Data Centers Workgroup

Project Engagement

VIEWS	PARTICIPANTS	RESPONSES	COMMENTS	SUBSCRIBERS
998	108	0	55	28

Let us know your thoughts about the data center industry in Frederick County.

Nick Carrera This is a link to a current article in the Loudoun Times: https://www.loudounnow.com/news/concern-grows-over-data-centers-power-lines-in-loudoun/article_29255f7a-ba1e-11ee-b337-0b0f125b94a9.html
The Workgroup needs to consider issues of merit, need, and public health in providing its recommendations on whether to lift/ignore current environmental regulations in order to permit approval of diesel generators as backup in case of power failure. And the County Executive also must be alerted to the looming problem of increased electric bills to all county rate payers from the additional transmission lines that will be needed for full buildout of the Quantum Loophole campus. This article forecasts that Loudoun Co. will see a doubling of electric bills; Frederick Co. would be wise to determine what to expect here.

21 hours ago

Nick Carrera This 8-minute video on data centers presents, soberly but not shrilly, problems experienced in Northern Virginia. We may be able to avoid such problems here if we take time and sufficient care: https://www.youtube.com/watch?v=fAPusgiz4B8

9 days ago

Annette Tinder In reading the recent article in FNP with Rowan approval, there is a pdf document that references signa light at Manor Woods Road and New Design Road. This is with the LOU from the county and QL. Refer to pages 39-43 of .pdf document. Additionally, it goes into all the road widening, extra lanes, etc. It's strange to me that all the road wideni and traffic lights are needed when East Alcoa had many more employees, and the current neighborhood were already established. Unless, the planning commission is looking to rezone for more residential space in this corridor.

https://bloximages.newyork1.vip.townnews.com/fredericknewspost.com/content/tncms/assets/v3/editorial/2/b0/2b0f7c 8521-554c-ab9b-5f1cfd2b08a6/659f4a08f2a42.file.pdf

https://www.fredericknewspost.com/news/economy_and_business/planning-commission-grants-rowan-conditional-approval-for-data-center-project/article_56f2e704-4c25-5cf6-9b3b-1623a039d3a3.html

There must be a work around having a signal light at the corner of Manor Woods and New Design Roads to avoid light pollution, having constant blinking lights into residential homes on that corner, and back up of traffic that could extend the active railroad crossing.

11 days ago

Steve and Blanca Poteat Comments to Data Center Working Group 1-10-24
By Steve and Blanca Poteat, Sugarloaf Mountain Road

Some of us have been going over and over the October 2023 Sage report and we have noticed something odd.

The report goes into great detail projecting benefits to the State and County but we have not found anywhere a discussion of costs to the County.

We are told at buildout the Quantum Loophole Campus will produce $41 million dollars a year in taxes. According to the report at buildout, there will be 6,300 new jobs in Frederick County.

But we have to assume these 6,300 people will have children and they will need to go the school. Presumably those 6300 new families will want to go to the library, use parks and health department services like all other County residents. All that costs money.

We figure those new jobs will result in 2000 new school students* which will cost the County $20,000 a student or about $47 million dollars per year. Other County services for the new 17,000* residents resulting from the new 6300 workers will costs about $31 million. Taken together that will equal about $78 million per year.

The Sage report estimates that at buildout Quantum Loophole will only produce $41 million per year, leaving the County about $37 million deficit every year for the privilege of hosting those 16 million square feet of data centers.

This is not a great deal for the County. If Quantum Loophole was developing in Virginia, they would pay an added $295 million in taxes on their estimated $25 billion in computer and other equipment, that would help pay for schools and other public services there. But they're here, not there. And our discussion here is about making new data center regulations support the best interests of Frederick County.

We invite your comments on our analysis.
*See Assumptions below

Public costs and revenues on Quantum Loophole Build-Out
Based on "The Economic and Fiscal Impact of a Data Center Development in Frederick County," October 2023, prepared by Sage Policy Group
The Sage report estimates the County and State revenues from the buildout of the Quantum Loophole complex of 16 million square feet of data centers.(Page 4.) At build out the project will create 8,000 jobs in the State (6,300 jobs in Frederick County.) on a continuing basis.(Page 7.) and $41 million in revenues per year for Frederick County. Page 10.
THE SAGE REPORT MAKES NO EFFORT TO PROJECT THE PUBLIC COSTS TO FREDERICK COUNTY FOR SCHOOLS AND OTHER PUBLIC SERVICES NEEDED BY THOSE 6,300 JOBS. THOSE 6,300 JOBS WILL CREATE A DEMAND FOR $71

OTHER PUBLIC SERVICES NEEDED BY THOSE 6,300 JOBS. THOSE 6,300 JOBS WILL CREATE A DEMAND FOR $71 MILLION IN SERVICES. QUANTUM LOOPHOLE WILL ONLY PRODUCE $41 MILLION IN REVENUE. THIS LEAVES A DEFICIT FOR FREDERICK COUNTY TO FUND OF $30.5 MILLION ANNUALLY.

Assumptions

1. County population: 267,500

Total County employment: 140,670

Average County household size: 2.7 persons

One job = one household

2. County government operating budget FY24: $892,000,000 –

transfer to FCPS $400,000,000 = $492,000,000

Cost of County services: $492,000,000/267,500=$1,839 per person

3. FCPS FY2024 operating budget: $910,000,000 including transfer from County

Students in FCPS: 45,220

Education costs per student: $910,000,000 divided by 45,220 students equals $20,124 per student

4. New students generated per job: 45,220 students divided by 140,670 jobs equals 0.32 students

5. Quantum Loophole buildout continuing jobs: 6,300 x 0.32 (students per job) equals 2,000 new students

6. Cost of new students: 2,000 x $20,124 (per student costs) = $40.3 million

7. New residents: 6,300 jobs x 2.7 (household size) = 17,000 new residents

County services costs for new residents: 17,000 x $1,839 = $31.3 million

8. Total County and FCPS costs for 6,300 continuing jobs at Quantum Loophole buildout: $40.3 million plus $32.1 million equals $71.5 million ANNUALLY

9. Quantum Loophole revenue annually: $41million

10. Annual County deficit resulting from Quantum Loophole jobs:

$71.5 million minus $41million equals $30.5 ANNUAL DEFICIT FOR FREDERICK COUNTY

Sources

1. The Economic and Fiscal Impact of a Data Center Development in Frederick County, Sage Policy Group, October 2023

2. Frederick County MD operating budget FY 2024

3. FCPS operating budget FY 2024

Prepared by Steve and Blanca Poteat

13 days ago

Nick Carrera Documents: Data Center Workgroup 1.10.24: comments on the meeting by Nick Carrera

DOING DUE DILIGENCE

The Workgroup will want to exercise due diligence in considering the presentations last night (1/10/24) regarding data centers. I was left with some firm, some only vague impressions. Fortunately, the video will be available, along with (I hope) the slides used in the presentations; Quantum Loophole was deficient in that regard.

The presentation by Julie Bolthouse, from the Piedmont Environmental Council, was taut and well done. Her recommendations were based on the rich experience with data centers in Virginia, and bear especially close attention, to capture the good practices and avoid the bad practices seen there. She provided extensive documentation that will deserve scrutiny.

On water and sewer utilities, my impression was that we're OK for now for the Quantum Loophole plans that we know about, but there's great uncertainty when it comes to serving other locations in the county, as some would like to see. We need to be careful and proceed cautiously

The Quantum Loophole presentation seemed designed to reassure the Workgroup that everything about their project will be wonderful: that Scott Noteboom can walk on water, has performed miracles with other data centers, and is leading the way for data centers the world-over to become “green.” I liken their long puff-piece to an angelfood cake – sweet, but insubstantial. I wish they would provide documents that nail down details of their claims. One in particular needs clarification: how can they be confident that their data center operators will allow the overall project to be as “green” as QL claims? Workgroup members asked this question, but I didn't hear a clear answer. And does Noteboom's claim of carbon “neutrality” or even “net capture” apply only locally, or does he include the massive GHG expected from the additional power sources that are needed?

The comments at the end by Steve Poteat went beyond the usual good news we hear from about the revenue expected from data centers, and looked at financial costs to the county (schools and services) that go unmentioned by county officials. I missed hearing how he derived his figures, but he said he would provide documentation “tomorrow.” I hope his complete remarks, along with his methodology will be examined by the Workgroup, and made available on your website for others to see.

Comment: Julie Bolthouse and Scott Noteboom called for “transparency,” so I'm sharing:

cc: CE, CC, PC

14 days ago

Kevin Sellner Data Center Water-Related Comments for the DCWG
Fellowship of Scientists and Engineers
January 10, 2024

Work Group members, I am submitting the following items for inclusion in recommendations that you will submit to the County Executive in March. These are relevant for all future data centers, not just Quantum Loophole. Just so it is very clear: the Fellowship of Scientists and Engineers supports data center construction and operations in the County with the sole condition that Centers are responsible community members that protect resident access to power and water at near-current volumes and costs that ensure local quality of life, viability of other businesses, and treasured natural resources. RESPONSIBLE neighbors are good neighbors assisting and not jeopardizing fellow residents from corporation operations.

In light of this reasoning, water use and management are critical for any new data center operations in the County. The list of center issues and recommendations include the following:

First, dewatering of data center sites, if required, can yield contaminated discharges.

Recommendation: All dewatering solutions must be collected, assayed for contaminants, and treated or disposed of at appropriate treatment companies prior to discharge.

Rationale: Transfer of soil contaminants to floodplains and waterways should not jeopardize natural resources nor groundwater quality for other users in the region.

Second, multiple data centers employ water as the primary coolant for center computing equipment.

Recommendation: All water-cooled centers must be connected to municipal water/sewer, with that infrastructure paid for by data center corporations. No on-site wells nor septic facilities should be permitted.

Rationale: Groundwater supplies depend on local geologies and hence, huge daily water withdrawals could jeopardize water supplies to other lower volume users as well as baseflow for local waterways. For example, our karst region's unconsolidated Piedmont Aquifer is recharged through a network of fissures and cracks, easily lost through surface impervious surface construction from data centers or other large pad buildings likely for the Eastalco site. Water treatment facilities produce non-potable water, readily available for coolant, and through recycling infrastructure from facility to center to facility for treatment, can provide a near-continuous supply of cooling water that does not infringe on public drinking water supplies.

Third, some centers use within-center water recycling and reuse of small volumes (e.g., 0.4 mgd, Rowan Corp.).

Recommendation: For any local discharge of cooling water, all water must be assayed and meet permissible WQ discharge limits.

Rationale: Even small volume recycled water will build up particles and dissolved compounds detrimental to cooling units as well as potentially contaminate local groundwaters, floodplains, and waterways.

Fourth, data centers must cool continuously.

Recommendation: Data centers should capture sufficient stormwater to provide coolant for 5 days of center operations.

Rationale: Drought-induced reductions in water supplies might limit supplies of non-potable water to data centers. As a protection to diverting potable public water to maintain center cooling, 5 day coolant water reserves would protect non-center users from temporary loss of potable water.

Fifth, all center cooling waters recycled to County treatment facilities are enriched with contaminants.

Recommendation: Data center corporations must establish an escrow account or other financial structure to fund any treatment facility upgrades necessary to remove unusual or excessive contaminants from coolant waters returned to the treatment facilities for discharge or re-use.

Rationale: Center colling waters can be enriched with particles and other residues (e.g., scale) that either require advanced treatment procedures or upgrades for the quantities of residues returned for treatment. Data center corporations should cover any additional treatments needed to treat these returned cooling waters.

Sixth, some centers use non-aqueous coolants (e.g., antifreezes) and other petroleum products for energy backup.

Recommendations: During construction, ensure that storm drains are not located near coolant or fuel storage areas. Additionally require that prior to operation, all data center corporations must contract with regional hazardous treatment companies for immediate site contamination assessment, treatment, removal, and monitoring

hazardous treatment companies for immediate site contamination assessment, treatment, removal, and monitoring of center spills. Further, establish an escrow account or other fiscal resource to replace treatment facility microbiology should a facility's ability to remove the contaminants require purchasing new treatment capabilities.
Rationale: Non-aqueous coolants and petroleum products are toxic mixtures of multiple compounds that, on spillage, may contaminate treatment facilities and local soils, groundwaters, and thereby, neighboring wells and flora and fauna of floodplains and waterways. To minimize this threat, center corporations would immediately contact the hazardous treatment company, arrange for cleanup, continuous testing of groundwaters and neighbors' wells for multiple months, and replace water supplies should neighboring wells be contaminated. Recycled water from a center would also be tested to ensure that toxic materials would not be returned to the treatment facility to kill treatment facility biology essential to maintaining good water quality of discharged water.
Seventh, stormwater volumes will increase from large impervious surface areas in data centers.
Recommendations: There are several. One, install and maintain permeable surfaces wherever possible. Two, as noted above, centers using water colling should be required to collect and store 5 days of stormwater as a cooling water reserve. Three, because center pads will alter recharge of local groundwaters, center corporations should establish an escrow account or other fiscal entity to cover water supplies or new wells for neighbors losing well water volumes or water quality that are not attributable to upgradient changes in recharge. Four, MDE requires lined stormwater catchment basins because of local karst geology. The basins should be double to triple the size required by MDE's regulations established more than a decade earlier to accommodate the rainfall and runoff volumes from the intense, short-term storms of the new climate. Five, discharge conduits from the basins should be equipped with diffusers above local floodplains or adjacent to creeks to minimize erosion. And six, all corporations should be required to place >100' buffers between centers and neighboring non-center properties. This would be accompanied by another escrow fund to reimburse adjacent property owners for stormwater-induced flooding of land, crops, vehicles, or buildings from data centers.
Eighth, local creeks and waterways can be contaminated by center operations.
Recommendation: Require funding of a long-term event- and routine stream/waterway WQ monitoring program.
Rationale: Runoff can have short- and long-term consequences for local waterways. Surface runoff and sub-surface groundwaters feed our creeks and streams, delivering dissolved and particulate materials. Storm events can deliver massive amounts of sediment (including attached phosphorus critical to deleterious algae and plant growth) and pollutants over short periods, leading to acute turbidities or contaminations. Chronic inputs can yield elevated temperatures, contaminant levels, nutrients, or other materials, impairing WQ and habitats for stream flora and fauna.
A lengthy list, with identified reasons for revising the current CDI ordinance to protect what we all value. Again, data centers should be built and operate but as good neighbors. A final point: Three members of the County Council declined to support data center limitations in their December 19th meeting, placing that responsibility directly on the WG completing its recommendations. Hence, drafting a complete list of protections for the Counts residents, other businesses, and natural resources in a revised ordinance is now assigned to you. Please incorporate these reasonable requirements for our new community members - all (centers, contractors, residents, other businesses, wildlife, waterways) benefit without inducing center withdrawal from Frederick as their new home.
Submitted by Dr. Kevin Sellner, E. 5th Street, Frederick and FSE Member

14 days ago