

Large Load Data Center Facilities

Board of County Commissioners

August 18, 2026

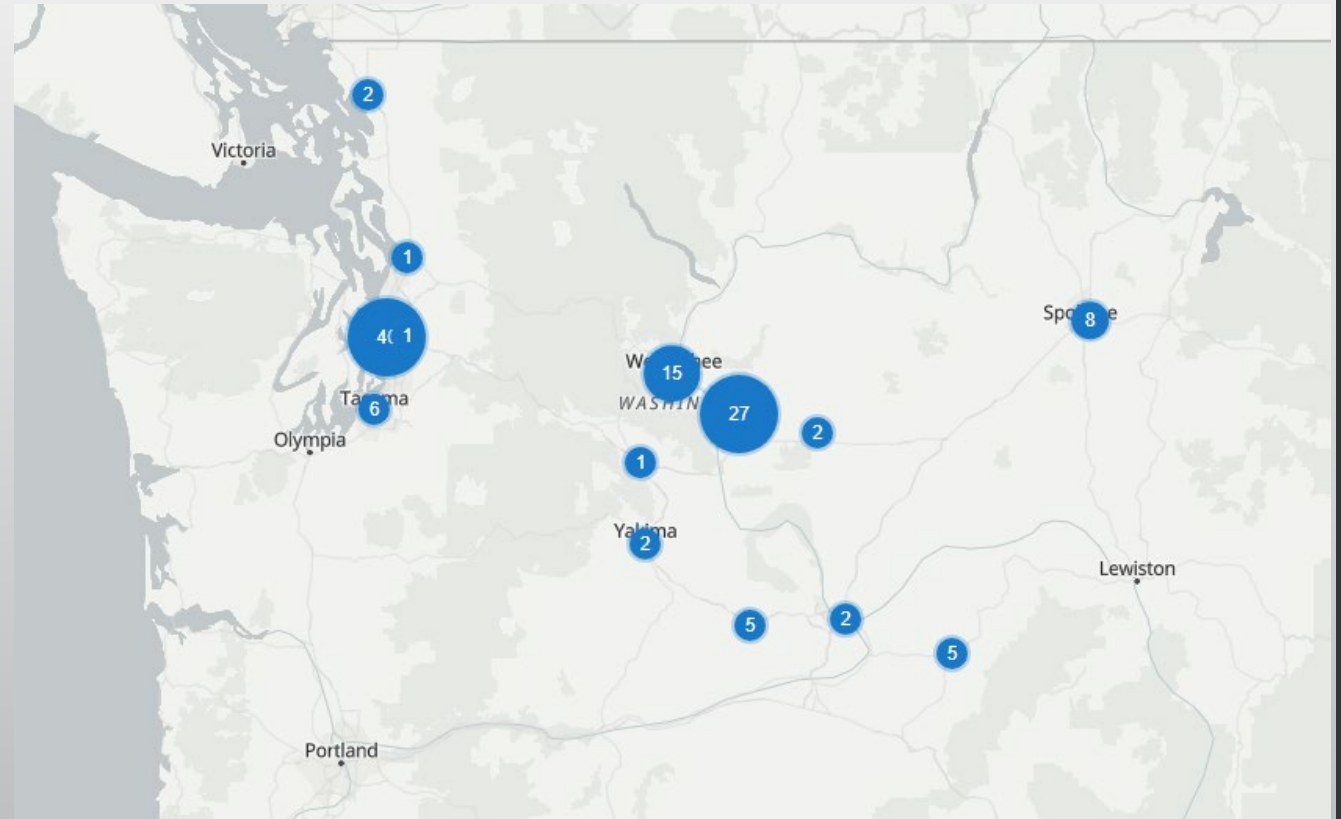
*Best Practices
Preliminary Code Parameters*



Spokane County Planning

Data Centers Development

- As of 2026 there are 4,423 data centers in the United States
- 117 data centers are operational in Washington State
- 8 data centers currently operate in Spokane County



Data Center zoning

Large-load data centers – hyperscale – should be conditional uses restricted to Heavy Industrial zones

Light-load data centers should be conditional or limited uses in Industrial and regional commercial zones

- Documentation must verify the megawatt load at the proposed facility's maximum capacity and the annual kilowatt per hour load required by the proposed facility
- Documentation must demonstrate that the Serving Utility is able to deliver the required power independent of the consumer/ratepayer grid



Data Center by type

- Large-load hyperscale data centers:
Represent data storage on an expanded scale. According to the Independent Data Council (IDC) definition of a hyperscale database must contain at least 5,000 servers and occupy at least 10,000 square feet of physical space. Most hyperscale data centers use at least 20 megawatts and can use over 1 gigawatt
- Light-load enterprise data centers:
Enterprise data centers are typically smaller in scale and cater to the needs of individual businesses or organizations. These data centers range from a few hundred to a few thousand square feet and are designed to handle specific IT requirements of the company they serve. They provide customized solutions tailored to the enterprise's applications, data storage, and computing needs.



Power and Utility Considerations

Power generation, distribution, and consumption generally are not zoning considerations

For protection of the public safety and welfare Spokane County may consider creating a coordination framework regarding large-load data centers with any utility operating in the county. A framework agreement may address information-sharing, notice of large-load service requests, and the County's position in any Federal Energy Regulatory Commission or Washington Utilities and Transportation Commission proceeding affecting data centers within Spokane County



Water Protection and Preservation

- Best Practices for Water Perfection/Preservation Methods.
 - Require a closed-loop cooling system to reduce water demand unless non-potable water is used for cooling.
 - Prohibit water drawn from private wells.
 - Require the data center and water utility to specify in writing how much water the data center will use annually.
 - Determine whether the data center will use potable water or reclaimed water.
 - Determine how the data center will purify its wastewater and whether the local water treatment facility can adequately process the wastewater.
- Ensuring a water feasibility study is conducted to include environmental impacts.



Water Protection and Preservation

Closed-loop cooling is designed to balance two priorities that matter to customers and communities alike: energy efficiency and water stewardship:

- High energy efficacy: By efficiently moving heat through a circulating fluid and rejecting it to outside air, closed-loop systems can help reduce the energy required for cooling.
- High water efficiency: Because the system is sealed, the cooling water is preserved inside the piping and recycled continuously, supporting reduced day-to-day water consumption compared with evaporative approaches



Water Protection and Preservation

Spokane County should create a defined system for water use that may include:

Tier 1 – Reclaimed and/or Reused Water-Cooling Systems:

Such systems must continue to use the primary cooling water supply and shall not discharge any primary cooling water into any sanitary sewer or septic system.

Tier 2 – Potable Water Systems:

Systems using potable water shall use a Closed-Loop Cooling System.

Tier 3 – Conditional Exemption:

An exemption may be granted upon written request made at the time a complete building permit application is submitted and the request must include specifics to warrant an exemption



Water Protection and Preservation

To protect the Spokane Valley Rathdrum Prairie Aquifer, the Grande Ronde Aquifer, the Wanapum Aquifer, or within a Critical Aquifer Recharge Area, conditions should be defined, such as:

A CARA/aquifer mapping and susceptibility narrative addressing the applicable Aquifer and the applicable Water Resource Inventory Area,

A Critical Materials Management Plan including inventory, storage volumes, containment, spill control, drain isolation, PCB-containing equipment, PFAS-containing fire suppression materials;

Stormwater and infiltration controls including a prohibition on infiltration in critical-materials handling areas;

A backup power chemistry plan addressing the battery-first operation, generator fuel type and emissions controls, and spill prevention; and

A groundwater monitoring and emergency response plan, including baseline sampling and an aquifer-specific spill response protocol.



Pollution Control/Process

Data Centers can create pollution from their diesel power engine backup generators, including diesel exhaust and nitrogen dioxide

Code recommendations: Require tier IV generators which reduce nitrogen oxides by 88 percent and particulate by 85 percent;

The data center operator shall maintain a public website announcing the times backup generators are planned to be in operation, including for testing, at least 24 hours in advance

The 2020 map (below) of the Quincy area shows levels of diesel particles from various sources.



Sound Requirements

Two types of data center noise:

- Mid-and high frequency broadband noise: The mid-and high-frequency broadband noise generated by cooling fans is often directional.
- Low frequency tones or hum - Low-frequency tones from data centers (fan hum) are often particularly bothersome because they are not reflected well in A-weighted measurements (a common frequency weighting applied to noise measurements that attenuates low-frequency noise). Low frequency humming doesn't contribute much to A-weighted noise levels but is often the source of complaints



Sound Requirements

Possible zoning requirements:

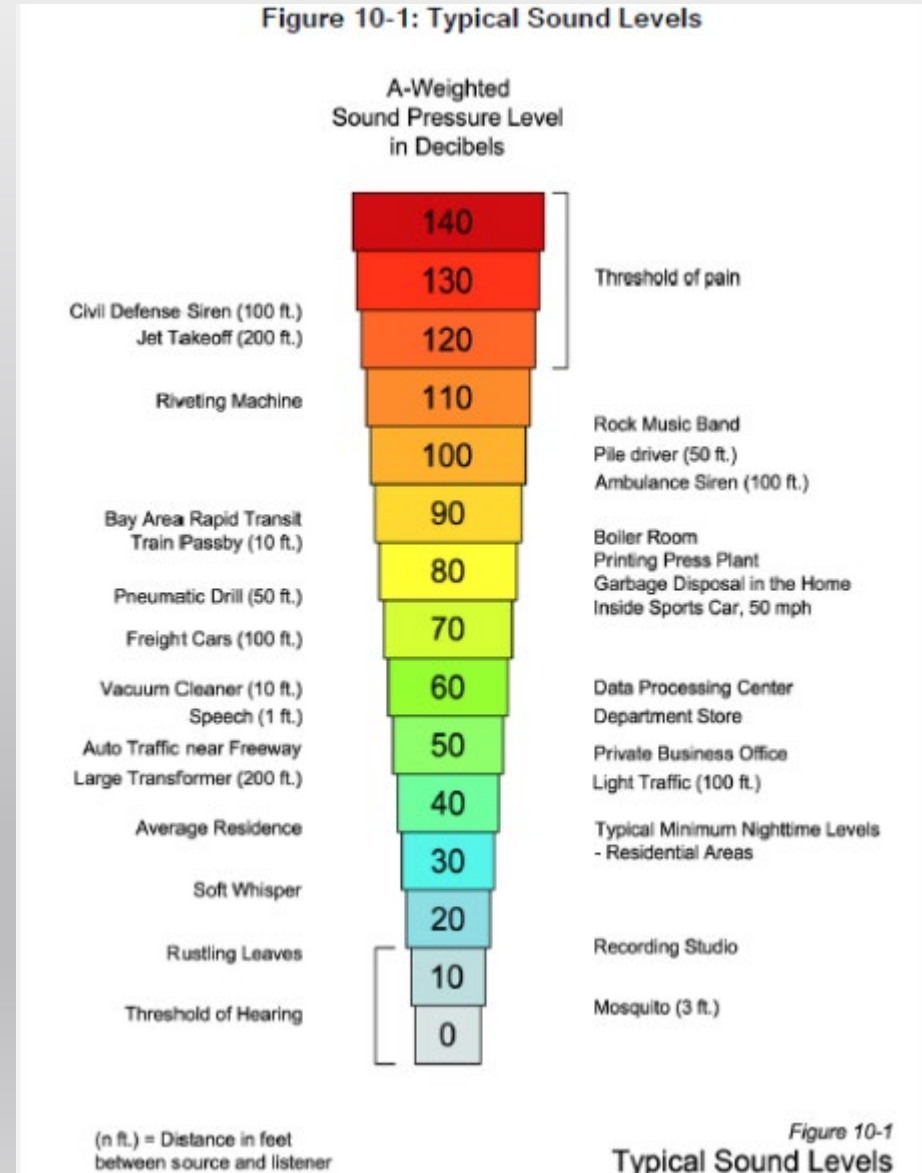
Noise generated by the Data Center or any associated equipment, generators or other operating functions shall not be louder than 50 dBA at the property line and shall have a dBC level no greater than background noise prior to construction.

A proposed Data Center must conduct a sound study performed by a third-party acoustic engineer to document baseline sound levels in the area of the proposed Data Center, including noise levels measured at the property line of the nearest property to the Data Center property that is planned or zoned for residential land uses, or other noise sensitive use as reasonably determined by the Zoning Administrator.



Sound Mitigation Options

- Equipment soundproofing measures
- Compressor sound blankets
- Sound attenuators
- Building Soundproofing
- Erecting conventional barriers
- Placing acoustic shields
- Planting bushes, shrubs, and trees
- Immersion cooling
- Low-noise coolers.



Required Setback Standards

The National Association of Counties have noted that recent trends for setbacks from data centers are now around 200-500 feet.

This is consistent with research found from peer counties in contemporary zoning codes that have experience with sitting data centers and hyperscale data centers.

Loudon County recommends a 500-foot setback but states that 1,000 feet would be ideal.

Based on staff research 500'-1000' is increasingly common.



Fire Risks and Mitigation

Fire incident risk across data centers is increasing rapidly

Contributing causes of such fires include electrical faults, battery failures, cooling system malfunctions, and human error.

These high-density information technology equipment (ITE) systems require more batteries to operate, requiring more cooling. If cooling systems were to fail with this higher-power hardware, passive cooling methods are unlikely to prevent overheating.

Increased Lithium batteries. Uninterruptible power supplies have the potential to overheat, which is often due to dust buildup or inadequate ventilation. This can then ignite dust and hardware components.

During thermal runaway, the battery houses an unstoppable exothermic chemical reaction, which can eventually generate enough heat to cause loss of containment, expulsion of toxic and flammable vapors, and ignition.



Health and Safety

Data Centers may incur chemical spills.

Data center cooling systems often use chemical additives to prevent corrosion, scaling, and the growth of algae and bacteria.

Some non-water liquid coolants may contain refrigerants and PFAS (also known as “forever chemicals”, requiring special forms of treatment Fluorinated gases (also known as F-gases, a type of PFAS) may also be used for air cooling.

PFAS have negative health impacts and are difficult to remove. If leaks, spills, or improper wastewater disposal occur, contaminants may enter soil and groundwater systems



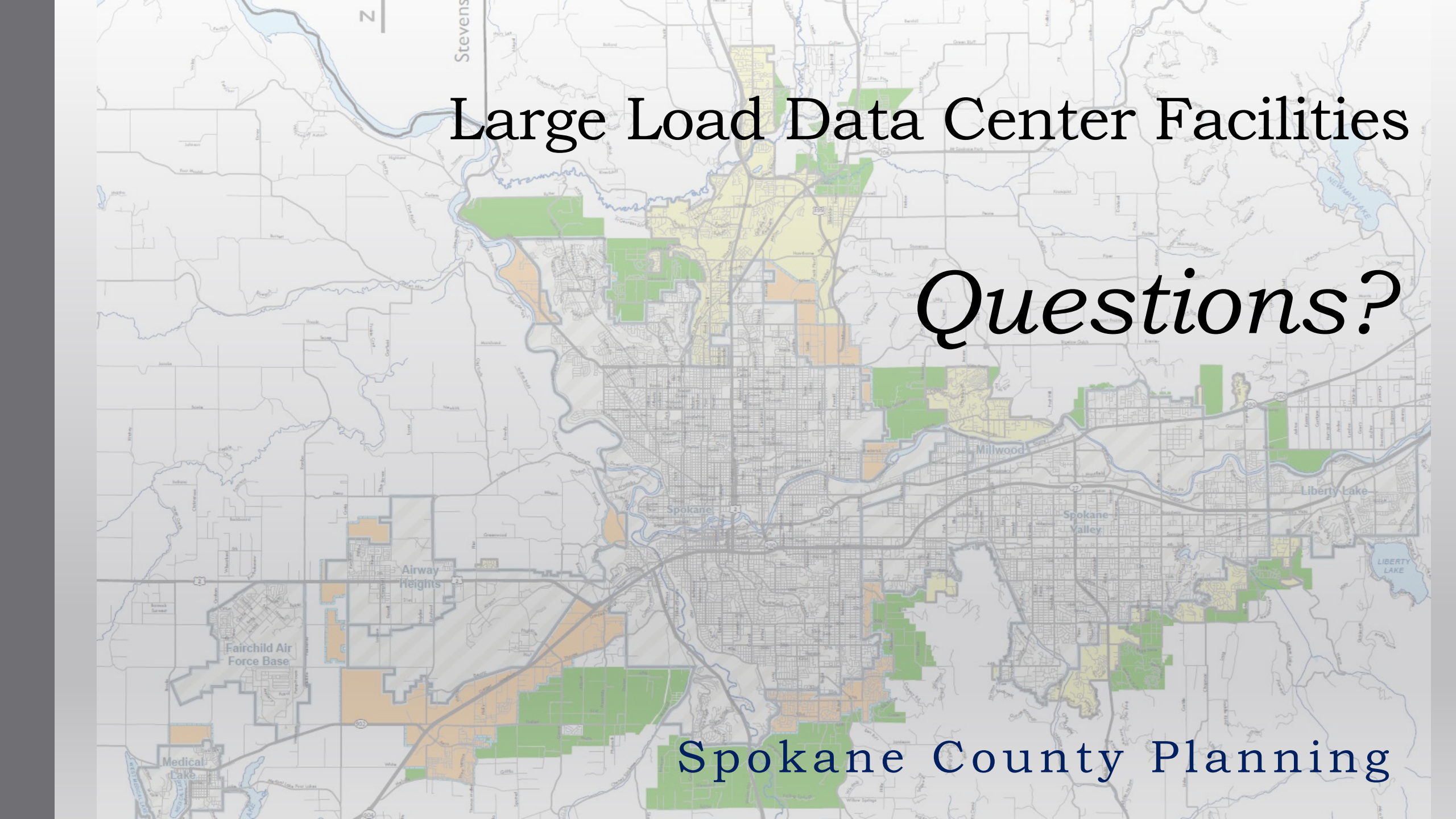
Development Agreement

Spokane County should require a development agreement before building permit application specifying all operational requirements of a data center outside of zoning and condition use requirements.

The development agreement should include a decommissioning program for the end of the data center's operational function.

The decommissioning program must include a performance bond, letter of credit, or other financial assurance payable to the County, sufficient to assure that decommissioning of the site can be achieved by a third party in the event that the applicant defaults in that obligation, which financial assurance shall be provided prior to commencement of construction.





Large Load Data Center Facilities

Questions?

Spokane County Planning

Sources

- 42 U.S. Code § 17112 - Energy efficiency for data center buildings. https://www.law.cornell.edu/uscode/text/42/17112#a_1
- Powell, Phil. IBM. Hyperscale vs colocation: Go Big or go rent? <https://www.ibm.com/think/topics/hyperscale-vs-colocation>
- Sheila. A. (2024 updated 2026). Hyperscale Data Centers vs Enterprise Data Centers: Spotting the Contrasts. Hyperscale Data Centers vs Enterprise Data Centers: Spotting the Contrasts - Digital Edge Indonesia
- Tozzi C. (2024). What is Closed Loop Cooling and When Should Data Centers Use It? <https://www.datacenterknowledge.com/cooling/what-is-closed-loop-cooling-and-when-should-data-centers-use-it->
- Data Center Development Cost Guide United States. 2025. Cushman & Wakefield. <https://digital.cushmanwakefield.com/Data-Center-Development-Cost-Guide-2025/>
- Cooling Without the Drain: How Closed-Loop Systems Cut Day-to Day Water Use. (2026). Data Centers Today.
- Vantage Data Centers. (2026). Cooling Without the Drain: How Closed-Loop Systems Cut Day-to Day Water Use. <https://blog.vantage-dc.com/2026/04/22/cooling-without-the-drain-how-closed-loop-systems-cut-day-to-day-water-use/>
- Diesel pollution from data centers (2026). Département of Ecology. <https://ecology.wa.gov/air-climate/air-quality/data-centers>
- Data Center Noise Monitoring. Larson and Davis. <https://www.larsondavis.com/applications/environmental-noise-monitoring/data-center-noise-monitoring>
- Feldscher (2026). Analyzing air pollution health, economic risks from AI data centers. [Analyzing air pollution health, economic risks from AI data centers | Harvard T.H. Chan School of Public Health](#)



Sources

- Miguel Yanez-Barnuevo. (2026). Communities Are Raising Noise Pollution Concerns About Data Centers. Environmental and Energy Study Institute/ <https://www.eesi.org/articles/view/communities-are-raising-noise-pollution-concernsabout-data-centers>
- WAC 173-60-040. Maximum permissible environmental noise levels. <https://app.leg.wa.gov/wac/default.aspx?cite=173-60-040>
- Loudon County Zoning Code.
- Kareck et al (2026). From incident to insight: Fire risk in modern data centers. <https://doi.org/10.1016/j.jlp.2025.105890>
- National Association of Counties (2026). NACo Informational Primer and County Considerations: Data Centers. <https://www.naco.org/resource/naco-informational-primer-and-county-considerations-data-centers>
- Data Center Development Cost Guide United States. 2025. Cushman & Wakefield. <https://digital.cushmanwakefield.com/Data-Center-Development-Cost-Guide-2025/>

