CHAPTER 1141

Data Centers

1141.01 DEFINITIONS

For purposes of this Chapter, the following definitions apply:

(a) "Community Noise Equivalent Level (CNEL)" means the 24-hour A-weighted average sound level from midnight to midnight, obtained after the addition of 5 dB to sound levels occurring in the evening from 7 PM to 10 PM and after the addition of 10 dB to sound levels occurring in the night between 10 PM and 7 AM.

(b) "Data Center" means 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. The facility may also include air handlers, power generators, water cooling and storage facilities, utility substations, and other associated utility infrastructure to support sustained operations at the Data Center.

(c) "Data Center Accessory Use" means 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 suppression, and related equipment), and security features, provided such Data Center 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.

(d) "Data Center Electrical Substation" means a facility used for the transformation or transmission and/or switching of voltages to distribution voltages which switches circuits and distributes usable/consumable electric power, specifically for Data Center users on the same or adjacent site, or on a site immediately across a road right-of-way.

(e) "Data Center Principal Building" means a building that contains the office and/or data storage functions of a Data Center.

(f) "Footcandle" means enough light to saturate a one-foot square with one lumen of light.

(g) "Sensitive Receptors" means schools, preschools, day care centers, in-home daycares, health facilities such as hospitals, long term care facilities, retirement and nursing homes, community centers, places of worship, playgrounds, parks (excluding trails), and any residence

where such residence is not located on a parcel with an existing industrial, commercial, or unpermitted use as determined by the zoning officer.

1141.02 SPECIFIC USE CRITERIA

The following requirements shall apply to all Data Centers. In the event that any of the following regulations are found to be in conflict with regulations found elsewhere in the Codified Ordinance, the most restrictive regulations shall be applied, unless otherwise stated.

(a) Building Placement and Orientation.

(1) All Data Center Principal Buildings, Data Center Accessory Use structures associated with a Data Center shall be arranged, designed, and constructed to be harmonious and compatible with the site and with the surrounding properties. In general, Data Centers that visually approximate commercial office buildings are encouraged.

(2) Data Center Principal Buildings, Data Center Accessory Use structures shall be sited and oriented to (a) minimize visual impacts of the bulk of the building when examined on a line-of-sight basis from adjacent public streets and Sensitive Receptor areas; (b) provide safe and convenient vehicular access to the site, including sufficient on-site queuing areas at security gates; (c) accommodate adequate parking; and (d) minimize impacts to natural resources~~; and (e) incorporate appropriate stormwater management practices~~.

(3) Data Center campuses containing more than one building are encouraged to provide a variety in building size, massing, siting, and appearance by transitioning from smaller or lower buildings along street frontages to larger and taller structures on the interior of the site.

(4) Except as set forth in Section 1142.02(g)(3), connection to public water and public sewer is required.

(b) Maximum Height. The maximum building height for Data Center building or structure shall be governed be fifty (50) feet in height in an IA District and seventy (70) feet in height in an IB District.

(c) Setbacks.

(1) All Data Center Principal Buildings, Data Center Accessory Use structures, and Data Center Electrical Substations must be set back at least 400 feet or more from a property line abutting an RA or RB District and at least 100 feet from any other property line that does not lie in the Mahoning River.

(2) Parking lots for Data Centers shall be set back at least 75 feet from public road rights-of-way and 100 feet from all property lines.

(d) Parking Requirements. A minimum of 1 parking space per employee on the largest shift is required, plus an additional 3 visitor spaces.

(e) Noise/Vibration.

(1) CNEL

a. The Community Noise Equivalent Level (CNEL) at the boundary of the property containing a Sensitive Receptor shall not exceed fifty (50) dBA.

b. The CNEL at the boundary of any developed property not containing a Sensitive Receptor shall not exceed fifty-five (55) dBA.

c. Sound that is produced for not more than a cumulative period of one (1) minute in any hour may exceed the standards above by up to ten (10) dBA.

d. The maximum sound levels listed above do not apply to emergency alerts, emergency work to provide electricity, water, or other public utilities when public health or safety is involved, snow removal, or road repair.

e. The applicant must demonstrate that C-weighed noise (bBC) and octave bands (bBZ) will not exceed prescribed levels.

(2) A noise reduction barrier or device may be required at the discretion of the Village Building Inspector or consultant engaged by the Village when it is inconclusive whether sound level tests conform to the sound levels listed in Section (e)(1) above.

(3) The limitations of this Section (e) shall not apply to any Sensitive Receptor that is established adjacent to the Data Center after the date of issuance of a certificate of completion or occupancy for the applicant's operation.

(4) Sound Study.

a. A proposal for a Data Center shall include pre-construction and post-construction sound studies examining all exterior utility functions of the building (rooftop and ground-mounted) that produce sound. The sound studies shall identify compliance with Section 1141.02(e) as applicable. The sound studies shall be conducted by an Institute of Noise Control Engineering (INCE) Board Certified Engineer and shall be subject to review and approval by an engineer with experience in noise control selected by the Village

b. The pre-construction sound study shall be submitted with the zoning permit application and shall recommend the sound reducing materials or systems required to meet the aforesaid sound limits.

c. The post-construction sound study shall be conducted prior to

issuance of the certificate of occupancy. An as-built sound study may also be required thereafter by the Village upon request. If it is determined by the as-built sound study that there is a violation of the aforesaid sound limits, the owner or occupant of the Data Center shall promptly remediate the violation to achieve compliance with the sound limits.

(f) Negative Impacts. Any use or activity producing air, dust, smoke, glare, exhaust, heat, or humidity in any form shall be carried on in such a manner that it is not perceptible at or beyond the property lines.

(g) Safety.

(1) The equipment used in any Data Center operation shall be housed in a metered, electrically grounded, and pre-engineered metal-encased structure with a fire rating designed to resist an internal electrical fire for at least 30 minutes. The containment space shall contain baffles that automatically close in the event of fire, independent of a possible electric system failure.

(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) Construction of a water reservoir on an industrial site is encouraged for firefighting purposes. Piping and hydrants can be connected to the reservoir specifically used for fighting fires. Potable water will be used for drinking, janitorial and bathroom fixtures only. Reservoir can be a pond or a water tower.

(h) Power. Prior to approval of the certificate of completion or occupancy, the applicant shall provide written verification from the applicable service provider stating the following:

(1) Adequate capacity is available on the applicable supply lines and substation to ensure that the capacity available to serve the other needs of the service area is consistent with the normal projected load growth envisioned by the provider;

(2) Utility supply equipment and related electrical infrastructure are sufficiently sized and can safely accommodate the proposed use;

(3) Any system designed for cooling and operation of the facility (electricity, water, or other means) will be adequate and will not negatively impact the surrounding region;

(4) The energy storage capacity of the system used (if applicable) will be

defined;

(5) Efforts will be made to maximize the use of renewable or clean energy;

~~(4)~~(6) The use will not cause electrical interference or fluctuations in line voltage on and off the operating premises; and

~~(5)~~(7) Prior to approval of the certificate of completion or occupancy, the applicant shall provide the Village with written verification that the electrical work has passed a third-party final inspection.

(i) Lighting.

(1) Horizontal Surfaces. For the lighting of predominantly horizontal surfaces, such as, but not limited to, parking areas, roadways, vehicular and pedestrian passage areas, loading docks, building entrances, sidewalks, bicycle paths, and site entrances, luminaires shall be aimed down, and shall meet Illuminating Engineering Society of North America (IESNA) full cut-off/fully shielded criteria.

(2) Non-Horizontal Surfaces. For the lighting of predominantly non-horizontal surfaces, such as, but not limited to, facades, landscaping, and signs, luminaires shall be shielded ~~and shall be,~~ installed and aimed ~~to~~so as not to project ~~their~~ output into the windows of neighboring residences, adjacent uses, past the object being illuminated, skyward, or onto a public roadway.

(3) Adjacent Residential Uses. The illumination projected onto a residential use shall at no time exceed 0.1 footcandle, measured line-of-sight and from any point on the receiving residential property.

(4) Adjacent Non-Residential Uses. The illumination projected from any property onto a non-residential use shall at no time exceed 0.5 initial footcandle, measured line-of-sight from any point on the receiving property.

(5) Glare. Glare control shall be achieved ~~primarily~~by using ~~such~~ means such as cutoff luminaires, shields and baffles, and appropriate application of luminaire mounting height, wattage, aiming angle, and luminaire placement. Vegetation screens shall not be employed to serve as the primary means for controlling glare.

(6) LED Lights. LED light sources shall have a correlated color temperature that does not exceed 3000K.

(7) Lighting After Hours. Lighting for parking areas and vehicular traffic ways shall be automatically extinguished nightly within ½ hour of the close of the facility. When after-hours site safety/security lighting is proposed, such lighting shall not exceed 25% of the number of fixtures required or permitted for illumination during regular business hours. Where there is reduced but continued onsite activity throughout non-daylight hours that

requires site-wide even illumination, the use of dimming circuitry to lower illumination levels by at least 50% after 10:00 PM or after regular business hours, or the use of motion sensor control, shall be permitted.

(j) Perimeter Fencing/Security. Fences shall not exceed a height of ten (10) feet ~~in height~~ above ground and shall be of high-quality design and materials.

(k) Power Lines and Data Center Electric Substations.

(1) Data Center Electrical Substations must include year-round opaque landscaping or a screen wall a minimum of ten (10) feet in height to minimize visual impact.

(2) Data Center Electrical Substations on the same property as the Data Center they serve must be located on the side or rear of a Data Center Principal Building so they are screened from public view and must not be located in a required front yard. Data Center Electric Substations do not require a buffer or screening between the Data Center Principal Building and the substation but a six-foot security fence is required.

(3) Burying power lines serving the property is strongly encouraged. On-site power lines of 34.5 kV and below must be buried with proper above ground signage.

(l) Emergency. Each Data Center operation shall provide 24-hour emergency contact signage visible at the access entrance. Signs shall include the company name (if applicable), the owner/representative's name, the telephone number, and the corresponding local power company's name and telephone number. Emergency contact information must also be provided to the police chief, fire chief, and local 911 dispatch office.

(m) Buffer Yards and Screening. All Data Center operations shall provide buffer yards and screening along all property boundary lines, except for areas of ingress and egress into the site.

(1) Mechanical/Electrical Equipment Screening.

a. Ground-Mounted

i. Ground-mounted equipment adjacent to and serving the Data Center Principal Building shall be completely screened behind an opaque wall or fence. When the equipment is located between buildings, a combination of walls and gates may be used at the openings between buildings.

ii. When in or adjacent to an industrial use or zoning district, ground-mounted equipment screening is only required from any existing or planned public road.

iii. Ground-mounted equipment is prohibited in any required

setback.

(2) Buffering.

a. Data Center sites abutting Sensitive Receptors or collector/arterial roads must include an enhanced buffer yard with required plantings located on an earthen berm with a grade no steeper than 2:1. The minimum height of the berm abutting Sensitive Receptors is four (4) feet, and abutting collector/arterial roads is three (3) feet.

i. Where the combined footprint of the principal structure or structures is less than 100,000 square feet:

(a) a minimum 100-foot buffer yard shall be provided along the entire length of any public street frontage of any property upon which the Data Center is located and along any property line which abuts or is within 500 feet of an existing residential property line or zone, school, daycare center, hospital, place of worship, designated park, or public open space.

(b) a minimum 50-foot buffer yard shall be provided along any property line adjacent to a non-residential use or zone.

ii. Where the combined footprint of the principal structure or structures is between 100,000 square feet and 250,000 square feet:

(a) a minimum 150-foot buffer yard shall be provided along the entire length of any public street frontage of any property upon which the Data Center is located and along any property line which abuts or is within 500 feet of an existing residential property line or zone, school, daycare center, hospital, place of worship, designated park, or public open space.

(b) a minimum 50-foot buffer yard shall be provided along all other property lines.

iii. Where the combined footprint of the principal structure or structures exceeds 250,000 square feet:

(a) A minimum 300-foot buffer yard shall be provided along the entire length of any public street frontage of any property upon which the Data Center is located and along any property line which abuts or is within 500 feet of an

existing residential property line or zone, school, daycare center, hospital, place of worship, designated park, or public open space.

(b) A minimum 50-foot buffer yard shall be provided along all other property lines.

iv. Utilities should be located outside of buffer yards to the maximum extent feasible to maintain a cohesive buffer yard, protect landscaping, and preserve open space. Utilities should be co-located when feasible to minimize the number of utility crossings through the required buffer yard, particularly when such crossings cannot be avoided.

v. Use of existing vegetation for landscaping and screening is strongly encouraged and may be substituted for new berms and plantings if approved by the Village Building Inspector or consultant engaged by the Village.

vi. The required number of plant units shall be calculated in accordance with other municipal screening requirements.

vii. Buffer yards along roadways shall be measured from the street right-of-way line.

viii. Where a lot line drainage or utility easement is required, the buffer yard shall be measured from the inside edge of the easement.

ix. Buffer yards shall not include environmental encumbrances such as, but not limited to, wetlands, wetland transition areas, riparian buffers, and flood hazard areas as may be imposed by outside agencies.

x. The buffer yard shall include a dense landscape buffer consisting of the following:

(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. Narrow/upright evergreen species may also be used within buffers at a ratio of 3:1. No more than 25% of the total required large evergreen species can be substituted with narrow/upright species.

(b) One (1) canopy (shade) tree per 75 linear feet of buffer. The size of canopy (shade) trees shall be a minimum

of 2 ½ inch caliper at the time of planting.

(c) One (1) 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. Shrubs shall be fully branched and a minimum of three (3) feet in height at the time of planting. Shrubs shall be a combination of evergreen and deciduous species, with a minimum of 50% evergreen.

xi. The landscape buffer shall be located along the outer edge of the buffer yard.

xii. Plant material within buffer plantings shall meet the following requirements:

(a) Be resistant to diesel exhaust.

(b) Not identified on the most current ~~DCNR~~Ohio Department of Natural Resources (ODNR) invasive species or watch lists.

(c) Be hardy within United States Department of Agriculture (USDA) hardiness ~~Zones~~Zone 6~~ and 7~~.

(d) Shall be planted on the top and the exterior of any berm in order to provide effective screening.

(e) Shall be arranged in groupings to allow for ease of maintenance and to provide a natural appearance.

(f) Shall provide a diversity in plant species, such that no one species accounts for more than 25% of each plant type.

(g) The plantings shall be arranged to provide a complete visual screen of the property at least 12 feet in height, measured in addition to the height of any required berm, within three (3) years.

xiii. The buffer yard may be located within the required building setback lines. No impervious surface is permitted within the buffer

yard aside from access drives, sidewalks, and associated improvements.

(n) Environmental and Community Impact Analysis. ~~Prior to the commencement of the conditional use/special exception hearing or issuance of a~~With the application for zoning permit, the applicant shall provide an environmental and community impact analysis. The environmental and community impact analysis shall include:

(1) A narrative description ~~of the~~prepared by a professional engineer, ecologist, environmental planner and/or other qualified individuals of the proposed nature of the on-site activities and operations, including the market area served by the facility, the hours of operation of the facility, the total number of employees on each shift, the times, frequencies, and types of vehicle trips generated, the types of materials stored and the duration period of storage of materials~~.~~, and the relationship to other projects or proposals. The description shall focus on the elements of the environment most likely to be affected as well as potential regional effects and ecological interrelationships

(2) A site plan of the property indicating the location of proposed improvements, flood plains, wetlands, waters and cultural and historic resources on the property and within 500 feet of the boundaries of the property, and the potential for public nuisance to residents resulting from operations.

(3) Evidence that the disposal of materials will be accomplished in a manner that complies with federal, state and county regulations.

(4) An evaluation of the potential impacts of the proposed use, both positive and negative, upon: (a) emergency services and fire protection; (b) water supply; (c) sewage disposal; (d) solid waste disposal; (e) school facilities and school district budget, and; (f) municipal revenues and expenses; and (g) stormwater.

(5) Any environmental impacts that are likely to be generated (~~e.g.,~~such as odor, noise, smoke, dust, litter, glare, heat islands, vibration, electrical disturbance, wastewater, stormwater, solid waste, etc.) and specific measures employed to mitigate or eliminate any negative impacts. The applicant shall ~~further~~ furnish evidence that the impacts generated by the proposed use fall within acceptable levels, as regulated by applicable federal and state laws and Village ordinances.

~~(o) Building Colors. External building materials shall be of colors that are low-reflective, subtle, or earth tone. Fluorescent and metallic colors shall be prohibited as exterior wall colors.~~

~~(p) Emergency Responders. The applicant shall coordinate with the Village Police Chief and/or Fire Chief to ensure there is adequate radio coverage for emergency responders within the building based upon the existing coverage levels of the Village public safety radio communications system at the exterior of any building, and shall install enhancement systems as needed to meet compliance.~~

(q) Environmental Impact Assessment. An Environmental Impact Assessment shall be performed. The assessment shall be prepared by a professional engineer, ecologist, environmental planner, or other qualified individual. An assessment shall include a description of the proposed use, including location, relationship to other projects or proposals, with adequate data and detail for the Village to assess the environmental impact. The assessment shall also include a comprehensive description of the existing environment and probable future effects of the proposal. The description shall focus on the elements of the environment most likely to be affected as well as potential regional effects and ecological interrelationships. At a minimum, the assessment shall include an analysis of the items listed below regarding the impact of the proposed use and the mitigation of any such impacts. The assessment shall also include a detailed examination of public resources most likely impacted by the development plan and include the following focus areas:

Air pollution impacts emissions from vehicle operations, including from truck engines during idle time. (6) The applicant shall identify all stationary and mobile sources of fine particulate matter (PM2.5),) volatile organic compounds, and nitrogen oxides at the site. The applicant shall specify best management practices for preventing and reducing the concentration of air- polluting emissions at the site. The owner or operator of the facility shall have anti-idling signs prominently posted in areas where 15 or more trucks may park or congregate.

(1) The potential for public nuisance to residents resulting from operations and truck traffic, including noise, glare, light, and visual obstacles, exists.

A stormwater management plan will be required. It must be consistent with the municipal and county comprehensive plan. (7) The applicant shall submit an assessment report of the impact of the proposed use on the goals of the respective Village and Trumbull County comprehensive plans. Where the proposed use conflicts with the comprehensive planplans, the assessmentanalysis report shall identify mitigation measures that may be undertaken to offset any degradation, diminution, or depletion of public natural resources.

(2) The following additional considerations shall also be addressed: (a) a description of alternatives to the impacts; (b) a statement of any adverse impacts that cannot be avoided; (c) environmental protection measures, procedures, and schedules to minimize damage to critical impact areas during and after construction, including design considerations; and (d) a listing of steps/structural controls proposed to minimize damage to the site before and after construction.

(6)(8) Critical impact areas.The sit plan and analysis shall an assessment include critical impact areas, conditions or features that are environmentally sensitive of that, if disturbed during construction, will have an adverse impact on the environment. Critical impact areas include, but are not limited to, floodplains, riparian buffers, streams, wetlands, slopes greater than 15%, highly acidacidic or highly erodible soils, hydric soils, hydrologic soil groups, areas of high-water table, and mature stands of native vegetation and aquifer recharge and discharge areas. The assessment shouldshall include a statement of impact on

critical impact areas, a statement of adverse impacts that cannot be avoided, and list environmental protection measures, procedures, and schedules to minimize damage to critical impact areas during and after construction.

(9) If modular, factory-built construction is proposed, details of its construction shall be provided to the Village for review and approval Village Building Inspector or consultant engaged by the Village

(o) Building Colors. External building materials shall reflect the character of the surrounding area.

(p) Emergency Responders. The applicant shall coordinate with the Village Police Chief and/or Fire Chief to ensure there is adequate radio coverage for emergency responders within the building based upon the existing coverage levels of the Village public safety radio communications system at the exterior of any building, and shall install enhancement systems as needed to meet compliance.~~(r~~ Each Data Center shall provide 24-hour emergency contact signage visible at the access entrance including the company name (if applicable), the owner/representative's name, the telephone number, and the corresponding local power company's name and telephone number.

(q) Green Building Techniques. Data Centers are encouraged to implement low-impact development practices in site design and energy efficiency, such as, but not limited to, the following:

(1) Site Design. Date Centers are encouraged to (a) select sites that avoid sensitive lands such as wetlands, floodplains, and steep slopes; (b) minimize land disturbance; (c) maximize tree preservation, (d) minimize impervious surfaces, and (e) minimize potential nuisance impacts (noise, glare, vibration, etc.) on adjacent properties, public roadways, and the vicinity.

(2) Energy/Resource Efficiency. Date Centers are encouraged to (a) orient buildings to take advantage of passive cooling and daylight opportunities; (b) provide an energy storage system to monitor and regulate usage of alternative energy for usage during off-peak hours; (c) utilize reclaimed water for cooling, if available~~; (d~~, promoting its use to regulate cooling output in real-time on workload demands; (d) incorporate waste heat recovery systems for use on or off-site; (e) encourage fuel storage that limits impacts on the environment from potential spills; (~~e~~f) install water-efficient landscape materials; and (~~f~~g) utilize LED exterior/interior lighting.

1141.03 DECOMMISSIONING

(a) Data Centers are recognized as a distinct use that warrants special consideration due to their limited operational lifespans and the potential for residual materials or infrastructure that may require specialized removal or remediation at the end of use. Given the rapid evolution of data storage and processing technologies, an applicant shall submit a decommissioning plan for removal of obsolete equipment and site restoration at the end of the facility's operational life. Such

a plan shall address dismantling and removal of all equipment and appurtenances related thereto, including but not limited to special cabling and electrical components, electronic equipment, special cooling equipment, special power generation, batteries and other associated facilities from the property to a condition where the building and property may be reused for another purpose. When the operation of the Data Center ceases, the recycling or responsible disposal of decommissioned hardware and materials shall be prioritized to reduce environmental impact. The operator shall partner with certified E-waste recycling facilities to ensure the proper handling and recycling of electronic components.

~~(a)~~(b) Prior to issuance of a certificate of occupancy for a Data Center, the owner shall provide financial security, in the form and amount of a bond, irrevocable letter of credit, or other financial security acceptable to the Village to secure the expense of decommissioning, dismantling, removing, and disposal of the Data Center specific components and equipment, in the amount of 110% of the estimated decommissioning cost minus the salvageable value of the Data Center. The Village reserves the right to review every five (5) years an engineer's new estimate of probable cost of decommissioning, which shall be submitted to the Village for approval in the same manner as the initial submission. The bond, letter of credit, or other financial security acceptable to the Village shall be increased or decreased, as appropriate, upon a finding by the Village that the updated estimate appropriately addresses the probable cost of decommissioning. The owner of the Data Center shall pay for all fees associated with the review and approval of each such decommissioning cost estimate by the Village.