

CAPRAD

Computer
Assisted
Pre-coordination
Resource
And
Database system

A Guide for Public Safety Regional Planning Committees

Administering 700 MHz Spectrum

And

Prospective Licensees for Filing Frequency Applications

Users Guide – 700 MHz

Version 2.3



Developed by
TEQ Services, Inc.

Revised by the
Association of Public Safety Communications Officials, International, Inc.
Steve J. Makky, Sr
APCO-AFC Staff Engineer

Revised: November 26, 2013

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CAPRAD
Computer Assisted Pre-coordination Resource And Database System User's Guide

DOCUMENT REVISION RECORD

ORIGINAL January 2, 2002

Revision	Pages Removed	Pages Inserted
ORIGINAL		
v1.1 May 15, 2002	Complete rewrite section 3	
v1.2 Sept. 9, 2002	Misc. changes, PRC proxy added	
v1.3 Dec. 10, 2003	Misc. changes, screen updates	
v1.4 Oct. 15, 2004	Misc. changes, screen updates	
v1.5 July 15, 2007	Rework, screen updates	
v2.0 May 31, 2011	Rework, update text, screen updates	
v2.1 June, 2011	Incorporate red-penciled comments from L3	
v2.2 September, 2011	Rework quiz material	
v2.3 October, 2011	Incorporate feedback solicited from stakeholders, quizzes, exams, exercises, and step-by-step visuals	
v2.3 May, 2012	Revised text and minor formatting changes	

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ACKNOWLEDGEMENTS

This document contains information from several sources, all of whose help is gratefully acknowledged.

If you desire further information concerning the CAPRAD system or the material contained in this document, you may contact the offices listed below:

TEQ Services, Inc. 12200 E. Briarwood Ave. Ste. 270 Centennial, CO 80112; Telephone (303) 790-7765; Fax (303) 799-9171; Email: CapradAdmin@teq-services.com

APCO AFC, 351 N Williamson Blvd., Daytona Beach, FL 32114; Telephone (386) 322-2500; Fax (386) 322-2502; Email: afc@apcointl.org

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1.0 CAPRAD SYSTEM INTRODUCTION

1.1 Purpose and Scope

The CAPRAD User Guide was written to assist 700 MHz RPCs in formulating and disseminating their regional plans, allocating 700 MHz public safety spectrum, and applying for 700 MHz frequencies using the FCC 601 form.

The User Guide is divided into four sections:

Section 1: Introduction and System overview.

Section 2: System Access – How to access the system; computer hardware and software requirements; and detailed instructions on how to use the system; general guidance for getting started using the system.

Section 3: Regional Plans – Information on the formulation and dissemination of regional plans; step-by-step procedures; specific guidance on the functions used to allocate spectrum; general guidance for preparing the regional planning narrative; viewing and downloading channel allotments; entering comments and setting status flags to monitor progress.

Section 4: Frequency Applications – The process to prepare an application for licensing frequencies using the FCC 601 form; completing the appropriate schedules in the form, assigning a frequency coordinator; choosing a frequency; when and why to assign co-owners of applications; and how to monitor the application and change application status.

1.2 CAPRAD System Overview

Spectrum management and access to spectrum by eligible government entities is the purpose of the CAPRAD system. It is a nationwide database for public safety professionals to coordinate the application and licensing of frequencies in the 700 MHz band. Spectrum is a limited resource; therefore, coordination and cooperation among eligible entities in assigning spectrum is essential for public safety.

CAPRAD has three primary functions:

- Pre-allocation of spectrum by region,
- Interactive process to apply for and coordinate frequencies, and
- Administration and reporting (special access is required for administrative functions and is covered in a separate operations guide).


The system administrator assigns different levels access to the user based on their role and need to use the system, and data contained in the system. These roles are covered in detail in Section 2.2.

The pages displayed in CAPRAD are dynamically created, and information is contained in a relational database management system, backed up by redundant fail-safe hardware and software.

The on-line help screens and frequently asked questions (FAQ) feature should answer most questions encountered by the user. Both manual and context-sensitive help screens are available on-line in a comprehensive reference. Users may also send their questions via email to: carterb@apcointl.org.

LESSON OBJECTIVES: The objective of this section is for each participant to:

1. Become acquainted with the CAPRAD system
2. Determine minimum software, hardware, and connectivity requirements necessary to access CAPRAD
3. Learn how to access and log into the CAPRAD system

The  symbol represents step-by-step pictorial guidance in accomplishing a task.

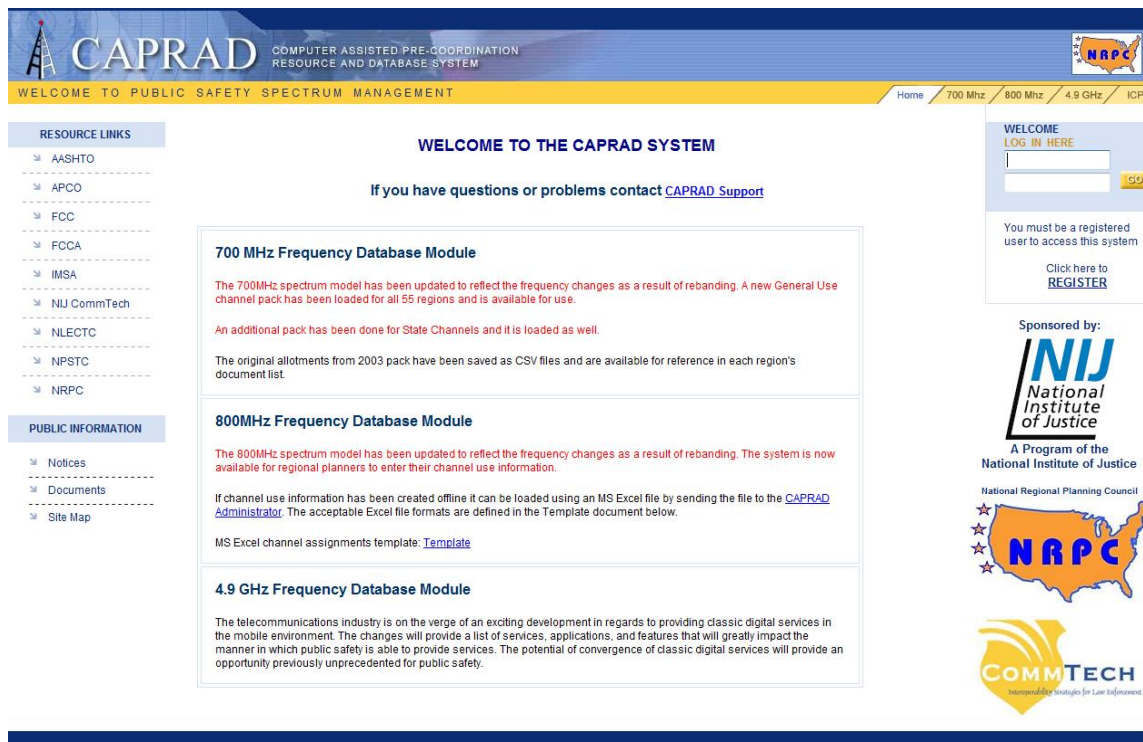
2.0 CAPRAD SYSTEM ACCESS

CAPRAD is accessed via the Internet and is open to the public. Visitors to the CAPRAD site may view allotments or approved applications, but are not permitted to modify information. Only registered authorized users may enter and modify information in the system. There is currently no on-line registration of users.

Registration must be requested through the Regional Planning Committee, and authorized through the CAPRAD administrator.

2.1 Accessing the CAPRAD System

The CAPRAD home page is located at : <http://caprad.org>



**Figure 2-1
CAPRAD Home Page**

Tabs located in the upper right of the CAPRAD home page provide access to the information supported in CAPRAD: Home page, 700 MHz, 800 MHz, 4.9 GHz, and ICP. Resource Links and Public Information

is found in the left hand menus. Visitors may access news, general information on the frequency allotments, and other information by selecting a tab for 700 MHz or 800 MHz. A Visitors link appears in the upper right page. Visitors may view Regional Plans and other information by clicking the Visitors link and continue to access the Regional Plans. The top status bar indicates you are logged in as a Visitor. CAPRAD also contains links to the National Regional Planning Council (NRPC), the National Institute of Justice (NIJ), and NIJ's Communications Technology (CommTech) program.

A valid user log-on (user ID and password) are required to access any other system resources. The CAPRAD system administrator is the sole person in charge of assigning user IDs and passwords. To qualify for a user account the requester must be a public safety professional, or a vendor supporting the public safety government sector with an established need to participate in the frequency allocation process. The CAPRAD system administrator will assign a user ID and password that is mutually agreeable.

The user ID is an alphanumeric string, which has at least 6 characters long and no more than 12 characters long. Users are permitted to choose their own user IDs, but they must be unique among all users of the system. Once a user ID is granted, the administrator will provide the new user a one-time-use password. Once it is entered, *the user will be prompted to create a new password*. If a user forgets their password a new one-time-use password can be requested, and the process must be repeated.

Valid passwords for CAPRAD must follow the following rules:

- 1) Minimum of 6 characters and a maximum of 10 characters, and
- 2) Contain at least one character from three of the following four categories:
 - a) Small letters: abcdefghijklmnopqrstuvwxyz
 - b) Capital letters: ABCDEFGHIJKLMNOPQRSTUVWXYZ
 - c) Numbers: 0123456789
 - d) Special characters: !#\$%&* _ - +

Samples of valid passwords: aBc132
Iwas#1
1+2Is3

Samples of **invalid** passwords: abc123 (only 2 categories)
Iam#1 (too short)
1+2=3 (too short, only 2 categories, invalid character =)

Table 2-1
Valid Passwords

Quiz #1: CAPRAD System Access

- 1) To access the CAPRAD system which of the following is needed? (check all that apply)
 - ☐ A computer equipped with a recent web browser
 - ☐ Internet access
 - ☐ Registration with the CAPRAD administrator
 - ☐ An LTE aircard or GigE access
- 2) To access the CAPRAD system at any level higher than a visitor, the requestor must:
 - a. Contact the CAPRAD system administrator for a login and password
 - b. Register into the CAPRAD system using the register hyperlink
 - c. No level supersedes the visitor level
 - d. Receive authorization from the chair of the applicable Regional Planning Committee
- 3) A password issued by the CAPRAD system administrator:
 - a. May only be used once and must be changed by the user
 - b. May not be changed
 - c. Can be retrieved through the lost password hyperlink
 - d. Requires authorization from the chair of the applicable Regional Planning Committee
- 4) Passwords must contain:
 - a. Values which translate to predetermined hexadecimal character strings
 - b. The date on which the password was requested
 - c. The FCC assigned number of the applicable Regional Planning Committee
 - d. Six to ten characters with at least one character from three of four categories
- 5) Visitors should expect to access:
 - a. Public and general information
 - b. Data entry screens
 - c. Electronic batch files ready to be transmitted to the FCC
 - d. Nothing. Higher levels are required to access any data

Discuss your answers with the instructor and group.

2.2 CAPRAD System Requirements

CAPRAD was designed to HTML 4.0 standards. Any browser HTML 4.0 compliant is adequate. For best results, it is suggested that users run either Microsoft Internet Explorer (IE) 6.0 or above, Firefox, or Chrome. A PC with screen resolution of 1024 x 768 is recommended. CAPRAD is set to use the default display fonts associated with the browser. Some users may experience unwanted line wrap on menus and screen displays. This does not affect the performance of the system. CAPRAD is configured for best viewing with a Times New Roman variable font (pitch 12) and a Courier New fixed font (pitch 10).

Adobe Acrobat Reader version 6.0 or higher is required to view regional plans. To download and install a current version, simply click on the Adobe Acrobat icon on the region selection home page.

Users authorized to perform regional planning for channel allotment will require additional software. Microsoft Word and Microsoft Excel, or similar programs are recommended. Open Office is free and supports the Microsoft Office formats. A word processor is useful for creating and publishing the regional plan narrative. A spreadsheet is useful for formatting the channel allotment information and easier to import and export data across a wide variety of applications. This is covered in more detail in Section 3.0.

User System Checklist

- ☒ Personal computer with current single-user, operating system, such as Microsoft Windows, Apple OS X, or most mainstream Linux distributions with GUI environments.
- ☒ Dial-up Modem (33 kbps or greater), Network Interface Controller, Wi-Fi, or aircard with corresponding connectivity to an Internet Service Provider.
- ☒ World Wide Web Consortium (W3C) recommended HTML 4.0, or more recent, web browser, such as Microsoft Internet Explorer (MSIE 6.0 or more recent), Mozilla Firefox, Opera, Google Chrome, Apple Safari, or other compliant browser application.
- ☒ Adobe Acrobat Reader v. 6.0 or more recent Portable Document File (PDF) reader application.
- ☒ Optimally a 1024x768 display.

Table 2-2
Recommended User System Configurations

2.3 User Roles in CAPRAD 700 MHz

The user role determines the user privileges to access and modify information within the 700 MHz section. The user role is assigned when a user ID is issued. The menus displayed and CAPRAD functions depend on the user role. It is important for users to have a basic understanding of these roles. The following table summarizes user roles, information areas, and privileges.

User Role	Information Area	Privileges
Regional Planning Committee Manager	<ul style="list-style-type: none">Regional PlanFCC Applications	Full rights to enter/ modify/ upload; set status; comment on plans of other regions. Review any; approve those in region if set as “always review” or those outside of allotments. Modify as necessary.
Regional Planning Committee Planner	<ul style="list-style-type: none">Regional PlanFCC Applications	Full rights to review, enter/ modify; comment on plans of other regions. Review any; Approve as assigned.
Regional Planning Committee Associate	<ul style="list-style-type: none">Regional PlanFCC Applications	Review all plans. Review any; Approve as assigned.
Frequency Coordinator	<ul style="list-style-type: none">Regional PlanFCC Applications	Review all plans. Review any; modify those assigned through coordination efforts.
Applicant	<ul style="list-style-type: none">Regional PlanFCC Applications	Review all plans. Enter; modify those originated/ co-owned.
Visitor	<ul style="list-style-type: none">Regional Plan	Review all plans.

Table 2-2
User Roles

2.4 Prior to First Log-In

CAPRAD references regional areas created by the Federal Communications Commission (FCC) to coordinate the efficient apportionment of spectrum within the regional area. The regional concept was first used for allocating 800 MHz spectrum (NPSPAC Plans). This allowed Regional Planning Committees to formalize and establish local governance practices to serve the spectrum needs of the regional area. The FCC affirmed the validity of the regional planning process in the 700 MHz spectrum allocation to Public Safety.

The CAPRAD user is encouraged to become familiar with the Regional Planning Committee (RPC) and the FCC application process prior to first logging in. The RPC exists to support spectrum resource

management on behalf of the region, adhere to FCC Rules and Regulations, promote good radio system engineering and design practices, and ensure frequency availability to public safety agencies.

The National Regional Planning Council (NRPC) is made up of representatives from all the RPCs and provides support for RPC related issues. The NRPC Executive Committee has four District Directors to assist with RPC issues and mediation support for issues that may be more difficult to resolve. Information about the NRPC is available by clicking the NRPC icon in the upper right corner of the screen, or the NRPC link on the left side of the screen.

2.5 Log-in

The log in process is pictured below. Have your user ID and password handy!



Log In Box

WELCOME
LOG IN HERE

Your user name is entered on top

RPC99MGR6

Your password is entered on the bottom and is obscured from being displayed

RPC99MGR6

Finally, click the GO button to log in.

GO

You must be a registered user to access this system

Click here to REGISTER

Once logged in, your name and a special greeting are shown.

David L. Roth | Log Out

WELCOME TO THE CAPRAD SYSTEM

WELCOME TO PUBLIC SAFETY SPECTRUM MANAGEMENT

RESOURCE LINKS

2.6 Once Authenticated (logged-in)

Once the user has logged in, the user selects the 700 MHz tab (Figure 2-2) to access CAPRAD 700 MHz features.

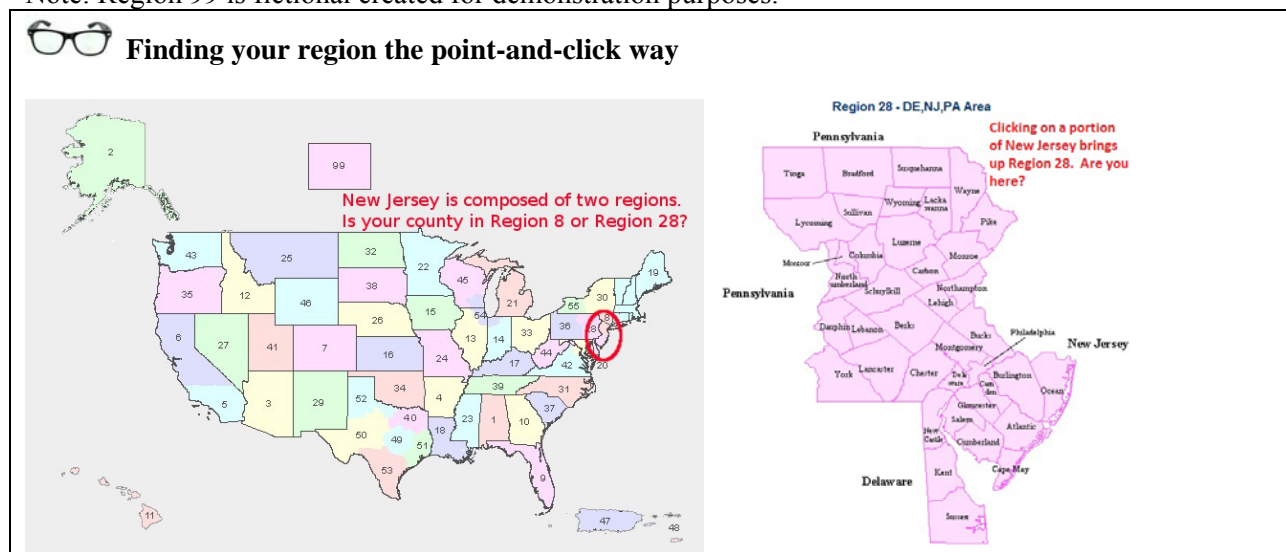


Figure 2-2
700 MHz Log-In

When logged in to the 700 MHz portion of CAPRAD, select a region by clicking on a location from the national map (figure 2.3). A Region may follow state boundaries, or be divided within a state, or a region may represent certain multi-state metropolitan areas. All regions have the full block of 700 MHz spectrum to allocate as meets the region's needs. Since regions adjoin other regions, conflicts in spectrum usage may occur near regional borders. For example, Region 7 (Colorado) is adjacent to eight other regions (including Region 52). The spectrum allocations of Region 7 may affect several nearby regions, and vice versa. One region can cause a ripple effect throughout the country. Region 8 in the Northeast is an example with a high anticipated need for frequencies, and with a high number of adjoining regions.

If you are not sure which region is yours, select a region near your geographic location. A map of that region will be displayed. Then, verify that your area (usually your county) appears on the map of the region. If necessary, repeat the process on the adjacent regions until you find the correct region.

Note: Region 99 is fictional created for demonstration purposes.



Note that there are several basic options available at this high-level view. Users may select Planning or Applications. A user may also choose Logout, which will close the session. To return to the application, the user must log in again.



Help screens are available by clicking the link in the upper right. Information about the current screen view is displayed. (See Figure 2-3).

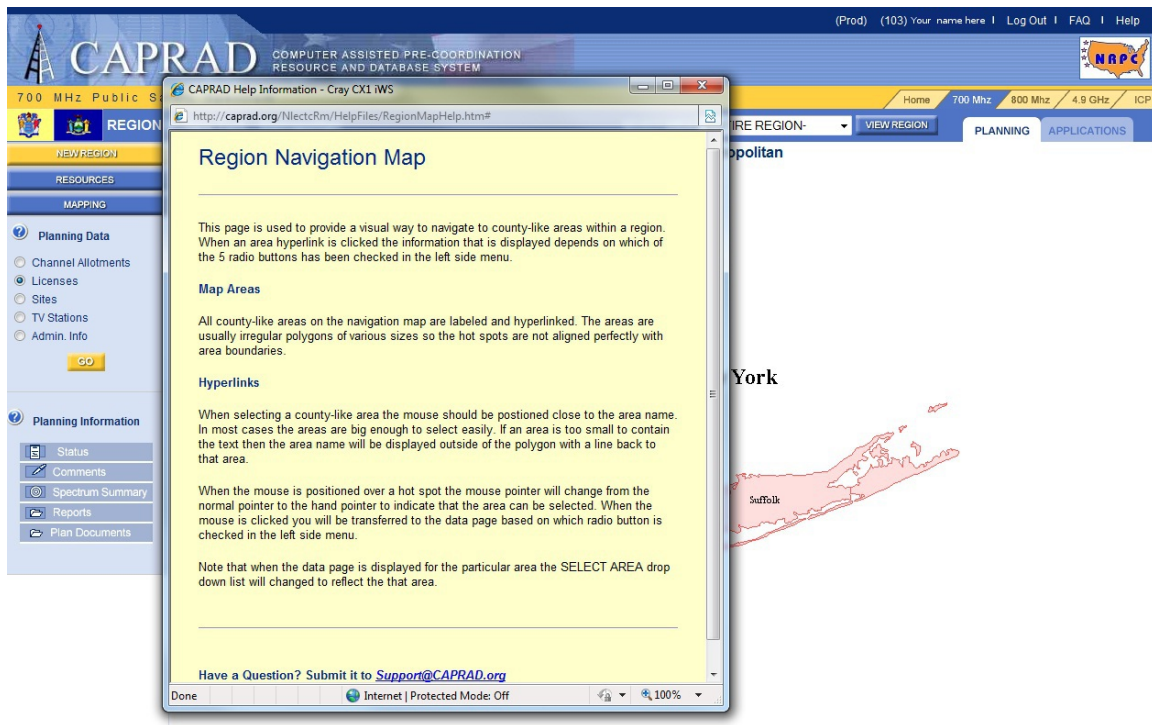


Figure 2-3
Help Screen

While logged on to CAPRAD the user ID or user name appears in the upper right. CAPRAD maintains profiles for each user (See Figure 2-4). Fields that can be changed by the user or system administrator are shown. After making the desired changes click the SAVE button to accept the changes.

The screenshot displays the CAPRAD (Computer Assisted Pre-Coordination Resource and Database System) interface. The top navigation bar includes the CAPRAD logo, the text 'COMPUTER ASSISTED PRE-COORDINATION RESOURCE AND DATABASE SYSTEM', and a 'Your Name Here' placeholder with links for 'Log Out', 'FAQ', and 'Help'. Below this is a yellow banner with 'WELCOME TO PUBLIC SAFETY SPECTRUM MANAGEMENT' and frequency links: 'Home', '700 Mhz', '800 Mhz', '4.9 GHz', and 'ICP'. The main content area is titled 'User Profile Information'. It contains a form for user details: 'UserId1' (RPC99MGR1), 'Address1' (351 N Williamson Blvd.), 'Address2' (empty), 'City' (Daytona Beach), 'State' (EL), 'Zip Code' (09344), 'Phone Number' (711.555.1000), 'Fax Number' (711.555.1234), and 'Total logins' (52). Other fields include 'Password' (masked with dots), 'Name' (Your Name Here), 'Role' (RPC Manager), 'Title' (empty), 'Organization' (Your Organization's Name), and 'Email' (NameY@apcointl.org). A message states: 'You have Manager authority for Region 99. You can View planning information in any region. You can also create Applications.' At the bottom of the form are 'Save your changes' and 'Done' buttons. A left sidebar lists 'RESOURCE LINKS' (AASHTO, APCO, FCC, FCCA, IMSA, NJ CommTech, NLECTC, NPSTC, INRPC) and 'PUBLIC INFORMATION' (Notices, Documents, Site Map). The footer contains 'Contacts', 'Log Out', 'FAQ', and 'Help' links.

Figure 2-4
User Profile Information

In the event a user forgets their password, a request can be sent to the CAPRAD administrator to reset the password. The user must answer a validation question to verify it matches the information in the database.

When the password is changed, the user will be prompted for the new password. The user will need to log in again with the new password, and then may continue their work.

Quiz #2: CAPRAD System Access

- 1) The basic roles in the CAPRAD System are
 - a. Engineering/technical, administration, responder, civilian
 - b. Legal authorities, fiscal resources, research, technical information and services, and specialized personnel
 - c. Production, training, and billing
 - d. Regional Planning Committee manager, Regional Planning Committee planner, Regional Planning Committee associate, Frequency coordinator, Applicant, and Visitor
- 2) To log in, the user
 - a. Selects the proper RPC on the map
 - b. Enters user name and password in the “LOG IN HERE” box
 - c. Is required to coordinate with the Regional Planning Committee
 - d. Must first drop to DOS and run the login.bat macro found on the C drive
- 3) If the user does not know what region he or she is in, he or she may
 - a. Consult with the agency GIS department, who most assuredly maintains an up-to-date region overlay in the computer system
 - b. Examines the first two digits of his or her postal ZIP code
 - c. Determine the FIPS code for the region of interest
 - d. Point-and-click on the map to drill into the county-like area of interest
- 4) User options are found
 - a. In the User Options screen
 - b. On the upper right of the display surrounding the NRPC logo
 - c. By pointing and clicking on the map
 - d. User options are hard-coded and cannot be changed
- 5) Which hardware is required to access the CAPRAD system? (check all that apply)
 - ☐ Personal computer with a single-user, multi-tasking operating system
 - ☐ Modem, NIC, Wi-Fi, or aircard with corresponding Internet connectivity
 - ☐ A W3C compliant web browser
 - ☐ Adobe Acrobat Reader

LESSON OBJECTIVES: The objective of this lesson is for each participant to

1. Develop a basic understanding of CAPRAD's capabilities in assisting the 700 MHz RPC
2. Become familiar with navigating through CAPRAD's 700 MHz features.

3.0 REGIONAL PLANNING

3.1 Introduction

CAPRAD displays a pre-allotment of public safety 700 MHz frequencies. Regions are able to coordinate their proposed use of the frequencies prior to the frequencies being assigned. The goal in the pre-allotment of frequencies is that all public safety jurisdictions have fair and equitable access to spectrum, and potentially achieve better co-channel utilization. This is also intended to minimize the potential conflicts from "first-come first-serve" frequency assignments.

The pre-allocation of 800 MHz spectrum by usage area was attempted in the NPSPAC plans. This national effort in the 800 MHz NPSPAC regions demonstrated that proper planning and cooperation is needed to ensure the availability of spectrum resources in densely populated regions could be optimized by pre-allocating the resource. This maximizes co-channel utilization while limiting interference from known sources such as adjacent channels.

When a user selects a region of interest, a map of the region will be displayed and the menu options in the left side bar will change. Figure 3-1 displays what would appear if you selected Region 99.

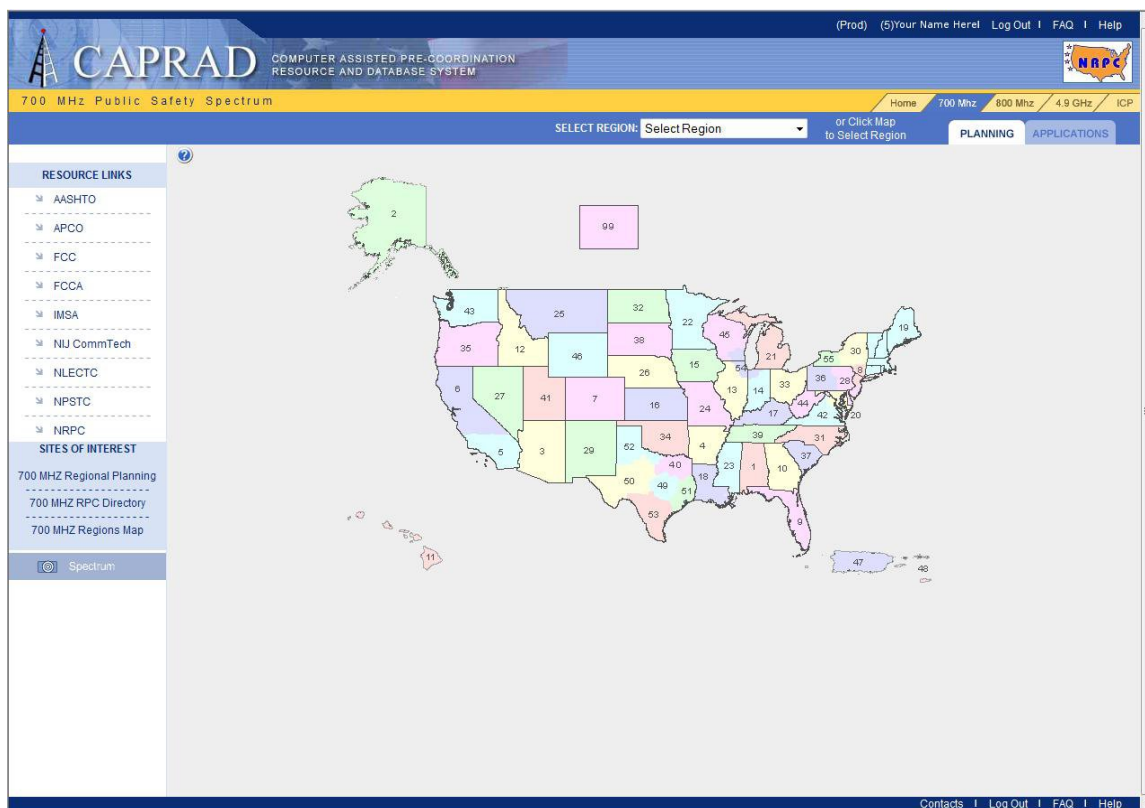


Figure 3-1
Regional Planning Display

CAPRAD system options appear at the top of the information display area and in the sidebar menu to the left. Table 3-1 describes the functions associated with the main menu options at the top of the display area. These menu options are general in nature and can be accessed any time, independent of the information being displayed in the information window.

Menus	Description	More Info in:
Regional Plans	Display a PDF file of Section 3 of the User's Guide in the information frame. Requires Adobe Acrobat Reader.	
User Name	Your user name enables user related information to be edited.	Section 2.5
Logout	Logout of the CAPRAD system. This will close the current browser window.	Section 2.1
New Region	Display a USA map with regions identified.	Section 2.5
Applications	Display applications menu and allow edit / review of applications within current region	Section 4.1
Documents	Display links to regional planning documents	Section 2.5
FAQ	Display information on the Frequently Asked Questions associated with Regional Planning.	Section 4.2
Help	Receive contextual help for whatever information is being displayed in the information frame.	Section 4.2

Table 3-1
Main Menu Options

The menu beneath the Options tag in the sidebar display can be used to access functions that directly relate to the regional planning function. Table 3-2 reviews the sidebar menu options.

Menus	Description	More info at/in:
Select Area	Specifies the valid political entities within the region currently viewed. The list is alphabetical and generally restricted to counties. Some regions also include independent cities (VA, MD, and MO) or census areas (AK) that have their own "county-like" government.	Section 3.2
View Map	Re-display the region map. This may be necessary as other functions will display their information in the map area.	Section 3.2
Select Data	Identify the various data that are available to the regional planner. They include: antennas, channel allotment, and admin info.	Section 3.3
Regional Plan	These various hyperlinks will allow you to review the plan status, plan comments, regional spectrum, or see regional reports on allocation progress.	Section 3.4
Review Document Plan	Allows you to review the regional planning document that details the region's spectrum allocation.	Section 3.5
Plan Documents	Upload a new version of or review the regional planning document.	Section 3.5

Table 3-2
Sidebar Menu Options

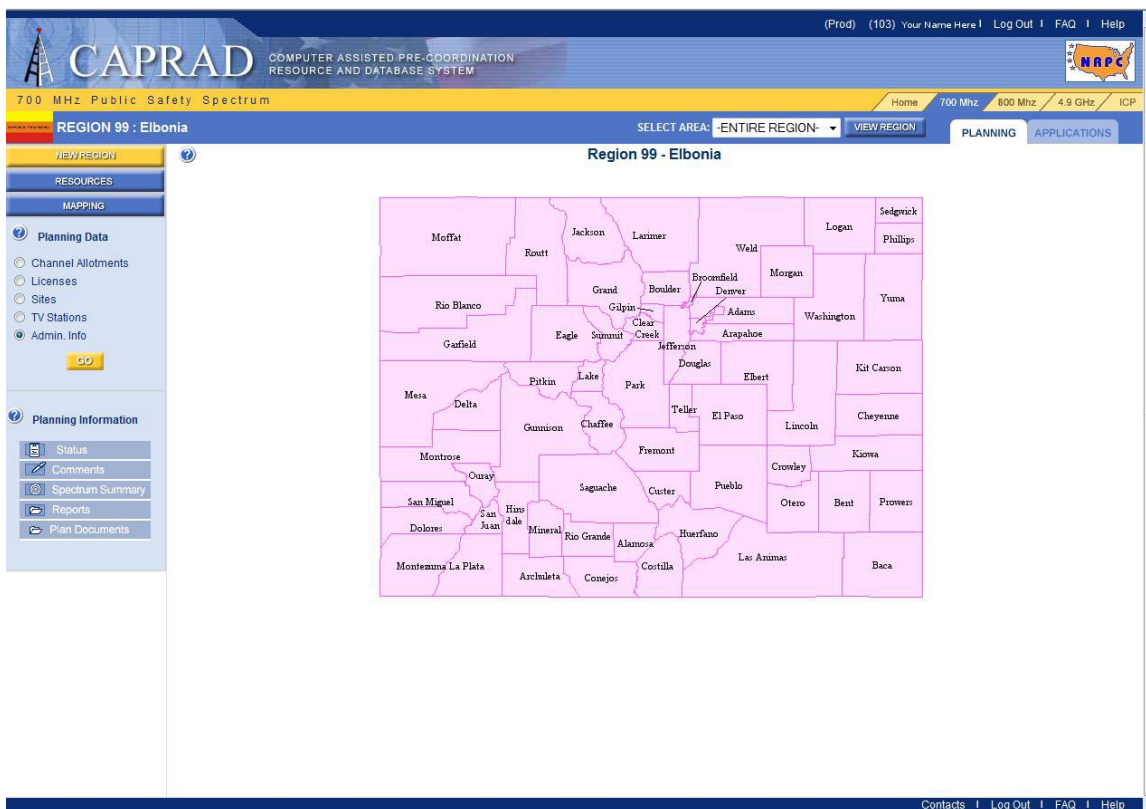


Figure 3-2
Regional Map and Area Selection

3.2 Areas and Maps

The entire regional planning area can be viewed on a map by selecting View Region. A specific area in the region can be selected from the Select Area drop down list, or by clicking the area on the map, to display the data associated with the area selected. The map is hyperlinked to display the data associated with the name of any county or city defined on the map. For example, by selecting Channel Allotments under Planning Data, and the Arapahoe County area, a list of channel allotments assigned to Arapahoe County will be displayed. (Or click the GO button under Planning Data to display the information.) Information may be edited in the appropriate columns and saved by clicking save changes.

State License*	Voice 12.5KHz	225-226	770.406250	800.406250	
State License*	Voice 12.5KHz	233-234	770.456250	800.456250	
Arapahoe	Hyperlink to editable page				
General Use	Voice 12.5KHz	41-42	769.256250	799.256250	
General Use	Voice 25.0KHz	97-100	769.612500	799.612500	
General Use*	Voice 12.5KHz	51-52	769.318750	799.318750	700 I/O usage
General Use*	Voice 12.5KHz	99-100	769.618750	799.618750	
General Use*	Voice 12.5KHz	139-140	769.868750	799.868750	
General Use*	Voice 12.5KHz	201-202	770.256250	800.256250	
Interoperability	Voice 6.25KHz	23	769.140625	799.140625	This Note WQDU922

The Select Area dropdown list includes Entire Region, and by selecting this option you can view planning data for the entire region. Please note that editing data is not permitted when viewing the entire region.

Planning Information is located below Planning Data. The Planning Information options (Status, Comments, etc.) relate to the Entire Region and are not able to be used when selecting a specific area within the region. Clicking on any of the options in Planning Information will default to the Entire Region. Figure 3-2 shows a representation of the channel allotments that would be shown for the entire region.

700 MHz Public Safety Spectrum

REGION 99 : Elbonia

SELECT AREA: ENTIRE REGION- VIEW REGION

PLANNING APPLICATIONS

Region 99 - Elbonia

Channel Allotments

Last Update: 04/19/2011

Average 25KHz General Use allotments per county: 0.2

Average General Use bandwidth per county: 4KHz

Class	Band Width	Channel	Base Frequency	Mobile Frequency	Notation	Callsigns
<u>Statewide</u>						
General Use*	Voice 12.5KHz	51-52	769.318750	799.318750	700 I/O usage	
General Use*	Voice 12.5KHz	99-100	769.618750	799.618750		
General Use*	Voice 12.5KHz	139-140	769.868750	799.868750		
General Use*	Voice 12.5KHz	201-202	770.256250	800.256250		
Interoperability*	Voice 12.5KHz	79-80	769.493750	799.493750		
Interoperability*	Voice 12.5KHz	143-144	769.893750	799.893750		
Interoperability*	Voice 12.5KHz	183-184	770.143750	800.143750		
Interoperability*	Voice 12.5KHz	303-304	770.893750	800.893750		
Interoperability*	Voice 12.5KHz	937-938	774.856250	804.856250		
I/O Nationwide Call*	Voice 12.5KHz	989-1000	769.243750	799.243750		
I/O Low Speed Data*	Voice 12.5KHz	921-922	774.756250	804.756250		
State License*	Voice 12.5KHz	25-26	769.156250	799.156250		
State License*	Voice 12.5KHz	65-66	769.406250	799.406250		
State License*	Voice 12.5KHz	155-156	769.968750	799.968750		
State License*	Voice 12.5KHz	225-226	770.406250	800.406250		
State License*	Voice 12.5KHz	233-234	770.456250	800.456250		
<u>Adams</u>						
General Use	Voice 12.5KHz	41-42	769.256250	799.256250	700 S.T. Reserved	
General Use*	Voice 12.5KHz	51-52	769.318750	799.318750	700 I/O usage	
General Use*	Voice 12.5KHz	99-100	769.618750	799.618750		
General Use*	Voice 12.5KHz	139-140	769.868750	799.868750		
General Use*	Voice 12.5KHz	201-202	770.256250	800.256250		
Interoperability	Voice 12.5KHz	103-104	769.643750	799.643750	700 I/O	

Figure 3-3: Regional Summary Information

3.3 Regional Planning Data

Regional Planning Data has a variety of options to assist with regional planning. The planning options can be found the left sidebar menu.

- Channel Allotments
- Licenses
- Sites
- TV Stations
- Admin Info

The following describes how to use each of the Planning Data options. Note that channel allotments are area-specific. Frequency information can only be modified for an area selected with the region. The channel allotments for Entire Region may be viewed, but frequency information may not be modified when viewing the Entire Region.

3.3.1 Channel Allotments

The primary function of the Regional Plan is to identify channel allotments for optimal use frequency resources. The Regional Plan is a planning tool to identify appropriate frequencies for application and submission using FCC Form 601. This may be especially important in high-population-density regions to ensure access to frequencies for all eligible entities and mitigate potential conflicts. The CAPRAD database can be pre-loaded with channel allotments based on regional planning guidelines to optimize regional frequency allotments by automated means prior to RPC review. Whether allotments are pre-loaded in the plan or developed by the RPC, the CAPRAD system supports flexibly in assigning frequencies to the various areas within the region. CAPRAD provides informational guidance and basic FCC guidelines to enforce structure in the planning process.

Channel allotments are divided into segments defined by the FCC. The full spectrum block is available for each region. Interoperability, general-use, low-power and state channels are available for allotment in the Regional Plan. Note: Reserved channels are not available for allotment.

The FCC spectrum allotment is divided into 6.25 KHz channels for narrow-band use. The system allows channels to be allotted in 6.25 KHz, 12.5 KHz (2 channel) or 25 KHz (4 channel) groups in the narrow-band range. FCC rules associated with how channels can be grouped are strictly enforced (e.g., an odd-numbered channel must start each narrow band allotment). Choosing the Channel Allotment option combined with a valid area selection choice allows information to be reviewed or edited for that area. Figure 3-5 shows a typical channel allotment display. You can display this information by choosing the area from the Select Area dropdown, positioning the planning option to Channel Allotment and then clicking on the GO button. Or, you can display the map, position the planning option to Channel Allotments, and click the desired area as identified by the text on the map. Note that this selection will create the appropriate center frequency for the assigned channel spaces considering the appropriate bandwidth.

3.3.2 FCC Licenses

CAPRAD shows licenses that are currently authorized in the region from the FCC Universal Licensing System (ULS). A license may be viewed by selecting the county and subsequently scrolling down to the particular callsign desired.

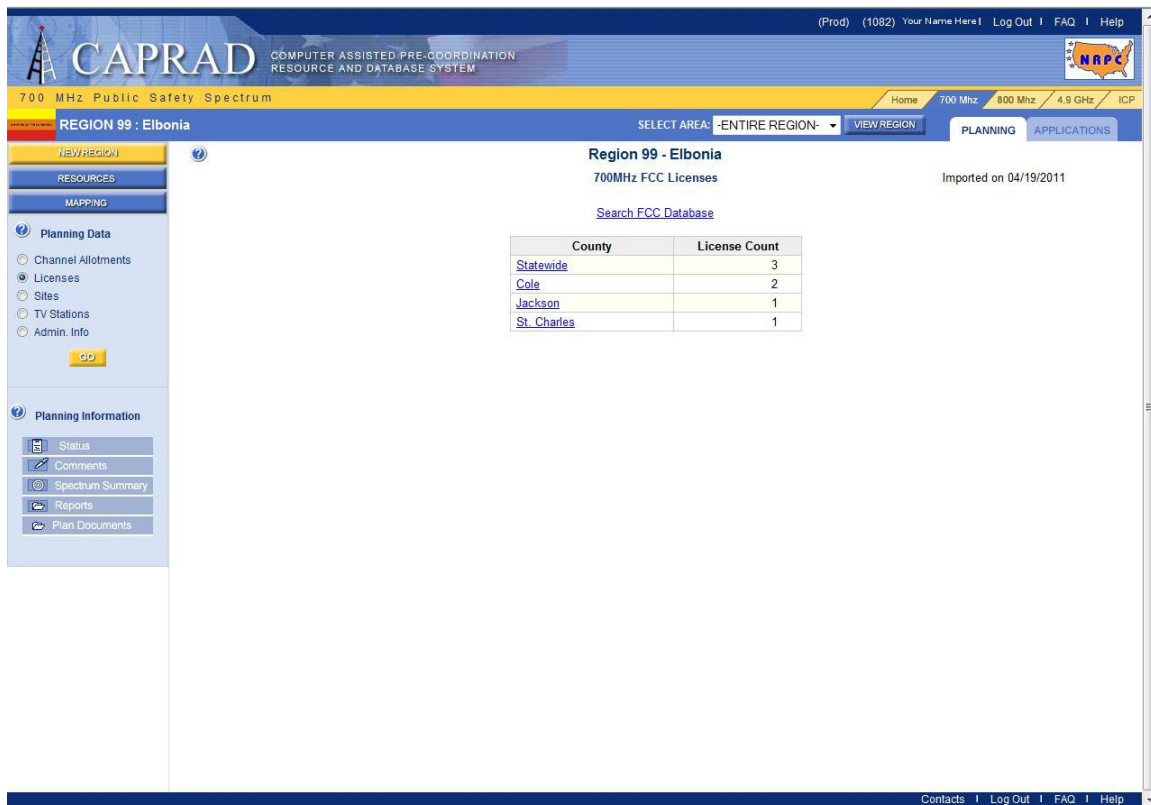


Figure 3-4
FCC Licenses

3.3.3 Sites

CAPRAD allows users to assign antenna location information for existing or proposed antenna locations in the region that belong to a State License. State License channels do not require a 601 form, which allows users to track where these channels are in use. When a State License channel is assigned to an antenna location in CAPRAD, this is the equivalent of the FCC granting a license for that channel. These assignments can also be monitored and updated with information as regional plans change. The purpose of the antenna assignments is to provide basic reference points for State License channel usage.

Data is managed as an antenna site. Antenna locations may contain multiple antennas, and antennas may carry multiple channels. To review existing antenna sites for the entire region, set the regional area to be "Entire Region" in the drop down box, select the "Antenna" option and then select the "GO" button. The information will be displayed in the format represented in Figure 3-3. All counties in the region are displayed with their geographic county centers identified. For those counties with State License antennas assigned, basic antenna site information is also displayed. This information is an aggregation of all the antennas at the site. It includes the antenna identifier (assigned by the User) and the channels represented by the antennas at the site. To see details with respect to any given antenna, select the show button and additional details will be displayed. These include antenna coverage, ERP, height and the channels assigned to each antenna at the site.

To enter antenna information within the region, a user must have the appropriate rights to make changes, such as the RPC manager. Simply select the county for which an assignment is to be made from the drop down box in the left side menu bar, then select GO, being sure that the "Antenna" selection has been

made. A display similar to the one shown in Figure 3-5 will be shown. Enter the new site information in the input boxes on the “Add” line and then press “Save”. It is possible to manually enter incorrect coordinate values, so be sure the antenna location is actually within the area being selected. Check your information to be sure the coordinates are valid.

Site Name	Latitude NAD83	Longitude NAD83	Call Signs
Adams	55-52-00.0N	104-23-00.0W	
Adams 3	55-52-04.0N	104-23-08.0W	
Alamosa	53-36-00.0N	064-48-00.0W	
Arapahoe	55-39-00.0N	104-23-00.0W	
Kiowa	55-39-30.0N	104-26-11.0W	
Plains	55-39-30.0N	104-18-30.0W	
Archuleta	53-11-00.0N	107-02-00.0W	
Baca	53-20-00.0N	102-33-00.0W	
Bent	53-58-00.0N	103-04-00.0W	
Boulder	56-05-00.0N	105-21-00.0W	
Broomfield	55-56-38.0N	105-03-42.0W	
Chaffee	54-46-00.0N	106-11-00.0W	
Cheyenne	54-50-00.0N	102-36-00.0W	
Clear Creek	55-41-00.0N	105-39-00.0W	
Conejos	53-13-00.0N	106-11-00.0W	
Costilla	53-16-00.0N	105-26-00.0W	
Crowley	54-21-00.0N	103-47-00.0W	
Custer	54-07-00.0N	105-22-00.0W	
Delta	54-51-00.0N	107-51-00.0W	
Denver	55-40-00.0N	104-57-00.0W	
Dolores	53-46-00.0N	108-31-00.0W	
Douglas	55-20-00.0N	104-57-00.0W	
Eagle	55-38-00.0N	106-42-00.0W	
El Paso	54-50-00.0N	104-31-00.0W	
Elbert	55-18-00.0N	104-03-00.0W	
Fremont	54-29-00.0N	105-24-00.0W	
Garfield	55-33-00.0N	107-50-00.0W	
Gilpin	55-51-00.0N	105-31-00.0W	

Figure 3-5
Site Review for Entire Region

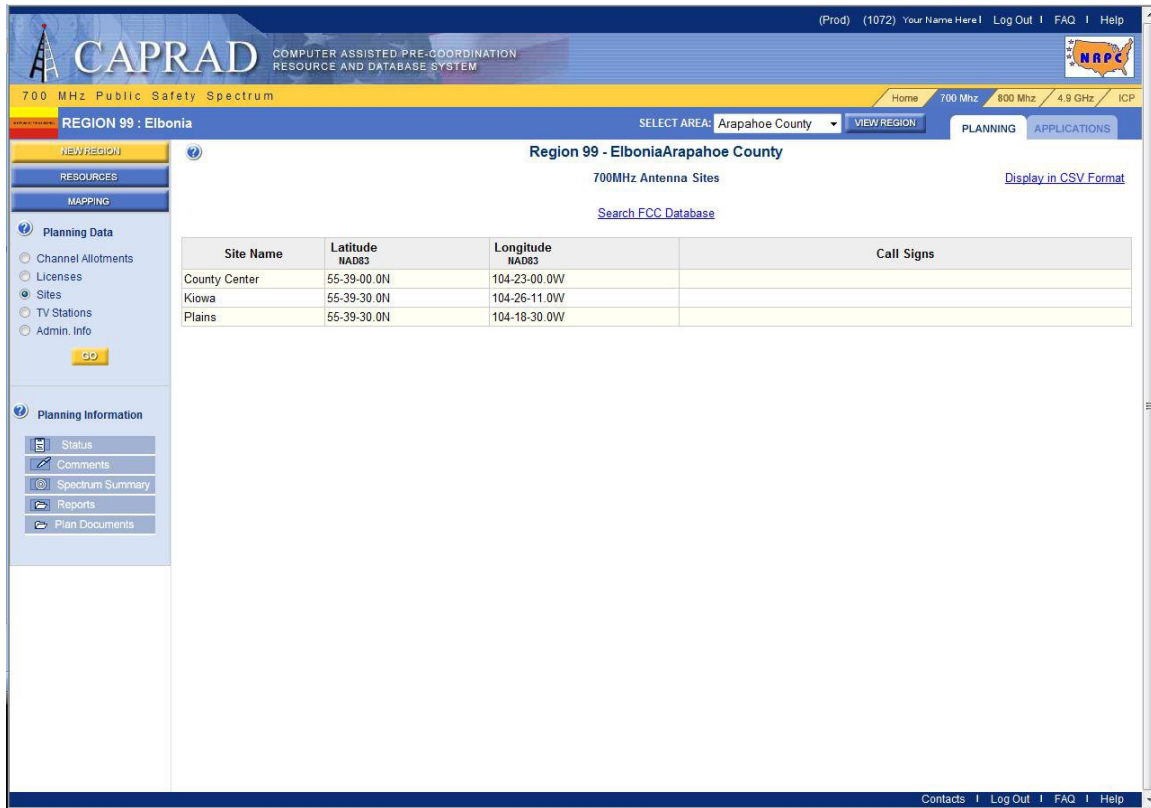


Figure 3-6
Site Details for a Specific Area

3.3.4 TV Station Data

The public safety 700 MHz spectrum was reallocated from TV stations operating on channels 63, 64, 68, and 69. Although the migration to digital television (DTV) required most of the stations operating on these channels to cease operation by June 12th, 2009 and move to their new digital allocation, current rules allow low-power broadcasters and analog television translators the continued ability to operate.

The TV Station window provides access to imported television station information within the given region. Note that if stations are listed, many of them may have been vacated. This resource provides hypertext links to relevant FCC Media Bureau searches so that RPC notification to remaining low power broadcasters may be done as needed.

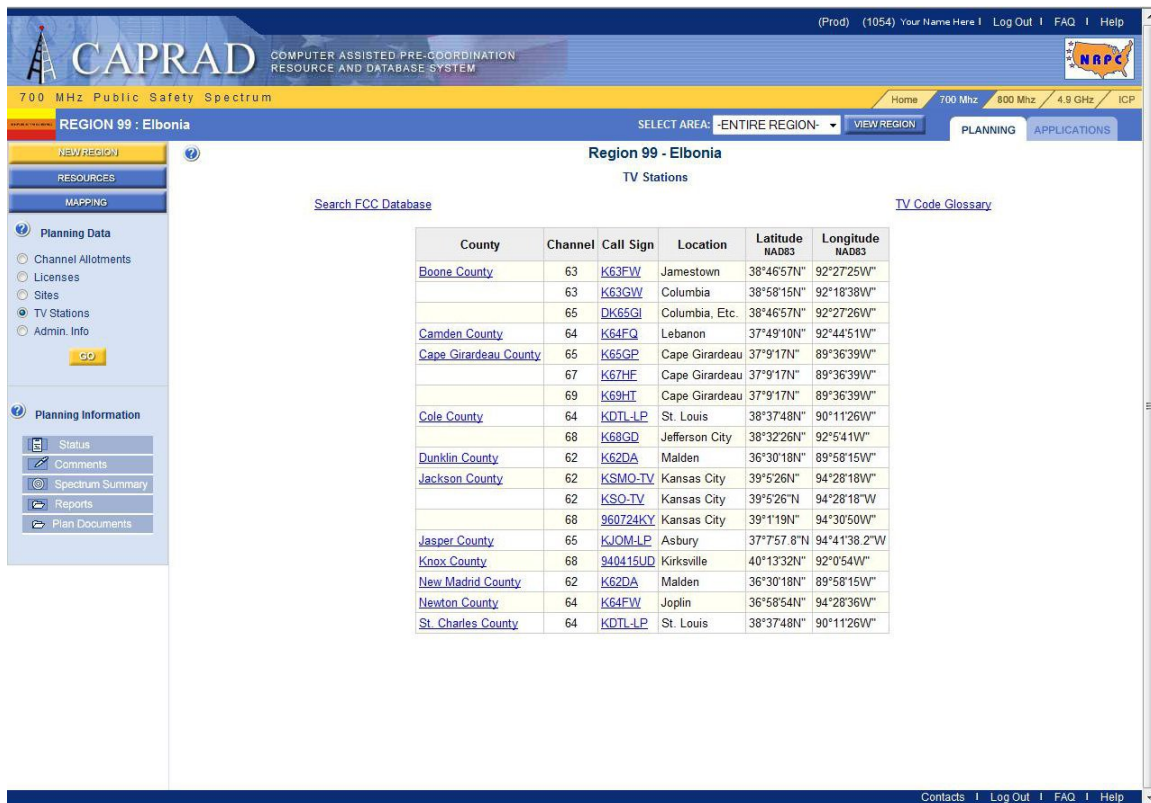


Figure 3-7
TV Stations

3.3.5 Admin Info

The option to review and edit administrative information by area is also provided in the selected data category. Users can review the basic information associated with each area in a region. RPC users also have the capability to edit where the county “center” is located. Distances are important within the allocation process because counties determined to be 100 km or farther from the allotting county are determined not to have an impact on the allocation of the current county. Distances between counties are measured from the county centers. County centers are initially set to be the geographic center, as determined by the USGS, to the nearest minute. This is adequate in many instances, but it is possible that in a given county the antenna location for a center area will be at the highest point in the county, which is not at its center but at its western edge. In that case it may make sense to move the county center to the most likely spot for an antenna location. Another example may be an irregular-shaped county that produces a centroid value (the central point coordinate) that is outside of the county. Iron County, Missouri is one such example (see: http://en.wikipedia.org/wiki/Iron_County,_Missouri). In this case, the RPC manager is able to manually assign a centroid value that suits the RPC’s requirements.

Figure 3-8 shows the Admin Info display for a typical area. Note that only the latitude and longitude to the nearest second are capable of being changed by the RPC. All other data is provided for informational purposes and may not be changed. Only RPC users can change geo-coordinate information for an area. Choosing Entire Region under Select Area will display contact information for the RPC of that region.

Figure 3-8
Administrative Information

3.4 Regional Plan Options

The regional planning options are hyperlinks that allow the user to review/modify data that is region wide and pertains to the regional plan that the FCC requires each region to prepare.

3.4.1 Regional Plan Status

An objective of each region is to generate a channel allotment plan that can be approved by each of the adjacent regions, and then by the FCC. CAPRAD tracks this process by assigning various status codes to the plan to mark its progress. The status codes are summarized in Table 3-3. The RPC manager is the only user who can change the status of the Regional Plan. Other RPC members can modify allotments or upload new versions of the plan, but may not change the status. This provides some control over the status and ensures there is degree of coordination at the RPC level. Figure 3-9 is a sample of what you might see if you were to review the status of an RPC plan.

Status	Description
None	The default status of all regional plans.
In process	The initial status set by an RPC when work has begun on writing the plan narrative and allotting frequencies to the various areas within the region.
Review by Adjacent RPCs	The status set when the plan narrative includes the draft allotment of

	frequencies to the areas within the region. All adjacent regions are given the opportunity to review and comment on the plan.
Finalized, submitted to the FCC	When all adjacent RPCs have had the opportunity to comment on/approve a plan, the RPC can change the status. If all is okay, the plan is submitted to the FCC for their approval. If not, the RPC can revert the status back to In Process.
Approved	Identifies the plan as having been approved for implementation by the FCC.

Table 3-3
Regional Plan Status Options

Date/Time (Mtn Time)	Person	Activity
05/28/2010 03:39 pm	Paul Bernard 99	Document uploaded: Canadian tall ship SV Concordia sails into Halifax, Nova Scotia.jpg
05/28/2010 11:17 am	Paul Bernard 99	Document deleted: Original_Region99_State_Channel_Allotments.csv
05/28/2010 11:17 am	Paul Bernard 99	Document deleted: Original_Region99_General_Use_Allotments.csv
05/28/2010 11:05 am	Paul Bernard 99	Document uploaded: Lightning over Swiss Federal Palace in Bern.jpg
05/14/2010 12:36 pm	Steve Makky	Status changed to: Finalized, submitted to FCC
05/06/2010 05:36 pm	Paul Bernard 99	Document uploaded: Bottomliners 2010-04-26.gif
04/26/2010 11:31 am	Dave Funk99	Status changed to: In Process
04/26/2010 11:30 am	Dave Funk99	Status changed to: In Process
04/26/2010 11:29 am	Dave Funk99	Status changed to: Finalized, submitted to FCC
04/26/2010 11:28 am	Dave Funk99	Status changed to: In Process
04/09/2010 05:15 pm	Paul Bernard 99	Status changed to: Finalized, submitted to FCC
04/08/2010 05:15 pm	Paul Bernard 99	Status changed to: Review by Adjacent RPCs
04/08/2010 05:11 pm	Paul Bernard 99	Status changed to: In Process
04/08/2010 05:10 pm	Paul Bernard 99	Status changed to: Review by Adjacent RPCs
04/08/2010 04:57 pm	Test Planner 99	Status changed to: Approved
04/08/2010 04:56 pm	Test Planner 99	Status changed to: In Process
04/08/2010 04:55 pm	Test Planner 99	Status changed to: Review by Adjacent RPCs

Figure 3-9
Regional Plan Activity Log

The RPC may change the status as deemed appropriate. Status changes are logged identifying the user, the status change, and time stamp. An event log displays the current status and the activity history (Figure 3-9). When a change of status occurs the RPC notifies its adjacent regions. Email notifications are drafted in the text boxes provided and sent by clicking the SEND button (Figure 3-10). RPC managers receive notifications on their email address maintained in CAPRAD. It is important that RPCs keep their contact information updated in the system.

Figure 3-10
Plan Status Changes and Adjacent Region Notification

When the RPC is ready for their plan to be reviewed, notification is sent to the adjacent regions to request review and approval of the plan. Each adjacent RPC sends notification back to the requesting RPC their approval response (Yes/No). The response is recorded and displayed when the status is reviewed.

Note that if the requesting RPC changes their plan status from “Review by Adjacent RPCs” back to “In Process,” then any previous adjacent RPCs approvals will revert to No. This will require all adjacent RPCs to review the plan again, and when ready, indicate their approval.

3.4.2 Comments

Comments may be submitted by adjacent RPCs to identify issues or suggest changes to a regional plan (Figure 3-11). Any user can review plan status and comments. However, only an RPC or adjacent RPC can update the status, and create or revise comments on a plan. Open dialog is encouraged between regions to coordinate on adjacent regional issues and mitigate potential conflicts. The first 40 characters in the comments box are displayed. Click the Show button to display the entire comments. RPCs and Adjacent RPCs may add, modify, or delete comments. The originator of a comment is identified in the Reviewer column. Only the user who originated the comment may edit or delete their comments by clicking the Edit button that appears in the Edit column. After editing a comment click the SAVE button to save the changes. To remove a comment entirely, simply click the DELETE button. To add a new comment, click the NEW button. Anyone else viewing comments, and is not the originator, will see the Show button and can only view the comments.

The screenshot shows the CAPRAD web application interface. The top navigation bar includes links for Home, 700 Mhz, 800 Mhz, 4.9 GHz, and ICP. The main content area is titled 'Region 99-Elbonia' and shows 'Plan Comments' with a status of 'In Process'. A table of comments is displayed, with the following data:

Edit	Created (Mtn Time)	Updated (Mtn Time)	Organization	Reviewer	Comments
1. Show	08/13/2008 10:08 PM	08/13/2008 10:08 PM	Region 99	Test Planner 99	The system is back on the DU server.
2. Show	07/31/2008 12:42 PM	07/31/2008 12:43 PM	Region 99	Test Planner 99	This is one more comment for the new sys
3. Show	07/30/2008 12:46 PM	07/30/2008 12:46 PM	Region 99	Test Planner 99	This is a new comment for region 99.
4. Show	09/29/2006 03:56 PM	09/29/2006 03:56 PM	Testers-R-Us	Test700 Mgr99	This comment should confirm that this fe
5. Show	03/07/2005 12:32 PM	03/07/2005 12:32 PM	X3 Inc.	Test Planner	looks like a good test.
6. Show	03/07/2005 12:14 PM	03/07/2005 12:14 PM	Region 99	Test Mgr	and here is another test comment
7. Show	03/07/2005 11:37 AM	03/07/2005 11:37 AM	Testers-R-Us	Test700 Mgr99	This is the first comment for this regio

Figure 3-11
Sample of Comments

3.4.3 Spectrum Allotment

The FCC provided the general framework for the regional spectrum allocation. RPCs were tasked with the responsibility to identify specific rules and process in their plans. Table 3-4 defines the status of different channel assignments by the region. The status of a specific channel may vary according to the status assigned by the RPC. Any user may view the channel assignments, however, only the RPC manager has editing privileges. Figure 3-13 illustrates what the RPC manager would see when assigning channel status. The different channel categories (General Use, Interoperability, etc.) can be viewed using 6.25 kHz, 12.5 kHz, and (where applicable) 25 kHz channel assignments.

Status	Definition
Free	The channel has not been assigned.
Blocked	The channel has been blocked by the RPC and is not available for use. For example, reserved channels are automatically blocked.
Allotted	The channel has been allotted to one or more areas in the region.
Shared	One or more channels are defined within a range (or block of channels) according to bandwidth. Example: Channels 13-16 is defined as a 25 kHz block of four channels. Channel 13 is a single 6.25 kHz channel denoted as shared. Channels 13-14, and 15-16, is defined as a 12.5 kHz block denoted as allotted. Channels 13-16 in the 25 kHz block is denoted as allotted.

Table 3-4
Spectrum Status Definitions

A spectrum overview and channel classifications are shown in Figure 3-12. There are up to 154 different possibilities for channel pair assignments. Channels not yet allotted may be assigned a new status, which will affect how the channels are used in the regional plan. Channel status may be displayed in tabular form as shown in Figure 3-13, or in CSV (comma-separated value) format as shown in Figure 3-14. The CSV makes it easy to copy and paste the data to export into a spreadsheet or other programs.

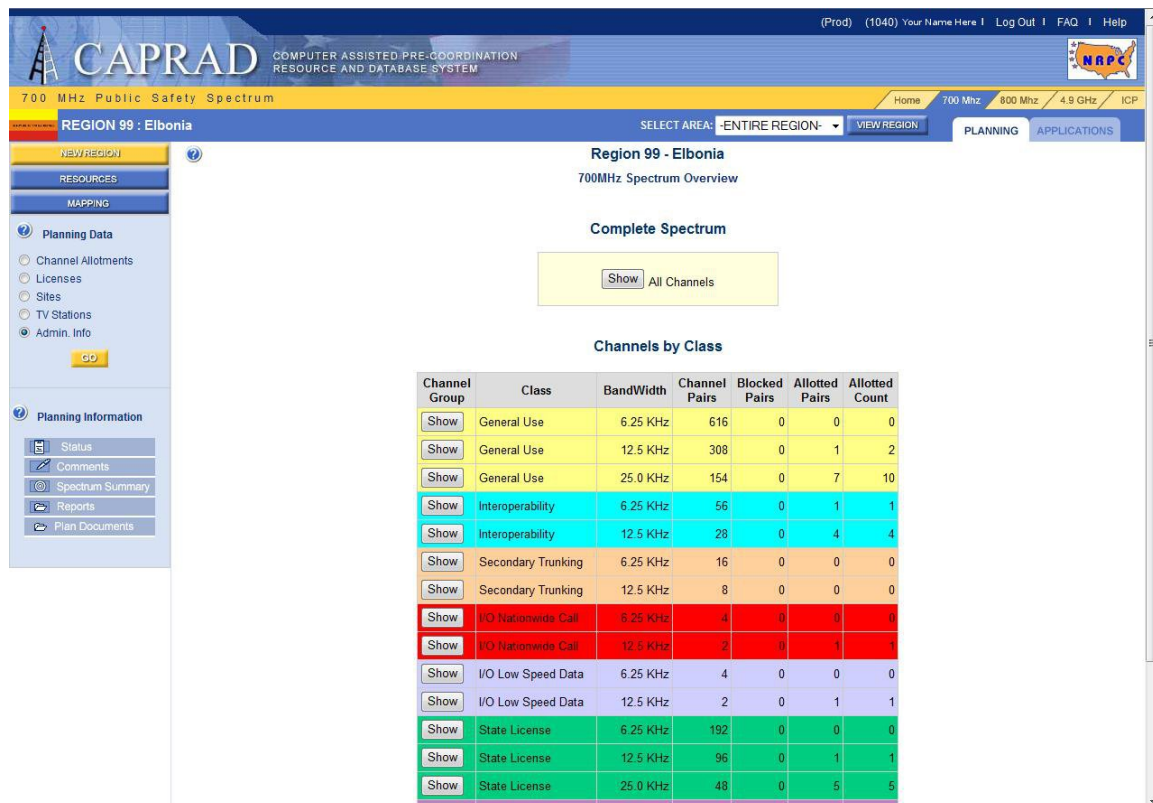


Figure 3-12
Regional Plan Spectrum Overview

CAPRAD COMPUTER ASSISTED PRE-COORDINATION RESOURCE AND DATABASE SYSTEM

700 MHz Public Safety Spectrum

REGION 99 : Elbonia

SELECT AREA: ENTIRE REGION- VIEW REGION

PLANNING APPLICATIONS

Region 99 - Elbonia
General Use 25KHz Channels

Pages: 1 2

[Display All Channels in CSV Format](#)

Row	FCC Channel	Base Frequency	Mobile Frequency	Allotment Status
1	13-16	769.087500	799.087500	
2	17-20	769.112500	799.112500	
3	41-44	769.262500	799.262500	Allotted (at 12.5KHz)
4	45-48	769.287500	799.287500	
5	49-52	769.312500	799.312500	
6	53-56	769.337500	799.337500	
7	57-60	769.362500	799.362500	
8	81-84	769.512500	799.512500	Allotted
9	85-88	769.537500	799.537500	Allotted
10	89-92	769.562500	799.562500	
11	93-96	769.587500	799.587500	
12	97-100	769.612500	799.612500	Allotted
13	121-124	769.762500	799.762500	Allotted
14	125-128	769.787500	799.787500	
15	129-132	769.812500	799.812500	
16	133-136	769.837500	799.837500	
17	137-140	769.862500	799.862500	
18	161-164	770.012500	800.012500	
19	165-168	770.037500	800.037500	
20	169-172	770.062500	800.062500	
21	173-176	770.087500	800.087500	
22	177-180	770.112500	800.112500	
23	201-204	770.262500	800.262500	Allotted
24	205-208	770.287500	800.287500	
25	209-212	770.312500	800.312500	
26	213-216	770.337500	800.337500	
27	217-220	770.362500	800.362500	

Figure 3-13
Spectrum Allotment Status Assignments

CAPRAD COMPUTER ASSISTED PRE-COORDINATION RESOURCE AND DATABASE SYSTEM

700 MHz Public Safety Spectrum

REGION 99 : Elbonia

SELECT AREA: ENTIRE REGION- VIEW REGION

PLANNING APPLICATIONS

Region 99 - Elbonia
General Use 25KHz Channels

Pages: 1 2

[Display All Channels in CSV Format](#)

```

700MHz General Use 25KHz Channels
Channel,Base Frequency,Mobile Frequency
"13-16",769.0875,799.0875
"17-20",769.1125,799.1125
"41-44",769.2625,799.2625
"45-48",769.2875,799.2875
"49-52",769.3125,799.3125
"53-56",769.3375,799.3375
"57-60",769.3625,799.3625
"81-84",769.5125,799.5125
"85-88",769.5375,799.5375
"89-92",769.5625,799.5625
"93-96",769.5875,799.5875
"97-100",769.6125,799.6125
"121-124",769.7625,799.7625
"125-128",769.7875,799.7875
"129-132",769.8125,799.8125
"133-136",769.8375,799.8375
"137-140",769.8625,799.8625
"161-164",770.0125,800.0125
"165-168",770.0375,800.0375
"169-172",770.0625,800.0625
"173-176",770.0875,800.0875
"177-180",770.1125,800.1125
"201-204",770.2625,800.2625
"205-208",770.2875,800.2875
"209-212",770.3125,800.3125
"213-216",770.3375,800.3375
"217-220",770.3625,800.3625
"241-244",770.5125,800.5125
"245-248",770.5375,800.5375
"249-252",770.5625,800.5625
"253-256",770.5875,800.5875
"257-260",770.6125,800.6125
"281-284",770.7625,800.7625
"285-288",770.7875,800.7875
"289-292",770.8125,800.8125
"293-296",770.8375,800.8375
"297-300",770.8625,800.8625
"321-324",771.0125,801.0125
"325-328",771.0375,801.0375
"329-332",771.0625,801.0625
"333-336",771.0875,801.0875
"337-340",771.1125,801.1125
"341-344",771.1375,801.1375
"345-348",771.1625,801.1625

```

Figure 3-14
Comma-separated Values Format

3.4.4 Reports

RPC users can generate a variety of regional plan reports as illustrated in Figure 3-15. This option is not available to general users or adjacent RPCs. These reports provide summaries of channel allotments, comments, RPC members, and other information. Selecting the desired report and clicking the Show button will generate the report. Reports for channel allotments and antenna sites can also be generated in CSV format.

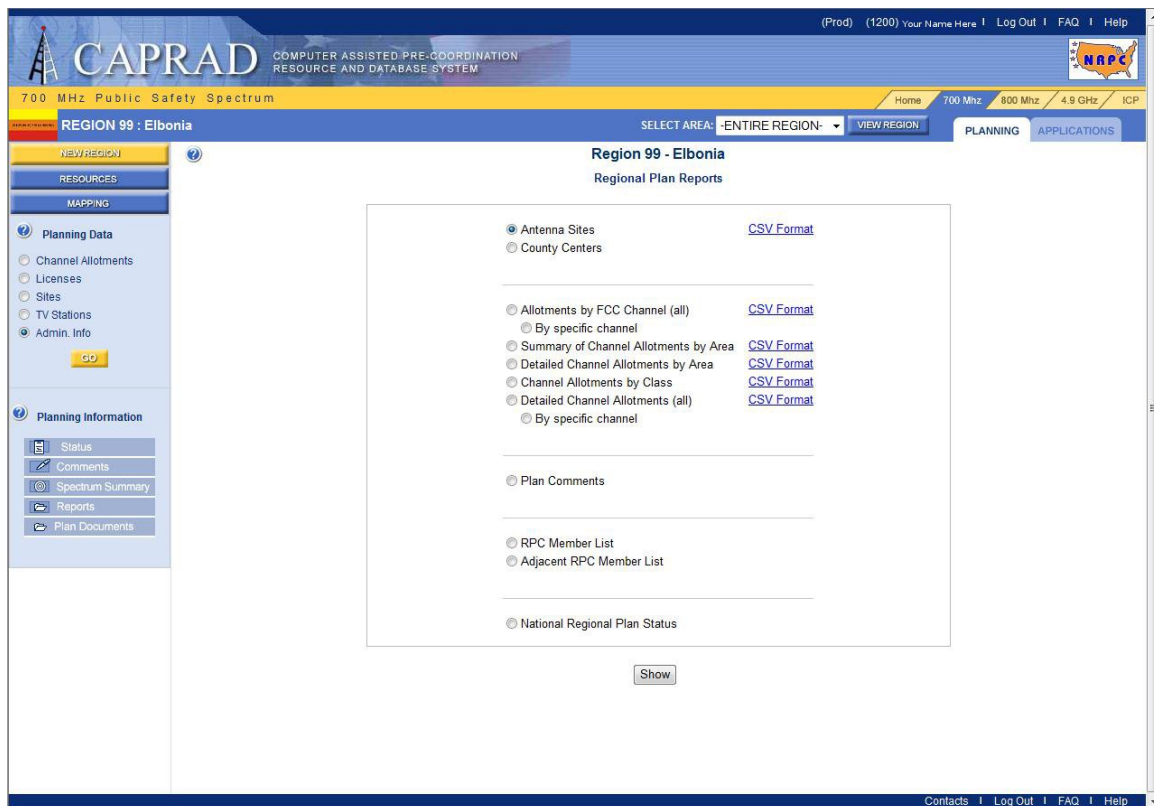


Figure 3-15
Regional Plan Reports

Reports are easily copied and pasted into other programs for use in regional plans and other documents as desired. See the instructions below (these steps may vary depending on your browser).

For Microsoft Internet Explorer:

1. To position in the correct frame, place the mouse in the displayed information window and click the left mouse button (there is no visible result).
2. Select the Edit Option from the top row menu in Internet Explorer
3. Choose Select All from the drop down list. All text in the display information area should be highlighted.
4. Select the Edit button on the top row menu in Internet Explorer
5. Choose Copy from the Edit menu options. This places all of the information into the Windows clipboard.

6. Open Notepad (Notepad++, WordPad, or Word) using your version of Windows.
7. Paste the information into a “new” document.
8. Save the information as a text (.txt) file (e.g., “region7.txt”).

For Comma-separated Value (CSV) files:

1. Click the link “CSV Format” to the right of the report.
2. A new window opens with the information.
3. Select the Edit Option from the top row menu in Internet Explorer, or right click.
4. Choose “Select All” from the drop down list. All the text is highlighted.
5. Select the Edit button on the top row menu in Internet Explorer, or right click.
6. Choose “Copy” to place the information onto the Windows clipboard.
7. Open Notepad (Notepad++, WordPad, or Word).
8. Paste the information into a “new” document.
9. Save the information as a CSV (.csv) file (e.g., “region7.csv”).

Once saved in a .txt or .csv file the data can be used with a variety of tools, such as spreadsheets, word processors, and database programs as shown in Figure 3-16.

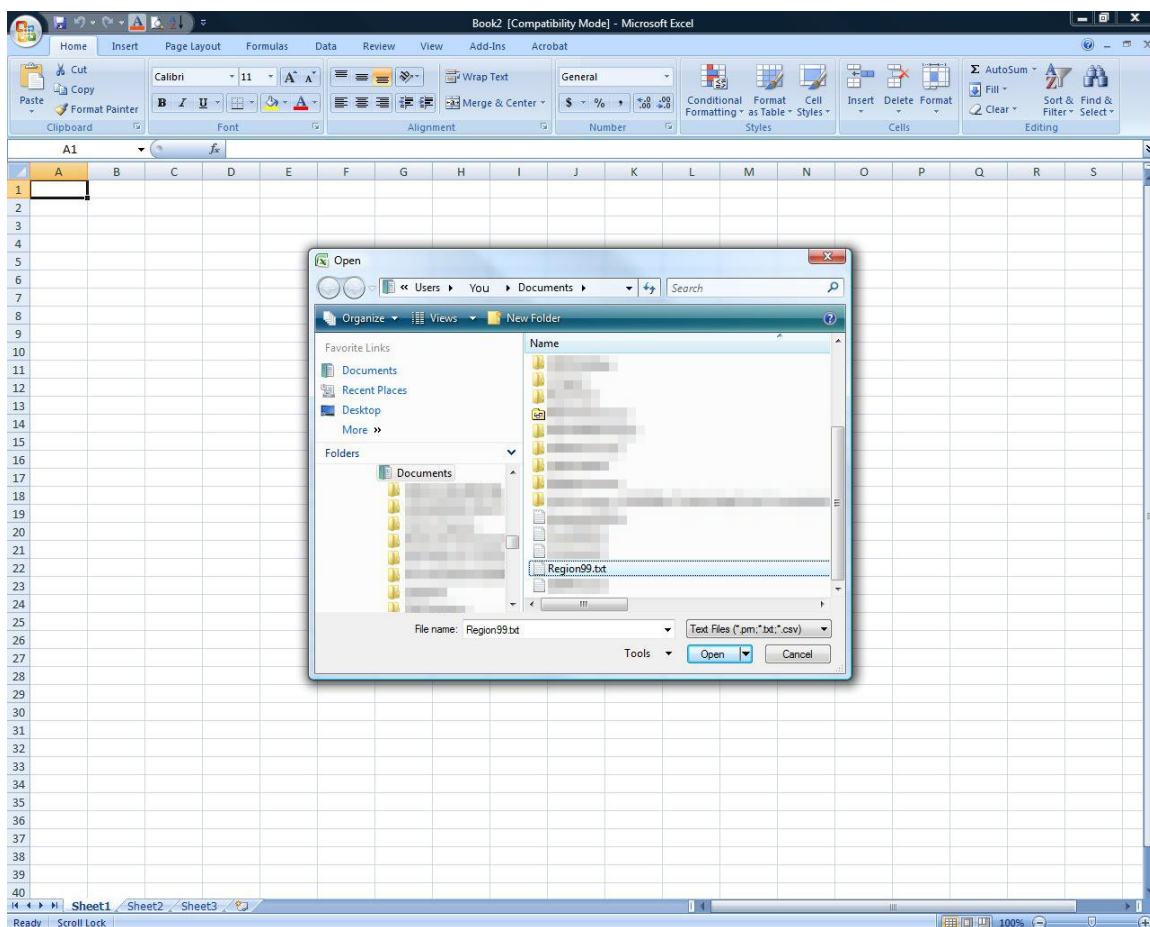


Figure 3-16
Importing a .txt File

3.5 Plan Documents

CAPRAD provides the convenience to upload, review, and print regional plans and other RPC documents as shown in Figure 3-17.

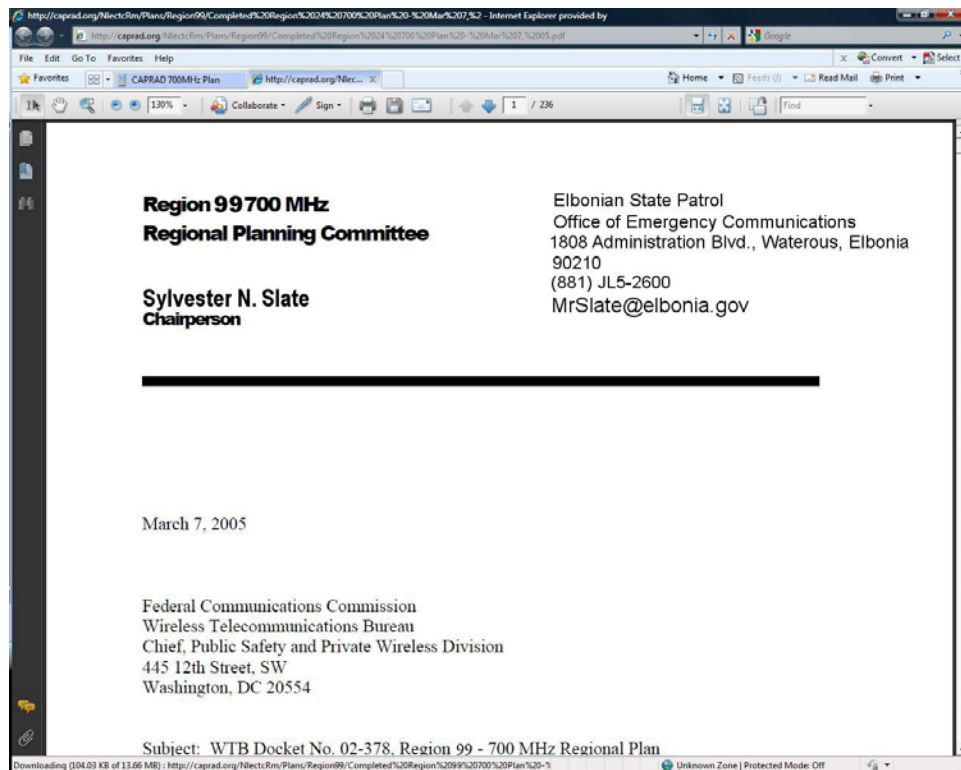


Figure 3-17
Review Regional Plan

The RPC manager is authorized to upload planning documents to CAPRAD. To upload documents, browse and select the file to upload. Enter an appropriate file description, including version and date information as desired, then click the Upload button as shown in Figure 3-18. Uploading the same file name will overwrite previous versions.

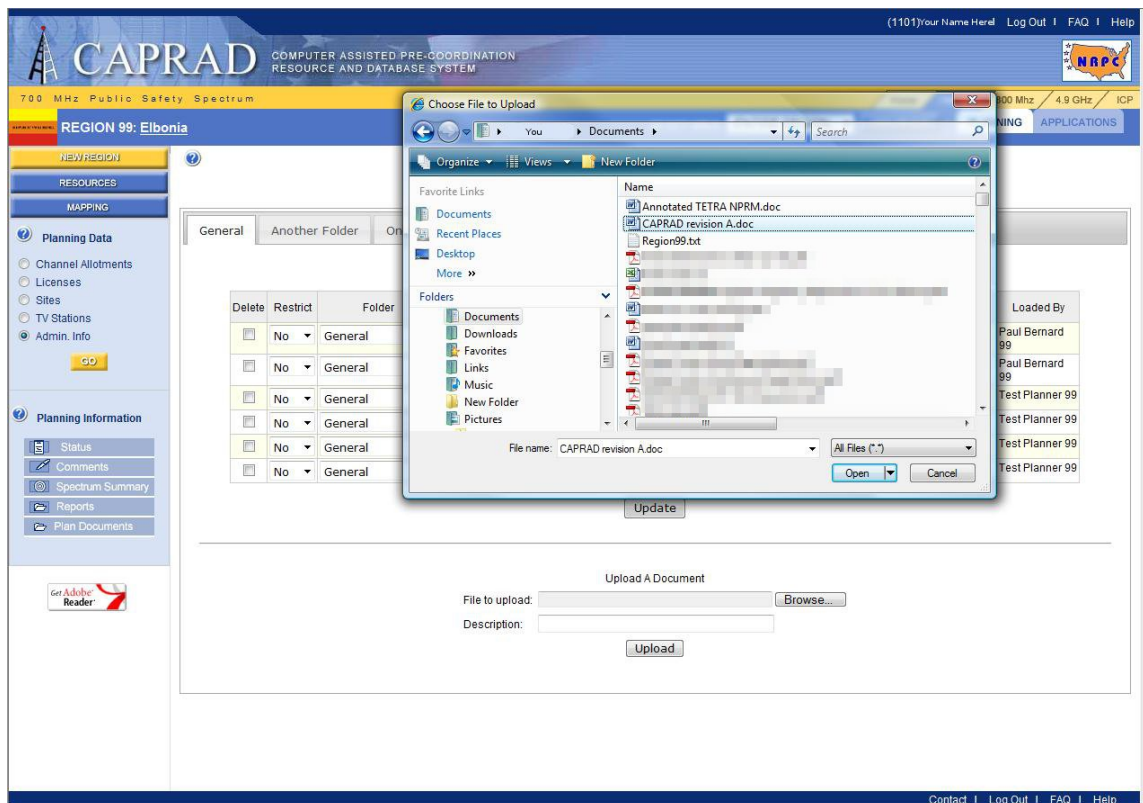


Figure 3-18
Uploading Documents

3.6 Resources

The Resources button on the left side menu lists a variety of planning documents and links to assist regional planning committees. These resources include FCC Information, Technical Reports, CAPRAD Documents, 4.9 GHz, 700 MHz Planning Documents, and Resource Links.

3.7 Mapping

The Mapping button takes the user to a geographic information system (GIS) module which has the ability to map antenna sites and other information stored in CAPRAD. For example, it may be useful to graphically display antenna locations for spatial analysis to plan frequency reuse. This is not intended as a substitute for propagation modeling software, but to aid in the efficient use and assignment of spectrum. Figure 3.19 illustrates the mapping view before the addition of layers or filtering.

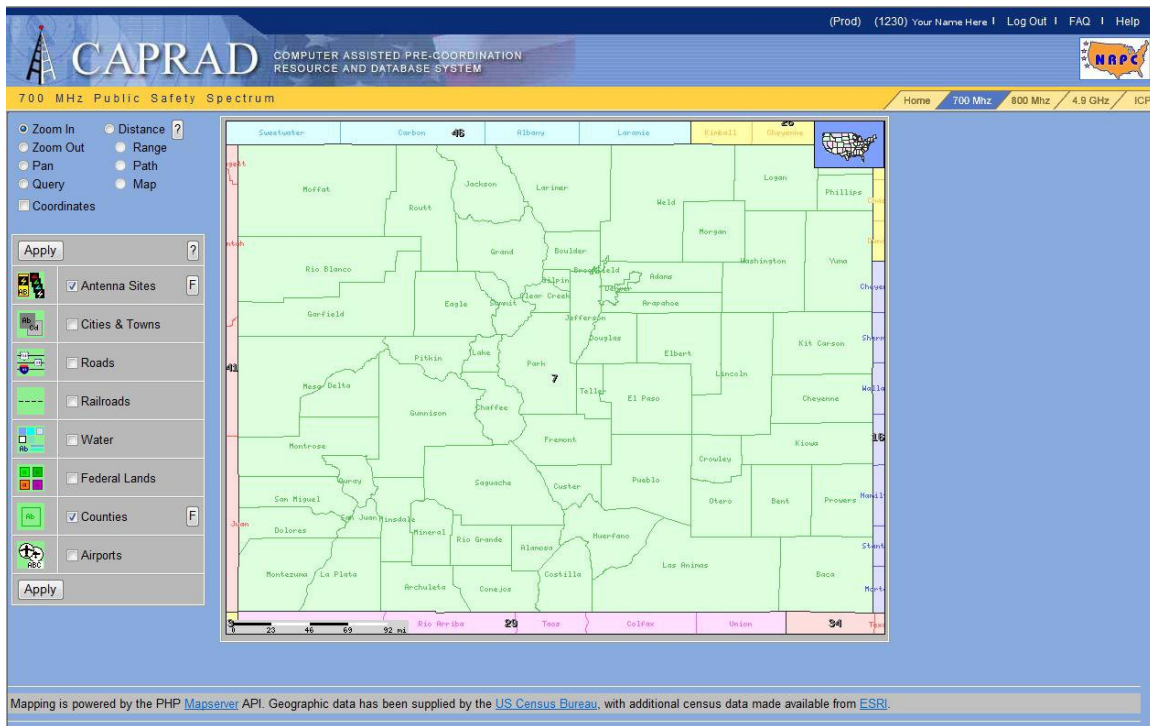


Figure 3-19
Mapping Tool

The Antenna Sites and Counties fields include a filter “F” button, and by clicking opens a popup window containing the filter. Antenna Sites filter - is selectable to map TV sites (ch 62-69) and Antenna Sites in 769-775 MHz. Specific types of television stations are selectable in the filter including low power (LP), translator (TX), digital (DT), full-service analog (TV), or digital special temporary authorization (DS); statuses, including license (LIC), construction permit (CP), special temporary authorization (STA), application (APP), and DDS. Except for low power stations, broadcasters have vacated TV channels 62-69. Additional filtering criteria limit displays to systems operating from 769 – 775 MHz; 25, 12.5, and 6.25 kHz bandwidths; General Use, Interoperability, Secondary Trunking, I/O Nationwide Call, I/O Low Speed Data, State License, and Low Power; FCC 700 MHz channel designator; base station or repeater output frequency; mobile frequency; and the range to be shown (in statute miles).

The Counties filter allows the highlighting of counties by channel allotment. Here, the user may enable the filter by clicking on the (F), then checking the Highlight Counties by channel allotment box. Once checked, the user may enter the bandwidth, class, channel, base/repeater output frequency, or mobile/repeater input frequency.

Once the desired parameters have been entered, the filter may be saved by clicking the Save button. The map will update with this information.

Chapter 3 Exercise

Working with your instructor,

- Log into CAPRAD and select your region.
- Review your RPC chair's contact information. Has the correct or most up-to-date information been entered in CAPRAD?
- Access your region's plan. Is it current?
- Navigate to your home county's 700 MHz allotment. How many General Use frequencies are there?
- Identify resources you may use in developing or revising your region's 700 MHz plan.

Quiz #3: Regional Planning

- 1) CAPRAD's precoordination feature allows for the
 - a. Efficient use of 700 MHz spectrum
 - b. Largest entities in the region to license up on all available channels
 - c. Higher units of government to take frequencies away from lower units
 - d. Efficient auction of radio spectrum
- 2) A visitor level user may upload documents.
 - a. True
 - b. False
- 3) Anyone who has logged into the system may access stored 700 MHz plans.
 - a. True
 - b. False
- 4) Whenever a Regional Planning Committee submits a plan to the FCC or has an approved plan, CAPRAD will automatically notify the region without further user intervention.
 - a. True
 - b. False
- 5) CAPRAD monitors each Regional Planning Committee and automatically changes points of contact, plan documents, and other information without further user intervention.
 - a. True
 - b. False

LESSON OBJECTIVES: The objective of this section is for each participant to:

1. Become familiar with application creation, information entry, and work flow
2. Examine the types of documents CAPRAD may accept as part of the application
3. Become aware of the audit trail available to applications in CAPRAD

4.0 APPLICATIONS

4.1 Introduction

CAPRAD is a dual-purpose system for coordinating the 700 MHz allotment in regional plans, and to coordinate the frequency application and licensing process to the FCC. Regional frequency allotments are available for review and to select frequencies for application to the FCC. This process is discussed in more detail below.

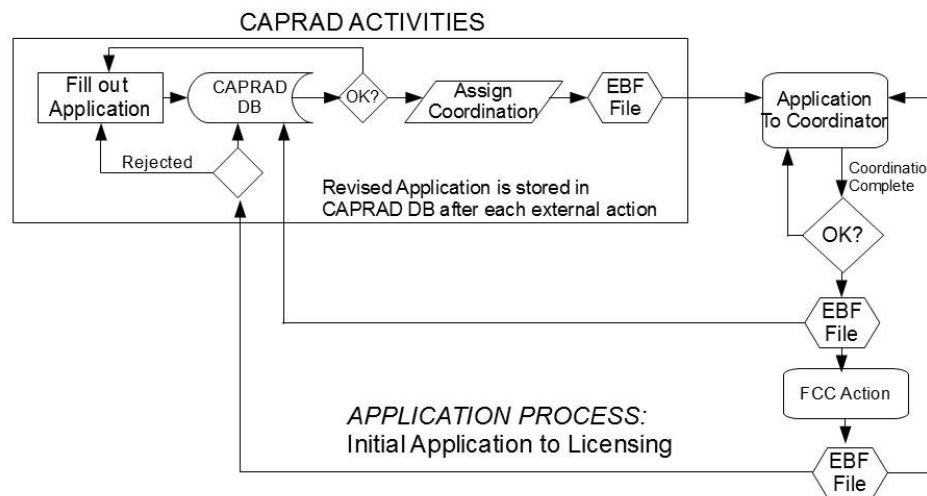


Figure 4-1
FCC Application Process

Applications originated in CAPRAD are submitted electronically to the FCC through a designated frequency coordinator. CAPRAD sends validated applications to the frequency coordinator selected in the system by the applicant. The frequency coordinator receives the application and submits it to the FCC for final processing and licensing. Figure 4-1 illustrates the application process. Electronic Batch File (EBF) is the standard file format established by the FCC for electronic applications.

4.2 Main Menu

The main menu in the Applications tab provides access to the same information as the regional plans. Table 4-1 summarizes these menu options.

Menu Item	Description	More info at:
Applications tab	Displays a PDF file of Section 4 of the User Guide.	
User Name	Click user name to view and edit User Profile	Section 2.5



	Information.	
Log Out	To log out of the CAPRAD system and close the browser window.	Section 2.1
New Region	Displays a map of the US showing all regions.	Section 2.5
Regional Plans	Switch display to Regional Plans menu and allow edit/review of plan information within current region.	Section 3.1
FAQ	Frequently Asked Questions associated with Regional Planning.	See example in this section.
Help and 	Help topics on the current information being displayed.	See example in this section.

Table 4-1
Main Menu Options

This section of the User Guide is available the Applications tab. The PDF file is completely text-searchable. FAQ and Help functions (top and bottom right) are accessible from this menu. FAQ provides answers about the functions in CAPRAD (see sample in Figure 4-2). Help is available for frequency application forms to assist the applicant in filling out the correct information in the FCC 601 Form. By clicking Help a help screen will be opened for the item where the cursor is positioned in the form. A sample Help screen is shown in Figure 4-3. Clicking  next to an item will provide additional information for the function.

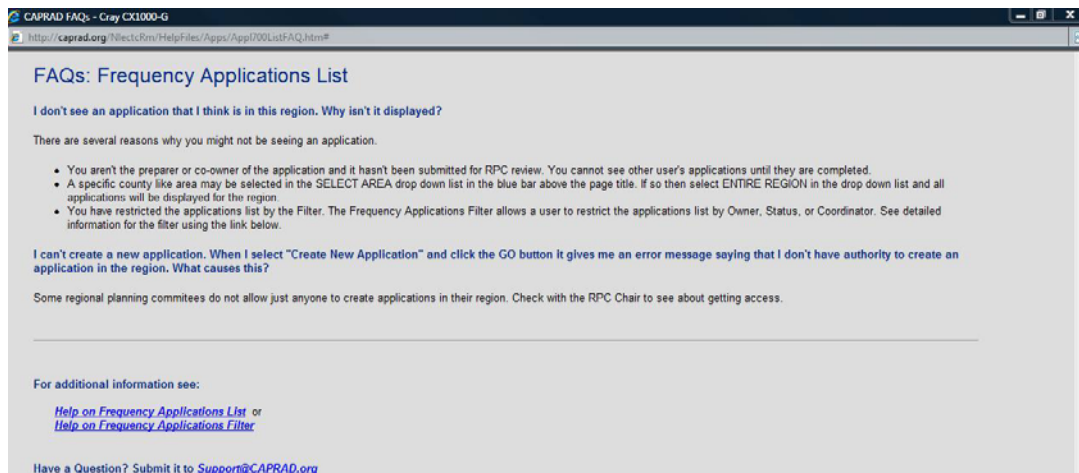


Figure 4-2
Sample FAQ Information

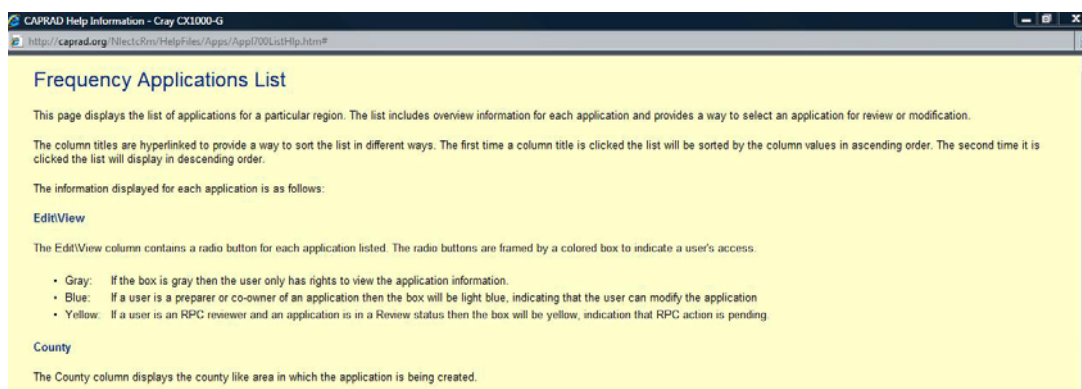


Figure 4-3
Sample Help Screen

4.3 Areas and Maps

Frequency applications are associated to a specific area within the region. This is usually the area of the applicant's jurisdiction. For example, Arapahoe County Sheriff's Department area of jurisdiction is Arapahoe County. Fire districts, rescue services, forestry agents, and others may operate in jurisdictions that cross county borders. In such cases the frequency application would use the area where the primary antenna is located, or where the base unit was located. Area identifications are important since frequencies have been allotted to an area during the regional planning process.

The regional map is hyperlinked to display the data associated with the name of any county or city defined on the map. Clicking over an area on the map displays the information for that area, as shown in section 4.3.2. There is also a dropdown list to select an area. For example, by selecting "Find Application" and selecting Arapahoe County on the map (or from the drop down list), applications originating from Arapahoe County will be shown.

Menu Item	Description	More info at:
Select Area	The political entities within the region. This alphabetical list is generally restricted to counties. (Some regions include cities (VA, MD, MO), or census areas (AK), that function as a "county-like" government.)	Section 4.2
View Region	Refresh the region map. (Useful after viewing information from other functions in the map.)	Section 4.2
Select an Action	Select: Preview Channels, List Applications, New Application, or Copy an Application.	Section 4.3
Selected Application	View information in an application, forms, assigned coordinators, co-owners, comments, attachments, validation report, and application status.	Section 4.4

Table 4-2
Left Sidebar Menu Items

To “Find Channels” or “Create a New Application” the system prompts the user to select an area. Frequencies are associated to areas in the regional allotment. See Section 4.3 for additional information. Figure 4-4 shows a sample of the regional map in the Applications tab. Applicants can get a quick glimpse of frequency availability for an area by using the Channel Finder. In the Applications tab, select Preview Channels (located on the left under Select an Action), then select the specific area (such as a county area). Under Select Search Options, select from the options: Availability, Allotment, Bandwidth, and Search Distance. Click Find Channels and the search results are displayed.

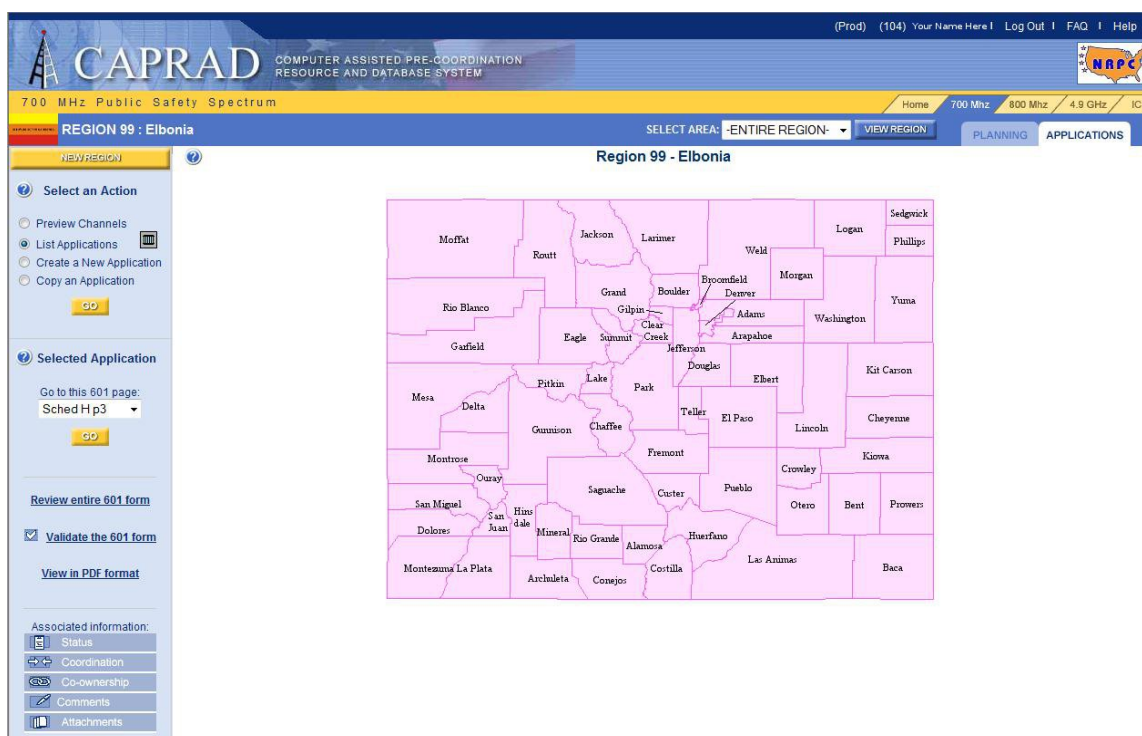


Figure 4-4
Viewing the Regional Map in the Applications tab

4.4 Select an Action

Specific information is needed to process frequency applications. The applicant must know the area and frequencies eligible for licensing within the area. Frequencies may be determined at any time in the application process, prior to submission to the coordinator. The Regional Planning Committee may use a specific process identified in the Regional Plan to assist in frequency selection and licensing. The applicant may view a listing of available channels at any time in the process.

4.4.1 Create a New Application

To begin the frequency application process, a new application is created, by the applicant or their representative. Select the area using the dropdown list, or clicking on the area in the map. Select “Create a New Application” and click the GO button. The new application is created and is ready to populate with information, as shown in Figure 4-5.

700 MHz Public Safety Spectrum

REGION 99 : Elbonia

SELECT AREA: Adams County

Home 700 Mhz 800 Mhz 4.9 GHz ICP

PLANNING APPLICATIONS

NEW Application

Approved by OMB
3060-0798
See instructions for
Public burden estimate

FCC 601 Main Form

FCC Application for Wireless Telecommunications Bureau
Radio Service Authorization

1) Radio Service Code: SG-700 MHz Conventional 1a) Existing Radio Service Code:

Application Purpose (Select only one): NE New

2) NE - New RO - Renewal Only AU - Administrative Update NT - Required Notifications
MD - Modification RM - Renewal/Modification WD - Withdrawal of Application EX - Request for Extension of Time
AM - Amendment CA - Cancellation of License DU - Duplicate License RL - Registered Location/Link

3a) If this application is for a Developmental License, Demonstration License, or a Special Temporary Authorization (STA), enter the code and attach the required exhibit as described in the instructions. Otherwise enter N (Not Applicable) N-Not Applicable

3b) If this application is for Special Temporary Authority due to an emergency situation enter 'Y', otherwise enter 'N'. Refer to Rule 1.915 for an explanation of situations considered to be an emergency. No

4) If this application is an Amendment or Withdrawal, enter the file number of the pending application currently on file with the FCC. File Number N/A

5) If this application is for a Modification, Renewal Only, Renewal/Modification, Cancellation of License, Duplicate License, or Administrative Update, enter the call sign of the existing FCC license. If this is a request for Registered Location/Link, enter the FCC call sign assigned to the geographic license. Call Sign N/A

6) If this application is for a New, Amendment, Renewal Only or Renewal/Modification, enter the requested authorization expiration date (this item is optional). MM/DD

7) Is this application "major" as defined in para 1.929 of the Commission's Rules when read in conjunction with the applicable radio service rules found in Parts 22 and 90 of the Commission's rules? (NOTE: This question only applies to certain site-specific applications. See the instructions for applicability and full text of para 1.929). N/A

8) Are attachments (other than associated schedules) being filed with this application? Yes

Fees, Waivers, and Exemptions

9) Is the applicant exempt from FCC application fees? Yes

10) Is the applicant exempt from FCC regulatory fees? Yes

11a) Does this application include a request for a Waiver of the Commission's rules? If 'Yes', attach an exhibit providing rule numbers and explaining circumstances. No

11b) If 11a is 'Y', enter the number of rule section(s) being waived.

12) Are the frequencies or parameters requested in this filing covered by grandfathered privileges, previously approved by waiver, or functionally integrated with an existing station? No

Figure 4-5
Create a New Application

An application is tracked in the CAPRAD database. By clicking the Save button the application is stored and referenced to the area the application originated. The applicant name, area, time and date the application was created are used to identify the application in the system. Cancel, Save, and Print functions are located at the top and to the right of the 601 Form. There is also a Save button located at the bottom of the form.

700 MHz Public Safety Spectrum

REGION 99 : Elbonia

SELECT AREA: Adams County

Home 700 Mhz 800 Mhz 4.9 GHz ICP

PLANNING APPLICATIONS

NEW Application

Approved by OMB
3060-0798
See instructions for
Public burden estimate

FCC 601 Main Form

FCC Application for Wireless Telecommunications Bureau
Radio Service Authorization

Cancel Save Print

12) Are the frequencies or parameters requested in this filing covered by grandfathered privileges, previously approved by waiver, or functionally integrated with an existing station? No

Save

FCC 601 - Main Form
February 2008 Page 1

Contacts Log Out FAQ Help

The Cancel button returns to a list of applications associated with the current area selected. See Section 4.3.2 for additional information on finding an application.

The PRINT button displays the current page in print view, as shown in Figure 4-6.

http://caprad.org/caprad/f_6011.SavePage - Cray CX1000-G

http://caprad.org/caprad/f_6011.SavePage

File Edit View Favorites Tools Help

Home Feeds (J) Read Mail Print

FCC 601 Main Form

FCC Application for Wireless Telecommunications Bureau
Radio Service Authorization

Approved by OMB
3060-0798
See instructions for
Public burden estimate

1) Radio Service Code: PW 1a) Existing Radio Service Code:

Application Purpose

2) (Select only one) (NE)
NE - New RO - Renewal Only AU - Administrative Update IT - Required Notifications
MD - Modification RM - Renewal/Modification WD - Withdrawal of Application EX - Request for Extension of Time
AM - Amendment CA - Cancellation of License DU - Duplicate License RL - Registered Location/Link

3a) If this application is for a Developmental License, Demonstration License, or a Special Temporary Authorization (STA), enter the code and attach the required exhibit as described in the instructions. (N) DM SN NA
Otherwise enter N (Not Applicable)

3b) If this application is for Special Temporary Authority due to an emergency situation enter "Y"; otherwise enter "N". Refer to Rule 1.915 for an explanation of situations considered to be an emergency. (N) Yes No

4) If this application is an Amendment or Withdrawal, enter the file number of the pending application currently on file with the FCC. File Number

5) If this request is for a Modification, Renewal Only, Renewal/Modification, Cancellation of License, Duplicate License, or Administrative Update, enter the call sign of the existing FCC license. If this is a application for Registered Location/Link, enter the FCC call sign assigned to the geographic license. Call Sign

6) If this application is for a New, Amendment, Renewal Only or Renewal/Modification, enter the requested authorization expiration date (this item is optional).

7) Is this application "major" as defined in para 1.929 of the Commission's Rules when read in conjunction with the applicable radio service rules found in Parts 22 and 90 of the Commission's rules? (NOTE: This question only applies to certain site-specific applications. See the instructions for applicability and full text of para 1.929). N/A

8) Are attachments (other than associated schedules) being filed with this application? (Y) Yes No

Fees, Waivers, and Exemptions

9) Is the applicant exempt from FCC application fees? (Y) Yes No

10) Is the applicant exempt from FCC regulatory fees? (Y) Yes No

11a) Does this application include a request for a Waiver of the Commission's rules? (N) Yes No
If "Yes", attach an exhibit providing rule numbers and explaining circumstances.

11b) If 11a is "Y", enter the number of rule section(s) being waived.

12) Are the frequencies or parameters requested in this filing covered by grandfathered privileges, previously approved by waiver, or functionally integrated with an existing station? (N) Yes No

FCC 601 - Main Form
February 2008 Page 1

Done Internet | Protected Mode: Off 100%

Figure 4-6
Applicant FCC 601 Form in Print View

To print the form each page must be selected printed individually. Right clicking in the form opens a pop-up menu, then select print.

4.4.2 List Application

To find a saved application, select the appropriate area in the region. Applications can be located for the entire region or for a specific area in the region. If the application list becomes very long when viewing the entire region, it may be useful to limit the search to an area of interest. All applications are listed for the entire region when no filters are set. Figure 4-7 shows an example of applications listed when selecting List Application and clicking the GO button.

Figure 4-8 shows the 'Application List Filter Parameters' screen. The interface is divided into several sections:

- Top Navigation:** Includes the CAPRAD logo, system name 'COMPUTER ASSISTED PRE-COORDINATION RESOURCE AND DATABASE SYSTEM', and user options like '(Prod) (2009) Your Name Here | Log Out | FAQ | Help'.
- Frequency Bar:** A yellow bar showing '700 MHz Public Safety Spectrum' and links for 'Home', '700 Mhz', '800 Mhz', '4.9 GHz', and 'ICP'.
- Region Selection:** A blue bar with 'REGION 99 : Elbonia' and a 'SELECT AREA: -ENTIRE REGION-' dropdown.
- Filter Parameters Table:**

Ownership	Coordinator	Status
<input checked="" type="radio"/> Any owner <input type="radio"/> Mine: <ul style="list-style-type: none"> <input type="radio"/> Owner Only <input type="radio"/> CoOwner Only <input type="radio"/> Not mine 	<input checked="" type="radio"/> Any coordinator <input type="radio"/> Not Yet Assigned <input type="radio"/> AASHTO <input type="radio"/> APCO <input type="radio"/> FCCA <input type="radio"/> IMSA	<input checked="" type="checkbox"/> Any status <input checked="" type="checkbox"/> Application Initiated <input checked="" type="checkbox"/> Application Ready <input checked="" type="checkbox"/> Submitted for RPC Review <input checked="" type="checkbox"/> RPC Review Complete <input checked="" type="checkbox"/> Submitted for Coordination <input checked="" type="checkbox"/> Coordination Complete <input checked="" type="checkbox"/> Submitted to FCC
- Buttons:** 'Save' and 'Return to Applications List' buttons are located below the filter table.
- Left Sidebar:**
 - Select an Action:** Radio buttons for 'Preview Channels', 'List Applications' (selected), 'Create a New Application', and 'Copy an Application'. A 'GO' button is below.
 - Selected Application:** A dropdown for 'Go to this 601 page: 601 Main Form' and a 'GO' button.
 - Review entire 601 form:** A link.
 - Validate the 601 form:** A checked checkbox.
 - View in PDF format:** A link.
 - Associated information:** Links for 'Status', 'Coordination', 'Co-ownership', 'Comments', and 'Attachments'.

Figure 4-8
Application Filter

Applications may be filtered using the filter screen options shown in Figure 4-8. Click the “filter” icon next to the “List Applications” and select from the filter options. The applications listed may be filtered based on Ownership, Status, and Coordinator assignment. Then click the SAVE button to apply the selected filtering.

Ownership refers to the originator or co-owner of an application. Selecting Any owner will show all applications, where selecting Mine will filter the application list to the applicant or co-owner.

Applications may be filtered by selecting a single Coordinator, or Any coordinator to show all, or applications Not Yet Assigned a Coordinator. Please note, a Coordinator must be assigned prior to submitting an application.

Applications may be filtered based on status by selecting one or more checkboxes. Selecting Any status will show all applications. See Section 4.4.6 for additional information on the statuses used in the application process.

Please note, changing filter parameters do not take effect until clicking the SAVE button. The saved parameters will remain in effect until they are changed. If a saved application cannot be located, check the filter settings.

4.4.3 Channel Finder

Applicants may search for frequencies by selecting Preview Channels under Select an Action. Select Preview Channels, then select the area of interest using either the dropdown list and clicking GO, or

clicking an area from the regional map. This is a useful tool to investigate the availability of frequencies in an area. Figure 4-9 shows a sample channel preview.

25KHz General Use Channels

Channel	Base Freq	Mobile Freq	Status	Area
41-44	769.262500	799.262500	Applying For	Adams, EL
41-44	769.262500	799.262500	Applying For	Arapahoe, EL
41-44	769.262500	799.262500	Allotted	Denver, EL

Pool Channel Availability

Channel	Base Freq	Mobile Freq	Status	Area
13-16	769.087500	799.087500	Available	
17-20	769.112500	799.112500	Available	
45-48	769.287500	799.287500	Available	
49-52	769.312500	799.312500	Applying For	Douglas, EL
53-56	769.337500	799.337500	Available	
57-60	769.362500	799.362500	Available	
81-84	769.512500	799.512500	Applying For	Adams, EL
85-88	769.537500	799.537500	Available	
89-92	769.562500	799.562500	Available	
93-96	769.587500	799.587500	Available	
97-100	769.612500	799.612500	Applying For	Arapahoe, EL
121-124	769.762500	799.762500	Applying For	Arapahoe, EL
125-128	769.787500	799.787500	Available	
129-132	769.812500	799.812500	Available	
133-136	769.837500	799.837500	Available	
137-140	769.862500	799.862500	Available	
161-164	770.012500	800.012500	Applying For	Douglas, EL
165-168	770.037500	800.037500	Available	
169-172	770.062500	800.062500	Available	
173-176	770.087500	800.087500	Available	
177-180	770.112500	800.112500	Available	
201-204	770.262500	800.262500	Allotted	Douglas, EL
205-208	770.287500	800.287500	Available	
209-212	770.312500	800.312500	Available	
213-216	770.337500	800.337500	Available	
217-220	770.362500	800.362500	Available	
241-244	770.512500	800.512500	Available	

Figure 4-9
Channel Finder tool

Select from the options under Select Search Options to define the search criteria. Available Channels and Unavailable Channels are selectable. To view only frequencies that are currently licensed, or have been submitted for coordination, select Unavailable Channels. Frequencies are entered on Schedule H of the FCC 601 form. A special function on Schedule H is able to enter frequencies automatically. Frequencies should be selected from the area allotments defined in the regional plan.

The maximum distance for frequency reuse between areas may depend on local conditions. Distance for frequency reuse is typically measured as line of sight for effective communications. A distance of 100 km (approx. 62.5 miles) between county “centers” is used as a minimum in many areas of the country. County centers are defined as the geographic center provided by the USGS. Channels are allotted to a county area based on the distances available for reuse. The Channel Finder searches all channels within the circle defined by the minimum reuse distance entered in the search tool. Frequencies are color coded according to status: **Green** = Available (in the allotment), **Orange** = Applying for (entered on an application, but not yet submitted for coordination), **Blue** = Available (not in the allotment), and **Red** = Unavailable (frequencies have been licensed or submitted for coordination). CAPRAD includes the adjacent region frequency allotments and applications that are within the search distance. Caution should be used with **Green** and **Orange** highlighted frequencies. This indicates the frequencies have been assigned to another area within the search distance.

If the search distance is realistic for the communication service area proposed, and the frequency is NOT highlighted **Blue** (status is something other than allotted), then a different frequency should be considered. An asterisk (*) following the status indicates the frequency bandwidth located in the search is different than the bandwidth identified in the application. For example, if Bent County, CO shows status Allotted* for channels 13-16, and Sherman County, KS has status Allotted for channels 13-16. This indicates that Bent County, CO has been allotted channels 13-14 with a 12.5 kHz channel bandwidth, where Sherman County, KS has been allotted channels 13-16 with a 25 kHz bandwidth. Both are within the search distance, but the allotments to county areas in the regional plans are different.

It is strongly recommended that channels in the area allotment (colored green) be applied for prior to any other channel. As always the region should be contact at the on set of the application process to review and make sure the application is correct and accurate prior to be submitted to the region for review.

To search a different area, simply click the desired area in the regional map, or select from the dropdown list, then click the GO button.

4.5 Selected Application Options

After locating a saved application, or when creating a new application, there are tools located at the lower left side bar menu to assist in the application process. Recall that this is located in the Applications tab.

4.5.1 Form Page Selection

After selecting a saved application from the list, or creating a new application, pages in the form can be accessed several ways: using the drop down sidebar menu, clicking in the tabs at the top of the form, and the 601 page button in the lower right of the page. Figure 4-10 shows a sample of the Schedule D page in the FCC 601 form. Each page in the form is completed or edited by typing into the appropriate boxes or selecting from the drop down lists.

The screenshot displays the CAPRAD web application interface. At the top, it shows the system name 'CAPRAD' and 'COMPUTER ASSISTED PRE-COORDINATION RESOURCE AND DATABASE SYSTEM'. The user is logged in as '(Prod) (6231) Your Name Here' with links for 'Log Out', 'FAQ', and 'Help'. The main navigation bar includes 'Home', '700 Mhz', '800 Mhz', '4.9 GHz', and 'ICP'. The current view is 'REGION 99 : Elbonia' with 'SELECT AREA: Adams County' and 'VIEW REGION' button. The 'APPLICATIONS' tab is active. The left sidebar contains a 'Select an Action' menu with options: 'Preview Channels', 'List Applications', 'Create a New Application', and 'Copy an Application'. Below this is a 'Selected Application' section with a dropdown for 'Go to this 601 page:' set to 'Sched D'. The main form area is titled 'FCC 601 Schedule D' and 'Wireless Telecommunications Bureau Schedule for Station Locations and Antenna Structures'. It includes a 'CAPRAD ID: CAP002070' and 'Approved by OMB 3060-0798 See 601 Maint Form for public burden estimate'. The form fields are numbered 1 through 20, covering details like location number, description, coordinates, elevation, and support structure type.

Figure 4-10
Using the FCC 601 Form

Information entered in the form page is not saved clicking the Save button or the 601 page button. The system performs an error check on the current page before saving or moving to another page, as shown in Figure 4-11. Clicking “Validate the 601” form opens a new window listing any errors throughout the form.

The screenshot shows the CAPRAD (Computer Assisted Pre-Coordination Resource and Database System) interface. The main header includes the CAPRAD logo, version (6231), user (Steve Makky), and navigation links (Log Out, FAQ, Help). The page is titled "REGION 99 : Elbonia" and "SELECT AREA: Adams County". The form is for "FCC 601 Schedule D" under the "Wireless Telecommunications Bureau Schedule for Station Locations and Antenna Structures".

The form contains various input fields for location and antenna details, including:

- 1) Action Requested: Add
- 3) Location Description: Fixed
- 5) Location Name:
- 6) FCC Antenna Structure Registration # or N/A
- 7) Latitude (DD-MM-SS.S): 34 4 343
- 9) Street Address, Name of Landing Area, or Other Location Description:
- 10) City:
- 11) State:
- 12) County/Borough/Parish:
- 13) Elevation of Site AMSL (meters):
- 14) Overall Ht AGL Without Appurtenances (meters):
- 15) Overall Ht AGL With Appurtenances (meters):
- 16) Support Structure Type: None - No support structure
- 17) Location Number: (Only for Area of Operation Code 'A')
- 18) Radius (km):
- 19) Airport Identifier:
- 20) Site Status: N/A
- 21) Latitude (DD-MM-SS.S): Use for rectangle only (Northwest corner)
- 22) Longitude (DDD-MM-SS.S): Use for rectangle only (Northwest corner)

An error alert message box is displayed in the center of the form, stating: "7) Latitude seconds must be between 0 and 59.9". The message box has a yellow warning icon and an "OK" button.

The left sidebar contains navigation options: "Select an Action" (Preview Channels, List Applications, Create a New Application, Copy an Application), "Selected Application" (Go to this 601 page: Sched D), "Review entire 601 form", "Validate the 601 form" (checked), and "View in PDF format". The bottom of the sidebar lists "Associated information" (Status, Coordination, Co-ownership, Comments, Attachments).

Figure 4-11
Error Alert

The screenshot displays the CAPRAD web application interface. At the top, the header includes the CAPRAD logo, the text "COMPUTER ASSISTED PRE-COORDINATION RESOURCE AND DATABASE SYSTEM", and navigation links like "(Prod)", "(6231) Your Name Here", "Log Out", "FAQ", and "Help". Below the header, a navigation bar shows "700 MHz Public Safety Spectrum" and tabs for "Home", "700 Mhz", "800 Mhz", "4.9 GHz", and "ICP". The main content area is titled "REGION 99 : Elbonia" and "SELECT AREA: Adams County". It features a "NEW REGION" button and a "Select an Action" menu with options like "Preview Channels", "List Applications", "Create a New Application", and "Copy an Application". The "Selected Application" section shows "Go to this 601 page: Sched D". The form itself is titled "FCC 601 Schedule D" and "Wireless Telecommunications Bureau Schedule for Station Locations and Antenna Structures". It contains 22 numbered fields for location information, including coordinates, elevation, and support structure type. The CAPRAD ID: CAP002070 is displayed in the top right corner.

**Figure 4-12
Schedule D**

Each page in the form is completed or edited by typing into the appropriate text and number boxes, and selecting from the drop down lists. Items in the form not applicable to public safety agencies are grayed out. Schedule A is not used for new applications. Schedule D is used to enter site specific information and includes additional buttons in the top of the form for creating additional Schedule D pages, or deleting as needed. A separate Schedule D is required for each location in the application. Schedule H (see Figure 4-13) is used to enter frequency information based on the location information in the Schedule D pages. CAPRAD automatically enters an application ID number into the Frequency Coordination Number box, Item 3, as a reference during the application coordination process. This reference number also appears in the upper right corner of the form.

(Prod) (6241) Your Name Here | Log Out | FAQ | Help

CAPRAD COMPUTER ASSISTED PRE-COORDINATION RESOURCE AND DATABASE SYSTEM

700 MHz Public Safety Spectrum

REGION 99 : Elbonia

SELECT AREA: Adams County

VIEW REGION

PLANNING APPLICATIONS

CAPRAD ID: CAP002070

NEW REGION

Select an Action

- Preview Channels
- List Applications
- Create a New Application
- Copy an Application

GO

Selected Application

Go to this 601 page: Sched Hp1

GO

Review entire 601 form

☒ Validate the 601 form

View in PDF format

Associated information:

- Status
- Coordination
- Co-ownership
- Comments
- Attachments

FCC 601 Schedule H Instructions

Technical Data Schedule for the Private Land Mobile and Land Mobile Broadcast Auxiliary Radio Services (Parts 90 & 74)

Approved by OMB 3060-0798 See 601 Maint Form for public burden estimate

Eligibility

1) Rule Section: 90.523

2) Describe Activity:

Frequency Coordination Information (if not self-coordinated)

3) Frequency Coordination Number: CAP002070

4) Name of Frequency Coordinator:

5) Telephone Number:

6) Coordination Date:

7) Has this application been successfully coordinated? No

Extended Implementation (Slow Growth)

8) Are you requesting a new or modified extended implementation plan? No

If "yes", attach an exhibit with a justification and a proposed station construction schedule.

Associated Call Signs (Attach additional sheets if required)

9)

Broadcast Auxiliary Only

If there is an associated Parent Station, complete Items 10-12.

10) Facility Id of Parent Station:

11) Radio Service of Parent Station:

12) City and State of Parent Station Principal Community:

13) If there is no associated parent station, this applicant is a: ()

Broadcast Network Entity Television Cable Operator Motion Picture Producer Television Producer

14) State of Primary Operation:

Figure 4-13
Schedule H Instructions

(Prod) (6242) Your Name Here | Log Out | FAQ | Help

CAPRAD COMPUTER ASSISTED PRE-COORDINATION RESOURCE AND DATABASE SYSTEM

700 MHz Public Safety Spectrum

REGION 99 : Elbonia

SELECT AREA: Adams County

VIEW REGION

PLANNING APPLICATIONS

CAPRAD ID: CAP002070

NEW REGION

Select an Action

- Preview Channels
- List Applications
- Create a New Application
- Copy an Application

GO

Selected Application

Go to this 601 page: Sched Hp2

GO

Review entire 601 form

☒ Validate the 601 form

View in PDF format


Associated information:

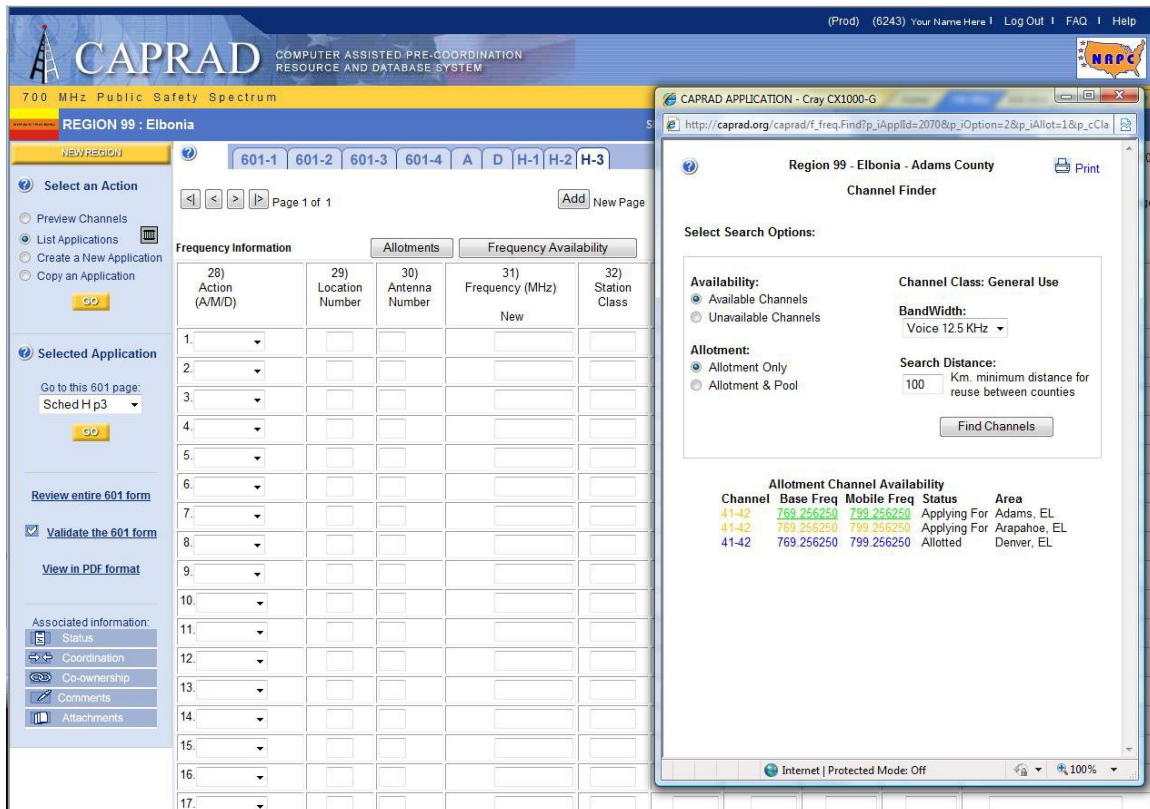
- Status
- Coordination
- Co-ownership
- Comments
- Attachments

Antenna Information

	19) Action (A/M/D)	20) Location Number	21) Antenna Number	22) AAT (meters)	23) Antenna Ht (meters)	24) Azimuth (degrees)	25) Beamwidth (degrees)	26) Polarization	27) Gain (dB)
1.	Add	L1	A1	42.0	45.0	75.0	180	V	6.1
2.	Add	L1	A2	56.0	60.0	90.0	120	V	7.1
3.									
4.									
5.									
6.									
7.									
8.									
9.									
10.									
11.									
12.									
13.									
14.									
15.									

Figure 4-14
Schedule H Antenna Information

Schedule H contains the antenna and frequency information required for coordinating the application. Additional information is available by placing the cursor in the desired location on the form and clicking , located in the upper left of the screen. The FCC information will appear in a new window. Clicking an item number in the help window will return to the same location in the form. Rows may be deleted in page 2 and 3 of Schedule H using the drop down list in the left column and selecting **Remove**.



Region 99 - Elbonia - Adams County
Channel Finder

Select Search Options:

Availability:
☒ Available Channels
☐ Unavailable Channels

Channel Class: General Use
 BandWidth: Voice 12.5 KHz

Allotment:
☒ Allotment Only
☐ Allotment & Pool

Search Distance: 100 Km. minimum distance for reuse between counties

Find Channels

Channel	Base Freq	Mobile Freq	Status	Area
41-42	769.256250	799.256250	Applying For	Adams, EL
41-42	769.256250	799.256250	Applying For	Arapahoe, EL
41-42	769.256250	799.256250	Allotted	Denver, EL

Figure 4-15
Channel Finder for Schedule H

Frequency information is entered on Schedule H page 3, which is associated with the antenna locations. Clicking the Frequency Availability button opens the Channel Finder window. Select the desired parameters and click Find Channels to display a list of available frequencies, as shown in Figure 4-15. Blue highlighted frequencies are hyperlinked. Selecting one of these frequencies will automatically enter it into the row selected. Note: If a frequency currently exists in that row it will be replaced with the new frequency. Also, if a frequency is entered into a row where the first three columns have been incorrectly filled out, then an error will occur when clicking the Save button, or when moving to another page.

Frequencies highlighted **Blue** and followed by a + symbol indicates the frequency appears in another application in the same county or a nearby county. The frequency is available, but caution should be used since the frequency exists in another application. Frequencies are not blocked (highlighted **Orange**) until the application has been submitted for coordination.

4.5.2 Assign Coordinator

The owner of an application must assign a frequency coordinator before the application can be submitted for licensing. See Figure 4-1 to review the application process. Assigning a coordinator can be done at any time during the application process. The frequency coordinator assignment may be changed at any time until the application is submitted for coordination. Figure 4-16 illustrates the selection of a coordinator in the list of choices. After selecting the coordinator click the Assign button to save the selection.

The screenshot shows the CAPRAD web application interface. The top header includes the CAPRAD logo, the text 'COMPUTER ASSISTED PRE-COORDINATION RESOURCE AND DATABASE SYSTEM', and user information '(Prod) (2221) Your Name Here | Log Out | FAQ | Help'. Below the header, there's a navigation bar with 'Home', '700 Mhz', '800 Mhz', '4.9 GHz', and 'ICP'. The main content area is titled 'REGION 99 : Elbonia' and 'Adams County - (no entity name)'. It shows 'CAPRAD ID: CAP002070' and 'Coordinator Information'. A table lists coordinators with columns for Coordinator, Agency, and Online Information. The 'APCO' coordinator is selected. An 'Assign' button is visible below the table.

Coordinator	Agency	Online Information
<input type="radio"/> None	-Unassigned-	
<input type="radio"/> AASHTO	American Association of State Highway and Transportation Officials	http://www.transportation.org
<input checked="" type="radio"/> APCO	Association of Public-Safety Communications Officials	http://www.apco911.org
<input type="radio"/> FCCA	Forestry, Conservation, Communications Association	http://www.fcca-usa.org
<input type="radio"/> IMSA	International Municipal Signal Association	http://www.imsasafety.org

Assign Coordinator for this Application

Figure 4-16
Assign Frequency Coordinator

The coordinator is notified when the application is submitted for coordination. Only a user with ownership rights to an application is permitted to assign a coordinator. Others may review what coordinator has been assigned, but may not change the coordinator assigned. Links to each coordinator's web site are in the right column of Online Information. Coordinators provide additional information about the coordination process and their fees.

4.5.3 Application Co-Owners

An application may be co-owned by several valid users. The application owner or co-owner may assign additional co-owners to an application. In the left menu under Associated Information click Co-ownership to add a co-owner to an application. The CAPRAD system administrator has exclusive rights to grant other CAPRAD users rights of eligibility to be a valid co-owner. An application owner may assign or remove a co-owner at any time. Figure 4-17 illustrates multiple co-owners are assigned to the application. It is usually best to limit the number of co-owners to avoid potential inconsistencies in

application data and responsibilities. The originating application owner maintains full editing rights to the application. A co-owner may also remove him/herself as a co-owner and relinquish their responsibilities to the application.

The screenshot shows the CAPRAD web application interface. The top navigation bar includes the CAPRAD logo, the text 'COMPUTER ASSISTED PRE-COORDINATION RESOURCE AND DATABASE SYSTEM', and a user profile section with '(Prod) (2212) Your Name Here | Log Out | FAQ | Help'. Below this is a yellow banner for '700 MHz Public Safety Spectrum'. The main content area is titled 'REGION 99 : Elbonia' and 'Adams County - (no entity name)'. The 'Assign Co-owners' section displays a table of current co-owners for the application. The table has columns for 'Remove', 'User Name', and 'Organization'. The current co-owners are: 'Your Name Here' (TEQ Services, Inc.), 'Test Planner' (X3 Inc.), and 'Test Planner 99' (Region 99). Below the table is a form to add a new co-owner, with an 'Add' button and the text 'Add a co-owner'. The sidebar on the left contains a 'Select an Action' section with options: 'Preview Channels', 'List Applications' (selected), 'Create a New Application', and 'Copy an Application'. Below this is a 'Selected Application' section with a dropdown menu set to 'Sched H p3' and a 'Go' button. Further down are links for 'Review entire 601 form', 'Validate the 601 form' (checked), and 'View in PDF format'. At the bottom of the sidebar is an 'Associated information' section with links for 'Status', 'Coordination', 'Co-ownership', 'Comments', and 'Attachments'. The bottom of the page features a footer with 'Contacts | Log Out | FAQ | Help'.

Remove	User Name	Organization
(reviewer)	Your Name Here	TEQ Services, Inc.
(reviewer)	Test Planner	X3 Inc.
(reviewer)	Test Planner 99	Region 99

Figure 4-17
Adding a Co-owner.

Application Co-owner

Any users with Regional Planning Committee authority in a region, and who have the "Proxy" option selected in their User Profile Information, are eligible to be valid co-owners of an application, but under the following conditions:

1. If the regional Application Review option has been set to "Always review" then the user may be an implicit co-owner for all applications in their region.
2. If the regional Application Review option has been set to "By allotment" then the user may be an implicit co-owner for an application that contains frequencies from the regional allotment.

Implicit co-owners cannot be changed by the preparer of the application. As always the region should be contact at the on set of the application process to review and make sure the application is correct and accurate prior to be submitted to the region for review.

Any users with Regional Planning Committee authority in a region, and who have the "Proxy" option selected on their User Profile Information, are eligible to be explicit co-owners of an application, but under the following conditions:

1. If the regional Application Review option has been set to "Never review" then the user may be an explicit co-owner for all applications in their region.
2. If the regional Application Review option has been set to "By allotment" then the user may be an explicit co-owner for an application that contains frequencies within the regional allotment.

Explicit co-owners may be assigned by the preparer of the application.

Application Review

Selecting "Proxy" for users with Regional Planning Committee puts those users in a notification list to receive status changes, and authority to approve applications. Co-ownership of an application may be helpful when assistance is needed from several individuals to complete the various sections of the FCC 601 form. For example, the originating application owner may wish to complete the main form pages, and assign the technical details of Schedule H to an engineer to complete.

4.5.4 Application Comments

Application Comments provides a place for additional information that may be useful to the applicant, such as notes about the system configuration, or other information deemed relevant to the applicant. In the left menu under Associated information click Comments. Type or paste the comments in the text box and click the Add button, as shown in Figure 4-18.

The screenshot displays the CAPRAD (Computer Assisted Pre-Coordination Resource and Database System) web interface. At the top, the header includes the CAPRAD logo and navigation links like (Prod), (2253), Your Name Here, Log Out, FAQ, and Help. Below the header, a yellow banner shows frequency ranges: 700 MHz, Public Safety, Spectrum, Home, 700 Mhz, 800 Mhz, 4.9 GHz, and ICP. The main content area is titled 'REGION 99 : Elbonia' and 'Adams County - (no entity name)'. The 'Application Comments' section is active, showing a text box with the comment: 'We plan to use this tactically deployable communications system from a tethered aerostat 2,500 ft. above ground level. We have conducted our Section 106 review and will have no historic impact to our neighboring Superfund site.' Below the text box is an 'Add' button. The left sidebar contains a 'Select an Action' menu with options like 'Preview Channels', 'List Applications', 'Create a New Application', and 'Copy an Application'. The 'Associated Information' section includes links for 'Status', 'Coordination', 'Co-ownership', 'Comments', and 'Attachments'.

Figure 4-18

Application Comments

4.5.5 Attachments

Application owners may upload attachments as JPG, TXT, or DOC formats. There is no file size limit or limit to the number of these attachments. Any attachments relevant to the application and those reviewing the application may be uploaded. To upload an attachment, in the left menu under Associated information click Attachments, browse the file to upload, type in the file description, and click the Upload button. See Figure 4-19. Only one attachment may be uploaded at a time. To remove an attachment, select the check box in the Del column and click the SAVE button. To change the description of an attachment, edit the existing description and click the SAVE button.

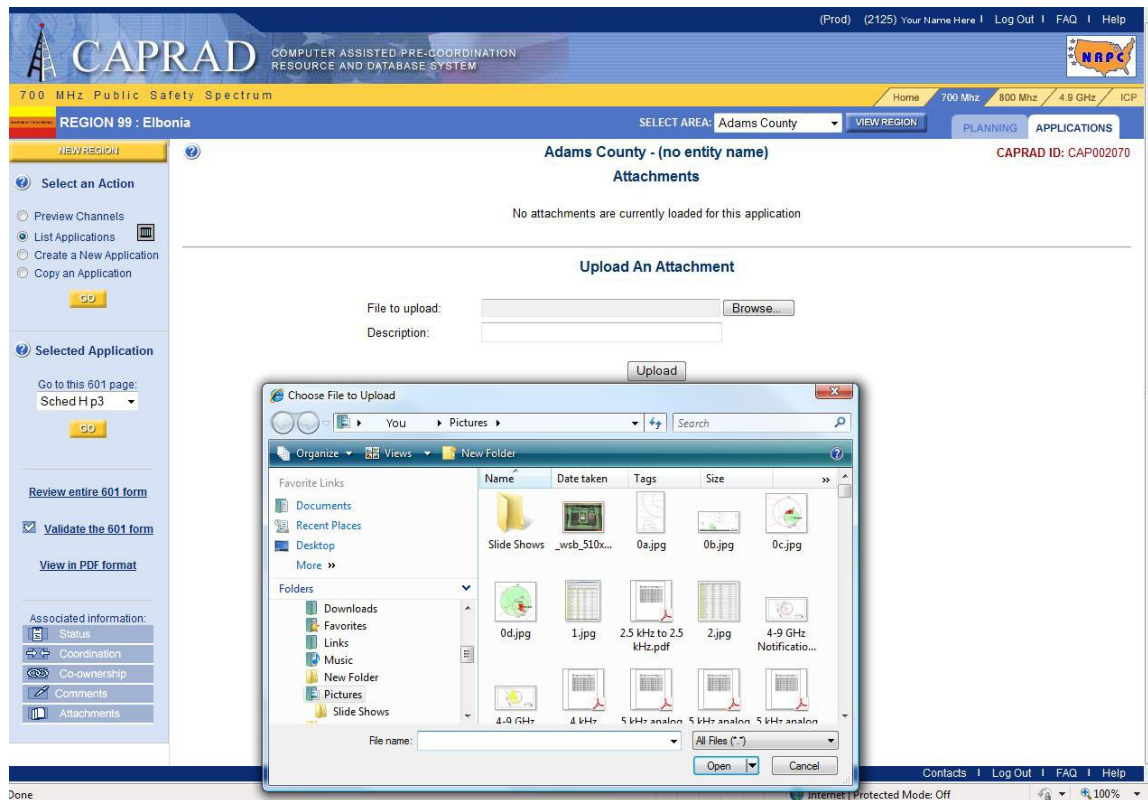


Figure 4-19
Uploading Attachments

4.5.6 Application Validation

The FCC will reject an application with errors. The application process is designed to catch and correct errors before the application is sent for coordination and received by the FCC. It can be a very frustrating experience having an application returned because of errors. CAPRAD is able to validate the application to minimize errors before submitting to a coordinator for final processing. In the left menu click “Validate the 601 form” and a new window will open showing any errors detected with suggested corrections to the specific form, page number, and item number, as shown in Figure 4-20. The list of validation errors may be printed using the print icon in the upper left of the window.

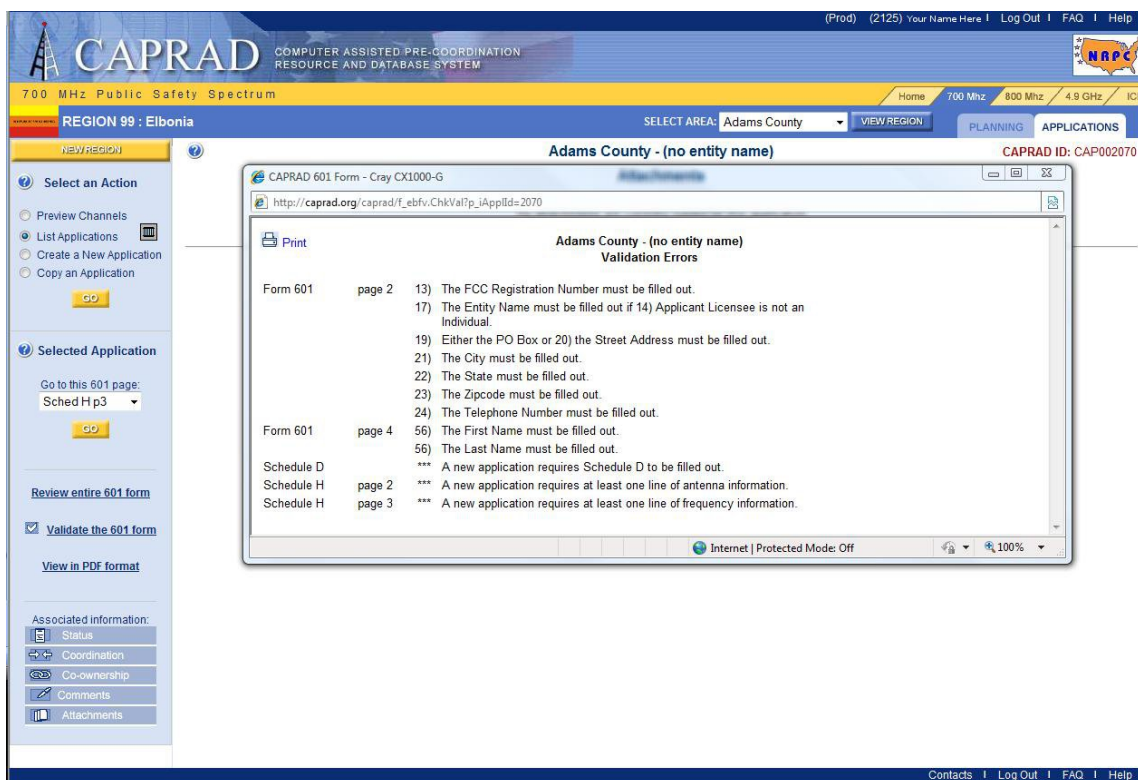


Figure 4-20
Validating the Application

Any errors must be corrected in application it can be sent to a coordinator. When the application is validated and no errors are detected, the application may be sent to the coordinator for processing. See section 4.4.6 for additional information on application status and validation.

4.5.7 Application Status

There are a number of status checks for managing the application process. As illustrated in Figure 4-21, the application is In Process. This indicates the application has not yet been validated for errors.

The screenshot shows the CAPRAD web application interface. At the top, there's a header with the CAPRAD logo and navigation links. Below that, a blue banner displays 'REGION 99 : Elbonia' and 'SELECT AREA: Adams County'. The main content area is titled 'Adams County - (no entity name)' and 'Application Status'. It features a table with columns for 'Set', 'Status', 'Date/Time (Mtn Time)', and 'Groups to Notify On Status Change'. The 'Status' column shows 'Initiated' with a date of '04/29/2011 11:54 am'. Below this, there are two history tables: 'Status History' and 'Activity History', both showing a single entry for 'Initiated' on '04/29/2011 11:54 am' by 'Your Name Here'.

Figure 4-21
Application Status

Table 4-3 lists the statuses, what conditions apply, and who is authorized. CAPRAD automatically sets certain statuses during the application process.

Status Label	How Set	When Set
Initiated	CAPRAD	When initiating a New Application, or when the user clicks Save.
Last Change	CAPRAD	Upon clicking Save, or leaving the current page to move to another page.
Validated	Owner/Co-owner	Validating an application that returns no errors. Note that making a change after validating resets the status and the application must be revalidated.
Coordinator Assigned	Owner/Co-owner	The applicant/co-owner has assigned a frequency coordinator.
Submit to RPC	Owner/Co-owner	This status is only necessary when a frequency appears on the application that is not allocated to the county of record for the application.
RPC Review	RPC	Set by the RPC to review the application and frequency request. This is recorded in the status history.
Submit for Coordination	Owner/Co-owner	The application ready for coordination, and approved by the RPC, if applicable.
Coordination Complete	CAPRAD	Notification received that the EBF file was coordinated successfully.
Submitted to FCC	CAPRAD	Notification received that the application has been submitted to the FCC.

FCC Action	CAPRAD	Notification received that the application has been licensed or rejected by the FCC. If rejected, the application status is automatically reset to “Not ready” and the last status change shows the rejection date. Reasons for rejection or notice of licensing are sent by email to the application owners.
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Table 4-3
Application Status Descriptions

To summarize, the user updates the **initiate** and **last change** status by clicking the SAVE button. The **validation** and **coordinator assigned** are checked by the system when those tasks are completed by the applicant. The user checks **Submit to RPC** (if applicable) and **Submit for Coordination** when all required statuses are completed. Status changes are date and time stamped (Mountain Time is referenced in the CAPRAD system). **Submit to RPC** and **Submit for Coordination** sends notification to the list of users and selected coordinator on the status page. Once submitted for coordination, as CAPRAD is notified via EBF, the application owners are notified of status change.

Quiz #4: Applications

- 1) CAPRAD communicates with the Federal Communications Commission by means of
 - a. Telephone
 - b. Continuous wave Morse telegraphy on a federal frequency allotted exclusively to CAPRAD
 - c. Punch cards which are collated and sent daily by courier to the FCC
 - d. EBF, or Electronic Batch Files
- 2) For application entry, CAPRAD follows the structure of
 - a. FCC form 601 as used for other frequency bands
 - b. FCC form 574, which had been widely used in the past
 - c. A proprietary input method more efficient than existing forms
 - d. The more simplified FCC form 400
- 3) Prior to progressing to another portion of the form to be submitted, the applicant should
 - a. Consult the help menus for alerts and prompts which may occur
 - b. Go back to the Main Form to replace default values
 - c. Change screen resolutions to reflect the need to display additional content
 - d. Save entered work by means of the Save button
- 4) The CAPRAD system
 - a. Forwards CAP serial numbers to the Civil Air Patrol for processing
 - b. Assigns an FCC file number to the application
 - c. Assigns the application a CAP serial number which, once the application is forwarded, is replaced by the application number of the frequency coordinator the applicant chooses
 - d. Automatically sends applications to public safety frequency coordinators based on Gaussian distribution
- 5) The 700 MHz Regional Planning Committee having jurisdiction within the area of the application must approve the application in order for it to be sent to the FCC
 - a. True
 - b. False
- 6) The current limit imposed by the FCC's Universal Licensing System (ULS) for fixed sites is
 - a. There is no limit
 - b. A combination of 12 sites or frequencies, after which additional fixed locations and/or frequencies must be placed on a separate form
 - c. 6 fixed frequencies, after which additional fixed frequencies must be placed on a separate form
 - d. 6 fixed sites, after which additional fixed locations must be placed on a separate form
- 7) On Schedule H, the Remove and DEL functions are synonymous and interchangeable
 - a. True
 - b. False
- 8) A Regional Planning Committee may elect to set which of the following actions for applications within their purview
 - a. Always review, review by allotment, or never review
 - b. Regional Planning Committees have no ability to modify how they review their applications
 - c. Delegate approval authority to another Regional Planning Committee
 - d. Require a fee payment to the Regional Planning Committee prior to acting on the application

- 9) The CAPRAD system allows application owners to upload the following attachment formats:
 - a. SVG, PDF, or XLS files
 - b. CSV, OIG, or DBF files
 - c. JPEG, TXT, or DOC files
 - d. COM, BIN, or BAT files
- 10) When an application status changes, the CAPRAD system performs the following actions:
 - a. Records the IP address of the User
 - b. Records the Date and Time, Status Label, and User
 - c. Terminates, then records all subsequent keystrokes
 - d. Any content which may be present in other screens on the user's computer