

Frequent missteps

Common pitfalls in planning for data centers include:

● Height restrictions:

Failing to allow sufficient building height can impede the efficient design of cooling systems, which rely heavily on vertical space for optimal airflow. The minimum height for a single-story data center could be as much as 30 feet (9.1 m). In denser jurisdictions with higher land basis, multistory data centers are common and typically require at least 66 feet (20.1 m) of height, in addition to considerations for rooftop equipment. Minimum heights are generally measured ground level to the roof line. Ancillary height structures, such as parapets, equipment platforms, screens, and stairwells can add another 15–20 feet (4.6–6.1 m) of height in some cases.

● Zoning challenges:

The lack of a uniform land-use category for data centers presents challenges for localities in siting these facilities appropriately. Data centers typically fall between office and industrial/warehouse uses, which often makes the applicant request variances that appear to be special considerations rather than basic requirements. This outset can lead to high-stakes decision-making by exception that undermines the existing zoning codes.

● Building code challenges:

Typical building code requirements around occupancy and plumbing fixtures may need to be modified for data center uses.

● Parking and plumbing standards:

Regulations developed for office or warehouse uses often impose excessive parking and plumbing fixture counts on data centers, which necessitate variances and complicate the planning process.

● Substation zoning:

Substations often fall under different categories than does the data center itself, creating further zoning inconsistencies and the need for additional, sometimes separate, approvals for one campus.

● Construction confusion:

Data center campuses are often built over time, as we [discussed above](#), which can cause planning confusion. The sightlines of a campus may change over time, so it's important to consider both the full campus and each individual building in the planning process.

● Fire Department considerations:

Fire departments that are not yet experienced with data centers might not know that the on-site batteries and generators are for backup purposes only, so education is essential. Yet even though those backups aren't frequently used, data centers are built with robust fire detection and suppression systems. Modern batteries for UPS applications include multiple safety features, including battery management systems that monitor voltage, temperature, and current. Fuel tanks for backup generators are typically stored in separate, fire-rated enclosures, and secondary containment systems are used to prevent fuel spills and leaks.

Clear rules benefit all parties

Clear rules in zoning codes and land use plans, as well as in the entitlement and permitting processes, benefit all stakeholders involved in data center development, including the surrounding community.

Clarity simplifies the planning process, reduces the amount of planning that is done by exception, and lets communities gain maximum financial benefits from data center developments.

In the next few sections, we discuss planning options for AHJs seeking to be prepared to regulate thoughtful data center development, to attract it, or both. We also provide a [model zoning ordinance](#) that municipalities can adopt, designed to address common concerns while avoiding excessively restrictive measures that could hinder data center development.