From: Robert Clemson <clemsonr@gmail.com>
Sent: Friday, October 31, 2025 7:34 AM
To: Council Members <CouncilMembers@FrederickCountyMD.gov>
Cc: Robert Clemson <clemsonr@gmail.com>; Joseph Horman <jx2h25@comcast.net>
Subject: Data Center overlay additional properties to be recommended

[EXTERNAL EMAIL]

Two important facts were cited at the Oct 15 hearing of the Planning Commission:

1.The County Council has the absolute authority to either approve or deny rezoning requests. Therefore, properties included in the CDI Overlay have no guarantee that rezoning to the industrial category will be approved. If data centers are found to be inconsistent with Frederick County values, then the County Council can control their growth.

2.Commissioner Rensberger pointed out that future expansion of data centers beyond the originally proposed Overlay realistically can only be toward the north. (with possible exception of the Geisinger farm).

There are 3 properties in the northward direction that lie between New Design Rd. and Ballenger Creek Pike that are not in an ag permanent preservation program and two have requested inclusion in the original Overlay proposed by the County i.e.,our (Horman/Clemson) property at 4719 Ballenger Creek Pike,150 acres and Arnold property, 4315 Ballenger Creek Pike,102 acres. The third property is owned by the Argos quarry, and I have no knowledge of its future plans.

If the County Council is supportive of expanding the Overlay area beyond the Planning Commission recommendation, then these two farms (combined another 252 acres total) should be added now. It would be consistent with the 1% cap and the north of Adamstown requirements established by the County Executive and County Council. **If data centers are a boon for Frederick County, then these properties would already be available for future consideration without going through another prolonged and laborious process. The County Council would be able to decide if expansion of data centers is warranted or not by exercising its rezoning approval authority.**

Thank you,
Robert Clemson
10728 Church Hill Road Myersville MD 21773
301-676-7771 (Call me and we can discuss further if desired)

From: Coalition to Protect PWC <admin@protectpwc.org>
Sent: Thursday, October 30, 2025 7:36 PM
To: Council Members <CouncilMembers@FrederickCountyMD.gov>
Subject: It's Time for a MORATORIUM

[EXTERNAL EMAIL]

View this email in your browser

The Coalition to Protect Prince William County
ProtectPWC.org

Dear Coalition Friends and Supporters,

We understand how frustrating this past week has been. We all keep stepping up and demanding better from our local leaders, yet what we are witnessing in return is their blatant disrespect and disregard.

Their unwillingness to open their eyes, and their hearts, to the direct harm that data center proliferation is having on THEIR Prince William neighbors, and beyond, it is simply inexplicable.

More than just campaign donations, this is beginning to feel like a **test of wills**. As if data center industrialization has been reduced to "winners" and "losers." **In truth, the losers are ALL of us, across the region, if this Board does not change their current trajectory.**

Since Supervisor Bob died in July, the 70,000 residents in the Gainesville District have had no voice and no vote. For all the platitudes we heard from Bob's fellow Board members after his death, their lack of respect for what he cared about most, serving his constituents and watching out for every resident in the county, has been excised from their decision-making calculus.

Here is a recap what has happened in the last 21 days:

October 7th - Supervisor Victor Angry - with no forewarning, and in concert with

three of his fellow Democratic Supervisors (Franklin, Boddye, Bailey), motioned to disband the DCOAG, and prevailed.

Prince William board disbands data center advisory group | Headlines | insidenova.com

With ZERO data centers in their districts, eastern Supervisors continue to foist the industrialization on residents that cannot hold them accountable at the ballot box.

October 28th- Board Hearing - over 30 speakers decry the non-scientific last-minute noise ordinance, with only 2 speakers in support - the Data Center Coalition representative and a PW Chamber of Commerce representative.

While Supervisor Bob was not there to defend his constituents, an ever-present and dependable Gainesville resident, Patrick Harders, running for Gainesville Supervisor and promising to continue Bob's hard work, was there to impress upon the Board of Supervisors that rushing through a significantly diluted noise ordinance, with an election taking place next week, could only be seen through a lens of "opportunism."

Prince William supervisors greenlight new noise ordinance | Business | insidenova.com

Also on hand at the board meeting were leaders of the now-defunct advisory group, who made their displeasure known.

"For purposes of comparison, since September 2024, Amazon reduced their noise level to 62 decibels, and it has been averaging 62 decibels since," said Dale Browne, a resident member of the advisory group from the Great Oak community near Manassas, which has numerous data centers nearby. "Your ordinance, Supervisor Boddye, sets 68 at night and 73 during the day – and it's

intolerable at 62 decibels. That is a failed proposal."

Advisory group members accused Boddye and Neabsco Supervisor Victor Angry, who issued the directive to disband the group, of catering solely to business interests such as the Prince William Chamber of Commerce and the data center industry."

What if these Supervisors had to participate in a "house swap" with a family who was suffering with the 24/7 noise and vibration from data center operations? What if THEY had to live with the diesel generator stench, the transmission lines consuming their private property, and the proliferating substations? Would that change their minds?

A CLARION CALL FOR CHANGE! October 16 - Merrifield Garden Center sells out to Date Center development.

In data center zone, property sells for more than $160M | News | princewilliamtimes.com

"Sen. Danica Roem, whose 30th District includes the Merrifield Garden Center, expressed shock at the sale price and disappointment about the loss of a popular retail outlet."

"To have a garden center, where the business model is about plants and making sure people have greenery in their yards, go south so another data center can come in and contribute to rising energy bills and massive energy consumption is beyond parody," she said."

Rubbing more salt into the proverbial open wound, Merrifield Garden Center was more than just a place to buy some plants. Merrifield included a fabulous quaint restaurant, with specialty menu items. Merrifield included a small dog park. Merrifield had entire sections dedicated to a host of interesting plants and herbs for your garden. Merrifield was one of the few local landscape businesses that carried an array of native plants with knowledgeable friendly people to offer recommendations. The reality is that Merrifield's employment comprises exponentially more long-term jobs than any data center on 38 acres ever will.

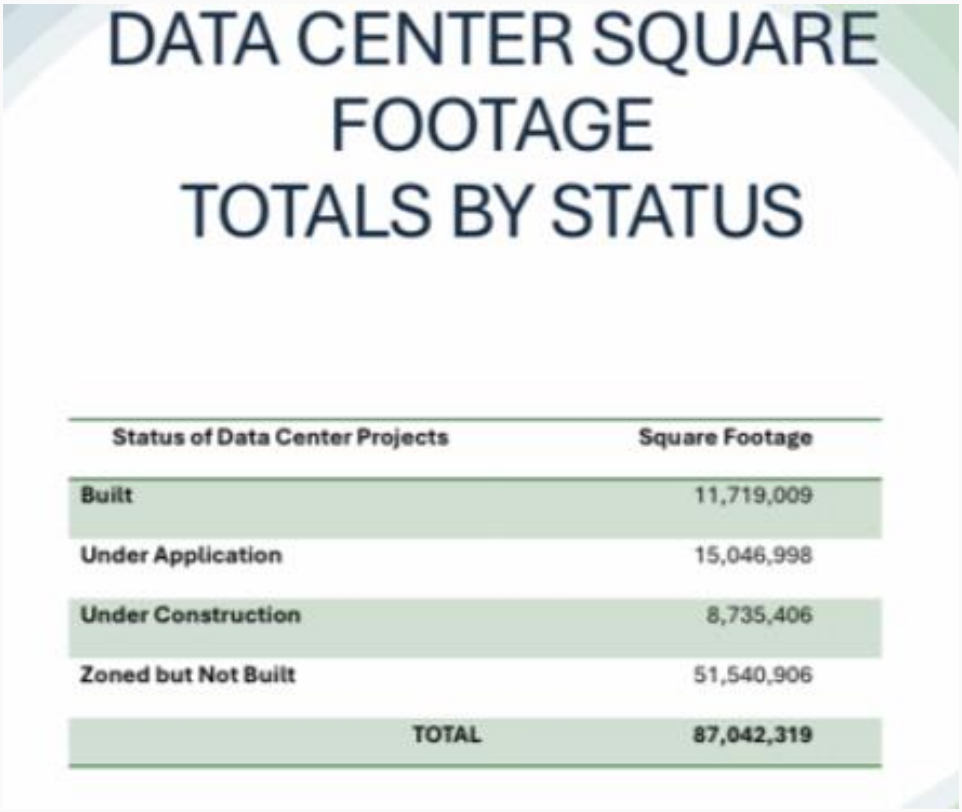
We are losing a piece of our social fabric.

What now?

The Data Center Opportunity Overlay Zone was a beginning for oversight in 2016, not an ending.

Before the overlay was adopted, data centers were considered the same as a computer store, like Best Buy, and they were allowed "by-right" in EVERY zoning in the county, except residential and rural. The intention of an overlay is to provide a framework. But no one could have envisioned the unprecedented pressure data centers would put on our critical resources today, which include land, water, and power; or the detrimental impacts to our quality of life.

This county is already absorbing 87 MILLION sq. ft. of data center development -- with more square footage being added every week.



Status of Data Center Projects	Square Footage
Built	11,719,009
Under Application	15,046,998
Under Construction	8,735,406
Zoned but Not Built	51,540,906
TOTAL	87,042,319

From yet another professional consultant hired by the county (but subsequently ignored), the Camoin Report called out a data center buildout **CAPACITY** threshold of 48 million square feet for our county.

As evidenced above, we have passed that data center buildout capacity threshold by almost double.

20-Year Projected Demand vs. Buildout Capacity (SF), by Facility Type

	Buildout Capacity			Projected Demand		
Facility Type	Current	Future	Total	Low	Midrange	High
Office	21,664,367	24,647,976	**46,312,343**	400,000	700,000	1,000,000
Medical Office	15,377,752	15,049,347	**30,427,099**	600,000	800,000	1,000,000
Distribution/Logistics	6,286,615	9,598,629	**15,885,244**	4,000,000	12,000,000	20,000,000
Manufacturing	14,833,755	9,598,629	**24,432,384**	400,000	2,200,000	4,000,000
Data Centers	17,707,757	15,652,889	**33,360,646**	8,000,000	28,000,000	48,000,000
Lab	16,035,170	23,134,160	**39,169,330**	200,000	850,000	1,500,000
Total	**21,664,367**	**24,647,976**	**46,312,343**	**13,600,000**	**44,550,000**	**75,500,000**
Total, Excluding Data Centers				**5,600,000**	**16,550,000**	**27,500,000**

Note: The buildout capacity for each facility type reflects a subset of total buildout capacity. The same parcel could have the capacity to support one or more different facility types based on zoning, and therefore, buildout capacity across facility types is not mutually exclusive.

Source: Camoin Associates

Camoin Report - May 2022

Doubling our expected data center buildout means doubling the impacts. And nothing highlights the very real threats to our health and wellbeing more than new guidance from the Virginia Department of Environmental Quality being proposed right now:

SKM_C450i25093008110

"...A permitted source with emergency generators receives notice from an electricity service provider fourteen (14) calendar days or less in advance of a planned outage. Power outage events longer than fourteen (14) calendar days normally provide sufficient notice for an operator of emergency generators to acquire and set up temporary mobile (i.e., non-road) generators on a site..."

What this DEQ guidance means, in plain and simple English, is that as the grid experiences planned outages to build out more data center transmission infrastructure, **data centers will be removing themselves from the energy grid and will rely on their tractor-trailer sized diesel generators for their power.** Yes, your read that correctly: This amazing 21st century technology will be running on diesel fuel generators.

It is time for drastic measures.

The Coalition to Protect PWC urges our elected leaders to act with urgency and implement a moratorium on any further data center development.

The moratorium should remain in place until we understand the true health and

welfare impacts of the data center industrialization on our communities.

It's time to adopt: PEOPLE OVER PROFITS.

Please make a donation to help with our on-going activities.

www.ProtectPWC.org

You are receiving the email because you signed a petition
on www.protectpwc.org or you personally gave us your contact info.

Our mailing address is:

The Coalition to Protect Prince William County

PO Box 474

Haymarket, VA 20168

Add us to your address book

Want to change how you receive these emails?
You can update your preferences or unsubscribe from this list.


INTUIT
mailchimp

From: Stewart Lamb <Stewart.Lamb@kilgorecompanies.com>
Sent: Wednesday, October 29, 2025 4:36 PM
To: Gaines, Kimberly <KGaines@FrederickCountyMD.gov>; Council Members <CouncilMembers@FrederickCountyMD.gov>
Cc: Bart.Boyd@Quikrete.com
Subject: Request to include Argos USA 157 ac parcel in the County's Data Center Overlay

[EXTERNAL EMAIL]

Dear Kimberly and Frederick County Md Council,

This is a request to amend the current Data Center overlay boundary to include the Argos USA 157 ac parcel. The parcel is shown in the attached figure. Please let me know if there are additional steps to make this request more formal. Please include us in upcoming public meetings where this overlay is discussed and it would be appreciated if you can send us any updates to the ordinance. We look forward to working with you.

Sincerely,

Stewart Lamb

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Stewart Lamb

Senior Manager

Aquisiton,Land & Development

QUIKRETE

5 Concourse Parkway Suite 1900

Atlanta, GA 30328

O. 404-634-9100 **M.** 801-244-7033

W. stewart.lamb@quikrete-materials.com

From: Elyse Wilson <elysewilsonkhk@gmail.com>
Sent: Thursday, October 30, 2025 11:05 PM
To: Fitzwater, Jessica <JFitzwater@FrederickCountyMD.gov>; Council Members <CouncilMembers@FrederickCountyMD.gov>; Laxton, Vivian <VLaxton@FrederickCountyMD.gov>; Venable, Victoria <VVenable@FrederickCountyMD.gov>
Cc: Steve Black <Steveblack2313@gmail.com>; Elizabeth Bauer <smartergrowthfc@gmail.com>; Gene Butler <rollbackfarmer@comcast.net>; firefighterdeb53@aol.com; Hope Green <hope.green76@yahoo.com>; Linda Everett <linda@edgedesigngroupllc.com>; Elizabeth Law <bettybob1758@gmail.com>; Betty Meyers <bettylee312@comcast.net>; Paula damico-Hollewa <pdhollewa@yahoo.com>; FRANK HOLLEWA <fjhollewa@gmail.com>
Subject: Formal Inquiry Regarding the Community Benefit Listening Sessions Following the Data Center Overlay Zone Finalization

[EXTERNAL EMAIL]

Dear Jessica Fitzwater,

I am writing to formally request clarification and specific details regarding the upcoming **"community benefit listening sessions"** announced by County Executive Fitzwater.

It was noted that these sessions are planned for Adamstown and Frederick following the Frederick County Council's finalization of the new data center overlay zone around the former Alcoa property. This initiative is highly valued as an opportunity to **"gather ideas directly from our residents and ensure positive outcomes for our community."**

To ensure maximum resident participation and preparedness, I respectfully request a timeline and further specifics on the following points:

- **Timeline for Listening Sessions:** Could you please provide the anticipated **schedule and dates** for the community benefit listening sessions planned for Adamstown and Frederick?
- **Well Survey Details:** In her address, County Executive Fitzwater mentioned surveys for eligible Adamstown residents. Could you confirm the criteria for eligibility beyond "those who have reached out to the county health department with concerns and to their immediate neighbors," and clarify the **estimated timeline for contacting these eligible residents**?
- **Specific Testing Parameters:** Regarding the well water analysis, could the County Health Department confirm the **specific list of contaminants or parameters** that will be tested for, as this information is crucial for concerned residents?

As active stakeholders deeply involved in the well-being of our community, we are keenly interested in these sessions. **How will the public be formally notified of the definitive time and location of these community benefit listening sessions?** We expect to receive a clear public announcement detailing this information.

Thank you for your attention to these important matters of community engagement and environmental health. I look forward to your response.

Sincerely,

Elyse Wilson and the Coalition the Environment of Adamstown and Frederick MD

bcc: Adamstown and Frederick Citizens

From:	Elyse Wilson
To:	Smith, Joshua; Brookmyer, Barbara (Health/Administration); Glotfelty, Barry (Health/EH); County Executive; Council Members
Cc:	FRANK HOLLEWA; Paula damico-Hollewa; Steve Black; Elizabeth Bauer; Elizabeth Law; Linda Everett; Gene Butler; strawder6101@verizon.net; firefighterdeb53@aol.com; Hope Green; mbarakat@newspost.com; Kate Ansalvish -MDE-; Rankin, Joseph; Alex Lima -MDE-; Lee.Currey@maryland.gov
Subject:	Fwd: QUESTIONS REGARDING WATER TESTING AND LISTENING SESSION ADAMSTOWN MD
Date:	Thursday, October 30, 2025 10:57:55 PM
Attachments:	HollewaCountyWaterProblem.zip MayFBNotice.zip

[EXTERNAL EMAIL]

Question 1 regarding Well Testing

Regarding the Frederick County Health Department will offer free “sanitary surveys” of some wells for Adamstown residents concerned about possible negative impacts from the Quantum Frederick data center campus currently in development at the nearby former Alcoa Eastalco Works site. Not just that area you need to make sure you include from Nanor Village off of Lawrence Ct from Tuscarora Creek to Ballenger Creek, Corner of Manor Woods Road and New Design Road. The 2023 Tuscaror Creek Contamination from Quantum Loophole caused a lof of well contamination and after that it continued to get worse.

1. Source and Cause

- **Site:** Former Eastalco Aluminum Company property in Adamstown, where **Quantum Loophole** was conducting site work (initially for data center development).[3]
- **Contaminant Type: Presumed-contaminated groundwater** mixed with **sediment** from **dewatering operations**.[4]
- **Contaminant Origin:** The groundwater on the former Eastalco site is a legacy "brownfield," containing residual soil and groundwater contamination from decades of aluminum smelting. Contaminants of concern historically include **fluoride**, **polycyclic aromatic hydrocarbons (PAHs)**, and **metals**.
- **Cause of Discharge:** A pipe being used to pump water from the ground (dewatering) had devices inside to filter contaminants, but a pipe is reported to have **burst or leaked**, resulting in the discharge of an estimated **72,000 gallons per day** of water directly into Tuscarora Creek without proper testing or permitting.
- **Regulatory Violation:** The discharge was made in direct violation of an **Environmental Covenant (EC)** established with the Maryland Department of the Environment (MDE), which permanently restricts certain activities and requires specific procedures for construction at the site.

2. Regulatory and Health Impact

- **Discovery:** The leak was **first discovered and reported by a concerned citizen** in May 2023, not by the company or their contractors.

- **Regulatory Action:** The MDE issued violations and demanded that Quantum Loophole **pause construction activities** at the site. Advisory signs were posted along Tuscarora Creek out of caution.

- **Health Conclusion:** After the incident, sampling of the creek water, sediments, and the source water was conducted under MDE oversight. The MDE and the Frederick County Health Department concluded that the incident **resulted in no adverse impacts to public health or the environment**. Specifically, fluoride levels—a primary historical contaminant of concern—were **well below regulatory limits** in the creek samples.

In summary, the 2023 event was a serious regulatory and environmental violation stemming from the **mismanagement of contaminated site groundwater during construction dewatering**, even though subsequent testing indicated the creek water was not considered a public health hazard.

The presence of widespread contamination is a significant concern, as many citizens may be unknowingly facing serious health risks due to contaminated private well water. Not all residents are aware of the necessity of regular well testing, meaning relying only on complaints will miss a large population currently consuming unsafe water. The Frederick County Health Department is urged to adopt a proactive, area-wide testing strategy in regions with known environmental risks, rather than solely reacting to individual reports. Furthermore, the Health Department should formally engage and utilize the detailed studies and helpful suggestions compiled by experienced citizens whose extensive work and research regarding local water issues and the impact of data centers provides critical, targeted data for necessary public health action. As you know the citizens have been in dire need and have been asking for this for a very long time and I am glad after all these months you all finally realize the need for this. The leak was **first discovered and reported by a concerned citizen** in May 2023, not by the company or their contractors.

Due to this serious issue we are asking that placing notices on door knobs (hand delivery) is an explicitly required or highly recommended method for notifying citizens during a severe, acute public water contamination event in Frederick County. Placing a few signs near the construction area does not help the community, most will not notice signs like that. We know that has been done previously and we feel that method does not inform the citizens properly.

Under the EPA's Safe Drinking Water Act (SDWA) Public Notification (PN) Rule, which Maryland and Frederick County must follow, the manner of notification is tied to the severity of the threat:

For the scenario of contamination from a nearby creek affecting hundreds of people—which is a Tier 1 emergency (immediate threat to health)—the notification must be delivered within 24 hours using methods designed for immediate response.

Door-to-door notification (using door hangers or hand delivery) is one of the mandatory primary methods for a Tier 1 notice.

Why Door Hangers Are Used:

- Guaranteed Delivery: A physical notice placed on the doorknob of every affected property is considered one of the most reliable methods to ensure the information is seen by residents, especially if they don't use county alert systems or local media.
- Targeted Warning: The DWSU and FCHD can precisely target the homes served by the contaminated main, preventing unnecessary panic or action in unaffected areas.
- Clarity of Action: The notice provides clear, immediate instructions like "DO NOT DRINK" or "BOIL WATER."
- Documentation: Hand delivery of a notice creates a physical record of the time and date the customers were officially informed, which is important for regulatory compliance.

Frederick County's General Practice:

Frederick County already utilizes door hangers for non-emergency notices, such as utility construction work. In a contamination emergency, this method would be an essential part of the multi-modal response, complementing the electronic (AlertFC, email) and broadcast (TV, radio) notifications.

For the creek contamination scenario, the Frederick County Health Department would coordinate with the DWSU to ensure:

- The door hangers are durable (so they don't blow away).
- The language is clear, concise, and in all necessary languages.
- The notice specifies the action the citizens must take (e.g., boil or use bottled water).

In the context of an Environmental Covenant (often on a former Superfund site) and a construction excavation, the "bad nitrates" are primarily those that originate from industrial waste or construction practices rather than the usual agricultural sources.

Ilegal dumping of nitrogen-rich waste by a construction company during the project could be a cause.

The act of excavation exacerbates the problem regardless of the nitrogen source because it:

- Disturbs Contaminated Soil: It exposes and mixes deeply buried contamination,

making it easier for rainwater to dissolve and carry the chemicals down to the groundwater.

- Creates New Flow Paths: Blasting and trenching create new fractures and conduits in the bedrock and soil layers, allowing contaminants to bypass protective soil layers and reach the aquifer supplying wells much faster than normal.

The final "bad nitrate" is the same compound, Nitrate but its toxicity is elevated by its synthetic origin (explosives) or its association with pathogens and industrial waste (sewage/sludge)

Sincerely,

Elyse Wilson the Coalition for the Environment of Adamstown and Frederick

bcc: Frederick and Adamstown Residents and News Journalists

10:02 5G

Adamstown Commons

Is my tub turning red?? Can someone help me on this please? #hopefullyoverreactinginAdamstown#toxictownnetflex a must watch!!!

5 29 comments

Like Comment Send

Kristin Lunderville
May 4 ·

Is this anyone's home? My package was delivered there apparently on April 22nd

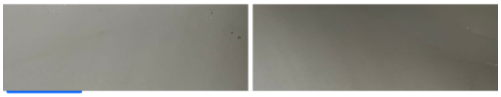
Home Friends Reels Events Notifications Menu

10:01 5G

Adamstown Commons

Paula Cristine
Rising contributor May 4 ·

I'm a lot concerned here! Maybe we can get the water company to help in this situation it's been a few months now that I have been bathing in dirty water it's almost as good as jumping in the river but honestly I think that's cleaner then this. Not to alarm anyone BUT the site that is being constructed for the data center is on a property that the dirt failed inspection it is full of arsenic from other owners etc.... It has never been able to sell. Now it's the data center but that's really what isn't bothering me here..,, it's this I'm going to share with you today! I need answers this dirt is red in color and horrible for you can someone please explain this see attached photo. Am I taking an arsenic dirt bath here????Why is my tub turning red?? Can someone help me on this please? #hopefullyoverreactinginAdamstown#toxictownnetflex a must watch!!!



Home Friends Reels Events Notifications Menu

IMG_3949.MOV

From:	Elyse Wilson
To:	County Executive
Cc:	Young, Brad; Knapp, Renee; Keegan-Ayer, MC; Donald, Jerry; Duckett, Kavonte; Carter, Mason; Council Members; STEVE MCKAY; Elizabeth Bauer; Steve Black; Hope Green; Linda Everett; Paula damico-Hollewa; FRANK HOLLEWA; Kenneth Stephens; firefighterdeb53@aol.com; strawder6101@verizon.net; knash@cityoffrederickmd.gov; khagen@frederickcountymd.gov
Subject:	URGENT: Complete Disconnect Between CEAP and Environmental Reality in Adamstown - Data Center Impacts Community Health Crisis
Date:	Thursday, October 30, 2025 10:38:53 PM

[EXTERNAL EMAIL]

Dear County Executive Fitzwater,

I am writing to express my profound disappointment and outrage regarding the recent release of the **Community-Wide Climate and Energy Action Plan (CEAP) and your statement in the corresponding News Flash that the plan charts a path toward a "sustainable and resilient future."**

This statement is in stark contrast to the environmental and public health crisis currently unfolding in the Adamstown community due to the siting and operation of data centers—a crisis that your administration and the County Council have allegedly overseen, despite repeated warnings from residents.

1. Environmental Hypocrisy and Failure to Adopt Clean Energy

Your claim of protecting the environment is undermined by a rejection of cleaner alternatives and an allowance of highly polluting infrastructure.

* Diesel Generator Pollution: You have permitted the installation of some of the most polluting diesel generators at data centers (such as Quantum and Catellus), with no apparent move to mandate the use of zero-GHG emitting technologies, despite the availability of clean energy alternatives provided to your office.

* Expansion of Contamination Risk: The proposal to potentially expand the Critical Digital Infrastructure Overlay Zone (CDI-OZ) to a total of approximately 2,500 acres is not a step toward sustainability, but a massive increase in the potential for pollution, strain on resources, and noise disruption.

2. Documented Water Contamination Crisis

The free well testing initiative, while a necessary response, highlights a disastrous failure in oversight and regulation that the community has been warning you about for over a year.

* Tuscarora Creek Contamination (2023): Citizens reported the initial incident of data centers pouring thousands of gallons of contaminated water into Tuscarora Creek.

* Well Contamination from Excavation (2024): A subsequent event involved the excavation of an environmental covenant, which citizens believe led to a second round of contamination in our drinking wells.

* Delayed Response: It took months for the County to acknowledge and address these serious,

resident-reported incidents, resulting in our community being exposed to potentially poisoned well water for an unacceptable duration.

3. Immediate Danger to Carroll Manor Elementary School Children

Your administration's approval of data center sites is placing hundreds of vulnerable children directly in harm's way.

* Proximity and Health Risks: The multiple data centers and their numerous backup diesel generators are located as close as 500-1000 feet from Carroll Manor Elementary School.

* Specific Impacts on Children: Children are uniquely vulnerable to the resulting pollution due to developing lungs and higher breathing rates. The constant noise from generator testing will disrupt their learning, cause sleep disturbances, and contribute to headaches.

* Fuel Spill Risk: The risk of a fuel spill from the generators contaminating local groundwater is a direct threat to the school and surrounding residential area.

Conclusion: Loss of Community Trust

The Community Trust of Adamstown and Frederick County has been completely eroded. We see your participation in the CEAP as a cynical and opportunistic attempt to create an appearance of environmental concern for reelection, while simultaneously ignoring the tangible and immediate health and environmental hazards you have enabled in our community.

We demand immediate action and accountability:

* **Moratorium on CDI-OZ Expansion: Immediately halt all plans to expand the acreage for data centers beyond current approved sites.**

* **Mandate for Clean Generators**: Require all new and existing data centers to transition to hydrogen fuel cells, battery storage, or other zero-emission backup power sources within a strict, short-term deadline.

* **Third-Party Environmental Audit:** Commission an independent, non-County-affiliated environmental study to assess the full scope of air and water contamination caused by the data centers near Adamstown, with a focus on Carroll Manor Elementary School.

We expect a substantive response and a commitment to address these specific, life-threatening concerns, rather than referring to a generic climate action plan that appears to overlook the reality on the ground.

Sincerely,

Elyse Wilson with the Coalition for the Environment of Adamstown and Frederick MD
BCC: [Community Trust Adamstown/Frederick MD leaders, Neighbors] and many more
This is also being BCC to every United States Environmental Journalists and others.

From:	Elyse Wilson
To:	Smith, Joshua; Glotfelty, Barry (Health/EH); Brookmyer, Barbara (Health/Administration); Fitzwater, Jessica; Council Members; Young, Brad; Knapp, Renee; Carter, Mason; Keegan-Ayer, MC; STEVE MCKAY; Duckett, Kavonte; knash@cityoffrederickmd.gov
Cc:	Steve Black; Elizabeth Bauer; Paula damico-Hollewa; FRANK HOLLEWA; Linda Everett
Subject:	Dirt and Sediment in Frederick County Water in Adamstown MD
Date:	Thursday, October 30, 2025 10:54:03 PM

[EXTERNAL EMAIL]

Urgent Issue Frederick County Water Contamination Issue!!

To: Joshua Smith, Joe Rankin, Kristy Jones,

CC: Jessica Fitzwater and County Council

Good Afternoon,

This email serves as a formal escalation regarding a severe and prolonged water quality failure impacting the county water supply in the Adamstown Commons community, specifically at the residence of Frank and Paula Hollewa.

I. Chronology of Unresolved Issue

Detail	Information
Affected Address	2706 Mae Wade Ave, Adamstown, MD
Issue Commencement	May 2025 (Ongoing for over five months)
Problem	Persistent and heavy influx of visible sediment/dirt into the residential plumbing fixtures.
Previous Action	Lines have been flushed and water run for hours on multiple occasions by DWSU staff.
Prior Contact	Frederick County DWSU: Joe Rankin. MDE: Kristy Jones.

The central frustration is that the maintenance response is consistently reactive: lines are flushed, the issue is presumed resolved without re-inspection or follow-up testing, and the sediment reappears, forcing the resident to initiate a new service request.

II. Scope and Health Emergency

This is not an isolated incident and now constitutes a public health concern:

- Community Scope: The issue extends beyond one home; other residents in Adamstown Commons, including those on Tracy Bruce Drive, are experiencing similar sediment contamination. This points to a systemic failure within the community's distribution main.

- Health Impact: Mrs. Paula Hollewa's health has been directly affected. She has suffered from Urinary Tract Infections (UTIs) for over five months and has recently developed

an eye infection. Her physician has explicitly instructed her to discontinue using the water for bathing.

III. Request for Regulatory Intervention

We request that the Division of Water and Sewer Utilities immediately assign a Water Quality Specialist or senior engineer to lead a formal investigation into the root cause of this persistent distribution system contamination.

We are seeking a technical solution that identifies and eliminates the source of the sediment entering the mains, rather than repeatedly flushing the customer's service line.

Please confirm the following:

1. Who will be designated as the lead specialist for this specific, multi-home issue?

2. What steps will be taken to conduct source-tracing and re-inspection (e.g., hydrant testing, main sampling) to guarantee the sediment is permanently removed from the distribution system?

We expect an immediate response outlining the plan to address this serious and chronic public water quality and health matter.

Sincerely,

Elyse Wilson and the Coalition for the Environment of Adamstown and Frederick

bcc: Many Frederick and Adamstown Citizens and News Journalists

From: C Jarrell <carynnes8@gmail.com>

Sent: Sunday, November 2, 2025 12:25 PM

To: Council Members <CouncilMembers@FrederickCountyMD.gov>; County Executive <CountyExecutive@FrederickCountyMD.gov>; mayor@cityoffrederickmd.gov

Subject: Data Centers Frederick County

[EXTERNAL EMAIL]

Hi,

Please keep data center growth strictly limited, transparent, and protective of Maryland’s landscapes and residents. Our environment and resident's health matter, in addition to the impacts on the grid and our electric bills.

Please make decisions listening to constituents opposed to further data center growth in our county.

Thank you,

Carynne Jarrell

10074 Lake Linganore Boulevard

New Market, MD 21774

From: DIANE & BRUD BICKNELL <bicknell0104@comcast.net>

Sent: Tuesday, November 4, 2025 9:53 AM

To: Council Members <CouncilMembers@FrederickCountyMD.gov>; County Executive <CountyExecutive@FrederickCountyMD.gov>; Planning Commission <PlanningCommission@FrederickCountyMD.gov>

Cc: brud0104@gmail.com

Subject: Video - Data Center HVAC Noise on a 65 Degree Day - please watch and listen

[EXTERNAL EMAIL]

Dear Council Members, et al.,

We visited a window showroom in Ashburn a couple weeks ago on a 65 degree day. Their office was about 500' from a data center complex. Please listen to the attached video to hear how loud the air conditioning units are (that run 24/7 when back up power isn't required) on a relatively cool day. Can you imagine the noise from 2500 acres of data centers that could be built within your CDI Overlay area? The constant noise would be negatively life-altering for the hundreds of people who live near this area.

The employees of the business shared how this past summer during a 90 degree heat wave the data centers had to run on generator power. They said the air filled with black smoke and smelled like diesel fuel, and the sound was disturbing even inside their building.

We are thankful that by recommending that the overlay be reduced to current growth area around the Eastalco site, the Planning Commission recognizes the negative impact such a sizeable complex of data centers could have on Frederick residents living in the Adamstown, Buckeystown, and Ballenger Creek Pike areas.

Please follow the Planning Commission's recommendation and do not create an overlay that puts out the welcome mat for over 2,500 acres of noisy, polluting, towering concrete buildings.

Thank you for your consideration and for protecting the rights to a Frederick quality of life for ALL residents.

Diane Bicknell

Char Leigh Circle

Data Center AC Noise.MOV

From:	Elyse Wilson
To:	businessoffice@newspost.com; Marwa Barakat; aschotz@newspost.com; gcullen@newspost.com; llarocca@newspost.com; csands@newspost.com; community@newspost.com; kzentz@newspost.com; jcannon@newspost.com; gswatek@newspost.com; Adacy@newspost.com; County Executive; Council Members; STEVE MCKAY; Donald, Jerry; Duckett, Kavonte; Carter, Mason; Young, Brad; Knapp, Renee; Keegan-Ayer, MC; Katie Nash; Lewis Young, Karen Senator; Folden, William Senator; Alex Lima -MDE-; governor.mail@maryland.gov; mayor@cityofffrederickmd.gov
Cc:	Steve Black; Elizabeth Bauer; Elizabeth Law; FRANK HOLLEWA; Paula damico-Hollewa; Linda Everett; Hope Green; Gene Butler; firefighterdeb53@aol.com; mhdague@gmail.com; Josh Mitchell, P.E.; Moore, Shannon; sustainability@frederick-countymd.gov; Livable Frederick; Planning Commission; Bellis, Rayla; Dart David; Dorsey, Dea (Health/CHS); Lester, Tiara; energyandenvironent@frederickcountymd.gov; jwilloughby@cityoffrederickmd.gov
Subject:	Re: Urgent: Correction for Required for (Data center campus projected to yield $215M annually for county) in the Frederick News Post
Date:	Saturday, November 15, 2025 9:14:57 PM
Attachments:	Urgent_ Correction Required for Data Center Economic and Environmental Impact (1).pdf

[EXTERNAL EMAIL]

FYI:

Every Source is located in the attached PDF not in the Email.

Everything below is documented and researched.

On Sat, Nov 15, 2025 at 5:58 PM Elyse Wilson <elysewilsonkhk@gmail.com> wrote:

> # Forensic Analysis of the Quantum Frederick Data Center Economic Projections and Undisclosed Environmental Liabilities: A Critical Review of the Frederick News-Post Article
>
> *(Sources are included at the bottom of this email)*
>
> ## I. Executive Summary: The Disparity Between Projected Benefits and Undisclosed Public Costs
>
> The economic impact analysis of the Quantum Frederick data center campus, as reported in the Frederick News-Post (FNP) on November 12, 2025 , presents projections that are fundamentally inconsistent with established critical digital infrastructure industry standards and fail to account for severe, unmitigated environmental and public health liabilities. **The analysis, conducted by HR&A Advisors Inc. for the developer, Catellus Development Corporation , serves to maximize the perception of fiscal benefit while minimizing or entirely excluding associated public costs.**
>
> **The central claim scrutinized by this forensic analysis—the creation of 4,200**

direct, full-time equivalent (FTE) operational jobs starting in 2036 —is statistically improbable. Industry benchmarks for highly automated hyperscale facilities suggest job density is low, typically requiring only 5 to 30 employees per data center. When compared against the likely 14 to 20 facilities planned for the 17.4 million square foot campus, **the 4,200 job figure represents a significant exaggeration, potentially inflated by a factor of ten or more.**

Critically, the report explicitly states that its revenue estimates do not " account for the associated expenses," such as the cost of water/sewer extensions and road improvements. This omission externalizes the true fiscal burden required to support the massive infrastructure demands of the project.

Furthermore, the article largely ignores the profound Environmental Liabilities associated with the campus's operational phase. The installation of hundreds of high-capacity diesel backup generators—up to 168 units totaling 504 megawatts (MW) for a single developer, Aligned Data Centers —creates a substantial, chronic source of air and noise pollution. Given Frederick County's status as an ozone nonattainment area and the proximity of the campus to residences, communities, and sensitive receptors like schools, the emissions of Particulate Matter ($PM_{2.5}$) and Nitrogen Oxides (NO_x) introduce an acute, long-term public health risk that remains largely unaddressed by the reported economic study.

II. The Economic Inaccuracy: Dissecting and Refuting the 4,200 Job Projection

A. Critique of the HR&A/Catellus Economic Impact Analysis Methodology

The core purpose of the HR&A study was to estimate the economic and fiscal benefits of the Quantum Frederick campus, forecasting $215 million in annual revenue starting in 2036. It is crucial to understand that the overwhelming majority of this projected revenue is derived from property taxes levied on the high-value computer equipment and digital infrastructure housed within the data centers, not from income taxes generated by a large local workforce. This revenue source, while significant, remains vulnerable to state-level tax incentives and exemptions, which have led to massive, unpredictable revenue losses in other jurisdictions.

To arrive at its employment figures, HR&A utilized the IMPLAN (IMPact for PLANning) economic multiplier model. This standard industry model incorporates regional data on labor income and household spending to calculate three categories of employment: direct, indirect, and induced. The study projects 4,200 direct FTE jobs and an additional 5,600 multiplier (indirect and induced) jobs.

The reliance on the IMPLAN model often leads to overestimation when applied to highly automated industries like data centers. Indirect impacts, defined as "industry-

to-industry transactions," account for material and equipment spending related to the project. Since data center operators frequently source specialized hardware and components nationally or internationally, a significant portion of the capital expenditure counted in the model is likely to "leak" out of the Frederick County economy. Consequently, the 5,600 claimed multiplier jobs may not materialize locally, as their calculation depends on the initial, often exaggerated, assumptions about direct employment and local supply chain engagement.

B. Operational Staffing: Reality vs. Developer Projection

The projection of 4,200 direct operational FTE jobs is the most glaring statistical inaccuracy within the FNP article's summary of the report. This figure implies an extremely high labor intensity that contradicts the industry standard for hyperscale data centers, which prioritize automation and remote management to maintain high efficiency and reliability.

Industry benchmarks consistently demonstrate low operational employment. A typical data center facility employs anywhere between five and 30 people. Even massive, large-scale facilities (rated at 20 MW or more) generally require only 35 or more operational staff. For an individual construction project, recruiters may project around 150 permanent operations roles.

The Quantum Frederick campus is planned to include 17.4 million square feet of data center space, which likely translates into a substantial number of individual facilities, possibly 14 to 20 large buildings. If the 4,200-job figure were accurate, it would imply an average of 210 to 300 employees per building, a density drastically higher than the recognized industry standard of 30 employees per site.

This discrepancy is further highlighted by data specific to the Frederick site. Rowan Digital Infrastructure, a company developing three centers on the Quantum Frederick campus, estimated their own operational needs at only 275 employees in total. This yields an average of approximately 91 jobs per center. While this specific local projection is already three times the typical industry high end, extrapolating even this higher figure across 14 buildings would still only yield about 1,280 jobs—less than a third of the reported 4,200 claim.

The rationale for the 4,200 figure may stem from a strategic misclassification of labor. It is probable that this estimate includes non-local, highly compensated corporate personnel, specialized contractors, or long-term vendor staff responsible for maintenance, equipment upgrades, and other activities that are not typically counted as direct, full-time, local operational employees. Furthermore, the workforce profile of the data center industry is known to struggle with gender and racial representation. Presenting an inflated job figure minimizes scrutiny regarding who benefits from these specific high-paying positions versus who bears the environmental cost of the infrastructure itself.

C. Exclusion of Associated Public Costs: The True Fiscal Impact

A critical flaw in the HR&A analysis is its explicit refusal to account for "associated expenses." The report rationalizes that costs for water/sewer extensions, stormwater, and road improvements were excluded because the developer (Catellus) is paying for them.

This accounting practice obscures the immense public-sector financial commitment necessary for infrastructure adaptation. While a developer may cover the immediate cost of extending a pipe or paving a driveway, the sheer volume and operational requirements of a campus of this size necessitate systemic, sustained investments in public utilities. Data centers require massive and redundant electrical power and significant cooling capacity, which demand substantial and costly upgrades to the public grid, substations, and water/sewer capacity.

These systemic infrastructure investments are often subsidized or financed long-term by local utility ratepayers or the public budget, representing a future financial liability for Frederick County residents that is entirely externalized from the developer-commissioned economic benefit study. By focusing only on projected revenue and excluding necessary public investment, the report inherently biases the cost-benefit analysis in favor of the developer.

III. The Environmental Omission (I): Air Pollution and Chronic Public Health Hazards

A. The Scale of Diesel Generation Infrastructure in Frederick County

A central deficiency in the FNP article is its failure to properly characterize the vast scale of fossil fuel power generation planned for the site. Data centers require highly reliable, uninterrupted power supply, which necessitates large arrays of backup diesel generators.

Aligned Data Centers, one of the primary developers on the campus, has applied for a permit to install **168 diesel generators**, each rated at 3,000 kilowatts. This single component of the campus represents a potential standby power generation capacity of 504 MW. This installation rivals the output capacity of a small municipal power plant.

These generators are not passively awaiting a disaster. They are required by regulation and industry protocol to undergo frequent testing, often monthly. These mandatory test cycles, which can run for several hours, transform the "backup" system into a chronic, predictable source of air pollution and nuisance for neighboring communities.

B. Regulatory Maneuvering and Air Quality Impacts

The environmental impact of this generation capacity is magnified by Frederick County's status as a nonattainment area for ozone. Diesel exhaust is a major source of Nitrogen Oxides (NO_x), which are highly regulated precursors to ozone formation in Maryland.

To navigate stringent federal oversight, developers often employ a strategy known as **synthetic minor source** permitting. This approach involves proposing a site-wide emissions limit for NO_x and other pollutants below the major source thresholds required by the New Source Review and Title V permitting programs. This is achieved by capping the permitted annual operating hours of the generators.

While this strategy ensures regulatory compliance on paper, it relies on the generators operating for limited hours. The public health crisis arises when a regional power emergency occurs, forcing the simultaneous, prolonged operation of all 168+ generators. During such an acute event, the localized injection of pollutants would far exceed the synthetic limits, compromising regional air quality and threatening Frederick County's ability to meet ozone attainment goals.

Diesel generators emit a complex mixture of pollutants, including NO_x, Particulate Matter (PM), Sulfur Dioxide (SO_2), and Carbon Dioxide (CO_2). Although Aligned proposes the use of Selective Catalytic Reduction (SCR) technology to reduce NO_x, this mitigation is less effective against the release of fine particulate matter ($PM_{2.5}$). These sub-micron particles are the most immediate threat to human health.

C. Proximity to Sensitive Receptors and Public Health Risks

The location of the Quantum Frederick campus near residents, communities, and elementary schools directly exposes the most vulnerable populations to these emissions. Diesel exhaust, classified as a probable human carcinogen , contains $PM_{2.5}$ particles that can penetrate deep into the lungs and bloodstreams, causing chronic health issues such as heart disease, lung disease, and the exacerbation of asthma.

The risk is compounded for children. Research on diesel exhaust exposure for students, such as those riding diesel-powered school buses, shows elevated levels of particulate matter and carcinogens. When a massive, chronic source of diesel emissions is sited near schools and residential areas, it contributes to the cumulative air pollution burden.

Studies of other data center clusters confirm this impact, showing that communities within one mile of EPA-regulated data centers experience a statistically heightened burden of air pollution, including nitrogen dioxide and diesel PM, compared to the national average.

The underlying social consequence is one of environmental inequity: the county is accepting a financial transaction (tax revenue) that is dependent on installing infrastructure which imposes quantifiable, chronic health risks on adjacent residents. The financial reward is centralized and specialized, while the health costs are distributed to a broader, vulnerable population.

IV. The Environmental Omission (II): Noise, Water, and Community Strain

A. Noise Pollution: The Chronic and Catastrophic Threat

Data centers contribute significantly to noise pollution. Operational noise originates primarily from the constant running of air-cooling systems and the backup generators. As the generators are required to be tested frequently, residents face a chronic auditory nuisance.

However, the most severe, yet unaddressed, issue is the potential for catastrophic noise events. Critics of the existing regulations have argued that the Frederick County Noise Ordinance fails to adequately plan for the simultaneous operation of all generators across the multitude of data center buildings in the event of a widespread power failure. This scenario would generate a level of concentrated acoustic energy that could be profoundly disruptive and potentially harmful.

To mitigate noise pollution near sensitive land uses—such as homes, hospitals, and schools—noise experts recommend strict limits, potentially as low as 35 dBA, and substantial setbacks, suggesting a 2.5-mile radius to minimize impact. While the County Council has implemented some measures, including increasing minimum setbacks to 500 feet , this distance is widely considered insufficient to absorb the acoustic impact of multiple large-scale industrial engines operating at once. Developers must be required to utilize maximum noise prevention measures, such as full acoustic enclosures for all outdoor generator units.

B. Water Resource Strain and Contamination Concerns

The enormous water requirements of the Quantum Frederick campus pose a substantial threat to Frederick County's long-term water resources. Data centers relying on water-intensive cooling methods can consume hundreds of thousands of gallons daily. Quantum Loophole's APFO (Adequate Public Facilities Ordinance) documentation confirms an allowance for the use of 1.1 Million Gallons of water per Day (MGD) for the site.

If developers utilize potable water for cooling, this massive, continuous demand will strain the county’s municipal water supply, potentially necessitating costly public infrastructure expansion and competing directly with agricultural and residential water needs. Policy advocates stress that non-potable water sources, such as

treated effluent or "gray water," must be prioritized for data center cooling to conserve the potable supply. If the site requires water exceeding its allocated 1.1 MGD, state and regional approval for draws from the Potomac River would be required, introducing further regulatory and financial complications.

A compounding factor is the project's location on the former Alcoa Eastalco brownfield site. The land is subject to environmental covenants requiring continuous monitoring. However, residents have already registered complaints of heavy truck traffic, construction dust, and suspected well water contamination. These complaints suggest that the extensive earthmoving and construction activities required for the 2,100-acre campus may be disturbing legacy contaminants within the brownfield, potentially releasing them into the local environment and water table. This represents a substantial, unquantified environmental liability and public health risk directly tied to the project’s physical presence.

C. Burden on Public Services and Infrastructure

The report’s exclusive focus on tax revenue overlooks the increased operational strain placed on public services. Data center facilities are characterized by complex energy systems, including large, on-site battery storage areas and significant fuel storage tanks for the hundreds of diesel generators.

These features create unique and industrial-scale fire and emergency hazards. Local Frederick County emergency responders (Fire/Rescue) require specialized training, equipment, and resources to safely manage incidents involving such volatile power infrastructure. The cost of developing and maintaining this specialized public safety capacity is a direct, enduring public expense that was excluded from the financial impact study, forcing Frederick County taxpayers to shoulder the increased liability without corresponding financial offset.

Finally, the political environment surrounding data center regulation remains restrictive. The Maryland Governor’s veto of state legislation (SB 116) calling for a comprehensive environmental and economic study signaled a preference against state-level due diligence, leaving local jurisdictions like Frederick County reliant on studies commissioned by the developers themselves. This limits transparency and compounds the difficulty local planners face in mitigating the complex infrastructure and environmental demands of the industry.

V. Conclusions and Expert Recommendations for Oversight

The FNP article presents a fundamentally inaccurate financial narrative based on inflated job projections and a deliberate suppression of public sector costs and environmental liabilities. To ensure responsible development and protect community welfare, Frederick County must adopt stringent policy measures that address the economic misrepresentation and environmental risks identified in this analysis.

Metric	Quantum Frederick HR&A Projection (4,200 FTEs)	Frederick County Specific (Rowan 3 DCs)	Industr (Typica
Direct Operational Jobs	4,200	275 (Avg 91.6 per DC)	5 - 30 p
Employment Density	~241 jobs per million sq. ft.	High for regional standards	Low
Calculation Method	IMPLAN Model (High Multiplier Effects)	Developer-Specific Data	Uptime Institute Surveys
Discrepancy Factor	~9.3x higher than industry typical (30 FTE/DC estimate)	~3.3x higher than industry typical	Baseline

Pollutant/Hazard	Source Mechanism	Frederick County Regulatory Context	H
Particulate Matter ($PM_{2.5}$)	Diesel combustion during mandated monthly testing and emergencies	Seeking Synthetic Minor Source classification (limits operational hours)	L e c
Nitrogen Oxides (NO_x)	Diesel combustion; primary precursor to ozone formation	Frederick designated Ozone Nonattainment Area	S d re
Noise Pollution (Decibels)	Continuous cooling systems and acute operation of 168+ generators	New 500 ft setbacks; noise ordinance gaps regarding simultaneous generator use	C lit s
Water Consumption	Evaporative cooling for data halls	1.1 Million Gallons per Day (MGD) allocation for the campus	S p ir

Expert Recommendations

1. **Mandatory Fiscal Recalibration and Job Verification:** Frederick County should commission an immediate, independent audit to establish realistic local job density benchmarks. Any long-term financial incentives offered to data center operators must be explicitly tied to verifiable, direct local FTE employment levels, not inflated, extrapolated multiplier figures. Furthermore, the County must quantify the full cost of required public infrastructure upgrades and public safety capacity expansion, ensuring that developers bear the true cost of their operational demands.
2. **Impose Stringent Air Quality Requirements:** Given the ozone nonattainment designation, the County should mandate that data center developers utilize the cleanest available power technology, such as natural gas backup generators (which produce substantially lower NO_x emissions), or require Tier 4 emission standards for all diesel units. Long-term air quality monitoring for $PM_{2.5}$ and NO_x must be conducted by an independent third party and results made public. **Carroll Manor Elementary School in Adamstown MD** The proximity and the high volume of **chronic diesel exhaust emissions** from the nearby generators pose a substantial threat to the indoor air quality of the school. It is the responsibility of the local government to ensure that the school's filtration and ventilation is robust enough to protect students from the documented, highly toxic air pollutants before the generators begin mandatory testing and operation.
3. **Strengthen Noise and Siting Standards:** The Critical Digital Infrastructure Ordinance must be revised to specifically address the collective acoustic impact of generators operating simultaneously, requiring full acoustic enclosures and potentially greater setbacks than the current 500 feet. The intent must be to ensure data centers do not emit noise that impacts nearby homes or sensitive facilities like schools.
4. **Prioritize Sustainable Water Use and Brownfield Protection:** The CDI ordinance must enforce the priority use of non-potable or recycled "gray water" for cooling to minimize strain on Frederick County's drinking water supplies. Immediate, rigorous, independent environmental testing is required to investigate resident complaints of well water contamination stemming from the disturbance of the former brownfield site.

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Forensic Analysis of the Quantum Frederick Data Center Economic Projections and Undisclosed Environmental Liabilities: A Critical Review of the Frederick News-Post Article

I. Executive Summary: The Disparity Between Projected Benefits and Undisclosed Public Costs

The economic impact analysis of the Quantum Frederick data center campus, as reported in the Frederick News-Post (FNP) on November 12, 2025 [1], presents projections that are fundamentally inconsistent with established critical digital infrastructure industry standards and fail to account for severe, unmitigated environmental and public health liabilities. The analysis, conducted by HR&A Advisors Inc. for the developer, Catellus Development Corporation [1], serves to maximize the perception of fiscal benefit while minimizing or entirely excluding associated public costs.

The central claim scrutinized by this forensic analysis—the creation of 4,200 direct, full-time equivalent (FTE) operational jobs starting in 2036 [1]—is statistically improbable. Industry benchmarks for highly automated hyperscale facilities suggest job density is low, typically requiring only 5 to 30 employees per data center.[2] When compared against the likely 14 to 20 facilities planned for the 17.4 million square foot campus, the 4,200 job figure represents a significant exaggeration, potentially inflated by a factor of ten or more.

Critically, the report explicitly states that its revenue estimates do "not account for the associated expenses," such as the cost of water/sewer extensions and road improvements.[1] This omission externalizes the true fiscal burden required to support the massive

infrastructure demands of the project.

Furthermore, the article largely ignores the profound environmental liabilities associated with the campus's operational phase. The installation of hundreds of high-capacity diesel backup generators—up to 168 units totaling 504 megawatts (MW) for a single developer, Aligned Data Centers [4]—creates a substantial, chronic source of air and noise pollution. Given Frederick County's status as an ozone nonattainment area [6] and the proximity of the campus to residences, communities, and sensitive receptors like schools, the emissions of Particulate Matter ($\text{PM}_{2.5}$) and Nitrogen Oxides (NO_{x}) introduce an acute, long-term public health risk that remains largely unaddressed by the reported economic study.

II. The Economic Inaccuracy: Dissecting and Refuting the 4,200 Job Projection

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To arrive at its employment figures, HR&A utilized the IMPLAN (IMPact for PLANning) economic multiplier model.[1] This standard industry model incorporates regional data on labor income and household spending to calculate three categories of employment: direct, indirect, and induced.[1] The study projects 4,200 direct FTE jobs and an additional 5,600 multiplier (indirect and induced) jobs.[1]

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B. Regulatory Maneuvering and Air Quality Impacts

The environmental impact of this generation capacity is magnified by Frederick County's status as a nonattainment area for ozone.[6] Diesel exhaust is a major source of Nitrogen Oxides (NO_{x}) [21], which are highly regulated precursors to ozone formation in Maryland.[6]

To navigate stringent federal oversight, developers often employ a strategy known as **synthetic minor source** permitting.[6] This approach involves proposing a site-wide emissions limit for NO_{x} and other pollutants below the major source thresholds required by the New Source Review and Title V permitting programs.[4] This is achieved by capping the permitted annual operating hours of the generators.[6]

While this strategy ensures regulatory compliance on paper, it relies on the generators operating for limited hours. The public health crisis arises when a regional power emergency occurs, forcing the simultaneous, prolonged operation of all 168+ generators. During such an acute event, the localized injection of pollutants would far exceed the synthetic limits, compromising regional air quality and threatening Frederick County's ability to meet ozone attainment goals.[22]

Diesel generators emit a complex mixture of pollutants, including NO_{x}, Particulate Matter (PM), Sulfur Dioxide (SO_{2}), and Carbon Dioxide (CO_{2}).[5] Although Aligned proposes the use of Selective Catalytic Reduction (SCR) technology to reduce NO_{x} [4], this mitigation is less effective against the release of fine particulate matter ($\text{PM}_{2.5}$).[21] These sub-micron particles are the most immediate threat to human health.

C. Proximity to Sensitive Receptors and Public Health Risks

The location of the Quantum Frederick campus near residents, communities, and elementary schools directly exposes the most vulnerable populations to these emissions. Diesel exhaust, classified as a probable human carcinogen [24], contains $\text{PM}_{2.5}$ particles that can penetrate deep into the lungs and bloodstreams, causing chronic health issues such as heart disease, lung disease, and the exacerbation of asthma.[5]

The risk is compounded for children. Research on diesel exhaust exposure for students, such as those riding diesel-powered school buses, shows elevated levels of particulate matter and carcinogens.[24] When a massive, chronic source of diesel emissions is sited near schools and residential areas, it contributes to the cumulative air pollution burden.[25]

Studies of other data center clusters confirm this impact, showing that communities within one mile of EPA-regulated data centers experience a statistically heightened burden of air pollution, including nitrogen dioxide and diesel PM, compared to the national average.[26]

The underlying social consequence is one of environmental inequity: the county is accepting a financial transaction (tax revenue) that is dependent on installing infrastructure which imposes quantifiable, chronic health risks on adjacent residents. The financial reward is centralized and specialized, while the health costs are distributed to a broader, vulnerable population.

IV. The Environmental Omission (II): Noise, Water, and Community Strain

A. Noise Pollution: The Chronic and Catastrophic Threat

Data centers contribute significantly to noise pollution. Operational noise originates primarily from the constant running of air-cooling systems and the backup generators.[28] As the generators are required to be tested frequently, residents face a chronic auditory nuisance.[19]

However, the most severe, yet unaddressed, issue is the potential for catastrophic noise events. Critics of the existing regulations have argued that the Frederick County Noise Ordinance fails to adequately plan for the simultaneous operation of all generators across the multitude of data center buildings in the event of a widespread power failure.[29] This scenario

would generate a level of concentrated acoustic energy that could be profoundly disruptive and potentially harmful.

To mitigate noise pollution near sensitive land uses—such as homes, hospitals, and schools—noise experts recommend strict limits, potentially as low as 35 dBA, and substantial setbacks, suggesting a 2.5-mile radius to minimize impact.[28] While the County Council has implemented some measures, including increasing minimum setbacks to 500 feet [30], this distance is widely considered insufficient to absorb the acoustic impact of multiple large-scale industrial engines operating at once. Developers must be required to utilize maximum noise prevention measures, such as full acoustic enclosures for all outdoor generator units.[28]

B. Water Resource Strain and Contamination Concerns

The enormous water requirements of the Quantum Frederick campus pose a substantial threat to Frederick County's long-term water resources. Data centers relying on water-intensive cooling methods can consume hundreds of thousands of gallons daily.[31] Quantum Loophole's APFO (Adequate Public Facilities Ordinance) documentation confirms an allowance for the use of 1.1 Million Gallons of water per Day (MGD) for the site.[18]

If developers utilize potable water for cooling, this massive, continuous demand will strain the county’s municipal water supply, potentially necessitating costly public infrastructure expansion and competing directly with agricultural and residential water needs.[31] Policy advocates stress that non-potable water sources, such as treated effluent or "gray water," must be prioritized for data center cooling to conserve the potable supply.[18] If the site requires water exceeding its allocated 1.1 MGD, state and regional approval for draws from the Potomac River would be required, introducing further regulatory and financial complications.

A compounding factor is the project's location on the former Alcoa Eastalco brownfield site.[32] The land is subject to environmental covenants requiring continuous monitoring.[32] However, residents have already registered complaints of heavy truck traffic, construction dust, and suspected well water contamination.[1] These complaints suggest that the extensive earthmoving and construction activities required for the 2,100-acre campus may be disturbing legacy contaminants within the brownfield, potentially releasing them into the local environment and water table. This represents a substantial, unquantified environmental liability and public health risk directly tied to the project’s physical presence.

C. Burden on Public Services and Infrastructure

The report's exclusive focus on tax revenue overlooks the increased operational strain placed on public services. Data center facilities are characterized by complex energy systems, including large, on-site battery storage areas and significant fuel storage tanks for the hundreds of diesel generators.[31]

These features create unique and industrial-scale fire and emergency hazards.[31] Local Frederick County emergency responders (Fire/Rescue) require specialized training, equipment, and resources to safely manage incidents involving such volatile power infrastructure.[31] The cost of developing and maintaining this specialized public safety capacity is a direct, enduring public expense that was excluded from the financial impact study, forcing Frederick County taxpayers to shoulder the increased liability without corresponding financial offset.

Finally, the political environment surrounding data center regulation remains restrictive. The Maryland Governor's veto of state legislation (SB 116) calling for a comprehensive environmental and economic study [1] signaled a preference against state-level due diligence, leaving local jurisdictions like Frederick County reliant on studies commissioned by the developers themselves. This limits transparency and compounds the difficulty local planners face in mitigating the complex infrastructure and environmental demands of the industry.[33]

V. Conclusions and Expert Recommendations for Oversight

The FNP article presents a fundamentally inaccurate financial narrative based on inflated job projections and a deliberate suppression of public sector costs and environmental liabilities. To ensure responsible development and protect community welfare, Frederick County must adopt stringent policy measures that address the economic misrepresentation and environmental risks identified in this analysis.

Metric	Quantum Frederick HR&A Projection	Frederick County Specific (Rowan 3	Industry Standard (Typical DC)	Hyperscale Benchmark (Per Project)

	(4,200 FTEs)	**DCs)**		
Direct Operational Jobs	4,200 [1]	275 (Avg 91.6 per DC) [1]	5 - 30 per DC [2]	~150 per large project [12]
Employment Density	$\sim$241 jobs per million sq. ft.	High for regional standards	Low	Low (highly automated)
Calculation Method	IMPLAN Model (High Multiplier Effects) [1]	Developer-Specific Data	Uptime Institute/Industry Surveys	Construction/Recruiter Reports
Discrepancy Factor	$\sim$9.3x higher than industry typical (30 FTE/DC estimate)	$\sim$3.3x higher than industry typical	Baseline	High End

Pollutant/Hazard	**Source Mechanism**	**Frederick County Regulatory Context**	**Health and Community Risk**
Particulate Matter ($\text{PM}_{2.5}$)	Diesel combustion during mandated monthly testing and emergencies [5]	Seeking Synthetic Minor Source classification (limits operational hours) [6]	Lung/heart disease, asthma exacerbation, disproportionate risk to children near schools [5]
Nitrogen Oxides (NO_{x})	Diesel combustion; primary precursor to ozone formation [21]	Frederick designated Ozone Nonattainment Area [6]	Smog formation, respiratory dysfunction, and interference with regional air quality goals [24]

Noise Pollution (Decibels)	Continuous cooling systems and acute operation of 168+ generators [4]	New 500 ft setbacks; noise ordinance gaps regarding simultaneous generator use [29]	Chronic nuisance, reduced quality of life, and potential acoustic trauma near sensitive receptors [19]
Water Consumption	Evaporative cooling for data halls [18]	1.1 Million Gallons per Day (MGD) allocation for the campus [22]	Strain on potable water supply, high potential for increased public utility investment and costs [31]

Expert Recommendations

1. **Mandatory Fiscal Recalibration and Job Verification:** Frederick County should commission an immediate, independent audit to establish realistic local job density benchmarks. Any long-term financial incentives offered to data center operators must be explicitly tied to verifiable, direct local FTE employment levels, not inflated, extrapolated multiplier figures. Furthermore, the County must quantify the full cost of required public infrastructure upgrades and public safety capacity expansion, ensuring that developers bear the true cost of their operational demands.
2. **Impose Stringent Air Quality Requirements:** Given the ozone nonattainment designation, the County should mandate that data center developers utilize the cleanest available power technology, such as natural gas backup generators (which produce substantially lower NO_{x} emissions [19]), or require Tier 4 emission standards for all diesel units.[28] Long-term air quality monitoring for $\text{PM}_{2.5}$ and NO_{x} must be conducted by an independent third party and results made public.[31]
3. **Strengthen Noise and Siting Standards:** The Critical Digital Infrastructure Ordinance must be revised to specifically address the collective acoustic impact of generators operating simultaneously, requiring full acoustic enclosures and potentially greater setbacks than the current 500 feet.[28] The intent must be to ensure data centers do not emit noise that impacts nearby homes or sensitive facilities like schools.[28]
4. **Prioritize Sustainable Water Use and Brownfield Protection:** The CDI ordinance must enforce the priority use of non-potable or recycled "gray water" for cooling to minimize strain on Frederick County's drinking water supplies.[31] Immediate, rigorous, independent environmental testing is required to investigate resident complaints of well water

contamination stemming from the disturbance of the former brownfield site.[32]

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Subject:	MANDATORY FUNDING FOR CARROLL MANOR ELEMENTARY SCHOOL (CMES) TO MITIGATE HAZARDS FROM ADJACENT CRITICAL DIGITAL INFRASTRUCTURE (CDI)
Date:	Sunday, November 16, 2025 5:55:29 PM
Attachments:	Data Centers" Impact on Carroll Manor Elementary School.pdf

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Formal Letter to the Frederick County Board of Education

TO: The Members of the Frederick County Board of Education (BOE)

DATE: November 16, 2025

SUBJECT: MANDATORY FUNDING AND SYSTEMIC RETROFIT FOR CARROLL MANOR ELEMENTARY SCHOOL (CMES) TO MITIGATE HAZARDS FROM ADJACENT CRITICAL DIGITAL INFRASTRUCTURE (CDI)

Dear Board Members,

This letter outlines the critical and non-negotiable infrastructure upgrades required to safeguard the health and learning environment of students and staff at **Carroll Manor Elementary School (CMES)**, which is situated approximately 1,000 feet from the planned Critical Digital Infrastructure (CDI) facility utilizing 172 high-capacity diesel generators.

The school's age (constructed in 1965) and proximity to this massive industrial emission source create an unacceptable public health risk that cannot be mitigated by general maintenance or simple upgrades.

Key Public Health and Environmental Hazards

The comprehensive analysis mandates a full systemic retrofit focusing on two primary threats: Air Quality and Noise Pollution.

1. Air Quality Degradation (Diesel Exhaust Exposure)

- **Hazard Source:** The primary threat comes from concentrated hazardous emissions—specifically **Particulate Matter ($\text{PM}_{2.5}$), Nitrogen Oxides (NO_{x}), and carcinogenic Polycyclic Aromatic Hydrocarbons (PAHs)**—released during scheduled, non-

emergency generator testing. Children are inherently more vulnerable due to still-developing respiratory systems.

- **Structural Vulnerability:** The 1965-era school building suffers from high rates of **uncontrolled air infiltration** (air leakage), which bypasses any existing or upgraded filtration systems and allows unfiltered diesel exhaust to enter classrooms directly.
- **Technical Failure:** The mandated pollution control system (**Selective Catalytic Reduction, or SCR**) is inherently compromised during the low-temperature operation typical of engine start-up and testing cycles. This "low-temperature toxic plume paradox" results in inadequate treatment of emissions, particularly carcinogenic PAHs, creating maximal risk during testing events.
- **Policy Failure:** Current regulations allow the **100 hours of non-emergency generator testing** to occur during school operational hours (8 a.m. to 5 p.m.), effectively mandating routine exposure of children and staff to concentrated pollutant plumes.

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2. Chronic Noise Pollution

- **Hazard Source:** The facility will generate pervasive and constant noise from essential operational equipment, primarily **Cooling Towers and Air Handling Units (AHUs)**, which can generate noise levels up to 100 dBA per unit.
- **Impact on Learning:** This continuous, low-frequency sound travels long distances and penetrates buildings easily, creating a constant, intrusive humming sound. Chronic noise is a known disruptor of the educational environment, directly impacting pupils' concentration, memory, and cognitive development.

Mandatory Systemic Retrofit and Policy Requirements

To ensure the safety of CMES occupants, the following interventions are mandatory and non-negotiable:

Engineering Mandates

1. **Comprehensive Envelope Remediation (Air Sealing):** Immediate structural retrofitting, based on quantitative testing (e.g., blower door test), is required to drastically reduce air infiltration, eliminating the direct pathway for unfiltered external pollutants into classrooms.
2. **Full HVAC Systemic Replacement:** The antiquated HVAC system must be fully replaced to support **MERV 14 level filtration** and maintain **positive building pressurization**. Positive pressurization is an engineering control that ensures any residual air leakage flows *outward* with clean air, preventing diesel exhaust from infiltrating the

building.

3. **Acoustic Isolation:** All original 1965-era windows and doors must be replaced with modern, acoustically rated assemblies to improve the Sound Transmission Class (STC) rating against both continuous low-frequency hums and intermittent generator noise.

Policy Mandates (Crucial for Public Safety)

1. **Revised Generator Testing Schedule Mandate:** The MDE permit must be formally amended to **explicitly restrict all 100 hours of non-emergency generator testing to periods when CMES is fully unoccupied** (e.g., weekends, designated school holidays, or prior to 7 a.m.).

2. **Independent Environmental Monitoring:** The developer must fund and install permanent, continuous, independent monitoring stations on the CMES property line, tracking $\text{PM}_{2.5}$, NO_{x}, and acoustic levels (dBA and dBC) in real time to verify compliance against acute public health risk.

Funding Mandate: Developer Financial Responsibility

The decision by Frederick County to allow this massive industrial development within 1,000 feet of a pre-existing elementary school necessitates substantial, expensive infrastructure upgrades. The economic consequence of this siting decision **must not** be transferred to the FCPS general capital budget.

We urge the Board of Education to collaborate with the County Executive and County Council to **compel the CDI developer, Catellus Development Corporation**, to directly fund or secure an escrow account covering the **full capital costs** of the necessary CMES systemic retrofit. This ensures that the environmental cost necessitated by the project's proximity is internalized by the industrial developer, as the project necessitates the safety investment.

This information will be presented at the forthcoming Adamstown listening session to underscore that these comprehensive, systemic retrofits are a **mandatory precondition** for the safe operation of the adjacent CDI facility.

We request your immediate action to prioritize these mandates for the safety of our children and educators.

In addition @Jessica Fitzwater will be having an Adamstown Listening session regarding Benefits. TBD.

See attached **Impact Study on Carroll Manor Elementary School** with all the sources listed on the bottom of the pdf.

Sincerely,

Elyse Wilson

2799 Decatur Drive

Adamstown, MD 21710

301-639-4072

Environmental Risk Assessment and Systemic Retrofit Mandate: Protecting Carroll Manor Elementary School from Critical Digital Infrastructure Proximity Hazards

Executive Summary and Strategic Findings

This report provides a comprehensive environmental and public health risk assessment for Carroll Manor Elementary School (CMES) in Adamstown, MD, situated approximately 1,000 feet from a planned Critical Digital Infrastructure (CDI) facility utilizing extensive banks of diesel generators. The analysis identifies immediate and long-term hazards spanning air quality degradation (Particulate Matter, Nitrogen Oxides, and Carcinogenic Polycyclic Aromatic Hydrocarbons) and severe noise pollution.

The primary environmental threat is the concentration of hazardous emissions during scheduled, non-emergency generator testing. Despite regulatory limitations restricting total non-emergency operation to 100 hours per year, the necessity of testing during school operational hours (8 a.m. to 5 p.m.) [1] effectively mandates routine exposure of children and staff to concentrated pollutant plumes. Furthermore, the mandatory pollution control system (Selective Catalytic Reduction, or SCR) is inherently compromised during the low-temperature operation typical of engine start-up and testing cycles, leading to inadequate treatment of emissions.[2]

The vulnerability of CMES is significantly amplified by its 1965 construction, which predisposes the building to high rates of uncontrolled air infiltration.[3] This uncontrolled air leakage bypasses any existing or upgraded filtration systems, allowing external diesel exhaust to enter classrooms directly. The antiquated HVAC system is fundamentally incompatible with the modern high-efficiency filtration (MERV 13 or MERV 14) required to mitigate the adjacent industrial pollution, necessitating a full systemic replacement rather than simple component

upgrades.[4]

To ensure the safety of CMES occupants, the analysis mandates a comprehensive strategy encompassing: 1) Policy action to restrict generator testing to non-occupancy hours; 2) Immediate, developer-funded structural retrofitting to drastically reduce air infiltration; and 3) A full, systemic replacement of the HVAC infrastructure to achieve positive building pressurization and support MERV 14 level filtration. Without these interventions, the concentration of pediatric populations 1,000 feet from a major emission source during recurring, inadequately mitigated pollution events constitutes an unacceptable, chronic public health risk.

Section 1: Contextual Analysis of the Critical Digital Infrastructure (CDI) Threat

1.1 Project Overview, Location, and Setback Deficiency

Carroll Manor Elementary School (CMES) is located at 5624 Adamstown Road, Adamstown, Maryland.[6] The critical infrastructure development impacting the school is the proposed facility by Aligned Data Centers (MD) PropCo, LLC, planned for 5601 Manor Woods Road.[6] Public concern stems from the school's proximity to this facility, estimated at approximately 1,000 feet from the boundary of the planned data centers.

A key point of contention during the regulatory process has been the insufficient buffer zone between the data center and sensitive receptors. Concerned residents submitted comments urging Frederick County officials to implement a minimum setback of at least 1,500 feet between data centers with diesel generators and residential communities, schools, and daycare centers.[7] The current local legislative proposals have generally restricted data centers to at least 500 feet from residential neighborhoods.[8]

The reliance on a 500-foot or 1,000-foot buffer zone fails to account for the unique characteristics of a school environment. A school concentrates hundreds of highly vulnerable individuals—children, whose lungs are still developing [9]—for eight or more hours daily. While a 500-foot setback might mitigate some generalized impact on a single residence, it is demonstrably inadequate for a high-occupancy, sensitive educational facility. The difference between the 1,500 feet requested by the community and the effective 1,000-foot reality

translates directly into a higher burden of chronic pollutant exposure for the CMES student body and staff. The location of the public meeting to discuss the Maryland Department of the Environment (MDE) draft permit—held in the cafeteria of CMES itself [6]—underscores the direct and unavoidable connection between the industrial project and the school community.

1.2 Quantification of Environmental Hazard Sources

The severity of the environmental risk is defined by the massive scale of the proposed emergency power infrastructure. The MDE received a permit-to-construct application for the data center facility that includes the installation of one hundred and sixty-eight (168) emergency generators, each rated at 3,000-kilowatts (kW), in addition to four (4) smaller emergency generators rated at 1,000-kilowatts.[6]

This combined capacity represents an enormous potential source of emissions, even under limited operation. The primary air pollutants emitted during diesel engine operation include Diesel Particulate Matter (DPM), which is a major component of PM2.5, oxides of nitrogen (NOx), carbon monoxide (CO), and Polycyclic Aromatic Hydrocarbons (PAHs).[2]

Beyond air pollution, the data center facility generates pervasive and continuous noise pollution from its essential operational equipment. These sources include:

1. **Cooling Towers:** Often located on rooftops, these systems can generate noise levels up to 85 dBA.[10]
2. **Air Handling Units (AHUs):** A large data center may employ numerous AHUs, each capable of generating high decibel noise ranging from 85 dBA to 100 dBA.[10]

This operational noise is constant (24/7) as long as the data center is running.[10] Furthermore, the pervasive nature of low-frequency sound waves emitted by this heavy machinery allows noise to travel long distances and penetrate buildings easily, manifesting as a constant, intrusive humming sound for local residents.[10]

1.3 Regulatory Compliance and the Minor Source Classification

The regulatory strategy employed by the applicant relies on maintaining emissions below federal thresholds. The MDE draft permit specifies that premises-wide emissions of nitrogen oxides (NOx) must be limited to less than 25 tons per rolling 12-month period. This constraint is crucial because maintaining emissions below 25 TPY allows the facility to be classified as a

"minor source" of emissions, which reduces regulatory complexity and reporting requirements.[11] Compliance with the NOx limit is presumed to reduce potential emissions of all other regulated pollutants to less than major source levels.[11]

To comply with this limit, the 3,000-kilowatt generators must be equipped with Selective Catalytic Reduction (SCR) systems designed to reduce NOx emissions.[6] The permit requires continuous monitoring of SCR performance indicators, including catalyst bed temperature and urea dosing rate.[11]

A critical operational constraint is placed on the emergency generators: outside of actual emergency events, non-emergency operation—primarily for testing and maintenance—is strictly limited to 100 hours per year.[12] Generator testing is mandated to occur during standard daytime hours, typically Monday through Friday, 8 a.m. to 5 p.m..[1]

The regulatory reliance on the aggregate annual emissions metric (25 TPY) to define minor source status fundamentally obscures the immediate public health threat to CMES. Exposure risk for the pediatric population is not governed by the total annual tonnage but by the **short-term peak concentration** (measured in $\mu \text{g/m}^3$ over hours) achieved during the mandated testing cycles. By scheduling the 100 annual hours of non-emergency operation during instructional hours, the policy effectively mandates a concentrated, high-intensity emission event directly into the environment surrounding the school, despite the project's low annual emissions profile. This systematic requirement for scheduled exposure to industrial pollutants during school hours constitutes a significant regulatory weakness when evaluating the risk to sensitive populations.

The local acoustic requirements also necessitate detailed review. Frederick County adopted amendments regulating data centers that require applicants to submit an environmental noise impact assessment prepared by a qualified acoustical consultant.[1] Monitoring must be performed at the property line.[1] Local noise standards specify a maximum residential nighttime limit of 55 dBA.[13] Given the high baseline noise generated by cooling infrastructure (up to 100 dBA per unit) [10], meeting the 55 dBA standard at the school property line, which is essential for maintaining a conducive learning environment [14], will require significant, specific acoustic mitigation measures by the developer.

Table 1: CDI Source and Emission Risk Summary
Component
Emergency Diesel Generators (EDGs)
Cooling Infrastructure (Towers, AHUs)

Section 2: Comprehensive Environmental Risk Assessment for CMES Occupants

2.1 Public Health Risk: Diesel Exhaust Exposure

2.1.1 Acute and Chronic Respiratory Hazards in Children

The concentration of diesel exhaust particles (DEP) in the immediate vicinity of CMES poses a direct and demonstrable public health threat to the students and educators. Children are inherently more vulnerable to these pollutants because their respiratory systems are still developing, and they exhibit higher respiration rates relative to their body size compared to adults.[9]

DPM is a major component of PM2.5, especially in urban or industrial areas where diesel combustion is a significant source of airborne particulate matter.[15] Exposure to DPM and PM2.5 is associated with severe non-cancer health effects, including premature death, increased frequency of hospitalizations and emergency department visits due to exacerbated chronic heart and lung disease (such as asthma), general increases in respiratory symptoms, and measurable decreases in lung function.[9] Furthermore, research suggests that DPM exposure may contribute to the development of new allergies.[9] Studies have established links between living near major traffic or industrial sources and increased risk of wheezing illness in infants and children.[15]

2.1.2 The SCR Low-Temperature Toxic Plume Paradox

A technical assessment of the mandated pollution control system reveals a critical operational deficiency when applied to emergency generators. The MDE permit requires Selective Catalytic Reduction (SCR) systems for the largest generators to control NOx emissions.[11] While SCR is highly effective in continuous, high-temperature industrial applications [16], its

performance degrades substantially in the context of emergency engines.

Emergency diesel engines are often operated intermittently and undergo frequent cold starts, particularly during the 100 hours of scheduled maintenance testing. Studies confirm that the exhaust temperature of a diesel engine during low-load or urban cycles averages around 198°C.[2] At these lower temperatures, the activity of the SCR catalyst is significantly reduced, resulting in unsatisfactory emission reduction rates. For example, some data shows NOx reduction efficiency at only 42.0% under these conditions.[2]

Crucially, the low-temperature operation paradox extends beyond criteria pollutants. The analysis shows that gas-phase Polycyclic Aromatic Hydrocarbons (PAHs)—known carcinogenic substances—cannot be effectively suppressed by the SCR after-treatment system under cold-start conditions.[2] Calculating the lifetime carcinogenic risk (ILCR) of these gas-phase PAHs reveals potential health risks for children.[2]

The implication for CMES is profound: the 100 hours of mandatory testing, likely scheduled during school hours, do not merely involve general emissions. They involve concentrated, recurrent emission events where the mandated pollution control technology is least effective, particularly regarding carcinogenic PAHs. Therefore, the short-term, peak inhalation exposure during these recurring events represents a maximal acute and chronic risk to the population at CMES.

2.2 Noise Pollution Impact on Learning Environments

2.2.1 Noise Generation and Acoustic Standards

The continuous noise generated by the data center's operational infrastructure (cooling towers, AHUs, and chillers) presents a chronic threat to the educational function of CMES.[10] Industrial sources can generate noise ranging from 85 dBA to 100 dBA per unit.[10] Even with setbacks and attenuation, low-frequency hums from these constant operations can travel great distances.[10]

Frederick County specifies a maximum residential nighttime noise level of 55 dBA.[13] For comparison, typical interior acoustic standards for instructional spaces are significantly stricter, often requiring ambient noise levels far below 55 dBA to prevent distraction. When measured, noise levels in schools near existing industrial sources often exceed national

thresholds of 55 dBA, with some schools recording up to 65 dBA.[14]

2.2.2 Cognitive and Behavioral Impacts

Environmental noise is a known disruptor of educational environments, directly impacting pupils' concentration, memory, and cognitive development.[14] Studies on pupils exposed to high external noise, such as from freeway traffic or aircraft, have demonstrated compromised school performance.[17] While one localized study did not find a significant statistical correlation between environmental noise and concentration, it noted a descriptive trend suggesting that higher noise levels may lower attention, reinforcing the need to address noise as a factor influencing learning.[14]

The continuous, low-frequency noise inherent to data center operation poses a particular challenge. This constant background stressor fatigues the auditory system and competes directly with the instructional process. Effective safety planning must therefore mandate dual noise mitigation: (1) managing the sudden, high-intensity, intermittent noise from generator testing; and (2) structurally isolating the school from the constant, low-frequency ambient hum of the cooling infrastructure. Without robust structural and acoustic measures, the chronic noise exposure risks reducing the efficacy of the learning environment at CMES.

Section 3: Structural and Mechanical Vulnerability of 1965 School Infrastructure

The safety requirements for a building located 1,000 feet from a massive diesel generator bank fundamentally exceed the capabilities and original design standards of a 1965 structure like Carroll Manor Elementary School.[3] The vulnerability assessment identifies two critical pathways through which external pollution and noise will compromise indoor air quality (IAQ) and the learning environment.

3.1 Building Envelope Integrity and Uncontrolled Infiltration

CMES was constructed in 1965.[3] Buildings from this mid-century period, particularly school

facilities often utilizing masonry with a brick exterior [3], are typically highly susceptible to air leakage. Air leakage refers to the uncontrolled flow of air into or out of the building's thermal enclosure, driven by pressure differences caused by wind, stack effect, or mechanical equipment.[18]

High air leakage rates mean that the school building will draw in outside air through every unsealed crack, opening, electrical penetration, and poorly fitted window and door assembly. During scheduled generator testing events, when the plume of inadequately filtered diesel exhaust is concentrated in the immediate vicinity, this uncontrolled infiltration provides a direct and immediate pathway for unfiltered PM2.5, NOx, and PAHs to enter classrooms and occupied spaces.

The fundamental significance of this vulnerability is that high infiltration rates effectively nullify the benefits of any subsequent HVAC filtration upgrades. If the contaminated external air bypasses the centralized air handling units, even the highest efficiency filters become irrelevant to the health outcome of the building occupants. Therefore, the initial and most critical engineering mandate for CMES is to quantify the current leakage rate through standardized testing, such as a blower door test [18], and then undertake comprehensive air sealing (including caulking, weather-stripping, and duct sealing) to reduce the Air Exchange Rate (AER) to modern, tighter building standards.[19]

Table 2: Carroll Manor Elementary School (1965) Vulnerability Matrix
Vulnerability Area
Building Envelope Air Tightness
HVAC System Capacity
Acoustic Isolation

3.2 HVAC System Constraints and the MERV 13/14 Challenge

Aging school buildings across the United States frequently possess legacy HVAC systems that fail to meet modern indoor air quality (IAQ) codes.[20] Frederick County Public Schools (FCPS) acknowledges the importance of maintaining functional and efficient heating, ventilation, and air conditioning systems for a safe learning environment.[21]

To effectively filter diesel particulate matter (PM2.5), industry standards, specifically those set by ASHRAE, recommend a filter with a Minimum Efficiency Reporting Value (MERV) of 13 as a minimum, with MERV 14 or higher preferred.[5] MERV 13 filters are designed to capture airborne particulates in the size range of 0.3 to $1.0\ \mu\text{m}$ at higher efficiency than lower-rated filters.[22]

The critical engineering challenge is that HVAC systems installed in 1965 were designed to move air against the low static pressure drop of low-efficiency filters (e.g., MERV 8 or lower). Installing a MERV 13 or MERV 14 filter into a legacy system is likely to significantly increase the pressure drop across the filter.[5] This increased resistance, if the system is not designed to accommodate it, results in reduced air flow through the system, reduced fan performance, higher energy consumption, or, critically, damage to the system itself.[4]

Regulatory bodies often recognize this technical constraint. For instance, some standards require schools to install filtration that achieves the highest feasible MERV level without significantly reducing the lifespan or performance of the existing HVAC system.[4] In the case of a 1965-era school immediately adjacent to a major pollution source, feasibility dictates that a simple component upgrade is insufficient. The proximity of the CDI facility necessitates a complete **systemic HVAC capital replacement**.[23] The required capital expenditure must include new air handling units, fans, and potentially redesigned ductwork capable of supporting MERV 14 filtration and maintaining required ventilation rates without operational degradation.

Section 4: Mandated Mitigation and Systemic Retrofit Plan for Carroll Manor Elementary School

A multi-phase, mandatory plan must be implemented to transform CMES from a highly vulnerable legacy structure into an environmentally resilient facility. This plan encompasses engineering, monitoring, and policy modifications, with the financial burden of the retrofit appropriately allocated to the project that necessitates the safety investment.

4.1 Air Quality Mitigation Strategy: Engineering Mandates

4.1.1 Phase 1: Envelope and Sealing

The foundational step for IAQ protection is establishing a tight building envelope to eliminate uncontrolled infiltration. Frederick County Public Schools (FCPS) should immediately allocate resources, perhaps through the Capital Improvement Program (CIP) [23], to conduct comprehensive energy audits and blower door tests. Following quantification of air leakage, aggressive air sealing measures must be implemented.[18] This work mirrors existing successful retrofit programs that address energy conservation but is driven here by critical public health necessity.[19]

4.1.2 Phase 2: HVAC System Overhaul and Positive Pressurization

Given the technical infeasibility of upgrading 1965-era HVAC components to support the required filtration, a full systemic replacement is mandated.[4] The new system must be specified with the following criteria:

1. **High-Efficiency Filtration Capacity:** New Air Handling Units (AHUs) and fan systems must be capable of supporting and maintaining optimal airflow rates while utilizing MERV 14 filters.[5]
2. **Positive Pressurization:** The system design must incorporate mechanisms—such as a Dedicated Outdoor Air System (DOAS) or controlled dampers—to maintain a slight positive pressure within the building relative to the outdoors. Positive pressurization is an engineering control that ensures any residual leakage is outward flow of clean air, effectively preventing external, unfiltered diesel exhaust from infiltrating the building envelope during generator operations.

4.1.3 Phase 3: Real-Time IAQ Monitoring and Automated Response

To verify the efficacy of the engineering controls and protect students during unexpected or mandatory testing events, CMES must install networked, continuous Indoor Air Quality (IAQ) monitoring systems. These monitors must track critical pollutants, including PM2.5 and NOx, at air intake points and within all occupied classrooms.[24]

A predefined, automated response protocol should be established for when PM2.5 or NOx concentrations exceed predetermined safety thresholds (such as those triggered during testing cycles). This protocol should dictate a temporary shift to a protective mode,

maximizing air recirculation within the facility while maintaining the positive pressure and minimum necessary filtered fresh air ventilation.

4.2 Noise Attenuation Strategy: Acoustic Isolation

The dual threat of intermittent high-decibel generator noise and continuous low-frequency hum requires comprehensive acoustic treatment of the school.

The building envelope must be upgraded structurally to improve its Sound Transmission Class (STC) rating. This includes the replacement of all original 1965-era exterior windows and doors with modern, acoustically rated, low-permeability assemblies. This measure serves the dual purpose of eliminating air infiltration flanking paths and achieving significant noise reduction.

Internally, sound reflective surfaces within classrooms should be treated with acoustic dampening materials, such as acoustic ceiling tiles and wall panels. This reduces reverberation time and improves speech intelligibility, mitigating the remaining cognitive burden of external noise on students.[14]

Furthermore, Frederick County must impose stringent conditions on the data center operator requiring external acoustic barriers and industrial generator mufflers designed specifically to meet or exceed the residential nighttime limit of 55 dBA at the CMES property line, focusing on the challenging attenuation of low-frequency sound waves.[10]

4.3 Policy and Operational Requirements

The safety of CMES cannot be guaranteed through engineering alone; decisive policy action is required to manage the operational risk created by the CDI facility.

4.3.1 Revised Generator Testing Schedule Mandate

The current regulatory framework limiting non-emergency operation to 100 hours per year, which often occurs during the school day, mandates recurrent toxic exposure.[1] This policy must be corrected. The MDE permit for Aligned Data Centers must be formally amended through the public process to explicitly restrict the 100 hours of generator testing to periods

when CMES is unoccupied, such as weekends, designated school holidays, or during non-instructional early morning hours (e.g., prior to 7 a.m.). If testing must occur during the day, the school system requires mandatory 48-hour advanced notification to implement protective IAQ protocols. Minimizing student exposure during these periods of known low SCR effectiveness (the low-temperature toxic plume paradox) is paramount.[2]

4.3.2 Financial Liability and Mitigation Funding

The decision by Frederick County to allow industrial development utilizing massive diesel generator banks within 1,000 feet of a pre-existing elementary school necessitates substantial, expensive infrastructure upgrades to ensure the school's viability. The economic consequence of this siting decision should not be transferred to the FCPS general capital budget, which is allocated for general maintenance and expansion.[23]

Frederick County must utilize the leverage provided by the Critical Digital Infrastructure Overlay Zone (CDI-OZ) and the Conditional Use Permit (CUP) processes to mandate that the developer directly funds or secures an escrow account covering the full capital costs of the necessary CMES systemic retrofit.[25] This includes the building envelope remediation (air sealing, window replacement) and the full HVAC system overhaul (MERV 14 capability and positive pressurization). This approach ensures that the environmental cost necessitated by the project's proximity is internalized by the industrial developer, preventing a financial drain on public educational resources.

4.3.3 Independent Environmental Monitoring Mandate

To ensure continuous public safety and verification of permit compliance, the CDI developer must be required to fund and install permanent, continuous, independent environmental monitoring stations on the CMES property line. These stations must track key parameters in real time, including:

- Particulate Matter ($\text{PM}_{2.5}$)
- Oxides of Nitrogen (NO_{x})
- Acoustic levels (dBA and dBC for low-frequency assessment)

This data must be made publicly available in real time. This external, independent monitoring is critical for verifying compliance not just against the long-term 25 TPY aggregate emission limit [11], but more importantly, against short-term peak concentration limits that govern acute

public health risk during scheduled testing periods.[1]

Table 3: Policy and Operational Mitigation Requirements
Recommendation Area
Testing Scheduling
Capital Funding
Monitoring

Conclusion and Actionable Recommendations

The analysis confirms that the proposed data center facility, situated only 1,000 feet from Carroll Manor Elementary School and relying on 172 high-capacity diesel generators, poses significant, quantifiable public health and environmental risks due to concentrated air pollution and chronic noise exposure. The proximity of this massive emission source to a pediatric population, combined with the structural limitations and high air leakage of the 1965 school building, creates a high-risk operational vulnerability during mandatory testing cycles.

Immediate action by Frederick County Public Schools and local regulatory authorities is necessary to safeguard the health of CMES occupants. This action must be systemic and non-negotiable:

1. **Mandate Operational Rescheduling:** Require the Maryland Department of the Environment (MDE) to revise the operational permit, restricting all non-emergency generator testing to hours when CMES is fully unoccupied.
2. **Execute Comprehensive Envelope Remediation:** Immediately fund and execute comprehensive air sealing of the CMES structure following quantitative blower door testing to eliminate uncontrolled infiltration of external pollutants.
3. **Require Full HVAC Systemic Replacement:** Mandate a full capital replacement of the CMES HVAC system to install new components capable of supporting MERV 14 filtration and maintaining constant positive building pressure, thereby guaranteeing clean, filtered air delivery to all interior spaces, even during industrial events.
4. **Enforce Developer Financial Responsibility:** Utilize local zoning and permit processes to compel the CDI developer to bear the full capital cost associated with making CMES environmentally resilient against the hazards created by the adjacent industrial

installation.

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Subject:	Southern Frederick County MD in Danger-Forensic Analysis of the Quantum Frederick Data Center Economic Projections and Undisclosed Environmental Liabilities: A Critical Review of the Frederick News-Post Article
Date:	Sunday, November 16, 2025 5:21:35 PM
Attachments:	Urgent Correction Required for Data Center Economic and Environmental Impact (1).pdf Data Centers" Impact on Carroll Elementary School.pdf

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[EXTERNAL EMAIL]

Dear all,

Please read the attached PDFs and distribute them to anyone who would **benefit from this information**.

Sources are listed at the bottom of the pdf's.

One PDF is the Forensic Analysis of the Adamstown and Frederick Data Centers, and the other PDF is regarding what needs to be done to make Carroll Manor Elementary School safe for the children due to the proximity to the data centers.

The Forensic Analysis is easier to read in the PDF format, which also contains all the sources at the bottom from which the information was gathered. This document is a **comprehensive analysis of why the vote needs to be NO on the CDI Expansion**. As you read this, you will see the lack of full transparency provided by the *Frederick News Post* and the technical and industry documents, which omitted very important information that they wanted hidden from the Community, the County Executive, and the County Council.

Mandatory Safety Requirement

Regarding the second document, the PDF on the **Data Centers' Impact on Carroll Manor Elementary School**, it outlines what must be done by Frederick County to make this school safe. **The resolution of the issues listed for Carroll Manor Elementary is a mandatory requirement before the diesel generators are run at full capacity.**

Thank you for your attention to this critical matter.

Sincerely,

Elyse Wilson Adamstown, MD Resident

Forensic Analysis of the Quantum Frederick Data Center Economic Projections and Undisclosed Environmental Liabilities: A Critical Review of the Frederick News-Post Article

I. Executive Summary: The Disparity Between Projected Benefits and Undisclosed Public Costs

The economic impact analysis of the Quantum Frederick data center campus, as reported in the Frederick News-Post (FNP) on November 12, 2025 [1], presents projections that are fundamentally inconsistent with established critical digital infrastructure industry standards and fail to account for severe, unmitigated environmental and public health liabilities. The analysis, conducted by HR&A Advisors Inc. for the developer, Catellus Development Corporation [1], serves to maximize the perception of fiscal benefit while minimizing or entirely excluding associated public costs.

The central claim scrutinized by this forensic analysis—the creation of 4,200 direct, full-time equivalent (FTE) operational jobs starting in 2036 [1]—is statistically improbable. Industry benchmarks for highly automated hyperscale facilities suggest job density is low, typically requiring only 5 to 30 employees per data center.[2] When compared against the likely 14 to 20 facilities planned for the 17.4 million square foot campus, the 4,200 job figure represents a significant exaggeration, potentially inflated by a factor of ten or more.

Critically, the report explicitly states that its revenue estimates do "not account for the associated expenses," such as the cost of water/sewer extensions and road improvements.[1] This omission externalizes the true fiscal burden required to support the massive

infrastructure demands of the project.

Furthermore, the article largely ignores the profound environmental liabilities associated with the campus's operational phase. The installation of hundreds of high-capacity diesel backup generators—up to 168 units totaling 504 megawatts (MW) for a single developer, Aligned Data Centers [4]—creates a substantial, chronic source of air and noise pollution. Given Frederick County's status as an ozone nonattainment area [6] and the proximity of the campus to residences, communities, and sensitive receptors like schools, the emissions of Particulate Matter ($\text{PM}_{2.5}$) and Nitrogen Oxides (NO_{x}) introduce an acute, long-term public health risk that remains largely unaddressed by the reported economic study.

II. The Economic Inaccuracy: Dissecting and Refuting the 4,200 Job Projection

A. Critique of the HR&A/Catellus Economic Impact Analysis Methodology

The core purpose of the HR&A study was to estimate the economic and fiscal benefits of the Quantum Frederick campus, forecasting $215 million in annual revenue starting in 2036.[1] It is crucial to understand that the overwhelming majority of this projected revenue is derived from property taxes levied on the high-value computer equipment and digital infrastructure housed within the data centers, not from income taxes generated by a large local workforce.[7] This revenue source, while significant, remains vulnerable to state-level tax incentives and exemptions, which have led to massive, unpredictable revenue losses in other jurisdictions.[8]

To arrive at its employment figures, HR&A utilized the IMPLAN (IMPact for PLANning) economic multiplier model.[1] This standard industry model incorporates regional data on labor income and household spending to calculate three categories of employment: direct, indirect, and induced.[1] The study projects 4,200 direct FTE jobs and an additional 5,600 multiplier (indirect and induced) jobs.[1]

The reliance on the IMPLAN model often leads to overestimation when applied to highly automated industries like data centers. Indirect impacts, defined as "industry-to-industry transactions," account for material and equipment spending related to the project.[1] Since data

center operators frequently source specialized hardware and components nationally or internationally, a significant portion of the capital expenditure counted in the model is likely to "leak" out of the Frederick County economy. Consequently, the 5,600 claimed multiplier jobs may not materialize locally, as their calculation depends on the initial, often exaggerated, assumptions about direct employment and local supply chain engagement.

B. Operational Staffing: Reality vs. Developer Projection

The projection of 4,200 direct operational FTE jobs is the most glaring statistical inaccuracy within the FNP article's summary of the report. This figure implies an extremely high labor intensity that contradicts the industry standard for hyperscale data centers, which prioritize automation and remote management to maintain high efficiency and reliability.

Industry benchmarks consistently demonstrate low operational employment. A typical data center facility employs anywhere between five and 30 people.[2] Even massive, large-scale facilities (rated at 20 MW or more) generally require only 35 or more operational staff.[3] For an individual construction project, recruiters may project around 150 permanent operations roles.[12]

The Quantum Frederick campus is planned to include 17.4 million square feet of data center space, which likely translates into a substantial number of individual facilities, possibly 14 to 20 large buildings. If the 4,200-job figure were accurate, it would imply an average of 210 to 300 employees per building, a density drastically higher than the recognized industry standard of 30 employees per site.[2]

This discrepancy is further highlighted by data specific to the Frederick site. Rowan Digital Infrastructure, a company developing three centers on the Quantum Frederick campus, estimated their own operational needs at only 275 employees in total.[1] This yields an average of approximately 91 jobs per center. While this specific local projection is already three times the typical industry high end, extrapolating even this higher figure across 14 buildings would still only yield about 1,280 jobs—less than a third of the reported 4,200 claim.

The rationale for the 4,200 figure may stem from a strategic misclassification of labor. It is probable that this estimate includes non-local, highly compensated corporate personnel, specialized contractors, or long-term vendor staff responsible for maintenance, equipment upgrades, and other activities that are not typically counted as direct, full-time, local operational employees.[13] Furthermore, the workforce profile of the data center industry is known to struggle with gender and racial representation.[15] Presenting an inflated job figure minimizes scrutiny regarding who benefits from these specific high-paying positions versus

who bears the environmental cost of the infrastructure itself.

C. Exclusion of Associated Public Costs: The True Fiscal Impact

A critical flaw in the HR&A analysis is its explicit refusal to account for "associated expenses." The report rationalizes that costs for water/sewer extensions, stormwater, and road improvements were excluded because the developer (Catellus) is paying for them.[1]

This accounting practice obscures the immense public-sector financial commitment necessary for infrastructure adaptation. While a developer may cover the immediate cost of extending a pipe or paving a driveway, the sheer volume and operational requirements of a campus of this size necessitate systemic, sustained investments in public utilities. Data centers require massive and redundant electrical power and significant cooling capacity, which demand substantial and costly upgrades to the public grid, substations, and water/sewer capacity.[16]

These systemic infrastructure investments are often subsidized or financed long-term by local utility ratepayers or the public budget, representing a future financial liability for Frederick County residents that is entirely externalized from the developer-commissioned economic benefit study. By focusing only on projected revenue and excluding necessary public investment, the report inherently biases the cost-benefit analysis in favor of the developer.

III. The Environmental Omission (I): Air Pollution and Chronic Public Health Hazards

A. The Scale of Diesel Generation Infrastructure in Frederick County

A central deficiency in the FNP article is its failure to properly characterize the vast scale of fossil fuel power generation planned for the site. Data centers require highly reliable, uninterrupted power supply, which necessitates large arrays of backup diesel generators.

Aligned Data Centers, one of the primary developers on the campus, has applied for a permit to install **168 diesel generators**, each rated at 3,000 kilowatts.[4] This single component of the

campus represents a potential standby power generation capacity of 504 MW.[5] This installation rivals the output capacity of a small municipal power plant.

These generators are not passively awaiting a disaster. They are required by regulation and industry protocol to undergo frequent testing, often monthly.[5] These mandatory test cycles, which can run for several hours, transform the "backup" system into a chronic, predictable source of air pollution and nuisance for neighboring communities.[19]

B. Regulatory Maneuvering and Air Quality Impacts

The environmental impact of this generation capacity is magnified by Frederick County's status as a nonattainment area for ozone.[6] Diesel exhaust is a major source of Nitrogen Oxides (NO_{x}) [21], which are highly regulated precursors to ozone formation in Maryland.[6]

To navigate stringent federal oversight, developers often employ a strategy known as **synthetic minor source** permitting.[6] This approach involves proposing a site-wide emissions limit for NO_{x} and other pollutants below the major source thresholds required by the New Source Review and Title V permitting programs.[4] This is achieved by capping the permitted annual operating hours of the generators.[6]

While this strategy ensures regulatory compliance on paper, it relies on the generators operating for limited hours. The public health crisis arises when a regional power emergency occurs, forcing the simultaneous, prolonged operation of all 168+ generators. During such an acute event, the localized injection of pollutants would far exceed the synthetic limits, compromising regional air quality and threatening Frederick County's ability to meet ozone attainment goals.[22]

Diesel generators emit a complex mixture of pollutants, including NO_{x}, Particulate Matter (PM), Sulfur Dioxide (SO_{2}), and Carbon Dioxide (CO_{2}).[5] Although Aligned proposes the use of Selective Catalytic Reduction (SCR) technology to reduce NO_{x} [4], this mitigation is less effective against the release of fine particulate matter ($\text{PM}_{2.5}$).[21] These sub-micron particles are the most immediate threat to human health.

C. Proximity to Sensitive Receptors and Public Health Risks

The location of the Quantum Frederick campus near residents, communities, and elementary schools directly exposes the most vulnerable populations to these emissions. Diesel exhaust, classified as a probable human carcinogen [24], contains $\text{PM}_{2.5}$ particles that can penetrate deep into the lungs and bloodstreams, causing chronic health issues such as heart disease, lung disease, and the exacerbation of asthma.[5]

The risk is compounded for children. Research on diesel exhaust exposure for students, such as those riding diesel-powered school buses, shows elevated levels of particulate matter and carcinogens.[24] When a massive, chronic source of diesel emissions is sited near schools and residential areas, it contributes to the cumulative air pollution burden.[25]

Studies of other data center clusters confirm this impact, showing that communities within one mile of EPA-regulated data centers experience a statistically heightened burden of air pollution, including nitrogen dioxide and diesel PM, compared to the national average.[26]

The underlying social consequence is one of environmental inequity: the county is accepting a financial transaction (tax revenue) that is dependent on installing infrastructure which imposes quantifiable, chronic health risks on adjacent residents. The financial reward is centralized and specialized, while the health costs are distributed to a broader, vulnerable population.

IV. The Environmental Omission (II): Noise, Water, and Community Strain

A. Noise Pollution: The Chronic and Catastrophic Threat

Data centers contribute significantly to noise pollution. Operational noise originates primarily from the constant running of air-cooling systems and the backup generators.[28] As the generators are required to be tested frequently, residents face a chronic auditory nuisance.[19]

However, the most severe, yet unaddressed, issue is the potential for catastrophic noise events. Critics of the existing regulations have argued that the Frederick County Noise Ordinance fails to adequately plan for the simultaneous operation of all generators across the multitude of data center buildings in the event of a widespread power failure.[29] This scenario

would generate a level of concentrated acoustic energy that could be profoundly disruptive and potentially harmful.

To mitigate noise pollution near sensitive land uses—such as homes, hospitals, and schools—noise experts recommend strict limits, potentially as low as 35 dBA, and substantial setbacks, suggesting a 2.5-mile radius to minimize impact.[28] While the County Council has implemented some measures, including increasing minimum setbacks to 500 feet [30], this distance is widely considered insufficient to absorb the acoustic impact of multiple large-scale industrial engines operating at once. Developers must be required to utilize maximum noise prevention measures, such as full acoustic enclosures for all outdoor generator units.[28]

B. Water Resource Strain and Contamination Concerns

The enormous water requirements of the Quantum Frederick campus pose a substantial threat to Frederick County's long-term water resources. Data centers relying on water-intensive cooling methods can consume hundreds of thousands of gallons daily.[31] Quantum Loophole's APFO (Adequate Public Facilities Ordinance) documentation confirms an allowance for the use of 1.1 Million Gallons of water per Day (MGD) for the site.[18]

If developers utilize potable water for cooling, this massive, continuous demand will strain the county’s municipal water supply, potentially necessitating costly public infrastructure expansion and competing directly with agricultural and residential water needs.[31] Policy advocates stress that non-potable water sources, such as treated effluent or "gray water," must be prioritized for data center cooling to conserve the potable supply.[18] If the site requires water exceeding its allocated 1.1 MGD, state and regional approval for draws from the Potomac River would be required, introducing further regulatory and financial complications.

A compounding factor is the project's location on the former Alcoa Eastalco brownfield site.[32] The land is subject to environmental covenants requiring continuous monitoring.[32] However, residents have already registered complaints of heavy truck traffic, construction dust, and suspected well water contamination.[1] These complaints suggest that the extensive earthmoving and construction activities required for the 2,100-acre campus may be disturbing legacy contaminants within the brownfield, potentially releasing them into the local environment and water table. This represents a substantial, unquantified environmental liability and public health risk directly tied to the project’s physical presence.

C. Burden on Public Services and Infrastructure

The report's exclusive focus on tax revenue overlooks the increased operational strain placed on public services. Data center facilities are characterized by complex energy systems, including large, on-site battery storage areas and significant fuel storage tanks for the hundreds of diesel generators.[31]

These features create unique and industrial-scale fire and emergency hazards.[31] Local Frederick County emergency responders (Fire/Rescue) require specialized training, equipment, and resources to safely manage incidents involving such volatile power infrastructure.[31] The cost of developing and maintaining this specialized public safety capacity is a direct, enduring public expense that was excluded from the financial impact study, forcing Frederick County taxpayers to shoulder the increased liability without corresponding financial offset.

Finally, the political environment surrounding data center regulation remains restrictive. The Maryland Governor's veto of state legislation (SB 116) calling for a comprehensive environmental and economic study [1] signaled a preference against state-level due diligence, leaving local jurisdictions like Frederick County reliant on studies commissioned by the developers themselves. This limits transparency and compounds the difficulty local planners face in mitigating the complex infrastructure and environmental demands of the industry.[33]

V. Conclusions and Expert Recommendations for Oversight

The FNP article presents a fundamentally inaccurate financial narrative based on inflated job projections and a deliberate suppression of public sector costs and environmental liabilities. To ensure responsible development and protect community welfare, Frederick County must adopt stringent policy measures that address the economic misrepresentation and environmental risks identified in this analysis.

Metric	Quantum Frederick HR&A Projection	Frederick County Specific (Rowan 3	Industry Standard (Typical DC)	Hyperscale Benchmark (Per Project)

	(4,200 FTEs)	**DCs)**		
Direct Operational Jobs	4,200 [1]	275 (Avg 91.6 per DC) [1]	5 - 30 per DC [2]	~150 per large project [12]
Employment Density	$\sim$241 jobs per million sq. ft.	High for regional standards	Low	Low (highly automated)
Calculation Method	IMPLAN Model (High Multiplier Effects) [1]	Developer-Specific Data	Uptime Institute/Industry Surveys	Construction/Recruiter Reports
Discrepancy Factor	$\sim$9.3x higher than industry typical (30 FTE/DC estimate)	$\sim$3.3x higher than industry typical	Baseline	High End

Pollutant/Hazard	**Source Mechanism**	**Frederick County Regulatory Context**	**Health and Community Risk**
Particulate Matter ($\text{PM}_{2.5}$)	Diesel combustion during mandated monthly testing and emergencies [5]	Seeking Synthetic Minor Source classification (limits operational hours) [6]	Lung/heart disease, asthma exacerbation, disproportionate risk to children near schools [5]
Nitrogen Oxides (NO_{x})	Diesel combustion; primary precursor to ozone formation [21]	Frederick designated Ozone Nonattainment Area [6]	Smog formation, respiratory dysfunction, and interference with regional air quality goals [24]

Noise Pollution (Decibels)	Continuous cooling systems and acute operation of 168+ generators [4]	New 500 ft setbacks; noise ordinance gaps regarding simultaneous generator use [29]	Chronic nuisance, reduced quality of life, and potential acoustic trauma near sensitive receptors [19]
Water Consumption	Evaporative cooling for data halls [18]	1.1 Million Gallons per Day (MGD) allocation for the campus [22]	Strain on potable water supply, high potential for increased public utility investment and costs [31]

Expert Recommendations

1. **Mandatory Fiscal Recalibration and Job Verification:** Frederick County should commission an immediate, independent audit to establish realistic local job density benchmarks. Any long-term financial incentives offered to data center operators must be explicitly tied to verifiable, direct local FTE employment levels, not inflated, extrapolated multiplier figures. Furthermore, the County must quantify the full cost of required public infrastructure upgrades and public safety capacity expansion, ensuring that developers bear the true cost of their operational demands.
2. **Impose Stringent Air Quality Requirements:** Given the ozone nonattainment designation, the County should mandate that data center developers utilize the cleanest available power technology, such as natural gas backup generators (which produce substantially lower NO_{x} emissions [19]), or require Tier 4 emission standards for all diesel units.[28] Long-term air quality monitoring for $\text{PM}_{2.5}$ and NO_{x} must be conducted by an independent third party and results made public.[31]
3. **Strengthen Noise and Siting Standards:** The Critical Digital Infrastructure Ordinance must be revised to specifically address the collective acoustic impact of generators operating simultaneously, requiring full acoustic enclosures and potentially greater setbacks than the current 500 feet.[28] The intent must be to ensure data centers do not emit noise that impacts nearby homes or sensitive facilities like schools.[28]
4. **Prioritize Sustainable Water Use and Brownfield Protection:** The CDI ordinance must enforce the priority use of non-potable or recycled "gray water" for cooling to minimize strain on Frederick County's drinking water supplies.[31] Immediate, rigorous, independent environmental testing is required to investigate resident complaints of well water

contamination stemming from the disturbance of the former brownfield site.[32]

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Environmental Risk Assessment and Systemic Retrofit Mandate: Protecting Carroll Manor Elementary School from Critical Digital Infrastructure Proximity Hazards

Executive Summary and Strategic Findings

This report provides a comprehensive environmental and public health risk assessment for Carroll Manor Elementary School (CMES) in Adamstown, MD, situated approximately 1,000 feet from a planned Critical Digital Infrastructure (CDI) facility utilizing extensive banks of diesel generators. The analysis identifies immediate and long-term hazards spanning air quality degradation (Particulate Matter, Nitrogen Oxides, and Carcinogenic Polycyclic Aromatic Hydrocarbons) and severe noise pollution.

The primary environmental threat is the concentration of hazardous emissions during scheduled, non-emergency generator testing. Despite regulatory limitations restricting total non-emergency operation to 100 hours per year, the necessity of testing during school operational hours (8 a.m. to 5 p.m.) [1] effectively mandates routine exposure of children and staff to concentrated pollutant plumes. Furthermore, the mandatory pollution control system (Selective Catalytic Reduction, or SCR) is inherently compromised during the low-temperature operation typical of engine start-up and testing cycles, leading to inadequate treatment of emissions.[2]

The vulnerability of CMES is significantly amplified by its 1965 construction, which predisposes the building to high rates of uncontrolled air infiltration.[3] This uncontrolled air leakage bypasses any existing or upgraded filtration systems, allowing external diesel exhaust to enter classrooms directly. The antiquated HVAC system is fundamentally incompatible with the modern high-efficiency filtration (MERV 13 or MERV 14) required to mitigate the adjacent industrial pollution, necessitating a full systemic replacement rather than simple component

upgrades.[4]

To ensure the safety of CMES occupants, the analysis mandates a comprehensive strategy encompassing: 1) Policy action to restrict generator testing to non-occupancy hours; 2) Immediate, developer-funded structural retrofitting to drastically reduce air infiltration; and 3) A full, systemic replacement of the HVAC infrastructure to achieve positive building pressurization and support MERV 14 level filtration. Without these interventions, the concentration of pediatric populations 1,000 feet from a major emission source during recurring, inadequately mitigated pollution events constitutes an unacceptable, chronic public health risk.

Section 1: Contextual Analysis of the Critical Digital Infrastructure (CDI) Threat

1.1 Project Overview, Location, and Setback Deficiency

Carroll Manor Elementary School (CMES) is located at 5624 Adamstown Road, Adamstown, Maryland.[6] The critical infrastructure development impacting the school is the proposed facility by Aligned Data Centers (MD) PropCo, LLC, planned for 5601 Manor Woods Road.[6] Public concern stems from the school's proximity to this facility, estimated at approximately 1,000 feet from the boundary of the planned data centers.

A key point of contention during the regulatory process has been the insufficient buffer zone between the data center and sensitive receptors. Concerned residents submitted comments urging Frederick County officials to implement a minimum setback of at least 1,500 feet between data centers with diesel generators and residential communities, schools, and daycare centers.[7] The current local legislative proposals have generally restricted data centers to at least 500 feet from residential neighborhoods.[8]

The reliance on a 500-foot or 1,000-foot buffer zone fails to account for the unique characteristics of a school environment. A school concentrates hundreds of highly vulnerable individuals—children, whose lungs are still developing [9]—for eight or more hours daily. While a 500-foot setback might mitigate some generalized impact on a single residence, it is demonstrably inadequate for a high-occupancy, sensitive educational facility. The difference between the 1,500 feet requested by the community and the effective 1,000-foot reality

translates directly into a higher burden of chronic pollutant exposure for the CMES student body and staff. The location of the public meeting to discuss the Maryland Department of the Environment (MDE) draft permit—held in the cafeteria of CMES itself [6]—underscores the direct and unavoidable connection between the industrial project and the school community.

1.2 Quantification of Environmental Hazard Sources

The severity of the environmental risk is defined by the massive scale of the proposed emergency power infrastructure. The MDE received a permit-to-construct application for the data center facility that includes the installation of one hundred and sixty-eight (168) emergency generators, each rated at 3,000-kilowatts (kW), in addition to four (4) smaller emergency generators rated at 1,000-kilowatts.[6]

This combined capacity represents an enormous potential source of emissions, even under limited operation. The primary air pollutants emitted during diesel engine operation include Diesel Particulate Matter (DPM), which is a major component of PM2.5, oxides of nitrogen (NOx), carbon monoxide (CO), and Polycyclic Aromatic Hydrocarbons (PAHs).[2]

Beyond air pollution, the data center facility generates pervasive and continuous noise pollution from its essential operational equipment. These sources include:

1. **Cooling Towers:** Often located on rooftops, these systems can generate noise levels up to 85 dBA.[10]
2. **Air Handling Units (AHUs):** A large data center may employ numerous AHUs, each capable of generating high decibel noise ranging from 85 dBA to 100 dBA.[10]

This operational noise is constant (24/7) as long as the data center is running.[10] Furthermore, the pervasive nature of low-frequency sound waves emitted by this heavy machinery allows noise to travel long distances and penetrate buildings easily, manifesting as a constant, intrusive humming sound for local residents.[10]

1.3 Regulatory Compliance and the Minor Source Classification

The regulatory strategy employed by the applicant relies on maintaining emissions below federal thresholds. The MDE draft permit specifies that premises-wide emissions of nitrogen oxides (NOx) must be limited to less than 25 tons per rolling 12-month period. This constraint is crucial because maintaining emissions below 25 TPY allows the facility to be classified as a

"minor source" of emissions, which reduces regulatory complexity and reporting requirements.[11] Compliance with the NOx limit is presumed to reduce potential emissions of all other regulated pollutants to less than major source levels.[11]

To comply with this limit, the 3,000-kilowatt generators must be equipped with Selective Catalytic Reduction (SCR) systems designed to reduce NOx emissions.[6] The permit requires continuous monitoring of SCR performance indicators, including catalyst bed temperature and urea dosing rate.[11]

A critical operational constraint is placed on the emergency generators: outside of actual emergency events, non-emergency operation—primarily for testing and maintenance—is strictly limited to 100 hours per year.[12] Generator testing is mandated to occur during standard daytime hours, typically Monday through Friday, 8 a.m. to 5 p.m..[1]

The regulatory reliance on the aggregate annual emissions metric (25 TPY) to define minor source status fundamentally obscures the immediate public health threat to CMES. Exposure risk for the pediatric population is not governed by the total annual tonnage but by the **short-term peak concentration** (measured in $\mu \text{g/m}^3$ over hours) achieved during the mandated testing cycles. By scheduling the 100 annual hours of non-emergency operation during instructional hours, the policy effectively mandates a concentrated, high-intensity emission event directly into the environment surrounding the school, despite the project's low annual emissions profile. This systematic requirement for scheduled exposure to industrial pollutants during school hours constitutes a significant regulatory weakness when evaluating the risk to sensitive populations.

The local acoustic requirements also necessitate detailed review. Frederick County adopted amendments regulating data centers that require applicants to submit an environmental noise impact assessment prepared by a qualified acoustical consultant.[1] Monitoring must be performed at the property line.[1] Local noise standards specify a maximum residential nighttime limit of 55 dBA.[13] Given the high baseline noise generated by cooling infrastructure (up to 100 dBA per unit) [10], meeting the 55 dBA standard at the school property line, which is essential for maintaining a conducive learning environment [14], will require significant, specific acoustic mitigation measures by the developer.

Table 1: CDI Source and Emission Risk Summary
Component
Emergency Diesel Generators (EDGs)
Cooling Infrastructure (Towers, AHUs)

Section 2: Comprehensive Environmental Risk Assessment for CMES Occupants

2.1 Public Health Risk: Diesel Exhaust Exposure

2.1.1 Acute and Chronic Respiratory Hazards in Children

The concentration of diesel exhaust particles (DEP) in the immediate vicinity of CMES poses a direct and demonstrable public health threat to the students and educators. Children are inherently more vulnerable to these pollutants because their respiratory systems are still developing, and they exhibit higher respiration rates relative to their body size compared to adults.[9]

DPM is a major component of PM2.5, especially in urban or industrial areas where diesel combustion is a significant source of airborne particulate matter.[15] Exposure to DPM and PM2.5 is associated with severe non-cancer health effects, including premature death, increased frequency of hospitalizations and emergency department visits due to exacerbated chronic heart and lung disease (such as asthma), general increases in respiratory symptoms, and measurable decreases in lung function.[9] Furthermore, research suggests that DPM exposure may contribute to the development of new allergies.[9] Studies have established links between living near major traffic or industrial sources and increased risk of wheezing illness in infants and children.[15]

2.1.2 The SCR Low-Temperature Toxic Plume Paradox

A technical assessment of the mandated pollution control system reveals a critical operational deficiency when applied to emergency generators. The MDE permit requires Selective Catalytic Reduction (SCR) systems for the largest generators to control NOx emissions.[11] While SCR is highly effective in continuous, high-temperature industrial applications [16], its

performance degrades substantially in the context of emergency engines.

Emergency diesel engines are often operated intermittently and undergo frequent cold starts, particularly during the 100 hours of scheduled maintenance testing. Studies confirm that the exhaust temperature of a diesel engine during low-load or urban cycles averages around 198°C.[2] At these lower temperatures, the activity of the SCR catalyst is significantly reduced, resulting in unsatisfactory emission reduction rates. For example, some data shows NOx reduction efficiency at only 42.0% under these conditions.[2]

Crucially, the low-temperature operation paradox extends beyond criteria pollutants. The analysis shows that gas-phase Polycyclic Aromatic Hydrocarbons (PAHs)—known carcinogenic substances—cannot be effectively suppressed by the SCR after-treatment system under cold-start conditions.[2] Calculating the lifetime carcinogenic risk (ILCR) of these gas-phase PAHs reveals potential health risks for children.[2]

The implication for CMES is profound: the 100 hours of mandatory testing, likely scheduled during school hours, do not merely involve general emissions. They involve concentrated, recurrent emission events where the mandated pollution control technology is least effective, particularly regarding carcinogenic PAHs. Therefore, the short-term, peak inhalation exposure during these recurring events represents a maximal acute and chronic risk to the population at CMES.

2.2 Noise Pollution Impact on Learning Environments

2.2.1 Noise Generation and Acoustic Standards

The continuous noise generated by the data center's operational infrastructure (cooling towers, AHUs, and chillers) presents a chronic threat to the educational function of CMES.[10] Industrial sources can generate noise ranging from 85 dBA to 100 dBA per unit.[10] Even with setbacks and attenuation, low-frequency hums from these constant operations can travel great distances.[10]

Frederick County specifies a maximum residential nighttime noise level of 55 dBA.[13] For comparison, typical interior acoustic standards for instructional spaces are significantly stricter, often requiring ambient noise levels far below 55 dBA to prevent distraction. When measured, noise levels in schools near existing industrial sources often exceed national

thresholds of 55 dBA, with some schools recording up to 65 dBA.[14]

2.2.2 Cognitive and Behavioral Impacts

Environmental noise is a known disruptor of educational environments, directly impacting pupils' concentration, memory, and cognitive development.[14] Studies on pupils exposed to high external noise, such as from freeway traffic or aircraft, have demonstrated compromised school performance.[17] While one localized study did not find a significant statistical correlation between environmental noise and concentration, it noted a descriptive trend suggesting that higher noise levels may lower attention, reinforcing the need to address noise as a factor influencing learning.[14]

The continuous, low-frequency noise inherent to data center operation poses a particular challenge. This constant background stressor fatigues the auditory system and competes directly with the instructional process. Effective safety planning must therefore mandate dual noise mitigation: (1) managing the sudden, high-intensity, intermittent noise from generator testing; and (2) structurally isolating the school from the constant, low-frequency ambient hum of the cooling infrastructure. Without robust structural and acoustic measures, the chronic noise exposure risks reducing the efficacy of the learning environment at CMES.

Section 3: Structural and Mechanical Vulnerability of 1965 School Infrastructure

The safety requirements for a building located 1,000 feet from a massive diesel generator bank fundamentally exceed the capabilities and original design standards of a 1965 structure like Carroll Manor Elementary School.[3] The vulnerability assessment identifies two critical pathways through which external pollution and noise will compromise indoor air quality (IAQ) and the learning environment.

3.1 Building Envelope Integrity and Uncontrolled Infiltration

CMES was constructed in 1965.[3] Buildings from this mid-century period, particularly school

facilities often utilizing masonry with a brick exterior [3], are typically highly susceptible to air leakage. Air leakage refers to the uncontrolled flow of air into or out of the building's thermal enclosure, driven by pressure differences caused by wind, stack effect, or mechanical equipment.[18]

High air leakage rates mean that the school building will draw in outside air through every unsealed crack, opening, electrical penetration, and poorly fitted window and door assembly. During scheduled generator testing events, when the plume of inadequately filtered diesel exhaust is concentrated in the immediate vicinity, this uncontrolled infiltration provides a direct and immediate pathway for unfiltered PM2.5, NOx, and PAHs to enter classrooms and occupied spaces.

The fundamental significance of this vulnerability is that high infiltration rates effectively nullify the benefits of any subsequent HVAC filtration upgrades. If the contaminated external air bypasses the centralized air handling units, even the highest efficiency filters become irrelevant to the health outcome of the building occupants. Therefore, the initial and most critical engineering mandate for CMES is to quantify the current leakage rate through standardized testing, such as a blower door test [18], and then undertake comprehensive air sealing (including caulking, weather-stripping, and duct sealing) to reduce the Air Exchange Rate (AER) to modern, tighter building standards.[19]

Table 2: Carroll Manor Elementary School (1965) Vulnerability Matrix
Vulnerability Area
Building Envelope Air Tightness
HVAC System Capacity
Acoustic Isolation

3.2 HVAC System Constraints and the MERV 13/14 Challenge

Aging school buildings across the United States frequently possess legacy HVAC systems that fail to meet modern indoor air quality (IAQ) codes.[20] Frederick County Public Schools (FCPS) acknowledges the importance of maintaining functional and efficient heating, ventilation, and air conditioning systems for a safe learning environment.[21]

To effectively filter diesel particulate matter (PM2.5), industry standards, specifically those set by ASHRAE, recommend a filter with a Minimum Efficiency Reporting Value (MERV) of 13 as a minimum, with MERV 14 or higher preferred.[5] MERV 13 filters are designed to capture airborne particulates in the size range of 0.3 to $1.0\ \mu\text{m}$ at higher efficiency than lower-rated filters.[22]

The critical engineering challenge is that HVAC systems installed in 1965 were designed to move air against the low static pressure drop of low-efficiency filters (e.g., MERV 8 or lower). Installing a MERV 13 or MERV 14 filter into a legacy system is likely to significantly increase the pressure drop across the filter.[5] This increased resistance, if the system is not designed to accommodate it, results in reduced air flow through the system, reduced fan performance, higher energy consumption, or, critically, damage to the system itself.[4]

Regulatory bodies often recognize this technical constraint. For instance, some standards require schools to install filtration that achieves the highest feasible MERV level without significantly reducing the lifespan or performance of the existing HVAC system.[4] In the case of a 1965-era school immediately adjacent to a major pollution source, feasibility dictates that a simple component upgrade is insufficient. The proximity of the CDI facility necessitates a complete **systemic HVAC capital replacement**.[23] The required capital expenditure must include new air handling units, fans, and potentially redesigned ductwork capable of supporting MERV 14 filtration and maintaining required ventilation rates without operational degradation.

Section 4: Mandated Mitigation and Systemic Retrofit Plan for Carroll Manor Elementary School

A multi-phase, mandatory plan must be implemented to transform CMES from a highly vulnerable legacy structure into an environmentally resilient facility. This plan encompasses engineering, monitoring, and policy modifications, with the financial burden of the retrofit appropriately allocated to the project that necessitates the safety investment.

4.1 Air Quality Mitigation Strategy: Engineering Mandates

4.1.1 Phase 1: Envelope and Sealing

The foundational step for IAQ protection is establishing a tight building envelope to eliminate uncontrolled infiltration. Frederick County Public Schools (FCPS) should immediately allocate resources, perhaps through the Capital Improvement Program (CIP) [23], to conduct comprehensive energy audits and blower door tests. Following quantification of air leakage, aggressive air sealing measures must be implemented.[18] This work mirrors existing successful retrofit programs that address energy conservation but is driven here by critical public health necessity.[19]

4.1.2 Phase 2: HVAC System Overhaul and Positive Pressurization

Given the technical infeasibility of upgrading 1965-era HVAC components to support the required filtration, a full systemic replacement is mandated.[4] The new system must be specified with the following criteria:

1. **High-Efficiency Filtration Capacity:** New Air Handling Units (AHUs) and fan systems must be capable of supporting and maintaining optimal airflow rates while utilizing MERV 14 filters.[5]
2. **Positive Pressurization:** The system design must incorporate mechanisms—such as a Dedicated Outdoor Air System (DOAS) or controlled dampers—to maintain a slight positive pressure within the building relative to the outdoors. Positive pressurization is an engineering control that ensures any residual leakage is outward flow of clean air, effectively preventing external, unfiltered diesel exhaust from infiltrating the building envelope during generator operations.

4.1.3 Phase 3: Real-Time IAQ Monitoring and Automated Response

To verify the efficacy of the engineering controls and protect students during unexpected or mandatory testing events, CMES must install networked, continuous Indoor Air Quality (IAQ) monitoring systems. These monitors must track critical pollutants, including PM2.5 and NOx, at air intake points and within all occupied classrooms.[24]

A predefined, automated response protocol should be established for when PM2.5 or NOx concentrations exceed predetermined safety thresholds (such as those triggered during testing cycles). This protocol should dictate a temporary shift to a protective mode,

maximizing air recirculation within the facility while maintaining the positive pressure and minimum necessary filtered fresh air ventilation.

4.2 Noise Attenuation Strategy: Acoustic Isolation

The dual threat of intermittent high-decibel generator noise and continuous low-frequency hum requires comprehensive acoustic treatment of the school.

The building envelope must be upgraded structurally to improve its Sound Transmission Class (STC) rating. This includes the replacement of all original 1965-era exterior windows and doors with modern, acoustically rated, low-permeability assemblies. This measure serves the dual purpose of eliminating air infiltration flanking paths and achieving significant noise reduction.

Internally, sound reflective surfaces within classrooms should be treated with acoustic dampening materials, such as acoustic ceiling tiles and wall panels. This reduces reverberation time and improves speech intelligibility, mitigating the remaining cognitive burden of external noise on students.[14]

Furthermore, Frederick County must impose stringent conditions on the data center operator requiring external acoustic barriers and industrial generator mufflers designed specifically to meet or exceed the residential nighttime limit of 55 dBA at the CMES property line, focusing on the challenging attenuation of low-frequency sound waves.[10]

4.3 Policy and Operational Requirements

The safety of CMES cannot be guaranteed through engineering alone; decisive policy action is required to manage the operational risk created by the CDI facility.

4.3.1 Revised Generator Testing Schedule Mandate

The current regulatory framework limiting non-emergency operation to 100 hours per year, which often occurs during the school day, mandates recurrent toxic exposure.[1] This policy must be corrected. The MDE permit for Aligned Data Centers must be formally amended through the public process to explicitly restrict the 100 hours of generator testing to periods

when CMES is unoccupied, such as weekends, designated school holidays, or during non-instructional early morning hours (e.g., prior to 7 a.m.). If testing must occur during the day, the school system requires mandatory 48-hour advanced notification to implement protective IAQ protocols. Minimizing student exposure during these periods of known low SCR effectiveness (the low-temperature toxic plume paradox) is paramount.[2]

4.3.2 Financial Liability and Mitigation Funding

The decision by Frederick County to allow industrial development utilizing massive diesel generator banks within 1,000 feet of a pre-existing elementary school necessitates substantial, expensive infrastructure upgrades to ensure the school's viability. The economic consequence of this siting decision should not be transferred to the FCPS general capital budget, which is allocated for general maintenance and expansion.[23]

Frederick County must utilize the leverage provided by the Critical Digital Infrastructure Overlay Zone (CDI-OZ) and the Conditional Use Permit (CUP) processes to mandate that the developer directly funds or secures an escrow account covering the full capital costs of the necessary CMES systemic retrofit.[25] This includes the building envelope remediation (air sealing, window replacement) and the full HVAC system overhaul (MERV 14 capability and positive pressurization). This approach ensures that the environmental cost necessitated by the project's proximity is internalized by the industrial developer, preventing a financial drain on public educational resources.

4.3.3 Independent Environmental Monitoring Mandate

To ensure continuous public safety and verification of permit compliance, the CDI developer must be required to fund and install permanent, continuous, independent environmental monitoring stations on the CMES property line. These stations must track key parameters in real time, including:

- Particulate Matter ($\text{PM}_{2.5}$)
- Oxides of Nitrogen (NO_{x})
- Acoustic levels (dBA and dBC for low-frequency assessment)

This data must be made publicly available in real time. This external, independent monitoring is critical for verifying compliance not just against the long-term 25 TPY aggregate emission limit [11], but more importantly, against short-term peak concentration limits that govern acute

public health risk during scheduled testing periods.[1]

Table 3: Policy and Operational Mitigation Requirements
Recommendation Area
Testing Scheduling
Capital Funding
Monitoring

Conclusion and Actionable Recommendations

The analysis confirms that the proposed data center facility, situated only 1,000 feet from Carroll Manor Elementary School and relying on 172 high-capacity diesel generators, poses significant, quantifiable public health and environmental risks due to concentrated air pollution and chronic noise exposure. The proximity of this massive emission source to a pediatric population, combined with the structural limitations and high air leakage of the 1965 school building, creates a high-risk operational vulnerability during mandatory testing cycles.

Immediate action by Frederick County Public Schools and local regulatory authorities is necessary to safeguard the health of CMES occupants. This action must be systemic and non-negotiable:

1. **Mandate Operational Rescheduling:** Require the Maryland Department of the Environment (MDE) to revise the operational permit, restricting all non-emergency generator testing to hours when CMES is fully unoccupied.
2. **Execute Comprehensive Envelope Remediation:** Immediately fund and execute comprehensive air sealing of the CMES structure following quantitative blower door testing to eliminate uncontrolled infiltration of external pollutants.
3. **Require Full HVAC Systemic Replacement:** Mandate a full capital replacement of the CMES HVAC system to install new components capable of supporting MERV 14 filtration and maintaining constant positive building pressure, thereby guaranteeing clean, filtered air delivery to all interior spaces, even during industrial events.
4. **Enforce Developer Financial Responsibility:** Utilize local zoning and permit processes to compel the CDI developer to bear the full capital cost associated with making CMES environmentally resilient against the hazards created by the adjacent industrial

installation.

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From: smordensky@aol.com <smordensky@aol.com>
Sent: Sunday, November 16, 2025 11:27 AM
To: McKay, Steve <SMcKay@FrederickCountyMD.gov>; Steve Black <steveblack2313@gmail.com>; Council Members <CouncilMembers@FrederickCountyMD.gov>
Cc: Andy K. <apk.123@hotmail.com>; Mark Granger <markwgranger@gmail.com>
Subject: Discussion of water usage by data centers Fw: Potomac River & News Reservoir - Nov. 13, 2025

[EXTERNAL EMAIL]
FYI.
And the Monocacy River has almost no flow during the dry summer months.

That is when our farming &Constitutional land owners feel they own the riverbed & have dry feet standing on & in the river bed.

These same constitutional land owners feel water enthusiasts are trt4esspassing while standing knee deep in the Monocacy River because early deeds saain they owned the land to the middle of the Monocacy River.

Sincerely,
Stan
Stan Mordensky, Sr.
11401 Meadowlark DR.
Ijamsville, MD 21754

Cell Phone: 301-639-8584 (Best choice)

----- Forwarded Message -----
From: Renee B. at ICPRB <rbourassa@icprb.org>
To: "smordensky@aol.com" <smordensky@aol.com>
Sent: Thursday, November 13, 2025 at 10:03:45 AM EST
Subject: Potomac News Reservoir - Nov. 13, 2025

New river report card 📰; ICPRB is hiring 👷; American eels 🐟; and more...

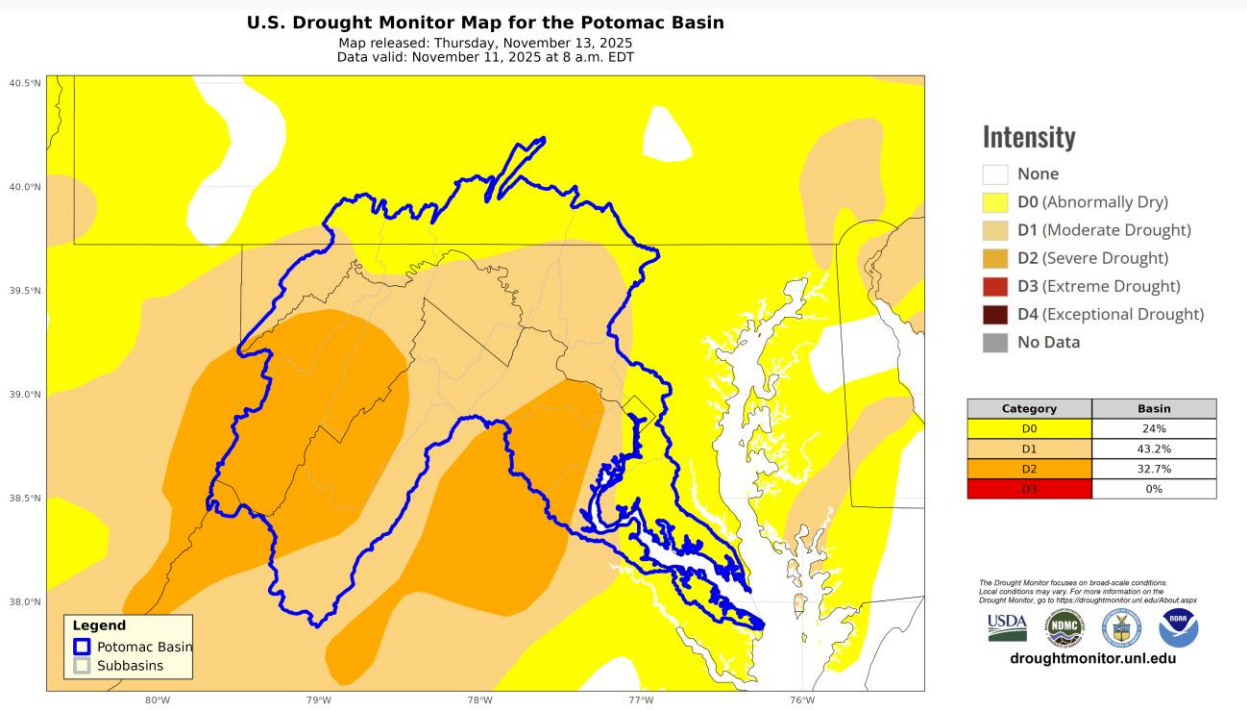
Potomac News Reservoir

Media From Around the Basin

Interstate Commission on the Potomac River Basin Newsletter — November 13, 2025

River Report

The government shutdown is officially over.
And now for the River Report...
🗺️ The U.S. Drought Monitor map released this morning shows a slight uptick in severe drought conditions since last week. However, the total amount in moderate and severe drought conditions remains steady.
🌞 No rain fell in the basin over the past 24 hours. Rain in the basin is 4.9 inches below average for the past 90 days.
🔮 Based on Middle Atlantic River Forecast Center predictions, the next 3 days may see trace amounts of rain.
🌊 The flow at Point of Rocks is a little under 60% of the historical median.



U.S. Drought Monitor map with data as of Nov. 11, 2025.

The Potomac has a new report card

Yesterday, ICPRB Executive Director Michael Nardolilli joined the Potomac Conservancy to speak at a special event celebrating the release of the 2025 Potomac River Report Card.

At a solid “B”, the Potomac River is holding steady with previous years.

On the bright side, pollution is declining, 20% of forest and farmland in the basin is conserved (ICPRB is working to

increase that number with our new mapping tool), and people are getting outside more than ever. However, polluted runoff is still increasing, native fish and smallmouth bass are struggling, and progress isn't consistent across the board. Much more work needs to be done to get the river to an "A".

We Potomac Conservancy event featured the following speakers (from left to right in the photo): Aquil Abdullah, first Black male US Olympic rower; Mike Nardolilli, executive director, Interstate Commission on the Potomac River Basin; Nico Forris, CEO, Boating in DC; Hedrick Belin, executive director, Potomac Conservancy; Dr. Moussa Wone, vice president, Clean Rivers Project, DC Water.

The Potomac Conservancy released their 2025 Potomac River Report Card yesterday.

The panel of speakers at the Potomac Conservancy news conference. Photo: Lauren Alozie/Potomac Conservancy

ICPRB is Hiring

We are seeking an enthusiastic, detail-oriented collaborative individual to lead the Administrative and Finance team. This is a senior management position which directs daily administrative, financial and information technology activities of the organization.

Learn more about this position and how to apply >>>

Applications are due by December 15, 2025.

Last week, data centers. Next week, eels.

Last week's webinar featured Dr. Seck discussing her findings on [data center water use] from a soon-to-be-published ICPRB report.

Webinar: Water Impacts from Data Centers in the Potomac River Basin

On Tuesday, we talk about the history, the lore, and the science of American eels. Entertainment guaranteed or your money back.

Can't make it? The webinars are posted on ICPRB's YouTube page shortly after airing.

- Nov. 18: Webinar: Unsung Heroes of the Potomac River: American Eels (Gordon "Mike" Selckmann, Associate Director of Aquatic Biology, ICPRB)
- Dec. 2: Webinar: Reconsidering Connectivity: A North Branch Potomac Case Study (Gordon "Mike" Selckmann, Associate Director of Aquatic Biology, ICPRB)
- Dec. 5: ICPRB Land Use Webinar: Land Prioritization Mapping to Protect Drinking Water Quality (Speakers: Renee Thompson, Water Resources Planner, ICPRB, and Megan McClaugherty, Ecological Technician and GIS Specialist, ICPRB)
- Dec. 9: Webinar: The Future of Water in the DC Metro Area (Speaker: Dr. Cherie Schultz, Director, CO-OP Operations of ICPRB)

Media from around the Basin

Potomac River gets a 'B' for water quality for 5th year in a row
WTOP
At a news conference overlooking the Potomac River at the Capital Yacht Club, Hedrick Belin, president of the Potomac Conservancy, told reporters Wednesday, "It certainly is a big turnaround from the dismal 'D' that it received in 2011, but it also means that progress has stalled."

Leading Environmental Organization Issues New Report Card on Potomac River

The Zebra

Despite decades of cleanup, the Potomac is stuck at a "B" – still too polluted for safe swimming and fishing. That's what Hedrick Belin, Executive Director of the Potomac Conservancy revealed to a gathering of reporters this morning (Wednesday November 12) at the DC Wharf.

Maryland preps for winter as NOAA predicts warmer temperatures

The Baltimore Banner

A NOAA report for the winter season predicted much of the country, including Maryland, will experience higher temperatures from December through February.

DC Council member's Anacostia River boat tour highlights importance of 'bottle bill'

WTOP

Ward 1 D.C. Council member Brianne Nadeau took activists and others along for a boat ride on the Anacostia River on Wednesday to illustrate the need for legislation she has introduced, which she says will result in less trash in the river.

Roadmap Shows the Environmental Impact of the AI Data Center Boom

Technology Networks

The actionable roadmap suggests ways to reduce the environmental impact of the large data centers needed to power the AI boom.

Virginia data center deals lack transparency, watchdog says

CBS19

A new report says Virginia offers some of the largest tax breaks in the country for data centers but does not publicly disclose which companies receive them or how much the exemptions are worth.

Climate Change Hits Home, Focus of Conference

The Connection

Temperatures are rising. Storms are more intense. Flooding is more frequent, several speakers asserted at the third annual Climate Action Conference on Oct. 18 at Lake Braddock Secondary School. Climate change is here and affecting Northern Virginia, they argued to over 200 attendees.

Sidewinder Enterprises has petition denied in Circuit Court, a win for the Jefferson County Planning Commission

The Spirit of Jefferson

After nearly four hours of deliberation between counsel for Sidewinder Enterprises, the Jefferson County Planning Commission (JCPC) and the intervenors in support of JCPC in Jefferson County Circuit Court, Judge Bridget Cohee handed Sidewinder yet another loss in its continuing fight to construct a water bottling facility and pipeline in historic Middleway, siding with JCPC and the intervenors.

Virginia's Tucked-Away Potomac Park With Serene Vibes Is An Underrated Haven To Hike

Yahoo!

Just an hour away from Washington, D.C., lies one hidden Virginia gem. Located in Great Falls, along the Potomac River, Seneca Regional Park offers respite from the big city with its tranquil hiking paths, equestrian trails, and opportunities for fishing.

Beavers Have Value

The Connection

“Beavers matter,” Alison Zak told her audience in an Oct. 22 Zoom presentation to the Friends of Dyke Marsh, Friends of Mason Neck State Park, Friends of Huntley Meadows Park and Nature Forward.

Fishing News

Rockfish Schools Thrive in Upper Potomac, Patuxent

The Southern Maryland Chronicle

Southern Maryland anglers found consistent action for striped bass, known locally as rockfish, in the upper reaches of the Potomac River and the Patuxent River during the week ending November 12, 2025.

Maryland Fishing Report – November 12

MD DNR

A cold front has swept across Maryland this week, so anglers will need to bundle up.

For more news throughout the week, follow us on social media...

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