



Prince William County Noise Ordinance Update

September 11, 2024

PRESENTED TO: Prince William County/Data
Center Ordinance Advisory Group



Photos borrowed from: <https://historicprincewilliam.org/county-history/aerial-photo-survey/>

Prince William County

Noise Ordinance Update

YOUR **JMT** Team

AGENDA

Peer Community Reviews
Recommendations

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Peer Reviewed Communities

I. Chandler, AZ

A. No data center overlay. Always submitted as an unintended use with restrictive access.

B. Required to meet and not add to 44 decibel level.

1. Continued monitoring during and after build.

2. As well as monitoring several years after occupancy for compliance.

C. Neighborhood notification of incoming data center within miles determined by Planning Commission.

D. Enforces sound mitigation

1. Requires data centers to minimize noise from HVAC including supply ducts.

2. Requires data centers to minimize noise from cooling fans for servers and other IT equipment.



II. Collier County, FL

A. Noise Ordinance divided into multiple sections under environmental sound.

B. Zoning codes were updated to clearly identify requirements based on industry and location.

Peer Reviewed Communities, cont.

III. Fairfax County, VA

A. Combined Code Ordinance with Planning & Zoning

1. Allow certain levels of daytime noise so that people can live, work, and play during the day
2. Minimize nighttime noise so residents have an appropriate quiet environment in their homes at night.

B. Created the Department of Code Compliance

1. Investigates noise complaints regulated by decibels by conducting inspections.
2. Issues violations with compliance timelines. Has legal authority to seek penalties or injunctive relief.

IV. City of Manassas, VA

A. Studies were conducted over two years which informed the Noise Ordinance update.

1. Measure maximum sound levels from the source.
2. Reduced the maximum sound levels for industrial districts.
3. Change start times for loading/unloading operations from 6 a.m. to 7 a.m.
4. Remove commercial and industrial cooling equipment from noise limit exemptions.

B. Maximum Sound Levels were adjusted based on the type of district

1. Industrial districts were reduced from 79 decibels to 70 decibels during daytime hours and from 72 decibels to 65 decibels during nighttime.
2. Commercial districts cannot exceed 65 decibels during the day and 60 decibels at night.
3. Downtown Entertainment District limits are 65 decibels during the day and 60 decibels at night.
4. Musical Entertainment Businesses have a variance not to exceed 80 decibels 50 feet past the property's boundary from 11:30 p.m. and 9 a.m.

Peer Reviewed Communities, cont.

V. King George County, VA

A. 2023 consultant study led to Noise ordinance update

1. Created in-depth definition list
2. Clarified continuous noise versus impulse noise
3. Added dBC as an additional measurement

B. Updated Maximum Permissible Levels charts

(f) *Prohibited noise generally.* It shall be unlawful for any person to create any noise and/or sound originating in the county which exceeds the maximum permissible levels as follows:

Maximum Sound Levels Measured in dBA (Daytime)		
<u>Zoning District of Noise Source</u>	<u>Continuous Sound</u>	<u>Impulse Sound</u>
Agricultural	65	75
Commercial	65	75
Industrial	70	75
Mixed Use	65	75
Residential	65	75
Resort Community	65	75
Maximum Sound Levels Measured in dBA (Nighttime)		
<u>Zoning District Receiving Sound</u>	<u>Continuous Sound</u>	<u>Impulse Sound</u>
Agricultural	60	75
Commercial	65	75
Industrial	65	75
Mixed Use	60	75
Residential	60	75
Resort Community	60	75

Maximum Sound Levels Measured in dBC (Daytime)		
<u>Zoning District of Noise Source</u>	<u>Continuous Sound</u>	<u>Impulse Sound</u>
Agricultural	75	90
Commercial	90	100
Industrial	90	100
Mixed Use	80	90
Residential	75	90
Resort Community	80	90
Maximum Sound Levels Measured in dBC (Nighttime)		
<u>Zoning District Receiving Sound</u>	<u>Continuous Sound</u>	<u>Impulse Sound</u>
Agricultural	65	80
Commercial	80	90
Industrial	80	90
Mixed Use	70	80
Residential	65	80
Resort Community	70	80



Peer Reviewed Communities, cont.

VI. Fauquier County, VA

Updated Zoning Policy – only allows Data Centers in two (2) zoning districts with a caveat that “data center use should not be expanded to other zoning districts.”

A. Planned Commercial Industrial District

B. Business Park zones

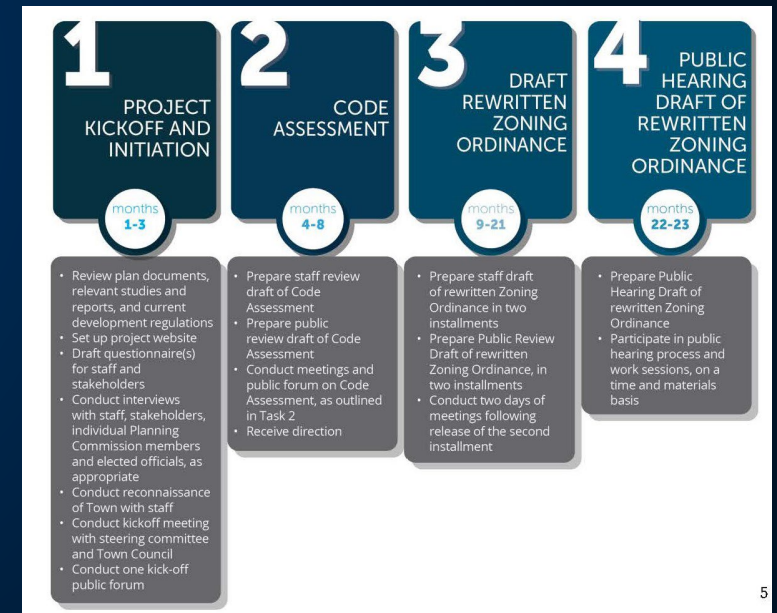
1. Only one Business Park zone exists in the County
2. Currently, that Business Park is fully approved for a Data Center - approved in 2018
3. Additional requirements for Data Centers for Fauquier County can be found in Recommendations - Additional Process.

C. Warrenton, VA

In 2022 Warrenton’s noise ordinance was updated which provided a more specific distinction between what is allowed on weeknights and what is permissible on weekends.

A. Update to Zoning Ordinance

1. Process started June 2024
2. Extensive process with an engagement platform:
<https://www.warrentonzoningordinanceupdate.com/>
3. Timeline for the Work Program and Schedule is provided on the website.



Peer Reviewed Communities - Warrenton

The updates to Warrenton’s noise regulation was conducted through their Zoning Ordinance.

Section 9-14.2

“The sound pressure level of sound radiated from an establishment, measured at the lot line of the site thereof that is the nearest thereto, shall not exceed the values in any octave band of frequency that are specified in Table 9-1 below, or in Table 9-1 as modified by the correction factors set forth in Table 9-2. The sound pressure level shall be measured with a sound level meter and an associated octave band analyzer conforming to standards prescribed by the American National Standards Institute (ANSI).”

Table 9-1
Maximum Permissible Sound Pressure Levels Measured
re 0.0002 dyne per CM²

Frequency Band Cycles per Second	Along Residential District Boundaries – Maximum Permitted Sound Level In Decibels	At Any Other Point on the Lot Boundary – Maximum Permitted Sound Level In Decibels
63	64	72
125	60	70
250	54	65
500	48	59
1000	42	55
2000	38	51
4000	34	47
8000	30	44

Table 9-2
Correction Factors

Condition	Correction in Decibels
On a site contiguous to or across a street from the boundary of any R-district established by this chapter.	Minus 5
Operation between the hours of 10:00 p.m. and 7:00 a.m.	Minus 5
Sound of impulsive character (e.g., hammering)	Minus 5
Sound of periodic character (e.g., sawing)	Minus 5
Tone (e.g., hum or screech)	Minus 5
Sound source operated less than:	
20% in any one hour period	Plus 5 ¹
5% in any one hour period	Plus 10 ¹
1% in any one hour period	Plus 15 ¹

1. Apply only one of these corrections. All other corrections (including any one of the footnoted) are cumulative.



European Union – Energy Efficiency Directive 2023

[European Commission \(europa.eu\)](https://european-council.europa.eu/media/en/press-operations/infographic-116789.jpg)

A. The recent Energy Efficiency Directive set a new binding target of reducing the EU energy consumption by 11.7% by 2030.

B. Estimates show that Ireland and Denmark could show exponential increases in electricity use by data centers by 2030.

1. Mandatory Reporting: Data center operators with a total rated power of at least 500 kilowatts (kW) are required to publicly report their energy performance data annually.
2. Waste Heat Utilization: Data centers with a total rated power exceeding 1 MW must utilize their waste heat for heating purposes or other energy recovery applications unless it is technically or economically unfeasible.
3. Renewable Energy Integration: Data centers should prioritize the use of renewable energy sources for their electricity consumption.
4. Optimizing Energy Consumption: Data center operators must implement energy efficiency measures to reduce their overall energy consumption. This includes optimizing cooling systems, using more efficient IT equipment, and adopting virtualization and server consolidation techniques.

Netherlands

A. Data Centers in this region face various challenges

1. High energy costs.
2. Competition for skilled personnel.
3. Limited land availability for expansion.
4. Power grid congestion and regulatory constraints related to environmental impact.

B. There is a scarcity of suitable locations in the Netherlands

1. The Dutch government imposed new rules for hyperscale data centers.
2. Amsterdam issued a decision restricting the development of new data center projects.



Additional Peer Reviewed Communities

Location	Findings
Sunnyvale, CA	<p>Recommend using their Construction Noise limits. “Construction is permitted Monday through Friday from 7 AM to 6 PM and Saturday from 8 AM to 5 PM. Construction is not permitted on Sundays or federal holidays. Loud noises, such as air compressors without mufflers, generators, and loud music, are not permitted if they would be a nuisance to nearby residents.”</p>
Atlanta, GA	<p>Not applicable due to size of metropolitan area.</p>
Frederick County, MD	<p>Only currently has two small data centers, Social Security and Fannie Mae. While the County and municipalities here are working to plan for the incoming data centers, there is not comparable infrastructure.</p>
Montgomery County, MD	<p>PWC should explore developing a similar brochure/flyer: https://www.montgomerycountymd.gov/DEP/Resources/Files/property-care/noise/noise-brochure.pdf</p>
New Albany, OH	<p>Updated their Comprehensive Plan in 2014 which is 10 years ago. Newer technology and noise mitigation strategies are available. However, PWC should look to add any recommendations for the Planning and Zoning study to their comprehensive planning document.</p>
Virginia Beach, VA	<p>Supreme Court Ruling eliminated the reasonable person test for sound. Adopt the updated Maximum Permissible Sound Levels and Residential Dwellings. VA Beach 23.69</p>



Recommendations | Essential Updates

These recommendations can be updated or adjusted without much process and within a short timeframe.

- 1. Add Commonwealth code and language of consistency with State and Federal Laws** – Ensure the authority to draft and enforce the ordinance is listed in 14.1.
 - “Authority granted by the Commonwealth of Virginia” Code of Virginia, § 15.2-1700 per Dillion Rule;
 - “and that it is the policy of the Board to prevent such noise to the extent such action is consistent with Federal and State laws.”
- 2. Definition Changes** – JMT is recommending small changes to provide better clarification.
 - Change *Definitions* from 14.3 to 14.2 – Relocate the Definitions to earlier in the Ordinance to improve document flow.
 - Add definitions for updated information (list to be provided with Best Practices Memo).
- 3. Divide Ordinance into Categories of Noise**
 - Nuisance Noise - any loud, irritating, vexing or disturbing sound originating from a nearby property under separate ownership which causes injury, discomfort, or distress when person making the complaint is inside their dwelling with doors and windows closed. These types of events should be temporary or occurring randomly.
 - Industrial Noise - unwanted or excessive sound produced by industrial activities and processes observed by the person making the complaint who is inside their dwelling with doors and windows closed. This type of noise pollution can be measured with an appropriate sound meter and should fall within the *Maximum Permissible Equivalent Continuous Sound Level* table limits.

Recommendations | Essential updates, cont.

These recommendations can be updated or adjusted without much process and usually within a short timeframe.

4. Update 14.4 Maximum Permissible Sound Levels generally –

- Revise “*maximum permissible sound level*” to “*maximum permissible equivalent continuous sound level*” (Leq)
- Include levels for dB(C) to account for low-frequency noise.
- Add limits/modifiers for impulsive and short-duration noises using Lmax and statistical noise levels (Ln).
- **L10** – short duration/intermittent noises may not exceed thresholds more than 10% of the time.
- **Lmax** – at no time shall even short-duration events exceed thresholds by more than 10 dB.

5. Update enforcement for officers responding to permitted events or gatherings

- Allow for immediate revocation of permit, in writing if:
 - a. Permit holder has misrepresented material fact in applying for a permit.
 - b. The premises covered by the permit are not in compliance with applicable regulations or with the permit restrictions as approved by the County.

Recommendations | Additional Process

These types of recommendations may require legal review or coordination outside of the traditional noise or planning ordinance updates and could potentially need Legislative approval or other types of action.

1. Update Planning Ordinance

- Address incoming facilities and their potential noise impacts on the surrounding area.
- Remove the Data Center Overlay and any by-right approvals. Having a location where Data Centers can be “automatically permitted” may lead to future approvals of residential development next to or close to these centers without consideration for impacts.

2. Develop a checklist for incoming Data Centers and what the County would like done prior to approval

- Items on Checklist may include noise study with not-to-exceed decibel levels, additional design standards, increased setbacks, types of buffers, etc.
- Break out Construction noise limits.

Example: Construction is permitted Monday through Friday from 7 AM to 6 PM and Saturday from 8 AM to 5 PM. Construction is not permitted on Sundays or federal holidays. Loud noises, such as air compressors without mufflers, generators, and loud music, are not permitted if they would be a nuisance to nearby residents.

Recommendations | Additional Process

These types of recommendations may require legal review or coordination outside of the traditional noise or planning ordinance updates and could potentially need Legislative approval or other types of action.

3. Change enforcement authority for Nuisance Noise violations;

- Permit County Director or assigned representative to determine appropriate responding agency or staff
- Update ordinance to identify specific agencies or staff response. i.e. barking dog, cats crying, birds, etc. should be addressed by Prince William County's Animal Welfare Officers.
- Industrial noise should be handled by County personnel, trained in use of a noise monitoring device.
- Update the ability to assess a violation based on the formula and methods outlined within the ordinance.

4. Change how citations, fees and penalties are assessed – Legislation required

Bring penalties inline with Fairfax County's Noise Ordinance section [108.1-3-2](#):

- (a) Any violation of any provision of this Chapter shall constitute a **Class 2 misdemeanor** and upon conviction thereof, shall be punishable up to no more than **six months in jail and a fine of not more than \$1,000, either or both**. Failure to abate any such violation within the time period established by the Court shall constitute a separate Class 2 misdemeanor offense.
- (b) In lieu of the criminal penalties set forth above, a violation of any provision of this Chapter may be punishable by a **civil penalty of not more than \$250, or \$500 for each subsequent offense**. However, this civil penalties provision shall not apply to noise generation in connection with business being performed on industrially zoned property, nor shall this provision apply to railroads or to sound emanating from any area permitted by the Virginia Department of Mines, Minerals and Energy or any division thereof.
- (c) In addition to, and not in lieu of, the penalties prescribed in this section, **the Board may apply to the circuit court for an injunction against the continuing violation of any of the provisions of this Chapter and may seek any other remedy or relief authorized by law.** (29-15-108.1.)

Recommendations | Additional Process

These types of recommendations may require legal review or coordination outside of the traditional noise or planning ordinance updates and could potentially need Legislative approval or other types of action.

3. Change zoning and building codes to require high quality design practices:

- Implement requirements for solar, wind or other alternate energy production on the data center campus or within the building's exterior.
- Require plantings of native tree and shrub species in available open spaces. The plantings should be maintained by the data center.
- Require any noise generating equipment to be contained within acoustical barriers that aesthetically fit with the surrounding area.

4. Follow Zoning Ordinance Update in Warrenton, VA closely. Consider replicating tools they determine will improve design and noise control measures. Kickoff was June 2024

<https://www.warrentonzoningordinanceupdate.com/>



Recommendations | Additional Process

These types of recommendations may require legal review or coordination outside of the traditional noise or planning ordinance updates and could potentially need Legislative approval or other types of action.

Consider adding Fauquier County updates to PWC Zoning Ordinance, with potential variations:

1. Data Centers should be located no further than one mile from an existing electric transmission line.
2. Fauquier's zoning ordinance, requires that all 230- kilovolt transmission lines and lower-voltage distribution lines for data centers be buried.
3. Data Centers and their transmission lines and substations cannot be located along national or Virginia scenic byways.
4. Compatibility: The policy states that the huge data center buildings "should be compatible in scale" to the surrounding area.
5. The policy limits buildings to 45 feet in height, which is one story for a data center.

Questions

