Supervisory Communications

A Viable Railroad Industry is Vital to the Nation's Economy

- Railroads carry more freight than any other mode:
  - 67% of new car shipments
  - 60% of coal
  - 55% of household appliances
  - 53% of lumber
  - 50% of grain and foods
- Railroads are the least polluting way to move freight over land
- Railroads are the safest mode of transportation for passengers, hazardous materials and employees
- Railroads are the most energy efficient way to move freight over land

"The continued economic viability of America's rail system is important to the Clinton Administration, which supports a balanced and integrated national transportation system."

Remarks of DOT Deputy Secretary Downey at the International Conference on Communications-Based Train Control Systems, May 10, 1995

Importance of Railroad Radio Systems has been Recognized by Congress

- Radio Act of 1927, Section 4(j)
- Communications Act of 1934, 47 U.S.C. Sec. 303(k)
- Rail Safety Enforcement act of 1992
- Two-Way End of Train Devices, 49 U.S.C. § 20141 (b)

FCC Has Recognized the Importance of Railroad Radio Communications

- Non-government Frequency Allocation Study, 39 FCC 33, 137-141 (1945)
- General Mobile Radio Allocations, 13 FCC 1190, 1199-1204 (1949)
- Licensing of Railroad Safety Inspection Devices, 5 FCC 2d 842 (1966)
- ATCS (Positive Train Control) Allocations, 3 FCC Rcd 427 (1988)

Importance of Radio in Railroad Operations is Recognized by Federal Railroad Administration

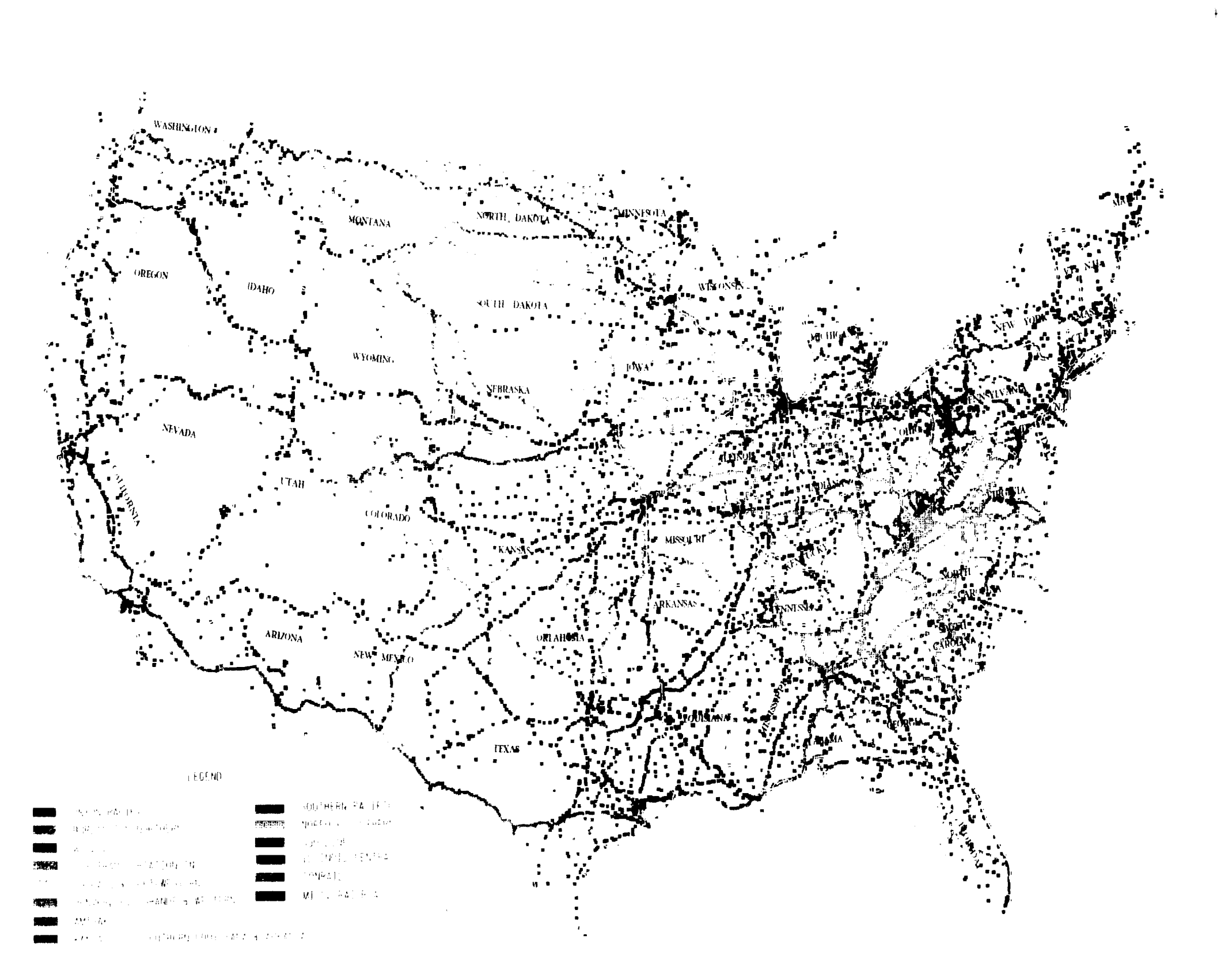
- FRA Radio Regulations for Railroads: Radio Standards and Procedures, 49 C.F.R. § 220
- FRA 1994 Report to Congress on Railroad Radio Safety
- Letter from FRA Administrator to FCC Chairman, July 13, 1994

Railroad Industry's Two Objectives In FCC "Refarming" Proceeding:

1. Preserve the "Railroad Radio Service"
2. Provide a reasonable transition from present technology to new technology

AAR Frequency Coordination Role

- Each Railroad operates autonomously, but on frequencies shared among the companies
- Route system covers entire U.S. (see map)
- Requirement for a centralized frequency coordinator with knowledge and expertise in railroad operations – AAR
- AAR publishes "Frequency Assignment Plan" used by entire U.S. industry and Canadian railroads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UTAH
COLORADO
KANSAS
MISSOURI
ARKANSAS
ARIZONA
NEW MEXICO
OKLAHOMA
TEXAS
LOUISIANA
LEGEND

Conclusions Regarding First Objective:

1. **Preservation of the Railroad Radio Service is in the Public Interest**
2. **The FCC should heed the request of the FRA for the continued authorization of the Railroad Radio Service**

> *"Railroads must be given the tools required to service the public interest. The Commission's continued authorization of the Railroad Radio Service is imperative."*
>
> Letter dated July 13, 1994 from FRA Administrator Jolene Molitoris to FCC Chairman Reed Hundt

Second Objective:

- A reasonable transition from present technology to new technology

The railroad industry has a huge investment in plant and equipment supporting the current frequency plan:

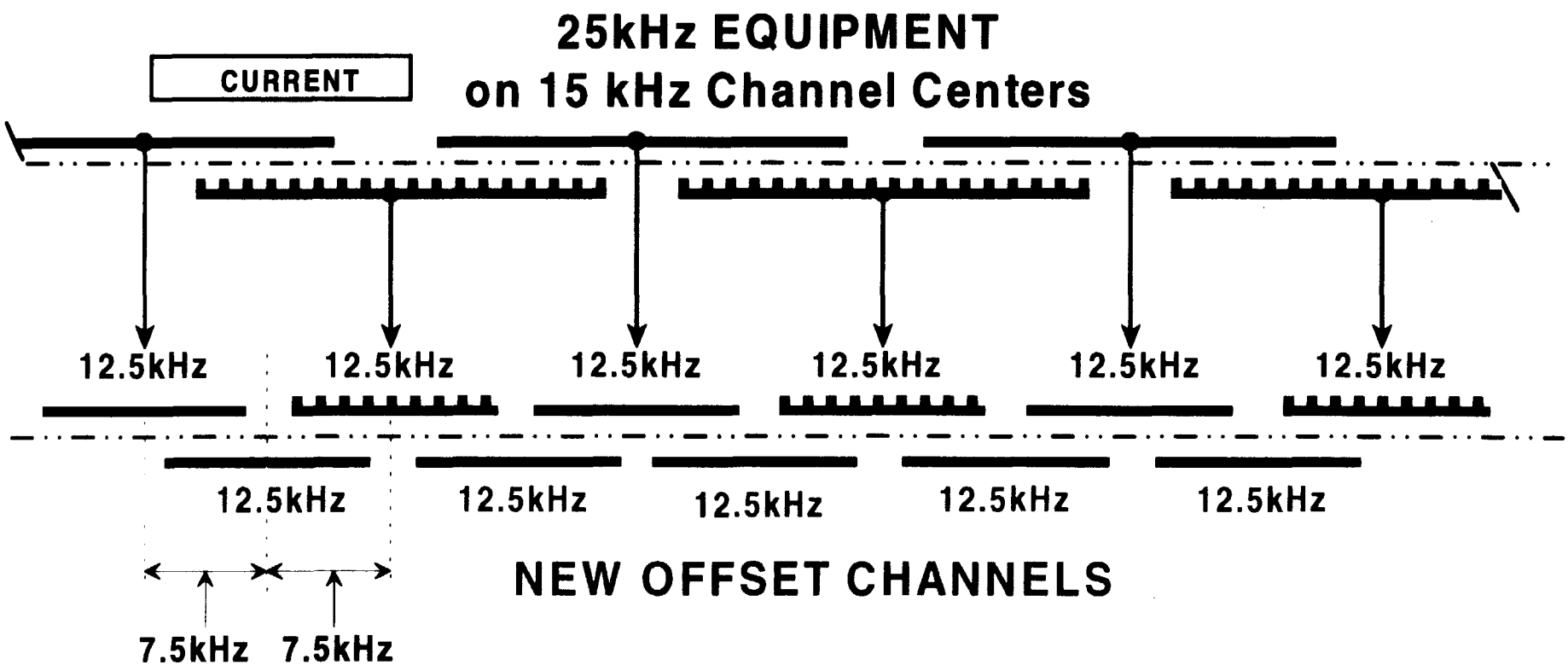
Device	Quantity
Base Stations	16,360
Mobiles	40,351
Portables	124,689
Defect Detectors	5,484
EOT/HOT Devices	21,463
Locomotive Radios	34,731
Track Equipment Radios	5,591
Distributed Locomotive Power	860
Total	**249,529**

The Commission should proceed with caution in the migration to a narrowband technology:

- Vital safety-related role of railroad communications requires proven technology before a changeover can occur
- Transition plan should allow appropriate utilization of existing equipment – old and new equipment operating on present channel centers
- Premature expenditures on replacement of equipment will result in higher charges to rail shippers and ultimately to all consumers

VHF Migration

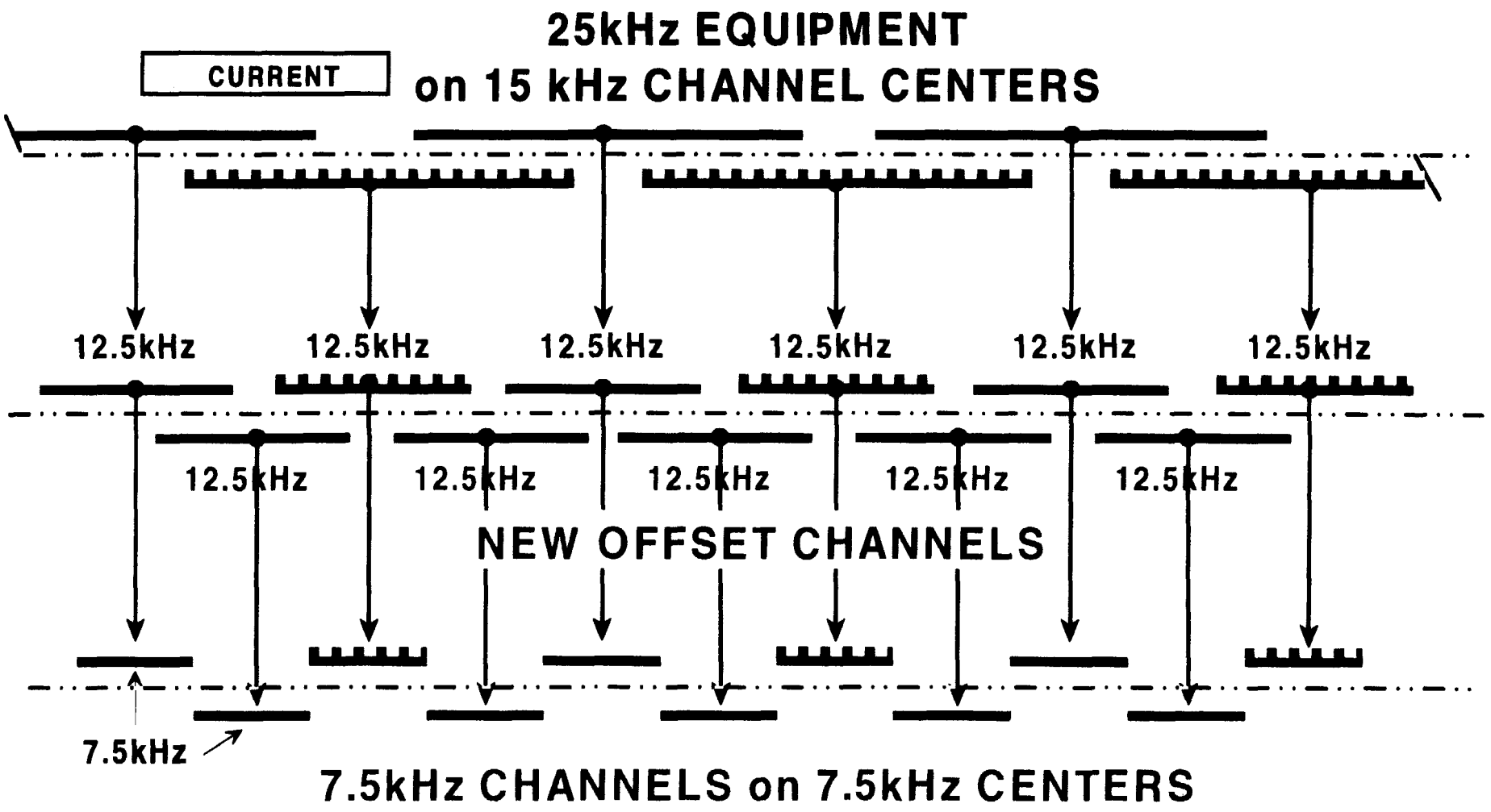
AAR Offset Overlay



VHF Migration

AAR Offset Overlay

VNB = 7.5kHz



The U.S. Railroad Industry Supports the Consensus Transition Plan of the "Major User Groups"

Modified Proposed Transition Plan

	January 1, 1997	January 1, 2005	January 1, 2015
Manufacturers	All new equipment which is manufactured, imported or sold must be maximum 12.5 kHz* or 12.5 kHz compatible (e.g., dual-mode 25/12.5 kHz; but not single-mode 25 kHz equipment).	All newly type equipment must be maximum 6.25 kHz compatible (e.g., dual-mode 12.5/6.25 kHz; but not single-mode 25 kHz or 12.5 kHz equipment).	All newly type equipment which is manufactured, imported or sold must be maximum 6.25 kHz* or maximum 12.5 kHz if convertible to 6.25 kHz.
Urban Systems** **Existing Systems**		All urban systems must operate at no more than 12.5 kHz* bandwidth to retain primary status.	Must operate at no more than 6.25 kHz* bandwidth to retain primary status.
New Systems* **	Must operate at no more than 12.5 kHz* bandwidth to attain primary status.	Must operate at no more than 6.25 kHz* bandwidth to attain primary status.	
Rural Systems** **Existing Systems**			Must operate at no more than 6.25 kHz* bandwidth to retain primary status.
New Systems* **	Must operate at no more than 12.5 kHz* bandwidth to attain primary status.	Must operate at no more than 6.25 kHz* bandwidth to attain primary status.	
Secondary Offset Users at 450-470 MHZ (All Markets)	May attain co-primary status with other new systems if operations are limited to no greater than 12.5 kHz bandwidth.		Must operate at no more than 6.25 kHz* bandwidth to attain primary status.

Bandwidth limitations may be exceeded if the system will operate with efficiency equivalent to or better than the stated bandwidth. For purposes of type acceptance, the radio must be capable of net data throughput of at least of 4.8 kbps.

** "Urban Systems" are those located within 100 miles of any of the top 60 urban areas listed at Section 90.741. All other area would by considered "Rural." Upon request by a petitioning party, other areas of the country may be declared "Urban" upon a showing of increased frequency congestion necessitating early introduction of spectrum efficient technologies.

*** A "new system" is one which is not functionally integrated with an earlier-installed land mobile radio system. To be considered an "existing system," the facilities must be in operation prior to the relevant deadline or must be functionally integrated with such a system. For example, a new repeater site which will be system." (See definition of "Land Mobile Radio System" at Section 90.7).

Conclusions Regarding Second Objective:

- The FCC should adopt a phased migration plan that allows users to deploy the next generation of equipment (12.5 kHz bandwidth).
- There should be sufficient time between the next two generations of technology to allow amortization of investments.
- The transition should give maximum flexibility to large users such as the railroad industry, who require nationwide interoperability.