Cellphone towers fade into landscape

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Faced with providing service for ever more data-hungry cellphones, telecommunications carriers are in a nonstop race costing billions of dollars to boost the capacities of their networks.

To handle the heavy volume of video, music and Web pages that smartphone users are downloading, office buildings, strip malls, condominiums, schools, churches and just about every other type of structure - including water towers and freeway overpasses - are being pressed into service as cell signal relay stations, industry lingo for cell towers.

The number of cell stations is growing rapidly but stealthily. Few new cell sites are the imposing triangle-topped metal poles that are widely regarded as eyesores.

"People think cell sites look like oil derricks," said Andy Shibley, AT&T Inc.'s general manager for the Greater Los Angeles region. "Some still exist, but by and large that is not the case anymore."

Instead, phone carriers are on the hunt for public or private property that can accommodate a surreptitious installation. Those fake palm trees that don't fool anyone for long are far from the state of the art when it comes to hiding a cell site.

One AT&T site is in a false chimney atop a country club clubhouse. Church steeples are a favorite spot. The white obelisk at California's Irvine Spectrum shopping center, prominently visible from Interstate 5,

encloses a Verizon cell tower.

A cell site might even be the tenant down the hall.

One of the occupants in a historic Whittier, Calif., office building is AT&T, which rents a room on the top floor to house radio equipment connected to an antenna outside.

Carriers are reluctant to discuss how much rent they are willing to pay, but industry observers say cell sites typically lease for $1,800 to $2,500 a month per carrier in urban locations. It's common for two or more carriers to set up equipment at the same spot. Highly desirable sites can command as much as $4,000 a month.

The ubiquity of cellphones and their rapidly evolving ability to send and receive data have required a nearly nonstop building program since the dawn of the technology.

When service was launched in the 1980s, greater Los Angeles had 10 cellphone towers - the most of any market in the nation, Shibley said.

They were in such locations as a mountaintop and a 600-foot radio tower, "as high up as we could find," Shibley said. "They had to cover lots of area."

Cellular phones then were bulky and could cost more than $3,000, so they were a status symbol owned by few. As technology improved and phones shrank, carriers created monthly pricing contracts that made them available to the masses.

Upgrades to the grid have been going on ever since. More and lower antenna stations were required to serve the growing number of users. Cell sites, as carriers prefer to call them, now average about 50 feet in

height and are spreading far and wide.

It wasn't just the growing number of people discussing what to eat for dinner that taxed the system, of course. Talking led to texting and email; then phones turned into mini-computers capable of surfing the Web and performing a host of other data-rich functions. The latest generation of phones can stream live television in high definition.

"Nobody knew smartphones were going to take off the way they did," Shibley said. "We had to rethink the entire grid."

AT&T spent $450 million upgrading the grid in Greater Los Angeles in the past three years, he said, part of about $7.1 billion spent in California.

Carriers have to spend big because it takes a lot of time and money to set up a new cell site. The average Verizon Wireless network location costs about $750,000, spokesman Ken Muche said, and it takes about 18 months to get a new site approved by local officials and then built.

"Federal departments, like on military bases, take longer," he said.

Verizon invested more than $470 million in upgrading its Southern California network last year. Sites on municipal property such as light poles and street medians are common, he said, and people in the private sector often try to get in on the action and collect some rent from carriers.

"We get calls from commercial property owners, residential owners, happy to put a site in the backyard or on top of a Laundromat," Muche said.

Freeway-serving cell site locations in Southern California, such as the

one inside the Irvine Spectrum obelisk, are in high demand among carriers, he said, because people stuck in traffic are wont to do business - or kill time - on their phones.

Sprint Nextel Corp. is working to get 75 additional cell sites approved in the Los Angeles area as part of a campaign to replace its entire network by the end of 2013, spokeswoman Kelly Schlageter said. Sprint's strategy calls for a large network of small sites. It has about 500,000 nationwide and will add more.

The dramatic overhaul is necessary because usage patterns have jumped in a hockey stick pattern, she said, as phones evolve to perform more functions.

"Suddenly I am downloading video, sending pictures to my mom," she said, and more high-powered phone features are coming. "This will be an ongoing investment."

Not every property owner can hope to land a cell company tenant, though. It's all about latitude, longitude and altitude, said telecom consultant David Kenworthy, who helped get service to the Los Angeles Coliseum years ago.

Carriers use different systems to relay signals and their cell site heights need vary by location, he said. "Sometimes they want 40 stories, sometimes two stories," he said. "Every case is different."

Regulations vary among communities; some restrict their use near residences, but the Federal Communications Commission said that people living or working in buildings with rooftop cell sites are not at risk of harm from the radio waves.

The carriers' race to find more cell sites is part of the reason behind

mergers, Kenworthy said.

AT&T proposed buying smaller T-Mobile USA for $39 billion, but the Federal Communications Commission said last month that the purchase was not in the public interest, and the deal fell through this week.

Operators such as AT&T want to acquire other operators, Kenworthy said, "because they want their cell sites and don't have to go through all the government regulations to build. That's why consolidations will continue."