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Introduction: data centers 101

This paper seeks to demystify data centers and their purpose while offering a balanced model zoning ordinance for data center development that authorities having jurisdiction (AHJs) can adapt straight from the page. It also aims to provide a roadmap to data center development for local officials, planners, and other municipal decision-makers.

Data centers are still a relatively new land use, and they are often misunderstood or miscategorized. To be ready when data centers are proposed in your jurisdiction or to attract them, first it is important to understand their purpose in our society and how they function, as well as to have strategies to mitigate common challenges.

Essential infrastructure

In the morning, most of us brush our teeth or take a shower. We may not know where the water comes from or where it goes. We may not know that it is treated at a plant and arrives at our homes, where wastewater departs, is received in a facility, and is released into surface water systems.

These days, we often check our email or social media first thing in the morning, even before we shower or brush our teeth. The internet—like water, sewer, and power systems—has become part of our essential everyday infrastructure.

Water and sewage systems are typically financed and delivered by local cities or counties. Power is funded and delivered by a mix of public and private entities. Data centers, however, which form the backbone of the internet, are financed, developed, and operated primarily by privately held businesses. Unlike what occurs with other critical infrastructure systems, the development of data centers requires navigating a complex landscape of private property laws, environmental impact assessments, and local zoning regulations. Local officials, in other words, play a key role in ensuring access to the internet economy.

Purpose and function

A **data center** is a building that houses the infrastructure that supports the world's computing functions. This building is filled with servers that process and store the data commonly referred to as “the cloud.”

Processing and storage

Whenever you swipe your credit card, join a Zoom meeting, or

send an email, your virtual activity connects to a real place in the physical world: a data center.

What gets processed in a data center? A better question: what does not? Data centers house our national security systems, including military communications. They enable online commerce, financial services, health care, and other essential services. Each app on your phone—even offline apps that