February 16, 2026

Howell Township Planning Commission
3525 Byron Road
Howell, MI 48855

To the members of the Howell Township Planning Commission,

The following information on data center building design requirements is being provided for consideration by the Howell Township Resident Research Committee (RRC).

DATA CENTER BUILDING DESIGN REQUIREMENTS

What the RRC is asking for: The following information on Data Center Building Design Requirements to be a starting point for discussion and adjusted as needed, and then be included in the data center ordinance that is being crafted for future approval and addition to the Howell Township Zoning Book of Ordinances.

BUILDING DESIGN REQUIREMENTS SECTION:

Compatibility:

1. Buildings should be compatible in scale, both size and height, and intensity to the surrounding area.
2. Data Centers should not be located contiguous to residential or sensitive receptor parcels.

Height Requirements:

1. Building heights shall not be increased above the 50 foot maximum, including all rooftop equipment and accessory structures.
    a. All rooftop equipment shall be concealed at or below height of a parapet wall.
    b. The use of rooftop screening separate from the structure shall not be permitted.

Massing and Scale:

1. All facades should include at least one change in horizontal plane.
2. Building step-backs, projections, recesses or architectural elements should have a minimum depth of 4 feet to create shadow lines and variations in the façade.
3. Variation at the ground plan can be utilized to create transition in scale and mass as viewed from public streets.
4. Buildings should provide additive and subtractive shifts in the building footprint to reduce mass and scale.

Facade/Aesthetics:

1. Fenestration should be used where possible to avoid monolithic appearances and to be congruent with adjacent uses.
2. Primary building facades shall use a neutral color palette.
    a. Earth tones are preferred.
    b. Accent colors should complement the dominant building color.
3. Changes in color and or material should only occur where the building changes plane through recesses, projections and/or offsets.
4. Colors should not act as advertisements or billboards.
    a. Company advertisements or logos should be limited to signage elements only as permitted in the Zoning Ordinance.
5. Building exteriors should incorporate materials with texture, character and a natural finish.
6. It is recommended that a minimum of 50% of the entrance elevation; 35% of any street facing façade and 20% of all other elevations shall include:
    a. Brick or stone.
    b. Concrete (both precast and cast-in-place).
    c. Engineered metal panels.
6. Parapet walls shall be utilized on all building elevations.

Structures:

1. All structures shall have concrete foundations.
2. Modular buildings and intermodal shipping containers shall not be permitted.

Noise:

1. Building design shall incorporate systems to mitigate equipment and HVAC noise such as, double layered walls with insulation materials, sound absorbing surfaces, etc., to trap noise energy and limit noise traveling.
2. HVAC systems, cooling systems, equipment, and all forms of back up power generation, are subject to all noise restrictions.

Cooling Systems:

1. Any system designed for cooling will not negatively impact the surrounding region.
2. Building design shall incorporate cooling systems that minimize the consumption of energy and resources, including water, and implement noise reduction measures.
3. Liquid immersion cooling with plant-based, biodegradable, non-flammable oil shall be prioritized for utilization, unless a proven incompatibility can be demonstrated, in which case a closed loop water cooling system will be considered for approval in lieu of liquid immersion cooling.
4. Cooling systems that are heavily fan reliant are not permitted.
5. Cooling systems that utilize large volumes of water are not permitted.
6. Cooling retention ponds are not permitted.
7. The use of any carbon fiber fans and any fans exceeding 19,000 revolutions per minute are not permitted.

Fire Suppression Systems:

1. Data centers shall be equipped with an automatic fire detection and suppression system designed to protect both building occupants and sensitive equipment.
2. Suppression systems shall comply with National Fire Protections Association (NFPA) standards and be approved by the fire marshall.

Sustainability:

1. Data centers must be designed to achieve a Power Usage Effectiveness (PUE) of 1.3 or lower, or provide documentation demonstrating the highest level of efficiency. reasonably achievable based on site-specific constraints.
2. Green Building Practices:
    a. New data center structures shall be designed to achieve LEED Silver certification, or an equivalent third-party sustainability certification, or provide documentation of equivalent performance standards, within 3 years of completion.
3. Heat generated by data center operations should be collected and reused/distributed to the maximum extent possible.
4. Materials to meet or exceed cool roofing standards shall be utilized for all roofing systems.

SUPPORTING RESEARCH:

Building design, especially with regard to facade and aesthetics, is not typically one of the more controversial aspects of data center development, but still must be thoughtfully considered. Most municipalities have ordinances carefully addressing building design and aesthetics for all sorts of commercial and industrial development, to ensure development occurs in a way that is compatible with the community's character. Beyond aesthetic appeal, however, there are many aspects of building design that can directly affect the development's more tangible impact on the community, especially with regard to noise and water use. The RRC wanted to note we feel the ordinance language drafted by Carlisle Wortman encompasses the most thorough language for aesthetic components. Abbreviated language was chosen for the above example facade and aesthetics section simply to limit the overall length of the section given that data center ordinances are longer in nature than most and there is the desire to expand further on the more resident impactful ordinance sections.

With regard to height, we also like Carlisle Wortman's limit of 45', however, we feel it is crucial to include the stipulation that the maximum height is to include all rooftop equipment, otherwise the facilities could end up being significantly taller than intended. Hence we feel allowing up to 50' is reasonable as that is also aligned with the current height limits of Howell's Industrial zoning district but with the requirement that rooftop equipment should also be included in the 50' and additionally be required to be screened behind a parapet wall. (Note: Howell's Industrial Flex zone height limits are 70'—substantially taller than Industrial zone's 50'—which seems problematic considering Industrial Flex is intended to be a lower-impact zone than Industrial and to be used for a buffer between industrial and residential parcels. The RRC

recommends revising the ordinances to decrease the maximum height allowed in Industrial Flex to 50’ or less, including rooftop equipment). Additionally, it should be stipulated that the height limit applies to *all* facilities and accessory structures on the property.

The section “Building Massing and Scale” does adequately emphasize compatibility with the surrounding area. It is our recommendation to ensure the language about massing and scale be flexible enough to allow a variety of building orientations (unlike some of the explicit language in Fauquier County’s ordinance). The reason for this is that buildings can (and should) be oriented in a way to be utilized for noise mitigation, and of the two impacts—massing and noise—we feel orienting buildings to minimize noise impacts would be the higher priority as opposed to visual impacts. This is something we intend to address in a future report covering “Site Design Recommendations", which will speak more broadly to the entire parcel’s layout, not just the design of the buildings themselves.

We would also recommend stipulating neutral, complementary colors, and no branding colors shall be allowed, as in Fauquier County’s ordinance, section III.E. Colors have the potential to act as a sort of billboard or advertisement, or otherwise directly allude to the business (think of Home Depot’s buildings, with orange accents). Such color choices benefit the corporations by capitalizing on brand-recognition, and come at the detriment of the community’s character and feel. Branding colors should be restricted to signage only (which should have its own set of requirements and standards). Building design colors should be discreet, neutral, and complementary so as to blend in harmoniously with the community—not serve as “free” advertisement.

Sustainability and green building design can be a highly useful tool for mitigating negative impacts of data center development. For most of the subsections in Carlisle Wortman’s “Sustainability and Green Building Design” section, we will hold off on providing research, recommendations, and commentary until a future report on those subjects (such as power use). If it is the Planning Commission’s desire to incorporate those regulations into the Building Design section, that is reasonable—we simply need time to address those other areas of concern at another meeting. For now, there are a couple of elements within the Sustainability section that are more directly related to building design that would be useful to incorporate.

Water and cooling systems are a central feature of building design which are among the most impactful elements when it comes to data centers. In virtually all of the ordinances we’ve cited, as well as the documents published with research-based guidelines, closed-loop cooling systems are exclusively required. While closed loop appears to hold the current industry best standard, there are a number of environmental concerns with water cooling, passive/evaporate and closed loop, including the additives, also known as synthetic coolants, used as they often contain Pfas and other chemicals. However, as with all technology, data center cooling systems are rapidly evolving. Liquid immersion cooling with dielectric fluid is already utilized in the industry, and has existed for many years. Loudoun County’s supervisor explicitly recommends requiring a liquid immersion cooling system, precisely because it is increasingly viable and is by far a more sustainable option in terms of both power consumption and water usage over other systems. While it is often not the first choice for the increasingly-large scale of the modern,

hyperscale data center campuses, as less expensive louder fan cooled systems are typically the first opted for over liquid immersion systems, we are seeing a shift. One of Amazon's newest hyperscale data centers in New Carlisle, IN was already discussing liquid immersion cooling for its next building phase in a CNBC interview in October 2025 in the midst of construction, proving it is a viable option that is being utilized. However there are new biodegradable, plant-based, liquid immersion oils on the market such as Cargill's Naturecool 2000 and Oleon's Qloe, that are specifically designed for high density AI computing, boosting computing performance and offering superior heat dissipation (and as a result reducing energy consumption), and in some cases lowering energy consumptions by up to 60% over fan cooled systems. The use of liquid immersion systems with plant based oil would further mitigate community concerns about groundwater contamination as water would be avoided for the cooling processes. A major benefit of implementing this requirement is that it is still on the "cutting-edge" of cooling technology for AI, meaning it will not become as quickly obsolete as other cooling technologies. It is our recommendation that the township require liquid-immersion cooling, ideally with the biodegradable oils mentioned. There are, of course, other aspects of "Water Conservation" to be addressed, which will be addressed in future ordinance sections as well.

Lastly, "Green Building Practices", like the Carlisle Wortman draft ordinance's inclusion of LEED building standards, are one of the recommendations from the AI Now Institute. We recommend additionally stipulating a timeframe for compliance, as the North Star Toolkit notes Minnesota implements.

EXAMPLES FROM OTHER ORDINANCES:

With regard to aesthetic design, a sampling of municipalities address data center building design as follows:

Albemarle, VA:

F. Building Design:

1. Any building facade visible from public streets or property abutting the data center overlay district, which is zoned residential or rural areas, must incorporate a differentiation that breaks the mass of the facade every 100 horizontal linear feet by including at least one of the following changes in form and one of the following design elements:
    a. Change in building height of a minimum of 5' for buildings less than 30' tall and 10' for buildings 30' and taller, or
    b. building step-backs or recesses with a minimum depth of 2.5'
    c. design elements that are either:
        i. change in building materials, or
        ii. change in pattern, texture, and/or color

d. The building design must include a main entrance that is differentiated from the rest of the facade

2. The following materials are not permitted on building facades: aluminum siding, unfinished or untreated wood siding, plywood siding (T1-11), vinyl siding, scored stucco (imitation brick or stone), and foam-based products.

These simple requirements help ensure the facilities do not appear as a monolithic warehouse, and that they blend in to the community and surrounding development.

Albemarle does not include cooling systems in their building design section, but they do stipulate in section 5.1.65.B.2:

"Any water cooling must use a closed loop or recycled water system."

<u>DeKalb County, GA:</u>

C. Architectural and design requirements.

1. Where visible from a publicly accessible road or right-of-way, a Medium, Major, or Campus data center shall have a minimum of thirty (30) percent of the width of the front facade of any buildings at the ground level shall consist of fenestration. Decorative windows, architecturally glazed windows and painted or applied decorative murals shall be permitted to count towards fenestration requirements after ten (10) percent. Fenestration requirements listed in this section beyond those otherwise required in Chapter 27 shall not apply to minor data centers.
    a. A mural shall be classified as a very large image, such as a painting, applied directly to a wall. Murals are signs that promote public art and shall not be used for advertising.
2. A minimum of ten (10) percent of the width of side and rear facades shall incorporate decorative windows or architecturally glazed windows.
3. The following materials shall not be utilized on the building facade: aluminum siding; corrugated steel; vinyl siding; plywood; pressed wood products; synthetic stucco; or unfinished concrete block.
4. A development operating as a data center campus shall have unified landscape and architectural elements.
5. Building height shall not exceed seventy five (75) feet in Light Industrial (M) and Heavy Industrial (M-2) zoning districts and shall be measured from average finished grade (determined by averaging the elevations of finished grade around the entire footprint of the structure) to the top of the highest roof beams on a flat roof, to the deck level on a mansard roof, and to the average distance between the eaves and the ridge level for gable, hip, shed and gambrel roofs, not including any additional rooftop equipment, which shall not exceed a maximum height of thirty (30) feet,

6. Data center developments with any mechanical rooftop equipment, including but not limited to heating, air conditioning, ventilation, generators, and other similar equipment, shall be screened with a parapet wall, false roof, or other building element that shall provide one hundred (100) percent screenings of mechanical equipment from the adjacent roadways, adjacent properties, adjacent waterways, and the site itself.
    a. The parapet wall, false roof, or building element shall be constructed of the same materials used in the construction of the principal building or structure and shall be designed to be architecturally integrated with the building's overall design.
    b. No screening shall be required for renewable energy infrastructure equipment, including but not limited to solar energy systems, wind energy systems, and other power generation equipment.
    c. No screening shall be required for any green infrastructure, including but not limited to green roofs, rooftop cisterns, and other bioretention equipment.
7. All data centers shall comply with the transitional height plane standards from Section 27-5.2.4.
8. If an application includes the use of renewable energy sources to offset at least forty-five (45) percent of a Medium, Major, or Campus data center's total energy usage, the project shall be permitted an increase in building height up to one hundred fifty (150) feet, subject to compliance with any required transitional building height planes. Renewable energy sources may consist of solar panels, an on-site solar farm, small-scale wind turbines, waste heat recovery, or any other types of renewable energy sources.

DeKalb County includes similar requirements as Albemarle, and adds regulations about rooftop equipment and the screening of such, as well as accommodations their county is willing to make for infrastructure and renewable energy sources. Their industrial districts seem much more impactful than Howell Township's, so they may be better suited to offering more leniency about those elements, without negatively impacting the surrounding area.

Another requirement DeKalb shares with Albemarle, is the specification for closed-loop cooling systems in Section D.3, and 4 (which specifies where such cooling equipment must be located):

3. All cooling and ventilation equipment shall operate on a closed-loop system.
4. Cooling, ventilation, and other external equipment shall not be located between the primary data center building and a public road or right-of-way, unless located on the rooftop of a data center building.

<u>Fauquier County, VA:</u>

III. Building Design

Standards for building design will ensure a base level of architectural quality that positively contributes to the built environment.

A. Compatibility

1. Buildings should be compatible in scale, both size and height, to the surrounding area.

2. Buildings should be aesthetically compatible with adjacent uses.

B. Building Height

1. Building heights shall not be increased above the 45-foot maximum in the BP zoning district and PCID overlay district unless the Applicant can demonstrate that proposed height is compatible with the surrounding development and that it will not have an adverse impact on adjacent and nearby properties.

a. This should be demonstrated through a visual impact analysis that is submitted as a part of a Rezoning application and verified, at the Applicant's expense, by a third party prior to submission.

2. Multi-building developments should have varying building heights.

a. Developers are encouraged to take advantage of a property's existing topography to create a variation in building heights.

C. Building Massing and Scale

1. Multi-building developments should include a variety of building sizes masses, and appearances.

a. Smaller and lower buildings are most appropriate along street frontages and near adjacent properties that do not have industrial development.

b. Larger and taller structures may be considered at the interior of the property.

2. Reduce the perceived scale of buildings by visually breaking down the large massing of typical buildings.
3. Promote architectural variation through building articulation, massing, and the variation of roof lines to provide visual interest.

a. Changes in horizontal plane are recommended to occur every 150 to 200 feet.

b. All facades should include at least one change in horizontal plane.

c. Building step-backs, projections, recesses or architectural elements should have a minimum depth of 4 feet to create shadow lines and variations in the façade.

4. Variation at the ground plan can be utilized to create transition in scale and mass as viewed from public streets.

5. Buildings should provide additive and subtractive shifts in the building footprint to reduce mass and scale.

D. Fenestration/Entryways/Windows

1. Fenestration should be used to avoid monolithic appearances and to be congruent with adjacent uses.

2. Transparency shall be provided on faces of the building that face public roads.

a. Tinted or mirrored glass is not appropriate; opaque glazing methods may be used.

b. Office spaces are recommended to have a minimum of 45% transparency.

c. Data center spaces are recommended to have a minimum of 25% transparency.

3. Primary building entryways should incorporate at least two of the following elements:

a. Overhangs

b. Distinct fenestration

c. Variation in massing and scale

d. Protected Entry

E. Exterior Colors and Materials

1. Primary building facades should use a neutral color palette.

a. Earth tones are preferred.

b. Accent colors should complement the dominant building color.

2. Changes in color and or material should only occur where the building changes plane through recesses, projections and/or offsets.
3. Colors should not act as advertisements or billboards.

a. Company advertisements or logos should be limited to signage elements only as permitted in the Zoning Ordinance.

4. Building exteriors should incorporate materials with texture, character and a natural finish.
5. It is recommended that a minimum of 50% of the entrance elevation; 35% of any street facing façade and 20% of all other elevations shall include:

a. Brick

b. Concrete (both precast and cast-in-place)

c. Metal panels or anodized aluminum

d. Glazing systems

6. All metal panels should be fully engineered, architectural quality systems.

F. Noise

1. Site Plan applications are required to demonstrate how the noise limits, as set forth in the Zoning Ordinance, will be met; Rezoning applications are strongly encouraged to provide the same level of documentation.

   a. This should be demonstrated through a noise study, prepared, and certified by a professional noise engineer.

   b. The noise study should be updated and resubmitted within 30 days of occupancy of any Data Center building.

   c. Noise studies should be verified by a third party at the Applicant's expense.

   d. Noise studies should factor in all data center related equipment, including generators, both in periods of testing and general emergency operations.

2. Generators should not be tested between 8:00 p.m. and 8:00 a.m.
3. Noise producing equipment should be screened by a solid wall which is designed in a manner which reduces potential impact to adjacent properties.
4. Applicants are encouraged to proffer a lower dBA than permitted by the Zoning Ordinance.
5. Applicants should consider providing, at their cost, continuous noise monitoring devices around the property to transmit actual noise levels at property boundaries on a continuous basis to a remote, publicly accessible, on-line data base.

G. Sustainability

1. Data Centers are encouraged to commit to a Power Usage Effectiveness (PUE) ratio of 1.5 or less and proffer such commitment,

2. Buildings should be oriented to take advantage of passive cooling and daylight opportunities.

3. Innovative technologies which reduce power consumption should be incorporated into the project's design.

4. Heat generated by Data Center operations should be trapped and reused to the maximum extent possible.

5. Buildings should incorporate heat reflective roofing.

6. Sustainable building materials should be used.
7. Generators which incorporate advanced emission control technologies and meet the EPA's Tier 4 emission standards are strongly encouraged.

As you can see, Fauquier County's Building Design ordinance is far more exhaustive than Albemarle's. Notably, their requirements go far beyond aesthetics and ensure data centers' impacts will be proactively minimized through building design to the greatest extent possible. For example, the visual impact analysis, the arrangement of multiple buildings, and even addressing noise and sustainability within this section.

Henrietta, MI:

Height Limits: A maximum building height of forty (50) feet shall be established for all principal and accessory structures.

11. Architectural Design: The exterior appearance of all buildings shall be aesthetically compatible with the rural character of the township. Building designs should mitigate nuisances, and integrate or blend into the site's environment using a "stealth" approach for security. Incorporate "green" or LEED building techniques, minimize impervious surfaces, preserve mature trees, and plant pollinator habitats are encouraged.

Henrietta's proposed ordinance is brief, but mentions elements such as nuisance mitigation, sustainability, and compatibility, but lacks any measurable standards. They do, however, propose much more nuanced language pertaining to cooling systems:

7. Water Conservation Plan: A plan detailing strategy to minimize water usage, including recycling water through closed -loop cooling systems, immersion cooling, use of non-potable water system, or hybrid system, water recycling, and release procedures, and capturing stormwater on-site. Open-loop or once-through cooling, or evaporative cooling techniques is prohibited. A data center proposal in the area would need to consider the Township's limited groundwater supplies and potential for water quality issues. All applicable local, state, federal permits will be required.

(a.) If the proposed data center is to rely on non-public water sources, the applicant shall submit an analysis of raw water needs from groundwater, and/or surface water, from private sources indicating quantity of water required. A water feasibility study shall be provided at developer's expense.

(b.) If the source of water is from a municipal system that could be extended to the projects' location, at the applicant's expense; the applicant shall submit documentation that the public authority including permits from the Jackson County Drain Commission, and Jackson County Health Department, and other applicable agencies, will supply the water needed.

One notable difference is the inclusion of immersion cooling—an increasingly attractive option for cooling, as it uses minimal to no water, and does not produce noise the way fan-cooling does. The use of non-potable water system is another alternative that is gaining popularity; Google in West Memphis, AK, built the city a new water treatment plant, and exclusively utilizes gray water. In contrast to Henrietta's draft ordinance, the Howell Township RRC does not recommend allowing data centers to use non-municipal water, as that would put the numerous residential wells in the township (and neighboring townships) at risk; requiring municipal water, with any necessary infrastructure upgrades or expansion being at the developers' expense would be the prudent way to go. We intend to address this matter in more depth when we cover "utilities" at a future date.

Loudoun County, VA White Paper:

One of the members of Loudoun County, VA Board of Supervisors wrote an extensive overview of the crisis their region is facing regarding data center development, and ordinances and regulations that are lagging behind the curve. This "White Paper" does not contain much information about the aesthetic elements of building design, as that is one of the least-impactful issues they are grappling with. The paper does, however, include a list of recommendations for municipalities to consider adopting in their ordinances, based on their decades of experience with data centers and extensive research into the existing and emerging technology. Among those guidelines, is a very clear and concise recommendation for liquid immersion cooling:

Desired Attributes (All Data Centers):

10. Liquid-submerged Data Racks

The RRC strongly urges the Planning Commission to heed Loudoun County's advice and require this cooling technology due to its minimal (to no) impact on water usage, and relatively low power demand. It is an increasingly utilized technology, and will continue to advance as more regulations begin requiring responsible cooling systems.

Oldham County, KY:

g. Height. Data Center and any appurtenant equipment shall not exceed forty (40) feet in height, measured from adjacent grade; including any roof mounted mechanical equipment with the following exception: The BZA may approve a modification to allow greater height, if found to be necessary to accommodate slopes without grading or to accommodate screening, provided the increase in height does not negatively impact nearby land uses or the character of the area.

The notable features of Oldham County's requirement are how rooftop equipment is included in their height limit—which also happens to be one of the shortest heights in ordinances we have looked at. They, too, require a specific type of cooling system:

dd. Cooling – All liquid cooled equipment shall be done so by a closed loop system.

North Star Data Center Policy Toolkit:

In addition to what other ordinances are already doing, there are recommendations from independent research organizations which would be helpful to consider when analyzing the pros and cons of various ordinance options. The AI Now Institute is an independent research institute, which "develops policy strategies to redirect away from the current trajectory: unbridled commercial surveillance, consolidation of power in very few companies, and a lack of public accountability". They were invited to present to the US Federal Trade Commission about this subject in 2021, and have published a document called the "North Star Data Center Toolkit" with evidence-based recommendations. With regard to Building Design, their recommendations are as follows:

Specify Design Requirements:

Without aesthetic specifications, data centers tend to default to large and unwelcoming concrete buildings. The following requirements can help mitigate this default design.

Facade and Principal Building Requirements:

Cities can specify requirements for aesthetic elements of data centers and require data centers to incorporate specific design principles, such as changes in building height, building step-backs or recesses, windows, and use of accent materials.

- Strong example: The city of Phoenix, Arizona, specifies that building facades must contain architectural embellishments such as textural changes, pilasters, offsets, windows, and overheads/canopies.[1] Buildings should include variations in colors, materials, patterns, and heights.

Shielding Mechanical Equipment from View:

Data centers should screen and shield mechanical equipment so it is not visible.

- Strong example: In Prince William County, Virginia, data centers are required to screen all ground-level and rooftop mechanical equipment from view.[2]

Establish Landscape Requirements:

[1] City of Phoenix, Arizona, City Code § 507 Tab A, Guidelines for Design Review, https://phoenix.municipal.codes/ZO/507_TabA.
[2] Prince William County, VA, Ordinances § Sec. 32-509.01.

Local governments can require pathways, open green space on property lines, vegetation, and specific types of fencing. (Chain-link and barbed-wire fencing may be prohibited, for instance.)

- Strong example: Phoenix, Arizona, requires two rows of large canopy shade trees, shrubs, and ground cover to mitigate the negative visual impact of data centers.[3]
- Strong example: Prince William County, Virginia, specifies fencing requirements for data centers, stipulating that fences cannot be chain-link or barbed-wire.[4]

Limit Building Conversion:

Limit buildings that can be converted into data centers to prioritize other building use cases, such as housing.

- Strong example: Atlanta, Georgia, stipulates that only buildings more than 50 years old may be converted.[5]
- Cautionary example: The Houston Funplex, a landmark community center in Houston, Texas, was purchased by a private developer amid speculation that it may be converted into a data center.[6]

Require Green Building Standards:

Localities should mandate that data centers be built utilizing green building standards such as LEED,[7] ISO 14001,[8] or ISO 50001.[9]

- Strong example: Minnesota introduced HF 4929,[10] requiring certification for sustainable design or green building standards within three years of construction.

The key takeaway from their recommendations are the importance of being specific in design requirements. Fauquier County and DeKalb County, as shown above, appear to follow this guideline by leaving little wiggle room for developers to take advantage of. Additionally, the emphasis on “Green Building Standards” should be noted—incorporating LEED standards (or other similar standards) into building design requirements can help mitigate problems before they manifest. The North Star Toolkit also recommends specifying or requiring cooling systems which have a minimal impact on water usage.

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[3] Phoenix, AZ, Zoning Ord. § 507 Tab A.
[4] Prince William County, VA, Ordinances § Sec. 32-509.01.
[5] City of Atlanta, Ordinance 25-O-1063 (2025).
[6] Camille H, “Stop the Houston Funplex from Turning into a Data Center!,” Change.org, July 26, 2025, https://www.change.org/p/stop-the-houston-funplex-from-turning-into-a-data-center.
[7] USGBC, “LEED Rating System,” USGBC, accessed December 2, 2025, https://www.usgbc.org/leed.
[8] ISO, *ISO 14001:2015 – Environmental Management Systems — Requirements with Guidance for Use*, 2015, https://www.iso.org/standard/60857.html.
[9] ISO, “ISO 50001– Energy Management,” ISO, accessed December 2, 2025, https://www.iso.org/iso-50001-energy-management.html.
[10] Minnesota House of Representatives, House File 4929, 2023–2024 Session, https://www.revisor.mn.gov/bills/93/2024/0/HF/4929/versions/latest.

Northern Virginia HOA & Civic Associations' Collaborative Data Center Design and Construction Recommendations:

On the subject of mitigating problems preemptively through comprehensive and specific ordinances, there is much to be learned from the Northern Virginia community, commonly referred to as "data center alley". (Fauquier County falls within this general area, and has been involved in the published recommendations). The region was welcoming to data center development through the 1990's and early 2000's, enjoying the financial benefits from the tax revenue without experiencing too many problems within the community. As data centers grew larger and more impactful—and especially with the advent of AI-purpose built facilities—they found themselves with some major challenges with the compatibility (or lack thereof) between their booming data center industry and their growing residential population. As a result of this conflict, HOA's have begun collecting dues to specifically cover attorney fees to help the residential communities advocate for better protections and remediation of nuisances. These organizations have also collaborated on publishing a document with ordinance recommendations, to help ensure future data center development is done in a responsible and compatible way. It seems prudent to look at what they have to say, so that we can avoid making the mistakes they have had to address retrospectively.

II. Height*

Data center building heights are critically important where they negatively affect adjacent and nearby incompatible uses. Residential neighborhoods are particularly affected by a "David and Goliath" effect when massive structures are placed next to homes casting a giant shadow, often preventing the sun from reaching windows for significant periods of the day. This is only one of the unintended consequences of industrial uses that are improperly sited. Building heights for projects meeting the siting requirements in item I above could adhere to established local ordinance for industrial uses. Enhanced* standards should be implemented, to the maximum extent possible for approved developments that do not meet siting and setback standards in item A above prior to site plan approval as follows:

A. Maximum height of 75 ft to include all mechanical equipment, and parapet walls.

B. Maximum building height reduced to 45 ft., for any facility within 40 ft of the required minimum setback. As mentioned above, the recommended minimum setback should be 100ft for those developments that meet recommended siting.

For reference, “item A” is referring to the distances of data centers from various other properties:

Data centers should be sited as follows:

A. ¼ mile (1300’) from residential, schools & county/city parks

B. ½ mile (2600’) from state parks

C. 1 mile from national parks

Development proposals meeting the above siting should achieve a minimum 100ft setback from their property lines. Understanding the unique challenges and negative impacts of data center development, as well as implementing changes after zoning amendments are approved, developments that do not meet the above siting should, prior to submitting site plans, re-configure building footprints to achieve 500 ft setbacks where possible. Such efforts should include implementing all enhanced standards detailed below for building height, screening, noise, lighting, and environmental impact noted by an asterisk (*). Existing developments with siting and setbacks that do not meet the above, should examine their operational ability to achieve the enhanced standards of screening, noise, lighting, and environmental impact to the maximum extent possible.

The language here is primarily concerned with height, but does a thorough job of attempting to protect residential (and recreational) interests while ensuring development is still feasible. To summarize their requirements: developments located according to the prescribed distances from residential, schools, and various parks should have a minimum of 100’ setbacks for the buildings from their property lines, and can have a maximum height of 75’ if the facility is not within 40’ of the setbacks (so, 140’ setback total). Facilities within 40’ of the minimum setback are required to be no taller than 45’. (For developments that do *not* meet the siting criteria for appropriate distances from residential, schools, and parks, they recommend setbacks of 500’, and again- any facilities within 40’ of the setback, must only be 45’ tall at maximum). This ensures the facilities closest to residential, schools, and parks, do not tower over the surrounding area and block sunlight and views. Considering the area of Howell Township’s proposed Data Center Overlay district does fall within the ¼ mile recommendation of various (albeit a minimum) residential properties, heeding their increased setbacks and—most relevantly to building design—more conservative restriction on height would appear to be the most applicable to our community’s needs.

On water, the Northern Virginia HOA’s also recommend ordinances that protect the community’s water supply:

1. Closed-loop cooling systems and maximum use of recycled water should be required.

Their language seems to also point toward utilizing gray water, as previously mentioned.

<u>Carlisle Wortman Draft Ordinance:</u>

Finally, we feel it will be instrumental to compare the above examples and recommendations with what Carlisle Wortman has already tentatively drafted for the township. On height, their draft says:

b. Maximum Building Height: 45 feet, 3 stories

On other design elements, the draft includes the following:

F. Building Massing, Façade Requirements, and Material Requirements

1) Massing and Scale

a. Building massing, height, bulk, scale, and proportion shall maintain consistency with the existing character of the adjacent buildings.

b. Building design should employ coordinated massing to produce overall unity, scale, and interest.

c. Rooflines and pitches shall be proportionate to nearby structures so as to provide transition or mitigation of significant changes to scale.

2) Architectural design and building materials.

a. Facade variation. Wall designs must provide a minimum of three of the following elements, in addition to transparency requirements, occurring at intervals no greater than 25 feet horizontally and 10 feet vertically:

1. Expression of structural system and infill panels through change in plane not less than three inches.

2. System of horizontal and vertical scaling elements, such as: belt course, string courses, cornice, pilasters.

3. System of horizontal and vertical reveals not less than one inch in width/depth.

4. Variations in material module, pattern, and/or color.

5. System of integrated architectural ornamentation.

6. Green screen or planter walls.

7. Translucent, fritted, patterned, or colored glazing.

8. Transparency as required in Section 40-11.50(F)(2)(b).

b. Transparency.

1. To ensure façade variation, the use of windows and doors is required. The first floor of any front facade facing a right-of-way shall be no less than 20% clear windows and doors, and the minimum transparency for facades facing a side yard, or parking area shall be no less than 15% of the facade. Ground-story transparency is measured between two and eight feet above the ground story elevation. The transparency requirement shall be measured and applied to each separate unit, address or space. Visibility through the required transparency must portray the principal use of the operation and shall not portray secondary or back of house operation areas, including, but not limited to, laundry, cleaning supply, stock, or storage areas.

2. Windows for building sides shall be concentrated toward the front edge of the building, in locations most visible from an urban open space or public right-of-way.

3. Transparency alternatives. The following alternatives may be used singularly or in combination for any side or rear facing facade which requires transparency. If used in combination, they may count toward no more than 50% of the transparency requirement set forth in § 40-11.50(F)(2)(b).

c. Architectural style shall not be restricted. Rather, evaluation of the appearance of a project shall be based upon compatibility and the quality of its design and relationship to surroundings.

d. Buildings within the same development should be designed to provide a unified and easily identifiable image. Methods to achieve this include using similar architectural styles and materials, complementary roof forms, signs, and colors.

e. Minimize monotony of expansive exterior walls by incorporating the following elements: staggering of vertical walls; recessing openings; providing upper-level roof overhangs; using deep score lines at construction joints; contrasting compatible building materials; use of variety and rhythm of window and door openings; use of horizontal and vertical architectural elements, use of horizontal bands of compatible colors; and providing changes in roof shape or roofline.

f. Facades shall provide visual interest from both vehicular and pedestrian viewpoints.

g. Entrances to individual buildings shall be readily identifiable to visitors through the use of recesses or pop-outs, roof elements, columns, or other architectural elements.

3) Material standards.

a. Durable building materials, simple configurations, and solid craftsmanship are required. At least 75% of walls visible from public streets, exclusive of wall areas devoted to meeting transparency requirements, shall be constructed of brick, glass, metal (beams, lintels, trim elements, and ornamentation only), wood lap, stucco,

split-faced block, or stone. Vinyl or aluminum siding shall only be used for accents. Exterior Insulation Finishing Systems (E.I.F.S.) or similar material is not permitted as a primary building material.

b. Materials shall be selected for suitability to the type of buildings and the architectural design in which they are used.

c. Material selection shall be consistent with architectural style in terms of color, shades, and texture; however, monotony shall be avoided.

d. Materials shall be consistent with adjoining buildings.

e. Buildings shall have the same materials, or those that are architecturally compatible, for construction of all building walls and other exterior building components wholly or partly visible from public ways and public parking lots.

f. In any design in which the structural frame is exposed to view, the structural materials shall be compatible within themselves and harmonious with their surroundings.

g. Transitional features.

1. Transitional features are architectural elements, site features, or alterations to building massing that are used to provide a transition between higher-intensity uses and low- or moderate-density residential areas. These features assist in mitigating potential conflicts between those uses. Transitional features are intended to be used in combination with landscape buffers or large setbacks.

2. Intensity. A continuum of use intensity, where moderate-intensity uses are sited between high-intensity uses and low-intensity uses, shall be developed for multibuilding developments. An example would be an office use between commercial and residential uses.

3. Height and mass. Building height and mass in the form of building step-backs, recess lines or other techniques shall be graduated so that structures with higher-intensity uses are comparable in scale with adjacent structures of lower-intensity uses.

4. Architectural features. Similarly sized and patterned architectural features, such as windows, doors, arcades, pilasters, cornices, wall offsets, building materials, and other building articulations included on the lower-intensity use shall be incorporated in the transitional features.

G. Sustainability & Energy Use Requirements

4) Water Conservation.

a. Cooling systems shall be designed to minimize potable water use, with preference for air-cooled, hybrid, or closed-loop water systems.

b. Facilities using water-based cooling must demonstrate the use of recycled, reclaimed, or non-potable water sources to the maximum extent feasible.

5) Green Building Practices.

a. New Data Center structures shall be designed to achieve LEED Silver certification or an equivalent third-party sustainability certification, or provide documentation of equivalent performance standards.

b. The Zoning Administrator may approve alternative documentation demonstrating substantially similar environmental performance.

SOURCES:

Albemarle, VA:
https://ehq-production-us-california.s3.us-west-1.amazonaws.com/2974843a5a3f4c1f85db5b3f3c6bc7552aea3fdf/original/1752183321/5f72f3fe5a379272776d8b87a954e749_Data%20Center%20Draft%20Ordinance.pdf?X-Amz-Algorithm=AWS4-HMAC-SHA256&X-Amz-Credential=AKIA4KKNQAKIPIPQP5NM%2F20260118%2Fus-west-1%2Fs3%2Faws4_request&X-Amz-Date=20260118T170640Z&X-Amz-Expires=300&X-Amz-SignedHeaders=host&X-Amz-Signature=5ffee0321f2416058baa2184f69743a0070d63e94ffee624ec9a75f24f3361b9

DeKalb County, GA:
https://engagedekalb.dekalbcountyga.gov/data-center-text-amendment?

Fauquier County, VA:
https://www.pecva.org/wp-content/uploads/fauquier-data-center-policy-december-14-2023.pdf#:~:text=1.%20Site%20Plan%20applications%20are,Rezoning%20applications%20are%20strongly%20encouraged

Jackson County, MI: (Pages 26-35)
https://www.region2planning.com/wp-content/uploads/2025/12/Draft-JCPC-Packet.pdf

Loudoun County, VA:
https://www.loudoun.gov/ArchiveCenter/ViewFile/Item/13979

North Star Data Center Toolkit:
https://ainowinstitute.org/publications/data-center-policy-guide

Northern Virginia HOA:
https://bloximages.chicago2.vip.townnews.com/insidenova.com/content/tncms/assets/v3/editorial/a/db/adb8e81c-5d60-11ee-8775-9b5df651eff6/65146f7595700.pdf.pdf

Oldham County, KY:
https://acrobat.adobe.com/id/urn:aaid:sc:VA6C2:d3067e3d-1a29-40d1-a685-343d833a3312

Across the many examples we reviewed, the information on data center building design requirements was quite thorough and specific, and was generally aligned with many of the best-practice recommendations. There may be additional items the Planning Commission will decide should fall within the Building Design Requirements section as we move though the ordinance but we feel the information provided in this report provides a solid base to start discussions from.

Respectfully,

The Howell Township Resident Research Committee