIA. The term used by the FCC is the same as the TIA definition of ACP. The subtle difference is that ACCP defines the energy intercepted by a defined receiver filter. ACP defines the energy in a measured bandwidth that is typically wider than the receiver. As a result, the FCC values are optimistic at very close spacing and somewhat pessimistic at wider spacings, as the typical receiver filter is less than the channel bandwidth.

In addition, as a channel bandwidth is increased, the total noise is allowed to rise as it is initially defined in a 6.25 kHz channel bandwidth. However, the effect is diminished at very close spacings as the noise is rapidly falling off. At greater spacings, the noise is essentially flat and the receiver's filter limits the noise to the specified 3 dB rise in the thermal noise floor.

Digital receivers tend to be less tolerant to interference than analog. Therefore a 3 dB reduction in the C/(I+N) can reduce a DAQ = 3 to a DAQ = 2 which is threshold to complete receiver muting. Therefore at least 17 dB plus the margin for keeping the interference below 1% probability requires a total margin of 43.4 dB. However, this margin would be at the edge of the service area and the 40 dBμ is allowed to extend past the edge of the service area.

Frequency drift is controlled by the FCC requirement for 0.4-ppm stability when locked. This equates to approximately a 1 dB standard deviation, which is negligible when associated with the recommended initial lognormal standard deviation of 8 dB and can be ignored.

Project 25 requires that a transceiver receiver have an ACIPR of 60 dB. This implies that an ACCPR ≥ 65 dB will exist for a "companion receiver". A companion receiver is one that is designed for the specific modulation. At this time the highest likelihood is that receivers will be deploying the following receiver bandwidths at the following channel bandwidths.

Estimated Receiver Parameters	
Channel	Receiver

Bandwidth	Bandwidth
6.25 kHz	5.5 kHz
12.5 kHz	5.5 or 9 kHz
25 kHz	18.0 kHz

Table 7 - Estimated Receiver Parameters

Based on 47 CFR ¶ 90.543 and the P25 requirement for an ACCPR ≥ 65 dB into a 6.0 kHz channel bandwidth and leaving room for a migration from Phase 1 to Phase 2, allows for making the simplifying assumption that 65 dB ACCPR is available for both adjacent 25 kHz block.

Base initial (presorts) on 25 kHz channels. This provides the maximum flexibility by using 65 dB ACCPR for all but one possible combination of 6.25 kHz channels within the 25 kHz allotment.

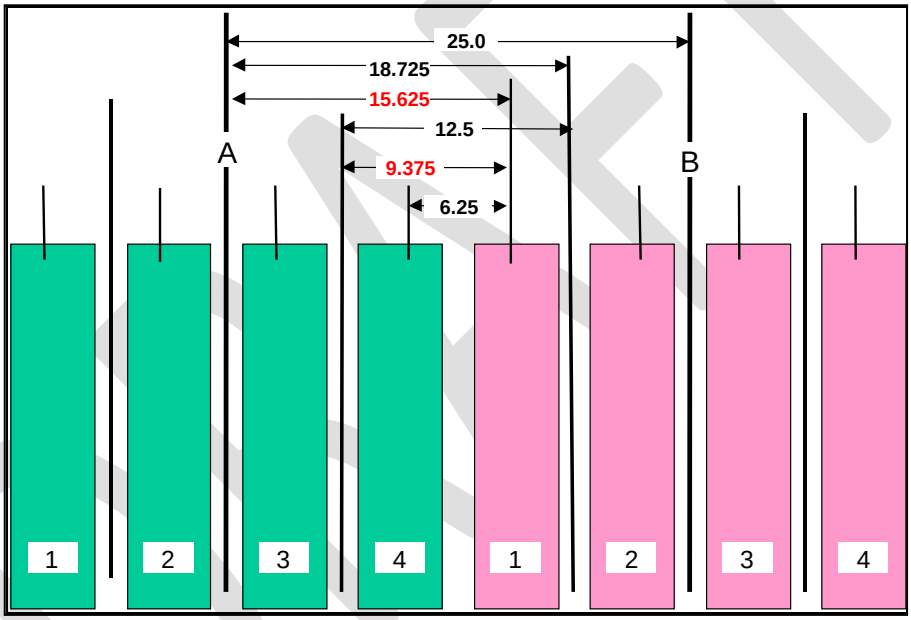


Figure 5, Potential Frequency Separations

Case	ACCPR
25 kHz	65 dB
18.725 kHz	65 dB
15.625 kHz	>40 dB
12.5 kHz	65 dB
9.375 kHz	>40 dB
6.25 kHz	65 dB

Table 8 - ACCPR Values For Potential Frequency Separations

All cases meet or exceed the FCC requirement. The most troublesome cases occur where the wider bandwidths are working against a Phase 2 narrowband 6.25 kHz channel. If system designers keep this consideration in mind and move the edge 6.25 kHz channels inward on their own systems, then a constant value of 65 dB ACCPR can be applied across all 25 kHz channels regardless of what is eventually deployed.

For other blocks, it must be assumed that transmitter filtering in addition to transmitter performance improvements with greater frequency separation will further reduce the ACCPR.

Therefore it is recommended that a consistent value of 65 dB ACCPR be used for coordinating adjacent 25 kHz channel blocks. Rounding to be conservative due to the possibility of multiple sources allows the "I" contour to be approximately 20 dB above the 40 dBµ contour, 60 dBµ.

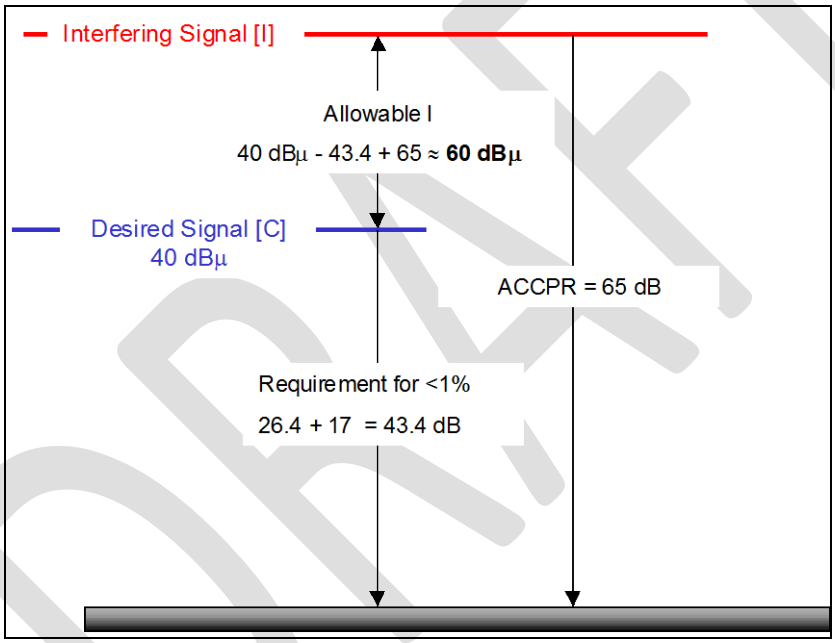


Figure 6 - Adjusted Adjacent 25 kHz Channel Interfering Contour Value

An adjacent Interfering (25 kHz) channel shall be allowed to have its 60 dBµ (50,50) contour touch but not overlap the 40 dBµ (50,50) contour of a system being evaluated. Evaluations should be made in both directions.

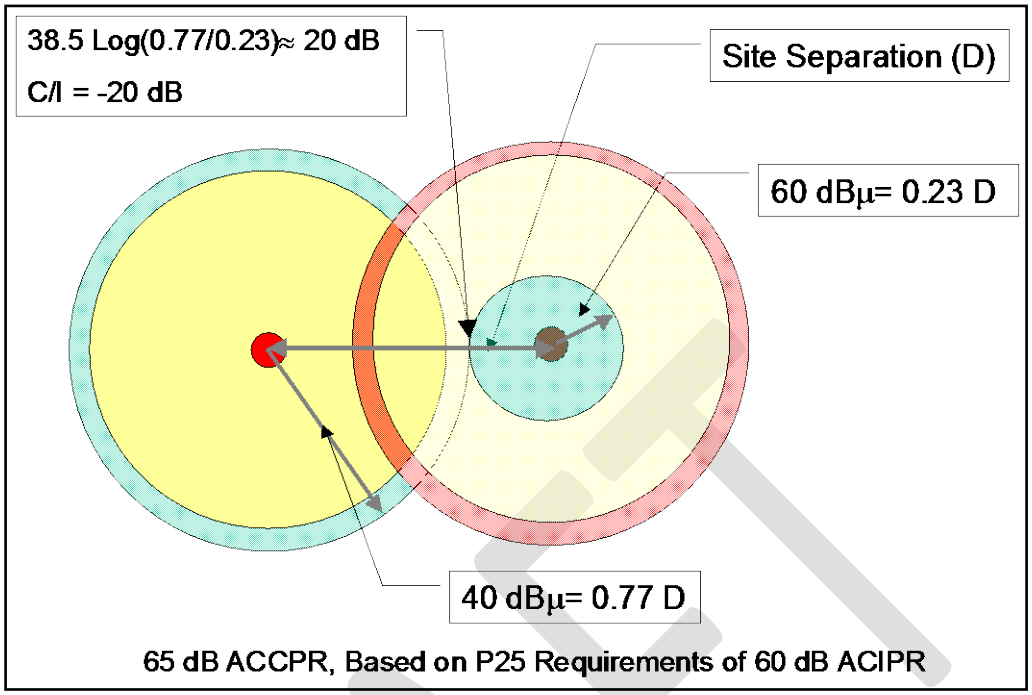


Figure 7 - Example Of Adjacent/Alternate Overlap Criterion

This simple method is only adequate for presorting large blocks to potential entities. A more detailed analysis should be executed in the actual design phase to take all the issues into consideration. Additional factors that should be considered include:

- Degree of Service Area Overlap
- Different size of Service Areas
- Different ERPs and HAATs
- Actual Terrain and Land Usage
- Differing User Reliability Requirements
- Migration from Project 25 Phase 1 to Phase 2
- Actual ACCP
- Balanced Systems
- Mobiles vs. Portables
- Use of voting
- Use of simulcast
- Radio specifications
- Simplex Operation
- Future unidentified requirements.

Special attention needs to be paid to the use of simplex operation. In this case, an interferer can be on an offset adjacent channel and in extremely close proximity to the victim receiver. This is especially critical in public safety where simplex operations are frequently used at a fire scene or during police operation. This type operation is also quite common in the lower

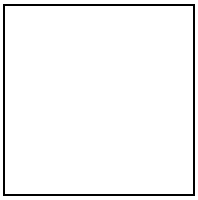
frequency bands. In those cases, evaluation of base to base as well as mobile to mobile interference should be considered and evaluated.

Carrier to Interference Requirements

There are two different ways that Interference is considered.

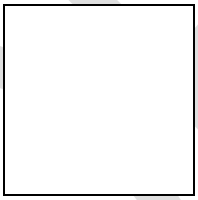
- Co Channel
- Adjacent and Alternate Channels

Both involve using a C/I ratio. The C/I ratio requires a probability be assigned. For example, a 10% Interference is specified, the C/I implies 90% probability of successfully achieving the desired ratio. At 1% interference, means that there is a 99% probability of achieving the desired C/I.



(1)

This can also be written in a form using the standard deviate unit (Z). In this case the Z for the desired probability of achieving the C/I is entered. For example, for a 90% probability of achieving the necessary C/I, $Z = 1.28$.



(2)

The most common requirements for several typical lognormal standard deviations (σ) are included in the following table based on Equation (2).

Location Standard Deviation (σ) dB	5.6	6.5	8	10
Probability %				
10%	10.14 dB	11.77 dB	14.48 dB	18.10 dB
5%	13.07	15.17	18.67	23.33

	dB	dB	dB	dB
4%	13.86 dB	16.09 dB	19.81 dB	24.76 dB
3%	14.90 dB	17.29 dB	21.28 dB	26.20 dB
2%	16.27 dB	18.88 dB	23.24 dB	29.04 dB
1%	18.45 dB	21.42 dB	26.36 dB	32.95 dB

Table A1 - Probability Of Not Achieving C/I For Various Location Lognormal Standard Deviations

These various relationships are shown in Figure A1, a continuous plot of equation(s) 1 and 2.

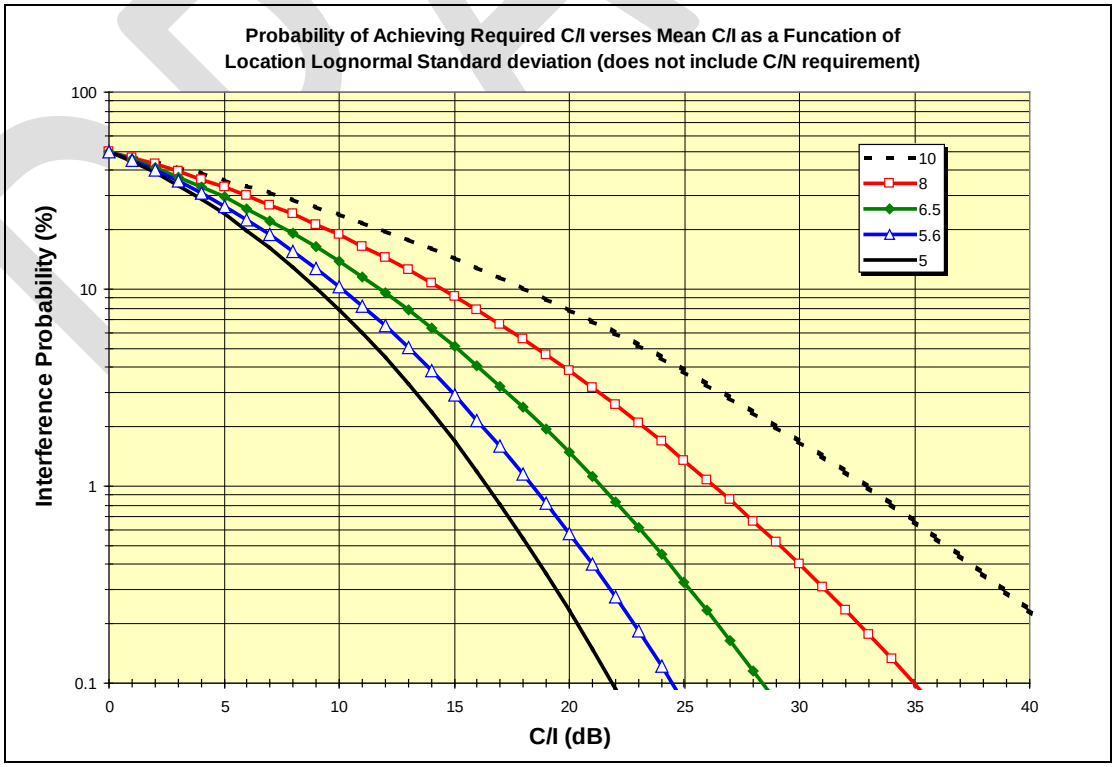


Figure A1, Probability Of Achieving Required C/I As A Function Of Location Standard Deviation

For co-channel the margin needs to include the "capture" requirement. When this is done, then a 1% probability of co channel interference can be rephrased to mean, there is a 99% probability that the "capture ratio" will be achieved. The capture ratio varies with the type of modulation. Older analog equipment has a capture ratio of approximately 7 dB. Project 25 FDMA is specified at 9 dB. Figure A1 shows the C/I requirement without including the capture requirement.

The 8 dB value for lognormal location standard deviation is reasonable when little information is available. Later when a detailed design is required, additional details and high-resolution terrain and land usage databases will allow a lower value to be used. The TIA recommended value is 5.6 dB. This provides the additional flexibility necessary to complete the design

To determine the desired probability that both the C/N and C/I will be achieved requires that a joint probability be determined. Figure A2 shows the effects of a family of various levels of C/N reliability and the joint probability (Y-axis) in the presence of various probabilities of Interference. Note that at 99% reliability with 1% interference (X-axis) that the reduction is nearly the difference. This is because the very high noise reliability is degraded by the interference, as there is little probability that the noise criterion will not be satisfied. At 90%, the 1% interference has a greater likelihood that it will occur simultaneously when the noise criterion not being met, resulting is a less degradation of the 90%

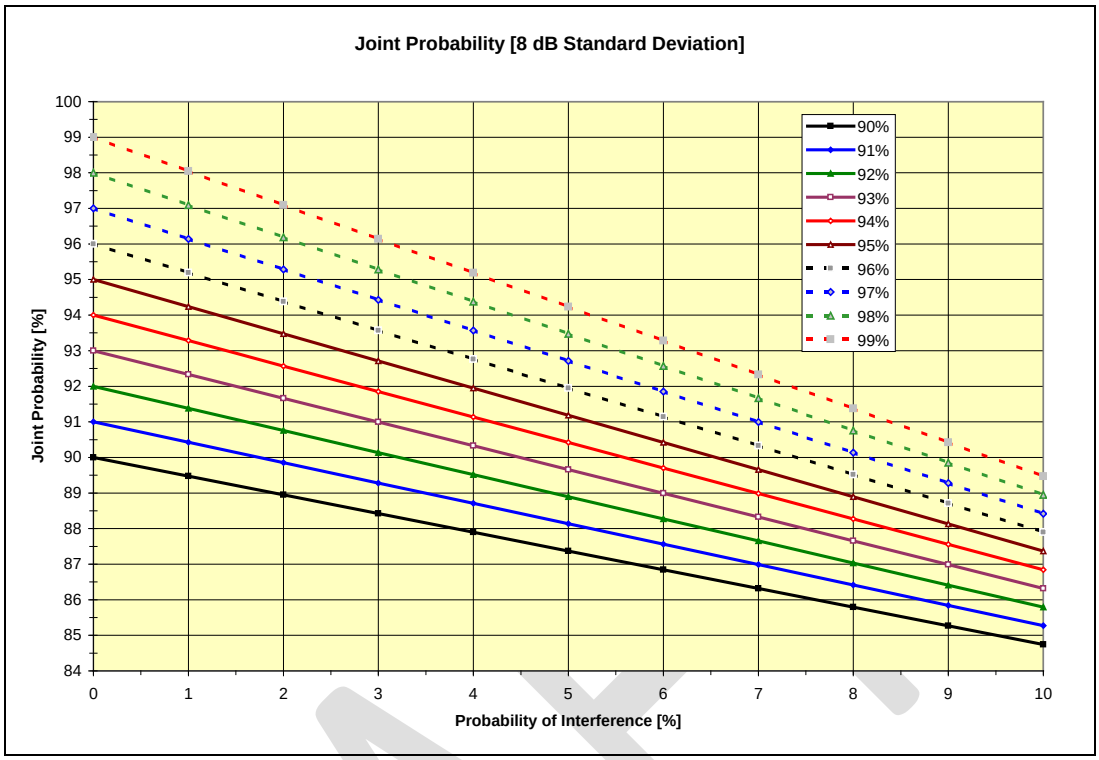


Figure A2 - Effect Of Joint Probability On The Composite Probability

For adjacent and alternate channels, the channel performance requirement must be added to the C/I ratio. When this is applied, then a 1% probability of adjacent/alternate channel interference can be rephrased to mean, there is a 99% probability that the "channel performance ratio" will be achieved.