# A Planning Guide Pertaining to Data Centers in Lancaster County, PA

## I. Introduction

In recent months, many Lancaster Countians have received an abundance of data center information through various national and local media sources. The impacts of this emerging land use have been widely reported and have prompted some municipal leaders to update their Zoning Ordinances prior to receipt of any data center proposals within their municipal boundaries. Lancaster City leaders are already preparing for the proposed reuse of two former industrial sites as a 'Lancaster AI Hub'. Other municipalities are still seeking guidance on this issue, and this Lancaster County Planning Department (LCPD) guide is prepared in response to that specific need.

This Planning Guide intentionally avoids labeling data centers as either 'good' or 'bad'. Instead, it recognizes the growing need for such facilities, along with recent technological advancements since early data centers were initially constructed in other regions. Along with its mapping component, this guide provides general guidance for municipal leaders as they consider if such facilities could be accommodated with minimal impact to available resources and community character. Our research has been centered on Hyper-scale Data Centers, which are typically larger facilities that house 'cloud' and Artificial Intelligence (AI) data.

We begin by examining potential data center impacts, aligning our analysis with the impact-based zoning principles of LCPD's new Simplified Zoning tool. Next, we offer some suggested standards for effectively managing data center development and redevelopment via Best Practices for Data Center Ordinances.

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## II. Frequently Asked Questions Regarding Data Centers and Their Impacts

***What are data centers?***

As those who have been following recent reporting already know, data centers are essentially physical internet hubs consisting of networked computer systems used for data storage, processing, and distribution. They include equipment such as batteries, backup power generators, and cooling devices. Each facility houses rows of servers, routers and switches, where data flows continuously through fiber optic cables.[1] This critical infrastructure plays a vital role in storing healthcare information, facilitating EMS coordination, safeguarding privacy against cyber threats, and assisting with daily banking operations. The growing digitalization of our lives virtually ensures that data centers will be part of our evolving local landscape.

Often considered as tangible representations of the 'cloud', Hyperscale Data Centers support large-scale IT infrastructure typically owned by a single company. They often feature tens of thousands of servers, 20 MW of power, and 100,000 sq. ft. of space.[2] In recent years, data center building footprints have expanded significantly due to advancements in AI. Smaller data centers typically house Central Processing Units (CPUs) which are good for general computing tasks. In contrast, Graphics Processing Units (GPUs) are specialized for parallel processing of large data sets, making them essential for AI, machine learning, and rendering. GPUs require significantly more space, power, and cooling infrastructure to support their high-performance needs.[3]

***Why are data center developers coming to Pennsylvania?***

Earlier this year, Governor Josh Shapiro introduced his 'Lightening Plan' to address the Commonwealth's energy and infrastructure needs. It proposed the Pennsylvania Reliable Energy Siting and Electric Transition (RESET) Board to streamline permitting for new energy projects while providing tax incentives for those contributing electricity to the grid. This plan tries to solidify Pennsylvania as a national energy leader.[4] Pennsylvanians were also introduced to PA State Senate Bill 939, titled 'An Act Providing for High Impact Data Centers'. This bill seeks to draw significant investments in data centers by streamlining regulations and offering tax incentives.[5]

*Two examples of data centers located in Ashburn, Loudoun County, Virginia.*

In addition to its legislative framework, Pennsylvania excels in energy generation. The state ranks second in total energy production, which encompasses its status as the second-largest producer of natural gas and the third-largest producer of coal.[6] From a geographical standpoint, 25% of the United States' population can be reached within a 5-hour drive of the Commonwealth. Pennsylvania is also fortunate to experience very few natural disasters, a key factor when seeking a place for uninterrupted data center operations.[7]

*An electrical substation in Ashburn Virginia.*

***How significant are data center effects on energy consumption and rates for other users?***

While potential advancements in technology could eventually reduce their energy requirements, data centers currently consume significant energy due to requirements for generative AI's extensive calculations and constant climate control to prevent overheating. Power demand, much like water demand, peaks during the summer months.

In 2023, data centers accounted for approximately 4.4 % of all U.S. electric consumption, compared to 15% consumption for ***all*** residential uses combined. By 2028, data center consumption is projected to rise to 6.7 – 12%.[8]

As of September 2025, PPL – the electricity supplier for all of Lancaster County – reported 14.4 gigawatts of projected data center load for projects in advanced planning stages. Proposed projects will quickly add to the current peak of 7.5 gigawatts – a figure that took more than a century to reach. Over the last decade, PPL invested $13 billion in the electrical grid, and it plans to invest another $7 billion by 2028. This expansion will require more power lines and, in some locations, additional substations.[9]

In Pennsylvania's restructured market, electric bills have two parts: ***unregulated*** generation costs and ***regulated*** distribution costs. Price increases in the PJM marketplace – the regional power grid that serves the Commonwealth and 12 other states – are a result of supply and demand dynamics, with rising demand and falling supply causing current rate spikes.

In June 2024, PJM held a capacity auction that led to prices soaring by 833% compared to the previous year. Because a capacity charge is included in electric bills, this rise in capacity costs has translated to an increase of 10 – 20% in most recent billings.[10] Monitoring Analytics, an independent oversight organization for the mid-Atlantic grid, published research revealing that 70% of the increase in electricity costs from last year was fueled by the energy demands of data centers.[11] To minimize such impacts, some data center developers, including those in Lancaster City, have offered to reinforce PPL's grid.

The PA House Energy Committee held an October 22, 2025, hearing on House Bill 1834 (Matzie-D-Beaver) to provide for the regulation of AI data centers by the Public Utility Commission. This legislation sought to protect ratepayers from the costs imposed by data centers, set a 25% renewable energy requirement, and provided for contributions to the Low-Income Energy Assistance program.[12]

The Pennsylvania Senate will soon propose legislation to protect residents and small businesses from energy costs linked to large data centers. Inspired by Oregon's POWER Act (HB3546), it will require high-load data centers (with a peak demand of 20 MW or more) to cover all infrastructure costs. The law will prevent cost-shifting, safeguarding residential customers from rate hikes.

Pennsylvania's proposal will also mandate Cost-Responsibility Contracts for data centers, including co-located power plants, requiring at least 10-year service agreements. It will empower the PA Public Utility Commission to set cost allocation rules, oversee compliance, and protect non-industrial customers from increased rates. Additionally, annual reporting of electricity will be required for transparency and grid planning.

***How significant are data center impacts on water resources?***

Data centers use water both directly and indirectly. Direct use refers to water consumed on-site, primarily for cooling data center equipment. Indirect use involves water consumed off-site during the generation of electricity needed to power these data centers. The amount of water used depends on various factors including cooling system types, building sizes, and external air temperatures. Some data centers are connected to public water supplies, while others utilize on-lot wells, and/or reclaimed wastewater. Some data center developers recognize the need for sustainable water consumption, and some are incorporating the use of captured stormwater. Rainwater from data center roofs and parking lots can be filtered, stored, and reused for data center operations.

Water consumption also varies seasonally, with significantly increased cooling demand and water usage during summer months. Some data center cooling systems consume 3 million gallons of water in July, but their usage shrinks to only 800 gallons during winter months. This seasonal variation necessitates the construction of larger facilities equipped to meet peak summer demands.[13]

Scientists at the University of California, Riverside, estimate that each 100-word AI prompt uses approximately one bottle of water.[14] Cumulatively, billions of AI users around the world submit prompts to systems like ChatGPT every minute. With increased AI use, there is increased demand placed on water resources.

If a data center developer proposes use of public water, stormwater, wastewater, and/or any other reused water source, local government approval is required. In addition to municipal approval, the Susquehanna River Basin Commission (SRBC) and the Delaware River Basin Commission (DRBC) serve as the regulatory bodies for any development project requiring more than 100,000 gallons per day of ground water or surface water withdraws over a 30-day average, or over 20,000 gallons per day for consumptive use through public water systems or treated wastewater facilities over a 30-day average. SRBC looks at a project through a water availability lens, considering natural landscape limitations and recognizing that not all areas of the Susquehanna River Basin are created equally. Groundwater withdrawals are the most complex, requiring the establishment of test wells, aquifer testing, and approval of community plans. Findings are then compiled into aquifer test reports, and this entire process generally takes one to two years to complete. Similarly, surface water withdrawals require evaluations of stream-flow data and can take between six to nine months for process completion. In contrast, reviews of consumptive use through public water systems, treated wastewater facilities, and/or collected stormwater take approximately three months due to the availability of prior environmental impact assessments. SRBC strongly encourages pre-application meetings early in the development process.

SRBC offers permitting incentives for the use of innovative technologies such as dry and hybrid cooling systems which consume less water than traditional cooling systems. The effectiveness of these alternatives has been proven in several power plants throughout the Susquehanna River Basin. Incentives include the potential to avoid SRBC permitting along with fee reductions for data centers that operate within a lower water usage bracket or utilize lesser quality water for cooling purposes.[15]

As with other types of proposed development, municipal leaders should safeguard water overconsumption by assessing potential impacts on aquifers and surface

*Cooling towers pump large amounts of water through data centers.*

water, especially where water is to be drawn from wells. They should avoid permitting data centers in regions where water resources are limited (see provided map), and they should require data center applicants to demonstrate responsible water usage that does not adversely affect the environment.

Municipal leaders should also encourage cooling alternatives that utilize less water such as closed-loop systems that direct chilled air specifically to targeted areas (e.g. server racks) rather than the entire data center. Lancaster City's data center developers plan to install a closed-loop cooling system to minimize municipal water consumption.

Emerging cooling technologies like liquid immersion and direct-to-chip cooling can further reduce water consumption. These methods utilize dialectic fluids for direct component cooling, but they require specialized equipment. With immersion cooling, IT equipment is submerged in a non-conductive liquid other than water. This liquid effectively absorbs heat from the hardware and components, which is then cooled by a heat exchanger. Direct-to-chip cooling circulates liquid around a CPU or GPU, before passing it through a heat exchanger for cooling prior to recirculation.[16]

### *What noise impacts result from data center operations?*

Noises from data center cooling systems and backup generators are often characterized as buzzing, whining, or low-pitched roaring. They can be especially prominent at night when ambient noise levels tend to be lower. Low frequency sound waves travel longer distances without much absorption, often affecting residents in quiet suburban and rural areas who experience a continuous hum that disrupts their quality of life. Traditional noise ordinances, based on dBA measurements, fail to address low frequency noise, which can cause stress and sleep disruption. Municipalities often remain unaware of these issues until complaints arise, at which point existing regulations do not provide effective solutions.[17]

Sometimes referenced in standard ordinances, the dBA scale represents a more curved response, designed to mimic how we ***hear*** sounds. In contrast the dBC scale offers a flatter perspective of noise, reflecting how we ***feel*** sounds. By using both sound measurements together, one can better understand both the heard and unheard effects of sound.

*Data centers are filled with servers that emit a consistent and loud white noise.*

Noise pollution also has a significant impact on animals. Just as boat engines and sonar technology are known to disturb marine life, noise pollution on land can interfere with animal communication, causing wildlife to seek new migration routes.[18] Exposure to unfamiliar noises and prolonged sounds can negatively affect reproductive systems. Research indicates that stressed cows, for example, eat less, produce lower milk yields, and face health issues, impacting herd well-wellbeing. Stress triggers hormonal responses, like cortisol and adrenaline, which divert energy from milk production to survival. Noise levels above 70 dB on farms are problematic and negatively affect cow welfare, increasing somatic cell counts in milk. They should ideally stay below 65 – 70 dbB, and any excess sound should be limited to very brief periods.[19]

Ordinances should require full spectrum sound studies that address low-frequency transmission. Testing should be conducted both before and after data center development to ensure compliance at all applicable property boundaries. For proposed data centers with a projected

*Plumes of diesel smoke arise from a Loudoun fossil-fuel backup generator.*

noise increase, municipalities should mandate soundproofing, vegetative buffers, and/or on-site acoustic sensors to monitor noise impacts. Testing hours for backup generators should be limited to brief daytime periods.[20]

***In a region plagued with poor air quality, will data centers exacerbate this problem?***

Data centers can have an undesirable air quality impact, primarily due to pollutants emitted by power plants and backup generators necessary for their operations. Potential air pollutants emitted from generator usage include nitrogen oxides, particulate matter, carbon monoxide, volatile organic compounds and sulfur dioxide.[21] Back-up-power generators operate intermittently, with testing regulations varying by state. Data centers usually have two backup power sources tested monthly for 5 – 30 minutes. Annually, tests typically run for fewer than 100 hours in total.[22]

Just like noise pollution, air pollution has detrimental effects on humans and other animals. They may suffer allergic reactions, respiratory issues, and have increased susceptibility to infections. Prolonged exposure can elevate the risk of cardiovascular and respiratory disease. To minimize these effects, emissions from diesel-powered backup generator operations should comply with all applicable environmental regulations. At the proposed Lancaster City data centers, SCR 'scrubbers' are likely to reduce 99.8% of Nox emissions.

***Is traffic generation from data center development a legitimate concern?***

Per square foot, data centers require fewer on-site employees than offices, commercial uses, and industrial uses - resulting in lower traffic volumes during peak hours. The main traffic increase occurs during data center construction periods, after which vehicular traffic decreases to minimal levels with only a small number of staff commuting daily.

***Does data center development create many jobs?***

Folks involved with data center planning and construction temporarily benefit from data center development, and their numbers can range from hundreds to thousands depending on facility size and complexity. In contrast, the typical number of more permanent positions is considerably lower. Many of these more permanent roles require skilled workers with IT or computer science degrees.

Job projections vary widely among some currently proposed facilities in our region. For example, a 1 million sq. ft. data center coming to East Whiteland Township, Chester County, is expected to create approximately 30 permanent jobs. In contrast, a smaller 565,000 sq. ft. project in Springdale Township, Allegheny County, is expected to generate up to 70 permanent jobs.[23] In Lancaster City, two proposed data centers could create 1,000 construction jobs, with 90% of these positions filled by local labor including small and disadvantaged businesses. Following construction of these facilities, 150 more permanent jobs are anticipated.

The data center industry often seeks to employ military veterans because they bring transferable skills such as project and crisis management, along with a strong work ethic, to the typically fast-paced data center environment. Salute Mission Critical was founded to train veterans for meaningful careers, while helping data centers find needed talent. Since 2013, they have trained thousands of veterans for careers in the data center industry.[24]

Data center operators also collaborate with local educational institutions to cultivate future workforce talent. For example, Microsoft's Data Center Academy in Phoenix supports students at Maricopa Community Colleges, while Virginia has similar initiatives with nearby universities. Locally, Lancaster City's data center developers are exploring partnerships with nearby colleges and universities.

### *What are some other economic impacts of data centers?*

Data centers generate both state and local tax revenue. State tax revenue comes from sales tax on construction materials, franchise fees on power consumption, and personal income taxes from both construction employment and permanent jobs. Some municipalities with data centers have utilized local tax revenue for Net Zero initiatives to reduce carbon emissions, along with programs related to healthcare, public education, and other essential public services. Such revenue has been utilized to improve public safety and to finance critical infrastructure projects.[25] Municipalities also benefit from tax revenue generated by real estate taxes on newly built or renovated properties, as well as personal property taxes on items such as computer servers.

*Another data center in Ashburn, Virginia.*

## III. Suggested Best Practices for Data Center Ordinances

### *Include Specific Siting Requirements for Land Use Compatibility*

When choosing potential data center locations, developers typically evaluate several factors including land availability, existing land use restrictions, a reliable/cost-effective power grid, a robust fiber optic cable network, adequate water resources for cooling, and minimal natural disaster risk. Municipalities should determine if any such locations exist within their borders for data center development or redevelopment.

Data centers require proximity to electrical substations and major transmission lines due to their energy demands. If adequate infrastructure isn't available, developers and/or utility companies must construct it. Evaluation of existing utility infrastructure and proposed data center impacts should be part of the planning and entitlement process for these proposed facilities.[26]

At the core of data center connectivity are fiber optic cables, which are thin strands of plastic that transmit data using light signals or wavelengths, offering unparalleled speed and efficiency. Data centers transmit information across a fiber optic network. The site of a data center should have access to fiber or have the space to run new fiber lines. Shortening the fiber-optic path improves service quality.[27]

Data centers' demand for water can also significantly influence site selection. Areas where water is scarce or constrained should be avoided. Whenever feasible, data centers should be situated near existing water facilities, such as wastewater treatment plants.

In the recent past, most American data centers were built in rural areas to reduce development costs, but a growing demand for high-speed applications is driving both development and redevelopment closer to urban centers. Today, ideal data center sites are often located in industrial zones or technology parks that can accommodate significant utility demands while remaining separated from residential neighborhoods. Such places often include large, former industrial structures that can be adaptively reused to meet current digital demands.

Due to their continuous operation and the potential impacts noted in this guide's Section II, data centers are best suited for Industrial Zones or designated Overlay Districts. Such areas should be adequately separated from residential

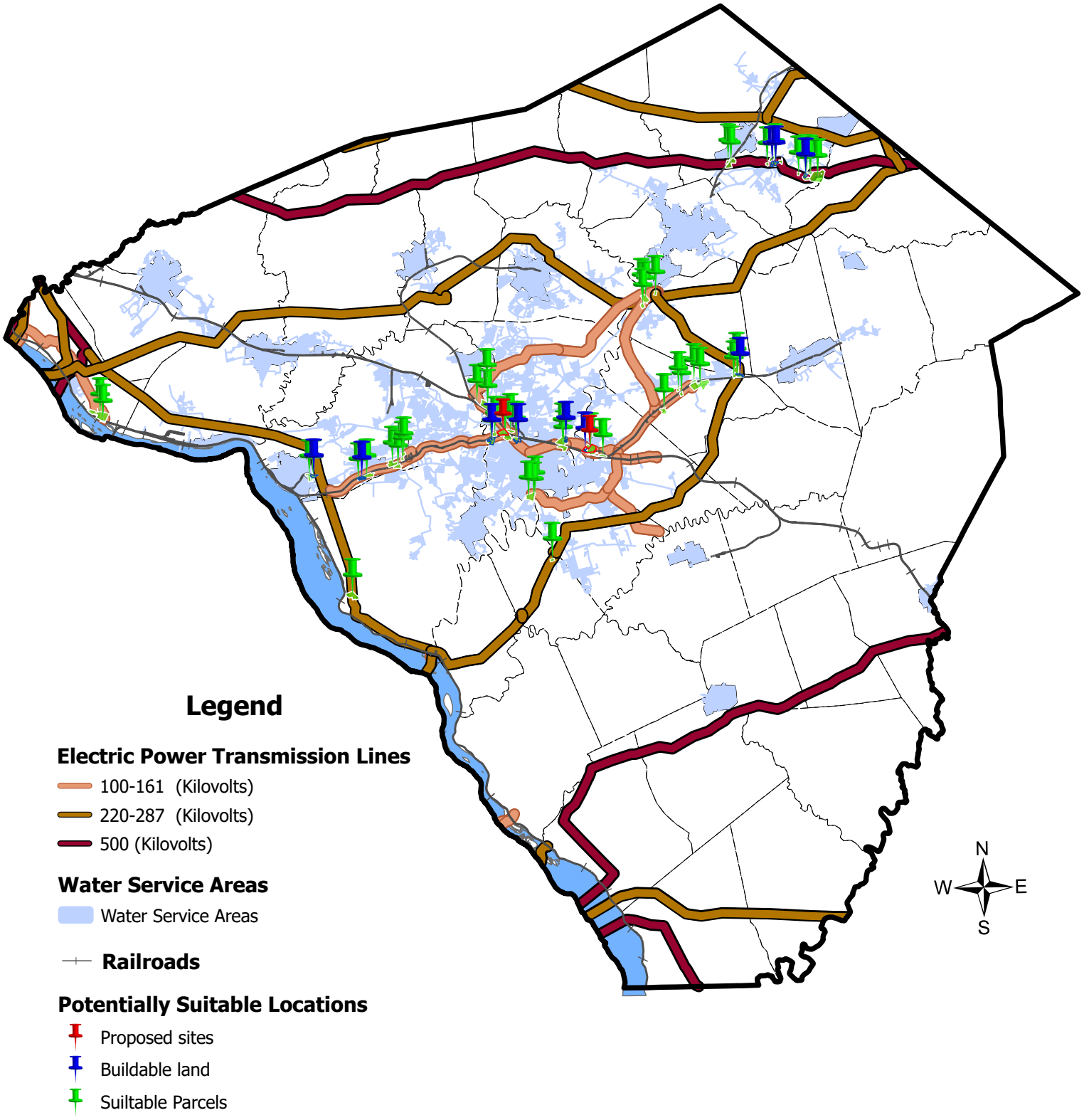


**FIGURE 3.1 – POTENTIALLY SUITABLE LOCATIONS FOR DATA CENTER DEVELOPMENT / REDEVELOPMENT IN LANCASTER COUNTY, PENNSYLVANIA**

*(INDUSTRIALLY ZONED 10+ ACRE PARCELS WITHIN 300 FT. OF 100+ kV POWER LINE)*

## TABLE 3.1 – POTENTIALLY SUITABLE PARCELS FOR DATA CENTER IN LANCASTER COUNTY, PENNSYLVANIA*

(Industrially Zoned 10+ Acres Parcels within 300 ft. of 100+ kV Power Lines)

| *Municipality* | *All Suitable Parcels** | *Parcels with Proposed Sites* | *Parcels with Buildable Land*** | *All Suitable Parcel Acres* |
|---|---|---|---|---|
| Columbia Borough | 1 | | 1 | 52 |
| Conoy Township | 2 | | | 134 |
| East Cocalico Township | 11 | | 3 | 359 |
| East Lampeter Township | 2 | 1 | 1 | 32 |
| Lancaster City | 11 | 5 | 4 | 364 |
| Lancaster Township | 2 | | | 83 |
| Manheim Township | 8 | | 1 | 287 |
| Manor Township | 1 | | | 77 |
| Mountville Borough | 1 | | | 14 |
| Pequea Township | 1 | | | 13 |
| Upper Leacock Township | 7 | | 1 | 279 |
| West Earl Township | 6 | | | 118 |
| West Hempfield Township | 7 | | 1 | 161 |
| **Total Parcels** | **60** | **6** | **12** | **1,972** |

Source: Lancaster County Planning Department, PA

* All Suitable Parcels identified in Oct. 2025

** Buildable Land identified in 2022-2023

areas, and they should include specific site requirements and performance standards.

Any data center permitting should align with long-term municipal land use policies. Municipalities wishing to encourage such development or redevelopment could streamline approvals by permitting data centers by right. In contrast, those seeking to limit data center development - especially in environmentally sensitive areas - should require Special Exception or Conditional Use permits.[28] This process enables municipalities to evaluate site-specific impacts, require facility design standards, establish environmental performance metrics, and set operational requirements that are generally acceptable to the local community.

### *Provide a New Land Use Category and Definitions*

At present, several Lancaster County municipalities are revising their Zoning Ordinances to classify data centers as a distinct land use. Others have grouped data centers with storage facilities or other commercial and industrial uses. Given their unique impacts such as high water and energy consumption and low traffic generation, LCPD believes that data centers should be set apart from other land use categories.

From a regulatory perspective, municipalities are not required to classify every type of data center. Instead, they can define data centers as either a principal use or an accessory use.[29] Use of clear definitions, such as the two which follow, could help to ensure regulatory consistency:

> **Data Center -** A facility used primarily for the storage, management, processing, and transmission of digital data, which houses computer or network equipment, systems, servers, appliances and other associated components related to digital data operations.

> **Data Center Accessory Use -** Systems, equipment, facilities, and/or components used in the air cooling, water or liquid cooling, power supply systems, telecommunication, cloud communication, and mechanical or environmental controls when used in the support or enabling of a data center.

### *Promote Adaptive Reuse*

Repurposing older, underutilized buildings can produce significant environmental, social, and economic benefits. These advantages include reducing embodied carbon, encouraging sustainable and innovative practices, and preserving the cultural and historical significance of older structures. Existing urban buildings are particularly appealing for technology and communications infrastructure due to their strategic locations and inherent connectivity potential. Because access to sufficient electrical power remains a key challenge, previously developed properties with agreements for substation power capacity are especially attractive to data center developers.[30]

Generally, existing commercial offices, distribution facilities, and manufacturing sites are the most viable options for adaptive reuse. While repurposing an existing building shell aligns with sustainability goals, it still requires mechanical and electrical upgrades to adequately support IT workload demands. Examples of data center reuse projects include the Wells building in Milwaukee, Pittock Block in Portland, and Lancaster City's R.R. Donnelly Building located at the Route 30 – Greenfield Road interchange.


*For California, labor benefits and community services funding are top priorities for Community Benefits Agreements.*

### *Address Decommissioning and Future Facility Use*

It's important to recognize that data centers generally have shorter lifespans than other land uses. Once data center equipment reaches its end of life, usually 10 to 20 years following deployment, the facility is often decommissioned. This process involves shutting down and dismantling the data center, removing equipment, destroying data, and cleaning up the site.

Because data centers are typically larger than big box stores and distribution warehouses, and because they include more specialized HVAC and electrical capacities, vacant data centers can be challenging to repurpose. Current regulations for reusing vacant big box stores may provide insight into how best to address any future data center vacancies.[29]

### *Require a Community Benefits Agreement*

A Community Benefits Agreement (CBA) is a legally binding contract between community organizations and/or municipalities and developers, outlining deliverables in exchange for project location. They originated in California during the 2001 development of the Staples Center, and they have been used throughout the country since that time. An effective CBA can maximize community benefits from data center projects while minimizing potential harm. Examples of developer obligations may include establishing apprenticeship programs for local workers, contributing to relief funds for rising utility costs, funding improved internet access for residents and schools, and funding public infrastructure.[30]

### *Ensure Community Transparency and Goal Alignment*

As with any planned development or redevelopment efforts that significantly impact community character, it's important to involve the community during initial planning stages to foster trust, address concerns, and set goals for mutually beneficial outcomes. Data center developers should clearly articulate their anticipated water usage, energy sources, and emissions to help communities grasp how such components will be managed. Public meetings and events are encouraged where developers and local leaders can share information and respond to inquiries.

Hyperscale Data Center development in Pennsylvania is in its infancy, and regulations can be adjusted based on assessed impacts. Municipal and Regional Comprehensive Plans should align data center regulations with community goals for economic and environmental stability, public health and safety, and modernized zoning regulations.

### *Provide Specific Ordinance Requirements*

Design standards should be established to ensure alignment with community values, infrastructure capabilities, and environmental standards. Recommended data center requirements include the following:

**Air Quality -** Any emissions of exhaust, gases, and/or noxious odors should adhere to applicable State and Federal Emissions standards. Municipalities should encourage the use of Tier 4 backup generators to significantly reduce harmful particulate matter.

**Buffering -** A 100 ft. buffer yard should be required between a data center and any district that permits residential or agricultural uses. No buildings or parking lots should be constructed in the buffer area. Heightened buffering standards may require the buffer yard to include plantings and/or an earthen berm with a minimum height of 6 ft. and a slope not greater than 2:1. The proposed data center type and existing regulations for similar uses should guide municipalities in determining suitable buffering requirements.

**Decommissioning Plan -** Data center developers should outline procedures for safe removal of server infrastructure, hazardous materials, batteries, and all electronic waste if a data center ceases to operate. Municipalities should require a Decommissioning Agreement between the municipality and the party responsible for decommissioning. It should include a timeline for returning the site to a neutral state and assurance that financial resources are available to complete decommissioning efforts.

**Emergency Response Plan -** Data center developers should submit an Emergency Response Plan (ERP) prepared by a qualified professional. To be reviewed and accepted by the local fire department and emergency management services as part of the entitlement process, this plan should include detailed procedures for fire suppression, containment, ventilation, and evacuation along with an evaluation of access roads and hydrant locations to ensure suitable access for emergency equipment. Ensure that first responders receive adequate training specific to installed systems and include provisions for annual inspections demonstrating compliance with fire safety standards. Any data center proposing battery storage or devices capable of storing energy, whether this energy is stored for use on-site or off-site, should demonstrate compliance with National Fire Protection Association (NFPA) Standard 855, Installation of Stationary Energy Storage Systems, or similar standards, and must include fire suppression systems designed specifically for battery storage.[31]

**Energy Use -** The use of renewable energy for at least a portion of data center operations should be encouraged. For any data center connected to the electric grid, the Applicant should provide documentation that PPL will provide electrical service, and that the necessary electrical capacity is available. Any known impacts on electric rates or availability for other uses directly attributable to the data center project should also be noted. Backup generators may not be used except during utility outages, testing periods, or emergency conditions.

**Environmental Impact Assessment -** Applicants should be required to submit a Pre-Construction and Post-Construction Environmental Impact Assessment prepared by a professional environmental engineer.

**Height -** In Overlay Zones, height requirements should match the underlying zoning district's regulations. Otherwise, 50 ft. should be considered as a maximum data center building height, and this height should be calculated from the lowest adjacent grade to the top edge of the roof, excluding any mechanical or accessory equipment, facades projections, or parapets. No mechanical or accessory equipment mounted on the roof should exceed 10 ft. in height from the top edge of the roof.

**Impervious Lot Coverage -** Limit such coverage to 55-70% of the total site area. The higher range might be reserved for Applicants proposing use of renewable energy sources and/or sustainable water practices such as collecting rainwater for cooling purposes.

**Lighting -** A Photometric Plan should be provided to confirm that all exterior data center lighting is designed to produce no more than 0.25 foot-candles at any lot boundary. Exterior lighting should not be mounted higher than 35 ft., and it should be fully shielded to prevent light spillage to adjoining properties while providing adequate safety and security within property boundaries.

## TABLE 3.2 – MAXIMUM NOISE LEVELS FOR DATA CENTERS AT THEIR PROPERTY BOUNDARIES [7]

| *Affected Zoning District* | *Daytime Maximum dBA* | *Nighttime Maximum dBA* | *Daytime Maximum dBC* | *Nighttime Maximum dBC* |
|---|---|---|---|---|
| Agriculture | 60 | 55 | 70 | 65 |
| Residential | 60 | 55 | 70 | 65 |
| Commercial | 65 | 60 | 75 | 70 |
| Industrial | 70 | 65 | 80 | 75 |

**Noise -** A professional acoustical engineer should conduct a preliminary Noise Study of pre-existing conditions at the time of an initial data center plan submittal. It should include both existing and anticipated noise levels while using full spectrum modeling to address low frequency sounds. Following data center construction, an As-built Noise Study should be provided by the acoustical engineer. It should include sound levels measured at all property lines during center operation, at least 1 month but no more than 12 months following Certificate of Occupancy receipt. This study should also use full spectrum modeling to address low frequency noise. Consider this guide to **Maximum Noise Levels for Data Centers at their Property Boundaries**.[7]

**Screening -** To provide visual screening and reduce noise levels, require full enclosure of all ground-mounted and roof-mounted equipment used for cooling, ventilating, or otherwise operating the facility, including power generation or other power supply equipment, that is located within 300 feet of a public roadway, residential or agricultural zoning districts, or the lot line of any sensitive receptor. When noise-producing equipment abuts a sensitive receptor, the equipment should be placed so the data center is between the affected lot and equipment location. Where such enclosure is not mechanically feasible, another form of effective screening should be required.[31]

**Setbacks -** Principal Front, Rear, and Side Yard setbacks are typically 200-500′ when data centers abut residential uses, agricultural uses, or the lot line of any property developed with a sensitive receptor. Noise-producing accessory uses such as backup generators should be set back towards the higher end of this range. Reduced 150-250′ setbacks could suffice when data centers and data center accessory uses abut other land uses.

**Water -** For any project that will have ground and/or surface water consumption of 20,000 gallons per day (gpd) or more, or projects with water withdrawals of 100,000 gpd or more over a 30-day average from any source or combination of sources, data center developers should submit evidence of Susquehanna River Basin Commission or Delaware River Basin review and approval. Additionally, a Raw Water Needs Analysis detailing the required quantities from any private or public source should be provided. For any project that will have only public water consumption, Applicants should provide a 'will serve' letter from the applicable public utility confirming that required water quantities will be supplied. Additionally, a Water Needs Analysis should be submitted, and it should identify total intake volume and source(s), discharge volumes and destinations, cooling system type and efficiency, and compliance with any EPA Consent Decree stormwater goals.

## IV. Summary

With increased demand for ‘cloud’ services, AI computing, and the growing digital economy comes an increased likelihood that data centers will be proposed in several Lancaster County municipalities. Local leaders must be proactive in planning for both new development and redevelopment of previously constructed facilities. As noted above, strategically located data centers can provide benefits such as job creation and increased tax revenue without the adverse traffic impacts typical of other development types. Environmental and energy challenges inherent to data centers can be addressed via thoughtful design, adherence to established environmental standards, responsiveness to infrastructure capabilities, and strict alignment with local community values.

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