

Fishers, Indiana
Verizon Responses to Common Questions about 5G inquiries

What are 5G small cells?

We call it 5G because it is the fifth generation of wireless communication technology. The first generation (1G) gave us cell phones with voice capability. The second generation (2G) gave us text and messaging. The third generation (3G) gave us smartphones and wireless access to the internet. And the fourth generation (4G) gave us video streaming and many other connected services and devices that we rely on and enjoy today. Verizon is upgrading to 5G to improve existing communications and to support innovative applications. 5G will enable self-driving cars, virtual and augmented reality, smart homes, smart buildings, and smart cities.

Like the equipment used for earlier generations of wireless technology, 5G equipment uses radio waves, or radiofrequency (RF) energy. It's the same type of energy that is all around us and that has been used safely for over 100 years. RF energy is used for radios, televisions, cordless phones, cell phones, WiFi routers, and garage door openers.

The new 5G equipment includes "small cells," which are low-powered radios attached to antennas. These small cells send and receive information from wireless devices using radio waves. The 5G small cells sometimes are physically closer to users and more numerous than the wireless equipment we've used in the past. That's because the 5G radio waves capable of supporting very fast speeds and low latency do not travel as far as the radio waves used for other technologies.

How does Verizon approach site selection and network design?

Our engineers analyze the areas that need improvement to identify the ideal location based on customer needs and modeling results that take into account features and performance of the existing network, surrounding terrain, and the unique propagation characteristics of the technology being deployed. In evaluating locations Verizon must also account for availability of fiber and power because these are critical to the functioning of a small cell network. The location ultimately selected reflects the highest likelihood of meeting technical needs while minimizing impact on the surrounding community.

Using existing structures is considered first, as Verizon attempts to minimize the placement of new poles in residential neighborhoods and other areas. Whether using existing or new poles, Verizon takes measures to ensure our deployments respect the character of the surrounding community. For example, we endeavor to match colors and lighting styles when using or replacing existing poles, and, when installing new poles, we choose aesthetically consistent pole designs and endeavor to site along property lines rather than directly in front of residences and buildings.

In deploying our small cells Verizon complies with all applicable requirements for community notification and review, zoning and permitting. Our antenna locations must meet all local, state and federal regulations (including those designed to protect historic districts). Verizon holds FCC licenses for the frequencies utilized and we strictly follow their regulations.

Relocation requests: why can't the small cell be located "over there"?

As described above, the construction of the 5G small cell network involves a sophisticated design approach that optimizes the technology and its ability to meet the increasing demand for wireless broadband services. Small cells are carefully designed to work in synergy with one another and the surrounding macro network. This means that relocation of one will not only undermine the technical objectives of that particular small cell but likely compromise the function of a larger network.

Verizon must also take the following into account when vetting locations:

- Verizon must rule out use of a utility pole with primary power, as use of these poles creates a safety issue (and is prohibited by power company).
- In an effort to avoid the need for any tree trimming, locations near trees that would impede the RF signal are typically ruled out. Thus, our engineers attempt to design around a large dense tree canopy.
- Verizon generally does not consider candidates outside of City ROW. Our agreement allows use of the city's public ROW but does not cover use of private property or any easement not controlled by the city.

Given the complexity of the design and siting process, small cells are not a "plug and play" solution easily shifted around in response to individual relocation requests from community members.

The permitting process used in Fishers is comprehensive and designed to ensure that each site complies with applicable law and all reasonable requirements designed to minimize the impact of small cells on the overall aesthetic or historic nature of the surrounding neighborhood. Verizon has and will continue to work closely with the city during the permitting process to evaluate reasonable relocation requests that can be accommodated without undermining technical objectives.

Are 5G small cells safe to deploy in residential neighborhoods?

Yes. No matter which generation of technology we use, all Verizon equipment must comply with federal government safety standards. Those standards have wide safety margins and are designed to protect everyone, including children. In December 2019, in a unanimous and bipartisan decision, the FCC affirmed those safety standards. The FCC took action after a lengthy proceeding, in consultation with multiple federal agencies and close examination of the

RF research conducted for decades by scientists in the US and around the world. The research continues to this day, and agencies continue to monitor it.

The bottom line is that everyday exposure to RF from 5G small cells will be well within the FCC's safety limit, and is comparable to RF exposure from products such as baby monitors, WiFi routers, and Bluetooth devices.

More information can be found on our website:

www.improveyourwireless.com/centralindiana