



Cell Towers: Essential, Utility-Like Real Assets That Keep Us Connected

Not too long ago mobile phones were considered by many as a discretionary item. By today's standards, the initial technology was rudimentary and those that had them often left them in the glovebox of a car in case they needed to call for a tow. My how times have changed. Right around 2007, the mobile phone got "smart" and since then has emerged as a vital tool used in our daily lives. It has evolved from a simple phone, to a talk and text device, to a multi-functional necessity. Today's phones are used as mini-supercomputers helping us to access the internet, listen to music, watch movies, play video games, travel, monitor health and fitness, electronically navigate, send emails and of course...stay connected on a myriad of social media platforms. And the apps, don't forget the apps. It seems no matter what you're doing, "there's an app for that." Cell phones have become ubiquitous in our lives and it's hard to imagine getting through the day without our mobile devices. Webster's dictionary even has a term for it – nomophobia: the fear of being without access to a working cell phone.¹ And according to a Slicktext report, 66% of the population shows signs of the phobia.²

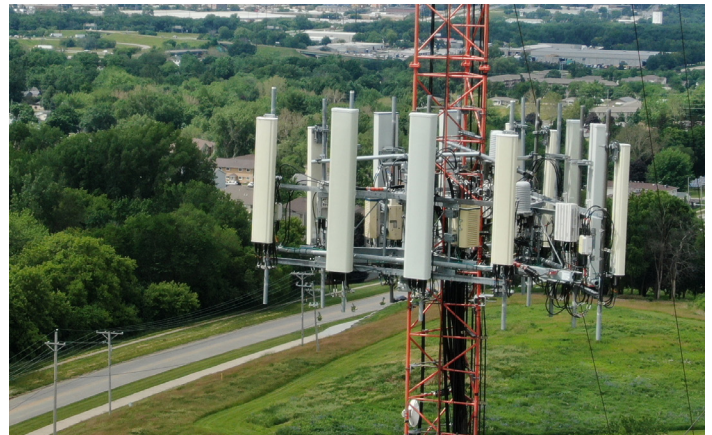
As our phones and their capabilities have grown and evolved, so too have the mobile networks upon which they rely. 1G, or the first generation of wireless networks, was introduced in the 1980s and supported voice-only calls – if you could get a signal. The 1990's ushered in the 2G era and effectively took cell phones from analog to digital communications and introduced call and text encryption, along with data services such as SMS and picture messages. In 1998, 3G networks ushered in faster data-transmission speeds, so you could use your cell phone in more data-demanding ways such as for video calling and mobile internet access. 4G was introduced in 2008 and supports mobile web access like 3G, as well as gaming services, HD mobile TV, video conferencing, 3D TV, and other features that demand high speeds. Now wireless carriers like AT&T, Verizon, T-Mobile and others are in the process of rolling out 5G, the fifth generation of wireless networks.

We take for granted that when we pick up our mobile phones we expect them to work... without fail... all the time. In order for that to happen, we need a massive network of digital infrastructure assets to send and receive signals - to and from our phones - as well as all our other connected devices. Cell towers, also referred to as cell sites or macro sites, are a key component of the wireless networks that keep us

connected. That connectivity has become utility-like in its nature and ranks up there with necessities like water, gas and electricity.

Cell towers are structures that support radios, computerized switching equipment, and antennas for receiving and transmitting the radio frequency (RF) signals to and from our phones. They are usually very tall, typically 150-270 feet, and equipment on the tower is positioned at strategic heights and angles so the signals can adequately cover a predetermined area. Wireless carriers like AT&T, Verizon, T-Mobile and others typically rent space on these structures so they can put their equipment on them and create wireless coverage within their networks. In this respect, cell towers (from an owner's perspective) are similar to commercial real estate. You might own a tower that has space for 4 tenants. Ideally, you would like to lease all the space on that tower. Cell tower leases are much like traditional commercial real estate leases. Initial lease terms are often 5 to 10 years and usually include multiple renewal periods that are often in 5-year increments. Annual rent increases are also often part of the lease. So, a new lease might be structured for an initial period of 10 years with five, 5-year renewal periods and 2.5 percent annual rent increases. This would give a cell tower owner a 35-year time horizon from which to predict future cash flows.

Right now you might be thinking, 35 years sounds good but they might not renew the lease. That's true, but it typically isn't the case. Historically, renewal rates have generally hovered around the 97-98+ percent range and were even relatively stable during the 2008/09 recession.³ The same has held true throughout the first half of 2020 and the COVID-19 pandemic. The wireless



carriers' networks are very sophisticated and their radio equipment is strategically placed on towers (as well as rooftops, buildings, water towers, billboards and other elevated structures) to provide a sophisticated web of coverage and connectivity. Vacating a tower and removing equipment would likely result in a "dead zone" or gap in the company's network coverage, as well as incurring significant labor and equipment costs. In the telecommunications business, there is an old saying... "coverage is king." It is often the reason many people switch from one carrier to another. Frustration with dead zones, dropped calls and inefficient data services are typically key reasons customers leave their cell phone carrier. The carriers want to do everything they can to retain customers and get new customers. They do that by maintaining their existing cell sites while constantly expanding new sites in order to create the best coverage models. And because of that, tenants on towers often stay in place for a very long time earning the reputation as very "sticky" tenants.

But the major national wireless carriers are not the only tenants on towers. There are also many other potential tenants including regional and rural carriers, government entities, police and fire, radio and television broadcasters, municipalities, and more.

AT&T, Verizon, T-Mobile, Sprint and U.S. Cellular were considered the top 5 carriers. However, after nearly two years of waiting to close their \$26.5 billion merger, a U.S. District Judge granted approval of the T-Mobile/Sprint merger in early February 2020 creating what is being dubbed the "New T-Mobile." The judge rejected claims that combining the third and fourth largest national wireless carriers would be anticompetitive. One of the conditions to the merger was that T-Mobile divest certain

spectrum and network assets that will enable DISH to build a national network. DISH represents a major new tenant in the telecom market on both existing and new cell sites as it implements its expansion plans. In addition, according to the official merger press release, the New T-Mobile expects to ramp up combined capital investments of approximately \$40 billion over the next three years as they invest in their network and business lines.⁴

5G deployments are also a major catalyst for growth in the cell tower leasing environment. All of the major carriers continue to allocate tens of billions of dollars each to further expand and develop their networks providing tower owners with potential growth opportunities. When carriers upgrade 4G network components on towers with new 5G-compatible equipment, it is usually accompanied by lease modifications which typically include increased rental rates and/or term extensions. Just for clarification, there are not necessarily 4G and 5G “towers.” Instead there is 4G and/or 5G equipment ON a tower. The towers that served 1G and 2G are likely the same towers that serve 4G today and 5G tomorrow. Think of the tower as a vertical piece of real estate that is positioned in a strategic location. AT&T (the tenant) may have its 4G equipment on the tower today and decide at some point to upgrade that equipment to 5G. The cost and effort to make those upgrades are borne by the tenant, not the tower owner.



Companies are forging ahead and the race is on to have the fastest or largest 5G network. Countries are also competing to be the first to deploy fully functional, nationwide 5G. That's because the benefits of the new technology are expected to fuel transformative new technologies, not just for consumers but also for businesses, infrastructure and defense applications. Intel predicts that by 2025 over 1 billion 5G devices will be in use and that by 2035, 5G will create approximately \$10 trillion in economic output.⁵ The amount of change to be brought about by 5G is expected to rival the first three industrial revolutions - when people went from using their hands, to machines, to mass manufacturing, to living in a digital world. 5G is expected to change the way people live, work and play. In addition to blazing upload and download speeds, 5G is expected to have greater bandwidth, meaning it can handle many more connected devices than previous networks. It will enable devices like virtual reality, self-driving cars, wearables and new technologies to come. 5G is also expected to reduce latency — the time it takes for a cell phone (or other connected devices) to make a request from a server and get a response — bringing that time down to virtually zero. And it will make communication with cloud platforms (like Amazon Web Services and Google Cloud) faster and easier. But all this capability comes with a trade-off. For the most part, 5G signals tend not to travel as far as 4G signals. While a 4G signal on a cell tower may have a range of several miles, the hyper-speedy 5G signals we're all waiting for may only travel a few thousand feet. As such, it's likely that massive telecom infrastructure deployment and “densification” of our wireless networks will be required to make 5G a reality. That likely means more cell

sites, whether they be on traditional cell tower structures, light poles, water towers, billboards, rooftops, telephone poles, sides of buildings or more. And the wireless carriers are committing tens of billions of dollars each year to fortify and expand these networks.

Once you own a cell tower, ongoing maintenance is generally minimal. Operating expenses are generally low and include what is called TUMI: taxes; utilities; maintenance and insurance. In some cases, a ground lease expense may apply as well if you don't own the land under the tower. Those expenses are relatively predictable and tend not to fluctuate very much over time. Ongoing capital expenditures are also generally very minimal over the life of the asset. You basically own "steel in the air" as it is often referred to. Operational maintenance typically includes keeping the FAA required lighting at the top of the structure running (when required), maintaining the fencing, keeping the area under the tower free of debris and vegetation and maintaining a clear path on any access roads. And finally, there's usually minimal (if any) tenant improvement costs when adding a tenant to a tower. When a new tenant comes onto the tower, it is the tenant who is responsible for costs associated with adding their equipment, not the tower owner. For the most part, towers don't require someone on-site in order to operate and there's no public foot traffic that needs to be supported. Relative to large commercial real estate structures, towers are pretty simple with regard to operations and maintenance. Long-term leases, annual rent escalators and sticky, creditworthy tenants lead to relatively stable and predictable revenue streams. Combine that with minimal capital expenses, tenant improvements and operating expenses and you can see why cell tower ownership is often such a high-margin business.

Cell tower owners certainly seem to have the wind at their backs. Wireless data consumption is practically doubling every two years.⁶ It seems that everywhere you turn, more and more devices are being connected to the internet. New technologies like artificial intelligence, virtual reality and autonomous cars will likely rely on highly sophisticated data streams and an even greater number of cell sites. And 5G, which is just beginning its implementation, is expected to bring connectivity and technology to a new era. These, and other factors, will likely require massive investments to expand communications infrastructure capacity over the next decade and cell tower owners appear to be well-positioned to benefit from these trends.

1. <https://www.merriam-webster.com/dictionary/nomophobia>
2. <https://www.slicktext.com/blog/2019/10/smartphone-addiction-statistics/>
3. Source: Strategic Capital Fund Management, based on information in public company filings.
4. Source: T-Mobile.com, "T-Mobile Completes Merger with Sprint to Create the New T-Mobile", April 1, 2020
5. Intel 5G Summit – Video, 2018 <https://www.technologyforyou.org/5g-will-create-10-trillion-in-economic-output-by-2035/>
6. Cohen & Steers; Infrastructure REITs Towering Over the 5G Economy, July 2019

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