

# ORANGE COUNTY, VIRGINIA

## BOARD OF SUPERVISORS

R. MARK JOHNSON, DISTRICT ONE  
EDUWARD M. VAN HOVEN, DISTRICT TWO  
KEITH F. MARSHALL, DISTRICT THREE  
CRYSTAL D. HALE, DISTRICT FOUR  
J. BRYAN NICOL, DISTRICT FIVE

GLEND A BRADLEY PAUL  
COUNTY ADMINISTRATOR

PHONE: (540) 672-3313  
FAX: (540) 672-1679



MAILING ADDRESS:  
P. O. Box 111  
ORANGE, VA 22960

PHYSICAL ADDRESS:  
R. LINDSAY GORDON III BUILDING  
112 WEST MAIN STREET  
ORANGE, VIRGINIA 22960

[orangecountyva.gov](http://orangecountyva.gov)

### ORDINANCE OF APPROVAL

**MOTION: HALE**

**SECOND: VAN HOVEN**

**December 16, 2025**

**Regular Meeting**

**Ord. No. 251216 – PH2**

**RE: ORDINANCE APPROVING ZTA 25-02 FOR AMENDMENTS TO CHAPTER 70 (ZONING), ARTICLE IV (DISTRICT REGULATIONS), OF THE ORANGE COUNTY CODE OF ORDINANCES CONCERNING CREATION OF THE TECHNOLOGY (T) ZONING DISTRICT**

**WHEREAS**, pursuant to §15.2-2286 of the Code of Virginia and Sec. 70-212 of the Orange County Code, amendments to the Orange County Zoning Ordinance may be initiated by the Board of Supervisors; and

**WHEREAS**, on October 14, 2025, the Board of Supervisors adopted a Resolution (Res. No. 251014 – 7A), initiating amendment of the Zoning Ordinance and referring said amendment for creation of a Technology District, referred to as ZTA 25-02, to the Planning Commission for public hearing and recommendation; and

**WHEREAS**, pursuant to §§15.2-2285 and -2286 of the Code of Virginia and Sec. 70-213 of the Orange County Code, the Orange County Zoning Ordinance may be amended by the Board of Supervisors after said amendment has been reviewed and considered by the Planning Commission; and

**WHEREAS**, the recommended language for the text amendment was developed and the Planning Commission advertised and conducted its public hearing on the proposed text amendment on December 4, 2025; and

**WHEREAS**, after discussing the proposed text amendment and receiving public comment, the Planning Commission recommended approval of the proposed text amendment to the Board of Supervisors, as modified during the public hearing; and

**WHEREAS**, the Board of Supervisors advertised and conducted its public hearing on the proposed text amendment on December 16, 2025; and

**WHEREAS**, following discussion and receipt of public comment at its public hearing, the Board of Supervisors hereby supports the proposed text amendment, as modified following its public hearing; and

**WHEREAS**, public necessity, convenience, general welfare, and/or good planning and zoning practice also support approval of the proposed text amendment, as presented during the public hearing;

**NOW, THEREFORE, BE IT ORDAINED**, on this 16<sup>th</sup> day of December, 2025, that the Orange County Board of Supervisors hereby **approves** the amendment to Chapter 70 (Zoning), Article IV (District Regulations), of the Orange County Code of Ordinances concerning creation of the Technology (T) Zoning District, as presented and attached hereto.

**Votes:**

**Johnson:**            **Aye**  
**Van Hoven:**        **Aye**  
**Marshall:**         **Aye**  
**Hale:**                **Aye**  
**Nicol:**               **Aye**

**Attachment:**            **Amendments to the Orange County Code of Ordinances**

**For Information:**       **Amy Wilson, County Attorney**  
                                 **Alyson Simpson, Senior Paralegal**  
                                 **Michelle Mixell, Director of Development Services**  
                                 **Josh Frederick, Planning and Zoning Services Manager**

**CERTIFIED COPY**



**R. Mark Johnson, Chairman**  
**Board of Supervisors**



**Amendments to the Orange County Zoning Ordinance**

**As adopted in Ord. No. 251216 – PH2  
by the Orange County Board of Supervisors  
on December 16, 2025**

*ZTA 25-02 – Proposed amendment language in green text*

**Chapter 70 – ZONING ORDINANCE**

**Article 70-I In General**

**Sec. 70-1 Definitions**

[...]

*Technology college, university, or technical school* means a post-secondary institutional use that may be specifically located in the Technology (T) District where specialized education in technology-focused and/or research-intensive fields is offered, or in the case of a technical school, an institution, which may be secondary or post-secondary, offering non-degree-credit courses which typically provide vocational education and hands-on training in specific fields or trades.

*Technology research and development facility* means an institutional use that may be specifically located within the Technology (T) District where a building or complex of buildings in which scientific, experimental, or technical processes are conducted to develop new or more efficient means of making various products/technologies, and in which manufacturing is limited to prototyping and similar one-off iterations of items.

[...]

**Article 70-II Administration**

[...]

**Division 70-II-7 Zoning Map Amendments**

**Sec. 70-194 Application Submittal Requirements And Review**

Application submittal requirements and review procedures for an owner-initiated zoning map amendment shall be the same as those for special use permits, as prescribed in Sec. 70-145, except that, applications submitted for a zoning map amendment for a Technology District (T) shall also require the following (*see Article 70-IV District Regulations for additional reference and applicability*).

1. A general concept plan, drawn to scale on a property survey, prepared by a licensed professional engineer or architect registered in Virginia, showing at a minimum: property boundaries, proposed buildable area, setbacks and buffer areas, access points and internal circulation, utility corridors and connections, stormwater management areas, phasing plan (if applicable). A general concept plan is a preliminary representation of proposed site development submitted as part of a special use permit application within the Technology District, depicting the general scope, location, and character of anticipated concepts for grading, utilities, structures, and/or uses. A general concept plan is illustrative in nature and subject to refinement during detailed engineering and site plan review.
2. Landscape Plan including a tree preservation and buffer plan
3. Sample Elevations or Photo Montage of representative building facades
4. Viewshed analysis
5. Water Services Plan

- 49 6. Sound Study
- 50 7. Emergency Action Plan
- 51 8. Spill Prevention Plan
- 52 9. Comprehensive Lighting Plan (Dark Sky principles)

53  
54 Additionally, the owner may choose to volunteer proffers, pursuant to Sec. 70-193, ~~in conjunction~~  
55 ~~with the application~~ which are voluntary conditions, including but not limited to, infrastructure  
56 improvements, public facility contributions, environmental mitigation measures, and community  
57 benefit programs

58  
59 [...]

60  
61 **Article 70-IV District Regulations**

62  
63 **Division 70-IV-1 Generally**

64  
65 **Sec. 70-276 Zoning Districts**

66  
67 a) For the purpose of this chapter, the unincorporated areas of Orange County, Virginia are  
68 hereby divided into the following zoning districts.

- 69
- 70 Agricultural (A).
- 71 Limited Residential (R-1).
- 72 General Residential (R-2).
- 73 Planned Residential (R-3).
- 74 Multifamily Residential (R-4).
- 75 Limited Commercial (C-1).
- 76 General Commercial (C-2).
- 77 Limited Industrial (I-1).
- 78 General Industrial (I-2).
- 79 Barboursville Village Overlay District
- 80 Planned Development – Business (PDB).
- 81 Planned Development – Mixed Use (PDM).
- 82 Planned Development – Traditional Design (R-5)
- 83 Technology (T)

84  
85 [...]

86  
87 **Division 70-IV-16 Technology (T) District (*new division*)**

88  
89 **Sec. 70-596A – Purpose and Intent**

90  
91 The Technology (T) District is intended to accommodate data centers and other specialized and  
92 evolving supportive Artificial Intelligence (AI) and similar technology-based uses in a manner that  
93 minimizes impacts on surrounding residential, agricultural, and commercial communities. These  
94 uses often require substantial acreage and are typically developed in a campus-style setting that  
95 emphasizes functional separation from dense development. The district is intended to be located  
96 in proximity to adequate resources and infrastructure with a transportation network of sufficient  
97 capacity to support associated activity levels, diversify the tax base and attract high wage  
98 employment. The T District supports economic development diversification objectives and  
99 encourages investment in technology sectors while maintaining community values and preserves  
100 rural character and quality of life through targeted, context-sensitive development, that  
101 champions environmental sustainability and resource conservation.

102

103 **Sec. 70-596B – Permitted Uses**

104  
105 In the T District land may be used the following uses and any customarily incidental accessory  
106 use:

- 107 1) Technology college, university, or technical school
- 108 2) Technology research and development facility

109  
110 **Sec. 70-596C – Uses Permitted by Special Use Permit**

111 In the T District the following uses may be permitted upon issuance of a special use permit by the  
112 Board of Supervisors:

- 113 1) Data Center
- 114 2) On-site primary power generation for Data Center.
- 115 3) Public utility facility, not to include utility-scale solar.
- 116 4) Telecommunications tower, pursuant to Article 70-IX

117  
118 **Sec. 70-596D – Setbacks and Buffers**

119  
120 In the T District all required setbacks and buffers shall extend continuously around the entire  
121 perimeter of the T District property. For campus-style developments containing multiple data  
122 center buildings, the perimeter of the overall project site shall establish the buffer requirement  
123 boundaries.

124  
125 The final buffer design, including plant species, spacing, and supplemental screening elements,  
126 shall be determined during the rezoning process and incorporated into concept plan.

127  
128 Whether development occurs in a single phase or in multiple phases, the complete perimeter  
129 buffer must be installed following the installation of the erosion and sediment control measures  
130 for phase I construction and completed prior to installation of any utilities or building footers.

131  
132 This ensures that adjacent properties receive immediate and continuous protection from visual  
133 and other impacts throughout the project's buildout period.

134  
135 Performance security in the amount of 125% of the buffer installation cost shall be provided prior  
136 to site plan approval.

137  
138 1) Setbacks. All setbacks shall be measured from property lines to nearest point of any building  
139 or structure.

140 a. Setbacks from primary highways shall be 500 feet. Section 70-646 Primary Highways  
141 shall not apply.

142 b. The setback from any adjacent lot zoned technology shall be 25 feet.

143 c. The setback from a commercial district shall be 500 feet.

144 d. The setback from an industrial district shall be 100 feet.

145 e. The setback from an agricultural district shall be 500 feet

146 f. The setback from a residential district shall be 500 feet.

147 g. The setback minimum from the Rapidan River or any shall be 1,000 feet and the setback  
148 from a Perennial Stream shall be 500

149 feet as measured from the top of the riverbank to any building, structure, or use  
150 associated with development on the site. **These setbacks may be reduced or increased  
151 through a Special Use Permit based on site-specific conditions.**

150 h. The setback from an occupied residence shall be 1,000 feet.

151 i. The setback from a state or federally designated historic district shall be 4,000 feet **determined  
152 through a Special Use Permit.**

152 j. No equipment yards shall be facing the public right of way or nonindustrial use.

153 k. Screen walls for equipment yards (side of equipment yards) shall be provided when

154 visible from the public right of way or nonindustrial use.

154 I. The setback from any Orange County School Building with students shall be 1,000 feet.

155 2) Buffers.

156 a. Every setback area required by subsections 1(a) (primary highways), 1(c)  
157 (commercial), 1(d) (industrial), 1(e) (agricultural), 1(f) (residential), and 1(g) (Rapidan  
158 River or Perennial Stream) above shall contain a buffer which is a minimum of 50  
159 percent of the depth of the required setback. Buffers shall be comprised of vegetation  
160 and may include berming as noted in Section 2.b below with the intent to create a  
161 dense screen to screen the use from view from adjoining properties and public rights-  
162 of-way.

163 b. Buffers may include a combination of earthwork features, such as berms, and a variety  
164 of plantings to meet the intent of the buffer requirements. To the maximum extent  
165 practical, existing woods and vegetation shall be retained to meet the buffer  
166 requirements and shall be supplemented with berms and/or native species plantings  
167 as necessary where existing woodlands and vegetation does not currently exist within  
168 the buffer zone.

169 i. If additional plantings are required to achieve screening intent, the minimum  
170 planting rates shall be determined to create a dense screen for the buffer width  
171 established by Section 2.a. above.

172 ii. At a minimum, native evergreen trees shall be planted at a rate of one per 20  
173 linear feet, three rows staggered, minimum 8-feet of height at time of planting  
174 for the length of the buffer.

175 iii. Deciduous shade trees shall be planted at a rate of one per 25 linear feet, two  
176 rows staggered, minimum of 2.5-inch caliper at time of planting for the length  
177 of the buffer.

178 iv. Understory trees planted at a rate of one per 15 linear feet, two rows staggered  
179 for the length of the buffer.

180 v. Deciduous and/or evergreen shrubs planted at a rate of five shrubs every 15  
181 feet on center for the length of the buffer.

182 vi. The rate of plantings is determined by the length of any area not adequately  
183 buffered by existing mature woodlands.

184 vii. The above native plant material may be distributed along berms and to infill  
185 areas within existing natural areas not reaching a dense screening effect.

186 c. The adequacy of the buffers shall be determined by the Board of Supervisors with a  
187 zoning map amendment application, or in the case of existing zoning, by the Zoning  
188 Administrator prior to approval of the site plan for the use.

189 d. At the request of the Professional Landscape Architect, the plantings defined above  
190 may be redistributed and clustered (rather than the installed in the soldiered pattern)  
191 should the alternative provide a more desirable and aesthetic buffer design while  
192 meeting the screening intent.

193 i. The Zoning Administrator may approve minor modifications to buffer design  
194 (not exceeding 10% variation) for preservation of specimen trees or significant  
195 natural features, accommodation of existing utilities or easements, or  
196 technical/engineering constraints.

197 ii. The Board of Supervisors may approve more substantial modifications only  
198 upon finding that:

199 1. The alternative design provides equal or better screening;

200 2. Adjacent property owners have been notified and given opportunity to  
201 comment; and

- 202 3. The modification is consistent with the purpose and intent of this district.
- 203 e. Buffers may be located anywhere within the required setback areas provided that the
- 204 buffers are installed in a manner to maximize the screening of the proposed use while
- 205 ensuring the screening measures are done in a manner to ensure long-term survival
- 206 of the buffer density and the viewshed is maintained.
- 207 f. Stormwater facilities shall not be located within buffers unless they are dual-purpose
- 208 and incorporate open space such as a wet retention pond designed as a site amenity
- 209 with fountain, perimeter landscaping and shade trees to serve as natural passive open
- 210 spaces and wildlife corridors.
- 211 i. Such site amenities shall be incorporated into the overall landscape aesthetic
- 212 and depicted on the Landscape Plan.
- 213 ii. In no instance shall the stormwater facility proposed within a required buffer or
- 214 setback area detract from the natural aesthetic intended by the established
- 215 setbacks and buffers from the adjacent land uses.
- 216 iii. This option shall be at the discretion of the Board of Supervisors with a zoning
- 217 map amendment application.
- 218 g. Permitted elements within buffers include guard houses/security facilities, signage (per
- 219 section 70-596F), drive aisles (perpendicular crossing only), underground utilities, and
- 220 dual-purpose stormwater facilities (with Board approval) provided the intent of the
- 221 buffer requirements is met.
- 222 h. Prohibited elements within buffers include security fencing (must be behind buffers),
- 223 parking areas, above-ground utilities (except perpendicular crossings), and buildings
- 224 (except security facilities).
- 225 i. Any security fencing, such as chain-link fencing or barbed wire fencing, shall be
- 226 located behind buffers or at the setback line, whichever is further from the property
- 227 line, with the exception of allowing the site security fence to tie into any site security
- 228 booth/entrance. Decorative ornamental, wooden post, or similar fencing may be
- 229 located between property lines and in front of buffers to enhance the rural aesthetic
- 230 though shall ensure the function of the buffer and setback area as a wildlife corridor
- 231 are not impeded by such fencing.
- 232 j. Parking lot landscaping required pursuant to Sec. 70-677 shall not count towards these
- 233 buffer requirements.
- 234 k. All buffers shall be maintained by the owner(s) in perpetuity for as long as the property
- 235 remains improved.
- 236 l. A tree preservation and buffer plan shall be an element of a required Landscape Plan
- 237 to be prepared and sealed by a Professional Landscape Architect (PLA) and submitted
- 238 with any zoning map amendment, or in the case of existing zoning, with the site plan
- 239 prior to approval of the use. At a minimum the Landscape Plan shall identify the
- 240 location and extent of existing mature healthy trees (woodlands) to be preserved and
- 241 maintained within the buffer area and method for existing tree protection during and
- 242 after construction.
- 243 i. Additionally, the buffer plan element shall detail proposed berms and native
- 244 plantings necessary to achieve opacity should existing woodlands need to be
- 245 supplemented and/or should no existing woodlands are located on site.
- 246 ii. Added plantings shall be identified by plant type, size, and location on the
- 247 landscape plan with the requirement for full desired density to be reached
- 248 within 10 years of planting.
- 249 iii. Plantings shall be designed to reflect and maintain the natural character of the
- 250 rural area.

- 251                   iv. Every effort shall be undertaken to utilize and preserve existing woodlands for  
252                   the full width and length of the minimum required buffer.
- 253                   m. A surety agreement for landscape maintenance in a form approved by the County  
254                   Attorney shall be submitted and approved prior to the issuance of any land disturbance  
255                   permits.
- 256                   i. The amount of the surety shall be determined by an independent landscape  
257                   architect selected and compensated by the Applicant but approved by the  
258                   County Administrator and/or his designee.
- 259                   ii. The amount of the surety shall be equal to a reasonable estimate of the amount  
260                   needed to establish, and following establishment, to maintain the landscaping  
261                   required by the approved landscaping plan for five years after initial installation.  
262                   Once the landscaping has been successfully established, the surety amount  
263                   may be reduced to that needed for maintenance thereafter.
- 264                   iii. The surety will be fully released after five years if successfully established.
- 265                   iv. The County reserves the right to impose conditions on the site plan approval  
266                   which specify species of landscaping, for example pollinator species.
- 267                   v. The use of herbicides and pesticides shall be limited.
- 268                   n. In granting a special use permit, the Board of Supervisors may permit modifications to  
269                   these “buffer” requirements.

270  
271 **Sec. 70-596E – Height Regulations**

272 In the T District, structures shall be 85 feet or less in height. An increase in height above 85 feet  
273 can be increased to a maximum height of 100 feet provided the building is setback an additional  
274 5 feet for every foot in building height above 85 feet.

- 275  
276 1) See Article 70-IX (Telecommunication Towers and Facilities) for height requirements and  
277 other regulations specific to telecommunications towers.

278  
279 **Sec. 70-596F – Signs**

- 280 1) In the T District, signs are permitted as set forth in this section.
- 281 2) Each improved lot may be permitted one monument sign, not to exceed 8 feet in height or 32  
282 square feet in area. A corner lot or double frontage lot may be permitted one additional such  
283 sign provided there is driveway access to the lot from the additional frontage.
- 284 3) Each unimproved lot may be permitted one sign advertising the lot for sale, not to exceed 8  
285 feet in height or 16 square feet in area.
- 286 4) Building signs visible from a public right-of-way are not permitted.
- 287 5) Signs on improved lots may be lighted such that they have one or more lights shining on them  
288 so that each face of the sign is illuminated. Lights used to externally illuminate each face of a  
289 sign shall be directed so as to minimize glare to adjacent properties, passing motorists and  
290 pedestrians as well as meet the exterior lighting requirements of Sec. 70-624.

291  
292 **Sec. 70-596G – Use-Specific Regulations**

- 293 1) All uses.
- 294                   a. Maximum impervious coverage: 70 percent.
- 295                   b. Exterior lighting shall comply with the requirements of Sec. 70-624.
- 296                   c. Adequate fire apparatus and emergency access roads shall be provided at the  
297                   discretion of the Zoning Administrator, after consultation with the County Fire Marshal.
- 298                   d. Roof-mounted equipment shall be screened from view with parapets or architectural  
299                   screens.

- 300 e. All onsite fuel tanks for generators shall be considered as a Storm Water Management  
301 (SWM) hotspot. A narrative shall be provided with the site plan to address how all  
302 SWM hotspots shall be addressed.
- 303 f. An Emergency Action Plan shall be submitted for all onsite generators to the Fire  
304 Marshal's office with the first submission of the site plan.
- 305 2) Data centers.
- 306 a. All exterior façade and roof treatments and materials shall utilize muted earth color  
307 tones (such as soft forest-neutral-palette—greens, browns, and grays tuned to blend  
308 with the buffer) and shall be non-reflective so as to avoid glare from adjoining  
309 properties and the air.
- 310 b. Where a building is visible from an adjacent public right of way or adjacent properties,  
311 the building façade shall:
- 312 i. Avoid the use of monotonous uniform surfaces and include differentiated  
313 design elements to reduce the appearance of flat blank walls.
- 314 ii. Include differentiated surfaces at horizontal linear intervals that may vary in  
315 frequency but must be no less frequent than 150 horizontal linear feet or no  
316 less frequent than 3 times the average height of the building and include a  
317 change in 1 of the following design elements:
- 318 1. Building material;  
319 2. Pattern;  
320 3. Texture;  
321 4. Color;  
322 5. Accent Material; or  
323 6. Building step-backs or recesses.
- 324 iii. **At a minimum, fenestration (which includes the arrangement of windows and**  
325 **doors on the building elevations) shall be required for at least 30% of the total**  
326 **surface coverage of a visible building façade determined through a Special Use**  
327 **Permit.**
- 328 iv. Fenestration coverage pattern (the placement pattern of individual or clustered  
329 bays of fenestration) must be distributed horizontally and vertically across the  
330 principal façade to create design interest.
- 331 v. Fenestration must be compatible with the other design, materials, details, and  
332 treatment used on the same principal façade.
- 333 vi. Alternative design standards to the above may be considered at the request of  
334 the Applicant as approved by the Board of Supervisors to ensure compatibility  
335 with the surrounding rural aesthetic.
- 336 c. For any zoning map amendment/special use permit application, a viewshed analysis  
337 containing visual simulations of the proposed site, as if the proposed use(s) were  
338 constructed, shall be submitted with the application.
- 339 i. The analysis shall include at least 4 vantage points from surrounding public  
340 roads and/or adjacent properties to adequately simulate the visual impact of  
341 the use in all districts, photo-simulations for all seasons, line of sight analysis,  
342 and mitigation measures for identified impacts.
- 343 ii. At a minimum, the analysis shall demonstrate adequacy of the proposed  
344 buffers at both the time of installation and at mature height (to be achieved  
345 within 10 years of planting) considering both East to West and a North to South  
346 elevation and account for 4 seasons.
- 347 d. Any water management system for industrial processes to include cooling shall utilize  
a closed loop or recycled water system. In no instance shall groundwater or raw water

348 from the Rapidan River be used for industrial processes or data center cooling.  
349 Further, no potable water, whether from an aquifer via well or from any perennial  
350 stream including the Rapidan River via Rapidan Service Authority (RSA) or other  
351 means, shall be used for industrial processes or data center cooling. The foregoing  
352 shall not apply to domestic water requirements (drinking water and sanitary facilities  
353 for employees and occupants) and fire suppression requirements.

354 e. A Water Services Plan (feasibility study) must be submitted either with the zoning map  
355 amendment application or, for properties with existing zoning, before site plan  
356 approval. Data centers shall only be approved when they demonstrate sufficient water  
357 supply availability and verify no harmful effects on local groundwater and surface water  
358 systems.

359 i. The Applicant shall provide payment in full for 3rd party review of the proposed  
360 Water Services Plan. The plan will be reviewed by a 3rd party as selected by  
361 the County during the review process.

362 ii. Such plan shall at a minimum, identify the method for industrial equipment  
363 cooling, the water source, quantity of water required, water capture and  
364 storage, the term for use of such water, and contingency plan for alternative  
365 water sources. Additionally, the plan shall demonstrate that the cooling system  
366 utilized will not impact the underlying aquifer, yields from the Rapidan River, or  
367 in the yield(s) of existing wells within 1,000 feet of the property boundary. The  
368 plan shall also indicate how any water will be recycled or released into  
369 surrounding water bodies (if applicable) and any environmental impact of the  
370 release. The plan shall also include how wastewater treatment will be  
371 addressed. The study shall be prepared by a licensed geologist, certified  
372 hydrologist, and/or other applicable design and engineering professionals as  
373 required.

374 iii. When a reuse water system ("purple pipe system") is required for data center  
375 cooling, a Water Services Agreement (WSA) shall be required prior to the  
376 construction and development of said system, which WSA shall include, at  
377 least the following requirements: (i) that the data center developer shall finance  
378 and construct all of the reuse water cooling system; (ii) establishment of fees  
379 for availability and use of the reuse water cooling system; (iii) confirm the  
380 available amounts of wastewater capacity to operate the reuse water cooling  
381 system and discharging requirements for the same; (iv) term for the WSA; (v)  
382 periodic reporting of water usage; and (vi) other terms and conditions mutually  
383 agreeable to the County, Rapidan Service Authority (RSA), and data center  
384 operator.

385 f. Air Quality. All federal and state laws with respect to air emissions shall be met.

386 g. Fuel Storage. All federal and state laws with respect to fuel storage shall be met and  
387 include a Spill Prevention Plan.

388 ~~h. Data centers shall provide quarterly electric and water usage reports for the facilities  
389 and facility supports which will be published and available to the public in a timely  
390 fashion.~~

391 i. All emergency power generators shall be restricted to backup or emergency use only  
392 and shall be enclosed within Tier 4 sound attenuation enclosures. Generator testing  
393 shall only occur between the hours of 10:00 am and 4:00 pm unless otherwise required  
394 by the Virginia Department of Environmental Quality.

- 395 j. A sound study must be submitted either with the zoning map amendment/special use  
396 permit application or, for properties with existing zoning, before site plan approval. The  
397 study shall be prepared by a licensed professional acoustic engineer or recognized  
398 acoustic consultant and shall demonstrate that sound emanating from or otherwise  
399 associated with the use, as measured at property lines, does not exceed a decibel  
400 level of 65 dB(A) during daytime hours and a decibel level of 60 dB(A) during nighttime  
401 hours. Such study shall be conducted using Sound Level Meters described in ANSI  
402 SI.4-2104 and generally accepted methodology The use shall adhere to these limits  
403 as long as it is in operation.
- 404 i. The study shall include at a minimum, the measured pre-construction ambient  
405 sound levels, the amount of noise to be produced by normal operations and  
406 generator testing and provide strategies to minimize noise and achieve the  
407 threshold levels described above.
  - 408 ii. The study shall also include recommended sound reducing materials or  
409 systems needed to meet the aforesaid decibel limits and incorporated into the  
410 construction plans.
  - 411 iii. In presence of a “prominent discrete tones”, as measured at a receiving  
412 property line, the decibel limits set forth above are decreased of 5 dB(A). A  
413 “prominent discrete tone” is defined as a sound that can be heard distinctly as  
414 a single pitch or a set of pitches. A prominent discrete tone exists if the one-  
415 third octave band sound pressure level in the band with the tone exceeds the  
416 arithmetic average of the sound pressure levels of the 2 contiguous one-third  
417 octave bands by:
    - 418 1. 5 dB for center frequencies of 500 Hz and above;
    - 419 2. 8 dB for center frequencies between 160 and 400 Hz; or
    - 420 3. 15 dB for center frequencies less than or equal to 125 Hz.
- 421 k. Any sound-generating ground-mounted equipment shall be fully enclosed where  
422 technically feasible. Where enclosure is not technically feasible both buffering and  
423 screening methods shall be provided to reduce noise output and at a minimum include  
424 screening walls, berms, and opaque evergreen buffers depending on the design  
425 proposal.
- 426 l. A post-occupancy sound study shall be required no sooner than 90 days and no later  
427 than 180 days after the full extent of the use approved by the site plan has been  
428 constructed and commenced operation. In the case of a phased site plan, such a study  
429 shall be required for each phase. The study shall demonstrate compliance with the  
430 decibel limits set forth above. In the event of noncompliance, a remediation plan shall  
431 be required to be submitted to the Zoning Administrator and necessary work to  
432 remediate the noncompliance shall be performed within a reasonable timeframe as  
433 determined by the Zoning Administrator.
- 434 m. In addition to meeting the minimum lighting requirements of Section 70-624, outdoor  
435 lighting for buildings and parking areas shall comply with the Dark Sky principles  
436 demonstrated through a comprehensive lighting plan for the project site. Where  
437 standards in this Section conflict with Dark Sky principles, the more stringent shall take  
438 precedent. In general, the Dark Sky principles include the following:
  - 439 i. Useful: All outdoor lighting should have a clear purpose. Before installing a  
440 light, consider if it is necessary for safety or security. In building and parking lot  
441 design, this means avoiding over-illumination and unnecessary cosmetic  
442 lighting.

- 443 ii. Targeted: Light should only be directed to where it is needed.
- 444 iii. Fully Shielded Fixtures: All fixtures on buildings and in parking areas must be
- 445 "full cutoff," meaning they are fully shielded to emit no light above the horizontal
- 446 plane. This prevents light from escaping upwards and creating "sky glow".
- 447 iv. Proper Aiming: Lights must be aimed downward to illuminate only the target
- 448 area, such as a parking space or walkway, without spilling into neighboring
- 449 properties or the night sky.
- 450 v. Low-Level: Lighting should be no brighter than necessary.
- 451 vi. Minimal Illumination: Use the lowest possible light levels needed for safety and
- 452 security.
- 453 vii. Reflective Surfaces: Consider the reflectivity of surfaces like asphalt when
- 454 calculating light levels. A reflective surface can increase the amount of light
- 455 cast into the night sky.
- 456 viii. Controlled: Lights should only be used when they are useful.
- 457 ix. Timers and Motion Sensors: Employ controls like timers or motion sensors to
- 458 automatically dim or turn off lights when they are not needed.
- 459 x. Variable Use: Reduce lighting levels during off-peak hours, such as late at night
- 460 when a parking lot is mostly empty.
- 461 xi. Warm-Colored: Use warm-colored lighting wherever possible.
- 462 xii. Color Temperature (CCT): Use bulbs with a correlated color temperature
- 463 (CCT) of 3000 Kelvin (K) or lower, as these produce a warmer, amber-toned
- 464 light.
- 465 xiii. Reduced Blue Light: Avoid cool, blue-white light, which is more disruptive to
- 466 nocturnal wildlife and human circadian rhythms. Warmer light is less likely to
- 467 be scattered by the atmosphere, reducing sky glow.