

UNDERSTANDING DATA CENTERS

37

MUNICIPAL IMPLEMENTATION TOOL #37

JUNE 2026

DELAWARE VALLEY dvrpc REGIONAL PLANNING COMMISSION

02 ABOUT THIS BROCHURE

This brochure is one in a series of Municipal Implementation Tools (MITs) available to local governments and planning partners to assist in implementing the region's Long-Range Plan, *Update: Connections 2050*. Prepared and adopted by the Delaware Valley Regional Planning Commission (DVRPC) with extensive public outreach, engagement, and analysis, *Update: Connections 2050* envisions a Greater Philadelphia that provides:

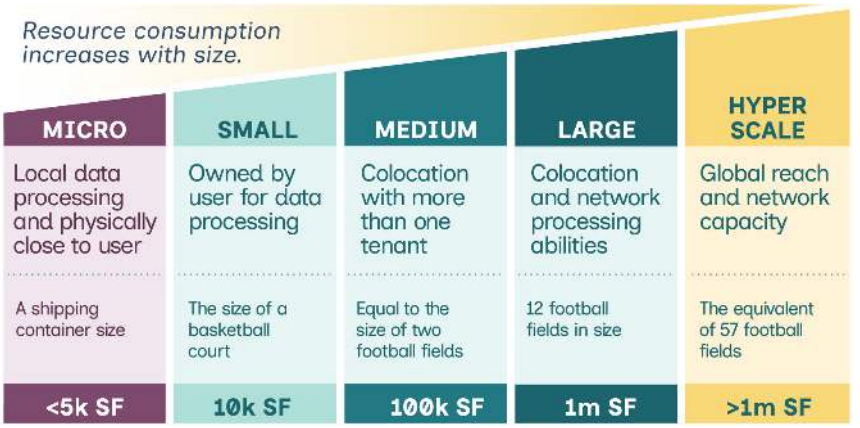
- A safe, modern, multimodal **transportation** network for all
- An innovative and connected **economy** with opportunity and shared prosperity
- Healthy, walkable, and vibrant **communities**
- A preserved and restored natural **environment** with thriving ecological systems
- Clean, reliable, and affordable **infrastructure and utility services** resilient to the effects of extreme weather

The series is designed to introduce local officials and residents to planning techniques that may be useful in their communities. Each covers a different topic and provides an overview of the use of the tool, the benefits, and best practices from within the Greater Philadelphia region. Municipal governments have the primary authority and responsibility to implement these policies. For additional information about *Update: Connections 2050*, please visit www.dvrpc.org/plan. To download additional brochures, visit www.dvrpc.org/smartgrowth/plansresources/#MIT.

Data centers are the physical backbone of the modern economy. They underpin the digital infrastructure that powers commerce, communication, and innovation, yet they introduce infrastructure and land use considerations that most municipal zoning codes have only recently begun to address. In its simplest form, a data center can be a single room or a large-scale campus that houses computer systems that store, process, and distribute digital information. These systems include servers, data storage devices, and networking equipment. Supporting this infrastructure is a network of electrical, telecommunications, and cooling systems, which are needed to enable their operation.

Data centers vary in size, reach, and capacity. As illustrated in Figure 1, the smallest data centers are referred to as "micro," which are typically less than 5,000 square feet in size. The largest data centers can exceed a million square feet and are known as "hyperscale" data centers. As the size of data centers increases, so does the degree to which they use and consume infrastructure, environmental, and economic resources.

Figure 1: Data Center Sizes



Source: Lehigh County Industrial Land Use Guide, Lehigh Valley Planning Commission, January 2026.

04 HOW DO DATA CENTERS SUPPORT THE ECONOMY?



This photo of data centers located in Virginia gives a sense of their scale compared to nearby residential and recreational land uses. Image Source: Getty Images.

Data Centers and the Modern Economy

Like roads and ports, data centers facilitate the flow of digital information essential for communication and commerce. Data centers reflect and support the needs of the modern economy. They enable daily economic activities through digital tools and technologies like cloud computing, financial systems, remote work, and real-time data processing.

Enabling Specific Industries

Data centers support every sector of the economy, including those important in Greater Philadelphia: Health Care and Social Assistance, Management of Companies and Enterprises, and Manufacturing. Figure 2 highlights how data centers support the economy.

Figure 2: Industries and Operations Enabled by Data Centers



Supporting the Region's Economic Strengths

A recent study from the Brookings Institution, *Southeastern Pennsylvania Market Assessment for Growing Opportunity Industries and Economic Mobility*, identifies the development of business-to-business software tools and services as one of Greater Philadelphia's economic strengths. The report refers to this industry as "enterprise digital solutions" and highlights its importance because it enables other sectors of the economy to function. As a result, supporting the growth of the enterprise digital solutions industry is a regional economic priority. Without investment in digital infrastructure, like broadband, fiber optics, and data centers, the region's economy may not reach its full potential in the enterprise digital solutions market.

Workforce Considerations

There are a significant number of temporary jobs created during data center construction. After construction, the permanent workforce is smaller but tends to be higher paid and equipped with a robust set of digital skills.

The Temporary Workforce

Data center construction typically requires electricians, plumbers, HVAC technicians, and other specialized contractors. For instance, a single 250,000 square-foot data center can employ up to 1,500 skilled trades workers during its build-out phase.[1] This increased demand coincides with a national workforce shortage in the construction industry of roughly 500,000 skilled trades workers. Labor shortages can drive up labor and project costs, create logistical challenges during construction,[2] and limit development.

---

[1] Fore, Preston, "Nvidia's CEO Jensen Huang Says Electricians and Plumbers will be Needed by the Hundreds of Thousands in the New Working World," Fortune, September 2025.

[2] "Skilled Labor Shortage in Construction: How to Close the Gap," American Institute of Contractors, May 2025.



The Permanent Workforce

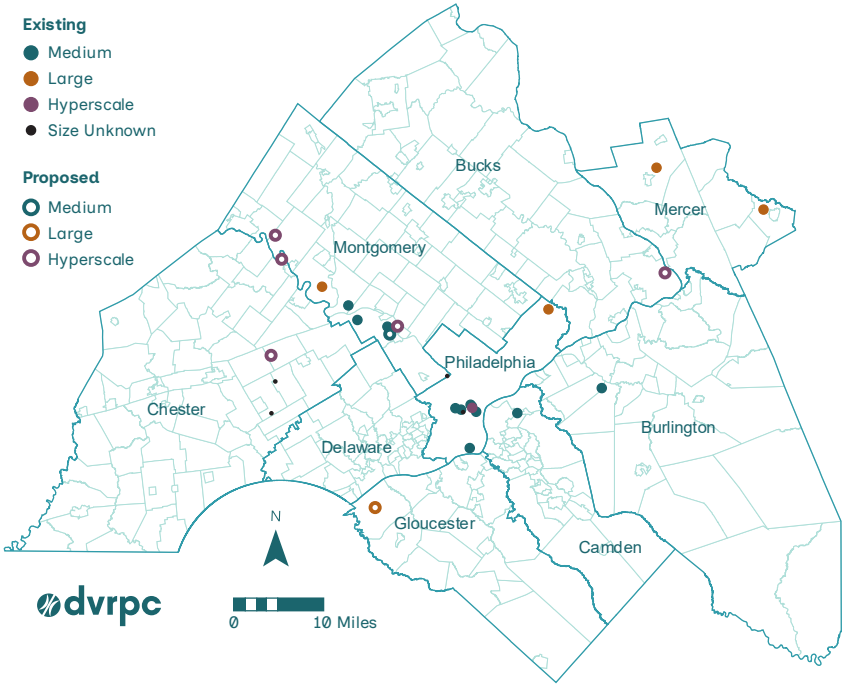
Relative to their size and notable importance in the modern economy, data centers do not generate significant numbers of permanent jobs. However, data centers do require a stable workforce of specialized technicians, network engineers, and security and maintenance personnel. Many of these jobs require advanced digital skill sets and can be higher paying when compared to jobs in other sectors of the economy.

Data centers can bring digital technologies-related job opportunities to areas traditionally overlooked by this industry, like less developed and rural communities. However, the local workforce in some communities may not currently have the skills needed to benefit from the permanent jobs created by data centers. Workforce development boards, economic development authorities, local unions, and community colleges may need to align training programs to help ensure that the local workforce is well positioned to access the jobs that data centers support and maximize the long-term benefits of data center development.

Data Centers in Greater Philadelphia

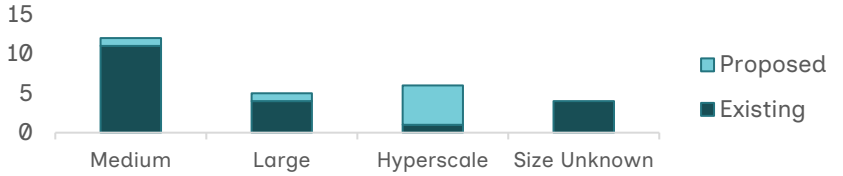
As of March 2026, there are 20 existing and seven proposed data centers across the region, as shown in Figure 3. The greatest concentrations are found in Center City Philadelphia, and along the Schuylkill River. Existing data centers in Greater Philadelphia tend to be either medium or large. Only one hyperscale data center currently exists, as shown in Figure 4 on the following page, but five of the region's proposed data centers are hyperscale.

Figure 3: Existing and Proposed Data Centers in Greater Philadelphia



Sources: CoStar Realty Information, Inc.; and Data Center Proposal Tracker, www.padatacenterproposals.com, accessed March 2026; and Data Center Map, www.datacentermap,com, accessed March 2026.

Figure 4: Existing and Proposed Data Centers by Size

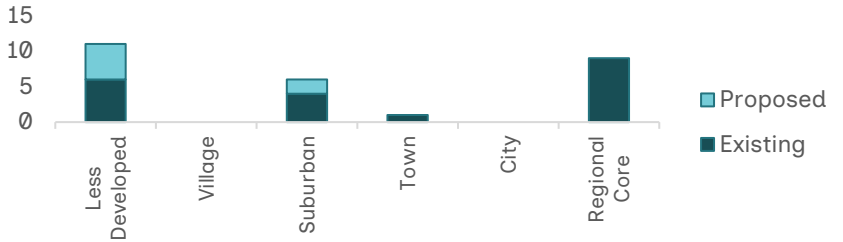


Sources: CoStar Realty Information, Inc.; and Data Center Proposal Tracker, www.padatacenterproposals.com, accessed March 2026; and Data Center Map, www.datacentermap,com, accessed March 2026.

Community Types with Data Centers

The region's long-range plan (LRP), *Update: Connections 2050*, identifies types of Centers found across the region, which serve as an organizing framework for the most efficient provision of supportive infrastructure systems, including water, sewer, and transportation. The six community types discussed here are based on the LRP's five Centers: Regional Core, City, Town, Suburban, and Village. A sixth community type, Less Developed, is also included to reflect areas with more limited infrastructure but greater potential for large and hyperscale data center development due to land availability. Figure 5 shows that almost half of the region's existing data centers are in the Regional Core, but all the proposed data centers are in Less Developed or Suburban communities.

Figure 5: Existing and Proposed Data Centers by Community Type

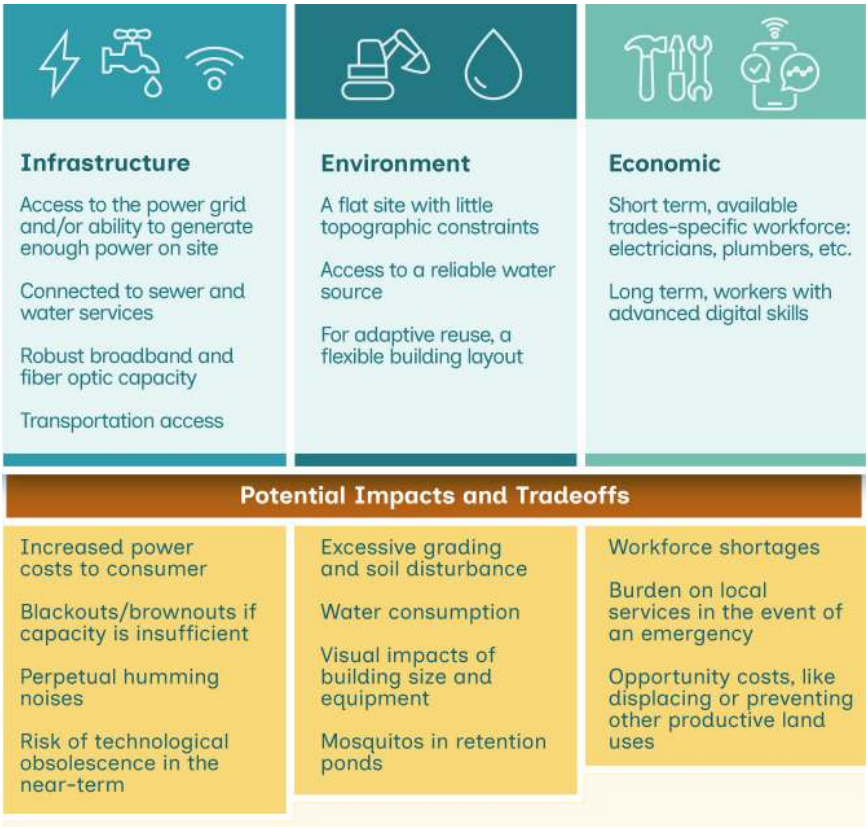


Sources: CoStar Realty Information, Inc.; and Data Center Proposal Tracker, www.padatacenterproposals.com, accessed March 2026; and Data Center Map, www.datacentermap,com, accessed March 2026.

Site Considerations and Potential Impacts

Site considerations for data centers include reliable access to power, water, and digital infrastructure; a flat site with minimal exposure to environmental hazards; and access to a skilled workforce that can support both construction and long-term operations. Although there are potential impacts associated with data centers, some can be mitigated through local oversight like zoning and site plan review. Figure 6 shows three buckets of site considerations and potential impacts tradeoffs: infrastructure, environment, and economic.

Figure 6: Site Considerations and Potential Impacts





A proposed data center located in the Keystone Trade Center, Morrisville, Bucks County, PA. Image Source: CoStar Realty Information, Inc.

Characteristics Across Six Community Types

Site considerations, as well as infrastructure capacity and the availability of local resources, can vary from one community to the next. Potential impacts also differ accordingly, and communities may need to balance tradeoffs between economic benefits and these impacts when considering their approach to data center development. While these dynamics are relevant across all communities, they may be more pronounced in certain contexts depending on factors such as development density, availability of land, infrastructure capacity, and existing workforce skillsets. Figure 7 on the following page outlines how data center sizes, site considerations, and potential impacts may vary in relevance across the six identified community types.

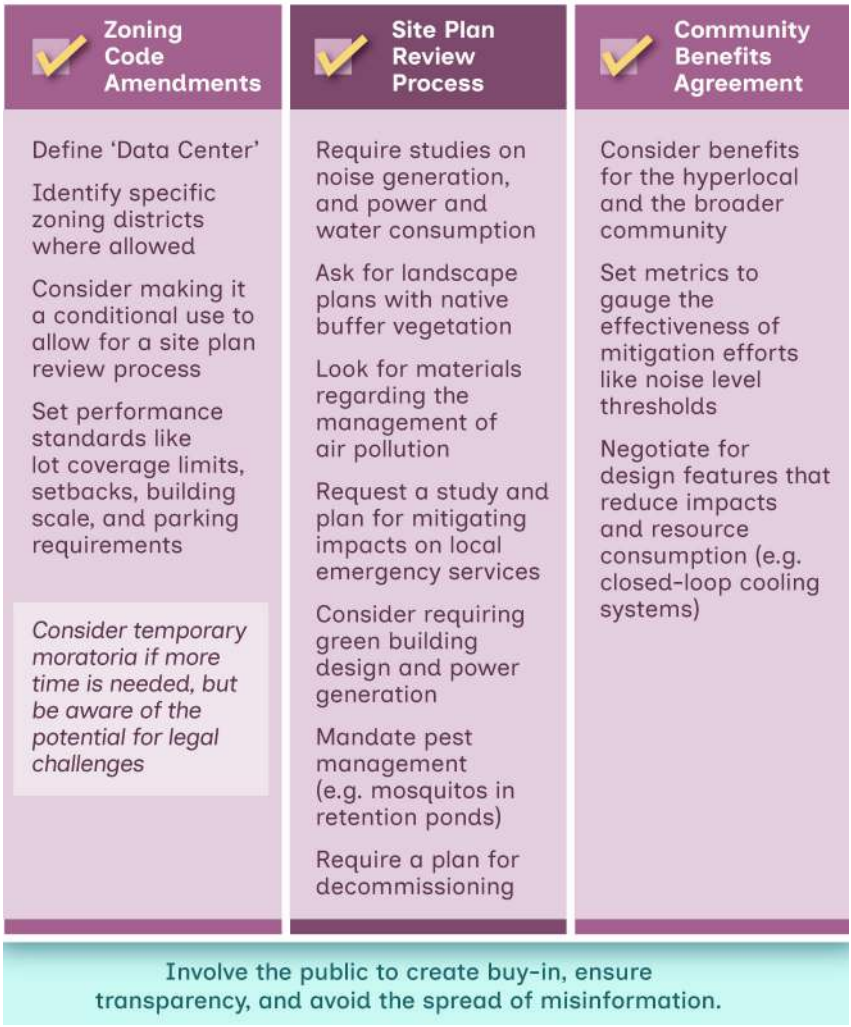
Figure 7: Data Center Characteristics Across Six Community Types

	Community Types					
Data Center Sizes	Less Developed	Village	Suburban	Town	City	Regional Core
Micro		●	●	●	●	●
Small		●	●	●	●	●
Medium	●	●	●	●	●	●
Large	●		●			
Hyperscale	●		●			
Site Considerations						
Broadband	●	●	●			
Flat Topography	●		●			
Flexible Building Footprint		●	●	●	●	●
Power Grid	●		●			
Sewer and Water	●		●			
Transit and Transportation	●	●	●			
Water source	●	●	●			
Workforce, Long-Term	●	●				
Workforce, Short-Term	●	●	●			
Potential Impacts						
Blackouts/Brownouts	●	●	●	●	●	●
Burden on Services	●	●	●			
Excessive Grading	●	●	●			
Increased Power Costs	●	●	●	●	●	●
Limit Future Growth	●	●	●			
Mosquitos	●	●	●			
Noise	●	●	●			
Visually Disruptive	●	●	●			
Water Consumption	●	●	●	●	●	●
Workforce Access Issues	●	●	●			

Local Land Use Authority

Municipalities have several tools to mitigate the impacts of data centers—as well as capitalize on their benefits—including the zoning code, site plan review, and community benefits agreements. Figure 8 provides regulatory considerations and potential next steps as applicable.

Figure 8: Local Land Use Authority and Considerations



The Zoning Ordinance

Every community is unique and maintains zoning codes that reflect local land use preferences. Model ordinances regarding data centers are available for municipal officials in New Jersey and Pennsylvania. While not exhaustive, the list below provides recent examples of zoning code amendments adopted by communities in both states.

New Jersey

Monroe Township, Middlesex County: www.monroetownshipnj.org

Phillipsburg, Warren County: www.phillipsburgnj.org

Pennsylvania

Butler Township, Schuylkill County: www.butlertownship.org

College Township, Centre County: www.collegetownship.org

Mayfield Borough, Lackawanna County: www.mayfieldborough.org

PennFuture: www.pennfuture.org/Publication-Data-Center-Model-Ordinance

Figure 9: Common Elements Found in Data Center Zoning Ordinances

Definition

A building or buildings which are occupied primarily by computers and/or telecommunications and related equipment where digital information is processed, transfered and/or stored, primarily to and from offsite locations. This use does not include computers or telecommunications related equipment that is secondary and customarily incidental to an otherwise permitted use on the property, such as servers associated with an office building. This use shall also include cryptocurrency mining, blockchain transaction processing, and server farms. A Data Center may include Data Center Accessory Uses.

Additional Elements

- ☑ Dimensional Standards
- ☑ Building Aesthetics
- ☑ Setbacks
- ☑ Landscaping
- ☑ Utilities Certification
- ☑ Emergency Management Plan
- ☑ Hazardous Materials
- ☑ Noise and Vibration Control
- ☑ Thermal Impacts
- ☑ Water Resources
- ☑ Decommissioning plan



An existing data center located in Collegeville, Montgomery County, PA.
Image Source: CoStar Realty Information, Inc.

Common Elements in Data Center Zoning Ordinances

Figure 9 highlights elements found in zoning ordinances. The example provisions below are provided for illustrative purposes and reproduced from Chester and Montgomery Counties' *Data Center Ordinance Guide*.

Dimensional Standards
Data centers over 100,000 square feet in gross floor area shall have a minimum lot area of 5 acres.

Building Aesthetics
Facades shall require a horizontal offset of at least ten feet at intervals of no more than 150 linear feet (measured horizontally) of building facade.

Setbacks
Data center principal buildings, accessory uses, and truck idling areas shall have a minimum setback from all property lines of 250 feet, with the exceptions of utility lines, fiber optic lines, and security stations.

Landscaping
Electric utility substations visible from a roadway shall include year-round opaque landscaping and screening walls to minimize visual impact.

Utilities Certification
If the proposed water source is from a public system, the applicant shall submit certified documentation that the public authority has the capacity to supply the water needed.

Emergency Management Plan
Ensure that all first responders receive adequate training specific to the installed system at the expense of the applicant.

Hazardous Materials
An Electronic Waste Plan shall be submitted with the zoning application outlining procedures for safe removal and recycling and/or disposal of server infrastructure, hazardous materials, batteries, electronic waste, and related products that meet all state and federal requirements, which will apply in cases when the equipment within the data center is updated or decommissioned.

Noise and Vibration Control
Sound levels at the property line shall not exceed 40 dB(A) and 50 dB(C) from 7:00pm to 7:00 am, nor shall they exceed 45 dB(A) and 60 dB(C) from 7:00am to 7:00pm.

Thermal Impacts
Evaluation of potential off-site impacts (including plume/heat discharge and localized heat islands) under representative seasonal conditions.

Water Resources
No principal use on a data center site shall use private groundwater wells or direct withdrawals from surface watercourses as its primary source of water for cooling purposes if a public water source is available.

Decommissioning Plan
The plan shall be prepared by a qualified professional and outline the procedures for safe shutdown, removal of equipment, disposal or recycling of materials, and site restoration.

The above list is not exhaustive and is intended to be representative of sections and language commonly found in data center zoning ordinances. For a more comprehensive set of provisions, refer to Chester and Montgomery Counties' *Data Center Ordinance Guide.*[3]

[3] Chester County Planning Commission and Montgomery County Planning Commission, Data Center Ordinance Guide, April 2026.

Figure 10: Items to Address in a Broader Community Benefits Agreement



Early, ongoing, and transparent public engagement, that includes information on air, noise, and utility usage over the useful life of the data center



Emergency management training, capital resources, and response reimbursement



Funding for programs related to efficient household power usage



Funding for workforce training programs and coordination with relevant stakeholders



Support for local school programs, including early childhood education and childcare



Investment in infrastructure assets, including broadband and fiber deployment, beyond the data center site

The Community Benefits Agreement

Discuss community benefits agreements early in the development process, as traditional one-off negotiations are unlikely to be effective for data centers. Advocate for beneficial outcomes at both the hyperlocal scale (within three miles of the data center) as well as for the broader community. Focus on tangible benefits beyond tax revenue, like those highlighted in Figure 10. Coordinate with communities at the regional or state level to gain leverage, as developers may be more responsive when access to future projects depends in part on the outcome of negotiations in a single community. [4]

[4] Goetzel, Daniel. Spencer Gober. Philadelphia, PA. June 8, 2026.

The Decommissioning Plan

The rapid rate of technological advancement may render today's data centers obsolete in the near future. To avoid the challenges of building obsolescence, some municipalities require data center developers to provide decommissioning plans as part of the approval process. A checklist of decommissioning plan components is provided in Figure 11.

Figure 11: Decommissioning Plan Checklist



Additional Resources

APA Data Centers Primer for Planners
www.planning.org/planning/2021/summer/data-centers-evolved-a-primer-for-planners

Community Benefits Agreements for Data Centers
www.brookings.edu/articles/why-community-benefit-agreements-are-necessary-for-data-centers

Data Center Ordinance Guide
www.montgomerycountypa.gov/DocumentCenter/View/54125/2026-Data-Center-Ordinance_Ver10

National Association of Development Organizations
www.nado.org/data-center-planning-resources-for-edds-rdos

References

CoStar Group. www.costar.com.

Data Center Map. www.datacentermap.com. Accessed March 2026.

Data Center Proposal Tracker. www.padatacenterproposals.com. Accessed March 2026.

Fore, Preston. "Nvidia's CEO Jensen Huang Says Electricians and Plumbers will be Needed by the Hundreds of Thousands in the New Working World," Fortune. September 30, 2025. www.fortune.com/2025/09/30/nvidia-ceo-jensen-huang-demand-for-gen-z-skilled-trade-workers-electricans-plumbers-carpenters-data-center-growth-six-figure-salaries.

Haskins, Glencora; Barker, Rachel; and Gootman, Marek. Southeastern Pennsylvania Market Assessment for Growing Opportunity Industries and Economic Mobility. Brookings Metro, 2025.

Lee, Nicol Turner; and West, Darrell M. Why Community Benefit Agreements are Necessary for Data Centers. Brookings. January 2026.

Lehigh County Industrial Land Use Guide. Lehigh Valley Planning Commission, January 2026.

Meyer, Brigitte. Data Center Model Ordinance. PennFuture, September 2025.

American Institute of Contractors. "Skilled Labor Shortage in Construction: How to Close the Gap." American Institute of Contractors, May 12, 2025. www.aic-builds.org/skilled-labor-shortage-construction.

DVRPC is the federally designated Metropolitan Planning Organization (MPO) for the Greater Philadelphia region, established by an interstate Compact between the Commonwealth of Pennsylvania and the State of New Jersey. Members include Bucks, Chester, Delaware, Montgomery, and Philadelphia counties, plus the City of Chester, in Pennsylvania, and Burlington, Camden, Gloucester, and Mercer counties, plus the cities of Camden and Trenton, in New Jersey. DVRPC serves strictly as an advisory agency and actual authority for carrying out any planning proposals rests solely with the governing bodies of the states, local governments or authorities that have the primary responsibility to own, manage or maintain any transportation facility.

Vision: A Greater Philadelphia region that provides:

- A safe, modern, multimodal **transportation** network for all
- An innovative and connected **economy** with opportunity and shared prosperity
- Healthy, walkable, and vibrant **communities**
- A preserved and restored natural **environment** with thriving ecological systems
- Clean, reliable, and **affordable infrastructure and utility services** resilient to the effects of extreme weather

Mission: As the MPO for Greater Philadelphia, DVRPC builds consensus for a shared regional vision; enables data-based, community-centered solutions; and helps put plans into action.

DVRPC fully complies with Title VI of the Civil Rights Act of 1964 and related nondiscrimination mandates in all activities. For more information about DVRPC's Title VI Program or to obtain a Title VI Complaint Form, visit www.dvrpc.org/GetInvolved/TitleVI, or contact DVRPC's ADA and Title VI Compliance Officer Shoshana Akins by calling 215-592-1800 or via email at public_affairs@dvrpc.org.

The authors are solely responsible for the findings and conclusions herein, which may not represent the official views or policies of the funding agencies.

DELAWARE VALLEY dvrpc REGIONAL PLANNING COMMISSION

190 N Independence Mall West
8th Floor
Philadelphia, PA 19106-1520
215-592-1800
www.dvrpc.org

Connect With Us!

Publication #: MIT037
Staff Contact: Spencer Gober, Manager, Community & Economic Development
Direct Phone: 215-238-2844
Email: sgober@dvrpc.org
Web: www.dvrpc.org