

# Regional Plan for the Public Safety 800 MHz Band in Region 43 (Washington)



**DRAFT Revisions to the Current Plan  
Last Formally Revised in 1993**

FCC Docket PR 91-270

[www.region43.org](http://www.region43.org)

## Table of Contents

Executive Summary.....	4
Section 1 – Plan Development.....	4
1.1 – Introduction .....	4
1.2 – Purpose .....	5
1.3 – Regional Planning Committee Activities to Date .....	5
1.4 – Plan Revisions.....	6
Section 2 – Regional Description and Demographics.....	7
2.1 – Introduction .....	7
2.2 – Geography of Region 43.....	7
2.3 – Population and Demographics .....	7
2.3.1 – Current Population and Distribution .....	7
2.3.2 – Population Exhibits.....	7
Section 3 – Implementation and Procedures .....	11
3.1 – Regional Planning Committee.....	11
3.1.1 – Membership .....	11
3.1.2 – Purpose.....	12
3.2 – General Protocols for Application .....	12
3.2.1 – Timetable for System Implementation .....	12
3.2.2 – Frequency Recall .....	12
3.2.3 – Reassignment of Frequencies .....	12
3.3 – Requirements for License Application .....	13
3.4 – Application Filing Windows and Criteria for Prioritization.....	13
3.5 – Appeal Process.....	14
Section 4 – Technical Design Requirements.....	15
4.1 – Introduction .....	15
4.2 – System Design Standards.....	16
4.2.1 – Definition of Service Area.....	16
4.2.2 – Definition of System Coverage Area .....	16
4.2.3 – Responsibility for Calculating System Coverage Area .....	16
4.2.4 – Proposed System Coverage Area Exhibit .....	17
4.2.5 – Maximum Effective Radiated Power .....	17
4.2.6 – Antenna Design.....	17
4.2.7 – Low Level Sites .....	17
4.2.8 – Frequency Reuse .....	17
4.2.9 – Adjacent Channel Design .....	18
4.2.10 – Absolute Mileage Separation.....	18
4.2.11 – Control Stations and Mobile Units.....	18
4.2.12 – Trunking Requirement .....	18
4.2.13 – Transmitter Standards.....	19
4.2.14 – Coded Squelch.....	19

4.3 – System Loading and Implementation Requirements .....	19
4.3.1 – Conventional Systems .....	19
4.3.3 – Number of Frequencies Requested .....	20
4.3.4 – Traffic Loading Study .....	20
4.4 – Simplex Operations .....	20
4.5 – Itinerant Operations .....	21
4.6 – Operation Aboard Aircraft .....	21
4.7 – Systems Designed to Serve Limited Areas of Operation .....	21
4.8 – Digital and Encrypted Operation .....	21
4.9 – Mobile Telephone Use .....	22
Section 5 – Interoperability .....	22
5.1 – Interoperability and Mutual Aid Channels .....	22
5.2 – Criteria for Interoperability Requirements .....	23
5.2.1 – Primary and Secondary Users .....	23
5.2.2 – Shared Trunking System .....	24
5.2.3 – Channel Counting .....	24
5.3 – Channel Assignment .....	25
5.3.1 – National Calling Channel (ICALL) .....	25
5.3.2 – National Working Channels (ITAC-1 through ITAC-4) .....	25
5.3.3 – State Tactical Channels (STATEOPS-1 through STATEOPS-5) ..	25
5.4 – Channel Usage .....	26
5.5 – Requirement for Channel Capability .....	27
5.6 – Channel Loading .....	28
Changes that still need to be made .....	28
Exhibit 1 .....	30

## **Executive Summary**

This version of the Region 43 (Washington) 800 MHz Plan, approved by the Regional Planning Committee on \_\_\_\_\_ has been developed to capture the experience of the Regional Planning Committee since the last Plan revision in 1993 and the minor Plan revisions earlier in 2006. The main policy changes include;

- Elimination of the Zone concept for identifying voting members and utilizing the voting membership approach used in the Region 43 700 MHz Plan
- Elimination of the Filing Window concept to allow applications for channel assignments to be dealt with at any official meeting of the Committee
- Elimination of the county-area channel reservations and allowing any eligible licensee to apply for any channel as long as required co-channel and adjacent-channel interference protections are achieved
- Renaming the nationwide and statewide Interoperability channels to match nationally recognized naming conventions
- Creating more opportunities for simplex operations by utilizing guard channels between statewide channel assignments
- Clarifying approaches for deployment of Interoperability repeaters to increase functionality and avoid interference
- 

## **Section 1 – Plan Development**

### 1.1 – Introduction

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

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

The National Plan provides guidelines for the development of regional Plans. The particulars of this Plan are found in FCC No. 87-359, which contains the required steps and contents for regional Plan development. It is on this document that the Region 43 Plan is developed.

## 1.2 – Purpose

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

This regional Plan was developed with the objective of assuring all levels of public safety/public service agencies that radio communications in the near and distant future will not suffer from the problems of the past.

The National Plan, as developed by NPSPAC, was followed very closely in all considerations for frequency allocation, re-use, turn back, regional interoperability, spectrum requirements and adjacent region operations. This Plan, with its 1993 and 2006 revisions, should provide the flexibility to accommodate the growth and changes that are occurring in public safety and public service communications operations long into the future.

## 1.3 – Regional Planning Committee Activities to Date

When the regional planning process was initiated, several methods of notification were used to invite interested parties to participate in the original development of this Plan. Initially, the "convener" issued a mailer to the Washington State Fire Chief's Association, the Washington Police Chief's and Sheriff's Association, the City Managers and Mayors Association, and a number of other organizations that represent the interests of entities that would be eligible to license this spectrum. A number of planning meetings were conducted throughout the state and a copy of the completed Plan was mailed to all participating members and to all the County Seats for review and comment by interested parties prior to a vote for acceptance and submittal to the FCC. The meeting and acceptance vote was conducted on May 1, 1991.

Following FCC approval of the Region 43 Plan, the Regional Planning Committee began a series of regular meetings to conduct the business of administering the Plan. Minutes of all meetings and a wide variety of support material has been accumulated and

retained and can be accessed on the Region 43 web site at the following address <http://www.region43.org/800.asp> . In addition to the web site, the Committee has operated an email listserver that allows any interested individual to receive all communications related to Committee activities.

## 1.4 – Plan Revisions

Since the adoption and approval of this Plan in 1991, the Region 43 Regional Planning Committee had gained considerable experience in dealing with applications for frequencies covered by this Plan and the administration of the Plan. By the close of 1993 the Committee had identified several revisions needed in the Plan to improve its ability to meet the needs of public safety users in the Region. These changes make the Plan easier to read and clarify previously confusing information regarding processing of applications.

On December 15, 1993, the Regional Planning Committee held a meeting at which it approved this revised edition of the Plan. This meeting was advertised to numerous public safety agencies and bodies in the Region and prior to adoption the Committee took testimony and made final modifications to this revision. At the time of the December 15<sup>th</sup>, 1993 revision, the Regional Planning Committee expected that the revised plan would extend the expected service life of the Plan to the year 2005.

Late in 2005 the Committee recognized that there were several policy issues that needed to be altered in the Plan to allow more efficient administration of the Plan now that the spectrum in the Plan is relatively fully deployed. Early in 2006, two administrative Plan revisions were approved by the Committee (ending the use of the Zone Representative approach and ending the use of filing windows) and consent letters for the changes were obtained from Region 35 (Oregon) and Region 12 (Idaho). These revisions were forwarded to the FCC for approval and were formally approved on \_\_\_\_\_.

This full revision of the Plan incorporates those revisions as well as other policy revisions.

## **Section 2 – Regional Description and Demographics**

### 2.1 – Introduction

The purpose of this section is to provide a geographic and demographic description of Region 43.

### 2.2 – Geography of Region 43

Region 43 includes 66,511 square miles, encompassing the entire State of Washington. Its boundaries are the Canadian border to the North, the State of Oregon to the South, the Pacific Ocean to the West, and the State of Idaho to the East.

The geography of Region 43 is as diverse as any in the country. Two mountain ranges dominate the terrain of the State. The Olympic Mountain Range is located on the Olympic Peninsula in the western portion of the State and the Cascade Mountain Range is located in the west-central portion. Between these two ranges lies the Puget Sound region. It is in the Puget Sound region that the major population and industrial centers of the state are located. East of the Cascade Range, basaltic tableland provides the dominant geographic foundation. With average elevations ranging between 5000 and 8000 feet, the Cascade Mountains provide a distinct demarcation between the eastern and western portions of the state.

### 2.3 – Population and Demographics

#### 2.3.1 – Current Population and Distribution

The 2004 population of the State of Washington is estimated at 6.2 million and continues to grow, particularly in the urban areas of the Puget Sound area.

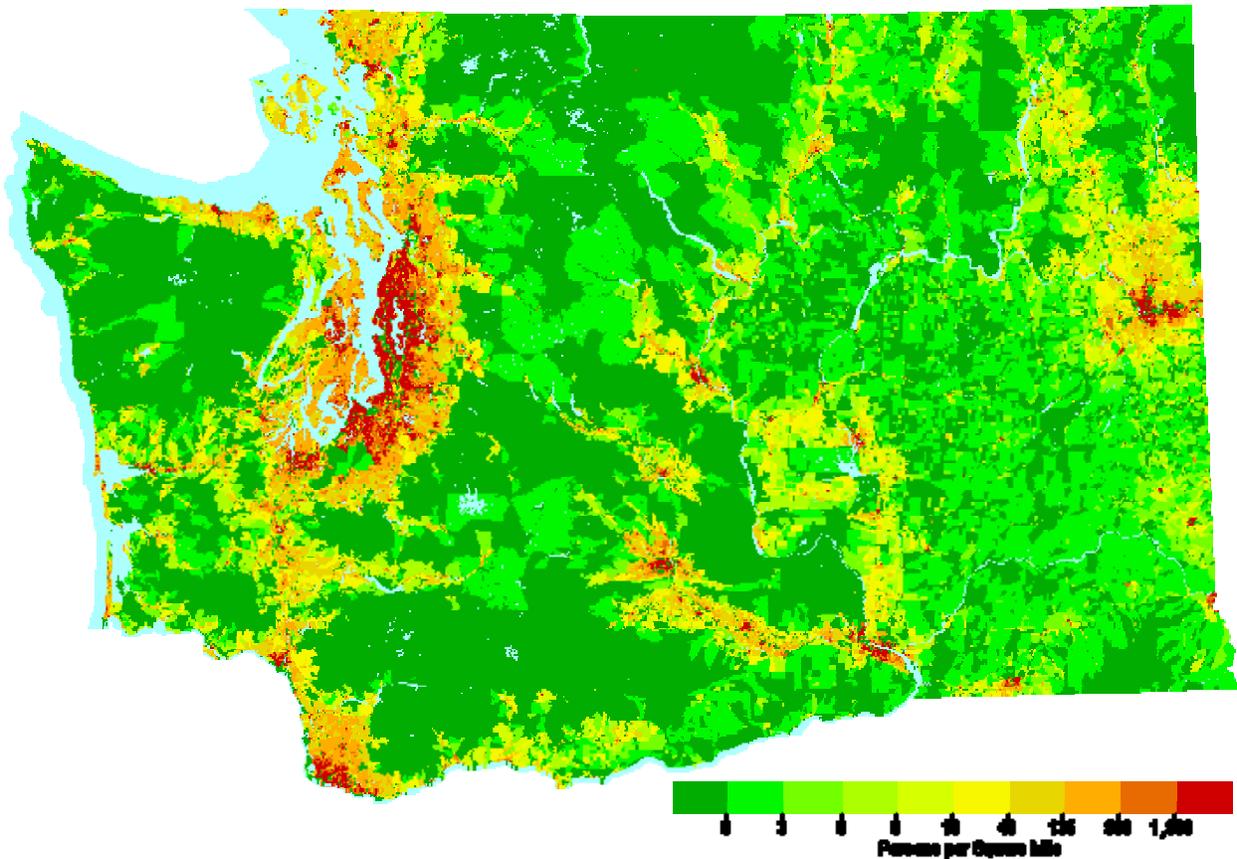
The population of the region resides in either incorporated cities and towns or in the unincorporated portions of counties. Thirty-nine counties are spread across the region. Approximately 51% of the state population lives in the King, Pierce and Snohomish county area.

#### 2.3.2 – Population Exhibits

### 2.3.2.1 – State Map



### 2.3.3.2 – Population Density



Map created by State of Washington Office of Financial Management, Olympia, WA

<http://www.ofm.wa.gov/popden/colormap.htm>

Washington's total population is ≈6,168,000. About 3.5 million reside within the boundaries of The Seattle-Tacoma-Bremerton MSA (In proximity to Interstate 5 and along the Puget Sound).

### 2.3.3.3 – Population by County

	2000 Census	2004 Estimate	% of State Population
<b>Washington State</b>	<b>5894121</b>	<b>6203788</b>	<b>100%</b>
King County	1737034	1777143	28.65%
Pierce County	700820	745411	12.02%
Snohomish County	606024	644274	10.39%
Spokane County	417939	435644	7.02%
Clark County	345238	392403	6.33%
Kitsap County	231969	239138	3.85%
Yakima County	222581	229094	3.69%
Thurston County	207355	224673	3.62%
Whatcom County	166814	180167	2.90%
Benton County	142475	155991	2.51%
Skagit County	102979	111064	1.79%
Cowlitz County	92948	96189	1.55%
Grant County	74698	79981	1.29%
Island County	71558	79293	1.28%
Lewis County	68600	71539	1.15%
Grays Harbor County	67194	70338	1.13%
Chelan County	66616	68987	1.11%
Clallam County	64525	67867	1.09%
Franklin County	49347	59472	0.96%
Walla Walla County	55180	57354	0.92%
Mason County	49405	53637	0.86%
Stevens County	40066	41310	0.67%
Whitman County	40740	40146	0.65%
Okanogan County	39564	39444	0.64%
Kittitas County	33362	35721	0.58%
Douglas County	32603	34427	0.55%
Jefferson County	25953	28110	0.45%
Pacific County	20984	21246	0.34%
Asotin County	20551	20831	0.34%
Klickitat County	19161	19855	0.32%
Adams County	16428	16596	0.27%
San Juan County	14077	15190	0.24%
Pend Oreille County	11732	12474	0.20%
Skamania County	9872	10549	0.17%
Lincoln County	10184	10412	0.17%
Ferry County	7260	7565	0.12%
Columbia County	4064	4187	0.07%
Wahkiakum County	3824	3755	0.06%
Garfield County	2397	2311	0.04%
Source: US Census Bureau Web Site County Population Data			

## **Section 3 – Implementation and Procedures**

### 3.1 – Regional Planning Committee

#### 3.1.1 – Membership

When the original Plan was adopted, the State was divided into six (6) Zones and one representative from each Zone (with the exception of Zone 2 which had three representatives due to its high population) was elected by the eligible licensees in the Zone to sit on what was referred to as the Regional Planning Committee. In addition to these Zone representatives, the Committee also included the APCO Frequency Advisors and a single representative from State government agencies. This process worked well in the early years of the Plan, but as the utilization of 800 MHz spectrum continued to concentrate around the urban areas, participation from the rural areas fell off. This made it difficult at times for the Committee to form a Quorum and to act on matters at hand.

When the Region 43 700 MHz Regional Planning Committee was formed, the Zone concept was considered but rejected due to the experiences of the 800 MHz Committee. Instead, the 700 MHz Plan allows any eligible licensee in the band to name a voting member to the Committee. This concept has been working well for the 700 MHz Committee, and is therefore also adopted for this 800 MHz Plan.

Voting members shall consist of one official from any non-federal single agency engaged in public safety eligible to hold a license under 47 CFR 90.20. Voting members shall be designated in writing to the Chair by an official from the eligible agency who is at least one level senior in the reporting structure of the agency to the designated voting member. A single agency shall be allowed no more than one vote for each distinct eligible category (e.g. police, fire, EMS, highway) within the agency's organization or political jurisdiction. In voting on any issue the individual must identify himself/herself and the agency and eligibility category which he or she represents.

Non-Voting members are all others interested in furthering the goals of public safety communications, including vendor representatives.

The Committee will elect a Chairperson annually from its voting membership and meet as often as deemed necessary by the members to conduct business. At a minimum the Committee will meet at least once per year. A simple majority of the voting membership of the Committee will constitute a quorum.

### 3.1.2 – Purpose

Upon approval of the Region 43 Plan by the Commission, the Regional Planning Committee will be established for the purpose of reviewing of new applications, conducting an annual system implementation review, making action recommendations to the Commission, resolving inter-regional problems, reviewing and recommending modifications and amendments (if needed) to the Plan, and to exercise general oversight of the Plan.

It is vital to the interest of Washington State public safety agencies that the Regional Planning Committee be maintained as an active and on-going committee.

## 3.2 – General Protocols for Application

### 3.2.1 – Timetable for System Implementation

In general terms, it is expected that eligible licensees who receive channel assignments under this plan will proceed with construction of their systems with due diligence. In general terms, this is often characterized as needing to reach certain construction and loading milestones within one year of receiving their FCC license. However, formal construction deadlines and loading requirements are defined in the FCC licensing process and are not under the control of the Regional Planning Committee.

### 3.2.2 – Frequency Recall

The Regional Planning Committee may monitor the implementation process and if they become aware that required construction and loading milestones are not being met, the applicant will be notified of the possible consequences of not utilizing the frequencies. Further, if other eligible licenses in need of channels bring non-construction or loading discrepancies to the attention of the Committee, follow-up inquiries will be made to determine the status of construction requirements on the license. The Regional Planning Committee has the option of notifying the FCC of failures to construct or load systems so that consideration can be given to returning some or all of the channels to the pool for assignment to other eligible licensees in need of channels.

### 3.2.3 – Reassignment of Frequencies

In lieu of a plan for the efficient reuse of frequencies in the VHF and UHF bands used by the applicant, applicants for frequencies covered in this Plan are strongly

encouraged to turn back frequencies in other bands presently used by the applicant. These turned back frequencies should be returned to the FCC so they can be reassigned to agencies awaiting channels in the lower frequency bands. Many public safety agencies do not have enough frequencies to adequately provide for their day-to-day dispatching. These needs must be provided for before less important needs can be provided for in the lower frequency bands.

It is generally inconsistent with the goals and objectives of this Region to permit the direct re-assignment of radio frequencies between agencies. All frequencies are to be returned to the FCC to be assigned where it will be of the most benefit to the public's safety. However, requirements for enhanced interoperability (through cross-band operations), mutual aid, mobile data and computing system needs, paging, and backcountry communications (where VHF or UHF spectrum may be better suited to the needs of public safety agencies), are all sufficient justification for the retention of VHF or UHF assignments. Applicants proposing to retain VHF or UHF channels shall include specific information on how retained channels are to be reused and shall make a statement to the effect that should they not be used for the intended purpose within 24 months that the channels will be surrendered.

Frequencies obtained through interservice sharing should be returned to their original service pool before non-interservice shared frequencies are turned back.

Similarly, an agency shall not be allowed to "farm down" frequencies to other services within their political structure simply to take advantage of surplus equipment.

### 3.3 – Requirements for License Application

The Regional Planning Committee will adopt and maintain Application Review Procedures that will specify the exact material needed in an application and the process the Committee will use to review and approve the application. These Procedures will at a minimum require that the applicant provide complete and adequate information so the Committee can assess the compliance with this Plan and the FCC rules and regulations. In addition, the Procedures will require enough information to protect present and future users of frequencies covered in this Plan from harmful radio frequency interference.

### 3.4 – Application Filing Windows and Criteria for Prioritization

Applications for frequencies covered by this Plan will be processed by the Regional Planning Committee at any formally called meeting of the Committee, typically monthly. Any applications received more than five (5) working days in advance of the scheduled

meeting will be considered at that meeting, but final decision may be delayed until subsequent meetings if further facts or information are needed by the Committee to make a decision. Applications received five (5) working days or less before the meeting will be heard at the subsequent meeting. Further details will be defined in the Committee's Application Review Procedures document.

In the event that there are applications for more than the available number of frequencies, applicants will be asked to first negotiate amongst themselves to seek a mutually agreeable solution. Should the mutually cooperative effort to reach a solution fail, the Committee shall use the following weighted criteria to assist in making its decision. These point values represent a maximum allowable value for each criterion and the actual assignment of a value will be described in detail in the Committee's Procedures.

#### Maximum Allowable Point value

- 6 Immediate need to protect human life and property
- 5 Spectrum efficient system design through consolidation of individual radio systems into regional systems or the reuse of the channel(s) by others.
- 4 Channel loading (including 806 MHz channels)
- 4 The number and ability to reassign or reuse the turn back channels.
- 1 Implementation schedule.

The Committee will use the results of this scoring and other information that is available to make an allocation of frequencies that best meets the overall public safety needs of the Region. Applicants should be advised that the Committee reserves the right to make partial or shared assignments where required for the efficient use of the spectrum resource.

### 3.5 – Appeal Process

Throughout the frequency application process applicants will be given an opportunity to appeal decisions that caused rejection of an application. The appeal process will have two levels. The first is the Regional Planning Committee and the second is the FCC. The applicant who decides to appeal a rejection should begin the appeal process immediately. If the appeal reaches the second level, the FCC's decision will be final and binding upon all parties. The method of administering the appeal is defined in the Committee's Procedures document.

### 3.6 – Channel Distribution

The specific assignment of channels in Region 43 was originally drawn from pools established utilizing the CET/APCO packing program. Subsequent to the original county area assignment of channels, the Regional Planning Committee has reviewed and acted on a number of site-specific requests for channel utilization and has maintained a table of all approved channel placements. This table is attached to this Plan Revision as Exhibit 1, and represents the approved channel utilizations as of the date on the top of the Exhibit.

The following describes the process used in the development of the original packing plan. The geographical locations, in latitude and longitude, for several prominent government sites in each county were provided to C.E.T. along with the environmental type of the county and the approximate radius to the county lines. Additional information supplied was the request for a minimum of 2 channels per county and a minimum of 1 additional channel per 25,000 population in counties with populations above 25,000. The City of Seattle was provided channels based solely on 1 channel per 25,000 population. The portion of the Region within 140 kilometers of the Canadian border could only have frequencies - by treaty - above 822.5 MHz assigned on a primary basis. Frequencies below 822.5 MHz have to be assigned to Canadian users on a non-interfering basis. Due to the density of the population west of the Cascade Mountains above the 140 kilometer line, it was impossible to pack the frequencies without using frequencies primarily assigned to Canada. To use the Region 43 Plan to the fullest will require and depend on the applicable frequency advisors and the Regional Planning Committee to coordinate and monitor the operation of the Plan.

The Regional Planning Committee will review all applications for compliance with this Plan and to assist in the coordination of frequency uses to insure a minimum or no impact on all surrounding Regions and our Canadian neighbors.

The Committee will first attempt to meet an applicant's needs with channels listed in 90.617 and then from NPSPAC channels assigned to the applicant's County. In the event all NPSPAC channels reserved for use in one County are assigned, unused channels from other areas may be used if there is a clear showing to the Committee's satisfaction that there is little or no expectation that the channels will be needed in the County where they were originally allocated.

## **Section 4 – Technical Design Requirements**

### 4.1 – Introduction

The purpose of this section is to define the technical requirements necessary to assure the maximum utilization of the valuable spectrum addressed in this Plan. "System coverage area" and "service area" will be limited to the smallest geographical area necessary to provide sufficient coverage of the geo-political area of the licensee.

Agencies requesting channels under this Plan shall have their proposed system design evaluated by the Regional Planning Committee.

Agencies with service areas outside their political boundaries may request an extended service area. Such requests for extended coverage must be accompanied by written justification.

Extended service areas will not be authorized unless approved by the Regional Planning Committee. Favorable consideration will be given to those systems that are made available for use by eligibles other than the licensee.

## 4.2 – System Design Standards

### 4.2.1 – Definition of Service Area

"Service area" is the minimum area needed to be covered. This usually coincides with the geo-political boundaries of the requesting agency unless an exception is granted by the Regional Planning Committee (see above).

### 4.2.2 – Definition of System Coverage Area

"System Coverage Area" is defined as the boundary where received signal strength falls to 40 dBu. This shall be kept as close to the service area as possible but will normally be a little larger to assure sufficient coverage of all parts of the service area.

**NOTE:** This section is subordinate to section 8, 9 and 11 (below). The levels of interference given in these sections can not be exceeded unless approved by the Regional Planning Committee or any existing co-channel and adjacent channel licensee.

### 4.2.3 – Responsibility for Calculating System Coverage Area

It will be the responsibility of the requesting agency to calculate the proposed system coverage area.

#### 4.2.4 – Proposed System Coverage Area Exhibit

An applicant will be required to provide various map displays and exhibits of the proposed system coverage area to allow the Regional Planning Committee to evaluate the impacts of the proposed system on present and future licensees. The exact nature of such exhibits are defined in the Committee's Application Review Procedures document and FCC rules.

#### 4.2.5 – Maximum Effective Radiated Power

The maximum effective radiated power (ERP) of all transmitters shall be limited to the minimum amount necessary to provide coverage of the agency's service area or as specified in FCC rules.

#### 4.2.6 – Antenna Design

The Regional Planning Committee may require both directional and down-tilt antennas designed to reduce interference to other areas as deemed advisable or as required to meet listed criteria.

#### 4.2.7 – Low Level Sites

Emphasis will be placed on the use of low level sites to allow maximum frequency reuse.

#### 4.2.8 – Frequency Reuse

Careful adherence to the system technical design requirements of this Plan will allow for maximum co-channel usage within this region. Agencies requesting frequencies that have been previously licensed within this region, or an adjacent region, must show that their proposed system will operate on an interference-free basis with any existing co-channel system. Requesting agencies must demonstrate that the proposed system will produce signal levels not to exceed 5 dBu at any point inside the service area of all existing co-channel systems. It

must further be shown that this signal level is not exceeded in Counties where co-channel frequencies have been assigned in this Plan but are not yet implemented.

#### 4.2.9 – Adjacent Channel Design

Because of the close proximity of adjacent channel frequencies, adjacent channel consideration must be planned similar to that of co-channel designs. Proposed systems must be designed so signal levels will not exceed 25 dBu inside the service area of existing adjacent channel licensees or inside the county where adjacent channels are assigned by this Plan but not yet implemented.

#### 4.2.10 – Absolute Mileage Separation

In any case where the boundaries of the service areas of adjacent channel systems are separated by at least 50 miles, the interference studies as set forth in this Plan are unnecessary because of free space and terrain losses.

#### 4.2.11 – Control Stations and Mobile Units

Control stations and mobile units of agencies granted frequencies shall limit their signals to the degree necessary to provide a minimum of 35 dB of protection to existing base station receivers operating on the same channel.

Control stations and mobile units of agencies granted frequencies shall limit their signals to provide a minimum of 15 dB of protection to existing base station receivers operating on adjacent channels.

#### 4.2.12 – Trunking Requirement

As referenced in the National Plan, trunking is mandated for any new system with more than four channels in the 800 MHz band. Request for exceptions will be considered by the Regional Planning Committee. Requests for waiver of the trunking requirement will be considered by the Regional Planning Committee after presentation of evidence by the applicant. Recommendation by the Committee to the FCC for approval of a waiver from the trunking requirement will be based on the individual merits of the presentation.

#### 4.2.13 – Transmitter Standards

Transmitters utilized on the spectrum covered in this Plan will be type accepted for operation on the 821-824/866-869 MHz band and must meet the technical standards defined in Part 90 of the Commission's Rules and Regulations.

Portable and mobile transmitters, type accepted for operation in the 806-821/851-866 MHz band, may be used by licensees in the Public Safety and Special Emergency Radio Services on the five National Mutual Aid channels without special authorization.

#### 4.2.14 – Coded Squelch

The use of CTCSS (Continuous Tone-Coded Squelch Systems), CDCSS (Continuous Digital-Coded Squelch Systems), or other subsequently developed equivalent technology is required for use on conventional systems. The exception to the use of selective signaling is applicants who wish to make use of the statewide 'guard' channels for simplex operation. Applicants who wish to make use of these assignments are only permitted use of carrier squelch so that these simplex uses would be immediately aware of adjacent-channel carrier interference and thus avoid using the channel so as not to interfere with the primary use on the adjacent channel. Where used, system designers shall coordinate the coded squelch to enhance system discrimination between desired and undesired signals.

### 4.3 – System Loading and Implementation Requirements

Agencies using frequencies in the 821-824/866-869 MHz band shall comply with loading requirements as called for in Part 90.631 of the FCC Rules and Regulations for trunked radio systems, and in Part 90.633 for conventional systems. As referenced in 90.631 and 90.633, section 90.629 shall also apply.

#### 4.3.1 – Conventional Systems

An agency requesting a single frequency and turning back a frequency for reassignment will not be required to meet loading requirements to obtain the new frequency. If the single frequency is not loaded within the time constraints established by the FCC for use of the slow growth channels, the frequency will be available for assignment on a shared basis.

#### 4.3.2 – Trunking Systems

Agencies requesting and implementing a trunking system will meet the slow growth requirements for trunk loading as specified in the FCC rules. Agencies not loaded to that extent will face the possibility of a reduction in channels dictated by the Region's need for channels.

#### 4.3.3 – Number of Frequencies Requested

The following criteria shall be used to justify the number of channels requested and will form a part of the scoring of the channel loading criteria outlined in Section II D of this Plan:

- a. The loading standards identified in Section 4. "Traffic Loading Study"
- b. Compliance with FCC Rules for channel loading

#### 4.3.4 – Traffic Loading Study

Justification for adding frequencies in the 821-824/866-869 MHz band, can be provided by a traffic loading study in lieu of loading by number of mobile, portable and control station transmitters per channel. It will be the responsibility of the requesting agency to provide a verifiable study showing sufficient air time usage to merit additional frequencies. A showing of air time usage, excluding telephone interconnect air time, during the peak busy hour greater than 70 percent per channel on three consecutive days will be required to justify additional or retain existing frequencies.

#### 4.4 – Simplex Operations

Simplex operations may take place on the STATEOPS channels, the ITAC and ICALL channels (when operated in a simplex mode), the identified statewide guard channels, or on other channels as may be requested by the applicant. Applicants are to request the minimum power required for effective, short range communications. Simplex channels may be licensed for mobiles or portables, temporary fixed use, and permanent fixed use consistent with the rules established by this plan.

Mobile, portable and temporary fixed operations will be reviewed by the Plan Chairperson and approved administratively. Mobile, portable, and temporary applications shall have a normal area of operation specified. Applications for

simplex operations at permanent, fixed locations will be processed as any other regular application and require committee review. Simplex operations are on a secondary basis and do not apply to channel loading criteria.

#### 4.5 – Itinerant Operations

Itinerant operations are permissible under the plan. National itinerant operations shall make use of the ICALL and ITAC channels only. Under normal circumstances, itinerant operations will be conducted using the assigned STATEOPS and ICALL/ITAC assignments. Where such use proves impractical, use of other channels for itinerant operations will be considered by the Committee. Itinerant applications may be for simplex operation or repeater operation.

#### 4.6 – Operation Aboard Aircraft

Operation from aircraft shall always use the lowest practicable power level consistent with FAA and FCC rule. Users shall be aware that operation from aircraft creates the potential for interference to co- and adjacent-channel users and that such operations should seek to minimize the impact of airborne operations on others.

#### 4.7 – Systems Designed to Serve Limited Areas of Operation

Applicants may request consideration of system designs which serve limited areas of operation. These areas may be a 'campus' such as a government complex, school, jail, or similar facility, or may be entirely enclosed (such as a rail or bus tunnels or enclosed parking garages). All such systems require site-specific licensing. Where such systems are intended to deliver signal to an external antenna system, normal contour showings are required by the Committee. Where such systems are designed without deliberate external radiators, no such showing is required. The Committee further strongly recommends that channels for such uses be applied for in such a way as to maximize spectrum reuse and that no wide area spectrum be assigned solely in a given area for limited service area systems unless no other spectrum is available.

#### 4.8 – Digital and Encrypted Operation

Digital and encrypted operation is permitted on all assignments from this Plan with the exception of the STATEOPS and ICALL/ITAC channels where clear voice operation is mandated.

## 4.9 – Mobile Telephone Use

The use of a radio telephone via interconnect through an 800 MHz trunked radio system or other two-way radio communications system normally requires a significant amount of air time. Therefore, telephone interconnect is discouraged. The use of a defeatable interconnect for radio telephone use is allowed under this Regional Plan. Where available, the use of cellular telephones or other methods should be used to access the Public Switched Telephone Network, rather than expending limited 800 MHz channels for this purpose.

## **Section 5 – Interoperability**

It is the intent of this Plan to encourage all Part 90 (B)(C) eligible agencies to implement communications capability on the National Common and Statewide Tactical channels, even if they do not license private systems on any of the frequencies covered by this Plan. It is also the intent of this Plan to retain (and use) all present Mutual Aid systems such as Law Enforcement Radio Network (LERN), On Scene Command and Control Radio (OSCCR), Hospital Emergency Ambulance Radio (HEAR), or other similar systems.

### 5.1 – Interoperability and Mutual Aid Channels

Ten channels will be reserved for interoperability and mutual aid. Five of these channels are the National Common Channels mandated by the FCC and five additional channels are to be used on a statewide basis. In general, use of these channels for mobile operation falls within the blanket licensing provisions of FCC 87-359 and Part 90 rules, and does not require individual licenses. Permanent fixed stations require individual licenses and review by the Region 43 Committee.

FCC mandated frequencies to be used as Mutual Aid channels are listed below:

<b>CHAN #</b>	<b>FREQUENCY</b>	<b>DESIGNATION</b>	<b>.</b>
601	821/866.0125 MHz	National Calling Channel	ICALL
639	821/866.5125 MHz	National Working Channel	ITAC-1
677	822/867.0125 MHz	National Working Channel	ITAC-2
715	822/867.5125 MHz	National Working Channel	ITAC-3

753      823/868.0125 MHz      National Working Channel      ITAC-4

Statewide mutual aid tactical channels and recommended service are listed below:

<b>CHAN #</b>	<b>FREQUENCY</b>	<b>DESIGNATION</b>	
716	822/867.5375 MHz	Tactical, Primarily Fire/EMS	
STATEOPS-1			
718	822/867.5625 MHz	Tactical, Primarily Law Enforcement	STATEOPS-2
720	822/867.5875 MHz	Tactical, Primarily Local Gov't, Others	STATEOPS-3
722	822/867.6125 MHz	Tactical, Primarily Fire/EMS	
STATEOPS-4			
724	822/867.6375 MHz	Tactical, Primarily Law Enforcement	STATEOPS-5

## 5.2 – Criteria for Interoperability Requirements

### 5.2.1 – Primary and Secondary Users

Users will be separated into the categories of primary and secondary based upon the number of channels applied for.

#### **Primary User:**

A Primary User is an agency that operates on five or more channels or operates a trunking system.

Primary Users will be required to have the capability of operating on the National Calling Channel. Wide area coverage transmitters configured as full mobile relays may be required to be installed to maximize regional coverage along with satellite receivers, as needed, to enhance the talk-in coverage. All Primary Users in the Regional Planning Area are required to operate a control station, either individually or jointly, to provide 24 hour monitoring and rendering assistance on the Calling Channel.

All licensees are encouraged to operate additional stations on the remaining four Common Channels (Working Channels). Each Primary User may be required to sponsor, individually or jointly, one or more existing or additional mobile relays on the five Common Channels in order to provide a number of working channels in an area. The frequency, placement, and coverage of these systems will be controlled by the Regional Planning Committee. The suggested guidelines for the

number of required Common Channels is one Common Channel for each four trunking channels.

**Secondary User:**

A Secondary User is an agency that operates a non-trunking system on four channels or less. Secondary Users include any Federal, State or Local disaster management agencies, police, fire, and providers of basic and advanced life support services.

All Secondary Users shall, as a minimum, operate a control station (if a mobile relay is providing coverage to the Secondary Users area) or a base station (half duplex is encouraged in order to communicate with portables and mobiles programmed for repeater operation) for continuous monitoring of the National Calling Channel. A Secondary User whose area is encompassed by one or more Primary Users may apply for a waiver from the Regional Planning Committee for full time monitoring of the National Calling Channel. A Secondary User that has successfully petitioned for a monitoring waiver will be required to have an installed and operational control station on the National Calling Channel.

Other public safety users such as, school buses, volunteer emergency corps, Red Cross, Radio Amateur Civil Emergency Service (RACES), Amateur Radio Emergency Services (ARES), Salvation Army, C.A.P., etc., are encouraged to participate in the use of these interoperability channels. These agencies may also choose to monitor the National Calling Channel (ICALL) but will not be required to do so.

### 5.2.2 – Shared Trunking System

In the case of two or more agencies agreeing to share a trunking system; they must, as a group, meet all the above requirements of a Primary User. Each individual agency must, at a minimum, meet the Secondary User requirements.

### 5.2.3 – Channel Counting

These rules apply to the use of the 821-824/866-869 MHz band. It is feasible, however, that an agency with an 800 MHz trunking system outside this band will apply for one or more additional frequencies within the 821-824/866-869 MHz band. For this reason the following counting rules are set forth:

All 800 MHz trunking channels and all 800 MHz non-trunked voice channels, whether or not in the 821-824/866-869 MHz band, will be counted to determine if an applicant for a channel in the 821-824/866-869 MHz band is a Primary User or a Secondary User.

All 800 MHz trunking channels, whether used for voice only, data only or data and voice will be counted.

## 5.3 – Channel Assignment

### 5.3.1 – National Calling Channel (ICALL)

The Calling Channel shall be used to contact other users in the Region for the purpose of requesting incident related information and assistance. If necessary, the calling party will be asked to move to one of the ITAC channels for continuing incident operations or other interoperability communication needs.

### 5.3.2 – National Working Channels (ITAC-1 through ITAC-4)

The remaining four Common Channels (Working Channels) are to be used primarily for coordination activity between different agencies in a mutual aid situation, or emergency activities of a single agency. Incidents requiring multi-agency participation will be coordinated over these channels by the agency controlling the incident. Individual Working Channels may be designated for use by various services on an incident basis by the controlling agency. In the event of multiple incidents requiring the use of these channels, channels shall be designated by mutual agreement between controlling agencies. In no case shall control of these channels remain with any single agency beyond the termination of the emergency.

### 5.3.3 – State Tactical Channels (STATEOPS-1 through STATEOPS-5)

In addition to the above FCC mandated five Common Channels, five Tactical Channels will be set aside. Fixed base stations and fixed mobile relay stations are prohibited on these Tactical Channels. Temporary portable mobile relay stations with the minimum required power shall be permitted, except for Priority 4 usage.

Two channels are primarily intended for Fire/EMS use, two channels are primarily intended for Law Enforcement use, and the remaining channel is intended primarily for use by General Government and other eligibles. Agencies operating 800 MHz mobiles

and portables are encouraged to use these channels in the simplex mode for their interoperability and other "repeater talk-around" needs, as outlined in Section D.

## 5.4 – Channel Usage

Plain English shall be used on all interoperability channels at all times; encrypting shall be prohibited. Units will use the unit identifiers they normally use in their own system, but will then adapt to any prescribed identifier and on-air protocols as determined by the controlling agency.

Paging, alerting, and other means of signaling on these Mutual Aid channels is prohibited.

The use of the Calling Channel for intra-system normal dispatch and routine agency operations is strictly prohibited. Normally, the five Common Channels are to be used only for activities requiring communications between agencies not sharing any other compatible communication system. Under emergency situations, one or more Working Channels may be assigned by the controlling agency for the duration of the incident.

All ten Mutual Aid channels (except as noted) are subject to a priority usage concept. These priorities are as follows:

**Priority 1:** Disaster and extreme emergency operations, for mutual aid and inter-agency communications.

**Priority 2:** Emergency or urgent operations involving imminent danger to the safety of life or property.

**Priority 3:** Special event control activities, generally of a pre-Planned nature, and generally involving joint participation of two or more agencies.

**Priority 3a:** Drills, tests, and exercises of a civil defense or disaster nature.

**Priority 4:** Single agency secondary communications  
(Applies only to the five State OPS channels)

**NOTE:** Secondary communications are defined as that usage required by an extraordinary number of simultaneous incidents causing a temporary overload of an agency's normal communications system, or unusual occurrences occurring on an intermittent basis, such as being unable to use the agency's normal system and needing to communicate in a simplex (Talk-around) mode for a limited time.

## 5.5 – Requirement for Channel Capability

All agencies that license frequencies from this Plan will implement, at a minimum, the following Interoperability channels in their mobile and portable radios:

ICALL, ITAC-1 thru ITAC-4 will be implemented in full repeat mode so the radio can access any of these channels if a repeater is available in the area.

STATEOPS-3 will be implemented in simplex mode on the repeater output frequency (867.5875). This will provide a common simplex communications path for any 800 MHz radio used in the Region.

In addition to the above required channels, licensees are also encouraged to implement as many of the other STATEOPS channels as is reasonable for their operation. For example, a fire department may also choose to put STATEOPS-1 and STATEOPS-4 on their radios and a police department may choose STATEOPS-2 and STATEOPS-5. Additionally, agencies may choose to implement the STATEOPS channels in the full repeat mode if they also operate, or participate in the operation of, a temporary mobile repeater for unique events. Agencies are also encouraged to implement the ICALL and ITAC channels on a simplex basis.

All interoperability channels shall be controlled by sub-audible (CTCSS) tone 156.7 Hz. All interoperability repeaters shall have at a minimum an input and output CTCSS tone of 156.7 Hz.

The FCC has encouraged use of the common CTCSS tone to ensure nationwide interoperability. This has created some conflicts in areas where multiple interoperability repeaters have been placed into service. The common frequency pairs and CTCSS tones create heterodyne interference where repeater access is attempted by users within range of these multiple systems. As a result, the Committee prefers that one or a combination of the following methods be utilized to provide effective deployment of the interoperability channels. Applicants will be asked to closely coordinate with the Committee as they implement their respective interoperability systems. The following summarizes the suggested approaches:

### Method One – Simulcast

Perhaps the best way to get wide area coverage on a particular channel is to deploy multiple transmitters and voting receivers in a simulcast configuration. By synchronizing the signals from two or more transmitter sites the effective footprint of the channel is the composite of the footprints of the individual sites.

Establishment of simulcast deployments of the ICALL or ITAC channels would likely require the cooperation of multiple jurisdictions.

#### Method Two – Single Repeater/Voting Receivers

A single ICALL repeater may be established which is designed to serve as much of the region as possible. Generally, this repeater would be equipped with voting receivers to enhance the ability for portable radio users to access the repeater. Monitoring agencies (normally 911 dispatch centers) could direct users to lower level working channels for extended communications. Additionally, regions may elect to keep repeaters in a 'knocked-down' or disabled state, monitoring the repeater input frequency for calls from users requesting communications. Following such a request, the responding entity would then either shift the traffic to a working channel or could selectively enable the repeater mode of operation for the duration of the call.

#### Method Three – Multiple CTCSS Tones

Regional planning may provide for the fitting of a secondary CTCSS tone to each interoperability repeater, allowing for activation of single repeaters by properly equipped agency radios. Regional agencies would then be required to have both the national CTCSS as well as a CTCSS intended for regional use present in their radio programming.

## 5.6 – Channel Loading

Since these ten Mutual Aid channels are required for inter-agency communication during an emergency, they shall not be considered in channel loading and channel justification formulas.

## **Changes that still need to be made**

The following changes still need to be incorporated into this document

- Once NPSTC issues the revised naming conventions for the national interoperability channels and any regional interoperability channels, the names ICALL, ITAC and STATEOPS will need to be modified to conform with that standard
- Once the rebanding process is complete, or at least underway, the new channel numbering scheme will need to be applied to Exhibit 1



# Exhibit 1

Inserted here will be the most recent version of the Channel Assignment table.  
Sample below.

## REGION 43 NPSPAC CHANNEL ASSIGNMENTS Sorted by Channel As Of October 2005

<u>CHAN</u>	<u>FREQUENCY</u>	<u>PLAN ASSIGNMENT</u>	<u>ASSIGNED BY COMMITTEE</u>
*****			
* CHANNELS 601 TO 714 ARE SECONDARY TO CANADA			
*****			
601	866.0125	National Mutual Aid - ICALL	WSDOT @ Mt. Spokane, Spokane County, Monitored by WSP
601	866.0125	National Mutual Aid - ICALL	King County @ Squak Mountain, Mon by KCSO and Valley Com
601	866.0125	National Mutual Aid - ICALL	Benton County @ Golgotha Butte, Benton County – April 2005
601	866.0125	National Mutual Aid - ICALL	WSDOT @ King Mountain, Whatcom County – October 2005
601	866.0125	National Mutual Aid - ICALL	WSDOT @ Burch Mountain, Chelan County – October 2005
601	866.0125	National Mutual Aid - ICALL	WSDOT @ Haystack, Klickitat County – October 2005
			Pending interference testing with Benton County
601	866.0125	National Mutual Aid - ICALL	WSDOT @ Magnuson Butte, Lincoln County – October 2005
601	866.0125	National Mutual Aid - ICALL	WSDOT @ Octopus Mountain, Clallam County – October 2005
601	866.0125	National Mutual Aid - ICALL	WSDOT @ Sky Meadows, Kittitas County – October 2005
			Pending interference testing with Manashtash
601	866.0125	National Mutual Aid - ICALL	WSDOT @ Skyline Lake, Chelan County – October 2005
601	866.0125	National Mutual Aid - ICALL	WSDOT @ Manashtash, Kittitas County – October 2005
			Pending interference testing with Sky Meadows
601	866.0125	National Mutual Aid - ICALL	WSDOT @ Alpowa Summit, Garfield County – October 2005
602*	866.0375	Reserved for Region wide	WSDOT @ Buck Mountain, Jefferson County - May 1994
602*	866.0375	Reserved for Region wide	WSDOT @ Burch Mountain, Chelan County - November 1994
602*	866.0375	Reserved for Region wide	WSDOT @ Sunnyside Slope, Yakima County - November 1994
602*	866.0375	Reserved for Region wide	WSDOT @ Kalotus Airport, Franklin County - November 1994
602*	866.0375	Reserved for Region wide	WSDOT @ Scoop Mountain, Stevens County - November 1994
602*	866.0375	Reserved for Region wide	WSDOT @ Kamiac Butte, Whitman County - June 1997
602*	866.0375	Reserved for Region wide	WSDOT @ Saddle Mountain, Adams County – May 1998
602*	866.0375	Reserved for Region wide	WSDOT @ Klickitat, Klickitat County – March 2000
602*	866.0375	Reserved for Region wide	WSDOT @ 1 <sup>st</sup> Avenue Bridge, King County – October 2002
602*	866.0375	Region 35 Assignment	WCCCA @ Round Top, Washington Co. Oregon – December 2001
602*	866.0375	Reserved for Region wide	WSDOT @ East Saddle Mountain, Adams County – June 2005