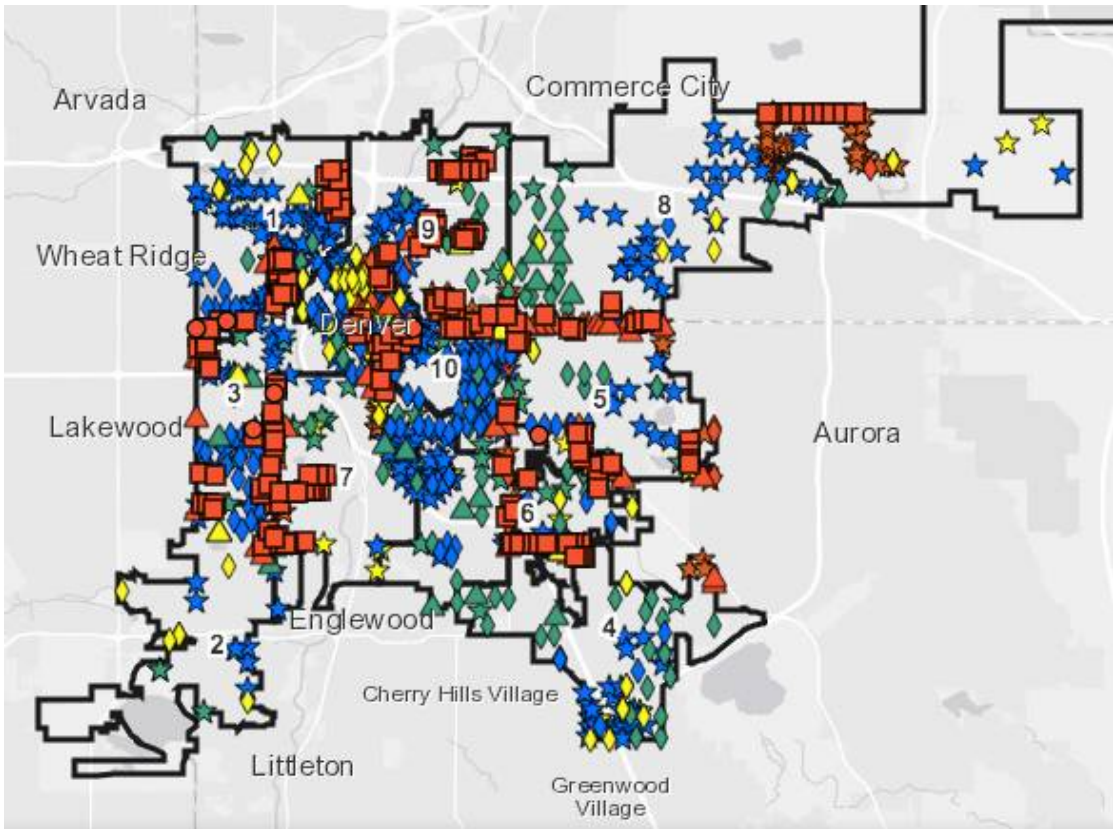
How Private Tech Companies Get to Stick 5G Infrastructure in Public Right-of-Way

Sara Fleming



This map shows the location of small cells across the city.

Denver Public Works

If you've spent any time in some of Denver's denser neighborhoods in the past year or so, you've probably seen at least a handful of examples of small-cell infrastructure already: big green poles, about thirty feet tall, in that strip of grass between the road and the sidewalk. And if you've spent any time on Nextdoor or r/Denver, you've probably noticed people complaining about them.

The poles are part of an expanding network that telecommunications companies like Verizon, AT&T and T-Mobile are installing as part of a plan to deliver lightning-fast speeds that they claim could usher in a "Fourth Industrial Revolution." And while the towers are increasingly visible, there is a lot that goes unseen, including how the poles ended up where they are.

The main reason that companies are installing small-cell infrastructure is to build out a network capable of delivering 5G, the fifth generation of wireless Internet technology. Carriers claim that 5G would make Internet access 100 times faster than its predecessor, 4G.

5G network signals have a higher capacity but a shorter range. To make 5G possible, "small cells" will have to be placed every few hundred feet. Many of the small cells that make these super-fast Internet speeds possible are being installed in the large green poles, called City Poles. Others are being attached to existing street infrastructure such as traffic lights and street lamps owned by Xcel Energy.

Verizon, which is leading the 5G rollout, ramped up its small-cell efforts in the summer of 2019 as it launched its Denver 5G network, which is now live in most of downtown, parts of Capitol Hill and Highland. (However, it only works outside, and if you have a 5G-capable device.) Some Denver residents have raised hell against Verizon, other companies and the city for installing what they view as bulky, ugly and unnecessary infrastructure.

Councilman Chris Hinds's district encompasses Congress Park and Capitol Hill, two neighborhoods where Verizon is rolling out its 5G network, with other carriers to follow. Hinds aide Galia Halpern says that dozens of constituents have contacted his office in the past six months to lodge questions and complaints about towers going up near their houses.

Hinds, a former software analyst, started to dig into all the techy details, hoping to answer his constituents' questions and direct them to solutions. He's found that the biggest problem is that people don't feel they have a say in where these towers will go, or even an inkling of how they get there.

"It's mostly the process that people are concerned about," Hinds says. "The biggest issue is that people don't know about it or don't think that they've been warned or advised that something is getting installed until the construction crew shows up and starts ripping up their yard."

Technically, it's not their yard, it's the "public right-of-way," an approximately ten-foot span between the road and their property. Though property owners are legally required to maintain the right-of-way, it's public land available for Denver to install everything from utilities to sidewalks to trees — and now, small-cell poles.

"We've installed a lot of stuff in the public right-of-way, but all of it is underground except for these gigantic, thirty-foot-tall, wide-base 5G cell towers," Hinds says.

The city has limited power to say no to companies who want to install them. That's because the Federal Communications Commission has cleared the way for companies to roll out these networks with as few impediments as possible. A regulation it passed in 2018 established "shot clocks" that required cities to process applications for new small cells in batches, within ninety days, and without imposing large permit fees (Denver charges $200 annually). Cities can develop standardized aesthetic and technical design guidelines, but they can't unilaterally block companies from installing the infrastructure, and can only deny a permit if it violates the guidelines, not because the adjacent property owner opposes it. A state law passed in 2017 supports those rules.

Denver Public Works manages the permitting process for the infrastructure and developed small-cell design guidelines that all companies must adhere to. Most of the guidelines are simple: They can't impede pedestrian or vehicular travel, they must align with existing trees, poles and utility signs; they have to be placed 25 feet from trees to avoid affecting their root systems; and they're not supposed to create a "visual blight."

Currently, companies apply for "encroachment permits" that include up to ten new poles at a time, not necessarily in the same area of the city. The city then notifies other utility companies or agencies with infrastructure in that area (RTD or Xcel Energy, for example), registered neighborhood organizations, and the district's city council representative, all of whom have a chance to comment; however, according to Public Works spokesperson Heather Burke, the agency can only deny a permit for technical reasons.

In September, Public Works changed the guidelines to require that telecommunications companies notify residents of adjacent property of a proposed pole via certified mail during the first technical review period. Prior to that, the company was required to notify the adjacent property owner at any point before plans were approved. Still, some people have had problems with the current notification system, too.

The letter doesn't look very official, and Hinds says it could easily be mistaken for spam. "There are people who are concerned when they get this letter. They think it's not real, and they're also concerned because they don't feel like they can participate in this process," Hinds says. Renters in apartment complexes also won't be notified, and the process doesn't require approval from the property owner.

One Highland resident provided *Westword* with a comment report for a proposed pole near her house. Most of the

entities contacted didn’t provide a response, which was considered approval. The woman (who didn’t want to be named in this story) didn’t find out about a planned pole until she saw it while scrolling a map that Denver Public Works provides. She’s not “technology-averse,” she says, and has WiFi in her house, but points out that the long-term impacts of 5G haven’t been studied.

Her issues are similar to Hinds's: “[The city] has this ninety-page document but they don’t have the staffing or the resources, and they are not communicating with constituents.” Plus, she says, the poles are bulky and inefficient. “I can’t hug these things, I can’t get my arms around it. They’re not dual purpose. You drive by them and you’re like, What is that?”

Public Works wrote in an informational document that it is trying to work with companies to co-locate their infrastructure on existing Xcel-owned street lamps and traffic lights, or for multiple companies to use the same pole, but the sheer number of small cells that will need to be installed for 5G to work means Denver will likely see more of them.

In his digging, Hinds discovered another potential problem. While the pole itself is visible, an electrical conduit is also placed underground. Public Works' guidelines established that this infrastructure should be buried at least two feet underground, but four feet when under a tree lawn so as not to interfere with trunks and root systems that can penetrate up to three feet deep. Hinds was concerned that this would impede Denver's ability to plant new trees in locations with already-dismal tree canopies. He announced at a city council meeting on Monday, December 16, that Public Works had clarified that this infrastructure should be placed deeper in the ground.

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Sara Fleming is an editorial fellow at Westword. She covers a wide variety of stories about local politics and communities. A born-and-raised Coloradan, when she's not exploring Denver, she's on a mission to visit every mountain town in the state.

- Contact:
- Sara Fleming

- Follow:
- Twitter: @sarajfleming