AN ORDINANCE AMENDING

ARTICLE I PURPOSE, TITLE AND DEFINITIONS and

ARTICLE III "DISTRICT REGULATIONS"

and

ARTICLE XXIII "DATA CENTER DEVELOPMENT" OF

CHAPTER 165 OF THE CODE OF SHENANDOAH COUNTY

BE IT ORDAINED by the Board of Supervisors of Shenandoah County, Virginia that Chapter 165 of the Shenandoah County code, "ZONING" be amended and reenacted as follows:

(1) By amending §165-4. Definitions, to add the following definition:

BERM - A landscaped earthen mound, incorporated as part of a site design, and intended to enhance the compatibility of abutting or nearby properties through the mitigation of sound, the screening of views, and/or the visual enhancement of a property's landscaped character.

DATA CENTER(S) - An establishment engaging in the storage, management, processing, and/or transmission of digital data, and housing computer and/or network equipment, systems, servers, appliances, and other associated components related to digital data operations. Infrastructure such as utility substations, power generators, and other supporting equipment may also be included. Terms Data Center, Data Centers, Data Center Development may be used interchangeably.

FENESTRATION - The arrangement, proportions, and design of windows and doors along the façade of a building.

C-WEIGHTED SOUND LEVEL or dBC - The sound pressure level measured using the C-weighting network of a sound level meter meeting ANSI/ASA S1.4/IEC 61672-1, or successor standard. C-weighting measures a broader sound spectrum than A-weighting and is used in this article to evaluate low-frequency sound.

A-WEIGHTED SOUND LEVEL or dBA - The sound pressure level measured using the A-weighting network of a sound level meter meeting ANSI/ASA S1.4/IEC 61672-1, or successor standard.

(2) By amending § 165-19(B). District Regulations as follows:

(1) Uses permitted by right:

(b) (Reserved)

(3) Uses permitted with a special use permit:

(e) Data Center(s).

(3) By amending § 165-18(B). District Regulations as follows:

(3) Uses permitted with a special use permit:

(z) Data Center(s).

(4) By adding ARTICLE XXIII DATA CENTER DEVELOPMENT

§ 165-178 Purpose

To balance the demand for data center development and the need to protect the public health, safety and welfare of the community, the County finds these regulations are necessary to ensure that data center development is properly designed, appropriately sited and receives necessary oversight.

Shenandoah County encourages development methods that protect water and other natural resources, preserves the existing baseline noise levels, and preserves the agricultural and conservation efforts of the Comprehensive Plan to the greatest extent possible.

§ 165-179 Applicability

The requirements of Article XXIII shall apply to the following uses:

A. Data Centers as defined in §165-4.

B. Any other use when required as a condition of a special use permit approved by the Board of Supervisors.

C. The requirements of this article shall not apply to ordinary server rooms, telecommunications closets, internal business computer rooms, or similar information technology equipment areas that are located entirely within a building and operated solely in support of another lawful principal use on the same lot, provided such areas do not include exterior cooling yards, exterior utility substations, exterior generators, or other exterior infrastructure characteristic of a Data Center.

§ 165-180 Applications for rezoning or special use permits and site plan review

Prior to the approval of a rezoning application or special use permit, and prior to final site plan approval for a Data Center, the following shall be provided:

For any Data Center that also meets the definition of a high energy use facility under applicable Virginia law, the applicant shall provide all site assessments, utility information, sound assessments, and other materials required by state law, in addition to the requirements of this article. Nothing in this article shall be construed to limit the County's authority to require additional information necessary to evaluate land-use compatibility, public health, safety, welfare, infrastructure, water resources, noise, or emergency response.

A. An Environmental Noise Impact Assessment in accordance with § 165-186.

B. The following site assessments demonstrating the effects of the proposed use on the site:

(1) Ground and surface water resources;

a. Water Quality Impact Analysis (WQIA) as defined in 165-4;

(2) Agricultural resources;

(3) Parks and other recreational resources;

(4) Historic, Cultural, and Scenic Resources Impact Analysis (HCSRIA) as defined in 165-4;

(5) Forested areas on the proposed site and immediately contiguous land;

(6) Soil Quality Impact Analysis (SQIA) as defined in 165-4;

(7) Impacts to public safety and public safety services;

(8) Economic Impact Analysis (EIA) as defined in 165-4;

(9) A Viewshed Impact Study, as defined in 165-4;

(10) Potential impact on wildlife, especially endangered or threatened species, on site and in any biologically significant area surrounding the site;

(11) Solid, liquid, or hazardous waste generated by the project and methods of disposal thereof; and

(12) A lighting plan showing impacts to adjacent properties.

(13) A description of emergency and normal shutdown procedures, including but not limited to:

a. Procedures for safe shutdown, de-energizing, or isolation of equipment and systems under emergency conditions to reduce the risk of fire, electric shock, release of hazardous materials and personal injuries, and for safe start-up following cessation of emergency conditions.

b. Procedures for inspection and testing of associated alarms, interlocks, and controls.

c. Procedures to be followed in response to notifications from the Large-Scale Energy Facility, when provided, that could signify potentially dangerous conditions, including shutting down equipment, summoning service and repair personnel, and providing agreed upon notification to fire department personnel for potentially hazardous condition in the event of a system failure.

d. Emergency procedures to be followed in case of fire, explosion, release of liquids or vapors, damage to critical moving parts, or other potentially dangerous conditions.

C. Details of any new or existing substations that will be used to serve the proposed use and the anticipated transmission voltage required to serve the use, must be screened from public view.

D. A narrative describing anticipated water demand, wastewater discharge, cooling method, electrical load, generator capacity, fuel type, transformer and substation locations, and emergency response considerations.

E. A construction phasing and staging plan showing construction worker parking, truck circulation, temporary trailers, laydown areas, equipment storage, material storage, and any proposed off-site parking or shuttle plan.

F. A narrative describing anticipated power demand, identifying anticipated power sources that will be used to power the site, identifying substation and power line upgrades necessary to supply power to the site, and describing the timing of any phasing associated with the provision of power to the site.

G. An application shall not be deemed complete until all materials required by this section, applicable state law, and any applicable pre-application or technical review process have been submitted in a form sufficient for staff review.

§ 165-181 Generators

Generator testing and cycling shall be limited to weekdays (Monday to Friday) between the hours of 8:00 a.m. to 5:00 p.m. except during an actual emergency, utility outage, commissioning required by a utility provider, or testing required by applicable law. Generator testing and cycling shall not include routine use for primary power generation, supplemental power generation, peak shaving, load management, or other non-emergency operational power supply unless expressly approved by the Board of Supervisors as part of a special use permit or special use permit amendment.

Generator testing logs shall be maintained by the operator for at least three years and made available to the Zoning Administrator upon request when investigating a written complaint or verifying compliance with this article.

§ 165-182 Mechanical equipment

A. Location. Ground mounted mechanical equipment shall be prohibited in the front setback.

B. Screening. Ground-mounted and rooftop mechanical equipment shall be screened from public roadways and adjoining properties on all sides.

(1) Generators. All generators shall be enclosed with materials and fenestration consistent with primary structure or located within the primary structure.

(2) Other mechanical equipment. An opaque screen shall be provided by either the principal building, louvered wall, or equivalent screen approved by the Zoning Administrator. The maximum height of the opaque screen should correspond to the tallest piece of equipment being shielded from view or the corresponding maximum structure height for the zoning district; whichever is less.

C. When a Data Center is adjacent to a residential district, agricultural district, conservation district, school, park, medical facility, public or institutional use, or existing residential use, exterior mechanical equipment shall be located on the side of the principal structures opposite the sensitive use to the greatest extent practicable so that the principal structure functions as a physical and visual buffer.

D. All standby engine-generators and on-site power generation equipment shall comply with all applicable DEQ, state, and federal air permitting requirements, including Tier 4-equivalent standards where required by Virginia law. Nothing in this section shall be construed to regulate air emissions more stringently than state or federal law.

§ 165-183 Water resources

Public utilities, looping water-cooling, or best available systems are preferred to reduce the impact on ground water resources.

A. The applicant shall provide documentation of projected annual, monthly average, daily average, peak-day, and drought-condition water demand, including water used for cooling, humidification, fire suppression, construction, and any other operational purpose. The applicant shall also provide documentation of anticipated wastewater discharge volume and characteristics, proposed water reuse or recycling, proposed cooling method, anticipated consumptive water loss, and any discharge requiring pretreatment or coordination with the applicable utility provider. Special Use Permit may include conditions, including but not limited to water use, water sourcing, maintenance activities.

B. All Data Centers must either (i) be served by public water supply, or (ii) utilize a closed-loop liquid cooling system. Notwithstanding the foregoing, the Board of Supervisors may by special use permit approve an alternate water supply source or alternate cooling system.

C. The applicant shall demonstrate adequacy of water for fire suppression and provide a narrative of any other fire suppression techniques that will be used.

§ 165-184 Setback and screening requirements

A. Setbacks. A minimum 50' front setback shall be maintained for all structures. Each side and rear yard shall be a minimum of 100 feet from the principal structures, and 50' from any accessory structures. Notwithstanding the foregoing, no structures shall be constructed closer than 200 feet to any adjacent property line if that property is a residential, agriculture, or conservation zoned district or contains a residential use.

B. An opaque screen buffer, as defined, shall be provided between the perimeter of the property and the Data Center on all sides except for sides on which the adjacent property is zoned Industrial.

(1) Notwithstanding the requirements of this section, use of natural topography and preservation of existing vegetation, supplemented by new vegetation, if needed, or on the outside of a six foot tall fence, wall, or berm, may be substituted for the above requirements when found by the Zoning Administrator to provide visual screening from adjacent land uses at the density, depth, and height equivalent to the buffer yard with earthen berm.

(2) Chain-link fencing or barbed wire fencing are prohibited along public or private street frontages

(3) Any landscape screening or screen buffers installed to meet the requirements of Article XXIII shall be located on public facing side of fencing.

C. No exterior mechanical equipment, generator, transformer yard, battery backup enclosure, cooling yard, or utility yard associated with a Data Center shall be located closer than 300 feet to a

residential district, agricultural district, conservation district, existing residential use, school, public park, medical facility, or registered historic site unless separated from such property or use by the principal Data Center building or unless otherwise approved by the Board of Supervisors as part of a rezoning or special use permit.

§ 165-185 Facades Standards.

A. Principal building façades shall include all building façades that face adjacent major arterials or interstates. When a building has more than one principal façade, such principal building façades shall be consistent in terms of design, materials, details, and treatment. Principal building façades associated with new construction shall meet the following standards:

Principal building façades shall avoid the use of undifferentiated surfaces by including at least two of the following design elements:

(1) change in building height;
(2) building step-backs or recesses;
(3) fenestration;
(4) change in building material, pattern, texture, color; or
(5) use of accent materials.

B. Building façades facing County registered historic sites or core battlefields. Building façades facing historic sites or core battlefields, that are visible from viewshed anchors as identified in §165-180B(4) or future viewshed studies adopted by Shenandoah County, shall be non-reflective and dark in color. The Zoning Administrator may approve other colors provided the colors are demonstrated to be earth tones that will help the building façade blend into the tree line.

§ 165-186 Noise and noise monitoring.

A. The applicant shall submit an Environmental Noise Impact Assessment prepared by a qualified full member of the Acoustical Society of America (ASA), a member of the Institute of Noise Control Engineering (INCE), or a member of the National Association of Acoustical Consultants (NCAC). The purpose of such noise impact assessment, modeled in Sound PLAN, CadnaA, or accepted equivalent, shall model anticipated noise levels as a result of facility operation and establish a baseline noise level prior to approval of any zoning permit, rezoning application, or Special Use Permit.

The Environmental Noise Impact Assessment shall include both A-weighted and C-weighted sound modeling, including predicted dBA and dBC levels at the nearest nonparticipating property lines, nearest residential dwelling, nearest school, nearest park, and any other sensitive receptor identified by the Zoning Administrator. The Zoning Administrator may require octave-band, low-frequency, tonal, impulsive, or other additional acoustical analysis where necessary to evaluate likely impacts from mechanical, cooling, electrical, generator, transformer, substation, or other ancillary equipment.

B. A noise study certifying noise levels shall be conducted 12 months after the issuance of the first certificate of occupancy (CO) and annually until project completion and every five years thereafter. Each noise study shall be submitted for review to the Zoning Administrator to assess the actual impact of the completed project.

(1) The measurement of sound or noise pursuant to this section shall be as follows:

(a) The measurement of sound or noise shall be made with a Type 1 or Type 2 sound level meter which meet the standards prescribed in ANSI S1.4:2014, Specification for Sound Level Meters or ANSI/ASA S1.4/IEC 61672-1, or successor standard. The instruments shall be maintained in calibration and good working order. A minimum of three sound level readings shall be taken. The average of these readings will be used as the average sound level. If the background noise is equal to the levels set forth in this section, 3 dB shall be subtracted out of the average sound level.

(b) The slow meter response of the sound level meter shall be used to determine that the average amplitude has not exceeded the dBA readings or the limiting noise spectra set forth in this section.

(c) Unless otherwise specified, the measurement shall be taken at the property boundary on which such noise is generated or at the closest nonparticipating property line, as applicable.

(2) Any additions, alterations, or expansion of a facility or its equipment shall require a new noise impact assessment to be submitted and approved by the Zoning Administrator.

(3) If the post-construction noise study exceeds the baseline noise level established during the Environmental Noise Impact Assessment provided pursuant to § 165-186(A), or exceeds the limits established in § 165-186(B)(4) or any applicable condition of approval, additional noise mitigation strategies, improvements, operational changes, additional monitoring, or other corrective measures may be required by the Zoning Administrator or imposed as part of a rezoning or special use permit approval.

(4) Data center operations, including all associated mechanical, cooling, electrical, generator, turbine, transformer, substation, battery backup, utility, and other ancillary equipment, shall not exceed 55 dBA or 65 dBC, whichever is more restrictive, when measured at the closest nonparticipating property line, unless the baseline is higher or a lower limit is imposed by the Board of Supervisors as part of a rezoning or special use permit approval. Compliance with this subsection shall be determined based on operation of the Data Center and all associated exterior and rooftop equipment, excluding ambient sound not generated by the Data Center.

(5) Where the closest nonparticipating property is used or zoned for residential, agricultural, conservation, public, institutional, school, park, medical, or similar sensitive receptor use, the Board of Supervisors may impose a lower C-weighted limit, additional monitoring, increased setbacks, or additional sound attenuation measures as part of a rezoning or special use permit approval.

(6) The Board of Supervisors may impose more restrictive nighttime sound limits, tonal noise limits, low-frequency noise limits, octave-band limits, or operational restrictions where necessary to protect nearby residential, agricultural, conservation, school, park, medical, public, institutional, historic, cultural, scenic, or other sensitive receptors.

C. Any equipment necessary for cooling, ventilating, or otherwise operating the facility, including power generators or other power supply equipment on the property, whether ground-mounted or roof-mounted, shall include the following noise-mitigation elements:

(1) Low-noise emission fans.

(2) Acoustic wraps for compressors and oil separators.

(3) An acoustic perimeter, which may include a perimeter around a group of individual chillers, which may be louvered or solid.

(4) Other sound-attenuation measures as approved by the Zoning Administrator to the extent necessary to meet the noise thresholds set forth in Section 165-186B(4) and (5).

D. The owner shall provide documentation, in the form of technical specifications, photographs, and/or engineered plans, of the above mitigation measures contained in §165-186C with each building permit for a use listed in §165-179 on the property and shall further provide documentation that such measures have been installed concurrently with each occupancy.

§ 165-187 Community Meeting

The applicant of a Data Center Development shall hold at least one community meeting prior to filing any application for a rezoning, special use permit, or material amendment associated with a Data Center. The applicant shall provide documentation of the meeting date, location, notice method, attendance, issues raised, and any applicant responses or proposed revisions resulting from the meeting.

(5) By amending 165-19 Limited Industrial (M-2)

F. Height regulations. Structures may be erected up to a height of ~~35~~ 45 feet. Chimneys, flues, flagpoles, parapet walls, other accessory facilities not normally occupied by workmen, radio and television aerials, microwave towers and other public communications facilities are not governed by the height regulations set forth in this subsection, except that smokestacks, as defined in § 165-4, may only be allowed with the issuance of a special use permit. The building height may be increased through a special use permit, provided that required front, side and rear yards shall also be increased by one foot for each foot in height above 45 feet. A viewshed impact study may be required by the Zoning Administrator as part of a special use permit request.

The undersigned Chairman and Clerk of the Board of Supervisors of Shenandoah County, Virginia hereby certify that the foregoing constitutes a true and correct copy of ordinance entitled "An Ordinance Amending Article I Purpose, Title and Definitions and Article III District Regulations and adding Article XXIII Data Center Development" of Chapter 165 of the Code of Shenandoah County" adopted by the Board of Supervisors at a meeting held on June 23rd, 2026. A record of the roll-call vote by the Board is as follows:

NAME	AYE	NAY	ABSTAIN	ABSENT
Steven A. Baker	X			
Dennis Morris	X			
Kyle Gutshall	X			
Timothy Taylor	X			
David Ferguson	X			
Mark Dodson	X			

Date: June 23, 2026

[SEAL]

ATTEST: _____
Clerk, Board of Supervisors
Shenandoah County, Virginia

_____
Chairman, Board of Supervisors,
Shenandoah County, Virginia