

Download Vice Chair Mike Turner, Loudoun County, VA Board of Supervisors White Paper, “**Loudoun County, Virginia: Data Center Capital of the World, ‘A Strategy for a Changing Paradigm,’**” at www.Loudoun.gov/Ashburn.

Six Critical Issues for Any Community Considering Data Centers (Descending Priority):

Sound, Setback, Sight (appearance), Power, Water, Emissions

15 Best Practices for Communities Considering Data Centers:

1. Make sure your Land Use Plan addresses data center performance standards such as the ones listed below and make sure your Zoning Ordinance aligns with the Land Use Plan. Make sure both are current.
2. NEVER allow data centers to build “by right” without governing body specific approval.

Sound

3. Conduct a pre- and post-construction noise study (DbA and DbC). DbA is audible noise; DbC measures specific frequencies and can measure tonal/narrow band low-frequency humming.
4. Pass a noise ordinance/zoning ordinance that limits noise to a maximum of 50 DbA (audible sound) perceived noise at the sending property line and reduces any Tonal/Narrow band noise to background noise levels. (Note: one county requires no increase in noise, pre- to post-construction)

Setback

5. If near residential now or in the future, require a 500’ setback; 1,000’ is ideal.

Sight (Appearance)

6. Require natural screening, berms, fenestration (windows) on principal facades.
7. Limit building height, Floor Area Ratio (FAR) to ensure compatibility with surrounding structures.
8. Encourage microgrid design within the data center campus for future use (Microgrid: large power consumer, baseload power source, backup power source, long-duration storage, grid connection).

Power

9. Require utilities to specify, in writing, the maximum power requested by the data center and how the utility plans to deliver power (routing, overhead, substations, etc.)(500 Kv = 2.1 Gw; 230 Kv = 750 Mw)
10. For energy storage, use long duration storage systems (10 hours of storage minimum), not lithium-ion batteries which are not long duration systems.

Water

11. Require the data center and water utility to specify in writing how much water the data center will use annually.
12. Determine whether the data center will use air cooling, open loop water cooling or closed loop water cooling.
13. Determine whether the data center will use potable water or reclaimed water
14. Determine how the data center will purify its wastewater and whether or not the local water treatment facility can adequately process the wastewater.

Emissions

15. Require Tier IV backup generators or Tier II generators with Selective Catalytic Conversion (SCR) attached. If using natural gas turbines, require SCR using ammonia as the catalyst.

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Data Center Pros:

1. Very high tax revenue (depending upon your tax structure).
2. Strong support for community initiatives.
3. Very low impact on infrastructure (no kids in schools; no cars on roads).
4. Good construction jobs when building.

Data Center Cons:

1. Visually unappealing (60-100’ high; concrete walls). This can be somewhat mitigated by setback, berms, greenery, fenestration (faux windows).
2. Noise, both DbA (normal hearing range) and Tonal Narrow band noise (low frequency hum).
3. High power consumption and growing (rule of thumb: 150 Mw per every 1 mill. Sq. ft.).
4. Water consumption.
5. Light pollution.
6. Power transmission lines.
7. Power substations.