

TV Repack Implications for FM Station Operations

NAB Radio Show
September 7, 2017

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AMERICAN TOWER®



**I started to think about this subject
and decided this is all you need to
know:**

Get An Off Site Aux Now!

Are there any questions?

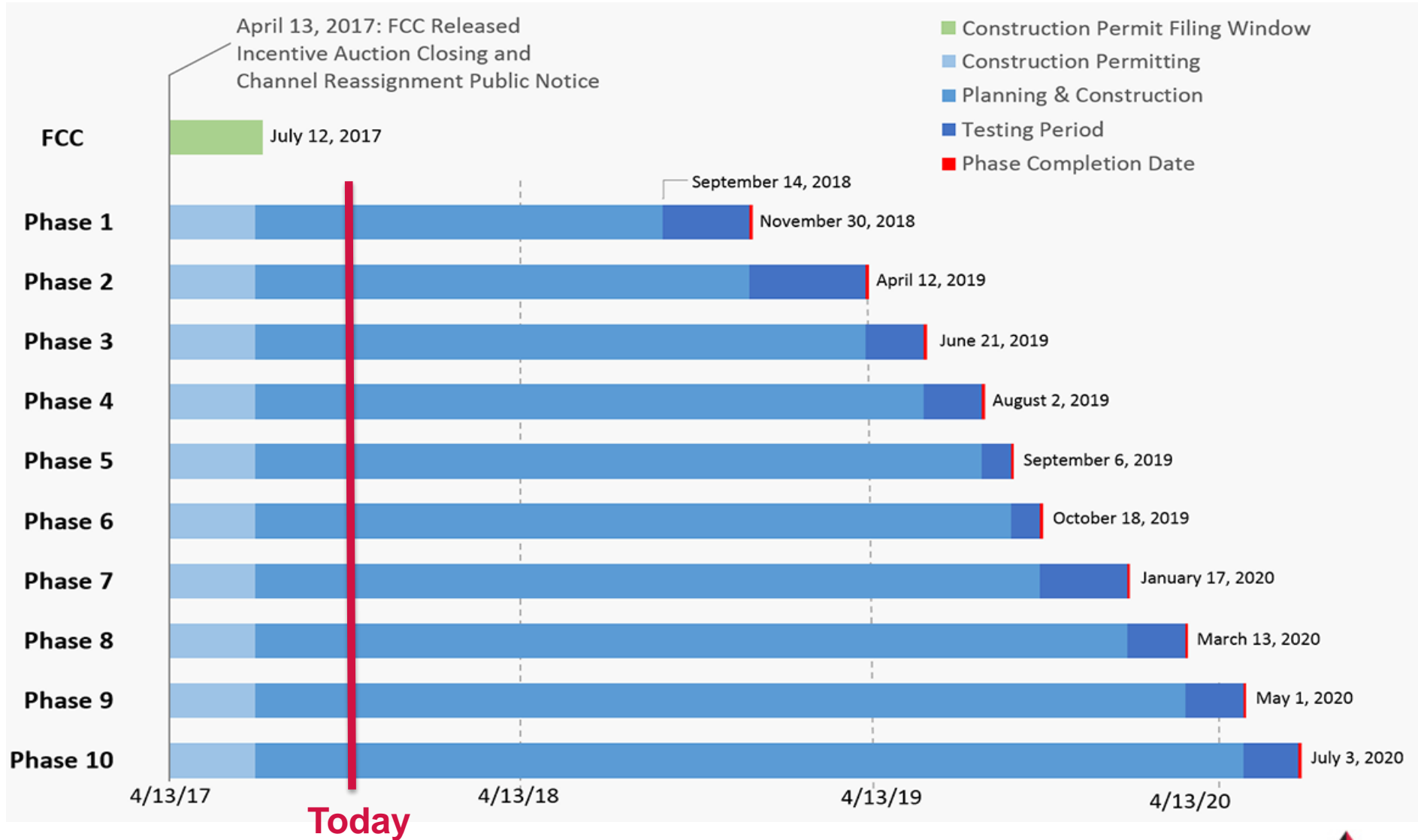


Repack Statistics

- FCC Incentive Auction Repack Results
 - 84 MHz cleared
 - New channel range = 14 to 36
 - 175 stations were auction “winners”
 - Many/most of those will be channel sharees
 - 30 of those are changing band i.e. UHF to VHF
 - 957 remaining stations to Repack
- Impact on American Tower TV Customers
 - 135 ATC Sites impacted
 - 238 ATC tenants moving to new channel



Repack Implementation Timeline



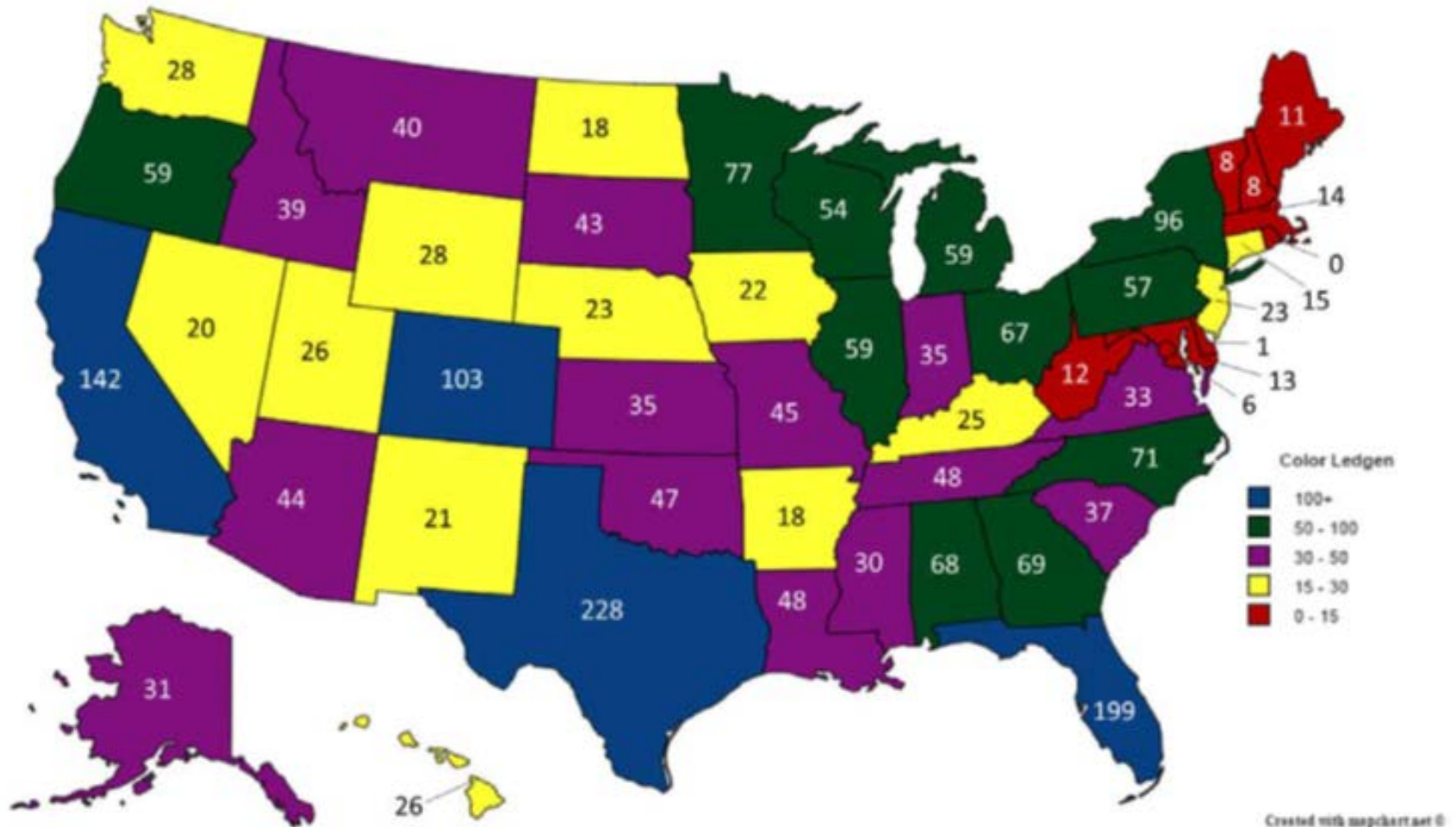
Stations Collocated With TV

According to FCC & ASRN data:

- › **1153** towers in US have collocated FM and TV
- › **2368** FM radio stations/translators may be impacted by repack
- › **630** full power may be impacted by repack
- › Very few have auxiliaries on different towers



Stations Collocated With TV



Number of full power FM stations collocated with TV stations in each state



Repack Reimbursement

“For example, where multiple stations share a tower, a reassigned station that makes changes may be required to cover certain expenses incurred by other fm and tv occupants. In such circumstances, the Commission will consider a claim from the reassigned station for reimbursement of such costs, so long as the reassigned broadcaster has a contractual obligation to pay these expenses through a contract entered into on or before [June 2, 2014].”

Therefore:

Most FM stations are not able to submit (or have the TV station submit) for any temporary or auxiliary system reimbursement in most cases!

Cite: *Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions, Report and Order*, 29 FCC Rcd. 6567, paras. 601-2 (2014).



Repack Effects

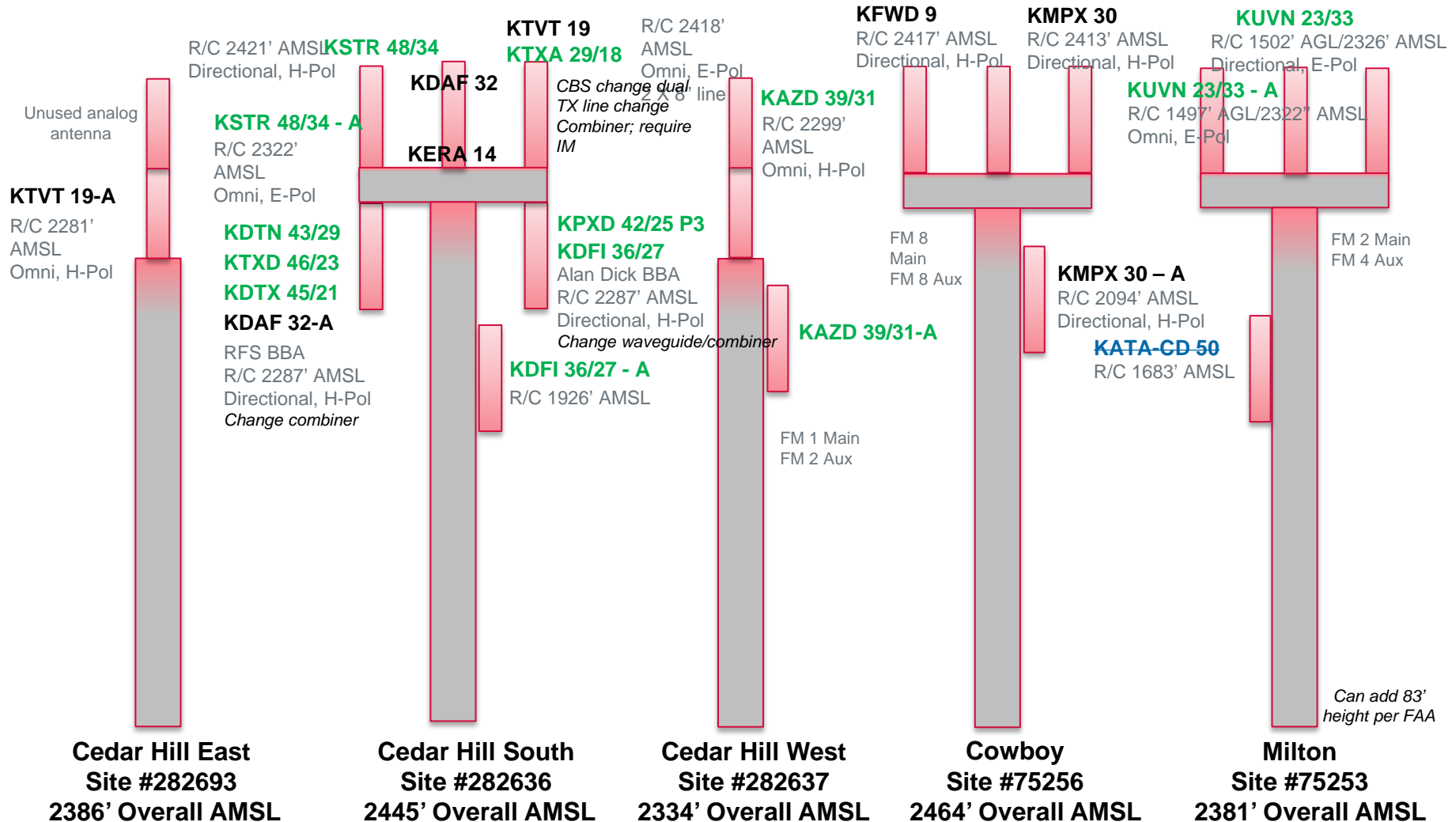
- Repack stations will switch out existing antennas for new channel antennas
 - Many need transmission line changes as well
- Towers need to be modified to support the new antennas
 - Larger due to lower frequencies
 - Tower structural standards have changed
- Temporary antennas and feedlines needed to sustain operation during changeout
- Abandoned antennas and feedlines need to be removed to increase capacity
- Significant time will be required on “complex” sites for multiple antenna moves



ATC Dallas TV Market – repack results

Phase 3

6 Towers w/ 15 TV Stations 9 Repacked, 1 Auction Winner



XXXX = no change
XXXX = repacked

XXXX = Winner and/or Hi-V, Lo-V
XXXX = repack solution



Repack Effect Examples



Dallas

Cedar Hill South

- **10 TV stations**
- **7 Repacked**
- **3 UHF Broadband Antennas**
- **1 Broadband FM Antenna with numerous operations**
- **Many single frequency TV and FM operations**



Repack Effect Examples



Dallas

Milton

- **2 TV stations**
- **1 Repacked**
- **1 Auction Winner**
- **2 Broadband FM Antennas with numerous operations**
- **Plan is to reconfigure above candelabra**



Repack Effect Examples



Dallas

Cedar Hill West

- **1 full power tv**
- **1 Repack tv**
- **Numerous FM operations**
- **FM antenna must be removed to rig for antenna change out or helicopter lifted**



What To Do About These Effects

- Research what TV's are on tower and where they are relative to your antenna
- Understand who IS effected by Auction/Repack
 - See FCC references or Rabbit Ears.info, fccinfo.com, etc.
- Understand whether you will need to shut down during repack tower work
 - Talk with tower owner and stations
 - Is operation in aperture of effected antenna?
 - Is operation in a location that will be needed for rigging

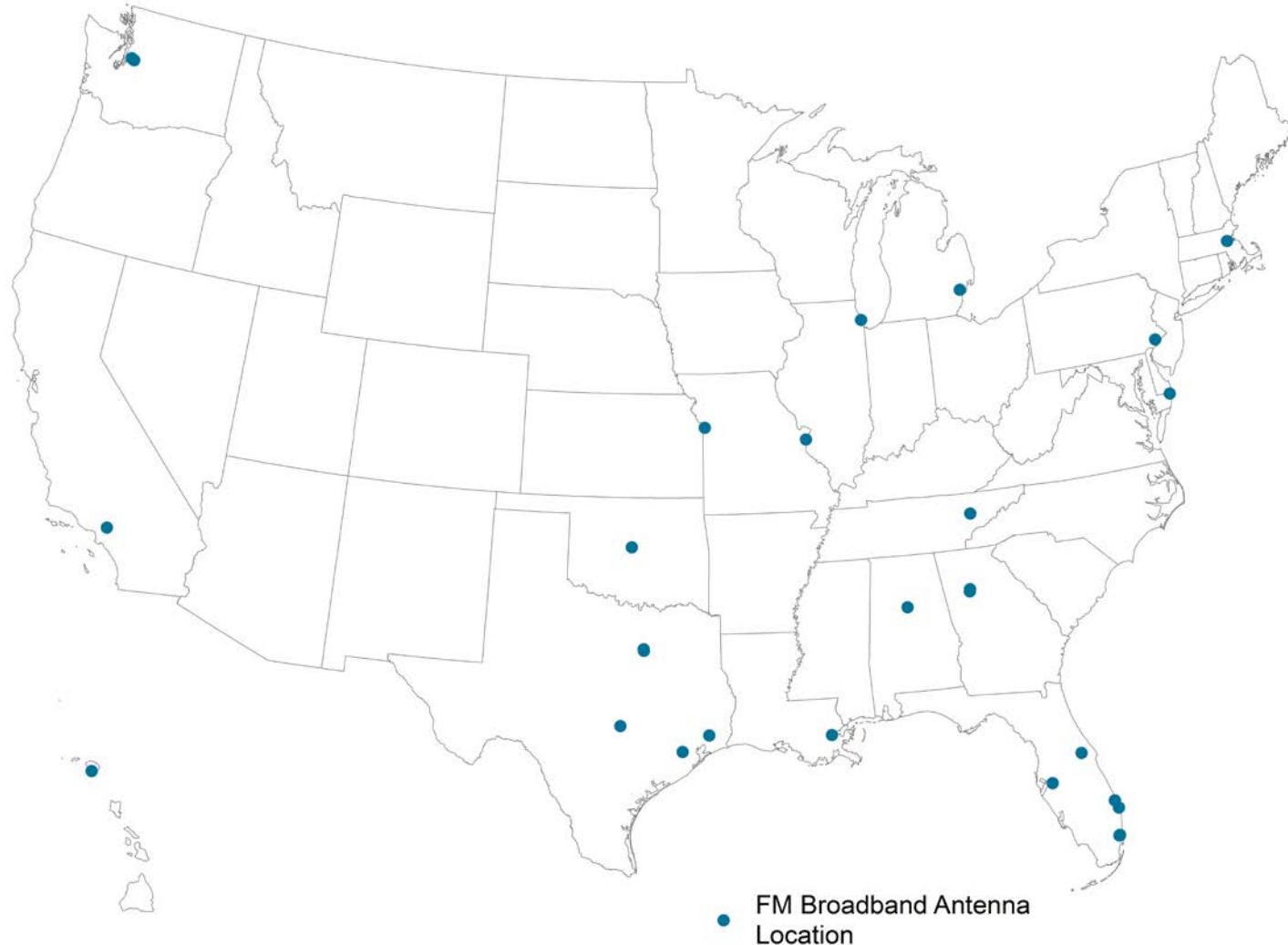


What To Do About These Effects Continued

- › Evaluate opportunities for temporary or auxiliary operation
 - › On same tower
 - › What is available capacity and aperture
 - › Are there other stations that I could combine with?
 - › Is there an existing broadband antenna system?
 - › On separate tower
 - › Recommended solution if a tower with minimal TV operations is available
 - › Same questions above
- › Evaluate coverage effects from these operations
- › Construct a new temporary or auxiliary operation



Existing Broadband Systems provide alternatives that can be exploited



Master System Expansion

- › Most systems can handle one or more aux stations
 - › Addition of Constant Impedance Modules
 - › Into current broadband port
- › Peak and Average power capacities must be considered
- › Need to consider existing module filter characteristics
 - › Number of sections (i.e. 3 , 4 or 5 determines frequency spacing)
 - › Isolation available to new station
- › Physical space for module and TX



So in conclusion:

Repack Is Here!
Get An Off Site Aux Now!

Are there any questions?

