Responsible AI's Missing Layer: The Data Center Fight in Northern Virginia

Terrance Luangrath
School of Data Science
University of Virginia
Manassas, Virginia, USA
vwy4sa@virginia.edu

***Abstract*—Responsible AI frameworks govern the model; they do not govern the land, water, and power grids it runs on. This paper uses Northern Virginia's data center boom and the Digital Gateway fight in Prince William County to show what that omission produces. Two ethical dilemmas surface: a procedural failure, where residents received legally deficient notice and local officials held undisclosed financial ties to the project; and a distributive failure, where water drawn from a regional drinking supply and a tax subsidy costing Virginia $750 million a year concentrate benefits in a handful of localities while costs fall on 8.6 million residents. Module 6's data justice readings frame these as structural harms; Module 8's responsible AI frameworks show why existing governance cannot reach them; Module 2's geopolitics of big data places the pattern in global context. A developer can be fully compliant on paper and still miss both problems. This paper proposes three fixes: extending risk frameworks to infrastructure siting, mandating pre-approval water and energy disclosure, and replacing public comment with binding community review.**

***Index Terms*—responsible AI, data center siting, distributive justice, procedural justice, infrastructure governance, Northern Virginia**

I. Introduction

Northern Virginia holds 13 percent of global operational data-center capacity and a quarter of the total in the Americas [1]. New facilities are proposed, approved, and built in a timeline that most residents encounter after the decision is already made. The Digital Gateway site is a few miles from Manassas. That is the case this paper examines.

Responsible AI frameworks are built around the model: its outputs, its behaviors, the harms it produces when it runs. That scope stops at the server. Every model runs on land that gets rezoned, water drawn from shared reservoirs, and power grids stretched thin. These are costs imposed on communities that have no formal role in the siting decisions that create them.

Birhane [2] and Raji [3] both argue that harm is structural before it is technical, and that centering impacted communities is not optional methodology; it is the baseline. The community nearest a proposed campus is typically the one with the least institutional standing to contest it.

This paper examines two dilemmas the Digital Gateway fight surfaces. The first is procedural: a 27-hour board hearing approved major rezoning after residents were given legally deficient notice, and several officials with financial ties to the developers voted on the outcome [4]. The second is distributive: data centers pull water from the Potomac River basin that supplies regional drinking water, while a tax subsidy structure concentrates gains in a handful of localities and spreads losses across 8.6 million residents. A framework that never asks where the server farm goes cannot catch either of these.

II. Background and Related Work

A. Data Centers as AI Infrastructure

Every model run draws on power, water, and land somewhere specific. That geography is where governance stops paying attention.

AI workloads hit infrastructure harder than traditional cloud computing; inference and training are more compute-intensive, which means more power and more cooling water. Data centers now consume roughly 25 percent of Virginia's electricity, the highest share of any state, and the state's legislative audit commission projects total power demand doubling within ten years [1]. The facilities generate noise, light pollution, and diesel emissions that reach surrounding neighborhoods. None of this appears in the risk registers that responsible AI frameworks ask developers to complete.

B. Responsible AI and Its Model-Centric Bias

The NIST AI Risk Management Framework organizes AI governance around four functions: Govern, Map, Measure, and Manage [5]. It is voluntary and built entirely around the AI system: its data, model, outputs, and deployment context. O'Neil et al. and Mökander frame auditing around the same assumption [6], [7]. The framework acknowledges the environmental implications of resource-heavy computing but issues no requirement around siting, land use, water, or community review. NIST's April 2026 concept note for a Critical Infrastructure AI RMF profile extends governance to AI deployed *inside* infrastructure systems such as energy grids, not to data centers as infrastructure whose siting affects host communities. The frameworks regulate what AI does. Not what running AI requires.

C. Data Justice as an Analytical Frame

Birhane's critique of algorithmic fairness work is that it is narrow by design [2]. Debiasing datasets, fine-tuning models, improving representation: these treat harm as a property of an

artifact. They do not ask who absorbs the consequences when the artifact is deployed, or what structural conditions made the harm possible. Her relational ethics approach locates harm in relationships among developers, institutions, regulators, and communities. The harm residents near a data center campus experience has nothing to do with a model's output. It comes from a rezoning process that excluded them, a tax structure that redirected benefits away from them, and a hearing they were given insufficient notice to attend.

Raji's argument runs parallel [3]. Centering impacted communities is not a methodological preference; it is a correction to systematic exclusion. The residents nearest a proposed facility know what the siting decision will cost them, and have the least formal standing to say so.

D. The Geopolitics of Compute Siting

AI compute capacity clusters. North America, Europe, and Asia-Pacific account for more than 90 percent of global data center infrastructure, and within that concentration, a small number of localities absorb the majority of the physical footprint [8]. The Belfer Center connects this to Northern Virginia directly: the region's dominance reflects a state incentive structure built to attract hyperscale development while the communities absorbing the consequences had no role in designing it [9].

III. The Northern Virginia Case

A. The Digital Gateway Project

The Digital Gateway project proposed a 2,100-acre, 37-data-center campus along Pageland Lane in Prince William County, adjacent to Manassas National Battlefield Park. The project was developed by QTS (owned by Blackstone) and Compass Datacenters [4]. The board of supervisors approved the rezonings in December 2023 after a 27-hour public hearing. Circuit Court Judge Kimberly Irving voided the approval in August 2025, finding that the county failed to meet public notice requirements under Virginia Code. The Virginia Court of Appeals affirmed unanimously in March 2026. Prince William County spent over $1.7 million in taxpayer funds defending the rezonings before withdrawing in April 2026. QTS withdrew its Virginia Supreme Court petition in July 2026.

IV. Ethical Analysis

A. Dilemma 1: Procedural Justice

Procedural justice requires meaningful notice, genuine participation, and decision-makers free of financial conflicts. The Digital Gateway process failed on all three. The county did not meet public notice requirements under Virginia Code before the December 2023 rezoning vote; two courts ruled the approval invalid on those grounds [4]. Board Chair Ann Wheeler held Blackstone stock while the project's developer was a Blackstone subsidiary, selling over $50,000 in shares only after residents raised concerns [10]. Supervisor Pete Candland contracted to sell his own land into the project, recused himself from votes, and later joined a data center lobbying firm. The county's economic development director signed nondisclosure agreements with developers, shielding planning documents from public records requests. The county then spent over $1.7 million in taxpayer funds defending the rezoning in court [4].

Birhane identifies this as a structural condition, not an aberration [2]. The relationships among developers, officials, and approval processes excluded the people most affected before the first public hearing was scheduled. A notice technicality stopped the project. No ethics framework did.

B. Dilemma 2: Distributive Justice

Northern Virginia's data center expansion concentrates benefits and disperses costs. Water consumption statewide rose 86 percent between 2019 and 2023, drawn from the Potomac River basin that supplies regional drinking water. Evaporative cooling towers have raised salinity concerns in the Occoquan Reservoir through salt drift [11]. Grid strain from data center loads falls on all ratepayers regardless of proximity to the facilities.

The tax subsidy structure cuts the same way. Virginia's sales-and-use-tax exemption costs the state $750 million per year. Good Jobs First found that each of Virginia's 8.6 million residents lost roughly $87 while Loudoun County residents gained approximately $1,506 each [12]. The Belfer Center documents the same logic operating globally: infrastructure lands where incentives are generous, and the communities absorbing the costs have the least leverage to push back [9]. Prince William County did not design that arrangement. It inherited it.

V. Counterarguments and Their Limits

The strongest case for data center expansion is fiscal: industry-affiliated analysis cites benefit-to-cost ratios of 13:1 in Prince William and 74,000 jobs statewide [1]. Those numbers are real. The counterargument they support operates within an economic frame, and procedural justice and data justice operate in a different one that benefit-to-cost ratios do not reach.

VI. Proposed Reforms

A. Expanding Risk Frameworks to Cover Infrastructure Siting

Responsible AI frameworks should require assessment of land, water, and grid impacts as part of any AI system deployment. A successor to the NIST RMF should require developers to disclose projected water consumption, grid draw, and land use impacts before siting approval, with enforceable community-impact thresholds that cannot be cleared by completing a risk register alone. Voluntary guidelines have not worked. The standard has to be binding.

B. Mandatory Disclosure

Nondisclosure agreements between county officials and developers shield planning documents from public records requests before any resident can review them. Virginia's quarterly water and energy disclosure law, effective January 2027, requires reporting after facilities are built, not before

siting decisions are made. That sequencing is the problem. Disclosure should be required at the point of application. Data that arrives after the vote cannot inform the communities most affected by the outcome.

C. Binding Community Review

Public comment periods are structurally outmatchable. The Digital Gateway fight took five years of volunteer advocacy and was decided by a newspaper-advertising technicality, not by any substantive community review mechanism. Well-resourced developers can outlast opposition in ways that volunteer coalitions cannot. NEPA's environmental impact statement process is the closer model: binding, substantive, and cumulative rather than project-by-project [13]. Applied to data center siting, that means mandatory water-impact assessments calibrated to peak-day demand and independent community review panels with binding authority over siting decisions near residential areas and sensitive watersheds. The standard should exist before the project is proposed, not be litigated into existence after approval.

VII. Conclusion

The Digital Gateway project was stopped by a failure to publish a newspaper advertisement on the correct schedule. Not by an ethics framework. Not by a risk register. Not by any mechanism that responsible AI governance produced or could have produced. Responsible AI frameworks stop at the model. The land, the water, the grid, and the communities around them are outside their reach.

The fix is not another voluntary guideline. It is a parallel governance layer at the infrastructure siting level, with binding procedural rights, mandatory pre-approval disclosure, and community review that cannot be outspent or outlasted. The Digital Gateway case shows what happens in the absence of that layer. Prince William County will not be the last place to find out.

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