

Guidelines for Data Centers

Community Input Session
October 5, 2023



PLANNING & DEVELOPMENT



Board Matter - May 9, 2023

Directed staff to:

- Research environmental issues and mitigations
- Develop locational guidelines
- Review how data centers should be approved
- Consider if guidelines should be in the Comprehensive Plan and Zoning Ordinance



CoreSite, 12098 Sunrise Valley Dr.

Project phases



AWS, 4101 Westfax Dr.

Summer 2023 - Initial research

- Assemble staff team and consultant services
- Background research
- Information gathering meetings (industry and environmental stakeholders)

Fall 2023 - Continue research and outreach

- Continue meeting with stakeholders
- Community input session
- Board Land Use Policy Committee October 17
- PC Land Use Process Review Committee October 26

Late fall/early winter - Deliverables

- Prepare and transmit report to Board before end of year

2024 - Next steps

- Potential presentations on recommendations
- Comprehensive Plan and Zoning Ordinance amendments TBD

Staff departments

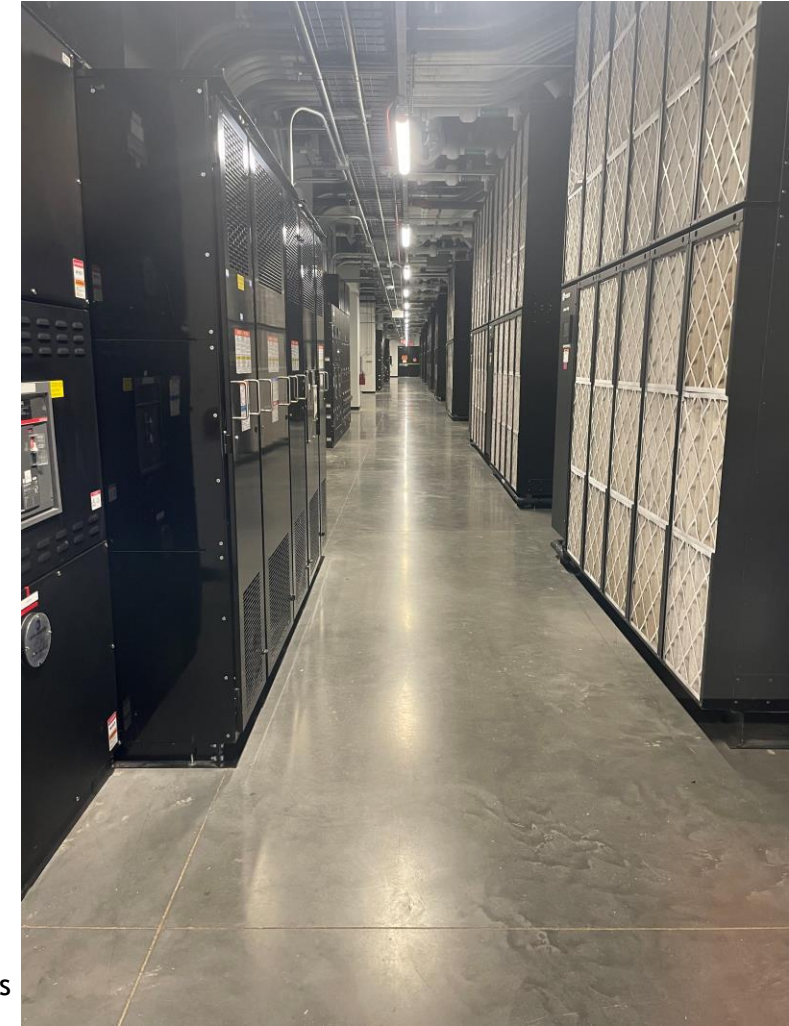


What is a data center?

A data center is purpose-built to house computer servers and network connections

- Optimal cooling and other systems to support servers
- Secure environment
- Built for 99.999% reliability
- Growth spurred by:
 - More people online
 - Business, finance, entertainment, healthcare, education
 - AI, autonomous vehicles, and more!

Where is
“the
cloud”??



Data centers in Fairfax

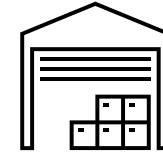
Existing, in progress, and proposed



- 12+ existing
- Range in size from about 30,000 sf to 500,000 sf



- 5 in progress
- Range in size from about 240,000 sf to 2+ million sf



- 1 proposed
- About 400,000 sf

Existing guidelines - Comprehensive Plan

Land Use Element of the Policy Plan, Appendix 12:

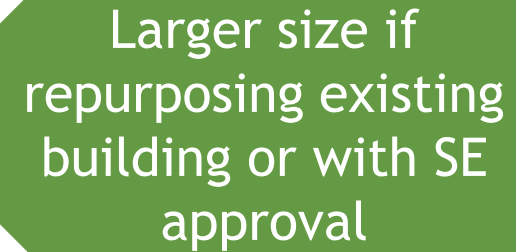
- Performance criteria related to:
 1. Transportation
 2. Noise, light, environment
 3. Building design
 4. Parcel consolidation
 5. Site design

Rendering, SE Plat, CoreSite,
12379A Sunrise Valley Dr.



Existing regulations - Zoning Ordinance

- Defined as an industrial use
- Allowed in industrial districts and medium and high intensity office districts, and certain planned districts
 - C-3 and C-4 (office) by right up to 40,000 GFA
 - I-2 and I-3 by right up to 80,000 GFA
 - I-4, I-5, I-6 allowed by right
 - PRC, PDC, PTC allowed where shown on approved development plan
- Must enclose HVAC and generators (except in I-4, I-5, I-6)



Larger size if
repurposing existing
building or with SE
approval

Existing regulations - Zoning Ordinance (cont'd)

Transitional screening

Section 5109 of the Zoning Ordinance

- Current: 35' next to single-family dwellings
- Draft Landscaping amendment: 50' next to single-family dwellings

Parking

Article 6 of the Zoning Ordinance

- Current: 1 space/1.5 employees + 1 space/company vehicle
- Approved parking amendment: 2 spaces/1,000 SF of office

Research topics

- Energy demand
- Water demand
- Water quality
- Air quality
- Noise
- Aesthetics



AWS, 3980 Virginia Mallory Dr.

Energy and water demand

Energy and water use depends on type of cooling

- Air-cooled systems use more energy and less water vs. evaporative cooling systems use more water and less energy
- Hyperscale data centers typically use more energy than any other type of use.
- Need access to transmission lines and substations
- Data centers - significant, but not the largest water users in Fairfax



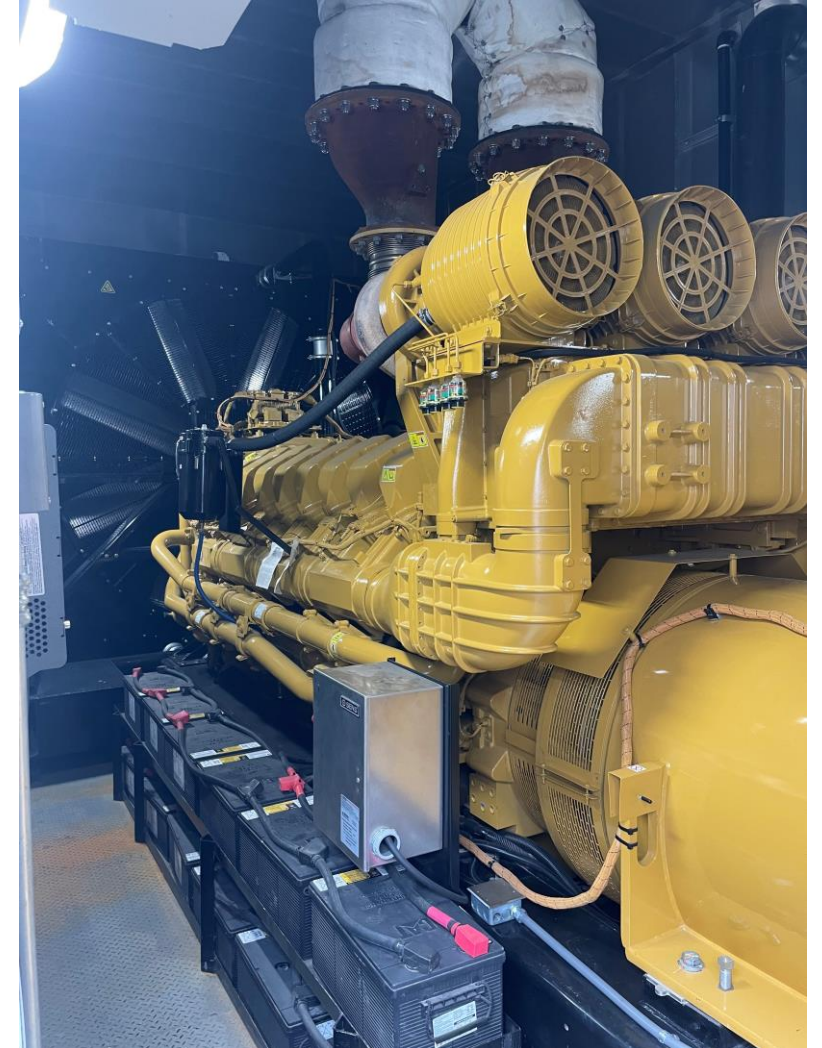
Air-cooled system, Stack Infrastructure, Manassas

Water and air quality

- Evaporative cooling - research needed on potential increases in salinity from wastewater discharge operations
- Storage and handling of diesel for backup emergency generators
- Air quality impacts from generators



Generators (outside and inside enclosure),
Stack Infrastructure, Manassas



Noise and Aesthetics

- Noise from HVAC and generators - baffling, enclosures, upgraded equipment, etc. can reduce noise
- Hyperscale facilities - can have large blank facades and heights 75' or more



Top: AWS, 3980 Virginia Mallory Dr.
Bottom: QTS, Ashburn

Questions and discussion

- Are there other topics of interest that haven't been mentioned that county staff should consider?
- Of the research topics, which one is your top priority?
- Do you have any questions about the current Comprehensive Plan and Zoning Ordinance provisions? Suggestions for changes?



PLANNING & DEVELOPMENT



Visit the Data Centers webpage:

<https://www.fairfaxcounty.gov/planning-development/data-centers>

Email: ffx-data-centers@PublicInput.com