

KNOX COUNTY
KNOX COUNTY, TENNESSEE

ORDINANCE NO. _____

**AN ORDINANCE OF THE BOARD OF COMMISSIONERS OF KNOX COUNTY,
TENNESSEE, TO AMEND THE KNOX COUNTY CODE OF ORDINANCES TO
DEFINE AND ADD SPECIFIC REQUIREMENTS FOR DATA CENTERS, AND DATA
CENTER ACCESSORY USES.**

WHEREAS, Title 13 Chapter 4 of the Tennessee Code, § 201, *et seq.*, authorizes the Knox County to enact, amend and repeal Zoning Ordinances within the Knox County; and

WHEREAS, the Knox County Commission deems it to be in the best interest and general welfare of the residents of the Knox County to update and amend provisions of the Knox County Zoning Ordinance to provide for Data Centers and Data Center Accessory Uses; and

WHEREAS, the Commission of Knox County desires to add provisions to the Zoning Ordinance relating to the Data Centers and Data Center Accessory Uses;

NOW THEREFORE, BE IT ORDAINED AND ENACTED, by the Commission of Knox County as follows:

Section 1. Part II Appendix A Article 2, §2.20 of the Code of Knox County, Tennessee, entitled Definitions, is amended to add the following definitions:

DATA CENTER: A building or buildings which are occupied primarily by computers and/or telecommunications and related equipment where digital information is processed, transferred 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.

DATA CENTER ACCESSORY USE: Ancillary uses or structures secondary and incidental to a Data Center use, including but not limited to: administrative, logistical, fiber optic, storage, and security buildings or structures; sources of electrical power such as generators used to provide temporary power when the main source of power is interrupted; electrical substations; utility lines; domestic and non-contact cooling water and wastewater treatment facilities; water holding facilities; pump stations; water towers; environmental controls (air conditioning or cooling towers, fire accessory uses/structures are located on the same tract or assemblage of adjacent parcels developed as a unified development with a Data Center. The use shall not include energy



generation systems used or intended to be used to supply power to the Data Center during normal operations.

Section 2. Part II Appendix A Article 5 of the Code of Knox County, Tennessee, entitled Zone Regulations is amended to add §5.62, Data Centers zone. Data Center and Data Center Accessory Uses shall be permitted by conditional use in Data Centers zones only for any of the following situations: a) a single Data Center of greater than 10 MW capacity; b) any combination of Data Centers equaling a 10 MW capacity or more within a single acre of land; c) any Data Center in which the processing capacities are either unknown or the lessor, owner, or owners refuse to provide processing capacity, under oath, to the Knoxville/Knox County Planning Commission and the Knox County Board of Commissioners.

Section 3. Part II Appendix A Article Section Article 4 of the Code of Knox County, Tennessee, entitled Supplementary Regulations is amended to add Section 4.109, Standards for Data Centers and Data Center Accessory Uses:

XXX-XX — Data Centers and Data Center Accessory Uses

- A. Data Centers shall be permitted by conditional use in the Industrial Zoning District when approved in compliance with the procedures, standards, and criteria contained in this section.
- B. For purposes of this section, sensitive receptors shall be defined as residential uses, schools, preschools, daycare centers, in-home daycares, long term care facilities, retirement and nursing homes, community centers, places of worship, parks (excluding trails), campgrounds, prisons, and dormitories.
- C. **Dimensional Standards.** The dimensional standards of Data Centers and Data Center Accessory Uses shall be in accordance with section 5.61 *et seq.*, with the following exceptions:
 - 1. The maximum building height for a Data Center shall be [65] feet, inclusive of roof-mounted equipment such as cooling and ventilation systems, HVAC units and cooling towers.
 - 2. The maximum height of Data Center Accessory Uses shall be no greater than the height of the principal building.
 - 3. Data Centers and Data Center Accessory Uses shall be set back 300 feet from the boundary of residential zoning districts or the lot line of any property developed with a sensitive receptor.
- D. **Landscape Buffer.** A landscape buffer is required between Data Center and Data Center Accessory uses and any adjoining residential zoning district, sensitive receptor, or public roadway. The landscape buffer shall comply with the following requirements
 - 1. The landscape buffer shall be at least 100 feet in width and may be part of the minimum setback distance.

2. Buffer plantings shall consist of native species planted as follows:
 - a. One (1) large evergreen tree per 25 linear feet of buffer. The size of large evergreen trees shall be a minimum of eight (8) feet in height at the time of planting.
 - b. One (1) deciduous canopy (shade) tree per 75 linear feet of buffer. Size of canopy (shade) trees shall be a minimum of 2 ½ inch caliper at the time of planting.
 - c. One ornamental/flowering tree per 50 linear feet of buffer. The size of ornamental/flowering trees shall be a minimum of eight (8) feet in height for multi-stemmed varieties, or 2 ½ inch caliper at the time of planting for single-stemmed varieties.
 - d. Five (5) shrubs per 25 linear feet of buffer. Size of shrubs shall be fully branched and minimum of three feet in height at the time of planting. Shrubs shall be a combination of evergreen and deciduous species, with a minimum of 50% being evergreen.
3. In the event that existing vegetation is adequate to meet the intent of the required buffer yard to screen the Data Center and Data Center Accessory Uses from adjoining residential zoning districts, sensitive receptors, and public roadways, the Knox County Commission, upon recommendation by the Knoxville/Knox County Planning Commission, may determine that existing topography and/or vegetation constitutes all or part of the required buffer yard.

E. Screening and Fencing

1. To provide visual screening and reduce noise levels, 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 zoning districts or the lot line of any sensitive receptor must be fully enclosed, except where not mechanically feasible based on the manufacturer's specifications. If it is not mechanically feasible to fully enclose the equipment, it must be fully screened from view using one or more of the following means:
 - a. The landscape buffer required by subsection (D) above.
 - b. By existing vegetation that will remain on the property.

- c. By the principal Data Center building or an accessory building.
 - d. A berm averaging a minimum of five (5) feet in height above the adjacent average ground level with a maximum of side slope 3:1, provided that the berm shall be covered by a well-maintained all season natural ground cover and any required screening plantings shall be arranged on the outside and top of the berm.
 - e. A visually solid fence, screen wall or panel, parapet wall, or other visually solid screen that shall be constructed of materials compatible with those used in the exterior construction of the principal building.
2. Fencing of the property is permitted, provided that fencing along public and private roadways is not chain-link, with or without slatted inserts, and does not include barbed wire or other similarly visible intrusive deterrence device. An applicant shall not be required to comply with this requirement if fencing is fully screened from view by one or more of the means identified in subparagraph 1 above.

F. Noise and Vibration

1. The applicant shall demonstrate through a sound study conducted by a professional acoustical expert that the sound generated by a Data Center and/or Data Center Accessory Uses during normal operations shall be limited to a maximum daytime (7:00 a.m. to 8:00 p.m. Monday-Friday) decibel level of 67 dB(A) and a maximum nighttime and weekend (8:00 p.m. to 7:00 a.m. Monday-Friday and all day Saturday and Sunday) decibel level of 57 dB(A) as measured from the property line of the use. Such sound study shall be conducted using Sound Level Meters described in ANSI S1.4-2104 and generally accepted methodology. A sound study shall be conducted at the following phases:
 - a. A preliminary study shall be conducted as part of the conditional use process. The preliminary sound study shall include recommended sound reducing materials or systems as needed to meet the aforesaid sound limits.
 - b. An interim sound study shall be conducted during the building permit approval process based upon the proposed user or users of the Data Center and Data Center Accessory Uses depicted on the building plans.

Any sound reducing materials or systems recommended by interim sound study shall be incorporated into the construction plans for the use.

- c. An as-built sound study shall be conducted six months after issuance of the certificate of occupancy and prior to the final escrow release for any land development phase. An as-built sound study may also be required thereafter by Knox County. If it is determined by the as-built sound study that there is a violation of the aforesaid noise limits, it shall be considered a violation of this Ordinance.
2. Maximum decibel levels specified herein shall not apply during times of power outage, however the sound studies shall also evaluate and report anticipated decibel levels when all emergency power generation equipment is running, including backup generators.
3. The applicant shall provide a vibration study prepared by a qualified professional that demonstrates that no vibration from the Data Center, Data Center Accessory Uses, or the associated equipment will be perceptible to the human sense of feeling beyond the property line.

G. Water and Sewer

1. The use shall not be served by a public water supply.
2. If the use is to rely upon nonpublic sources of water, the applicant shall provide a water feasibility study. The purpose of the study is to determine if there is an adequate supply of water for the proposed use and to estimate the impact of the use on groundwater and surface waters in the vicinity. No Data Center shall be permitted use of existing wells. No Data Center shall be approved unless the water feasibility study demonstrates that the anticipated water supply yield is adequate for the project and that the proposed water withdrawals and discharges will not endanger or adversely affect the quantity or quality of groundwater supplies or surface waters in the vicinity. The water feasibility study shall include the following information at minimum:
 - a. The projected water demands of the Data Center;
 - b. The source of water to be used;
 - c. A description of how water will be used, including the amount or proportion of water to be used for each

- purpose (e.g., cooling, humidity control, fire suppression, and domestic usage);
- d. The long-term safe yield of the water source;
 - e. A description of the amount or portion of water withdrawn that will be recycled or discharged and by what means;
 - f. A geologic map of the area with a radius of a least one mile from the site;
 - g. The location of all existing and proposed wells within 1,000 feet of the property boundary, with a notation of the capacity of all high-yield wells;
 - h. The location of all surface waters, including perennial and intermittent streams, rivers, lakes, reservoirs, ponds, wetlands, springs, natural seeps, and estuaries, within 1,000 feet of the property boundary;
 - i. A determination of the effects of the proposed water supply system on the quantity and quality of water in nearby wells, surface waters, and the groundwater table;
 - j. A statement of qualifications and the signatures(s) of the person(s) preparing the study.
3. The applicant shall provide proof of review and approval from the Tennessee Valley Authority for projects proposing:
 - a. Water withdrawals of 100,000 gallons per day (gpd) or more over a 30-day average from any source or combination of sources within the Tennessee River Basin; or
 - b. Any consumptive water use of 20,000 gpd or more over a 30-day average from any water source.
 4. The applicant shall demonstrate that adequate means of wastewater disposal, including domestic wastewater and wastewater used for cooling or industrial purposes, have been provided and approved by the Tennessee Department of Environment & Conservation. Furthermore, the shall demonstrate that adequate means of cooling wastewater to the ambient temperature of the Tennessee River or any other body of water have been provided and approved by the Tennessee Department of Environment & Conservation.

H. Power Supply

1. The applicant shall not be permitted to connect the Data Center to the electric grid.

2. Any energy generation system designed or used to supply power directly to a Data Center during normal operations, including solar, wind, fossil fuel, or nuclear energy generating systems, shall not be considered part of the Data Center use. Such systems shall be considered a separate use and shall be approved according to the zoning regulations applicable to such use.

I. Emergency Management

1. The applicant shall submit an Emergency Response Plan (ERP) prepared by a qualified professional. The ERP shall:
 - a. Be reviewed and accepted by the local fire department and emergency management services as part of the conditional use process;
 - b. Include detailed procedures for fire suppression, containment, ventilation, and evacuation;
 - c. Include an evaluation of the access roads and hydrant locations within the site to ensure suitable access for emergency equipment within the site;
 - d. Ensure that all first responders receive adequate training specific to the installed system;
 - e. Include provisions for annual fire safety inspections demonstrating compliance with the fire safety standards to be performed by a qualified professional on behalf of the Data Center.
2. Any Data Center use proposing battery storage or any other device or group of devices capable of storing energy in order to supply electrical energy at a later time, whether the energy is stored for use on-site or off-site, shall 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.
3. No Data Center shall be approved unless the applicant demonstrates that procedures for fires suppression, containment, ventilation, and evacuation are sufficiently protective of public health, safety, and welfare.

J. Aesthetics

1. Any Data Center and Data Center Accessory Use building façade that faces a road or existing residential use must incorporate at least one of the following architectural styles:

- a. Art Deco Style, characterized by strong vertical emphasis, geometric ornamentation, stylized motifs, stepped massing, and decorative façades incorporating materials such as stone, metal, or terracotta;
 - b. Neoclassical Style: characterized by symmetrical composition, formal proportions, classical orders, columns or pilasters, entablatures, and restrained ornamentation reflective of Greco-Roman precedent;
 - c. Greek Revival Style: Characterized by prominent porticos, pediments, columns of the Doric, Ionic, or Corinthian orders, and a clear expression of classical temple forms.
2. Architectural plans submitted pursuant to site plan review shall clearly identify the selected architectural style and demonstrate consistency with its defining elements.
 3. The Knoxville-Knox County Planning Commission or designated reviewing authority may require elevations, material samples, and renderings sufficient to verify compliance.
 4. Structures shall not be approved where the proposed design is determined to be a superficial or token application of the required style.

K. Parking

1. Data Centers are to be provided with at least one parking space per 8,000 square feet of floor area designed and intended to be accessible regularly by employees, or one parking space for every one employee, based upon the maximum number of employees on site during the largest shift, whichever is the lesser.

Section 4: Severability. If any sentence, clause, section, or part of this Ordinance or of the Zoning Ordinance is for any reason found to be unconstitutional, illegal or invalid, such unconstitutionality, illegality, or invalidity shall not affect or impair any of the remaining provisions, sentences, clauses, sections, or parts hereof. It is hereby declared as the intent of the Knox County Commission that this Ordinance and the Zoning Ordinance would have been adopted had such unconstitutional, illegal, or invalid sentence, clause, section, or part thereof not been included herein.

Section 5. Repealer. All Ordinances or parts of Ordinances conflicting with any provision of this Ordinance are hereby repealed insofar as the same affects this Ordinance.

Section 6. Codification. Pursuant to the Code of Knox County, Tennessee the Knox County Zoning Ordinance shall hereby be codified to incorporate the above-referenced amendments.

Section 7. Effective Date. This Ordinance shall take effect five (5) days after its adoption.