

About Us

 Allnet Insights & Analytics is a leading authority on wireless spectrum ownership.
Our tools and reports provide both detailed spectrum assignment information and comprehensive spectrum depth, licensed population, LTE channel, and MHz-POPs information for the United States and Canada



Spectrum:

The real estate in the air that carries data between your phone and a wireless carrier's sites



5G Types of Spectrum

- Low Band
 - Large coverage area (15 mile radius)
 - Light capacity (150 MB/sector)
- Mid Band/High Band
 - Medium coverage area (3-5 mile radius)
 - Good capacity (600 MB/sector)
- Millimeter Wave
 - Small coverage area (900ft radius)
 - Large capacity (3 GB/sector)



5G Types of Spectrum

- Low Band
 - Current (600MHz, 700MHz, and Cellular)
 - Future (None)
- Mid Band
 - Current (AWS1/3/4, PCS, WCS, and 2.5GHz)
 - Future (CBRS, and C-Band)
- Millimeter
 - Current (28GHz, and 39GHz)
 - Future (24GHz, 37GHz, and 47GHz)



US Carrier 5G Plans

- AT&T
 - 39GHz (millimeter wave) adding low band later
- Verizon
 - 28GHz (millimeter wave)
- T-Mobile
 - 600MHz (low band) adding millimeter wave later
- Sprint
 - 2.5GHz (mid band)

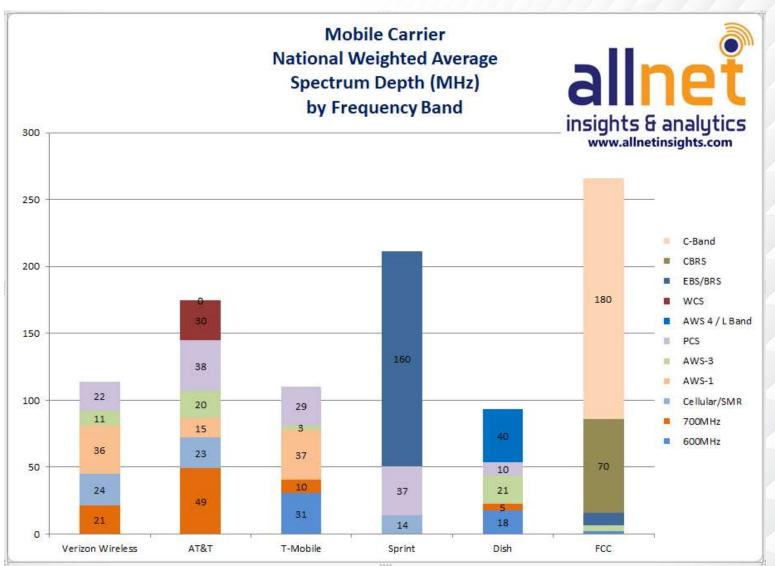


Understanding the 5G Spectrum Puzzle

- What Spectrum Does a Carrier Control?
 - National Averages
- How much of the Population can they reach with that spectrum?
 - Licensed Population
- How many of the Top 50 / Top 100 cities can a carrier launch?
 - Market Analysis
- What spectrum can be deployed?
 - Re-farming spectrum versus spectrum auction

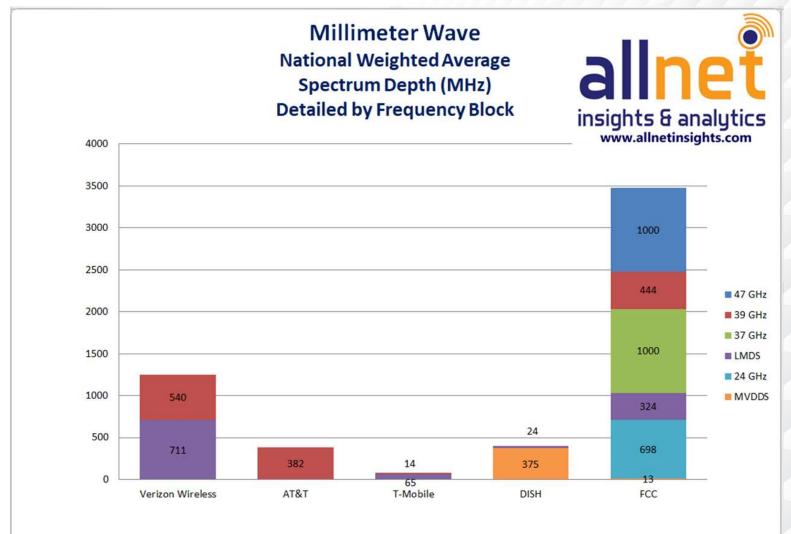


National Average Spectrum Low Band and Mid Band



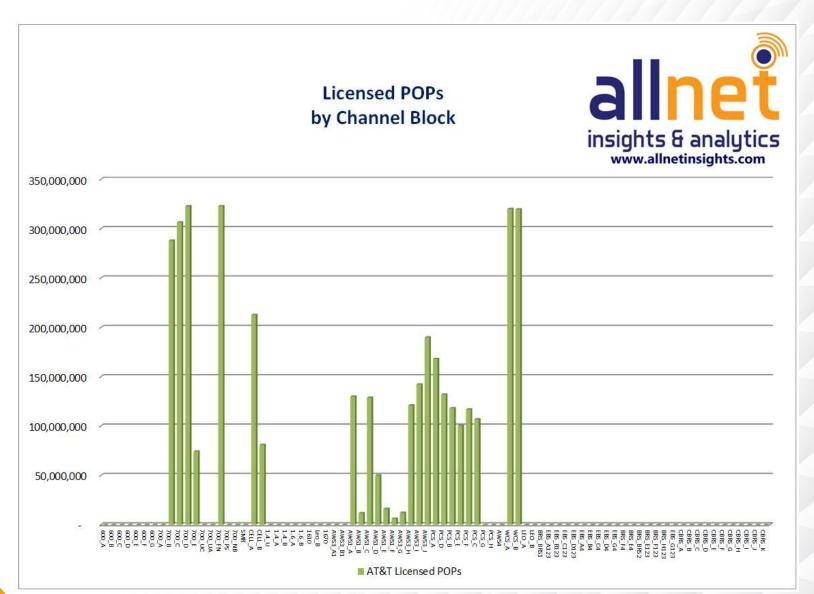


National Average Spectrum Millimeter Wave





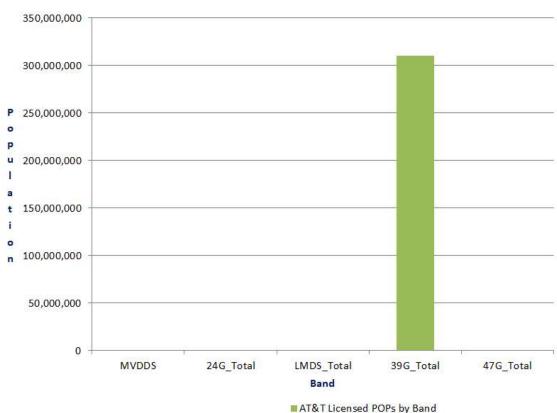
AT&T 700MHz Licensed POPs



AT&T MMW Licensed POPs

Licensed POPs by Frequency Band

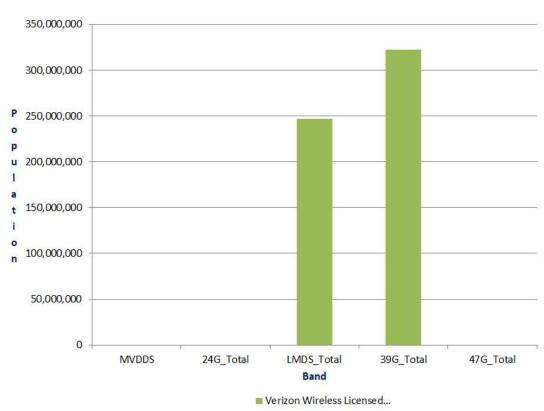




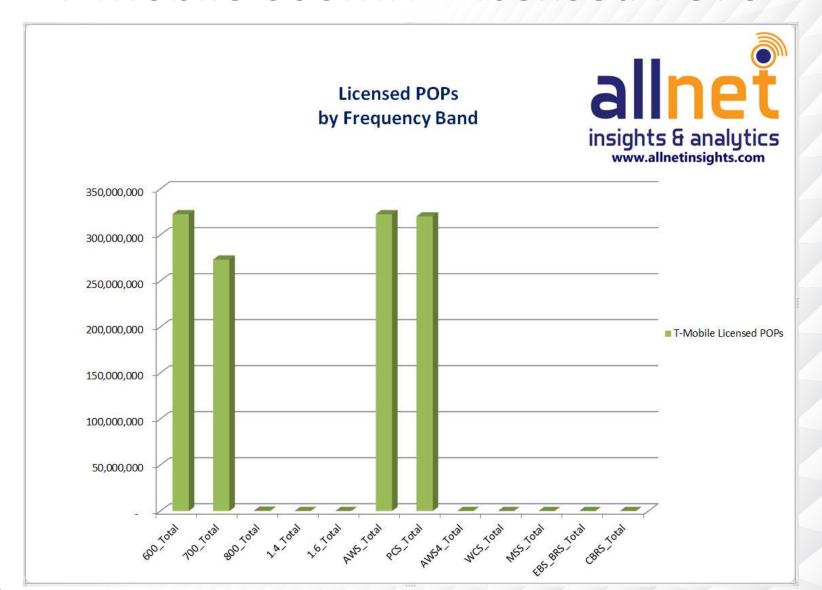
Verizon MMW Licensed POPs







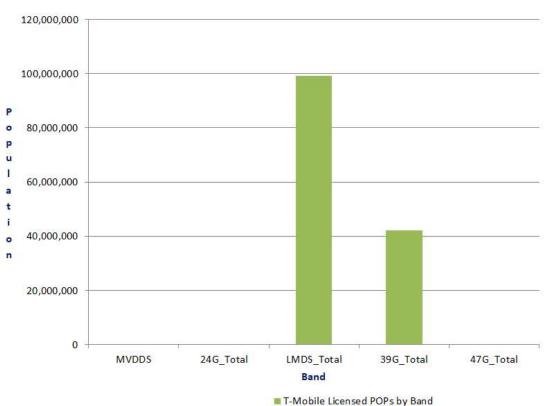
T-Mobile 600MHz Licensed POPs



T-Mobile MMW Licensed POPs

Licensed POPs by Frequency Band





Sprint 2.5GHz Licensed POPs





Top 25 - CMA Markets 28GHz - L1 and L2

	1		Data Source:	Future Holdings				LMDS	5L1							LMD	5 L2	100		
ingeles-Anahi	eim, CA		Instructions: The carriers for this table are selected as the first eight carriers on the County Analysis worksheet. The spectrum depth data reflects the FCC, Current, or Proposed setting from the Spectrum Grid Worksheet.	ii	Verizon Wireless	AT&T	T-Mobile	HSIQ	Cornerstone Wireless	Skyriver Communication	SureWest Broadband	RCC	Verizon Wireless	AT&T	T-Mobile	HSIQ	Cornerstone Wireless	Skyriver Communicatio	SureWest Broadband	RCC
	▼ CMA Ran ▼	CMA *	MARKET NAME *	2014 POPS -	- 7	T.	-	1	*	7	-	-	-	Y		7	*		-	12
	1	2	Los Angeles-Anaheim, CA	17,704,110	275	0	150	0	0	0	0	0	275	0	150	0	0	0	0	- 4
	2	1	New York-Newark, NY-NJ	17,041,161	345	0	80	0	0	0	0	0	345	0	80	0	0	0	0	ĵ,
	3	3	Chicago, IL	8,404,358	425	0	0	0	0	0	0	0	425	0	0	0	0	0	0	į.
	4	9	Dallas-Fort Worth, TX	6,857,143	325	0	100	0	0	0	0	0	325	0	100	0	0	0	0	
	5	10	Houston, TX	6,108,723	425	0	0	0	0	0	0	0	425	0	0	0	0	0	0	
	6	4	Philadelphia, PA	5,331,294	325	0	100	0	0	0	0	0	325	0	100	0	0	0	0	
	7	8	Washington, DC-MD-VA	5,168,021	425	0	0	0	0	0	0	0	425	0	0	0	0	0	0	
	8	5	Detroit-Ann Arbor, MI	4,943,920	325	0	100	0	0	0	0	0	325	0	100	0	0	0	0	
	9	17	Atlanta, GA	4,653,485	325	0	100	0	0	0	0	0	325	0	100	0	0	0	0	
	10	6	Boston-Brockton-Lowell, MA-NH	4,606,557	325	0	100	0	0	0	0	0	325	0	100	0	0	0	0	
	11	7	San Francisco-Oakland, CA	4,594,060	375	0	50	0	0	0	0	0	375	0	50	0	0	0	0	
	12	12	Miami-Fort Lauderdale, FL	4,532,109	325	0	100	0	0	0	0	0	325	0	100	0	0	0	0	
	13	26	Phoenix, AZ	4,087,191	50	0	0	375	0	0	0	0	185	0	0	240	0	0	0	
	14	15	Minneapolis-St. Paul, MN-WI	3,263,431	425	0	0	0	0	0	0	0	425	0	0	0	0	0	0	
	15	18	San Diego, CA	3,256,107	50	0	0	375	0	0	0	0	185	0	0	240	0	0	0	
	16	19	Denver-Boulder, CO	3,017,864	425	0	0	0	0	0	0	0	425	0	0	0	0	0	0	
	17	14	Baltimore, MD	2,839,550	425	0	0	0	0	0	0	0	425	0	0	0	0	0	0	
	18	20	Seattle-Everett, WA	2,739,727	425	0	0	0	0	0	0	0	425	0	0	0	0	0	0	
	19	22	Tampa-St. Petersburg, FL	2,737,070	325	0	100	0	0	0	0	0	325	0	100	0	0	0	0	
	20	11	St. Louis, MO-IL	2,627,456	425	0	0	0	0	0	0	0	425	0	0	0	0	0	0	
	21	91	San Juan-Caguas, PR	2,185,690	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	22	30	Portland, OR-WA	2,126,810	425	0	0	0	0	0	0	0	425	0	0	0	0	0	0	
	23	35	Sacramento, CA	2,069,681	325	0	100	0	0	0	0	0	325	0	100	0	0	0	0	
	24	13	Pittsburgh, PA	2,061,310	425	0	0	0	0	0	0	0	425	0	0	0	0	0	0	
	25	33	San Antonio, TX	2,038,404	225	0	0	0	0	0	0	0	200	0	0	0	0	0	0	



Top 25 – CMA Markets 39GHz

	1		Data Source:	Future Holdings				39 G	Hz	10000		
			Instructions: The carriers for this table are selected as the first eight carriers on the County Analysis		Verizon Wireless		<u>o</u>		Cornerstone Wineless	Skyriver Communicatio	SureWest Broadband	
			worksheet. The spectrum depth		3	AT&T	igo	DISH	ē.	Ē	8	S S
			data reflects the FCC, Current, or		8	4	r-Mobile	Δ	sto	ŭ	est	Œ
			Proposed setting from the Spectrum	10	<u>0</u>				ē	Ş	Š	
ngeles-Ana	heim, CA		Grid Worksheet.						ò	Sky	Sur	
	▼ CMA Ran ▼	CMA =	MARKET NAME *	2014 POP5 *			-	-	¥.		7	
	1	2	Los Angeles-Anaheim, CA	17,704,110	630	470	0	0	0	0	0	300
	2	1	New York-Newark, NY-NJ	17,041,161	688	577	100	0	0	0	0	35
	3	3	Chicago, IL	8,404,358	700	300	0	0	0	0	0	400
	4	9	Dallas-Fort Worth, TX	6,857,143	700	371	0	0	0	0	0	329
	5	10	Houston, TX	6,108,723	697	403	0	0	0	0	0	300
	6	4	Philadelphia, PA	5,331,294	531	469	0	0	0	0	0	400
	7	8	Washington, DC-MD-VA	5,168,021	700	431	0	0	0	0	0	269
	8	5	Detroit-Ann Arbor, MI	4,943,920	598	585	0	0	0	0	0	217
	9	17	Atlanta, GA	4,653,485	596	375	0	0	0	0	0	429
	10	6	Boston-Brockton-Lowell, MA-NH	4,606,557	559	491	0	0	0	0	0	350
	11	7	San Francisco-Oakland, CA	4,594,060	643	516	100	0	0	41	0	100
	12	12	Miami-Fort Lauderdale, FL	4,532,109	700	300	0	0	0	0	0	400
	13	26	Phoenix, AZ	4,087,191	600	400	0	0	0	0	0	400
	14	15	Minneapolis-St. Paul, MN-WI	3,263,431	592	304	0	0	0	0	0	504
	15	18	San Diego, CA	3,256,107	700	400	0	0	0	100	0	200
	16	19	Denver-Boulder, CO	3,017,864	590	410	0	0	0	100	0	300
	17	14	Baltimore, MD	2,839,550	700	363	0	0	0	0	0	337
	18	20	Seattle-Everett, WA	2,739,727	454	573	0	0	0	0	0	373
	19	22	Tampa-St. Petersburg, FL	2,737,070	600	300	0	0	0	0	0	500
	20	11	St. Louis, MO-IL	2,627,456	600	300	0	0	0	0	0	500
	21	91	San Juan-Caguas, PR	2,185,690	600	500	0	0	0	0	0	300
	22	30	Portland, OR-WA	2,126,810	582	418	0	0	0	0	0	400
	23	35	Sacramento, CA	2,069,681	465	371	0	0	45	0	182	337
	24	13	Pittsburgh, PA	2,061,310	591	517	0	0	0	0	0	291
	25	33	San Antonio, TX	2,038,404	600	500	0	0	0	0	0	300



28GHz Auction Markets

1		Data Source:	Future Holdings				LMD	5 L 1	-						LMDS	L2	-		
geles-Anaheim, CA		Instructions: The carriers for this table are selected as the first eight carriers on the County Analysis worksheet. The spectrum depth data reflects the FCC, Current, or Proposed setting from the Spectrum Grid Worksheet.		Verizon Wireless	AT&T	T-Mobile	HSIQ	Cornerstone Wineless	Skyriver Communication	SureWest Broadband	RCC	Verizon Wireless	AT&T	T-Mobile	DISH	Cornerstone Wineless	Skyriver Communication	SureWest Broadband	Š
▼ CMA Ran ▼	CMA	MARKET NAME	2014 POPS *	v	-	v	7	v	v		3		v			v	v		
55	50	Honolulu, HI	972,815	0	0	0	0	0	0	0	425	0	0	0	0	0	0	0	42
60	64	Grand Rapids, MI	898,380	0	0	0	0	0	0	0	425	0	0	0	0	0	0	0	42
64	97	Bakersfield, CA	846,178	0	0	0	0	0	0	0	425	0	0	0	0	0	0	0	42
66	58	Allentown-Bethlehem, PA-NJ	836,297	0	0	0	0	0	0	0	425	0	0	0	0	0	0	0	4
73	128	McAllen-Edinburg-Mission, TX	808,565	0	0	0	0	0	0	0	425	0	0	0	0	0	0	0	4
76	56	Northeast Pennsylvania, PA	727,689	0	0	0	0	0	0	0	425	0	0	0	0	0	0	0	-4
79	80	Baton Rouge, LA	715,597	0	0	0	0	0	0	0	425	0	0	0	0	0	0	0	4
81	92	Little Rock, AR	700,746	0	0	0	0	0	0	0	425	0	0	0	0	0	0	0	4
82	90	Charleston, SC	697,862	0	0	0	0	0	0	0	425	0	0	0	0	0	0	0	4
87	117	Colorado Springs, CO	661,478	0	0	0	0	0	0	0	425	0	0	0	0	0	0	0	4
90	164	Fort Myers, FL Counties - Lee	629,279	0	0	0	0	0	0	0	425	0	0	0	0	0	0	0	4
92	83	Mobile, AL	615,234	0	0	0	0	0	0	0	425	0	0	0	0	0	0	0	4
95	89	Wichita, KS	585,218	0	0	0	0	0	0	0	425	0	0	0	0	0	0	0	4
97	84	Harrisburg, PA	572,798	0	0	0	0	0	0	0	425	0	0	0	0	0	0	0	4.
99	137	Melbourne-Titusville-Palm Bay, FL	560,849	0	0	0	0	0	0	0	425	0	0	0	0	0	0	0	4
101	468	Maryland 2 - Kent	554,194	235	0	0	0	0	0	0	190	235	0	0	0	0	0	0	1
102	99	York, PA	551,451	0	0	0	0	0	0	0	425	0	0	0	0	0	0	0	4
104	78	Lansing-East Lansing, MI	542,469	0	0	0	0	0	0	0	425	0	0	0	0	0	0	0	4
105	105	Lancaster, PA	535,722	0	0	0	0	0	0	0	425	0	0	0	0	0	0	0	4
113	68	Flint, MI	509,170	0	0	0	0	0	0	0	425	0	0	0	0	0	0	0	4
114	146	Daytona Beach, FL	507,531	0	0	0	0	0	0	0	425	0	0	0	0	0	0	0	4
115	96	Fort Wayne, IN	504,357	0	0	0	0	0	0	0	425	0	0	0	0	0	0	0	-4
116	113	Madison, WI	500,292	0	0	0	0	0	0	0	425	0	0	0	0	0	0	0	4
120	109	Spokane, WA	481,828	0	0	0	0	0	0	0	425	0	0	0	0	0	0	0	42
121	561	New York 3 - Chautauqua	479,168	93	0	0	0	0	0	0	332	93	0	0	0	0	0	0	3
122	339	California 4 - Madera	474,081	184	0	6	0	0	0	0	235	184	0	6	0	0	0	0	2
123	372	Georgia 2 - Dawson	472,138	61	0	19	0	0	0	0	345	61	0	19	0	0	0	0	3
126	150	Visalia-Tulare-Porterville, CA	457,133	0	0	0	0	0	0	0	425	0	0	0	0	0	0	0	4
127	716	Wisconsin 9 - Columbia	455,037	169	0	0	0	0	0	0	156	169	0	0	0	0	0	0	1
129	658	Texas 7 - Fannin	440,668	134	0	41	0	0	0	0	250	134	0	41	0	0	0	0	2
131	208	Fort Pierce, FL	438,379	0	0	0	0	0	0	0	425	0	0	0	0	0	0	0	4
133	171	Reno, NV	432,545	0	0	0	0	0	0	0	425	0	0	0	0	0	0	0	4
136	100	Shreveport, LA	428,491	0	0	0	0	0	0	0	425	0	0	0	0	0	0	0	4
137	619	Pennsylvania 8 - Union	426,236	0	0	0	0	0	0	0	425	0	0	0	0	0	0	0	4
138	118	Reading, PA	423,136	0	0	0	0	0	0	0	425	0	0	0	0	0	0	0	4
139	162	Brownsville-Harlingen, TX	420,392	0	0	0	0	0	0	0	425	0	0	0	0	0	0	0	4

24GHz Auction Markets

1			Data Source:	Future Holdings				24 G	Hz	245		
Angeles-Anaheim	ı, CA		Instructions: The carriers for this table are selected as the first eight carriers on the County Analysis worksheet. The spectrum depth data reflects the FCC, Current, or Proposed setting from the Spectrum Grid Worksheet.		VerizonWireless	AT&T	T-Mobile	HSIO	Cornerstone Wineless	Skyriver Communicatic	SureWest Broadband	RC
	CMA Ran *	CMA =	MARKET NAME *	2014 POP5 -			-		-	1	7	
	1	2	Los Angeles-Anaheim, CA	17,704,110	0	0	0	0	0	0	0	700
	2	1	New York-Newark, NY-NJ	17,041,161	0	0	0	0	0	0	0	700
	3	3	Chicago, IL	8,404,358	0	0	0	0	0	0	0	700
	4	9	Dallas-Fort Worth, TX	6,857,143	0	0	0	0	0	0	0	700
	5	10	Houston, TX	6,108,723	0	0	0	0	0	0	0	700
	6	4	Philadelphia, PA	5,331,294	0	0	0	0	0	0	0	700
	7	8	Washington, DC-MD-VA	5,168,021	0	0	0	0	0	0	0	700
	8	5	Detroit-Ann Arbor, MI	4,943,920	0	0	0	0	0	0	0	700
	9	17	Atlanta, GA	4,653,485	0	0	0	0	0	0	0	700
	10	6	Boston-Brockton-Lowell, MA-NH	4,606,557	0	0	0	0	0	0	0	700
	11	7	San Francisco-Oakland, CA	4,594,060	0	0	0	0	0	0	0	700
	12	12	Miami-Fort Lauderdale, FL	4,532,109	0	0	0	0	0	0	0	700
	13	26	Phoenix, AZ	4,087,191	0	0	0	0	0	100	0	600
	14	15	Minneapolis-St. Paul, MN-WI	3,263,431	0	0	0	0	0	0	0	70
	15	18	San Diego, CA	3,256,107	0	0	0	0	0	0	0	700
	16	19	Denver-Boulder, CO	3,017,864	0	0	0	0	0	0	0	700
	17	14	Baltimore, MD	2,839,550	0	0	0	0	0	0	0	700
	18	20	Seattle-Everett, WA	2,739,727	0	0	0	0	0	0	0	700
	19	22	Tampa-St. Petersburg, FL	2,737,070	0	0	0	0	0	0	0	70
	20	11	St. Louis, MO-IL	2,627,456	0	0	0	0	0	0	0	700
	21	91	San Juan-Caguas, PR	2,185,690	0	0	0	0	0	0	0	70
	22	30	Portland, OR-WA	2,126,810	0	0	0	0	0	0	0	70
	23	35	Sacramento, CA	2,069,681	0	0	0	0	0	0	0	70
	24	13	Pittsburgh, PA	2,061,310	0	0	0	0	0	0	0	70
	25	33	San Antonio, TX	2,038,404	0	0	0	0	0	0	0	70
	26	93	Las Vegas, NV	2,005,728	0	0	0	0	0	100	0	60
	27	60	Orlando, FL	1,968,154	0	0	0	0	0	0	0	70
	28	24	Kansas City, MO-KS	1,894,605	0	0	0	0	0	0	0	70
	29	27	San Jose, CA	1,871,407	0	0	0	0	0	0	0	700
	30	16	Cleveland, OH	1,825,420	0	0	0	0	0	0	0	700



Property Tax Implications

- Low band assets will be deployed in all markets
- Mid band assets will be deployed similar to the old Sprint / T-Mobile coverage maps (large metro markets, both urban and suburban)
- Millimeter Wave assets will primarily be deployed in dense urban markets (within city limits)



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