

# FCC NARROWBANDING MANDATE

## A Public Safety Guide for Compliance





***For further information:***

**International Association of Fire Chiefs**

4025 Fair Ridge Drive

Fairfax, VA 22033

Phone: (703) 273-0911

Fax: (703) 273-9363

Web site: [www.iafc.org](http://www.iafc.org)



**International Municipal Signal Association**

PO Box 539, 165 E. Union Street

Newark, NY 14513

Phone: (800) 723-4672

Fax: (315) 331-8205

Web site: [IMSAafety.org](http://IMSAafety.org)

***Text written by:***

**Martin W. Bercovici, Esq.**

Keller & Heckman LLP

1001 G Street, N.W., Suite 500W

Washington, DC 20001

Phone: (202) 434-4000

*We greatly appreciate the contribution of Nicole Donath for this publication.*

Copyright 2006 by the International Association of Fire Chiefs and the International Municipal Signal Association. All rights reserved.

# TABLE OF CONTENTS

<b>CHAPTER 1:</b> AN INTRODUCTION TO NARROWBANDING	1
<b>CHAPTER 2:</b> THE FCC'S NARROWBANDING RULES	6
<b>CHAPTER 3:</b> PRACTICAL AND TECHNICAL CONSIDERATIONS	9
<b>CHAPTER 4:</b> CONCLUSIONS	18





# CHAPTER 1: AN INTRODUCTION TO NARROWBANDING

## WHAT IS THE PURPOSE OF THIS BROCHURE?

The International Association of Fire Chiefs (IAFC) and the International Municipal Signal Association (IMSA) have put together this brochure to provide guidance to state and local public safety entities on requirements being imposed by the Federal Communications Commission (FCC) that often are referred to as **“mandatory narrowbanding.”** These requirements apply to applicants for and licensees of privately operated mobile radio systems — both voice and data — in the following spectrum bands:

VHF (150–174 MHz: available nationwide)

UHF (421–430 MHz: available only in Detroit, Buffalo, and Cleveland)

(450–470 MHz: available nationwide)

(470–512 MHz: shared with UHF-TV; available only in 11 cities)





## CHAPTER 1: AN INTRODUCTION TO NARROWBANDING

In this brochure, we discuss in detail what is meant by narrowbanding and what you must do to comply with the FCC's requirements. Please keep in mind that compliance is not optional; **licensees that fail to comply may face serious consequences, possibly including the loss of their licenses.**

### WHAT IS MANDATORY NARROWBANDING?

Licensees in the private land mobile VHF and UHF bands traditionally have employed systems that operate on channel bandwidths of **25 kHz**. "Narrowbanding" refers to a requirement by the FCC that — **on or before January 1, 2013** — all existing licensees implement equipment designed to operate on channel bandwidths of **12.5 kHz** or less or that meets a specific efficiency standard (discussed in more detail in Chapter 2). What this means is that licensees will need to convert their existing wideband (25 kHz) systems to narrowband (12.5 kHz) operation. **Any equipment that is not capable of operating on channels of 12.5 kHz or less will need to be replaced.**

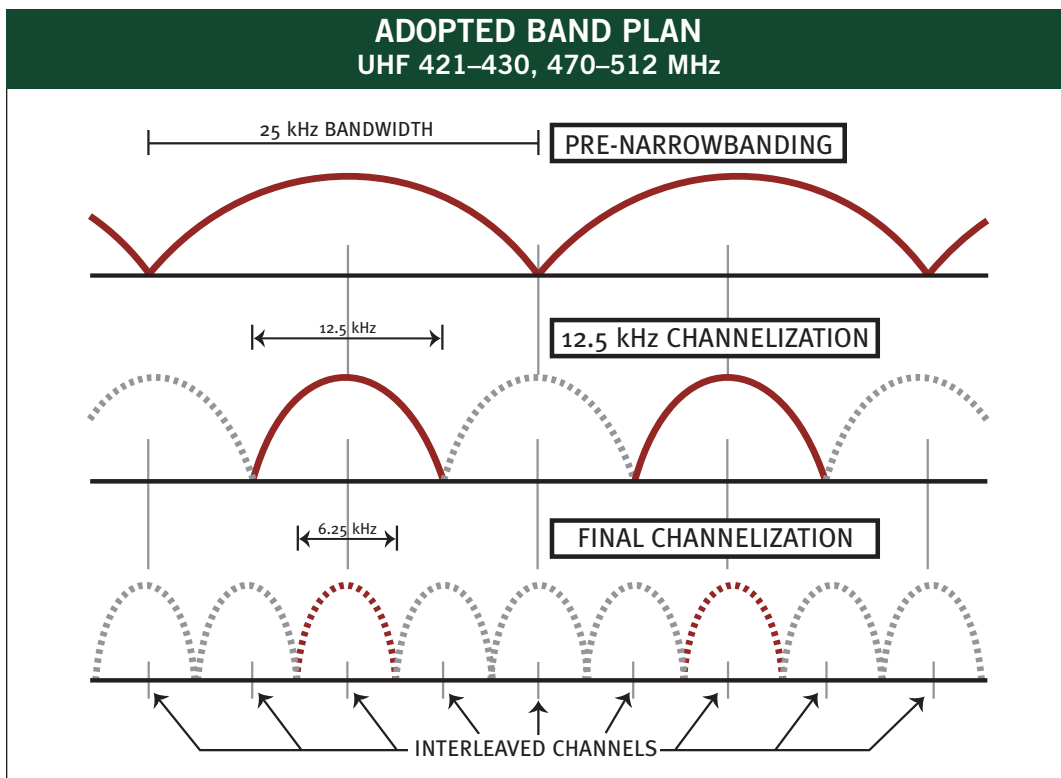
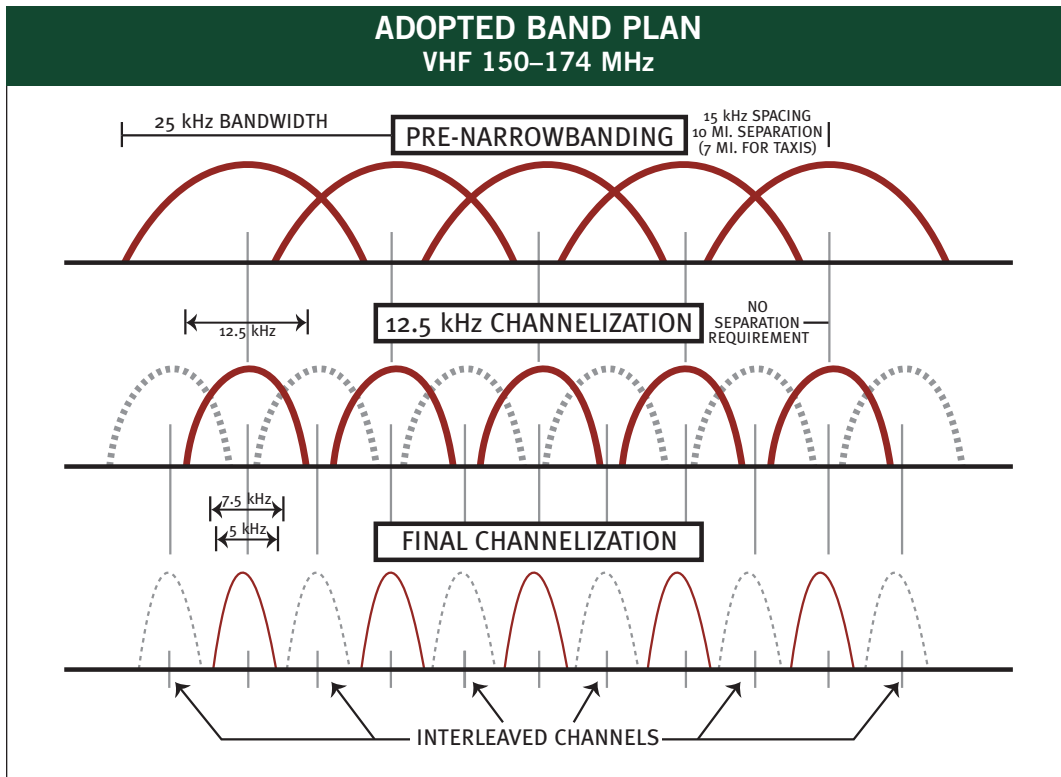
In addition to the FCC's deadline of January 1, 2013 for all licensees to cut-over to new narrowband equipment, there are some "**interim**" deadlines. For example, there is a date by which no more new or modified operations on 25 kHz bandwidth channels may be initiated, and there are certain deadlines that apply to equipment manufacturers and importers. These interim deadlines are discussed in Chapter 2.

The FCC expects that licensees ultimately will implement equipment that is designed to operate on channel bandwidths of **6.25 kHz** or less. However, **there currently is no deadline set for making this transition.**

### CHANNELIZATION PLANS

The charts on the next page demonstrate how the channelization plans for the VHF and UHF bands are changing as a result of narrowbanding. The top segment of each chart shows the current (pre-narrowbanding) configuration. The middle segment shows the relevant channelization for the upcoming migration to 12.5 kHz channels. The bottom segment shows the channelization plan for the expected (but not yet mandated) future migration to 6.25 kHz equipment.





# CHAPTER 1: AN INTRODUCTION TO NARROWBANDING

## NARROWBANDING MYTHS

One of the main reasons that IAFC and IMSA have published this brochure is to dispel some common misconceptions about the rebanding process and the FCC's requirements.

**Myth #1: Licensees must implement digital equipment.** One common misconception is that narrowbanding is a requirement to “go digital.” The FCC's narrowbanding rules do not dictate that any particular type of equipment modulation be employed. You may continue to operate analog equipment, even after the January 1, 2013 deadline, provided that your equipment meets the FCC's narrowbanding (12.5 kHz) standards. However, you may want to use the FCC's narrowbanding requirement as an opportunity to upgrade to digital technology, which is less susceptible to adjacent-channel interference and offers capabilities not available on analog systems.

**Myth #2: Each licensee will end up with twice as many channels.** Compliance with the FCC's narrowbanding requirements will not necessarily entitle you to license two 12.5 kHz channels where previously you had one 25 kHz channel. In general, each licensed 25 kHz channel will be converted into a 12.5 kHz channel having the same center operating frequency. If you would like to add additional channels to your system license(s), you will need to justify your need for those additional channels in accordance with the FCC's rules.

**Myth #3: Narrowbanding is the same thing as “rebanding.”** Rebanding refers to a process that is currently underway in the 800 MHz band, whereby some licensees are being required to retune or replace their equipment in order to operate on alternative 800 MHz frequencies. The purpose of this rebanding effort is to alleviate interference to public safety licensees in the 800 MHz band. This rebanding process has nothing to do with “mandatory narrowbanding,” which is a requirement that applies only to VHF and UHF spectrum users.

## WHAT ARE THE BENEFITS OF NARROWBANDING?

The purpose of mandatory narrowbanding is to promote more efficient use of the VHF and UHF land mobile bands. Today, these bands are highly congested, and there often is not enough spectrum available for licensees to expand their existing systems or implement new systems. As licensees convert to equipment that operates on narrower channel bandwidths, new channels will become available for licensing by parties that need them. It also is hoped that the narrowband conversion will spur the development and use of new technologies that will further promote efficient spectrum use, be less susceptible to interference, and provide licensees with enhanced capabilities.





### SOME IMPORTANT CAUTIONARY NOTES...

Before moving on to the details of the FCC's requirements, we wanted to pass along some general words of caution and advice:

**Narrowbanding is not optional.** Licensees cannot simply ignore the FCC's narrowbanding rules. If you are licensed in the VHF and/or UHF land mobile bands and not currently operating on narrowband (12.5 kHz) equipment, you will be affected. Your existing wideband system will need to be modified or replaced by January 1, 2013, and failure to comply may result in serious consequences.

**Interference may occur.** Even prior to January 1, 2013, your operations on wideband (25 kHz) equipment may become increasingly subject to interference from new adjacent-channel narrowband systems that are being implemented by other licensees in the vicinity of your operating area. To minimize this risk, you may want to consider making your narrowband transition as soon as practicable, subject to budgetary processes.

**Your transition may be gradual.** You need not convert your system to narrowband equipment all at once. Instead, you may make the transition over time by purchasing and installing, in several phases, "dual band" equipment — meaning equipment that is capable of operating in both a 25 kHz and 12.5 kHz bandwidth mode. In this way, your new equipment can operate alongside your "old" 25 kHz equipment, at least up until the final "cut-over" deadline of January 1, 2013.

**Buyer beware.** Ignorant or disreputable equipment vendors may try to "unload" either new or used equipment that is capable of operating only in a 25 kHz bandwidth mode. **Do not buy this equipment!** You likely will find yourself needing to replace it before you have fully reaped the expected benefits of your purchase.

# CHAPTER 2: THE FCC'S NARROWBANDING RULES

### “REFARMING”

The FCC's narrowbanding requirements were adopted during the course of a proceeding known as “refarming” that was initiated in 1992. The basic purpose of this proceeding was to enhance spectrum efficiency in the VHF and UHF land mobile bands. “Refarming” entails not only mandatory narrowbanding, but also the consolidation of twenty separate radio services into two radio pools: a Public Safety Pool and an Industrial/Business Pool. While service pool consolidation already has occurred, narrowbanding is not yet complete. The FCC's narrowbanding requirements and deadlines are discussed below.

### NARROWBANDING DEADLINES FOR LICENSEES

As discussed in Chapter 1, the FCC's basic narrowbanding requirement is that VHF and UHF land mobile spectrum users must migrate to narrower bandwidth equipment in accordance with certain FCC deadlines. The FCC's rules do not require licensees to employ any particular type of equipment or satisfy other technical standards in order to meet this requirement — **either analog or digital modulation is permitted.**

The deadlines below apply only to the transition to equipment that operates on channels of 12.5 kHz bandwidth or less; there currently is no date certain migration requirement for a second-phase narrowbanding to 6.25 kHz channels.

Beginning on **January 1, 2011**, the FCC will no longer accept applications for **new** VHF or UHF systems that operate on channels exceeding 12.5 kHz, *unless the efficiency standard is satisfied.* (See below for an explanation of the efficiency standard.)

Beginning on **January 1, 2011**, the FCC will no longer accept applications for **modification** of VHF or UHF systems that increase the station's authorized interference contour and that operate on channels exceeding 12.5 kHz, *unless the efficiency standard is satisfied.*

As of **January 1, 2013**, all **existing** licensees must operate on channels with a bandwidth of 12.5 kHz or less, *unless the efficiency standard is satisfied.*

### WHAT IS THE “EFFICIENCY STANDARD”?

As noted above, licensees may meet an efficiency standard instead of satisfying the requirement to operate of channels with a bandwidth of 12.5 kHz or less.

For **voice** operations, the efficiency standard is satisfied if the equipment is capable of transmitting at least **one voice channel per 12.5 kHz of bandwidth**. In other words, voice equipment operating on a channel bandwidth of up to 25 kHz will be permitted if the equipment supports two or more voice channels.

For **data** operations, the efficiency standard is satisfied if the equipment is capable of supporting a minimum data rate of **4800 bits per second per 6.25 kHz of channel bandwidth**.

### ARE THERE ANY EXCEPTIONS TO THE BASIC NARROWBANDING REQUIREMENT?

Apart from the option of satisfying the above efficiency standard, the only general exception is that ***paging-only channels are not subject to the FCC's narrowbanding requirements***. In the public safety radio pool, only the following channels are designated as paging-only: **152.0075 MHz and 157.450 MHz**.

You may be conducting paging operations on channels that are not designated as paging-only. The exception does not apply to these channels. Thus, your operations on such channels **will** be subject to mandatory narrowbanding.

### EQUIPMENT CERTIFICATION DEADLINES

Certain of the FCC's narrowbanding deadlines apply to equipment manufacturers, rather than licensees. However, it is useful for licensees to be aware of these deadlines so that they know what to expect with regard to equipment availability.

Equipment certification is the process by which manufacturers obtain approval from the FCC to market new types of equipment. In general, the FCC's goal in the equipment certification process is to ensure that the equipment complies with all of the agency's technical requirements. The FCC has adopted the following narrowbanding-related deadlines with respect to equipment certification:

**February 14, 1997** — Applications for certification of VHF or UHF equipment received by the FCC on or after this date will not be granted unless the equipment has the capability of operating on a channel bandwidth of 12.5 kHz or less or meets the spectrum efficiency standard of one voice channel per 12.5 kHz of channel bandwidth (for voice systems) or 4800 bits per second per 6.25 kHz of channel bandwidth (for data systems). Equipment that can operate in a dual mode (on both 25 kHz and 12.5 kHz channels) is acceptable.



## CHAPTER 2: THE FCC'S NARROWBANDING RULES

**January 1, 2005** — Applications for certification of VHF or UHF equipment received by the FCC on or after this date will not be granted unless the equipment has the capability of operating on a channel bandwidth of 6.25 kHz or less or meets the spectrum efficiency standard of one voice channel per 6.25 kHz of channel bandwidth (for voice systems) or 4800 bits per second per 6.25 kHz of channel bandwidth (for data systems). Dual or multi-bandwidth mode equipment is acceptable, as long as it is capable of operating on channels of 6.25 kHz or less.

*However, the FCC has stayed enforcement of this January 1, 2005 deadline* pending resolution of a request by certain manufacturers for deferral of the deadline. The manufacturers believe that enforcement of the deadline is premature until an industry technical standard is adopted for 6.25 kHz equipment. *For the time being, therefore, the January 1, 2005 deadline is not in effect.*

### ANOTHER EQUIPMENT-RELATED DEADLINE

VHF and UHF transmitters that operate with a maximum channel bandwidth greater than 12.5 kHz may not be **manufactured in** or **imported into** the United States after **January 1, 2011** unless the efficiency standard is satisfied.

### ARE THERE ANY OTHER RELEVANT FCC REQUIREMENTS?

In essence, no. Mandatory narrowbanding in the VHF and UHF bands basically boils down to a series of deadlines for moving to narrower channel operations or equipment that satisfies the efficiency standard. The only exception is for paging-only channels.

### ENSURING COMPLIANCE

The FCC's narrowbanding requirements (as outlined above) are fairly straightforward. However, licensees must plan ahead in order to ensure compliance. Licensees also may be faced with a host of complex issues and decisions in determining how and when to conduct their narrowband transition. In the next chapter, we provide guidance on some of the relevant issues and considerations that may arise.



# CHAPTER 3: PRACTICAL AND TECHNICAL CONSIDERATIONS

## DO LICENSEES NEED TO DO ANYTHING TODAY?

If you are operating a wideband (25 kHz) system in the VHF or UHF land mobile band, you may continue to do so until January 1, 2013. As a practical matter, however, you may want to start planning and preparing for your narrowband conversion now. **Here are some important reasons why you may want to get started sooner rather than later:**

**Interference.** As other licensees complete their transition to narrowband (12.5 kHz) channels, new channels likely will become available for licensing. It is possible that new operations could be licensed within your operating area on a channel that is only 12.5 kHz removed from a channel on which your 25 kHz system is licensed to operate. The likely result is interference to your operations. The best way to protect yourself against such interference is to implement your own narrowband conversion.

**Note:** Before the potentially interfering operations are initiated, the other licensee probably will be expected to notify you of the potential for interference. However, you likely will not be able to prevent the new licensee from deploying its system. Therefore, unless and until you complete your transition to narrowband equipment, you will be increasingly at risk of interference from new narrowband operations by other licensees.

**Safety.** Many public safety agencies use their VHF and UHF systems for important safety-related communications, both during emergency situations and in the course of day-to-day operations. For these agencies, it is particularly important that the transition to narrowband equipment be achieved as smoothly as possible and with the minimal amount of disruption to system operations. The more time you have to plan how to carry out your transition, the less likely it is that your critical operations will be disrupted during the cut-over process.



**Budgetary Factors.** Public safety agencies typically are subject to a rigorous budgetary process, whereby it may take many months to obtain approval for large expenditures. You will need to factor the duration of this budgetary process into your determination as to when to initiate narrowbanding efforts. If you do not allow enough time for “red tape,” you may find yourself unable to meet the FCC’s January 1, 2013 deadline.

Although it is not imperative that you take any action today, there is at least one thing that you should make sure *not* to do: **do not buy any more equipment that operates only in a 25 kHz mode.** This equipment soon will become obsolete, as you will need to replace it with narrowband equipment by January 1, 2013, or perhaps sooner, depending upon when you implement your narrowband transition. If you find yourself in a position where you need to replace existing equipment that is no longer functional or you would like to expand existing operations, but you are not ready to fully convert to a narrowband system, the best option is to implement dual mode (12.5/25 kHz) equipment to operate in the interim. If, on the other hand, you are installing in an entirely new system, you can implement narrowband equipment at the outset, thereby avoiding the need to convert.

### WHAT IS THE SIGNIFICANCE OF THE 2011 “INTERIM” DEADLINE?

As discussed in Chapter 2, beginning on January 1, 2011, licensees will be permitted to apply for new systems or to expand their existing systems **only if** they will be utilizing 12.5 kHz bandwidth (or less) equipment or equipment that satisfies the efficiency standard. Therefore, you will need to take this deadline into consideration if you are planning to implement a new system or to make modifications to your existing system.

#### ■ SYSTEM MODIFICATIONS

If you are planning system modifications that entail the use of new equipment, and you will be applying for FCC approval for these system modifications before January 1, 2011, you are *not* required to implement narrowband equipment. However, we highly recommend



that you at least implement dual mode equipment in connection with these modifications; otherwise, you will need to replace your newly installed equipment with narrowband equipment by January 1, 2013.

If you are planning system modifications that will expand your station's interference contours, and you will be applying for FCC approval *on or after* January 1, 2011, you will need to implement narrowband (12.5 kHz) equipment or equipment that meets the efficiency standard. **Dual mode equipment will no longer be acceptable for your modified operations.** As a result, you may need to convert your entire system to narrowband equipment at this time — even if before the January 1, 2013 deadline for converting existing operations — so that your modified operations using 12.5 kHz equipment may be integrated with your existing operations.

### ■ NEW SYSTEMS

Regardless of whether you will be implementing a new system before or after January 1, 2011, it makes sense to install narrowband equipment. Before January 1, 2011, you also have the option of using dual mode (12.5/25 kHz) equipment. However, you should not implement 25 kHz equipment in connection with a new system; as already discussed, such equipment will need to be replaced before too long and could become susceptible to interference from other licensees operating narrowband systems.

## SYSTEM CONVERSION: PLANNING AND IMPLEMENTATION

Once you are ready to embark on the process of converting your existing 25 kHz system to a new, narrowband (12.5 kHz) system, what will need to be done? Although certain tasks and considerations will be specific to your particular operational needs and internal procedures, there are several basic steps that all licensees generally will need to take.

### ■ ESTABLISHING A TIMETABLE

You will want to set some general benchmarks for when you plan to initiate and complete the various steps described below. These steps do not necessarily need to be completed in the order in which they are listed here, and some steps may overlap or occur simultaneously. The length of time that you will need to allow for each step will depend on such factors as the size and scope of your system and the nature of your internal budgetary processes.

Of course, you will want to start the whole process soon enough to ensure that you will be able to complete your narrowband migration by the FCC's deadline of **January 1, 2013**. If you currently rely on your system for **interoperability** with one or more other entities, you will need to consider when those other entities will be making their narrowband transitions.

### ■ INITIAL PLANNING ACTIVITIES

The people that are most familiar with your existing VHF or UHF system from an operational and technical standpoint will need to be involved in the planning process. Working with your technicians and/or engineers (whether internal staff, outside consultants or both), you will want to **assess the current and expected future operational needs of your organization**. Perhaps your existing radio system does not fully meet these needs; narrowbanding presents an opportunity to upgrade to new technologies that may provide enhanced capabilities. You may also want to consider migrating to an entirely different spectrum band, such as the 700 MHz or 800 MHz band.

## CHAPTER 3: PRACTICAL AND TECHNICAL CONSIDERATIONS

As part of the planning process, you will want to **develop a plan as to how and when you will actually carry out your transition** from wideband to narrowband equipment **so as not to disrupt key communications**. Among other things, you may want to consider such factors as the expected weather during the time of year you plan to conduct your migration and whether there are any scheduled events in your area that may affect your agency's mission and place greater demands on your radio system during certain periods. Once you have selected a vendor for your new equipment (see below), you also will want to work with that vendor on a plan for ensuring a smooth transition.

### ■ SYSTEM DESIGN AND PROCUREMENT

After assessing your operational needs, the next step is to solicit bids from one or more equipment vendors for narrowband systems capable of meeting these needs. We recommend that you be as specific as possible in letting vendors know your requirements. Before making a final decision regarding what system to purchase, you may want to request a demonstration of the equipment you are considering and/or conduct some research as to whether other customers have been satisfied with that equipment. You also will want to make sure that the vendor you select is aware of the FCC's narrowbanding deadline of January 1, 2013 and will be capable of meeting that deadline.

### ■ FUNDING

Once you have selected your new narrowband system, the next step is to secure the necessary funding through your applicable internal processes. For many public safety agencies, these processes can be time-consuming and arduous. Therefore, **it is important to make sure that, in preparing your transition timetable, you have included enough time for obtaining funding approval**.

Further, because a large expenditure of public funds such as what would be entailed in the purchase of a new radio system may be subject to a high level of scrutiny, you will want to present a strong justification in your budget proposal. Among other things, you may want to emphasize that the new system is needed in order to comply with FCC requirements and that you have conducted a rigorous analysis in determining that the particular new system you selected will best meet your agency's needs.

### ■ FREQUENCY COORDINATION

Before you can begin implementing your new system, you will need to complete the frequency coordination process and apply to the FCC to modify your license(s) in accordance with your new system specifications. IAFC and IMSA are certified public safety frequency coordinators, and we are available to assist with this process. We can be contacted at:

#### **International Municipal Signal Association (IMSA)**

200 Metro Center Blvd., Suite 6

Warwick, RI 02886

P: (401) 738-2220

F: (401) 738-7336

mailto: [fireems@imsasafety.org](mailto:fireems@imsasafety.org)

The general purpose of the frequency coordination process is to minimize the likelihood that new or modified systems will cause interference to or receive interference from existing systems. In the narrowbanding context, this process primarily entails identifying available channels for your new system.

In many cases, licensees' new narrowband systems will be operating on only the same central operating frequencies as are currently used for their existing wideband systems (but with a narrower channel bandwidth). If that is your situation, the frequency coordination process should be fairly simple and straightforward, so long as you are not also looking to increase your operating power and/or antenna height. However, if you are seeking to license any additional channels for use with your new system, your ability to do so will be subject to channel availability and a satisfactory demonstration of need for these additional channels in accordance with the FCC's rules.

Once you have successfully completed the frequency coordination process, you may file your FCC Form 601 application(s) for modification through an FCC-designated frequency coordinator. You now are ready for the final stage of your transition...

### ■ SYSTEM IMPLEMENTATION

Upon the filing of your application(s), you can immediately begin system implementation pursuant to **Conditional Temporary Authority (CTA)**. CTA is a procedure applicable in the VHF and UHF bands whereby, with some limited exceptions, applicants for new systems or system modifications may begin operating in accordance with their pending applications prior to the grant of those applications by the FCC.

Once the FCC grants your application(s), you will have **twelve months** in which to complete your narrowband migration consistent with your modified licensing authority. The FCC's rules also require that you submit a Notification of Construction on FCC Form 601, Schedule K within 15 days of the expiration of your twelve month construction period. Under the Automated Termination program recently implemented by the FCC, a licensee that has failed to file a timely **Notification of Construction** will be notified that its authorization, location or frequency that was subject to the construction requirement has automatically terminated.

Thus, in completing your system implementation, you will want to "keep on your radar" not only the FCC's ultimate narrowbanding deadline of January 1, 2013, but also your twelve-month construction deadline and the obligation to file a timely Notification of Construction.



### INTEROPERABILITY

Interoperability is the ability of two or more organizations to communicate or share information (voice, data, video, etc.) on a real-time basis. Interoperability may be **intra-jurisdictional**, such as where a city's police department communicates with that city's fire department during a common emergency situation. Interoperability also may be **inter-jurisdictional**, such as where fire departments from multiple localities communicate with one another while battling a widespread blaze.

Some agencies use their VHF or UHF systems for purposes of interoperability. **If your VHF or UHF system is or will be used for interoperability with other entities, you will want to try to coordinate the timing of your respective narrowband migrations.** Otherwise, your ability to interoperate may be impeded for some time. If you are unable to coordinate your timing, you may want to consider whether there are any interim measures that could be implemented to allow some degree of interoperability during the period that one agency has converted and the other has not.

You also should be aware that **federal government** licensees in the VHF and UHF bands must complete their narrowband conversions by January 1, 2008. Thus, state and local entities will find it difficult to interoperate with federal agencies (in the VHF/UHF bands) unless they also complete their own conversions by that time.

### SAFECOM

If you would like to learn more about interoperability and the options that are or may become available to you in this regard, we recommend visiting the SAFECOM Web site at <http://www.safecomprogram.gov/>.

SAFECOM is a communications program sponsored by the U.S. Department of Homeland Security and driven by public safety practitioners; its mission is to promote more effective and efficient interoperable wireless communications by and among local, tribal, state, and federal public safety entities. SAFECOM's Web site provides members of the public safety community with a wealth of information and resources to help it meet its communications and interoperability needs.





## ALTERNATIVE SPECTRUM BANDS

Before moving forward with your narrowband conversion, which may necessitate replacement of your entire radio system, you may want to consider whether it would be in your agency's interests to migrate instead to a completely different frequency band. Two possibilities are the 700 MHz and 800 MHz bands, as both include public safety spectrum allocations for land mobile operations.

### ■ 700 MHz

In 1998, the FCC adopted new rules for use of the spectrum in the **764–776** and **794–806 MHz** bands, which were reallocated from television broadcast services to public safety use. These new rules allow, among other things, the licensing by public safety entities of general use narrowband (6.25 kHz) channels, narrowband (6.25 kHz) low power channels, and wideband (50 kHz) general use channels, subject to regional plans that are prepared by regional planning committees and approved by the FCC. This spectrum will not be available for use in all geographic areas until existing TV stations vacate the spectrum, which is to occur by **February 2009**.

Implementing a new 700 MHz system may have some advantages over converting to a narrowband VHF or UHF system. For example:

**Exclusivity.** The 700 MHz band is licensed on an exclusive basis, while the VHF or UHF bands are licensed only on a shared basis. As a practical matter, this means that 700 MHz band systems are entitled to greater protection against harmful interference.

**Channel Availability.** The VHF and UHF bands are highly congested and may remain so to some extent even after narrowbanding. The “new” allocation at 700 MHz should provide adequate spectrum for the licensing of new systems, as well as the subsequent expansion of those systems.

**Enhanced Functionality.** As noted above, the 700 MHz public safety allocation includes both narrowband (6.25 kHz) and wideband (50 kHz) channels. This channel plan allows licensees the flexibility to use their 700 MHz systems for a variety of applications, including voice, data, and video.

**Interoperability.** About 10 percent of the 700 MHz band public safety spectrum is dedicated for interoperability purposes and administered at the state level. Therefore, migrating to a 700 MHz system could provide you with enhanced opportunities for future interoperability. The 700 MHz spectrum also has the potential for interoperability with neighboring 800 MHz public safety systems. However, whether you will be able to take advantage of this potential for interoperability will depend on whether the agencies with which you seek to communicate also have the capability to operate in the 700 MHz and/or 800 MHz bands.

There also may be some disadvantages associated with a move to 700 MHz. To begin with, the continued existence of broadcast licensees on some of this spectrum may prevent you from moving before February 2009. Also, general propagation characteristics are

somewhat less favorable at 700 MHz than in the UHF and VHF bands. What this means is that more infrastructure typically will be needed at 700 MHz, making the 700 MHz option somewhat more costly.

### ■ 800 MHz

A portion of the spectrum in the **806–824/851–869 MHz** land mobile band is dedicated for public safety operations. Some of this public safety spectrum is licensed in accordance with FCC-approved regional plans, while some may be licensed without such restrictions. The particular channels that are available for public safety use will be changing to some extent as a result of the ongoing band reconfiguration efforts in this band (see discussion of “rebanding” in Chapter 1).

Like the 700 MHz band public safety allocation, the 800 MHz band spectrum has the advantage of being licensed on an exclusive — rather than a shared — basis. In addition, some newly-vacated 800 MHz band channels (not presently assigned for public safety use) will become available for licensing only by public safety entities for a **three-year period** following the completion of rebanding. Public safety agencies may want to take advantage of this opportunity to secure additional spectrum.

Potential disadvantages of moving to 800 MHz include (like at 700 MHz) less favorable propagation, the associated higher equipment costs, and a possible need to delay implementation. In the 800 MHz band, the cause for possible delay is that the FCC has imposed temporary licensing freezes on a region-by-region basis while the rebanding process is occurring. Thus, before embarking on a plan to implement a new 800 MHz system, you will want to determine when the freeze will be lifted in your region. It is anticipated that rebanding will be completed in all regions by **June 27, 2008**.



### SOURCES OF ADDITIONAL INFORMATION

We hope that this brochure has answered many of your questions about mandatory narrowbanding. However, every licensee is unique, and further questions may arise as you assess your particular needs and embark on the narrowbanding process. The following are some additional resources that may be of help to you.

**IAFC/IMSA.** We are available to answer your narrowbanding questions and/or refer you to others who may be able to assist you. Specific inquiries may be directed to IAFC at (703) 273-0911.

**Other Frequency Coordinators.** There are several certified public safety pool frequency coordinators other than IAFC and IMSA. These coordinators also may be able to assist you with the narrowbanding process. The contact information for these other coordinators is available at: <http://wireless.fcc.gov/publicsafety/coord.html-sub512>.

**The FCC's Web Site.** The FCC's "refarming" home page is located at: [http://wireless.fcc.gov/services/index.htm?job=operations&id=private\\_land\\_radio](http://wireless.fcc.gov/services/index.htm?job=operations&id=private_land_radio) This Web site includes a link to the agency's various refarming-related decisions, including decisions related to mandatory narrowbanding.

**Telecommunications Legal Counsel.** If you are unsure of how or whether the FCC's narrowbanding requirements apply in your particular situation or you find yourself facing complicated licensing issues — such as the need for a rule waiver and/or an extension of one of the FCC's narrowbanding deadlines — you may want to contact telecommunications legal counsel. Counsel can assist you in ensuring that your important license rights are not placed in jeopardy as a result of the FCC's narrowbanding requirements. If you would like assistance in selecting legal counsel, please contact us.

# CHAPTER 4: CONCLUSIONS

Below, some final thoughts with which we wanted to leave you...

- **Become familiar with the FCC's requirements and take them seriously.** It is important for licensees to understand the FCC's various narrowbanding requirements and deadlines, including the efficiency standard and the limited exceptions to mandatory narrowbanding (see Chapter 2). We urge you not to take these requirements lightly. At this time, it is unclear how, exactly, the FCC will go about enforcing its ultimate narrowbanding deadline of January 1, 2013. However, it is likely that those who fail to comply will face serious penalties such as *monetary fines* or *license cancellation*. Armed with accurate information, you will be prepared to take necessary action to avoid such undesired consequences.
- **Narrowbanding is both an opportunity and a challenge.** Complying with the FCC's mandatory narrowbanding requirements can be a complex, time-consuming, and costly process. However, narrowbanding also presents an opportunity for public safety agencies to improve their communications capabilities. Through narrowbanding, licensees can achieve greater spectrum availability and interference protection, enhanced opportunities for interoperability, and system upgrades to advanced technologies. For some agencies, the optimal approach may be to migrate to an alternative frequency band, such as 700 MHz or 800 MHz. The key is to assess your communications needs and to develop a plan as to how best to meet them.
- **Be wary of sales pitches.** This warning cannot be repeated too often. Vendors may misunderstand the FCC's rules or misrepresent them in an effort to sell equipment. What appears to be a bargain may actually be a "rip-off" if what you are purchasing is single-mode 25 kHz equipment that soon will become obsolete. Be particularly careful in the purchase of used equipment — you do not need to be funding someone else's narrowband conversion. The more familiar you are with the FCC's requirements, the less likely that a vendor or other unscrupulous party will be able to take advantage of you.
- **Know where to turn for advice and assistance.** You need not go through the narrowbanding process alone. At the end of Chapter 3, we provided some additional sources of information on narrowbanding. We hope you will avail yourself of these or other reliable resources as questions arise. With adequate information and planning, a successful narrowband conversion is well within your reach.





