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# Virginia's 'Data Center Alley' residents say an eerie hum is keeping them up at night

**Rosalie Chan**



Data centers in Ashburn, in Loudoun County, Virginia, house computer servers and hardware required to support modern internet use.   Ted Shaffrey/AP Photo

**Loudoun County, Virginia, has 175 data centers that bring in hundreds of millions in tax revenue.**

**Residents have complained about the noise coming from a newly built data center this year.**

**These tensions may become more common as counties balance residents' needs and data-center demand.**

When Stephanie Brookes moved her family to Loudoun County, Virginia, in 2021, they were excited about living in a peaceful, quiet area where they bought a wooded lot.

At the beginning of this year, she started hearing an eerie hum that got louder at night. Brookes thought it sounded like someone doing lawn work constantly, but she had no idea what it was — until neighbors told her the noise came from the data centers that have earned the county the nickname Data Center Alley.

Virginia has had explosive growth in data centers since the early 2000s, when Loudoun County started allowing data centers to be built. Now the county has 175 data centers. The noise disturbing Brookes and her neighbors comes from a data center known as True North made by Compass Datacenters that finished construction around the beginning of this year, according to residents BI spoke with and complaints obtained through public records. It's in Leesburg and over 3 miles away from Brookes' home.

Loudoun County residents say the noise started this past winter and gets louder at night when it's cooler. As the temperatures rose in the summer, the noise became quieter, but it returned as temperatures dropped in autumn.

In interviews and in over 40 noise complaints to the county obtained through a public-records request, residents described the noise as sounding like a propeller, a "loud drone hovering above 24/7," a "big fan," a construction site, a "low-frequency sound," an airplane engine, a helicopter, a freight train, a leaf blower, and a lawn mower.

"When you hear something like that, it feels like an invasion of your space," Brookes said. "It's an eerie kind of sound, and it makes me concerned about what the other effects are that could be occurring in the environment."

As more data centers get built across the nation, public-health experts expect to see noise complaints from adjacent communities increase. Les Blomberg, the founder and executive director of the nonprofit Noise Pollution

Clearinghouse, says he's heard several complaints similar to that from Loudoun County from residents in Virginia and New York, which have large data-center sites.

These communities must balance residents' quality of life and the revenue these data centers generate. Mike Turner, the district supervisor in Ashburn, which is part of the county, says data centers contribute $600 million in tax revenue to Loudoun County's budget a year.

In Loudoun County, residents said they could hear the data center even with their windows closed. Some also said it led to anxiety and affected their sleep, mental health, and productivity. Even residents several miles away from the facility complained about the noise.

"We're getting industrial noise that is disturbing," Ted Lewis, who lives in the county, said. "It doesn't prevent us from going about our daily lives but it does significantly impact the quality of being in our home and outside of our home."

## How the data centers work

Turner said while data centers generate much of the county's tax revenue, the downside is that the county is "overly dependent" on data-center revenue.

"It puts pressure on management decisions and land-use decisions and budget and everything else," Turner said. "It's explosive growth."

Compass' first data center site in the county was narrowly approved by the county's Board of Supervisors in 2018. They were controversial because of their location — they're between the county's more-residential and rural areas and adjacent to the scenic Goose Creek.

Unlike previous data centers, the new ones use so-called free air cooling, designed to leverage lower temperatures to use less electricity than most data centers.

When the temperature is above 70 degrees, they don't make much noise. As the temperature drops, the data centers get louder as they run fans to blow in the cooler air. The noise peaks at about 50 degrees, residents reported. Below 35 degrees, it's not as necessary to cool the data-center coils.

Some residents, including Jeff Mach, started organizing and gathering feedback about the noise to bring to Loudoun County's Board of Supervisors and some nonprofits. "It's an artificial noise that just drove people crazy," Mach said. "I'm not exaggerating. It would go through walls. It would reach out far."

Katy Hancock, Compass' vice president of community relations, said that in the spring, after receiving several complaints from residents, the company measured their noise, which came in below the county's 55-decibel threshold for noise. The company did some testing and found that the data centers' cooling needs could be met with 20% less fan power, Hancock said.

Compass was talking with local government officials and community members about noise reports and exploring solutions to mitigate noise, including reducing fan operations and working with cooling-equipment manufacturers on new technology, Hancock said in a statement.

"We have tested noise levels in the community close to our campus and confirmed with the County they are in compliance with permits issued by applicable government agencies," Hancock said. "Regardless, as a company that's dedicated to continuous improvement in our operations, any reports of this nature matter to us."

## The noise gets louder again

Mach said in the fall that the noise isn't as annoying, though sometimes he can still hear it when he's indoors. He added that residents didn't receive many details about how Compass mitigated the issue. Even if the noise technically isn't loud, residents take issue with hearing it for long periods, particularly at night.

"We get used to neighbors mowing their lawns and us mowing our lawns," said Blomberg of Noise Pollution Clearinghouse. "What's different about data centers is the flow of noise is just one way and it's 24/7. It doesn't stop. There's no escaping it."

Brookes said the noise makes her not want to stay outside for extended periods. She also doesn't want her children outside for long periods. She says it's gotten to the point that she may not want to live in Loudoun County anymore.

"It affects the way we spend our time if the noise is occurring. If we want to sit out. It's pretty unpleasant," Brookes said. "We're hearing this buzz. It's not all the time, but when it does occur, it's for longer periods of time. Sometimes a whole day at a time."

Some residents are also skeptical that the noise issues have been fixed as the company said. Lewis said there was less noise in the summer, but he started hearing the "consistent noise of a fan" again at night recently.

"What we think will happen is as the temperature drops the noise issues will come back and be more of a problem," Lewis said.

Public-health experts say exposure to sustained loud noises — generally over 70 decibels — is associated with a higher risk of cardiovascular disease and hearing loss. While the data-center noise generally doesn't reach these levels, people could deal with sleep interference and annoyance over time.

"Even though people may not have cardiovascular disorders, the thing that noise does is it disrupts the quality of life," said Arline Bronzaft, a professor emerita of Lehman College who has long studied how noise affects people. "Being alive is not sufficient. One is entitled to live a decent quality of life. These people are not yet physically ill, but they're miserable and unhappy."

## Plans for future data centers

Starting this winter, the county plans to work on amending zoning ordinances and implementing design standards for new data centers, including finding ways to muffle the sound from the data centers. Turner expects this will take about 15 months to complete planning. Any changes in zoning would affect only data centers built in the future.

**A data-center executive holding an award is flanked by two members of Loudoun County's Board of Supervisors. The county's numerous data centers bring in millions of dollars in tax revenue.** Business Wire

Blomberg, of Noise Pollution Clearinghouse, said noise issues can be prevented with better planning, such as making sure to build data centers in sites further away from residential areas.

"The whole point of planning is to segregate non-compatible uses," Blomberg said. "Just don't put them near residential areas. The ones you put near residential areas

you need to acoustically treat better."

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