Supplementary material

Who Decides What a Zoning Reform Reaches? Vesting Determinations After Henrico County's (VA) Data Center Ordinance. Supplementary material (October 2026, v0.14). Sections: S1 documentary base and retrieval; S2 ACS estimates and margins of error, and the three-tract comparison (Table S2); S3 geocoding of the sites and the tract map (Figure S1); S4 plan-of-development approvals; S5 the Henrico projects: what each held, the basis the county stated, and what followed (Table S5); S6 engine-group emission limits, DEQ registration 51232; S7 figure sources and design; S8 reporting discrepancies and primary-record checks; S9 the four vested-rights determinations; S10 the vesting typology (Table 3 of the article): protocol, coding, and agreement (Table S10); S11 the chronology of the record (Table S11). The article cites S1, S5, and S8 to S11; S4 lists the data center plan approvals behind its Table 1, and S7 gives the sources of its Figure 1. S2, S3, and S6 document parts of the record the article does not use (the census tracts near the sites, the geocoding of the sites, and the air permit for the original QTS campus's generators); they measure no exposure and support no environmental-justice finding. The county and state records cited are included in the replication deposit (folder county_and_state_records) with the figure scripts (folder figures), the statute texts (folder legal; the typology texts in legal/states), the typology codings (folder typology), the portal transcription (folder portal), and the tables as CSV (folder tables).

S1. Documentary base and retrieval

Sources by type, with retrieval route. County ordinances, resolutions, staff reports and plan-of-development agendas: henrico.gov, Board of Supervisors minutes and the Planning Department's monthly agendas (henrico.gov/pdfs/planning/<year>/<mon><yy>pod.pdf), December 2024 to August 2026 (twenty of twenty-one months; the January 2025 file was not retrieved), retrieved July 2 and September 26, 2026. Six of those files are outline agendas that carry no dispositions beyond pre-announced deferrals (June 2025, September 2025, May 2026, June 2026, July 2026, August 2026); the others are post-action agendas. Any negative drawn from the agendas is bounded to the post-action months, and dispositions for the outline months were read from the county's public case portal (Build Henrico, build.henrico.gov/henprod/pub/lms/, no sign-in), whose field values are transcribed in the deposit file BUILD_HENRICO_PORTAL_RECORD_2026-09-26.md with the record identifiers. The portal's Details tab does not print the Director's approval date; the Processes tab, read for POD-2025-100752 and POD-2025-101899, shows findings dates and an expiry date, from which validity is inferred (S8). Other portal dates are activity dates as displayed. Zoning text: Henrico County Code Chapter 24 as published on July 28, 2026 (in the deposit), the advertised amendment text of May and June 2025, and the adopted text reproduced as Exhibit A to each determination letter (S9). Deeds and parcel records: Henrico County Real Estate Assessment Division and the deed reproduced as Exhibit O in the Board of Zoning Appeals binder. State air permits and guidance: Virginia DEQ registrations 51232 (June 24, 2024), 53259 (April 22, 2026) and 53266 (May 7, 2026), and guidance memorandum APG-576, Diesel Engine-Generator Set Procedure for Writing New and Modified Permits (the designation, title and effective date of April 9, 2026 are from the Virginia Regulatory Town Hall listing for guidance document 5121, saved as a note; the file itself is titled "Permit Boilerplate Procedures For Diesel Engine-Generator Sets," carries the header date December 29, 2025, and states that its data-center BACT provisions apply to applications submitted on or after July 1, 2026; in the deposit). Statutes: Va. Code §§ 15.2-2261, 15.2-2286(A)(4), 15.2-2307, 15.2-2311 and 15.2-2314 (law.lis.virginia.gov); N.C. Gen. Stat. § 160D-108.1 (ncleg.gov); Wash. Rev. Code § 19.27.095 (app.leg.wa.gov); Tex. Loc. Gov't Code ch. 245 (statutes.capitol.texas.gov); Colo. Rev. Stat. §

24-68-103 (Justia mirror of the 2025 code; the official text is on LexisNexis). All statute pages were read and saved on September 26, 2026 with retrieval headers (deposit folder legal). 2026 legislation: 2026 Va. Acts ch. 397 (HB 507, adding Va. Code § 10.1-1322.6, generator emission limits) and ch. 567 (HB 153, adding Va. Code § 15.2-2209.4, site assessment for high energy use facilities): the Legislative Information System bill pages (summaries as passed, chapter numbers, dates) and the chaptered texts as rendered by LegiScan were read on September 26, 2026 and saved in the deposit folder legal; the texts are in the deposit; the article does not quote them. Census: ACS 2020 to 2024 five-year, release ACSDT5Y2024, retrieved 2026-07-02 (S2). Contemporaneous reporting: Richmond BizSense, Henrico Citizen, VPM News, Virginia Business, Data Center Knowledge, as cited. Where two sources gave different dates or figures, the primary record governed (S8).

Board of Zoning Appeals records (henrico.gov): the minutes of February 26, 2026, which incorporate the court reporter's transcript of the administrative hearing in APP-2026-100056 and record the motion to uphold the Director of Planning carried 5 to 0 (Broadway, Green, Johnson, Lawrence, Massie); the agenda for that meeting; the appellant's exhibit binder (Exhibits A to V-1, 298 pages), which includes the zoning confirmation letter ZCL-2024-100685 dated June 12, 2024, the intake notice for plan of development POD-2025-101009 (Airport West Data Center Campus), the county's plan review comments, the subdivision plat SUB-2025-100957, the October 1, 2025 request for a binding vested-rights determination, the county's four determination letters (Exhibits Q, S, V and V-1), the adopted ordinance as Exhibit A to each letter, the RIC5 proffers, and the deed of the eastern parcels (Exhibit O); and the Board's monthly agendas from September 2025 to September 2026 (thirteen files). Pages 125 to 283 of the 298-page binder are image-only and were OCR'd on September 26, 2026 (tesseract 5 at 200 dpi); the output file carries page markers, OCR errors are present, and every quotation taken from it was read against the page image. Pages 284 to 298 (the Planning Commission staff report) carry a text layer. The Planning Commission staff report for PUP-2025-101460 as updated after the September 11, 2025 meeting (staff recommendation of approval with conditions; Commission recommendation of denial, 4-1-1; Board hearing scheduled October 14, 2025) is in the deposit.

Retrieval deviations, recorded so that the reader can weigh them: the thirteen Board of Zoning Appeals agenda files, a set of county PDFs and the APG-576 file were pulled with curl on the author's computer from their public henrico.gov and townhall.virginia.gov links after a first reading by a fetch tool; no user agent was altered and nothing was circumvented.

S2. ACS estimates and margins of error

Retrieved 2026-07-02 from data.census.gov (table endpoint, release ACSDT5Y2024; API vintage 2024/acs/acs5). All margins of error are 90 percent, as published. County total population is a controlled estimate (MOE not applicable); county share margins computed with denominator MOE of zero accordingly.

Variable	Tract 2015.04 (51087201504)	Tract 2014.04 (51087201404)	Tract 2001.46 (51087200146)	Henrico County (51087)
B19013_001 median HH income	$63,203 ± $13,194	$84,632 ± $10,742	$143,248 ± $11,983	$88,783 ± $2,074
B03002_001 total population	4,103 ± 469	4,627 ± 709	2,861 ± 322	335,744 (controlled; MOE n/a, annotation *****)
B03002_003 NH White alone	615 ± 233	3,449 ± 695	1,572 ± 216	166,119 ± 669

B03002_004 NH Black alone	2,824 ± 510	894 ± 236	317 ± 260	97,727 ± 1,108
B17001_001 poverty universe	4,103 ± 469	4,627 ± 709	2,861 ± 322	331,808 ± 294
B17001_002 below poverty	1,004 ± 475	415 ± 309	42 ± 37	29,180 ± 2,477

Derived shares and margins (Census Bureau ratio formula; race shares over B03002_001, poverty over B17001_001; tract race and poverty universes are identical in this release):

Share	**2015.04**	**2014.04**	**2001.46**	**County**
NH Black	68.8% ± 9.6	19.3% ± 4.2	11.1% ± 9.0	29.1% ± 0.3
NH White	15.0% ± 5.4	74.5% ± 9.8	54.9% ± 4.3	49.5% ± 0.2
Poverty	24.5% ± 11.2	9.0% ± 6.5	1.5% ± 1.3	8.8% ± 0.7

Source URLs (substitute the geography ID after g= for each of the four geographies): https://data.census.gov/api/access/data/table?id=ACSDT5Y2024.B19013&g=1400000US51087201504 ; ...B03002... ; ...B17001... ; county geography 0500000US51087.

The three-tract comparison. Table S2 reports three tracts against the county. The eastern tract (2015.04) holds New Market Village, across Darbytown Road from the eastern site; the site fronts the boundary with 2015.02, and the table assigns it to the residents' tract because the comparison concerns who got a hearing. The campus tract (2014.04) contains the geocoded locations of the two QTS campuses; the Meta and Iron Mountain sites lie in the same park (S3). The West End tract (2001.46) holds the Wyndham residents who opposed a campus proposed across the county line in Hanover County. The tracts are locational context, chosen differently at each site: the residents' tract at the eastern site, the tract holding the geocoded campus locations (S3), and the tract of the West End residents; the unit is not exposure, and Figure S1 maps the tracts.

Three tracts cannot test whether hearings sort by wealth or race, as Einstein, Glick, and Palmer (2020) show participation in them does ("Neighborhood Defenders: Participatory Politics and America's Housing Crisis," Political Science Quarterly, 135(2), 281 to 312, https://doi.org/10.1002/polq.13035); they show only who stood on each side of the line. The campus tract, 74.5 percent non-Hispanic White with income and poverty within the combined margins of tract and county, holds the two geocoded campuses; of those, one had a hearing, the 2024 rezoning, and neither had one on any plan. The West End tract had a Planning Commission hearing because the site beside it sat in Hanover County, which required a rezoning and permits; Hanover's Planning Commission recommended denial unanimously in January 2026, and the developer withdrew (Spiers, 2025d, 2026a, 2026c; listed at the end of S11). The eastern tract is 68.8 percent non-Hispanic Black, with 24.5 percent poverty against the county's 8.8. It had a hearing on the data center only because the reform caught the pending plan, and none on the warehouse. At each of the three, a hearing existed only where the rule at that site required one. The record measures no exposure to noise, emissions, traffic, or water demand, and the comparison supports no environmental-justice finding.

Table S2. Three tracts and the county (ACS 2020 to 2024 five-year estimates; 90 percent margins of error).

Tract (role)	**Median household income**	**Non-Hispanic Black**	**Non-Hispanic White**	**Poverty rate**

2015.04, eastern tract: New Market Village, whose residents opposed the data center; the site fronts this tract's boundary with 2015.02; Title I school	$63,203 ± $13,194	68.8% ± 9.6	15.0% ± 5.4	24.5% ± 11.2
2014.04, campus tract: the two geocoded QTS campuses; QTS's original campus and the Meta and Iron Mountain sites lie in the same park	$84,632 ± $10,742	19.3% ± 4.2	74.5% ± 9.8	9.0% ± 6.5
2001.46, West End tract: Wyndham residents; the campus they opposed sat across the county line in Hanover and was withdrawn after the Planning Commission hearing, with no Board of Supervisors hearing	$143,248 ± $11,983	11.1% ± 9.0	54.9% ± 4.3	1.5% ± 1.3
Henrico County	$88,783 ± $2,074	29.1% ± 0.3	49.5% ± 0.2	8.8% ± 0.7

Note. Sources: U.S. Census Bureau, ACS 2020 to 2024 five-year estimates, tables B19013, B03002, B17001; Census Geocoder for address-to-tract assignment (S3). Share margins by the Census Bureau derived-proportion formula. The eastern site's frontage geocodes to 2015.04 at 2248 Darbytown Road (the address in reporting and in the county's letters) and to 2015.02 at 2300 Darbytown Road (the parcel address in the appeals board's agenda); tract 2015.02 has a median household income of $121,160 ± $25,453 and a poverty rate of 1.9% ± 1.4%. The two QTS campuses are assigned to tract 2014.04 by geocoded points on the roads their plan-of-development records name; the Meta and Iron Mountain sites were not geocoded, and parcel polygons were not obtained (S3). Tract 2001.46 is the tract of the West End residents; the site of the campus they opposed lies in Hanover County, outside Henrico and its reform. County population is a controlled estimate.

S3. Geocoding of the sites

Address-to-tract assignment used the U.S. Census Bureau Geocoder (geocoding.geo.census.gov, benchmark Public_AR_Current, vintage Current_Current), queried September 15, 2026. Results: 2248 Darbytown Road, Henrico, VA 23231 (the address used in reporting, in the county's zoning confirmation letter of June 12, 2024, and in the heading of its December 10, 2025 determination) matched at longitude -77.357843, latitude 37.483272, tract 2015.04 (GEOID 51087201504). 2300 Darbytown Road, Henrico, VA 23231 (the address the county assigns to parcel 812-704-4612 in the Board of Zoning Appeals agenda of February 26, 2026) matched at -77.356466, 37.482382, tract 2015.02 (51087201502). Point-in-polygon checks against TIGERweb tract boundaries place the 2015.04/2015.02 line running roughly north to south between those two frontage points, so the 195-acre site, described in the staff report as part of the parcel, fronts the boundary; the parcel polygon was not obtained (the county GIS REST endpoints were unreachable on the query date) and the split of acreage between the tracts is not stated. 2126 New Market Village Blvd, Henrico, VA 23231 (the subdivision across Darbytown Road from the site) matched at -77.362401, 37.482821, tract 2015.04. 6000 Dominion Club Drive, Glen Allen, VA 23059 (Wyndham) matched at -77.606109, 37.698483, tract 2001.46 (51087200146); the Wyndham Foundation office at

6401 Old Wyndham Drive matched to the adjoining tract 2001.45 (51087200145), so the Wyndham community spans both tracts and Table S2 reports the tract containing the Dominion Club Drive spine. 15201 Ashland Road, Glen Allen, VA 23059 (Hunting Hawk Golf Club, the site of the withdrawn Hanover campus) matched at -77.623152, 37.713862, Hanover County tract 3203 (51085320300). The two approved campuses: no street address for the RIC4 or RIC5 parcels returns a geocoder match, so the assignment uses coordinates run through the geocoder's coordinates endpoint on September 16, 2026. RIC4 (POD-2024-102609, located per the agenda at the northern corner of Technology Boulevard at its intersection with Technology Creek Drive): the point 37.490465, -77.240471 on Technology Creek Drive, Sandston, supplied by the author from a map lookup, returns tract 2014.04 (GEOID 51087201404), block 510872014043015, Varina district. RIC5 (POD-2024-102383, located per the agenda along E. Williamsburg Road at its intersection with Technology Boulevard): the northern terminus of Technology Boulevard at East Williamsburg Road, 37.5078697, -77.261484, taken from OpenStreetMap way 1176133547 (Nominatim query of the same date; reverse geocoding of the adjacent points returns East Williamsburg Road), returns tract 2014.04, block 510872014043013. A mid-segment point on Technology Boulevard (37.5008078, -77.2607384) also returns 2014.04. Both points lie on the roads named in the respective plan-of-development location descriptions (February 2025 POD agenda). Parcel polygons were not obtained; the assignment is by location point, and both campuses (478.14 and 621.93 acres) are large relative to any point, so S2 states that tract 2014.04 contains the mapped locations, not that it contains the parcels. Tract 2015.02 profile (ACS 2020 to 2024, via the Census Reporter API on the same date): population 5,292; median household income $121,160 ± $25,453; non-Hispanic Black 2,958 ± 745 (55.9 percent); non-Hispanic White 1,961 ± 655 (37.1 percent); persons below poverty 97 ± 76 of 5,240 (1.9 percent; the ± 1.4 share margin in the Table S2 note is by the ratio formula of S2, with the denominator margin from the same table).

QTS's original campus (6000 Technology Boulevard, Sandston, the address on DEQ registration 51232) returns no match from the Census Geocoder (queried September 26, 2026) and was not assigned a tract; Table S2 places it, with the Meta and Iron Mountain sites, in the same park as the two geocoded campuses.

The Meta and Iron Mountain sites were not geocoded. The Census Geocoder returns no match for the Portugee Road address the portal gives for the Meta campus (3951 Portugee Road), and the Iron Mountain address in the portal (6110 Technology Creek Drive) was not run. A point derived from the county GPIN grid for the Meta parcel (longitude -77.2302, latitude 37.4713) returns tract 2014.04, but a point about 1.1 km to the southeast (-77.22, 37.465) returns tract 2016.01, so a point assignment for a 475-acre parcel would be unstable. Table S2 therefore labels 2014.04 as the tract of the two geocoded QTS campuses, and states only that QTS's original campus and the Meta and Iron Mountain sites lie in the same park (White Oak Technology Park, named in the agenda entries for the QTS and Meta plans and in the portal location for the Iron Mountain plan). Figure S1 does not show them.

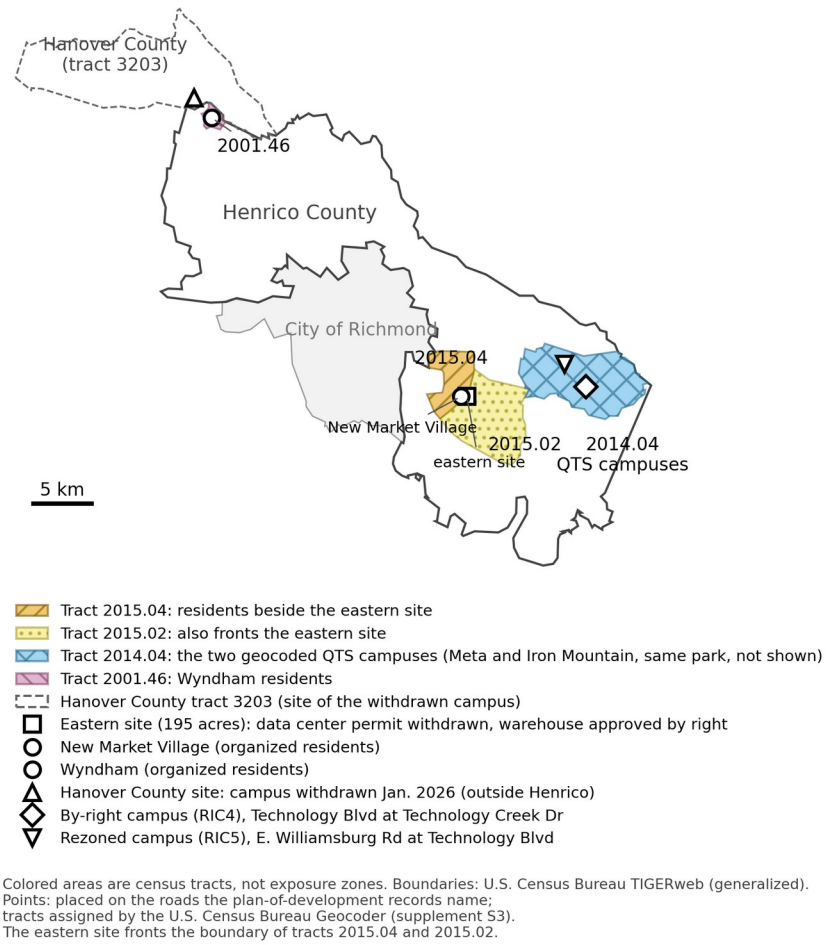


Figure S1. Henrico County census tracts reported in Table S2 and the sites discussed. Colored areas are census tracts, not exposure zones. The eastern site fronts the boundary of tracts 2015.04 and 2015.02; the Hanover County site lies outside the county and outside the reform's reach; the two QTS campuses are placed by geocoded points on the roads their plan-of-development records name; the Meta and Iron Mountain sites, in the same park, are not shown. Boundaries from U.S. Census Bureau TIGERweb (generalized); points placed on the named roads by the author and assigned to tracts by the Census Geocoder (S3).

S4. Plan-of-development approvals in the record

Master plans and first-phase plans approved before the June 10, 2025 ordinance, the two plans pending at that date, and the Meta second-phase plan approved after it, from the Director's agendas and the portal. Scope and zoning are transcribed from the agenda or portal entries.

Campus	Plan number	Director's action	Scope per record	Zoning	Source
Meta (Project Tropical), Phase I	POD-2024-102382	Approved Dec. 18, 2024	Temporary construction logistics area, substation pad, and infrastructure; 475.30 ac; owner Scout Development	M-2	Post-action agenda, Dec. 2024

			LLC		
RIC5 ("QTS RIC5 Campus Master Plan")	POD-2024-102383	Approved Feb. 26, 2025	7 data centers (six 2-story, one 3-story), 4,116,217 sq ft, 4 substations, 621.93 ac; owner QTS Richmond V LLC; condition 16 incorporates REZ-2023-100017 proffers	M-1C (conditional) + ASO	Post-action agenda, Feb. 2025
RIC4 ("QTS RIC 4 Master Plan")	POD-2024-102609	Approved Feb. 26, 2025	10 two-story data centers, 3,773,736 sq ft, 3 substations, 478.14 ac; owner QTS Richmond IV LLC	M-2	Post-action agenda, Feb. 2025
DC Blox Richmond	POD-2025-100199	Approved Apr. 23, 2025	One-story 66,000 sq ft data center; 30.83 ac; "data centers are permitted by right in both zoning districts"	B-3, M-1	Post-action agenda, Apr. 2025
Airport West Data Center Campus (eastern site)	POD-2025-101009	Created Apr. 23, submitted Apr. 28, 2025; on the June 25, 2025 agenda; deferred; later Withdrawn	Eight two-story data centers of 231,603 sq ft, totaling 1,852,824 sq ft (Jan. and Feb. 2026 agendas; Exhibit T); seven buildings, 1,621,221 sq ft as amended (Mar. 2026 agenda; portal); 194.898 ac	A-1, M-1, M-2, AS-O (agenda)	Agendas; portal; determination letter of Dec. 10, 2025 (S9)
IMDC RCH1 Phase 1 and Master Plan (Iron Mountain)	POD-2025-100752	Filed Mar. 31, 2025; on the June 25, 2025 agenda; Findings dated July 10 to 16, 2025; portal expiry "07/07/2030"; status Approval - Active	Three two-story data centers, 1,189,285 sq ft; phase one 360,000 sq ft; 96.861 ac	"M1 - M3, PMD" as displayed	Portal (Details and Processes tabs); June 2025 outline agenda
Meta (Project Tropical), Phase 2	POD-2025-102510	Approved Nov. 19, 2025	Two one-story data centers, 414,435 and 353,145 sq ft, administrative and support buildings; 475.30 ac	M-2	Post-action agenda, Nov. 2025

Each QTS master-plan approval carries the county's condition that the plan "is for planning and information purposes only" and that subsequent detailed plans are "subject to all regulations in effect at

the time" they are submitted; the August 28, 2025 determination (S9) treated both approvals as final plans of development under Va. Code § 15.2-2307(C)(vi). Detailed plans approved after the ordinance without a provisional use permit, from the portal: RIC4 substation minor site plan POD-2025-101658 (approved, activity date Aug. 14, 2025); RIC5 Site 1 POD-2025-101688 (approved Oct. 3, 2025); RIC5 Phase 1 construction plans POD-2025-101899 (plans signed Dec. 15, 2025); RIC5 Phase 2 POD-2026-100070 (approved Feb. 6, 2026); RIC4 Phase 1 DC-1-2-3 POD-2026-100990 (approved May 12, 2026); IMDC construction plans POD-2025-101940 (created Aug. 6, 2025) and POD-2025-103016 (created Nov. 25, 2025), both with status Plans Approved and no approval date displayed; Meta construction plans POD-2026-100954 (Plans Approved). Provisional use permits: the portal's PUP-2025 search returned 106 cases; the one non-expired industrial case is PUP-2025-101460 (the eastern site, filed June 17, 2025, displayed as "In Review" on September 26, 2026 although reporting records its withdrawal on October 13, 2025, Spiers, 2025b); the PUP-2026 search returned 72 cases, none industrial. No provisional use permit appears for QTS, Meta or Iron Mountain.

S5. The Henrico projects: what each held, the basis the county stated, and what followed

Table S5 sets out, for each data center project in the record, what it held on June 10, 2025, the basis the county stated for treating it as beyond or within the ordinance, the reliance recited, the determination and its status, and the approvals that followed. It records the county's operative treatment and the ground the county gave; it does not assess whether the statute required that result. Whether a conceptual master plan approved "for planning and information purposes only" is a final plan under item (vi), a preliminary plan under item (v), or neither is open (the article, under "What the Henrico Record Shows"). Three record categories are kept apart: a determination located, which states its basis; no determination located, where neither the binder nor the Board of Zoning Appeals agendas holds a letter for the project and the approval record states no basis; and a determination denying vesting.

Table S5. The Henrico data center projects: holdings on June 10, 2025, stated basis, and later treatment.

Project; parcels; zoning	Owner of record	Held on June 10, 2025	Basis the county stated	Reliance as recited	Determination; status	Approvals after June 10, 2025
QTS RIC4 (by-right campus); four GPINs, 478.14 ac; M-2	QTS Richmond IV LLC	Master plan POD-2024-102609, approved Feb. 26, 2025, "for planning and information purposes only"	Plan approval as a final plan of development, item (vi) (Exhibit V-1, para. 7)	Designs, consultants and contractors, permit applications, utility agreements, site preparation; "millions of dollars"; reliance undated, good faith found because "the acts occurred prior to the Amendments" (para. 10)	Determination located: vested, Aug. 28, 2025; no appeal on the agendas; final after 30 days by its terms	Substation minor site plan POD-2025-101658 (Aug. 14, 2025); Phase 1 POD-2026-100990 (May 12, 2026); construction plan POD-2026-101451 (created June 9, 2026; Plans Approved)
QTS RIC5 (rezoned campus); twelve GPINs, 621.93 ac; M-1C	QTS Richmond V LLC	Rezoning REZ-2023-100017 with proffers (Board vote May 14, 2024); master plan POD-2024-102383, approved Feb. 26, 2025, with the same condition	Plan approval, item (vi), and the proffers, item (i), "independently sufficient" (Exhibit V-1, para. 7)	As for RIC4 (one letter covers both)	Determination located: vested, Aug. 28, 2025; no appeal on the agendas	Site 1 POD-2025-101688 (Oct. 3, 2025); Phase 1 construction plans POD-2025-101899 (Dec. 15, 2025); Phase 2 POD-2026-100070 (Feb. 6, 2026); DEQ registration 53259, 255 engines (Apr. 22, 2026)
QTS RIC1 to RIC3 (original campuses); 28 GPINs; M-2 except two A-1 parcels	Quality Investment Prop Richmond LLC and affiliated	Completed data centers in operation; nine plan-of-development approvals, one (POD2022-00385)	Completed projects: lawful nonconforming use (Exhibit V, paras. 15 to 16); projects in progress: each	Permits, design and construction, installed power, cooling and security systems, utility agreements; "billions of dollars";	Determination located: nonconforming and vested, Aug. 28, 2025; no appeal on the	Not compiled from the portal

	entities	addressed to Scout Development LLC	plan approval, item (vi) (para. 8)	reliance undated, good faith found because the approvals "occurred prior to the Amendments" (para. 11)	agendas	
White Oak PropCo; parcels 843-707-0215 and 843-706-0700; M-1C	White Oak PropCo, LLC	Rezoning REZ2022-00015 with proffers, June 14, 2022, approving development in general conformance with a "DATA CENTER CONCEPT PLAN"	The proffers, item (i) (Exhibit S, para. 7)	Purchase of the properties, engineering and architectural consultants, legal fees; "millions of dollars" (the letter says land records "largely confirm"); reliance undated, good faith found because the approval "occurred prior to the Amendments" (para. 10)	Determination located: vested, Sept. 11, 2025; no appeal on the agendas	Not searched in the portal
Meta (Project Tropical); GPIN 850-698-1623, 475.30 ac; M-2	Scout Development LLC	Phase I POD-2024-102382, approved Dec. 18, 2024, with a conceptual master plan "for planning and information purposes only" (condition 22)	None stated	None recited	No determination located; the record does not show whether the owner asked	Phase 2 clearing plan POD-2025-102364 (submitted Oct. 10, 2025); Phase 2 POD-2025-102510 (case opened Oct. 7, submitted Oct. 10, approved Nov. 19, 2025); construction plan POD-2026-100954 (created Apr. 13, 2026; Plans Approved); no provisional use permit case
Iron Mountain (IMDC RCH1); three parcels, 96.861 ac; "M1 - M3, PMD" as displayed	Iron Mountain Information Management, LLC (per DEQ registration 53266)	Pending: Phase 1 and master plan POD-2025-100752, filed Mar. 31, 2025, third submission June 11, 2025	None stated	None recited	No determination located; approved after the vote, validity from July 7, 2025 inferred from a July 7, 2030 expiry (S8)	Construction plans POD-2025-101940 (created Aug. 6, 2025) and POD-2025-103016 (RCH2, created Nov. 25, 2025), both Plans Approved; RCH4 POD-2025-101402 withdrawn; Building 3 minor site plan in review Sept. 2026
DC Blox Richmond; 30.83 ac; B-3 and M-1	Not transcribed	Plan POD-2025-100199, approved Apr. 23, 2025 ("data centers are permitted by right in both zoning districts")	None stated	None recited	No determination located	POD-2025-101319 (created June 2, 2025; Plans Approved; no approval date displayed)
Eastern site (Airport West); GPIN 812-704-4612; M-1 portion of a parcel also zoned A-1, M-2, and AS-O	Fareva Richmond Inc.; Wagner Urban Logistics, LLC, contract purchaser; Darbytown Road LLC from Nov. 14, 2025	Pending: POD-2025-101009, submitted Apr. 28, 2025; a minor subdivision approved May 15, 2025	Requester asserted the minor subdivision; the county found no listed act, since a minor subdivision is excluded from the definition of subdivision (Exhibit Q)	Wagner "paused" to apply for the provisional use permit; no good-faith reliance found	Determination denying vesting, Dec. 10, 2025; appealed (APP-2026-100056); upheld 5 to 0, Feb. 26, 2026	PUP-2025-101460 filed June 17, 2025, withdrawn Oct. 13, 2025 per reporting; POD-2025-101009 withdrawn Mar. 23, 2026; warehouse campus POD-2025-103055 approved Jan. 21, 2026

Note. Sources: the determination letters as reproduced in the appellant's binder in APP-2026-100056 (Exhibits V-1, V, S and Q; S9), the Director's post-action agendas (S4), the public case portal as read on September 26, 2026 (deposit folder portal), and DEQ registrations 53259 and 53266. Paragraph numbers are the letters' own. Dates for staff-level plans are the portal's activity dates as displayed unless an agenda is cited; the portal does not print their approval dates (S1). In each affirmative letter the owner's reliance is recited from the owner's report without dates, and good faith is found because the governmental act preceded the amendments and had not been changed or appealed. "No determination located" is bounded to the binder and the Board of Zoning Appeals agendas for September 2025 through September 2026; a letter issued and kept only in the Planning Department's file of interpretations (Henrico Code § 24-2317(C)) would not appear in either. "Not compiled" and "Not searched" mark portal searches not made for this table.

S6. Engine-group emission limits, DEQ registration 51232

DEQ permit registration 51232 (Quality Investment Properties Richmond, LLC, 6000 Technology Blvd, Sandston; minor NSR approval to construct and operate dated June 24, 2024, superseding the permit of September 1, 2023; deposit file DEQ_AirPermit_51232_QTS_Richmond_2024-06-24.pdf). The equipment list covers engine-generator sets EG04 through EG547, 544 diesel emergency generators, and eleven water cooling towers (CT01 to CT11). Condition 10 confines the engines to emergency operation, ISO-declared emergencies, and periodic maintenance, testing and training, and makes the nine group emission limits of Conditions 22 to 30 the binding twelve-month ceilings. The permit imposes no hour cap per engine; the operating constraint is a twelve-month fuel-throughput limit for each group (Conditions 12 to 20). The 500-hour annual cap per engine belongs to registration 53259 (the RIC5 campus), not to 51232. The nine group NOx limits range from 0.8 to 94.0 tons per year and sum to 190.4 tons per year. The table below transcribes Conditions 12 to 20 and 22 to 30.

Condition (limits) / (fuel)	Engine-generator sets	Units and rating	Fuel throughput, gallons per 12 months	NOx limit, tons per year (lb/hr)
22 / 12	EG04-EG05	2 x CAT 3516 DITA, 1,825 kW	4,042	1.8 (81.9)
23 / 13	EG06-EG07	2 x CAT 3516C TA, 2,000 kW	4,555	0.8 (42.5)
24 / 14	EG08-EG17	10 x CAT 3516C, 2,500 kW	29,010	4.3 (50.6)
25 / 15	EG18-EG34	17 x CAT 3516C, 2,500 kW	49,828	6.9 (48.1)
26 / 16	EG35-EG43	9 x MTU 20V4000 DS2500, 2,500 kW	25,281	3.7 (48.6)
27 / 17	EG44-EG79	36 x CAT 3516C, 2,500 kW (EG77-EG79 are the 2024 project units)	96,250	13.5 (48.1)
28 / 18	EG80-EG112	33 x MTU 16V4000 DS2250, 2,250 kW	89,937	12.3 (44.4)
29 / 19	EG113-EG244	132 x MTU 16V4000 DS2250 or CAT 3516C or equivalent, 2,250 to 2,500 kW	386,895	53.1 (48.1)
30 / 20	EG245-EG547 (fuel condition 20 reads EG242-EG547 as printed)	303 units: 295 x CAT 3516C, 2,500 kW, and 8 x CAT C32, 1,250 kW	670,000	94.0 (48.1)
Sum	EG04-EG547	544 engine-generator sets	1,355,798	190.4

Source: DEQ registration 51232, Conditions 12 to 20 (fuel throughput) and 22 to 30 (emission limits), transcribed September 16, 2026. Unit counts from the equipment list on pages 3 and 4. The lb/hr figure is the group hourly limit as printed; the tons-per-year figure is the twelve-month group cap. The permit contains no synthetic-minor demonstration on its face; the classification as a minor NSR approval appears in the permit history on page 5.

S7. Figure sources and design

Figure 1 (the window diagram, v1.4, October 11, 2026) is a schematic drawn by script (deposit folder figures, build_figure1_window_v1_4.py). It places four vesting rules on one horizontal axis running from the filing of a plan or application, through the public hearing, plan approval and the building permit, to construction: a discretionary use in Virginia (rezoning with proffers or conditional use permit), which vests at the hearing-based act (Va. Code § 15.2-2307(C)(i) to (iii)); a by-right use in a building-permit state, the majority rule (Calandrillo et al., 2017); a by-right use in Virginia, which vests at the designated agent's approval of the plan of development (§ 15.2-2307(C)(v), (vi)); and a by-right use in an application-vesting state, North Carolina (the applicant for a development permit, including a site plan, may choose the rules in effect when the application was submitted, N.C. Gen. Stat. §§ 143-755(a), (e)(2), 160D-108(d)) and Indiana (a complete permit application is governed by the rules in effect when it is filed, Ind. Code § 36-7-4-1109(g)). The orange bar is the interval open to reform, in which a governing body can still reach the project by ordinance; it closes at the vesting act (open circle); the diamond marks a hearing. The public's window is the part of that interval after adjoining owners are notified during review; the figure does not mark that date, which varies by locality and project. The stages are drawn in one order for comparison; their order and spacing vary by state and project. Washington, which fixes the rules at a complete building-permit application (Wash. Rev. Code § 19.27.095(1)), is not drawn, because that application need not fall at the stage the figure labels filing. Colorado (Colo. Rev. Stat. § 24-68-103), which attaches a hearing to the vesting act, is discussed in the article under "Other Readings of the Case, and Where the Sequence Can Recur" and is not drawn. The statute texts are in the deposit folder legal with retrieval headers; the figure states rules, not outcomes.

Figure S1 (the tract map, v2.3, October 2, 2026; script build_figureS1_tractmap_v2_3.py) is drawn from U.S. Census Bureau TIGERweb generalized tract and county boundaries with points placed by the author on the roads the plan-of-development records name and assigned to tracts by the Census Geocoder. It carries a 5 km scale bar, the tract-not-exposure statement, hatching distinct for each tract, the boundary note for the eastern site, tract 2015.02 as a second tract fronting the site, the Hanover County site of the withdrawn campus across the county line, and the two QTS campuses as points (RIC4 at Technology Boulevard and Technology Creek Drive; RIC5 at East Williamsburg Road and Technology Boulevard; coordinates and sources in S3). The Meta and Iron Mountain sites are not shown (S3). Design choices: a scale bar; a statement that colored areas are census tracts, not exposure zones, since the tract of a facility is not a measure of exposure; hatching and symbols distinguishable without color; descriptive legend labels; no implied equivalence between warehouse and data center burden; few in-map text elements. Source data (TIGERweb boundary extracts, September 15, 2026) and the build script are in the deposit folder figures.

S8. Reporting discrepancies and primary-record checks

Statutory history of Va. Code § 15.2-2307 item (vii): the chapter text of 2025 Va. Acts ch. 594 (SB974, approved March 24, 2025, effective July 1, 2025; deposit file CHAP0594_2025_SB974.pdf) shows that ch. 594 struck "governing body or its" from items (v) and (vi), leaving "the designated agent," and did not alter item (vii). The clause was added by 2010 Va. Acts ch. 315, as Board of Supervisors of Prince George County v. McQueen (Record No. 130279, January 10, 2014) records at slip opinion page 6 (note 3 lists the seven acts); McQueen declined to apply it retroactively (note 7). The 2026 session (2026 Va. Acts cc. 471 and 948, per the section's history line) inserted a new subsection B, moving the list to subsection C; which of the two chapters made the change was not verified against the chapter texts. The

Henrico Board of Zoning Appeals record of February 26, 2026 and the county's determination letters refer to the list as subsection B.

Floor area of the eastern data center proposal (POD-2025-101009; PUP-2025-101460): the county record gives "eight, two-story 231,603 square foot data centers, totaling 1,852,824" square feet in the notice of review reproduced as Exhibit T and in the January and February 2026 agendas; Virginia Business (Schulte, December 18, 2025) reports the same figure; Richmond BizSense (Spiers, September 10, 2025 and January 27, 2026) describes the proposal as 1 million square feet combined; the March 2026 agenda and the portal carry the amended plan of seven buildings totaling 1,621,221 square feet. The staff report in the deposit gives eight buildings on 195 acres. Planning Commission action: the staff report in the deposit is the Board version, prepared September 30, 2025, and records the Commission's recommendation of denial on September 11, 2025 by a vote of 4-1-1; Richmond BizSense reported the recommendation on September 22, 2025. Warehouse approval: the January 2026 post-action agenda records POD-2025-103055 approved by the Director on January 21, 2026 (1,821,340 square feet); the January 27 BizSense article says only "this month". The portal records the case as created December 3 and submitted December 11, 2025; reporting places the submission "two days after" the December 10 determination, and the manuscript uses the portal date. West End campus: Hanover County application (Spiers, September 8, 2025; January 16 and January 30, 2026); the withdrawal letter is dated January 29, 2026. Statute numbering: opinions and documents dated before July 1, 2026 cite the significant-affirmative-act list as § 15.2-2307(B); the 2026 session inserted a new subsection B (see the statutory history above), and the list is subsection C in the current code, which the manuscript cites. Case search: CourtListener, September 15, 2026, Supreme Court of Virginia and Court of Appeals of Virginia opinions containing "15.2-2307", published and unpublished: 27 results, most recent Town Council of Purcellville v. KMG Hauling, Inc. (Va. Ct. App., May 12, 2026, unpublished), which cites the written-determination clause only to describe the administrator's decision under appeal and does not address vesting. Board of Zoning Appeals decision: the February 26, 2026 minutes (on disk) record the decision by motion, 5 to 0, upholding the Director of Planning; no separate written opinion is issued in this procedure, and the minutes incorporate the hearing transcript. Parcel address: reporting uses 2248 Darbytown Road; county documents use 2248 (the zoning confirmation letter and plan review correspondence), both 2248 and 2300 (the December 10, 2025 determination heading), and 2300 (the Board of Zoning Appeals agenda), all for parcel 812-704-4612; the staff report describes the site as "part of" that parcel. Registration 53259 (QTS Richmond V, LLC, April 22, 2026; on disk): equipment list GEN001-GEN247 (CAT 3516C or MTU 20V4000 DS2500, 2,500 kW, or MTU DS2250, 2,250 kW) and HGEN001-HGEN008, 255 engine-generator sets; Condition 6 limits each engine to 500 hours per year, calculated monthly on a rolling twelve-month sum; the facility-wide emission limits in Condition 10 (pages 5 to 6) cap nitrogen oxides at 99.0 tons per year (PM 4.5, PM10 4.9, PM2.5 4.9, CO 34.3, VOC 18.6). Both figures match the permit. NOx control is by turbocharged engine and aftercooler (Condition 1). Registration 53266 (Iron Mountain Information Management, LLC, 6110 Technology Creek Drive, May 7, 2026) is also on disk for the record; it is not cited in the manuscript.

Submission date of the eastern data center plan (POD-2025-101009): the portal shows the case created April 23 and submitted April 28, 2025; the county's determination letter of December 10, 2025 says the application "was submitted to the County on April 28, 2025"; the intake notice in the appellant's binder records submission on April 29 and acceptance on May 1, 2025. The manuscript uses April 28. Rezoning date for RIC5: the August 28, 2025 determination letter states that the Board "approved REZ2023-100017

on May 21, 2024," the date of the County Manager's approval letter reproduced as its Exhibit B (the proffers are dated May 6, 2024); the Board's public hearing and vote were on May 14, 2024, which Table 1 of the article uses. Meta Phase I approval: the December 2024 post-action agenda records approval on December 18, 2024; the November 2025 agenda entry for Phase 2 says the first phase "was approved in November 2024." The manuscript uses the post-action date. Iron Mountain: the June 2025 Director's agenda is an outline; the portal shows the master plan "06/25 - d/a" with Findings dated July 10 to 16, 2025 and an expiry of July 7, 2030, which implies validity from July 7, 2025; the manuscript describes the plan as approved without a provisional use permit, gives July 7, 2025 as an inferred validity date, and notes that the record does not explain why this pending plan was approved without a permit while the eastern plan was deferred for one. RIC5 proffers: the accepted proffers (31, in the letter of May 21, 2024, binder pp. 250 to 259) include 65 percent maximum impervious surface (#11), generator testing 7 a.m. to 7 p.m. Monday to Friday (#18), cooling-technology best practices and LEED Silver (#24), 70 dBA day and 55 dBA night at any exterior property line where the property adjoins a parcel with a residential dwelling (#25.xi), and 50 percent solar for stormwater aeration (#25.iii); they do not commit to air cooling, published air-quality monitoring or rooftop solar, and the manuscript makes no such claims. Determination letters: all four cite the listed acts as § 15.2-2307(B); the current code places the list in subsection C, which the manuscript cites; the paragraph of each letter that recites the list quotes items (v) and (vi) in the pre-2025 wording "the governing body or its designated agent," and the December 10, 2025 letter's paragraph 8.b quotes item (vi) in the current wording. Status of the eastern site's permit: reporting records the withdrawal of PUP-2025-101460 on October 13, 2025, the day before the scheduled Board hearing (Spiers, 2025b); the portal still displayed the case as "In Review" on September 26, 2026, and the manuscript follows the reporting. Whether the appellant, Darbytown Road LLC, petitioned the circuit court after the Board of Zoning Appeals decision is not known from the record.

S9. The four vested-rights determinations

All four letters are signed by R. Joseph Emerson, Jr., AICP, Director of Planning, with the concurrence of Andrew R. Newby, County Attorney, and each attaches the adopted ordinance as Exhibit A. Each recites the same authority: Va. Code § 15.2-2286(A)(4); Henrico Code § 24-2105 (the Director is the zoning administrator); and Henrico Code § 24-2317(B)(5) (the Director is "responsible for making ... [i]nterpretations of whether rights have been vested, with the concurrence of the County Attorney"). Each ends with a notice that any aggrieved person or county officer may appeal to the Board of Zoning Appeals within 30 days under § 15.2-2311 (fee $300) and that otherwise "this determination will be final and unappealable." The letters were reproduced as exhibits in the appellant's binder in APP-2026-100056 and read from the OCR of binder pages 125 to 283 against the page images.

Letter (binder exhibit, pages); date	Addressee (counsel)	Property and zoning	Act found	Reliance and expense as recited	Determination
Exhibit V-1, pp. 231 to 236; Aug. 28, 2025	QTS Richmond IV LLC and QTS Richmond V LLC (DLA Piper LLP)	RIC4 (four GPINs), M-2, no conditions; RIC5 (twelve GPINs), M-1C subject to REZ2023-100017 proffers	Approval of the two plans of development, found "a significant affirmative governmental act under Code of Virginia § 15.2-2307(B)(vi)"; for RIC5 also the rezoning with proffers, "(B)(i),"	"you report that Owner has" commissioned designs, engaged consultants and contractors, applied for permits, entered utility agreements, performed site preparation; "millions of dollars in expenses and	Vested right "to develop and operate the Projects on the Properties as a principal use without a provisional use permit in accordance with the regulations ... in effect prior to the Amendments";

			"independently sufficient"	obligations"	RIC5 plan may be amended or superseded consistent with the proffers and the prior ordinance
Exhibit V, pp. 172 to 178; Aug. 28, 2025	Quality Investment Prop Richmond LLC and the affiliated entities listed in the letter's footnote (DLA Piper LLP)	RIC1, RIC2, RIC3 (28 GPINs), M-2 except two A-1 parcels	Nine plan-of-development approval letters for data centers and related uses	Completed projects in operation; in-progress projects approved but not completed; "billions" of dollars recited	Completed projects continue as a lawful nonconforming use (Henrico Code § 24-6201 et seq.; § 15.2-2307); in-progress projects vested under the approved plans, permits and prior regulations
Exhibit S, pp. 147 to 151; Sept. 11, 2025	White Oak PropCo, LLC (Roth Jackson Gibbons Condlin, PLC)	Parcels 843-707-0215 and 843-706-0700, M-1C subject to REZ2022-00015 and C-47C-00 proffers	The June 14, 2022 rezoning with proffers approving development "in general conformance with the 'DATA CENTER CONCEPT PLAN, WHITE OAK'," found a listed act under "(B)(i)"	Purchased the properties, engaged engineering and architectural consultants, incurred legal fees; "You report (and the public land records largely confirm) that Owner has incurred millions of dollars"	Vested right to develop and operate the project as a principal use without a provisional use permit under the prior regulations
Exhibit Q, pp. 127 to 135 (nine pages); Dec. 10, 2025	Wagner Urban Logistics, LLC (Roth Jackson Gibbons Condlin, PLC), contract purchaser; landowner Fareva Richmond Inc.	GPIN 812-704-4612, 2248 and 2300 Darbytown Road, M-1	None. The May 15, 2025 minor subdivision is excluded from the county's definition of subdivision (Henrico Code § 19-7301), did not reference data centers, and reserved "[a]ny proposed uses of the property" as "subject to separate review and approval"; the plan of development submitted April 28, 2025 "was not approved before the effective date of the Amendments and has been deferred" (footnote 1, citing McQueen and Caselin); Wagner "is not the landowner"	Wagner "paused" its pursuit to apply for the provisional use permit (June 17, 2025); no good-faith reliance on the subdivision found	No vested right; any data center as a principal use requires a provisional use permit. Appealed to the Board of Zoning Appeals (APP-2026-100056); upheld 5 to 0, Feb. 26, 2026

Appeal check. The Board of Zoning Appeals agendas for September 2025 through September 2026 (thirteen files, in the deposit) list eight appeal items: APP-2025-102825, APP-2026-100056, APP-2026-100155, APP-2026-100534, APP-2026-100767, APP-2026-100776, APP-2026-101000 and APP-2026-101635. Apart from APP-2026-100056, the Darbytown Road LLC appeal of the December 10, 2025 denial, none concerns QTS, White Oak, Iron Mountain or vesting. No appeal of the three affirmative determinations appears on the agendas; an appeal filed but never docketed, or withdrawn before docketing, would not appear. By the letters' own terms an unappealed determination became final after 30 days. The manuscript states the negative as bounded to the agendas. No determination addressed to the

Meta campus or to Iron Mountain appears in the binder or the agendas; the record does not show whether either owner asked. One of the nine plan-of-development approval letters recited in Exhibit V (POD2022-00385, "QTS Tract 9 - Substation," September 28, 2022, binder p. 188) is addressed to Scout Development, LLC, the Meta entity; the determination names the QTS entities as Owner and does not name Scout.

What the letters do not do. The record located shows no notice of any of them to adjoining owners and no publication; Henrico Code § 24-2317(C) requires the Director to keep a record of written interpretations "available in the Planning Department for public inspection, on reasonable request, during normal business hours." The affirmative findings rest on the owners' reports of reliance and expense ("you report"), with the county checking land records in one case. Whether a conceptual master plan approved "for planning and information purposes only" is a final plan of development under item (vi) was not adjudicated; the Board of Zoning Appeals heard only the appeal of the Wagner denial, brought by Darbytown Road LLC, and the argument in the transcript concerns item (vii) and the subdivision; the QTS and White Oak findings were not before the Board.

S10. The vesting typology: protocol, coding, and agreement

Scope. Sixteen states: the fifteen with the most data centers in Pew Research Center's count of April 13, 2026 (operating and planned facilities, from Data Center Map, accessed February 19, 2026), recorded before any retrieval, and Colorado, which the article cites. The ranking counts facilities, not capacity, and includes planned and land-banked sites.

Retrieval. For each state the vesting statute, any plan-validity or application-freeze statute, and, where no statute governs, the controlling appellate opinion were retrieved on October 2, 2026 from the legislature's code site or from the court, CourtListener, Justia, or the Caselaw Access Project, read in a browser, and saved with a retrieval header (deposit folder legal/states, 123 files, three of them retrieved on October 3, 2026 for the Indiana and Washington amendments; the Virginia texts were retrieved on September 26, 2026). The Georgia and Colorado statute texts are Justia copies of the 2025 codes.

Coding. The method is what Burris, Ashe, Levin, Penn, and Larkin (2016, p. 139) call policy surveillance, the systematic collection and analysis of laws across jurisdictions (Annual Review of Public Health, 37, 135 to 148, https://doi.org/10.1146/annurev-publhealth-032315-021841), and Tremper, Thomas, and Wagenaar (2010) set out the issues that measuring law as data commonly raises (Evaluation Review, 34(3), 242 to 266, https://doi.org/10.1177/0193841X10370018). One row per state, coding the ordinary by-right path, defined as the earliest approval an ordinary by-right project must seek to which the state's rule attaches without an election by the applicant: the authority (statute, case law, or both); the act that fixes the governing rules; whether reliance is required; whether that act is administrative; whether notice or a hearing attaches to it; any plan-validity provision and its term; and where the window closes, derived from those cells. Values: authority, statute, case law, or both; trigger, administrative plan approval, discretionary approval, complete application, building permit, or other with the rule stated; reliance, yes, no, or partial with the rule stated; administrative trigger and notice or hearing at the trigger, yes, no, or depends with the reason; plan validity, the citation and term in years, or none located with its bound; window, hearing-based approval, administrative approval, filing, building permit, or other with the rule stated. Every coded cell carries its reason in the coding file (deposit folder typology). Each row carries one verbatim quotation of 40 words or fewer with a pin-cite, matched string for string against the

saved text. Grade A rests on statute text read and pin-cited; grade B on the controlling opinion read and pin-cited. No row rests on a secondary source alone.

Agreement. The coding was done twice, separately: a first coding with state-by-state notes, and a second, blind coding from the saved texts and the column definitions alone, without the first coding or its notes. Both coders were generative AI models (Claude, Anthropic); a further AI session compared the codings cell by cell and proposed a resolution of each difference against the saved text; the author reviewed each resolution, and the comparison is in the deposit (folder typology). The two agree on 104 of 112 categorical cells (93 percent) and on 56 of the 64 cells that call for judgment (trigger, reliance, administrative act, and notice or hearing; 88 percent), and on where the window closes, the authority, the reliance requirement, and the grade for all sixteen states. The eight differences are of label: where the first coding wrote "other" or "depends" (the triggers for Colorado's hearing-conditioned approval and North Carolina's and Texas's filing rules; North Carolina's administrative and hearing cells; Florida's administrative cell; Iowa's administrative and hearing cells), the second chose the nearest fixed label, and Table 3 of the article uses the fixed labels with the qualification in its note. One further difference, in the plan-validity citation rather than a categorical cell, was of substance. New York Town Law § 265-a protects lots on a duly approved and filed residential subdivision plat from later lot-area, lot-dimension, and yard increases for three years; it is coded as a plan-validity provision with that scope and does not move New York's window for a data center. Both codings are in the deposit (folder typology). Every row's quotation was matched string for string against the saved text; cells on which the two codings agreed were not separately re-adjudicated.

Judgment calls that bear on the counts. Table 3 of the article separates filing of a first plan or land use application (North Carolina, Texas, Oregon, Pennsylvania, Indiana) from filing of a building permit application (Washington, Ohio), since the second may follow plan approval. Arizona, California, and Florida offer opt-in statutory tracks that fix rights earlier; coding them on those tracks would leave three states in the building-permit row. North Carolina has two tracks: the permit-choice rule (N.C. Gen. Stat. §§ 143-755(a), (e)(2), 160D-108(d)) governs a site plan and is coded, and the site-specific vesting plan (§ 160D-108.1), which carries the hearing, if any, of the approval it rests on, or a legislative hearing where it rests on none, is noted. Oregon's statutory freeze covers permit and land use applications; a building permit under clear and objective standards is not a land use decision and vests at common law only with substantial construction. Illinois protects good-faith expenditure in reliance on a permit's probable issuance until an amending proposal is introduced (1350 Lake Shore Assocs. v. Healey, 223 Ill. 2d 607, 615 (2006)); Morgan Place of Chicago v. City of Chicago, 2012 IL App (1st) 091240, para. 46, is in tension with it and is noted, not resolved.

Bounds. Every "none located" in the coding is limited to the sections named and the retrieval date. Several were keyword scans rather than full reads: Georgia (O.C.G.A. §§ 36-66-1 to 36-66-7), Illinois (65 ILCS 5/11-13-27 and 55 ILCS 5/5-12001.1 to 5-12015), New York (Town Law § 276), and Iowa (2026 section titles of chapters 335, 354, and 414). The Arizona controlling case is intermediate appellate; Florida's is a district court of appeal. No decision was checked against later citing history in a citator. Not read: New York Village Law and General City Law; Illinois home rule beyond the cases named; California's Permit Streamlining Act and housing application-freeze provisions; Pennsylvania pending-ordinance cases outside MPC § 508. The 2026 amendments were read on October 3, 2026: P.L.73-2026, SEC.19 adds Ind. Code § 36-7-4-1109(s), which from 2027 requires a complete application that meets the rules in effect at submission to be granted, and leaves subsections (a) to (r) unchanged; 2026 Wash. Sess.

Laws ch. 166, § 4 amends Wash. Rev. Code § 19.27.095(2) for regional transit authorities and leaves subsection (1) unchanged. Neither changes a coding. The typology classifies statutory and case-law rules; it observes no reform outside Virginia and does not code which states let an administrator determine vesting on request.

Table S10. The sixteen-state coding.

State	Authority	Primary citation	Act that fixes the governing rules	Window closes	Plan-validity provision	Grade
Virginia	statute	Va. Code Ann. § 15.2-2307(A), (C); § 15.2-2261(A), (C); § 15.2-2311(C)	Designated agent's approval of a plat, site plan, or plan of development, with reliance	Administrative approval	Va. Code Ann. § 15.2-2261(A), (C); term: 5	A
Colorado	statute	Colo. Rev. Stat. § 24-68-102(1), (4); § 24-68-103(1); § 24-68-104(1), (2)	Approval of a site specific development plan after notice and hearing	Hearing-based approval	Colo. Rev. Stat. § 24-68-104(1), (2); term: 3	A
North Carolina	statute	N.C. Gen. Stat. § 160D-108(b)-(d), (f); § 160D-108.1(b), (c), (e); § 143-755(a), (e)(2)	Filing of a development permit application, including a site plan (permit choice)	Filing	N.C. Gen. Stat. § 160D-108.1(e)(1), (2); § 160D-108(f); term: 2 (site-specific vesting plan; up to 5 by local government under (e)(2); 7 for multi-phased development under 160D-108(f))	A
Washington	statute	Wash. Rev. Code § 19.27.095(1); § 58.17.033(1); § 58.17.170(2)(a), (3)(a); § 36.70B.180	Filing of a complete building permit application	Filing	Wash. Rev. Code § 58.17.170(2)(a), (3)(a) (final plats only); § 36.70B.180 (development agreements, term set by the agreement); term: 5 (final plats filed on or after 1 Jan 2015; plats only)	A
Texas	statute	Tex. Loc. Gov't Code § 245.002(a), (a-1), (b); § 245.004; § 245.005(b)	Filing of the original application in a series	Filing	None located in the sections read (bounds in the deposit notes)	A
California	both	Avco Community Developers, Inc. v. South Coast Regional Com. (1976) 17 Cal.3d 785, 791-796 (common law); Cal. Gov. Code § 66498.1, § 66474.2 (vesting tentative maps); § 65866, § 65867 (development agreements)	Building permit plus substantial work in good-faith reliance	Building permit	None located in the sections read (bounds in the deposit notes)	B
Illinois	case law	1350 Lake Shore Assocs. v. Healey, 223 Ill. 2d 607, 615 (2006) (restating the rule, quoting Skokie Town House); Cos Corp. v. City of Evanston, 27 Ill. 2d 570, 576-77, 190 N.E.2d 364 (1963); Pioneer Trust & Sav. Bank v. County of Cook, 71 Ill. 2d 510 (1978); Fifteen Fifty North State Building Corp. v. City of Chicago, 15 Ill. 2d 408, 416 (1958); People ex rel. Skokie Town House Builders v. Village of Morton Grove, 16 Ill. 2d 183, 191 (1959)	Good-faith expenditure in reliance on a permit's probable issuance	No fixed point	None located in the sections read (bounds in the deposit notes)	B
Georgia	case law	Barker v. County of Forsyth, 248 Ga. 73, 281 S.E.2d 549 (1981); Clark v. International Horizons, Inc., 243 Ga. 63 (1979); Meeks v. City of Buford, 275 Ga. 585, 571 S.E.2d 369 (2002)	Issuance of a valid building permit	Building permit	None located in the sections read (bounds in the deposit notes)	B
Ohio	case law	Gibson v. City of Oberlin, 171 Ohio St. 1 (1960); contrast State	Filing of a qualifying permit application	Filing	None located in the sections read (bounds	B

		ex rel. Davis Investment Co. v. Columbus, 175 Ohio St. 337 (1963)			in the deposit notes)	
Arizona	both	Town of Paradise Valley v. Gulf Leisure Corp., 27 Ariz. App. 600, 557 P.2d 532 (1976) (common-law default); A.R.S. §§ 9-1201 to 9-1205 (cities and towns) and §§ 11-1201 to 11-1205 (counties) (opt-in protected development right plans)	Building or special use permit plus substantial reliance	Building permit	A.R.S. § 9-1203 (cities and towns), § 11-1203 (counties); protected development right plans only; term: 3 (nonphased) or 5 (phased) under § 9-1203(A); counties differ, § 11-1203(A); opt-in plans only	B
New York	case law	Town of Orangetown v. Magee, 88 N.Y.2d 41, 47-48 (1996); Rocky Point Drive-In, L.P. v. Town of Brookhaven, 2013 NY Slip Op 07513 (law at time of decision governs, with a narrow special-facts exception); Pokoik v. Silsdorf, 40 N.Y.2d 769 (1976)	Building permit plus substantial reliance	Building permit	N.Y. Town Law § 265-a(1)-(2): three years for lots on a duly approved and filed residential subdivision plat, lot-area, lot-dimension, and yard provisions only	B
Oregon	both	Or. Rev. Stat. § 215.427(3)(a) (counties); § 227.178(3)(a) (cities); common law: Clackamas County v. Holmes, 265 Or 193, 508 P2d 190 (1973); Friends of Yamhill County v. Bd. of Commrs., 351 Or 219, 237, 264 P3d 1265 (2011)	Filing of a permit or land use application that is or becomes complete	Filing	ORS 215.417(1) (four years; extensions only for residential development on farm or forest land outside an urban growth boundary); ORS 92.040(2)-(3) (subdivision applications inside an urban growth boundary, local period never over 10 years); ORS 94.504 to 94.528 (development agreements, up to 15 years city, 7 years county) [2026-10-02, oregonlegislature.gov; ORS chapters 455 and 197A not read beyond keyword searches]	A
Pennsylvania	both	Municipalities Planning Code § 508(4)(i)-(iv), 53 P.S. § 10508(4); Petrosky v. Zoning Hearing Bd. of Upper Chichester Twp., 485 Pa. 501, 402 A.2d 1385 (1979) (common law, permit path)	Filing of a subdivision or land development application	Filing	53 P.S. § 10508(4)(ii)-(iv); term: 5	A
Florida	case law	City of Hollywood v. Hollywood Beach Hotel Co., 283 So. 2d 867 (Fla. 4th DCA 1973); Sakolsky v. City of Coral Gables, 151 So. 2d 433 (Fla. 1963); Fla. Stat. § 163.3233(3) and § 70.001(3)(a) (preserve common law)	Building permit plus a good-faith substantial change in position	Building permit	None located in the sections read (bounds in the deposit notes)	B
Iowa	case law	Worthwhile Wind LLC v. Worth County Board of Supervisors, No. 24-1813 (Iowa Apr. 24, 2026), slip op. at 11-15	Validly issued permit or formally approved plat plus substantial expenditure	Building permit	None located in the sections read (bounds in the deposit notes)	B
Indiana	statute	Ind. Code § 36-7-4-1109(f)-(h) (application freeze); (m)-(n) (development agreements); (o) (common-law vesting preserved)	Filing of a complete permit application	Filing	Ind. Code § 36-7-4-1109(g), (h) (at least three years from a complete application; protection lapses if development is not completed within ten years of commencement); term: 3 (minimum)	A

Table S10b. The quotation on which each row rests (first coding; pin-cite in parentheses).

State	Quotation	Grade
Virginia	the designated agent has approved a final subdivision plat, site plan or plan of development for the landowner's property (§ 15.2-2307(C)(vi))	A
Colorado	upon the approval, or conditional approval, of a site specific development plan, following notice and public hearing, by the local government in which the property is situated (§ 24-68-103(1)(b))	A
North Carolina	the statutory vesting granted by subsection (c) of this section for a development project is effective upon filing of the application in accordance with G.S. 143-755 (§ 160D-108(d))	A
Washington	shall be considered under the building permit ordinance in effect at the time of application, and the zoning or other land use control ordinances in effect on the date of application (RCW 19.27.095(1))	A
Texas	Rights to which a permit applicant is entitled under this chapter accrue on the filing of an original application or plan for development or plat application (§ 245.002(a-1))	A
California	a builder must comply with the laws which are in effect at the time a building permit is issued, including the laws which were enacted after application for the permit. (Avco Community Developers, Inc. v. South Coast Regional Com. (1976) 17 Cal.3d 785, 795)	B
Illinois	substantial change of position, expenditures or incurrence of obligations made in good faith by an innocent party under a building permit or in reliance upon the probability of its issuance, such party has a vested property right (223 Ill. 2d 607, 615 (2006), quoting 16 Ill. 2d 183, 191)	B
Georgia	We have expressly held where a valid building permit is issued no showing of substantial reliance is necessary to vesting of rights. (Barker v. County of Forsyth, 248 Ga. 73, 76, 281 S.E.2d 549 (1981))	B
Ohio	The right became vested, under the law applicable thereto, upon the filing of the application for the permit. (Gibson v. City of Oberlin, 171 Ohio St. 1, 6 (1960))	B
Arizona	the right to continue construction under such permit becomes a vested right which a municipality has no right to violate without good cause or in the absence of any public necessity. (Town of Paradise Valley v. Gulf Leisure Corp., 27 Ariz. App. 600, 608, 557 P.2d 532 (1976))	B
New York	a vested right can be acquired when, pursuant to a legally issued permit, the landowner demonstrates a commitment to the purpose for which the permit was granted by effecting substantial changes and incurring substantial expenses (Town of Orangetown v. Magee, 88 N.Y.2d 41, 47 (1996))	B
Oregon	must be based: (A) Upon the standards and criteria that were applicable at the time the application was first submitted (Or. Rev. Stat. § 215.427(3)(a)(A))	A
Pennsylvania	no change or amendment of the zoning, subdivision or other governing ordinance or plan shall affect the decision on such application adversely to the applicant (53 P.S. § 10508(4)(i))	A
Florida	Only where the landowner possesses a building permit and where the circumstances that give rise to the doctrine of equitable estoppel are present (City of Hollywood v. Hollywood Beach Hotel Co., 283 So. 2d 867, 869 (Fla. 4th DCA 1973))	B
Iowa	This is because the vested rights claim is based on reliance on administrative approval of the development rather than reliance on the law (Worthwhile Wind LLC v. Worth County Board of Supervisors, No. 24-1813, slip op. at 14 (Iowa Apr. 24, 2026))	B
Indiana	are governed, for a period of at least three (3) years after the date the person files a complete permit application, by the legal restrictions in effect and applicable to the property at the time the complete application is filed. (Ind. Code § 36-7-4-1109(g))	A

Note. The 2026 amendments to Indiana's and Washington's provisions leave both codings unchanged (Bounds, above). The saved file names and the full coding of every row by both coders, including reliance, whether the act is administrative, and whether notice or a hearing attaches, are in the deposit (typology/VESTING_TYPOLOGY_coding.csv and SECOND_CODER_coding.csv, with VESTING_TYPOLOGY_NOTES.md and SECOND_CODER_COMPARISON_2026-10-02.md).

S11. Chronology of the Henrico record, 2009 to 2026

Table S11 gives the dated chronology of the record. Sources are cited by author and year and listed at the end of this section, lettered as in the article's reference list where the article cites the same entry; entries the article does not cite continue each series, and the article's Henrico County Planning Department (2026) and Henrico County Board of Zoning Appeals (2026) are 2026a and 2026b here, respectively. Staff-level dates are the portal's activity dates as displayed (S1).

Table S11. Chronology of the Henrico record, 2009 to 2026.

Date	Event	Source
Feb. 2009	Semiconductor plant closes	Miller, 2010; InterGlobix, 2022
2010	Plant purchased for $12 million and converted to a data center	Miller, 2010
2017	Equipment tax rate cut from $3.50 to $0.40 per $100	Henrico County, 2025
2020	Board delegates plan-of-development approval to the Director of Planning	Spiers, 2026b

	without Planning Commission review	
Oct. 31, 2022	Meta's entity, Scout Development LLC, buys 475 acres in the technology park, $35.3 million	Platania, 2022
Apr. 24, 2024	Economic Development Authority sells the by-right QTS campus land, $43,854,100	Henrico County Real Estate Assessment Division, 2026
May 14, 2024	Board rezones 622 acres for the rezoned campus with about thirty proffers; first organized resistance	Henrico County Board of Supervisors, 2024; German, 2024
May 16, 2024	Housing Affordability Trust Fund announced, $60 million	German, 2024
Dec. 18, 2024	Director approves Project Tropical Phase I (POD-2024-102382): construction logistics area and substation pad, with a conceptual master plan "for planning and information purposes only"	Henrico County Planning Department, 2024
Feb. 26, 2025	Director approves the QTS master plans (POD-2024-102609, RIC4; POD-2024-102383, RIC5), each "for planning and information purposes only"	Henrico County Planning Department, 2025a
Mar. 31, 2025	Iron Mountain files a first-phase plan and master plan (POD-2025-100752): a 360,000 sq ft data center first, three totaling 1,189,285 sq ft	Henrico County, 2026b
Apr. 28, 2025	By-right plan of development for the eastern data center (POD-2025-101009) submitted; in review when the ordinance passed	Darbytown Road LLC, 2026; Henrico County, 2026b
May 1, 2025	Planning Department staff analysis of data center impacts	Henrico County Planning Department, 2025e
May 15, 2025	Board defers the overlay version and directs a countywide permit requirement; minor subdivision of the eastern parcel approved the same day	Darbytown Road LLC, 2026, Exhibit E; Henrico County Director of Planning, 2025d
June 10, 2025	Ordinance 143-25 ends by-right approval of data centers as a principal use, effective on passage	Henrico County Board of Supervisors, 2025
June 17, 2025	Provisional use permit application for the eastern site filed (PUP-2025-101460)	Henrico County, 2026b
June 25, 2025	Director defers the eastern plan for want of a permit; Iron Mountain's plan, listed on the same agenda, is later approved without one (validity from July 7, 2025, inferred from a July 7, 2030 expiry; no posted disposition)	Henrico County Director of Planning, 2025d; Henrico County, 2026b
Aug. 2025	Rezoning application filed with Hanover County for a 400-acre campus beside the West End	Spiers, 2025d
Aug. 14, 2025	Staff approve a substation site plan under the RIC4 master plan (POD-2025-101658)	Henrico County, 2026b
Aug. 28, 2025	Director determines that QTS RIC4 and RIC5 have vested on the master-plan approvals, and RIC1 to RIC3 on nine earlier approvals	Henrico County Director of Planning, 2025a, 2025b
Sept. 11, 2025	Planning Commission recommends denial of the first provisional use permit (PUP-2025-101460), 4 to 1 with one abstention; Director determines that White Oak PropCo has vested on 2022 proffers	Henrico County Planning Department, 2025b; Henrico County Director of Planning, 2025c; Spiers, 2025c
Oct. 1, 2025	Vested-rights determination requested for the eastern site	Darbytown Road LLC, 2026, Exhibit P; Spiers, 2025b
Oct. 3, 2025	Staff approve a site plan for two data centers and a substation under the RIC5 master plan (POD-2025-101688)	Henrico County, 2026b
Oct. 13, 2025	Provisional use permit application withdrawn	Spiers, 2025b
Nov. 14, 2025	Darbytown Road LLC buys the eastern parcels, $13.5 million	Darbytown Road LLC, 2026, Exhibit O
Nov. 19, 2025	Director approves Project Tropical Phase 2 (POD-2025-102510): two data center buildings, 767,580 sq ft, no provisional use permit	Henrico County Planning Department, 2025c
Dec. 10, 2025	Director denies the eastern vesting claim; warehouse plan (POD-2025-103055, opened Dec. 3) submitted the next day	Henrico County Director of Planning, 2025d; Henrico County, 2026b; Spiers, 2025a
Dec. 15, 2025	RIC5 Phase 1 construction plans signed (POD-2025-101899)	Henrico County, 2026b
Jan. 2026	Hanover Planning Commission recommends denial of the West End campus	Spiers, 2026a
Jan. 21, 2026	Warehouse campus (POD-2025-103055) approved administratively	Henrico County Planning Department, 2026a
Jan. 29, 2026	Hanover campus beside the West End withdrawn before its Board hearing	Spiers, 2026c
Feb. 6, 2026	Staff approve RIC5 Phase 2, data center campus and substations (POD-2026-100070)	Henrico County, 2026b
Feb. 26, 2026	Board of Zoning Appeals upholds the Director, 5 to 0 (APP-2026-100056)	Henrico County Board of Zoning Appeals, 2026a, 2026b; Hardy, 2026; Spiers, 2026d
Mar. 23, 2026	Eastern by-right plan (POD-2025-101009), deferred since June 2025, withdrawn by the applicant	Henrico County Planning Department, 2026b
Apr. 9, 2026	Virginia Department of Environmental Quality (DEQ) generator guidance takes effect	Virginia Department of Environmental Quality, 2026b
Apr. 22, 2026	DEQ permit for 255 generators at the rezoned campus	Virginia Department of Environmental Quality, 2026a
May 12, 2026	Staff approve three data centers of RIC4 Phase 1 (POD-2026-100990), and the first three warehouse buildings (POD-2026-100759)	Henrico County, 2026b

July 1, 2026	Guidance applies to applications received on or after this date	Virginia Department of Environmental Quality, 2026b

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