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New Networks and Spectrum to Fuel Tower Industry Growth

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Key Points:

- T-Mobile's efforts to expand rural coverage should be a tailwind for rural tower operators as it's likely the company will use existing towers in remote parts of the country rather than building its own.
- Shared spectrum and the cost efficiencies from network virtualization will lead wireless networks to proliferate, creating new business opportunities for tower operators.
- The build-to-relo model is starting to show its limitations and no longer represents a meaningful competitive threat to the tower industry.
- The T-Mobile/Sprint merger does pose risks for the tower industry, however Dish's right to repurpose decommissioned sites and T-Mobile's plan to expand rural coverage will help offset these risks.
- Small cell growth is a headwind for the tower industry, but the overall impact should be small.

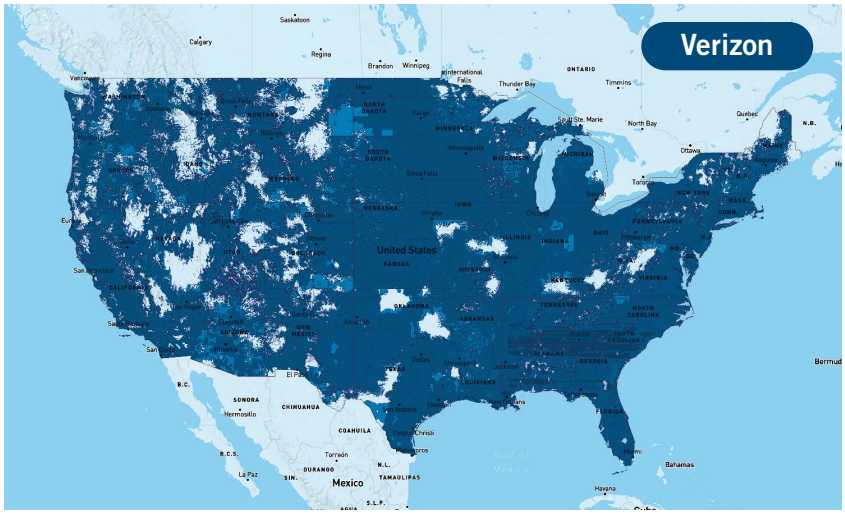
Introduction

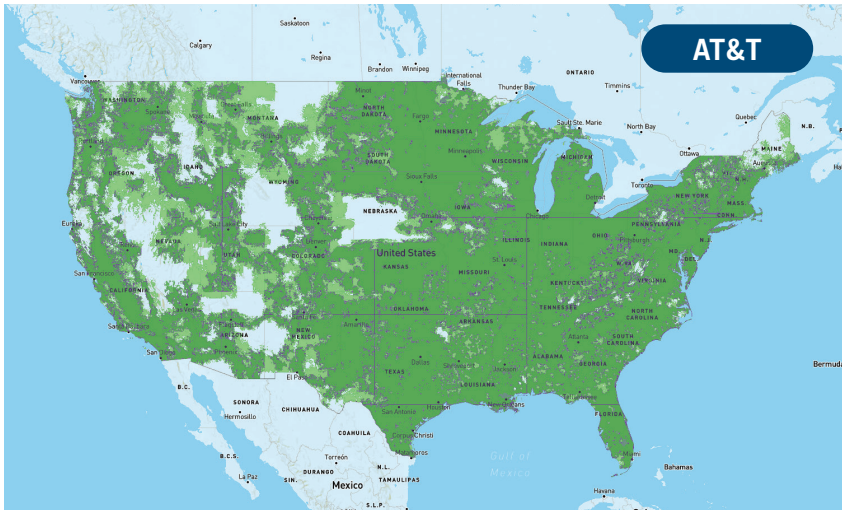
The wireless tower industry is in the midst of several cross currents that represent both opportunities and threats. Citizens Broadband Radio Service (CBRS) deployments, 5G, and new operators entering the market are tailwinds for the industry. As for headwinds, the Sprint/T-Mobile merger means a net reduction of sites in the combined network, and new small cell deployments could impact macro tower revenue growth. In this report we take a closer look at these and other developments and how they will impact the wireless tower industry over the next couple years.

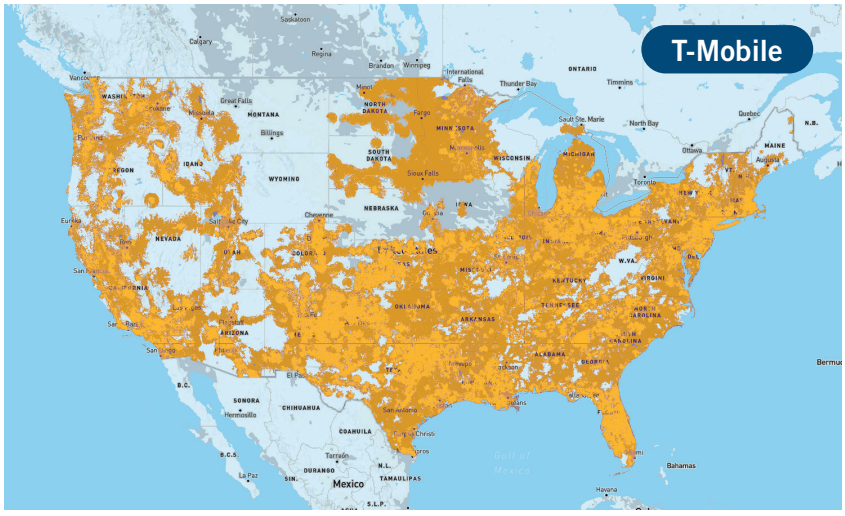
Sprint/T-Mobile Merger

T-Mobile said that within six years it will offer 5G to 99% of the U.S. population, and based on its current coverage map *(Exhibit 1),* it needs to deploy a large number of rural cell sites to do it. The challenges in building rural towers (such as access to labor and backhaul) means the company will likely utilize existing tower infrastructure in rural America – a win for rural tower owners.

EXHIBIT 1: Carrier Coverage







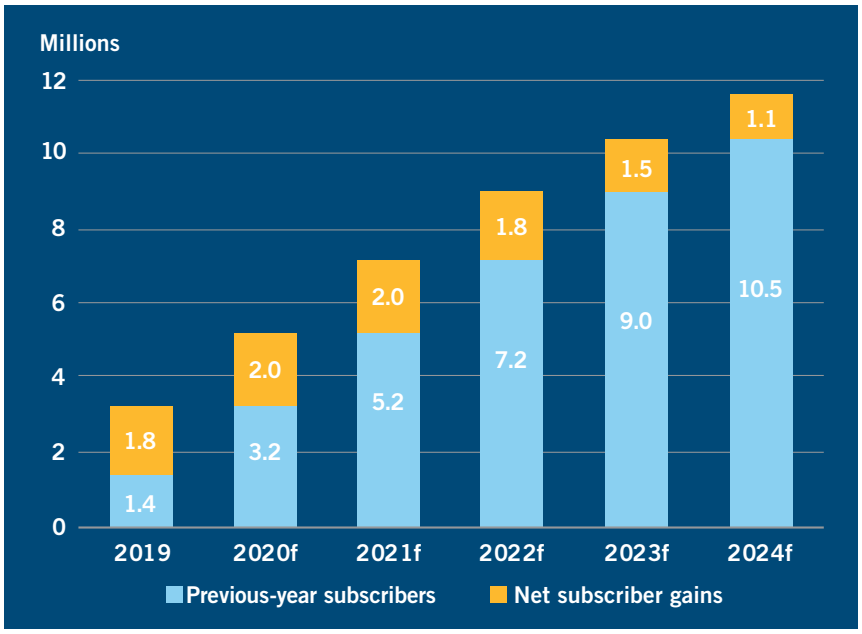
Source: Reviews.org

T-Mobile is also busy deploying Sprint's war chest of 2.5GHz spectrum. Sprint had approximately 150MHz of 2.5GHz spectrum, which is the cornerstone of T-Mobile's 5G network strategy. In order to deliver 5G high-speed wireless data, networks need large amounts of mid-band spectrum – Sprint's 2.5GHz spectrum sits in this sweet spot. Deploying this spectrum entails installing new radio equipment on the towers. This should trigger new lease amendments, which typically increases revenue for tower operators.

Network consolidation is never a good thing for tower operators, but in the case of Sprint/T-Mobile there is a silver lining. T-Mobile indicated that it will see a net decrease of 25,000 cell sites once the two networks are combined. However, the company's strategic deal with Dish Networks should translate into a good number of these sites being salvaged. Here is why.

On July 1, Dish purchased Sprint's prepaid business and has the right to T-Mobile's wholesale network capacity for seven years. Dish also has the right to acquire decommissioned Sprint/T-Mobile cell sites as it builds out its nationwide wireless network. We estimate that Dish will initially deploy 10,000 macro cell sites, and could grow to over 25,000 in the medium term as they add more customers.

EXHIBIT 2: Wireless Subscriber Growth – Cable Operators



Source: S&P Global

New Networks

Over the last three years cable operators Comcast, Charter and Altice have entered the wireless market via a network wholesale model. Referred to as a Mobile Virtual Network Operators (MNVO), MVNOs sell wireless service that utilize a third party network. The MVNO model has advantages over owning a network, but high margins is not one of them. The other issue with MVNOs is the lack of control over the network. Without network ownership, MVNOs have little control over network speed, coverage, capacity, etc.

To help address these shortcomings, it's widely expected that the cable operators will build wireless networks in select urban and suburban markets using unlicensed and licensed CBRS spectrum. In doing so they will move large amounts of data traffic off their wholesale providers' networks and on to their own, which will help reduce operating costs. Building networks could also address poor coverage areas in their wholesale network. Given the cable industry's interest in wireless, and expected growth *(Exhibit 2),* we estimate these network builds could include 20,000 cell towers.

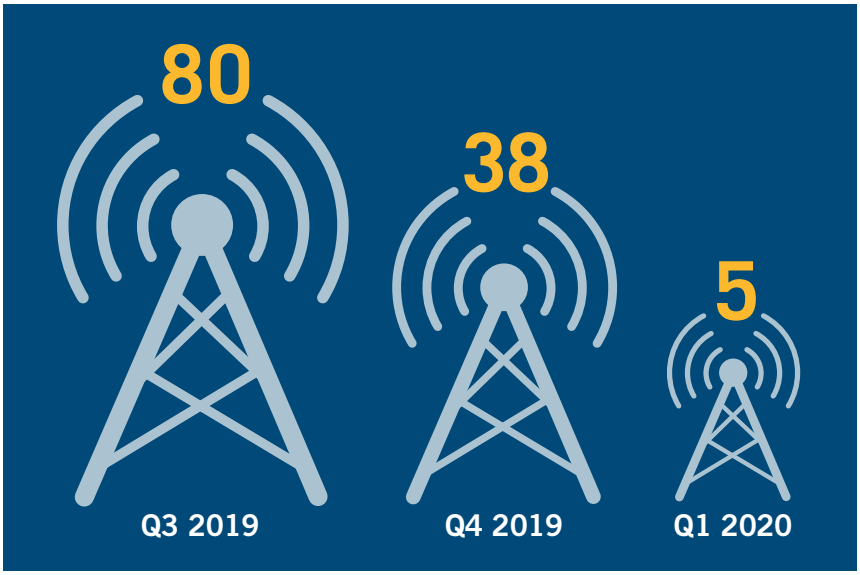
We expect there to be many more wireless network operators, coming in all shapes and sizes. As we covered in a previous report (As CBRS Auction Shapes Broadband Landscape, Should Rural Operators Make a Bid) the CBRS spectrum auction will introduce a broad set of new network operators. These operators could include energy companies, municipalities, large tech companies, manufactures, universities, etc.

Thanks to new cloud-based technologies and network virtualization, the cost to build a wireless network has come down considerably. For example, Dish Networks said that it will only cost $10 billion for it to build a nationwide wireless network. By comparison, Verizon's capex budget is expected to be $18 billion in 2020 thanks, in part, to the costs associated with supporting legacy infrastructure. (We estimate that Verizon's wireless capex portion is approximately $10 billion.) These lower costs, and the sharing nature of the CBRS spectrum band, make it easier for new market entrants to build greenfield networks. And just like the cable operators, these companies will need to partner with tower operators to build their networks.

New Spectrum Bands

The FCC has planned two spectrum auctions in 2020, both of which are central to 5G network builds and should positively impact tower revenues. The CBRS auction, which started in July, included 70MHz of mid-band spectrum and the upcoming C-Band auction (scheduled for December) includes 280MHz of spectrum. Both auctions are expected to garner significant interest from all national wireless operators and cable operators. Since these spectrum bands are newly available to carrier networks, additional antennas are needed to broadcast the signal. Adding new equipment to towers typically triggers lease amendments, resulting in a new revenue stream for the tower owner.

EXHIBIT 3: Number of Towers Constructed - Tillman Infrastructure



Source: Steeltree Partners

The wireless industry is in the mature phase of the business lifecycle, which means sluggish growth, consolidation and cost reductions. M&A activity in the industry has been brisk over the last several years and now three national operators control the lion's share of the market. Smartphone penetration sits at 90% which limits the industry's topline growth prospects. While operators have laid off thousands of people and many of their suppliers have suffered significant gross margin erosion, tower operators are the profitable exception. As a result, wireless operators have sought new tower partners who offer carrier friendly contracts.

Unfortunately, these network upgrades will not impact rural tower owners the same way as urban and suburban operators. In the case of CBRS and C-Band, we could see these bands being used for fixed wireless coverage in rural America, but probably not for mobile use. And since fixed wireless networks use fewer cell towers compared to mobile, the relative tower revenue lift in rural markets should be lower than in urban and suburban markets. We expect operators to utilize their existing low band spectrum for rural mobile coverage, which shouldn't represent much revenue upside for tower owners.

Entry Barriers

The tier-one wireless operators have a love-hate relationship with large tower companies. On one hand, they represent a critically important partner that provides must-have network elements. But on the other hand, escalator clauses and site amendment fees in many tower agreements force costs up every year. It's these rising costs that have created friction between tower companies and operators, especially given the current state of the wireless industry.

Often referred to as build-to-relo towers, these companies build new towers near existing ones to ensure coverage continuity while offering contract terms with greater cost certainty over the long-term. This threat has been looming over the industry for several years but the build-to-relo strategy is much easier said than done.

Tower consulting firm Steeltree Partners reports that new tower builds have been slowing down for Tillman Infrastructure *(Exhibit 3),* recognized as one of the largest build-to-relo tower companies in the market. We believe this is primarily due to the fact that zoning restrictions in urban and suburban markets make it difficult to relocate towers. Simply put, residents want to limit the number of unsightly towers in their neighborhoods, thus obtaining site acquisition rights for a new tower that is located near an existing one can be quite difficult.

Small Cells

Small cells are expected to play a larger role in wireless networks, which represents a headwind for the tower industry. To deploy millimeter wave spectrum, carriers need to install small cells which are typically located on

light poles, rooftops, and utility poles versus cell towers. We see small cells as being an issue for tower operators who have urban and suburban tower assets, but not for rural owners because deploying millimeter wave spectrum in rural markets does not make sense. Instead, utilizing low and mid band spectrum on large cell towers – where signals travel several miles – makes much more sense. However, despite these risks, we don't think small cells will be overly problematic for the tower industry as a whole.

Conclusion

New spectrum bands and wireless business models will fuel growth in the tower industry for the next several years. Thanks to cloud-based technologies and virtualization, it has gotten much cheaper to build a wireless network. And because of this, tower operators stand to benefit from a greater level of network fragmentation. In rural America, tower owners should benefit from T-Mobile's planned 5G expansion as it makes sense to lease space on existing towers versus building single tenant towers. And lastly, it's becoming clear that the build-to-relo model has limitations and does not represent a material threat to the tower industry.

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