

## **Community Preparation Guide for Data Center Development Projects:**

A framework for municipal leaders, planning boards, and community stakeholders.



## Abstract

The rapid expansion of cloud computing, artificial intelligence infrastructure, and digital services has created unprecedented demand for large-scale data centers. Data center facilities house thousands of servers and operate continuously to support global digital infrastructure. Data centers can bring investment and infrastructure improvements to local communities. However, they also place significant demands on electric grids, water systems, transportation infrastructure, land-use planning, and environmental resources.

Many rural communities are increasingly being targeted for data center development due to lower land costs, proximity to fiber optic networks, and access to large tracts of land suitable for industrial-scale facilities.

Without proper preparation, rural communities may face unexpected challenges, including strained power infrastructure, increased water consumption, environmental concerns, or limited economic benefits relative to the scale of the project.

The following information is intended to guide and assist communities in proactively preparing themselves to evaluate and manage potential data center developments in a way that protects long-term community interests while encouraging responsible investment.

## **Establish a Local Data Center Review Task Force**

Before evaluating any proposal, communities should establish a dedicated review task force or working group to assess potential data center developments.

Data centers involve complex technical, environmental, and economic considerations that often extend beyond the expertise of a typical planning board. A multidisciplinary task force ensures that proposals receive a comprehensive review.

Recommended participants include:

- Municipal or township leadership
- Planning commission representatives
- Zoning and land-use officials
- Economic development professionals
- Electric utility representatives
- Water system managers or public works officials
- Environmental specialists or consultants
- Emergency services leadership (fire, police, EMS)
- Legal counsel with expertise in land development agreements

Responsibilities of the task force should include:

- Coordinating communication with developers
- Reviewing technical proposals and environmental reports
- Conducting infrastructure impact assessments
- Facilitating public engagement and community feedback
- Negotiating development agreements and community benefit provisions

*Note: Establishing this group early ensures that communities respond to proposals in a coordinated and informed manner rather than reacting under time pressure.*

## **Understand the Scope and Scale of the Proposed Development**

Data center projects can range from a single facility to massive multi-building campuses spanning hundreds of acres. Communities must fully understand the scale of the proposed project before considering approvals.

Developers should be required to provide detailed documentation covering:

### ***a. Physical footprint***

- Total acreage of the site
- Number of buildings planned
- Total square footage of data center space
- Building heights and architectural plans
- Land set aside for future expansion

### ***b. Operational capacity***

- Total server capacity and computing load
- Expected electrical demand in megawatts (MW)
- Cooling system design and energy requirements
- Backup power systems and generator capacity

### ***c. Construction timeline***

- Phased development plans
- Construction schedule and duration
- Anticipated workforce during construction
- Equipment delivery and transportation requirements

*Note: Understanding the full scope of the project helps communities anticipate infrastructure demands and long-term impacts.*

## **Assess Electrical Infrastructure and Grid Capacity**

Electricity demand is typically the largest infrastructure requirement for data centers. Large facilities may require between 50 MW and 300 MW of power, equivalent to the electricity consumption of tens of thousands of homes.

Communities should coordinate closely with regional electric utilities to evaluate:

### ***a. Current electrical capacity***

- Existing transmission infrastructure
- Available substation capacity
- Reliability of the current grid

### ***b. Required upgrades***

- Construction of new substations
- Transmission line expansions
- Grid reinforcement projects

### ***c. Financial responsibility***

Communities should determine:

- Who will fund infrastructure upgrades
- Whether local ratepayers could face increased utility costs
- Long-term maintenance responsibilities

*Note: Developers should ideally bear the cost of infrastructure expansion necessary to support their operations.*

## Evaluate Water Usage and Cooling Systems

Many data centers rely on water-based cooling systems to maintain safe operating temperatures for servers.

Communities should carefully evaluate:

### *a. Water demand*

- Daily and annual water consumption estimates
- Seasonal demand fluctuations
- Peak cooling requirements during summer months

### *b. Water sources*

- Municipal water supply systems
- Groundwater or aquifer withdrawal
- Surface water sources

### *c. Cooling technology*

Developers should specify the type of cooling system being used:

- Evaporative cooling systems (higher water usage) or (Open-loop system)
- Closed-loop cooling systems
- Air-cooled systems with minimal water usage

*Note: Communities must determine whether water demand could strain local water resources, especially in rural areas with limited infrastructure.*

## **Review Zoning, Land Use, and Community Compatibility**

Local zoning codes should be reviewed to determine how data centers are classified.

Communities may need to establish specific zoning categories or conditional use permits for data center facilities.

Key zoning considerations include:

### ***a. Building and site design***

- Maximum building heights
- Setback requirements
- Landscaping and visual screening

### ***b. Noise and mechanical systems***

Data centers operate large cooling systems that can produce continuous noise.

Communities should establish standards for:

- Maximum allowable noise levels
- Distance from residential areas
- Sound mitigation requirements

### ***c. Generator and emissions regulations***

Backup generators are common in data centers and may run during outages or maintenance.

Communities should review:

- Air quality impacts
- Fuel storage requirements
- Generator testing schedules

*Note: Clear zoning standards provide certainty to both developers and residents.*

## **Conduct Environmental and Sustainability Reviews**

Data centers may have environmental impacts beyond energy and water consumption.

Communities should require developers to conduct environmental impact studies addressing:

### ***a. Land and ecosystem impacts***

- Habitat disruption
- Land clearing and vegetation removal
- Wetlands or protected areas

### ***b. Heat and thermal discharge***

Large data centers generate substantial heat that must be dissipated through cooling systems.

### ***c. Stormwater management***

Large facilities with expansive rooftops and parking areas may alter natural drainage patterns.

Communities should ensure appropriate stormwater mitigation measures are in place.

## **Analyze Economic Benefits and Fiscal Impacts**

While data centers are often promoted as economic development opportunities, communities should conduct objective economic analyses before granting incentives.

Key considerations include:

### ***a. Job creation***

- Construction employment during development
- Permanent operational staff after completion
- Average wages and skill levels

Many large data centers employ fewer than 50 permanent staff members once operational.

### ***b. Tax revenue***

Communities should evaluate:

- Property tax contributions
- Equipment tax exemptions
- Length and scale of tax abatements

### ***c. Infrastructure costs***

Communities must weigh tax benefits against:

- Infrastructure upgrades
- road maintenance
- public service costs

*Note: A detailed cost-benefit analysis ensures that the community receives appropriate long-term value.*

## **Negotiate Community Benefit Agreements**

Communities should negotiate development agreements that ensure meaningful benefits to local residents.

Potential provisions may include:

### ***a. Workforce development***

- Partnerships with community colleges
- Technical training programs
- Apprenticeship opportunities

### ***b. Local hiring commitments***

- Priority hiring for local workers
- Use of local contractors during construction

### ***c. Community investment***

Developers may contribute to:

- Local infrastructure improvements
- Community development funds
- Energy initiatives

### ***d. Community improvement***

*Note: These agreements strike a balance between private development and public benefit.*

## **Plan for Construction and Infrastructure Impacts**

Construction of large data centers can take several years and may significantly affect local communities.

Communities should plan for:

### ***a. Transportation impacts***

- Increased heavy truck traffic
- Road wear and maintenance costs
- Oversized equipment deliveries

### ***b. Temporary workforce impacts***

- Housing demand for construction workers
- Increased demand for local services

### ***c. Infrastructure disruptions***

- Utility trenching and fiber installation
- temporary road closures

*Note: Developers should contribute to road maintenance and infrastructure upgrades necessitated by construction.*

## **Ensure Transparent Public Engagement**

Large development projects often generate community concern or misunderstanding.

Local governments should prioritize transparency through:

- Public hearings and informational meetings
- Published environmental and economic impact reports
- Open access to planning documents

*Note: Early engagement allows communities to voice concerns and participate in decision-making processes.*

## **Establish Long-Term Monitoring and Compliance Mechanisms**

Once operational, data centers may operate for 20 to 40 years. Communities should ensure that oversight mechanisms remain in place long after construction is complete.

Monitoring requirements may include:

- Annual reporting on energy and water use
- Compliance with noise and environmental standards
- review of expansion proposals

*Note: Development agreements should include enforcement provisions to ensure long-term accountability.*

# Questions Every Community Should Ask Data Center Developers

## **Project Scope and Development Plans**

What is the total land area required for the project, including planned expansion phases?

How many buildings will be constructed, and what will their total square footage be?

What is the expected lifespan of the facility?

Will the development occur in phases, and if so, what is the full long-term buildout plan?

What companies or clients will the data center primarily serve (cloud services, AI computing, crypto-mining, enterprise hosting)?

## **Energy Demand and Electrical Infrastructure**

What is the projected peak electrical demand of the facility in megawatts?

How does that electricity demand compare to the energy consumption of the surrounding community?

Will new transmission lines or substations be required?

Who will pay for electrical infrastructure upgrades?

Could this project increase electricity costs for local residents or businesses?

Will the data center utilize renewable energy sources or purchase renewable energy credits?

## **Water Consumption and Cooling Systems**

What cooling technology will the facility use?

What is the estimated daily and annual water consumption?

Where will the water be sourced from (municipal systems, groundwater, surface water)?

How will wastewater from cooling systems be treated or discharged?

What contingency plans exist during drought conditions or water shortages?

## **Environmental and Community Impact**

What level of noise will be generated by cooling equipment and backup generators?

How will the facility manage heat discharge from cooling systems?

What environmental impact studies have been conducted?

How will land clearing and construction impact local ecosystems or wildlife habitats?

What stormwater management systems will be implemented?

**Economic Benefits and Local Impact**

How many permanent jobs will be created once construction is completed?

What is the expected average salary for those positions?

Will local contractors and suppliers be used during construction?

What tax incentives or abatements are being requested from the community?

*Note: Communities should ensure these questions are answered in writing and reviewed by independent experts before decisions are made.*