PR 92-190

RECEIVED
AUG 20 1992
FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

PUBLIC SAFETY RADIO

COMMUNICATIONS PLAN

FOR

* REGION 49 *

THE STATE OF TEXAS

A PLAN FOR THE ALLOCATION OF PUBLIC SAFETY COMMUNICATIONS
FREQUENCY SPECTRUM WITHIN THE 800 MEGAHERTZ FREQUENCY BAND

Ms. Donna Searcy
Secretary
Federal Communication Commission
Washington, D.C 20554

Ms. Searcy:

This plan is the Region 49, State of Texas, submission to the Federal Communications Commission. It is the sincere wish by all those involved in Public Safety and Public Services communications in this state that this plan is the beginning of the end of our poor quality communications.

Many hours and dollars have gone into the preparation of this plan. The financial burden has been borne, for the most part, by the Texas Chapter of the Associated Public Safety Communications Officers. Much of the other support, such as copies and assembly was provided by the staff of the Brazos County Emergency Communications District. Meeting space was always very adequately supplied by the Texas Department of Public Safety in Austin, Texas. A special thanks is also extended to the Texas Department of Highways and Public Transportation for their valuable input into the plan.

As chairman, I would like to extend my deep gratitude to those on the committee that listened, talked, gathered and supported the construction of this plan. I would like to thank CET for their patience and labors in producing the frequency allocations. A special thanks goes to Mike Lucy, Chairman of Region 23, from the great State of Mississippi, for his sharing of Region 23's plan and Joe Blair for his insight and input from Region 40.

As I view the completed plan I feel that it is a good foundation document from which to build a solid Public Safety/Public Service Communications network for Region 49. The planning guidance has been adhered to as closely as possible.

It is with pride that I present this plan and with the sincerest wish that it will aid and assist our successors.

Sincerely,

Jeff Haislet

Jeff Haislet, Chairman
Region 49, Texas
800 Planning Committee
April 20, 1992
(409)779-0911 Phone
(409)821-3407 Fax

REGION 49 PLAN CHECK SHEET

1) Chairperson - name, address, phone number and signature. See Page 1.
2) Committee members name, organizational affiliation, address, phone numbers. See Page 57.
3) Summary of major elements of the plan. See Page 4.
4) General description of how spectrum is allotted among users. See Page 13.
5) Explanation of how the requirements of all eligibles are considered and met. See Page 13.
6) Explanation of how eligibles are prioritized in areas where not all eligibles may receive licenses. See Page 55.
7) Explanation of how the plan has been coordinated with adjacent regions. See Page 27.
8) Description of how the plan puts spectrum to best possible use by:

    1. requiring system design with minimum coverage areas. See Page 16.
    2. assigning frequencies so that maximum frequency reuse and offset channel use may be made. See Page 54.
    3. making use of trunking. See Page 13.
    4. requiring small entities with minimal requirements to join together on a single system where possible. See Page 14

9) Explanation of how interoperability channels are managed. See Page 8.
10) "Slow Growth" language. See Page 34.
11) Does the plan refer to GIVE BACK frequencies? If yes, see page number 26.
12) Use the APCO sorting program. See Page 38.
13) Appeal Process. See Page 56.
14) Does the plan provide for regional mutual aid channels, in addition to the five (5) common channels. If so, are there guard bands for these channels? See Page 28.
15) Describe the formation of the committee;

    1. Advertising- copy should be attached to legal notice, letters to the industry, etc. See Pages 7,37 and Appendix A.
    2. Who could vote and what procedure was used after first meeting? See Pages 7 & 8.
    3. How was the final plan adopted. Was it by members attending a meeting or mail ballot? See Page 6.

TABLE OF CONTENTS

SCOPE

Introduction..... 4
Purpose..... 5

AUTHORITY

Regional Planning Committee..... 6
Planning Committee Formation..... 7
National Interrelationships..... 8
Federal Interoperability..... 8
Regional Review Committee..... 9

SPECTRUM UTILIZATION

Region Defined..... 10
Map Of Region..... 11
Region Profile (Demographic Information)..... 12
Region Population..... 12
Geographical Description..... 13
Usage Guidelines..... 13
Technical Design Requirements For Licensing..... 15
Definition of Coverage Area..... 15
System Coverage Limitations..... 16
Determination of Coverage..... 16
Annexations & Other Expansions..... 17
Coverage Area Description..... 18
Control Stations..... 19
Control Stations Used As System Backup..... 19
Interference..... 20
Procedure For Determining Service Area Contour.... 20
Carey Propagation Curve, Look-up Table..... 22
Co-Channel Interference Procedure..... 23
System Engineering Exhibit..... 25
Reassignment of Frequencies..... 26
Give-back Frequencies..... 26
Unassigned Spectrum..... 26
Adjacent Region Considerations..... 27

COMMUNICATIONS REQUIREMENTS

Common Channel Implementation..... 28
Areas of Operation..... 29
Operation on the Common Channels..... 29
Operation Procedures..... 30
Calling Channel (CALL)..... 30
Tactical Channels (TAC-1 Thru TAC-4)..... 30
Network Operating Method..... 31
Requirements For Trunking..... 31
Channel Loading Requirements..... 33
Loading Tables..... 34
"Slow Growth" Requirement..... 34
Traffic Loading Study..... 35
Use of Long Range Communications..... 35
Expansion of Existing Systems..... 36
Use of Automatic Telephone Interconnect..... 36
Aircraft Operation..... 36
Digital Address and Encryption..... 36

IMPLEMENTATION AND PROCEDURES

Notification..... 37
Frequency Allocation Process..... 38
Frequency Allocation Listings..... 39
Frequencies Set Aside For State of Texas..... 50
Channels To Be Blocked For Statewide Frequencies..... 50
Excluded Channels..... 51
Assignment Statistics..... 54
Expansion of Initial Allocation..... 55
Prioritization of Applicants..... 55
State and Statewide Systems..... 55
Appeal Process..... 56

THE REGIONAL PLANNING COMMITTEE..... 57

Regional Planning Subcommittee..... 60

APPENDIX A.....PUBLIC NOTICES..... A-1

SCOPE

INTRODUCTION

In December of 1983, the United States Congress directed the Federal Communications Commission (FCC) to establish a plan to ensure that the communications needs of state and local public safety authorities would be met. By their regular means of initiation, the FCC began the process of developing such a plan. Through their efforts, and the efforts of the National Public Safety Planning Advisory Committee (NPSPAC) the plan was begun.

The National Public Safety Planning Advisory Committee provided an opportunity for the public safety community and other interested members of the public to participate in an overall spectrum management approach by recommending policy guidelines, technical standards, and procedures to satisfy public safety needs for the foreseeable future. After consideration of NPSPAC's Final Report and comments filed in Docket No. 87-112, a Report and Order was released by the FCC in December 1987, which established a structure for the National Plan that consists of guidelines for the development of regional plans.

The National Plan provides guidelines for the development of regional plans. The particulars of this plan are found in FCC 87-359, which contains the required steps and contents for regional plan development. It is on this document that this plan is developed.

PURPOSE

Public safety communications has, for many years, been inadequate throughout the United States. This is as true for Texas as it is for any other state. Many, if not all, public safety radio users are constantly bombarded with outside interference, noise, and over-crowding. It is with these problems in mind that this plan was developed.

This regional plan was developed with the objective of assuring all levels of public safety/public service agencies that radio communications in the near and distant future will not suffer from the problems of the past. The allocation of frequencies was done in as equitable a way as was possible. The goal was to supply a pool of frequencies for each county and a pool for state agency use with adequate reserve allocations for future needs in all areas, and a method to appeal initial allocations based on need.

The National Plan, as developed by NPSPAC, was followed very closely in all considerations for frequency allocation, re-use, turn back, regional interoperability, spectrum requirements and adjacent region operations. This plan should provide the flexibility to accommodate the growth and changes which are bound to occur in public safety and public service communications operations long into the future.

AUTHORITY

REGIONAL PLANNING COMMITTEE

The development of the Public Safety Radio Communications Plan for Region 49, has followed the requirements of the FCC's Report and Order as issued in the matter of General Docket 87-112.

In accordance with the FCC's Report and Order 87-112, the Associated Public Safety Communications Officers Inc. (APCO) recommended to the Commission the appointment of a "Convenor" for Texas Region 49. The Convenor served as the coordinator for the assembly and formation of the planning committee.

Participants in the formation of the Regional Planning Committee represent interested parties from both the Public Safety and Special Emergency Radio Services. A total of 25 individuals have participated in the development process. The list herein contains the names, organizational affiliations, and mailing addresses of all participants in the Regional Planning Committee.

The committee was selected by attendance at the planning meetings. Each member of the Committee representing an eligible licensee under the Public Safety Radio Services and the Special Emergency Radio Services was entitled to one vote in all Committee matters. Except as may be provided elsewhere in the Plan, the majority of those present at a scheduled meeting constituted a majority for all business. Only the final approval of the plan prior to submission to the FCC required a vote from more than would be in attendance at a regular meeting. In this case the vote was conducted by mail ballot sent to all those who had

participated in the planning process. In this way, the finished plan was reviewed and accepted by the widest, within reason, group of public safety/public service users.

PLANNING COMMITTEE FORMATION

The process of forming the Planning Committee was conducted in the following steps:

1. Presentations concerning the requirements and goals for a regional planning committee were presented and discussed at several state organization annual meetings. At each presentation there was an opportunity for persons to place themselves and/or their agency on the mailing list for future communications.

2. Letters of announcement were mailed to each major state agency radio user, those placed on the mailing list, Regional Council of Governments, as well as to state organizations composed of local government level public safety/public service users and those federal agencies with operations in the region.

3. A bulletin announcing the first organizational meeting was transmitted, over the TCIC/NCIC computer network. This computer system allows the transmission of information simultaneously to virtually every law enforcement agency at all levels of government statewide. There are drops on this system in every county and most cities within the state.

4. A public notice was placed in the newspapers which cover nearly 99% of the population in the region. This first meeting was held at the Texas Department of Public Safety Headquarters, Austin, Texas, which is a public facility.

5. The chairman was selected at the first public meeting in an effort to move forward with the project.

6. Following the organizational meeting, meetings were held at the Texas Department of Public Safety Headquarters in Austin as needed. The planning sub-committee met on several occasions and conducted business by telephone in between the regular full committee meetings.

7. Committee membership was left open, to allow the participation of any person or agency which may not have been notified or who may have decided later to join the committee.

8. Vendor participation was encouraged in the committee work, but vendors were not allowed a vote.

NATIONAL INTERRELATIONSHIPS

The Regional Plan is in conformity with the National Plan. If there is a conflict between the two plans, the National Plan will govern. It is expected that Regional Plans for other areas of the country may differ from this plan due to the broad differences in circumstance, geography, and population density. By officially sanctioning this plan the Federal Communications Commission agrees to its conformity to the National Plan. Nothing in the Plan is to interfere with the proper functions and duties of the organizations appointed by the FCC for frequency coordination in the Private Land Mobile Service but rather it provides procedures that are the consensus of the Public Safety Radio Service and Special Emergency Radio Service user agencies in this Region. If there is a perceived conflict then the judgment of the FCC will prevail.

FEDERAL INTEROPERABILITY

Interoperability between the Federal, State and Local Governments during both daily and disaster operations will primarily take place on the five common channels identified in the National Plan. Additionally, through the use of S-160 or equivalent agreements, a licensee may permit Federal use of a non-Federal communications system. Such use, on other than the five identified common channels, is to be in full compliance with FCC requirements for government use of non-government frequencies (Title 47 CFR, sec 2.103). It is permissible for a non-Federal

government licensee to increase channel requirements to account for up to a 2 percent increase in mobile units, provided that written documentation from Federal agencies supports at least that number of increased units.

REGIONAL REVIEW COMMITTEE

Upon approval of this Plan by the Federal Communications Commission, a Region Review Committee will be established for the review of applications which do not fall within the stated guidelines provided for in this plan, or for the settlement of disputes concerning this plan and/or its application.

This committee shall consist of a City of Austin representative, a Travis County representative, a Regional Council of Governments representative, the Chairman of the Regional Planning Committee, and a member jointly appointed by the Texas Department of Public Safety and the Texas State Highway Department. Its composition will be ensured by the Texas Chapter of APCO. Membership on this committee will be solicited on an annual basis. Since this committee will probably not have regular business, it will be up to the Regional Review Committee Chairman to notify the committee of problems or conflicts. Each member of the committee shall be furnished a copy of this plan upon their appointment or election to the committee.

Plan updates shall be accomplished by this committee. All changes or updates to the plan shall be first agreed upon by this committee and then submitted to the FCC for their review and consideration. When approved all changes shall be added to the plan with the appropriate documentation of approval.

This committee shall meet at least once annually to review the implementation of the plan. This review shall consist of examination of any and all license activity or present applications of the 800 MHz Public Safety/Public Service radio spectrum.

SPECTRUM UTILIZATION

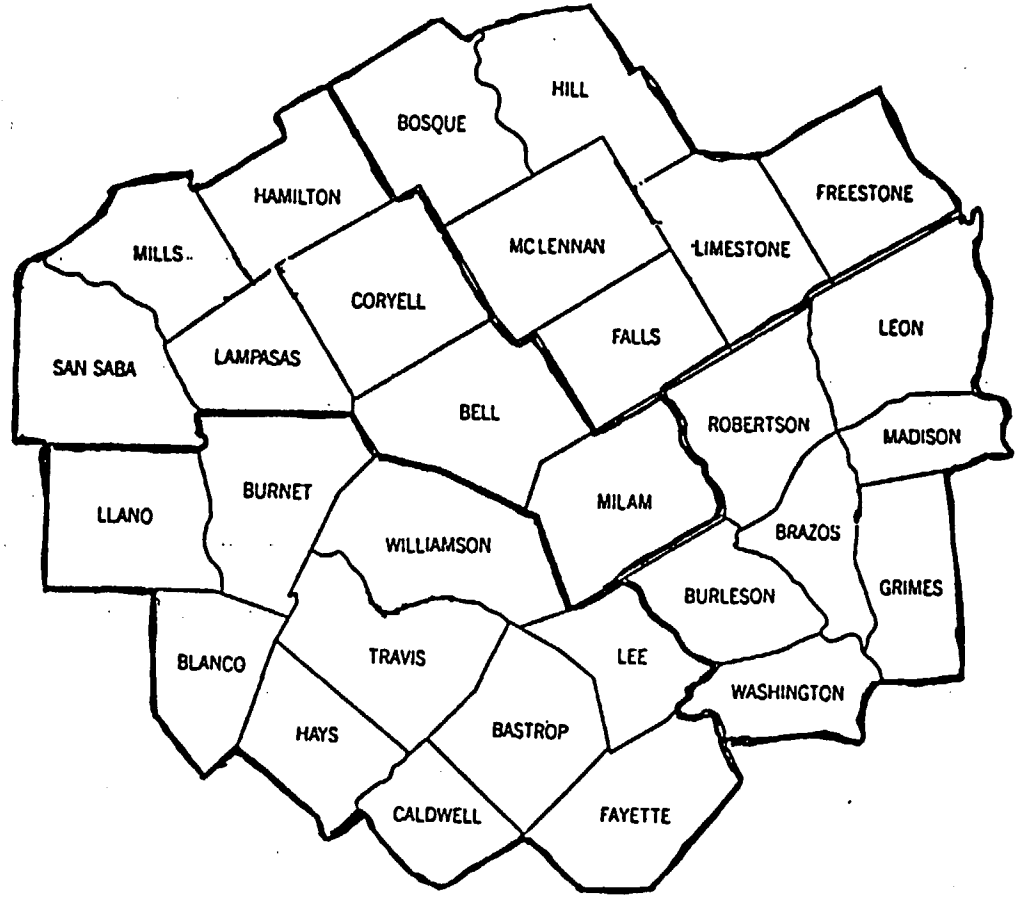
This portion of the Plan provides a basis for proper spectrum utilization. Its purpose is to guide the APCO Frequency Advisor and/or the Review Committee in their task of evaluating the implementation of this plan within this Region.

REGION DEFINED

Region 49 is the 30 county central Texas area with Austin, the capital, as the major city. This region is the result of definition by the Federal Communications Commission as a result of recommendations made in the National Public Safety Planning Advisory Committee (NPSPAC) plan as submitted and approved and contained in Docket 87-112. For purposes of this plan Region 49 shall be defined as all the lands and waters contained within the boundaries of the following counties: Bastrop, Bell, Blanco, Bosque, Brazos, Burleson, Burnet, Caldwell, Coryell, Falls, Fayette, Freestone, Grimes, Hamilton, Hays, Hill, Lampasas, Lee, Leon, Limestone, Llano, Madison, McLennan, Milam, Mills, Robertson, San Saba, Travis, Washington, and Williamson.

AUSTIN

REGION 49



REGION PROFILE (Demographic Information)

The purpose of this section is to provide the basis for the assignment of frequencies, and their re-use. Since the frequency allocation formula used is based on population within a county, it is necessary to provide this information within this plan. Below is the data used in the determination of frequency allocations.

REGION 49 POPULATION

COUNTY	1990 POPULATION
Bastrop	41,000
Bell	188,000
Blanco	6,000
Bosque	16,000
Brazos	133,000
Burleson	14,000
Burnet	26,000
Caldwell	30,000
Coryell	63,000
Falls	17,000
Fayette	22,000
Freestone	18,000
Grimes	17,000
Hamilton	7,000
Hays	70,000
Hill	27,000
Lampasas	13,000
Lee	15,000
Leon	12,000
Limestone	23,000
Llano	14,000
Madison	12,000
McLennan	180,000
Milam	23,000
Mills	5,000
Robertson	15,000
San Saba	5,000
Travis	591,000
Washington	26,000
Williamson	139,000
TOTALS	**1,768,000**

The population of the region is 90% urban and 10% rural.

GEOGRAPHICAL DESCRIPTION

There are 30 counties in the region with Williamson County being the largest. There are approximately five (5) major population areas which accounts for 90% of the population in the region. This means the demands for frequencies will be especially critical for these population areas. These items were taken under consideration in the allocation process.

USAGE GUIDELINES

All systems operating within the Region having five or more channels will be required to be trunked. Those systems having four or less channels may be conventional or trunked.

The FCC, in its Report and Order states, "Exceptions will be permitted only when a substantial showing is made that alternative technology would be at least as efficient as trunking or that trunking would not meet operational requirements. Exceptions will not be granted routinely, however, and strong evidence showing why trunking is unacceptable must be presented in support of any request for exception."

Systems of four of less channels operating in the conventional mode who do not meet FCC loading standards will be required to share the frequency on a non-exclusive basis.

Public Safety communications at the state level, as it impacts the Region, will be reviewed by the Committee. Statewide public safety agencies will submit their communications plans for impact approval if they utilize communications systems within the Region and those portions of such systems must be compatible with the Regional Plan.

The next level of communication coverage will be a county/multiple municipality area. Those systems that are designed to provide area communication coverage must demonstrate their need to require such wide area coverage. This would apply in a situation such as a city requesting coverage of an entire county. Communication coverage beyond the bounds of a jurisdictional area of concern cannot be tolerated unless it is critical to the protection of life and property. If the 800 MHz trunked radio technology is utilized, the system design must include as many county/multiple municipality government public safety and public service radio users as can be managed technically.

The county/multiple municipality agency or agencies, depending upon systems loading and the need for multiple systems within an area, must provide inter-communications between area-wide systems. In a multi-agency environment, a lead agency using 800 MHz spectrum, which may be any organization having primary response obligations, must implement the Common Channels in this band as mandated by the National Plan. Such implementation must be reviewed and approved by the Review Committee and submitted to APCO through the frequency advisor.

Municipal terminology often differs. In order to provide a title for the next level of communications the term "Township" is used to define the level below countywide. Township communications for public safety and public services purposes must provide only the communications needed within its boundaries. However, if the total number of radios in service does not reach

minimum loading criteria for a trunked system, that township must consider utilizing the next higher system level if 800 MHz trunked radio is available in the area. As those higher level systems reach capacity, the smaller system communicators in public safety and public service must then consider uniting their communications efforts to formulate one large system or forfeit use of the limited 800 MHz spectrum.

Where smaller conventional 800 MHz needs are requested, those frequencies to be utilized must not interfere with the region's trunked systems. The 800 MHz trunked radio system is to be considered the higher technology at this time and in greater compliance with FCC guidelines. The amount of interference that can be tolerated depends on the service affected. Personal life and property protection shall receive the highest priority and disruptive interference with communications involved in these services in an area shall not be tolerated. Any co-channel interference within an authorized area of coverage will be examined on a case by case basis.

TECHNICAL DESIGN REQUIREMENTS FOR LICENSING

DEFINITION OF COVERAGE AREA OR AREA OF JURISDICTION

The coverage area shall be that area for which a system is intended to cover with a received signal strength of greater than 40 dBu. This area shall normally represent the boundaries of the County or the incorporated municipality which is applying for license. In the case of regional or area-wide, multi-

jurisdictional systems, the coverage shall be that area of all jurisdictions participating in the system combined.

SYSTEM COVERAGE LIMITATIONS

System coverage shall be limited to the coverage area defined as listed above plus no more than five (5) additional miles in all directions extending from said boundaries of definition. This limitation shall assure maximum frequency reuse. The only exception to this rule shall be those applicants wishing to offer service or system use to areas outside of their jurisdictional boundaries. In these situations the applicant shall provide a proposal of said service to the Review Committee, who may request planning committee review, for consideration.

Systems not located within the geographical center of the jurisdiction(s) for which they cover shall utilize either directional antennas or antenna/tower relationship techniques to achieve the coverage required by this plan.

DETERMINATION OF COVERAGE

There are three variables used in determining the area of coverage of a proposed system. These variables are (1) the strength of the received signal, (2) antenna height above average terrain (HAAT), and (3) the effective radiated power (ERP) of the system.

Received Signal Strength: For purposes of this plan, received signal strength shall be the determining factor which defines the actual boundary of a system. The minimum signal level which marks the outer boundary of a system shall be 40 dBu.

Antenna Height: Shall be the height of the antenna above the average terrain surrounding the tower site.

Effective Radiated Power (ERP): This shall be the transmitter output power minus all line and equipment losses multiplied by the gain to the transmitting antenna.

Data provided in the Carey Propagation Curves, which follow, shall be used to obtain the distances to the 40 dBu boundary, based on HAAT and ERP. This distance is the calculated distance from the transmitting site. The procedure for determining this distance is contained in a later section.

A minimum system shall be permitted without special consideration when it is limited to an HAAT of 100 feet and the transmitter is centrally located within the jurisdiction or jurisdictions participating in a system. In all jurisdictions, regardless of size, a maximum boundary radius of 16 miles shall be allowed provided adequate measures have been taken to assure that interference of existing co-channel and adjacent channel systems will not occur.

Preparation of these requirements shall be the responsibility of the applicant. The Federal Communications Commission provides, in part 90.309(a)(4) of the Rules and Regulations, some additional guidance for these calculations.

ANNEXATIONS AND OTHER EXPANSIONS

It is well known that as cities grow, annexations occur. When an expansion of the present city limits of any city currently using an 800 megahertz system within the spectrum as herein

specified occurs, it is understood that the existing system may have to be expanded and its range increased. This is a modification and may be permitted. The increased range of the system will have to be determined at the time of modification to assure non-interference with any other existing system. Where interference is likely, the use of alternate methods of expansion, such as satellite systems or "smart" repeaters may be necessary.

Should the annexation or expansion of a city effectively take in all or most of a county, the allocation for that county may be given to the city if required by said city and not in use or planned to be used by the county. Where more spectrum is not available from the initial allocation, the rules for expansion of initial allocation, as contained in this plan, shall apply.

COVERAGE AREA DESCRIPTION

All applicants shall provide with their applications a map showing the jurisdictional service area to be covered by the system, and the calculated system coverage. This map shall display the location of the system transmitter(s), including control stations.

It is recommended that a U.S. Geological Survey (USGS) Quad, topographical, map be used for this purpose. If not available, a high quality locally produced map or a highway map may be substituted. Regardless of the type map used, the name of the applicant and the scale of the map shall be displayed on the map.

CONTROL STATIONS

Control stations within a system shall be limited in both transmit power, antenna height and antenna orientation. The control station design shall be such that the received signal strength at the mobile relay is approximately 6 dB above the signal of a mobile unit transmitting from the same location of the control station.

As with other stationary elements of a system, the location of all control stations shall be given, by street address, latitude and longitude. Ground elevation, antenna height, transmitter power and antenna type and orientation shall be given.

CONTROL STATIONS USED AS SYSTEM BACKUP

It is understood that some jurisdictions and/or system users will desire some method of system backup that is both effective and inexpensive. Although provisions have not been made for this in either the Federal Communications Rules and Regulations or in the NPSPAC plan, an attempt shall be made in the provisions of this Regional plan to allow such operation.

The use of a control station as a system backup makes good application and economical sense. Some minor changes may be necessary in some applications to avoid interference with adjacent systems or co-channel systems. These changes are listed below:

* The antenna used for control purposes must be of the directional (yagi) design so that received signal strength at the mobile relay is as mentioned above. The antenna used for backup will usually be of the omni-directional type, but may be directional if required.

As in the mobile relay, the antenna height above average terrain and the gain of the antenna, coupled with the transmitter power must be given as listed above.

* The calculated coverage of the backup station shall be mapped as is the mobile relay. A method to switch between antennas must be used. The method chosen shall be included with the application for license, as well as the written plan for the use of the control/backup station.

INTERFERENCE

Any control/backup station found to be causing interference to an adjacent system or co-channel interference shall be required to modify said system to eliminate all interference. This may require power reduction, changes in antenna orientation, changing antenna height or any combination.

PROCEDURES FOR DETERMINING SERVICE AREA CONTOUR

Two methods may be used to determine the service area of a system. These methods are the Okumura/Hata and the Carey Propagation methods. Due to the complexity of the Okumura/Hata method, only the Carey Curve is presented here, as a guide to assist in system planning.

At 800 MHz Okumura/Hata provides an accurate prediction of median field strengths. There are different types of structure densities and numerous other detailed correction factors for terrain undulations, overwater portions of the terrain and upward or downward terrain variations that can be applied to this model.

Carey's data was developed for TV coverage predictions and is

included in the FCC code, paragraph 73.699. Since it was developed for TV, a height correction of 9 dB is necessary. Carey also has good correlation with Okumura at distances greater than 10 miles.

CAREY CURVE METHOD

1. Convert effective radiated power from watts to dBk using the formula:

   P(dBk) = {10 x log P(Watts)} - 30 (B-1)

2. SUBTRACT this NEGATIVE number (in other words, convert it to positive and add) from 40 dBu.

3. In the look-up tables, determine the two height columns that correspond most closely with your H.A.A.T. (for example, if your HAAT is 300 feet, use the 200 and 500 columns).

4. Interpolate between the listings under the two columns to determine where the figure arrived at in Step 2 falls.

5. Read the mileage at the extreme left-hand column of the row.

E X A M P L E

To determine the service area of a UHF base station with an ERP of 125 watts and an antenna height above average terrain of 400 feet:

P{dBk} = 10 x log (125) - 30
P{dBk} = 21 - 30
P{dBk} = -9

Subtracting:

F{dBu} = 40 - (-9)
F{dBu} = 49

From the look-up table, 49 falls between 45.6 and 52.9 as 400 is interpolated between 200 and 500. Corresponding mileage is 12.

CAREY PROPAGATION CURVE
LOOK-UP TABLE

UHF....F(49,49)....dBu/kW....erp

MILES	100	200	500	1000
5	60.8	66.0	72.9	79.0
6	56.9	61.7	68.7	74.6
7	53.4	58.2	65.1	71.0
8	50.2	55.1	62.0	68.0
9	47.4	52.4	59.4	65.4
10	44.8	49.9	57.0	63.1
11	42.4	47.7	54.9	60.9
12	40.2	45.6	52.9	59.0
13	38.2	43.7	51.1	57.2
14	36.3	41.9	49.5	55.4
15	34.6	40.1	47.9	53.8
16	33.0	38.5	46.3	52.2
17	31.5	37.0	44.9	50.7
18	30.0	35.6	43.5	49.2
19	28.7	34.3	42.1	47.9
20	27.5	33.0	40.8	46.5
21	26.4	31.7	39.5	45.3
22	25.3	30.6	38.3	44.1
23	24.3	29.5	37.1	42.9
24	23.3	28.4	35.9	41.9
25	22.4	27.4	34.8	40.7
26	21.5	26.4	33.8	39.7
27	20.7	25.4	32.7	38.7
28	19.9	24.5	31.7	37.7
29	19.1	23.6	30.7	36.8
30	18.4	22.7	29.8	35.9
31	17.6	21.8	28.9	35.0
32	16.9	21.0	28.0	34.1
33	16.2	20.1	27.1	33.2
34	15.6	19.3	26.3	32.4
35	14.9	18.6	25.5	31.5
36	14.3	17.8	24.6	30.7
37	13.7	17.1	23.8	29.9
38	13.0	16.4	23.0	29.1
39	12.4	15.7	22.3	28.3
40	11.8	15.0	21.5	27.6
41	11.2	14.3	20.7	26.8
42	10.6	13.7	20.0	26.0
43	10.1	13.1	19.2	25.3
44	9.5	12.5	18.5	24.5
45	8.9	11.9	17.8	23.8
46	8.4	11.3	17.0	23.1
47	7.9	10.7	16.3	22.3
48	7.3	10.1	15.6	21.6
49	6.8	9.5	15.0	20.9

CAREY PROPAGATION CURVE
LOOK-UP TABLE CONT.

MILES	100	200	500	1000
50	6.3	8.9	14.3	20.2
51	5.8	8.4	13.6	19.5
52	5.3	7.8	13.0	18.8
53	4.9	7.3	12.4	18.1
54	4.4	6.8	11.8	17.5
55	4.0	6.2	11.2	16.8
56	3.6	5.7	10.6	16.1
57	3.2	5.2	10.0	15.5
58	2.8	4.8	9.5	14.9
59	2.4	4.3	9.0	14.3
60	2.0	3.9	8.4	13.7
61	1.7	3.5	7.9	13.1
62	1.3	3.1	7.4	12.5
63	1.0	2.7	6.9	12.0
64	.7	2.3	6.4	11.4
65	.3	1.9	6.0	10.9
66	0.0	1.6	5.5	10.3
67	-.3	1.2	5.0	9.8
68	-.7	.9	4.5	9.3
69	-1.0	.5	4.1	8.8
70	-1.4	.2	3.7	8.3
71	-1.7	-.2	3.2	7.8
72	-2.0	-.5	2.8	7.3
73	-2.4	-.9	2.4	6.9
74	-2.7	-1.2	2.0	6.4
75	-3.0	-1.5	1.7	6.0
76	-3.3	-1.9	1.3	5.6
77	-3.5	-2.1	.9	5.3
78	-3.8	-2.4	.5	4.8
79	-4.0	-2.7	.1	4.4
80	-4.3	-3.1	-.3	3.9

CO-CHANNEL INTERFERENCE PROCEDURE

1. Determine the distance from the proposed station to the existing station.

2. If not previously known, determine service area boundary of existing station. (method is detailed on page 21)

3. Find distance from proposed station to closest point of service area boundary of the existing station. (subtract #2 from #1)

4. Based on mileage from 3 (above), E.R.P. and H.A.A.T of the proposed station, consult look-up tables for dBu level at the service area boundary of the existing station.