

Small Cells and Distributed Antenna Systems

What is the technology?

Nearly everyone knows what a traditional cell tower is, but the terms “small cell” and “distributed antenna system” (“DAS”) are not nearly as familiar. They should be. An increasing number of small cells and DAS are appearing in the streets of America’s cities and counties across the country.

Like a “macro” cell-site facility, a small cell is equipment that transmits a wireless signal to and from a defined area. But because a small cell uses lower power than a traditional macro cell, it also provides coverage to a significantly smaller space. Small cells present two key benefits, however. First, networks that employ small cells often use spectrum more efficiently, which leads to capacity gains. For example, a network of 10 small cells can use the same spectrum as a single macro cell and have 10 times the overall capacity. Second, because of their size, a small cell may fit where it would be impossible or infeasible to place a macro cell. Providers currently use small cells to cover targeted indoor or outdoor areas, including stadiums, shopping malls, hospital, and other outdoor spaces. Different forms of small-cell technology include femtocells, picocells, metrocells, and picocells. Small cells are typically operated by the wireless provider that delivers wireless service.

A distributed antenna system also uses smaller facilities than traditional macro cells, but it uses the equipment in a different way. A DAS typically consists of: (i) a number of communications nodes, each with an antenna; (ii) fiber-optic cable that connects each node to a central site; and (iii) radio transceivers at the central site that process or control the signals that the antennas transmit and receive. Unlike a small cell, a DAS processes the communications at

the central site, not at the site of each antenna. Some companies that place a DAS do not provide traditional wireless service at all. Instead, the DAS provider operates as a “carriers’ carrier”: it transmits the wireless provider’s traffic over the DAS, but the wireless provider typically operates and owns all the processing equipment at the central site. The DAS provider often uses the same DAS to serve multiple wireless providers.

How does the technology affect local government?

Small cells and DAS present new challenges to local governments as regulators and as property managers.

On the regulatory side, many local governments developed their zoning codes to address only macrocells. As a result, local ordinances may not clearly apply to the placement of smaller facilities in the rights-of-way—including on utility poles, street lights, and other similar facilities—even though small cells and DAS also can present safety, aesthetic, and environmental issues. In addition, because small cells operate at lower power, a provider typically must place many more facilities in a City’s rights-of-way. A local government therefore may need to develop an efficient and effective way to review and process a larger number of applications. The regulatory issue is complicated further by Section 6409(a) of the Middle Class Tax Relief and Job Creation Act of 2012, which requires that local governments approve requests to collocate facilities that do not “substantially change the physical dimensions” of certain preexisting facilities. Some local governments are concerned that if they approve small facilities, providers could use the statute to expand the small facilities later—in ways that harm the community.

Small cells and DAS also present new difficulties as local governments manage and lease their property. For example, a DAS may require the operator to place fiber in the rights-of-way, an asset that local governments often own and manage, and to attach antennas and other equipment to City-owned streetlights or other structures. Local governments may find that their traditional “leasing” models do not fit this new technology. Some small-cell providers also have sought blanket licenses to place their equipment on City property. This may not be the right approach to protect against harms in particular areas, or to maximize the value of your assets.

What are local governments doing about it?

Local governments are working to ensure that their regulations and leasing models keep pace with this changing wireless technology. Many local governments welcome small facilities and better coverage, but they also want to ensure that these new developments do not lead to unwanted or unexpected harms. Some recent examples of local government action include:

- Local governments revisiting their zoning codes and their property-leasing models to ensure that they are tailored to small cells and DAS.
- Local Governments closely monitoring how providers are using these technologies.
- Many communities have also engaged the Federal Communications Commission to oppose the wireless industry’s calls for the agency to preempt local oversight in this area.

Legal Issues To Watch Out For:

Small Cells and DAS raise many potential legal questions for local governments, including:

- Does your zoning ordinance apply to smaller facilities in the rights-of-way?
- Will your regulatory process allow you to review a request to place a number of facilities at multiple sites in a timely way?
- Can you ensure that small facilities, once approved, will not expand into harmful facilities later?
- Does the DAS provider have wireless customers, or is it only placing facilities with the hope of obtaining them?
- Have you developed an approach to leasing government-owned property for new wireless uses that protects the community and maximizes the value of your assets?



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