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April 9, 2018

**EX PARTE VIA ELECTRONIC FILING**

Ms. Marlene Dortch  
Secretary  
Federal Communications Commission  
445 12th Street SW  
Washington DC 20554

Re: *Use of Spectrum Bands Above 24 GHz for Mobile Radio Services*, GN Docket No. 14-177;  
IB Docket No. 15-256; WT Docket No. 10-112; IB Docket No. 97-95.

Dear Ms. Dortch:

AT&T Services, Inc., on behalf of the subsidiaries and affiliates of AT&T Inc. (collectively, "AT&T"), submits this letter to memorialize a meeting regarding the above-referenced proceedings on April 5, 2018 between Hank Hultquist, Terry Chevalier (by phone), Michael Goggin, Stacey Black, Jessica Lyons, and the undersigned of AT&T and Don Stockdale, Matthew Pearl, Joel Taubenblatt, Blaise Scinto, Simon Banyai, John Schauble, Erik Salovaara, Martha Stancill, Anthony Petrone, Meaghan Ryan, and Jennifer Tomchin (by phone) of the Federal Communications Commission's ("Commission" or "FCC") Wireless Telecommunications Bureau and David Horowitz and Doug Klein of the FCC's Office of General Counsel.

The parties discussed AT&T's proposal for the Commission to temporarily and voluntarily repack incumbents with spectrum holdings in the 38.6 GHz-40 GHz band in a manner that would expedite use of spectrum in the 37.6-40.0 GHz band for the provision of 5G services, without harming the interests of any incumbents or of any potential bidders in any future auction of spectrum in the 37.6-40 GHz band. The discussion followed the material attached to this letter, with special emphasis on the facts that, under AT&T's proposal (i) the temporary repack would end immediately upon completion of a post-auction repack, and (ii) the procedural mechanism suggested is a special temporary authority ("STA") for commercial operations in identified geographic areas, with any conditions deemed necessary to ensure prompt, interference-free, and appropriately time-limited performance in the STA-designated spectrum.

Pursuant to the Commission's rules, a copy of this letter and its attachment are being filed electronically in the above-referenced dockets. Please do not hesitate to call me if you have questions.

Sincerely,

/s/ Alex Starr

Attachment

# 37.6 to 40.0 GHz Temporary Repack

## Proposed Approach

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*April 5, 2018*

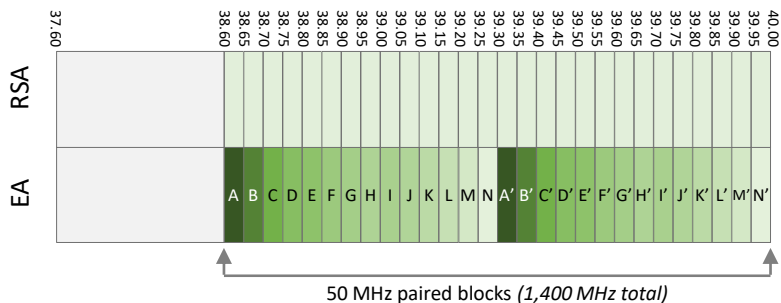
# Topics

- 1 Background on the 37.6 to 40.0 GHz band
- 2 Key Principles in a Temporary Repacking
- 3 Proposed Approach to Support Temporary Repack in Sample Markets
- 4 Key considerations and next steps

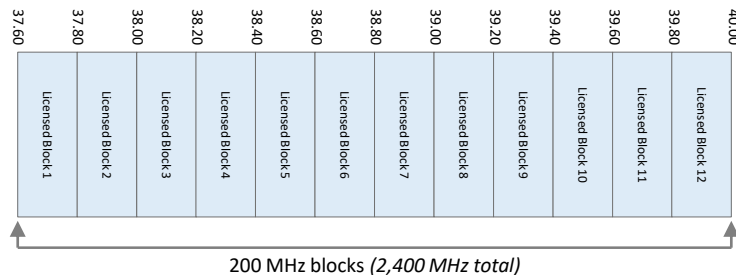
# 37.6 to 40.0 GHz Temporary Repack

## Need for a temporary repack

**Current: Rectangular Service Area (RSA) and Economic Area (EA) Band Plan**



**Target: Partial Economic Area (PEA) Band Plan**

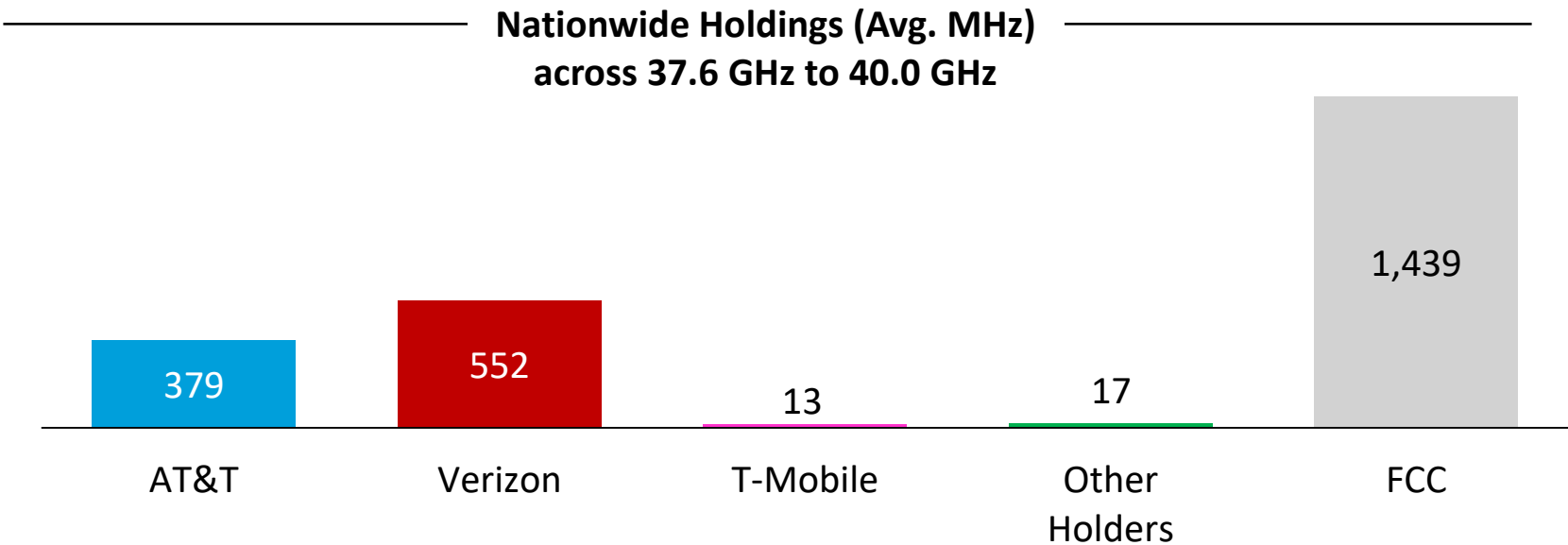


- Current band plan is **complex** with **multiple license boundaries and holders**, even over the same geographic area
- Auction with **separate assignment round** maximizes potential for contiguity across the entire band in a **faster and fairer** manner to advance the delivery of 5G services for the U.S.
- Prior to auction, a temporary repack solution is required** to create **larger, contiguous blocks** to support rapid 5G deployments

1

# 37.6 to 40.0 GHz Temporary Repack

Current incumbents and average nationwide holdings



Source: FCC ULS (as of March 2018); 2017 population estimates (Claritas) used to calculate average nationwide MHz holdings

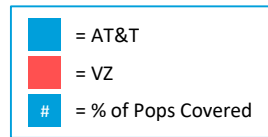


# 37.6 to 40.0 GHz Temporary Repack

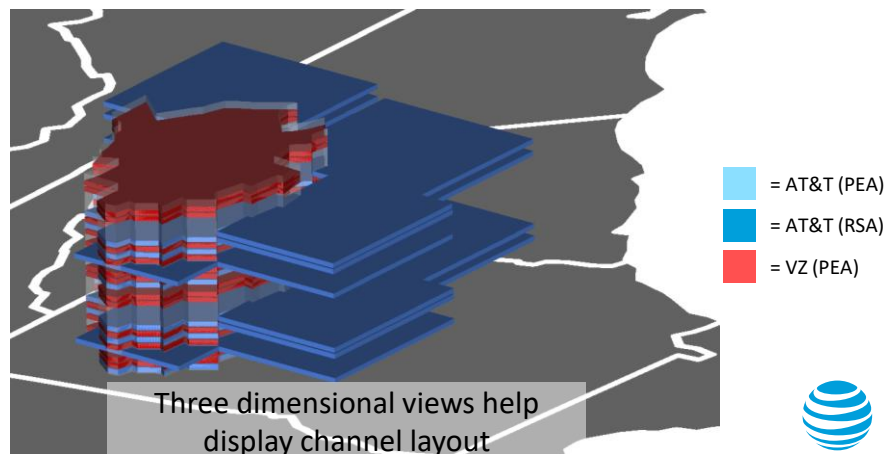
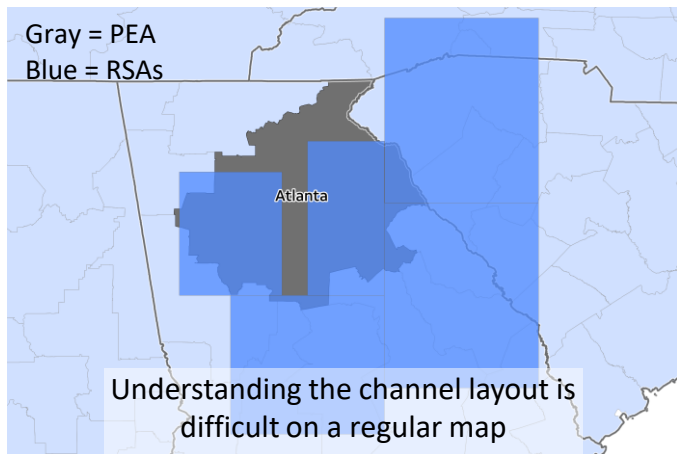
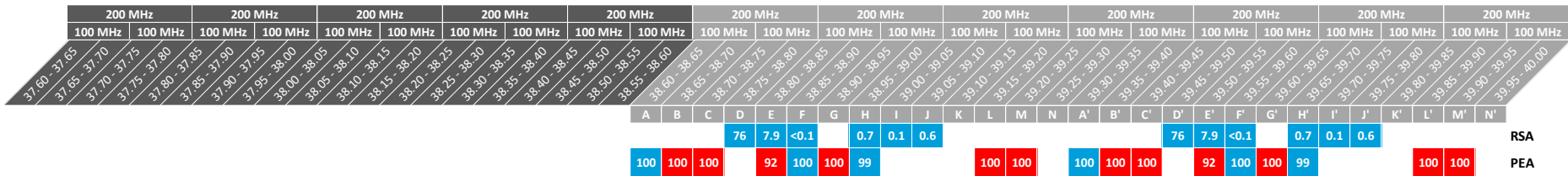
## Key Principles in a Temporary Repack

***Objective of Temporary Repack: Repack current holdings to achieve a contiguous position in the 37.6 to 40.0 GHz range for incumbents who wish to launch 5G or other upper microwave flexible use services (UMFUS)***

	Principles
<b>Incumbent rights</b>	<ul style="list-style-type: none"> <li>• Repack limited to incumbents only and voluntary in nature</li> <li>• All incumbents should have the ability to obtain contiguous holdings if they desire</li> <li>• Method will allow for commercial launches in repacked spectrum</li> <li>• Federal use coordination, if needed, will be executed by the incumbent wishing to repack</li> </ul>
<b>Duration</b>	<ul style="list-style-type: none"> <li>• Exists only until the post-auction repack occurs; free market-based auction determines final assignments of any current and new holders</li> <li>• Possible performance requirement for commercial signal on air prior to end of initial STA</li> <li>• A simple renewal mechanism should be enacted after meeting performance requirement</li> </ul>
<b>Repack constraints</b>	<ul style="list-style-type: none"> <li>• Utilizes entire 37.6 to 40.0 GHz band to improve efficiency of use</li> <li>• Repacks paired 50 MHz channels into 100 MHz blocks to align with current standards</li> <li>• Repack no more than existing holdings</li> <li>• RSA boundaries should be preserved to maintain status quo</li> </ul>



## Example: Repacking AT&T in Atlanta



3

# 37.6 to 40.0 GHz Temporary Repack

Proposed approach: Determine RSA treatment

## General types of PEA/RSA configurations

No RSAs overlap the PEA



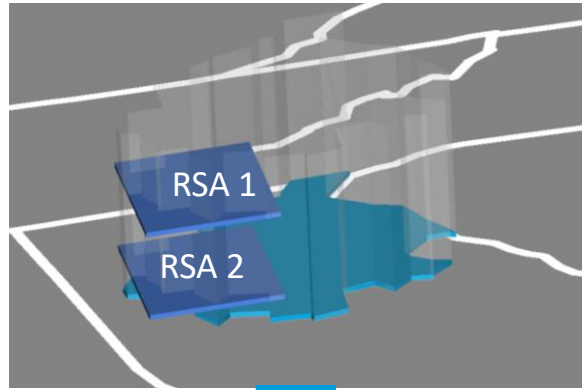
Channels\* prior to Repack: 1  
**Channel after Repack: 1 (no RSA impact)**

RSAs non-overlapping over the PEA



Channels prior to Repack: 2  
**Channels after Repack: 1**

RSAs overlapping over the PEA



Channels prior to Repack: 2  
**Channels after Repack: 2**

\* Channel = 50 MHz



### 3 37.6 to 40.0 GHz Temporary Repack

Proposed approach: Determine # of required repack channels (AT&T Atlanta Holdings)

[illegible]

Current 39 GHz Channel Pairings	License Type <sup>1</sup>	Channels PRIOR to Repack	Channels AFTER Repack	% PEA Pops	Comments
A & A'	PEA	2	2	100	Single PEA – treat as single channels
D/E & D'/E'	RSA	4	2	84	Non-overlapping RSAs – treat combined RSAs as single channels
F & F'	PEA/RSA	2	2	100	Single PEA overlapped by 1 RSA (same holder) – treat as single channels
H & H'	PEA/RSA	2	2	100	Single PEA overlapped by 3 non-overlapping RSAs – treat as single channels
I/J & I'/J'	RSA	4	2	0.7	Non-overlapping RSAs – treat combined RSAs as single channels
<b>Total Channels</b>		<b>14</b>	<b>10</b>		

<sup>1</sup>Note: Currently licenses in FCC ULS recorded as EA; for PEA-based repack, PEAs are noted here

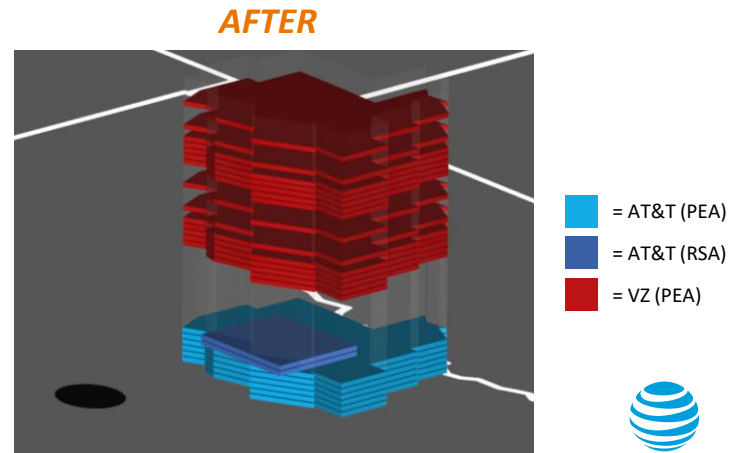
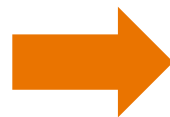
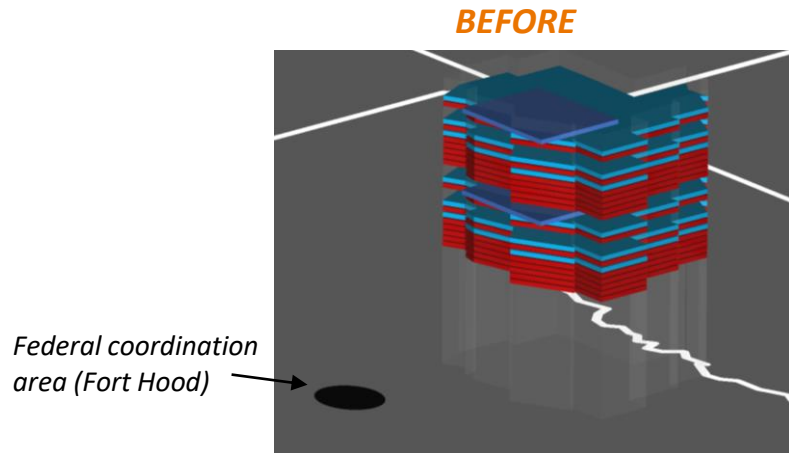
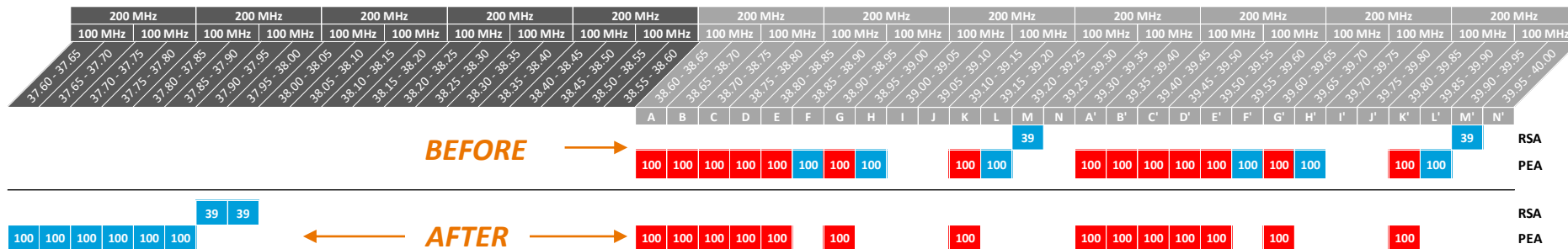
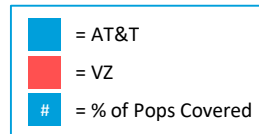
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# 37.6 to 40.0 GHz Temporary Repack

## Sample results: Dallas



# 37.6 to 40.0 GHz Temporary Repack

Sample results: Waco

= AT&T

= VZ

#

 = % of Pops Covered

200 MHz		200 MHz		200 MHz		200 MHz		200 MHz		200 MHz		200 MHz		200 MHz		200 MHz		200 MHz		200 MHz		200 MHz		200 MHz																															
100 MHz	100 MHz	100 MHz	100 MHz	100 MHz	100 MHz	100 MHz	100 MHz	100 MHz	100 MHz	100 MHz	100 MHz	100 MHz	100 MHz	100 MHz	100 MHz	100 MHz	100 MHz	100 MHz	100 MHz	100 MHz	100 MHz	100 MHz	100 MHz	100 MHz																															
37.60 - 37.65	37.65 - 37.70	37.70 - 37.75	37.75 - 37.80	37.80 - 37.85	37.85 - 37.90	37.90 - 37.95	37.95 - 38.00	38.00 - 38.05	38.05 - 38.10	38.10 - 38.15	38.15 - 38.20	38.20 - 38.25	38.25 - 38.30	38.30 - 38.35	38.35 - 38.40	38.40 - 38.45	38.45 - 38.50	38.50 - 38.55	38.55 - 38.60	38.60 - 38.65	38.65 - 38.70	38.70 - 38.75	38.75 - 38.80	38.80 - 38.85	38.85 - 38.90	38.90 - 38.95	38.95 - 39.00	39.00 - 39.05	39.05 - 39.10	39.10 - 39.15	39.15 - 39.20	39.20 - 39.25	39.25 - 39.30	39.30 - 39.35	39.35 - 39.40	39.40 - 39.45	39.45 - 39.50	39.50 - 39.55	39.55 - 39.60	39.60 - 39.65	39.65 - 39.70	39.70 - 39.75	39.75 - 39.80	39.80 - 39.85	39.85 - 39.90	39.90 - 39.95	39.95 - 40.00								
A		B		C		D		E		F		G		H		I		J		K		L		M		N		A'		B'		C'		D'		E'		F'		G'		H'		I'		J'		K'		L'		M'		N'	
100						97												68								100						97												68											
0.1		100		100		3		100		100		100		100		100		32		100						0.1		100		100		3		100		100		100		100		32		100											

BEFORE

100

100

100

100

100

100

68

68

97

97

100

100

0.1

100

100

3

100

100

100

100

32

100

0.1

100

100

3

100

100

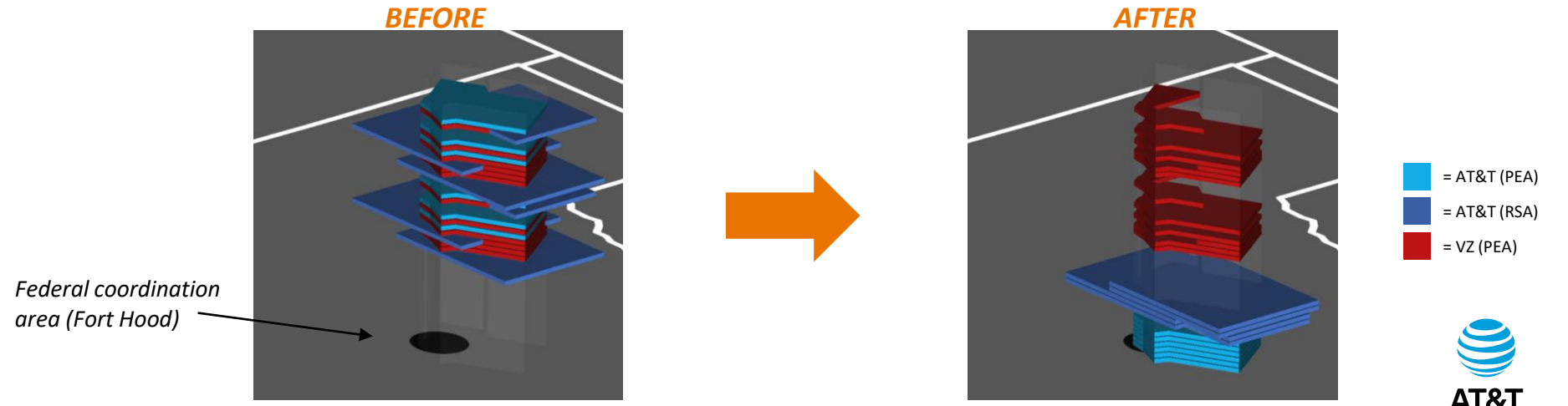
100

32

100

RSA

PEA



# 37.6 to 40.0 GHz Temporary Repack

Incumbent situations vary by market

*Category of Licensees*

AT&T + VZW  
(+FCC)

AT&T + VZW + TMO  
(+ FCC)

Multiple Licensees  
(+FCC)

*# of PEA areas*

349

6

60

*% of total area*

84%

1%

14%

*% of nationwide population*

66%

9%

25%

Source: FCC ULS (as of March 2018); 2017 population estimates (Claritas)



# 37.6 to 40.0 GHz Temporary Repack

## Summary and considerations

- Compresses incumbent holdings to minimize impact for later incumbents wishing to also repack
- Process repeatable for the next incumbent
- Initial and later authorizations could be tied to a performance metric during the temporary repack period
- Implemented through use of special temporary authority (STA) requesting an equivalent amount of spectrum based on repack that will support commercial deployments
- Recommend implementing on a “first-come, first-served” basis