



**National Public Safety  
Telecommunications Council**

**SPECTRUM ALLOCATION  
RECOMMENDATIONS  
for the  
PUBLIC SAFETY  
portion of  
746-806 MHZ**

March 26, 1998

Revision of 12/12/97 PS764PLN.PPT

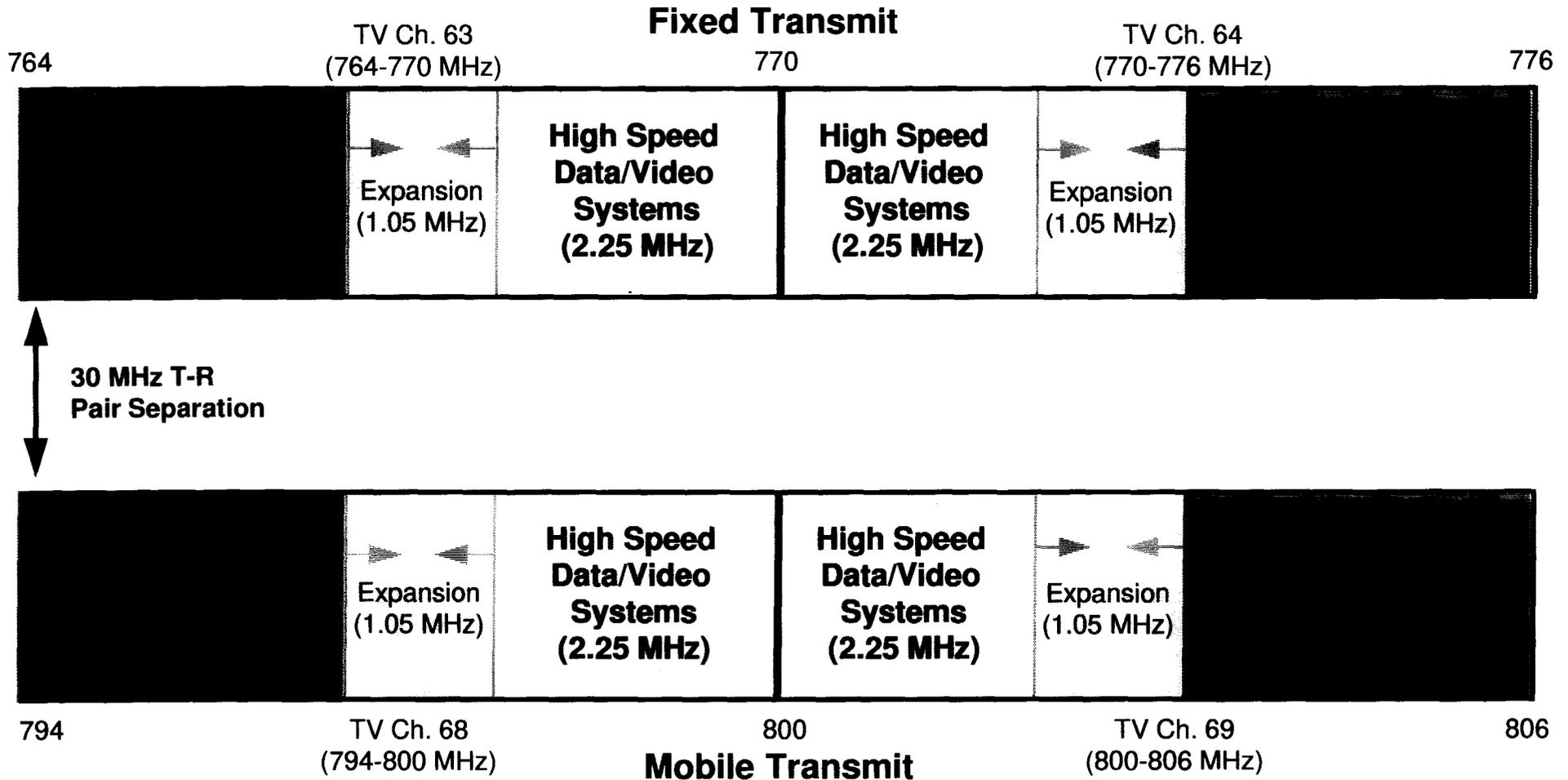
# NPSTC 746-806 MHz Plan in each TV Channel Pair

- Wideband data/digital video channels (3.750 MHz)
  - 15 general usage pairs
    - paired, 125 kHz bandwidth,  $\geq$  ??? kbps data rate
- Medium bandwidth data channels (0.000 MHz)
  - None, if needed, aggregate IV&D into 25 kHz channels
    - paired, 25 kHz bandwidth,  $\leq$  19.2 kbps data rate
- Integrated voice and data channels (5.000 MHz)
  - 200 pairs, 12.5 kHz bandwidth
  - voice or  $\leq$  9.6 kbps data
  - 144 general usage
  - 40 Regional or Statewide usage
  - 10 Statewide usage
  - 6 Vehicular Repeater and/or Simplex channels
- Interoperability (1.150 MHz)
- Expansion (2.100 MHz)

# Interoperability Channels in each TV Channel Pair

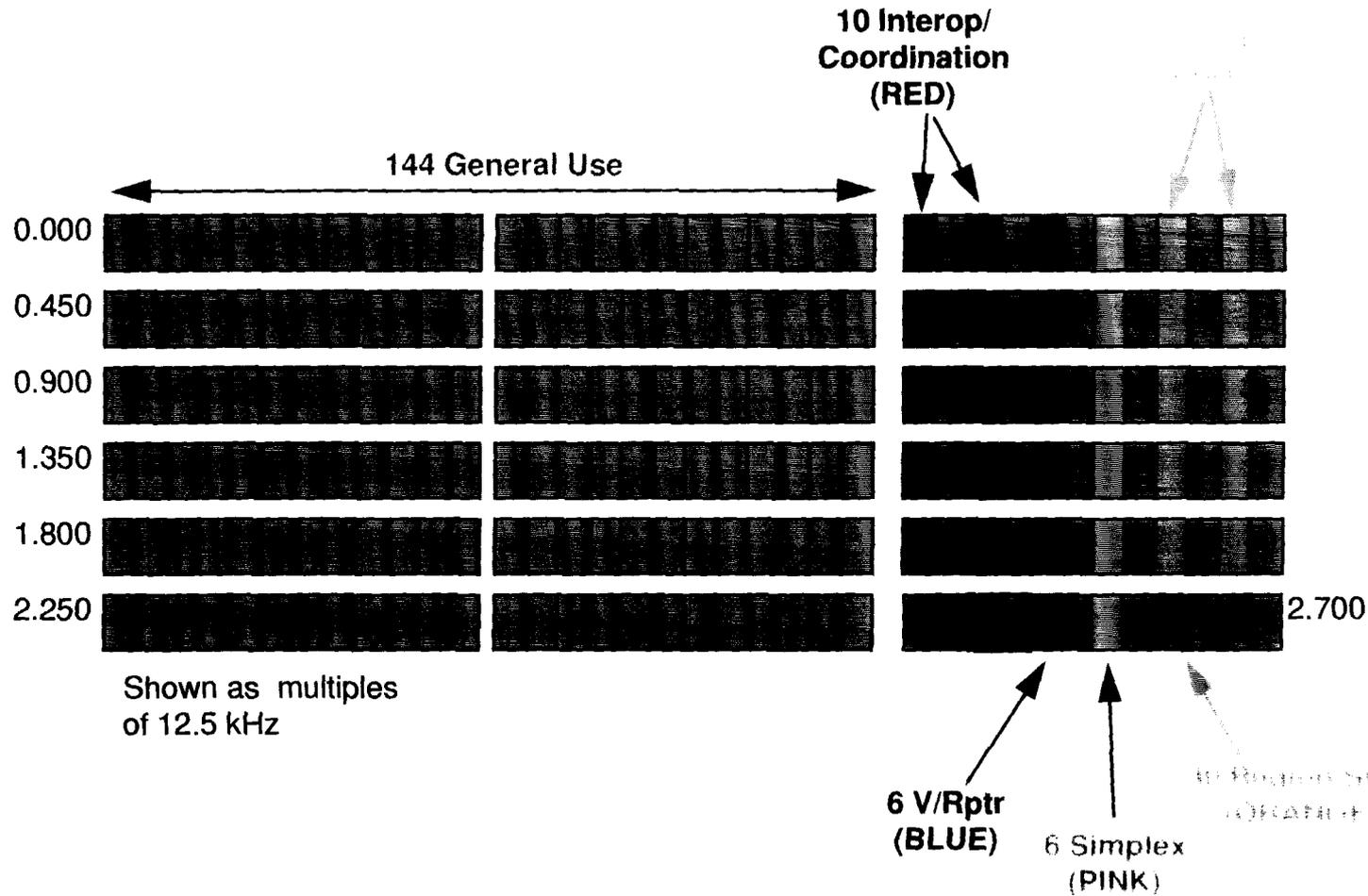
- 1 wideband digital video channel (0.250 MHz)
  - paired, 125 kHz bandwidth,  $\geq$  ??? kbps data rate
- 2 wideband data channel (0.500 MHz)
  - paired, 125 kHz bandwidth,  $\geq$  ??? kbps data rate
- 10 integrated voice/data channels (0.250 MHz)
  - paired, 12.5 kHz bandwidth, voice or  $\leq$  9.6 kbps data
    - 1 coordination channel (open to Public Safety & Public Service)
    - 1 EMS channel
    - 1 Fire channel
    - 1 Law Enforcement channel
    - 1 Public Safety/Public Service shared channel
    - 5 tactical channels
- 12 simplex channels for tactical operations (0.150 MHz)
  - 3 Public Safety/Public Service shared 12.5 kHz tactical freq's
  - 9 Public Safety 12.5 kHz tactical frequencies

# 746-806 MHz Band Plan



Because of the potential for TV blockage by early adopters, proposal is for both voice and data within each 6 MHz TV Channel block. Therefore, if early adopters can only obtain one pair (63/68 or 64/69) they can implement both voice and data systems.

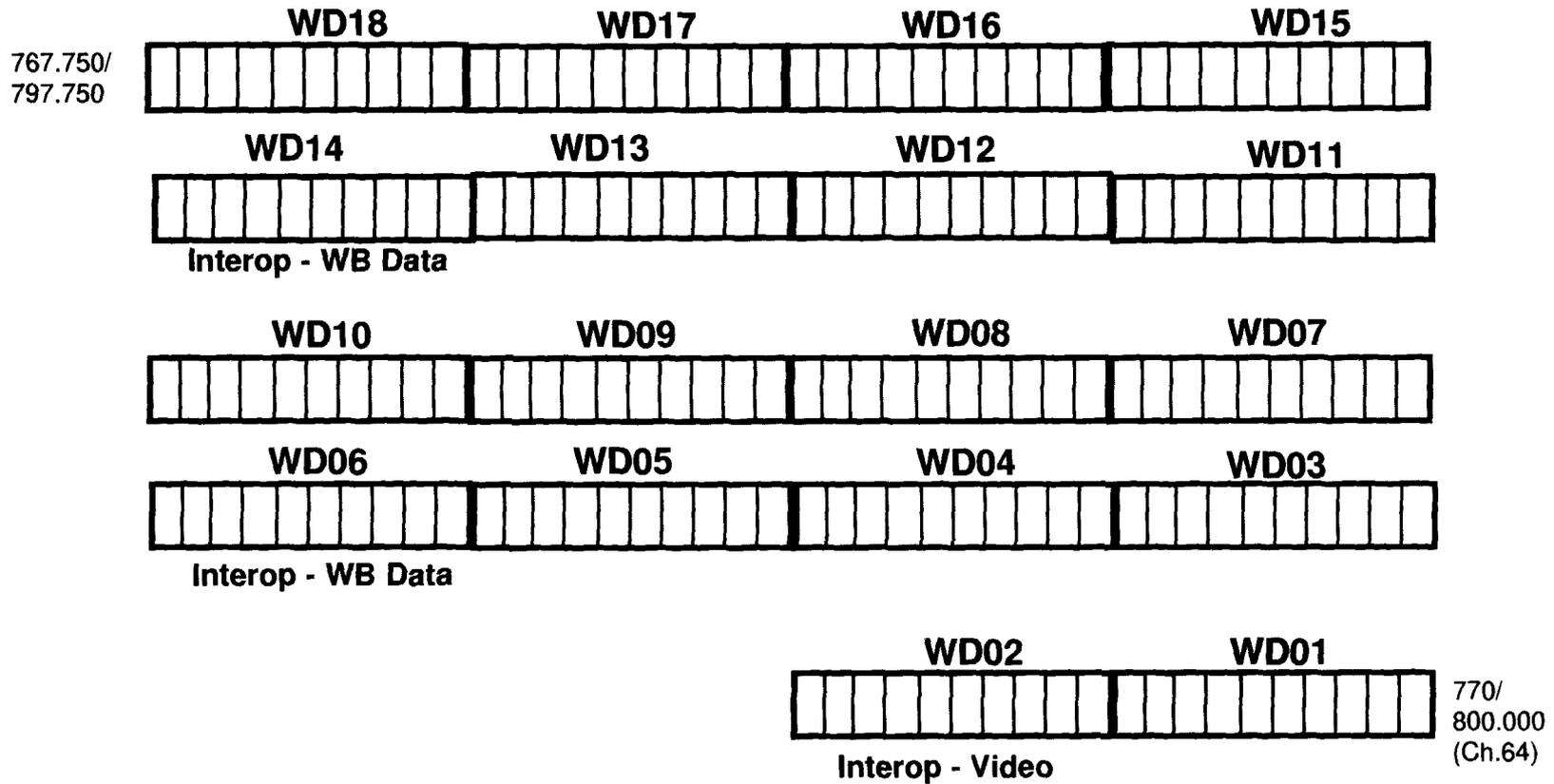
# Usage Blocks in TV Ch 63/68 (764/794.000-766/796.700)



- 144 General Use  
and
- 40 Region/State  
and
- 10 Interop/Coordination (RED)
- and
- 12 Simplex (6 x 2)  
or
- 6 Duplex /  
Vehicular Repeater  
and
- 12 Simplex Tactical  
(6 x 2)
- and
- 10 Interoperability  
Coordination  
Channels
- 1 National Coordination
- 1 National EMS
- 1 National Fire
- 1 National Law Enforcement
- 1 National Pub. Safety/Service
- 5 Tactical

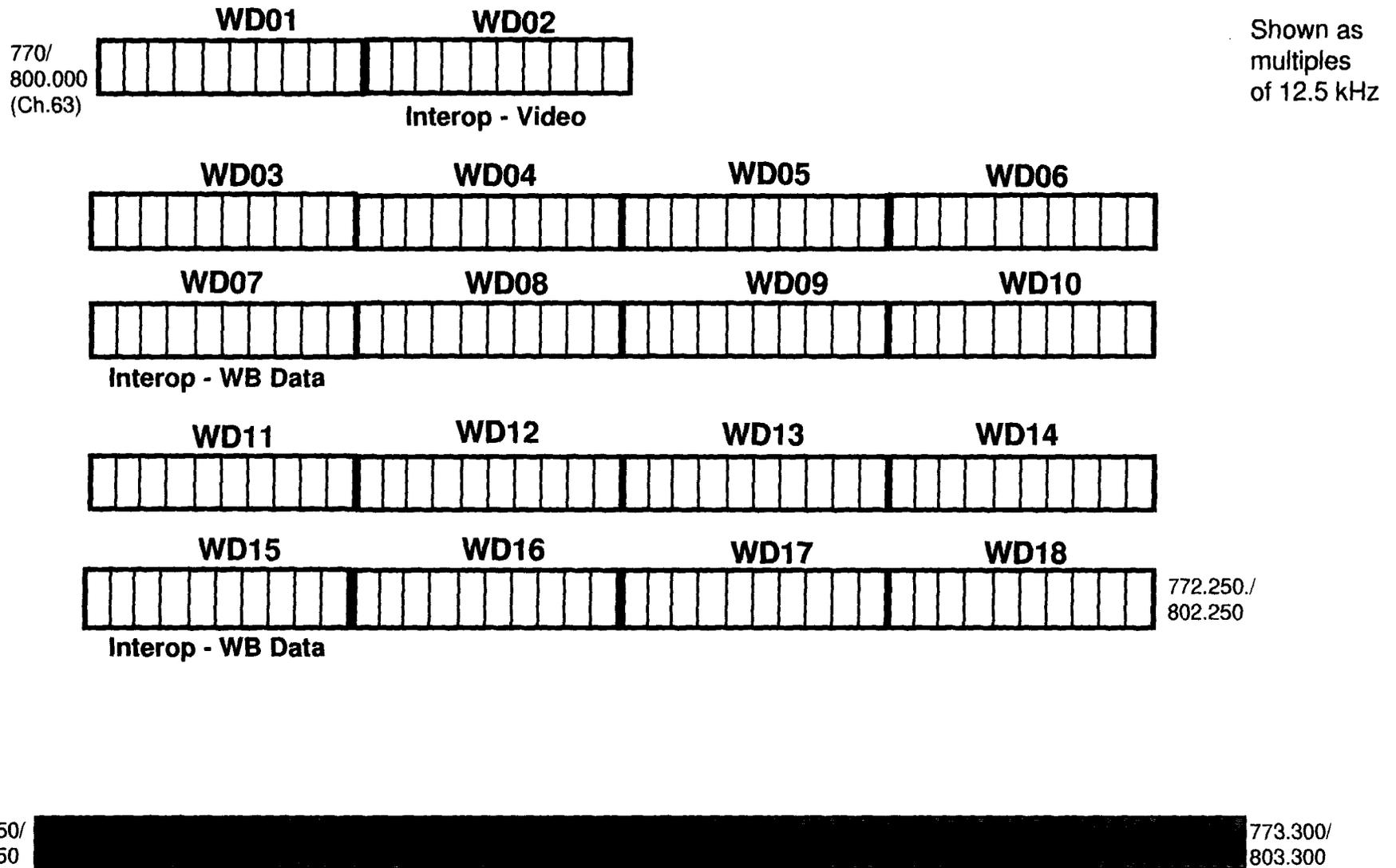
Separated adjacent interoperability, simplex, and vehicular repeater channels so all can be used at a common location (incident scene).

# NPSTC 125 kHz Bandwidth Data Channels - Ch 63/68 and Expansion Block



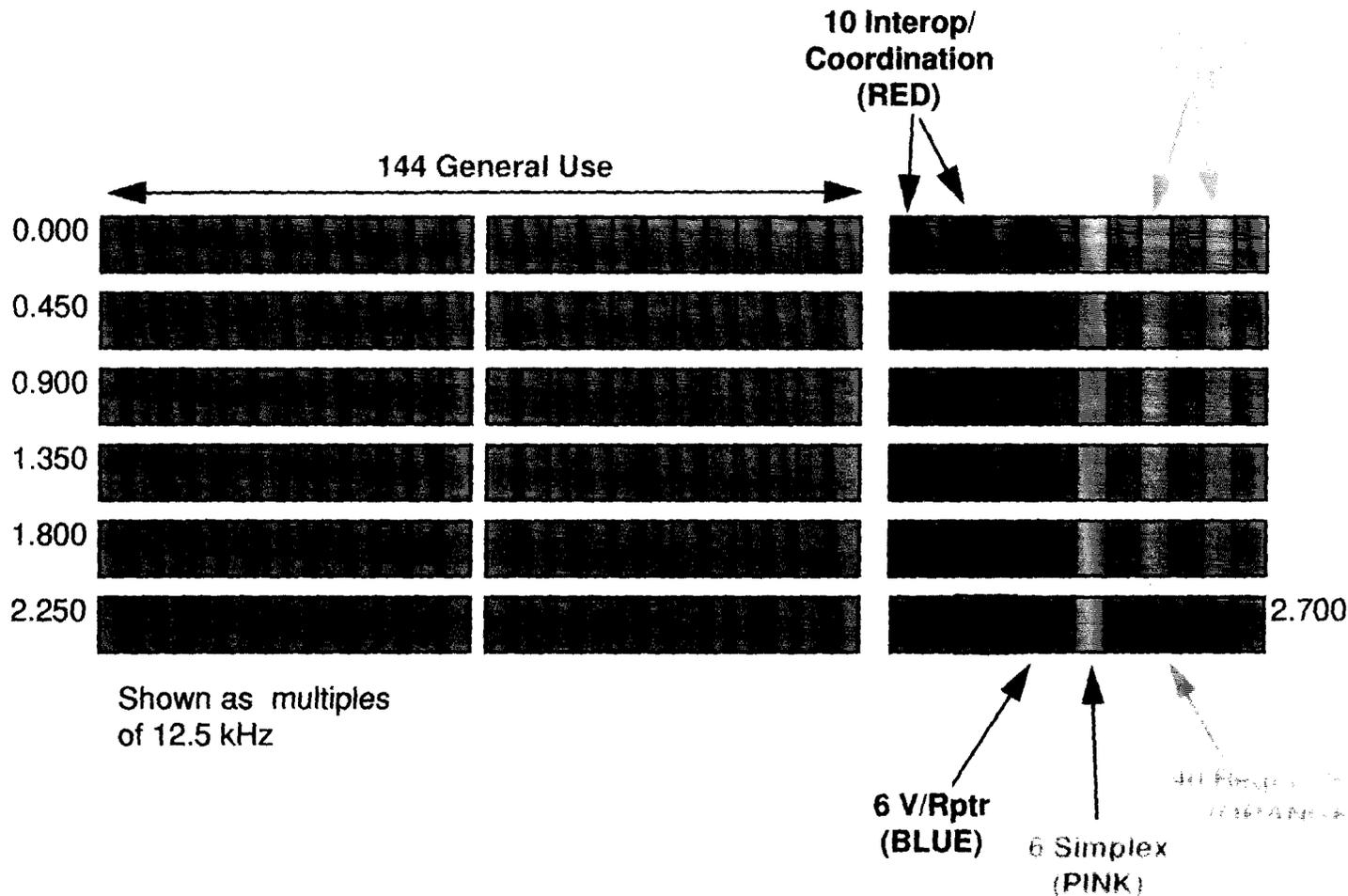
Shown as  
multiples  
of 12.5 kHz

# NPSTC 125 kHz Bandwidth Data Channels - Ch 64/69 and Expansion Block



# Usage Blocks in TV Ch 64/69

(773/803.300-776/806.000)



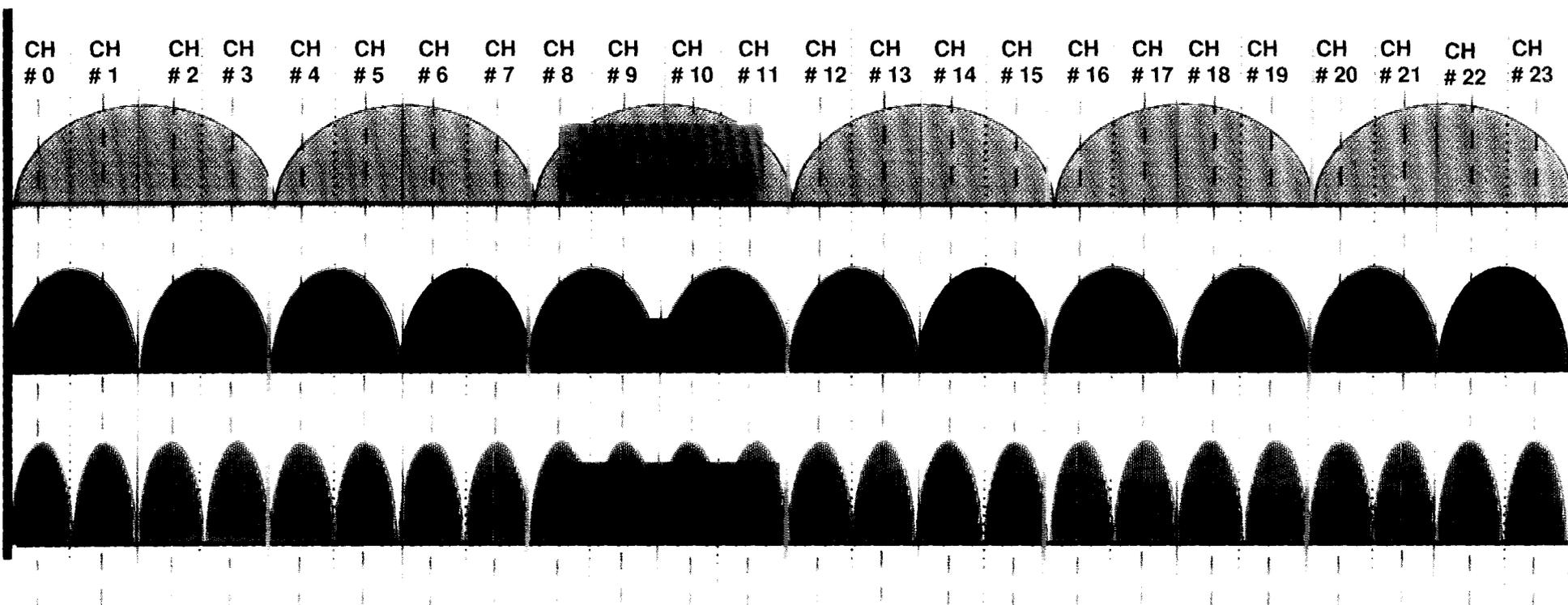
- 144 General Use
- and
- 40 Repeater Channels (1000 kHz)
- and
- 10 Interop/Coordination (RED)
- and
- 12 Simplex (6 x 2) or 6 Duplex / Vehicular Repeater and
- 12 Simplex (6 x 2) or 6 Duplex / Vehicular Repeater (6 x 2)
- and
- 10 Interoperability Coordination Channels
- 1 National Coordination
- 1 National EMS
- 1 National Fire
- 1 National Law Enforcement
- 1 National Pub. Safety/Service
- 5 Tactical

Separated adjacent interoperability, simplex, and vehicular repeater channels so all can be used at a common location (incident scene).

# NPSTC 700 MHz PUBLIC SAFETY FREQUENCY PLAN

## w/ Clearly Defined Channel Boundaries

Band  
Edge



6.25 kHz center  
12.5 kHz center

### Channel Plan:

- based upon 6.25 kHz spectrum blocks
- start with Channel # 0 at band edge
- initially allocate based upon 12.5 kHz channel centers
- allow aggregation/disaggregation only on specific centers
- need to communicate "lowest CH #" and "CH BW" to define operational center freq

**NPSTC 700 MHz PUBLIC SAFETY FREQUENCY PLAN**  
w/ Clearly Defined Channel Boundaries

Channel #	BW	BW	BW
	6.25	12.5	25
	Center frequency relative to the bandedge		
0	3.125	6.250	12.500
1	9.375		
2	15.625	18.750	
3	21.875		
4	28.125	31.250	37.500
5	34.375		
6	40.625	43.750	
7	46.875		
8	53.125	56.250	62.500
9	59.375		
10	65.625	68.750	
11	71.875		
12	78.125	81.250	87.500
13	84.375		
14	90.625	93.750	
15	96.875		
16	103.125	106.250	112.500
17	109.375		
18	115.625	118.750	
19	121.875		
20	128.125	131.250	137.500
21	134.375		
22	140.625	143.750	
23	146.875		

Formula : { start with Channel # 0 }

$$\text{Center Freq} = (\text{lowest CH \#} / K) \times \text{BW} + 0.5 \times \text{BW} + \text{bandedge freq}$$

where BW = total channel bandwidth  
= 6.25, 12.5, 25 kHz, etc

“Lowest channel number”, is the 6.25 kHz spectrum block within the occupied bandwidth which is closest to the bandedge;

For 6.25 kHz, K = channel number.

For 12.5 kHz bandwidth channels, K = channel number divided by 2, i.e., use only even channel numbers.

For 25 kHz bandwidth channels , K = channel number divided by 4, i.e., use only channel numbers evenly divisible by 4.

Example

Bandedge = 764 0000 MHz

BW = 12.5 kHz use K = 2

CH # = 8

$$\text{Center freq} = 8 / 2 \times 12.5 + 0.5 \times 12.5 + 764 000 = 764 05625 \text{ MHz (w/ 12.5 kHz BW)}$$