AMERICAS
DATA CENTER UPDATE

H2 2023

PRIMARY MARKETS:
Atlanta, Chicago, Dallas, Northern Virginia, Phoenix, Portland, Silicon Valley, Columbus, Toronto

SECONDARY MARKETS:
Austin, New Jersey / New York, Montreal, São Paulo, Santiago, Querétaro, Bogota

MARKETS
UNITED STATES

ATLANTA

KEY INDICATORS*

593MW ABSORPTION (H2 2023)

1071MW IN OPERATION

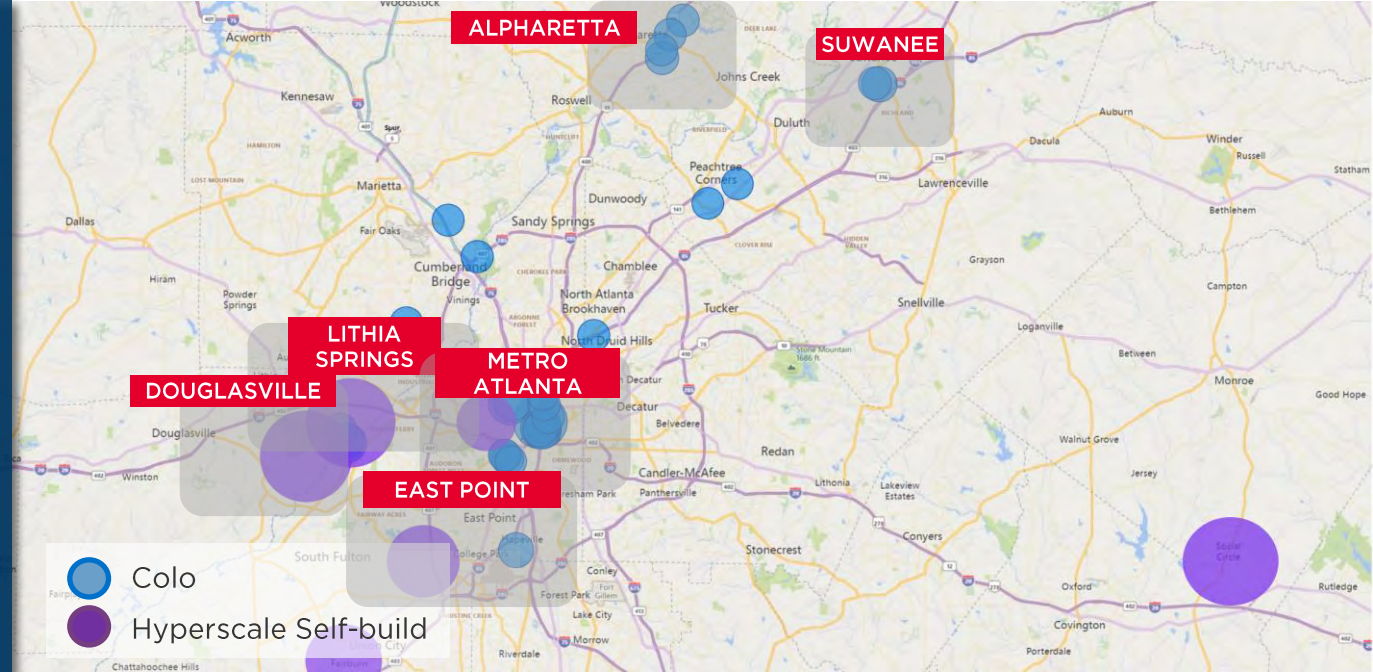**405MW** UNDER CONSTRUCTION

1.8% COLO VACANCY

Definition: Key indicators are based on operational Hyperscale Cloud, Colo, Edge & Telco data center facilities in the market and excludes Captive & ICT.

MARKET OVERVIEW

In the last half of 2023, Atlanta's absorption grew to record levels as major colocation providers filled large-scale campuses in the Douglasville and Lithia Springs submarkets. Totaling 121MW of absorption in the first half of the year, the market hit an eye-popping 593MW in the second half of the year—a 390% increase. Looking forward, the market continues to have a significant pipeline, as growth continues in both established clusters, like Lithia Springs and Douglas County, as well as in more emergent clusters in surrounding areas.

Vacancy continued to tighten to a record 1.8%, with several new phases of hyperscale self-build projects in process. These include Google (Douglas County), Microsoft (East Point, Lithia Springs, Palmetto) and Meta (Newton), all of which are expanding in the market. Continued growth is expected as the market continues to benefit from affordable land pricing and availability, more challenging power limitations in other markets, the business-friendly disposition of the area, and heightened investor interest.

The state of Georgia further signaled its commitment to the data center industry through the extension of a sales and use tax exemption for data center equipment, albeit while increasing a job creation requirement for data centers. A multitude of projects are currently in planning or are underway in the Atlanta market, including Project Excalibur, a 250MW, 600-acre QTS development 20 miles south of Atlanta, which will include 16 buildings comprised of 6.6 million square feet (msf) of data center space. Construction on the project began this year and is expected to take nine years to fully complete.

ALPHARETTA

SUWANEE

LITHIA SPRINGS

METRO ATLANTA

DOUGLASVILLE

EAST POINT

● Colo

● Hyperscale Self-build

ECOSYSTEM DEVELOPMENTS

- **Microsoft** is continuing construction on its multisite campuses across East Point, Douglasville and Palmetto. After acquiring 349 acres, the hyperscaler also announced a new project dubbed "Project Firecracker" in Rome, Georgia. This additional project is estimated to go live in 2027 or 2028.

- **AWS** acquired 430 acres of land across three separate land deals, in Covington, Georgia. The submarket has been home to Meta's Georgia data centers since 2018. Earlier in the year, AWS purchased 33 acres across two deals for a planned data center in Suwanee. In May, the cloud giant opened an AWS Direct Connect location in QTS's DC1, enabling private, direct access to AWS cloud, GovCloud regions and AWS local zones.

- **QTS** continues work on its 250MW Project Excalibur in Fayetteville, while also working on the $1.3 billion Project Granite along the Atlanta BeltLine Railway. The operator also continues upgrading three data halls at its Suwanee (SUW-DC2) data center campus. The refresh will amplify the total capacity of the entire campus to 30MW. In Suwanee, QTS has enough acreage to scale their capacity to over 100MW.

- **DC Blox** filed plans for its data center campus in Rockdale County. The 750,000-square-foot (sf) development would source 216MW from Georgia Power and a hyperscaler user already committed to the first phase of the project. The operator also began construction on a 180MW Douglasville campus in November. The 55-acre site will be open to customers in the third quarter of 2025.

- **Switch** is planning a $772 million data center campus on 126 acres in Cartersville, Georgia. Named "KEEP 2.0 Atlanta North Campus," the development will join the DigitalBridge-owned operator's KEEP 1.0 campus in Douglas County, which totals 150MW and over 1 million sf.

- **Vantage Data Centers** is planning a 1.7-msf data center across three buildings in Douglasville, with a tentative delivery date at year-end 2025.

- **Flexential** announced that GPU cloud provider CoreWeave will lease 9MW of capacity at its Douglasville, Georgia data center. The 36MW campus in Douglasville delivered an initial 22.5MW and 130,000 sf at 1700 N. River Road.

RECENT PROPERTY SALES

SITE / PROPERTY	SIZE	SALE DATE	SALE PRICE (US$)	BUYER	SELLER
Covington	430 acres	Dec 2023	$36.1M	Amazon	JBW Investments
Boulder Park	95 acres	Nov 2023	$21.5M	DataBank	Strategic Real Estate Partners
River Road	55 acres	Oct 2023	$38.8M	DC Blox	Rooker ReDev
Rome	349 acres	Oct 2023	$13.9M	Microsoft	Rome-Floyd Cty Dev Auth

CONSTRUCTION & PLANNED UPDATES

OPERATOR	DATA CENTER	SIZE (SF)	POWER (MW)	STAGE - EST. DELIVERY
DataBank	ATL 4 – Phase 1 ATL 4 – Remaining Phases	20,000 180,000	4 36	U/C In Planning
DC Blox	Douglasville Conyers	750,000 750,000	180 180	U/C – Q3 2025 U/C – Q4 2025
Digital Realty	10 Forsyth 250 Williams	300,000 300,000	(Undisclosed) (Undisclosed)	In Planning In Planning
Edged Energy	Tilford Yard	210,000	180	U/C
Flexential	Douglasville – Phase 2	75,000 (est.)	13.5	In Planning
Meta	Newton – Phase 2	1,500,000	126 (est)	U/C
Microsoft	Palmetto Douglasville East Point	250,000 980,000 250,000	26 (est) 100 (est) 26 (est)	U/C U/C U/C
QTS	Project Excalibur Project Granite	6,600,000 (est) 1,150,000	700 (est) 100 (est)	U/C- 2032 (full build out) In Planning – 2025
Stack Infrastructure	Lithia Springs	130,000	12	In Planning
T5 Data Centers	Palmetto	2,950,000	(Undisclosed)	In Planning
Vantage Data Centers	Douglasville	1,700,000	150 (est.)	U/C

ATL H2 23
UNITED STATES

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AUSTIN

KEY INDICATORS*

16MW ABSORPTION (H2 2023)

85MW IN OPERATION

102MW UNDER CONSTRUCTION

10% COLO VACANCY

Definition: Key indicators are based on operational Hyperscale Cloud, Colo, Edge & Telco data center facilities in the market and excludes Captive & ICT.

MARKET OVERVIEW

As the undisputed tech hub of Texas, Austin has attracted major tech firms over the past several years thanks to its growing population, robust workforce and a steady stream of new college graduates each year. The data center market in Austin has grown in parallel, as the metropolitan area offers plenty of available land, a business-friendly environment, and a healthy repertoire of economic development incentives. Historically, colocation providers such as Digital Realty, CyrusOne and Switch, have located in the industrial areas of Southeast Austin, near Austin-Bergstrom International Airport. As major tech companies have announced office expansions in the downtown market, speculation has grown around the potential for hyperscale expansion. As a result, several major data center construction projects have recently kicked off in the Austin area, including Sabey Data Centers in Round Rock and the Skybox/Prologis builds in Pflugerville and Hutto. With more affordable land prices and flexibility of utility choice, the Pflugerville and Round Rock markets have been of particular interest for future development, including Switch's 185MW project.

ECOSYSTEM DEVELOPMENTS

- **Switch** was granted permission in October 2023 for its data center in Southeast Austin. The new 300,000-sf building would be constructed adjacent to a new Austin Energy substation and would add an estimated 36MW to the existing 60MW campus.
- **AWS** received zoning approvals for its 149-acre site in Round Rock, which will be split between data center and distribution facility uses.
- **Tesla** plans to build a data center at its Austin headquarters for a Dojo supercomputing cluster focused on training self-driving vehicles.
- **Skybox and Prologis** received city approvals for a 600MW campus, adding 3.9 million sf on the 150 acres that the partnership acquired in Hutto last year. The partnership is nearing completion of a 30MW development at its Pflugerville site, while also moving forward with plans for a second $63 million, 148,000-sf phase to the campus.
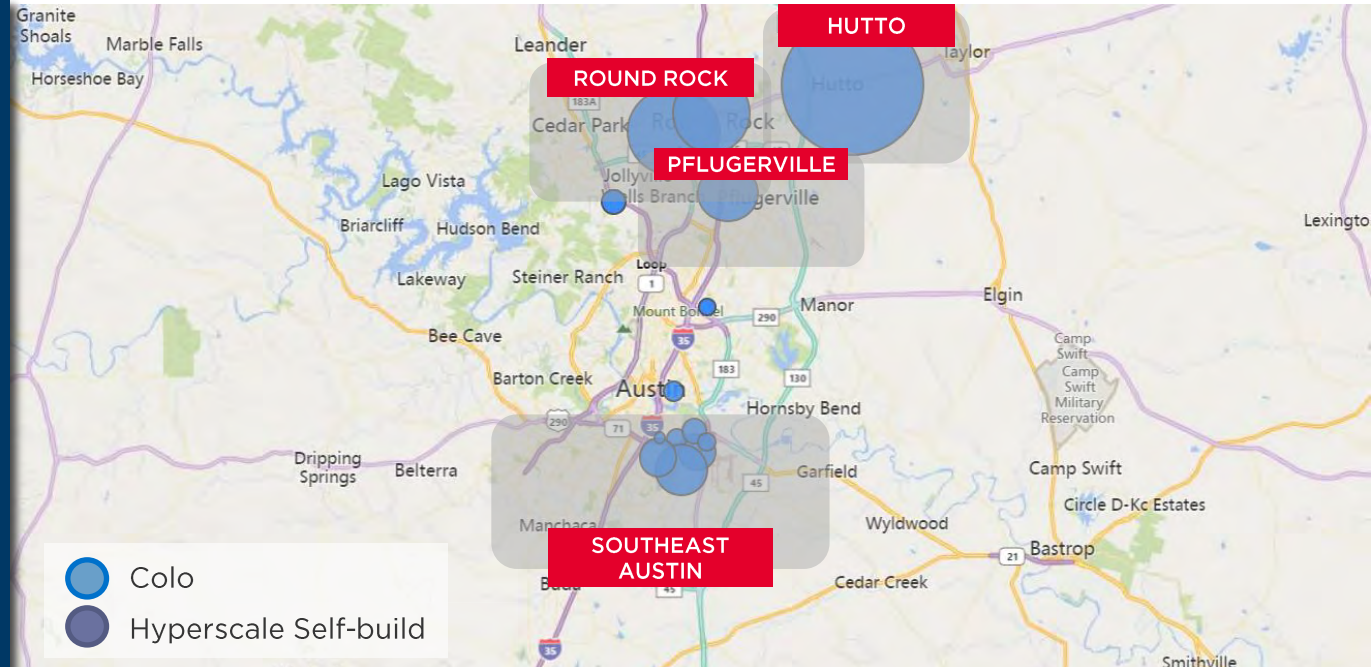
HUTTO

ROUND ROCK

PFLUGERVILLE

SOUTHEAST AUSTIN

● Colo

● Hyperscale Self-build

CONSTRUCTION & PLANNED UPDATES

OPERATOR	DATA CENTER	SIZE (SF)	POWER (MW)	STAGE - EST. DELIVERY
AWS	Round Rock	TBD	TBD	In Planning
Sabey Data Centers	Round Rock	430,000	42	Completed – Phase 1
Skybox /Prologis	Skybox Austin I – Phase 1	141,420	30	U/C
	Skybox Austin I – Phase 2	148,500	30	In Planning
	Powercampus Austin	3,900,000	600	In Planning
Switch	Round Rock	2,000,000	185 (est.)	In Planning
	Southeast Austin Exp.	300,000	36 (est.)	In Planning

CHICAGO

KEY INDICATORS*

132MW ABSORPTION (H2 2023)

742MW IN OPERATION

432MW UNDER CONSTRUCTION

4.1% VACANCY RATE

Definition: Key indicators are based on operational Hyperscale Cloud, Colo, Edge & Telco data center facilities in the market and excludes Captive & ICT.

MARKET OVERVIEW

Absorption in the Chicago market grew in the second half of 2023—from 72MW to 132MW, bringing total 2023 absorption to over twice that of 2022. Vacancy rates have fallen by a percentage point from H1 to 4.1%. The demand for data center space remains high, fueled by the significant needs of hyperscalers looking to secure large capacities of space; Microsoft, Oracle, Google, AWS, Meta, Apple and ByteDance are all currently active in the market.

As demand has grown in well-established submarkets like Elk Grove Village and Hoffman Estates, competition for available land has risen across other asset classes—mainly industrial—also vying for space in the O'Hare Industrial Corridor. New entrants into the market have had to get creative or find unfilled niches to establish themselves. CloudHQ, Aligned Data Centers and NTT have purchased defunct office campuses for demolition and redevelopment as data center campuses.

The growth of these data center clusters has led to power constraints in certain areas of the Chicago market. ComEd, the primary utility provider in Illinois, estimates that obtaining sufficient power availability in some submarkets may not occur until 2025 to 2028. Despite these challenges, land acquisitions and project approvals are still progressing.

In addition to growth in traditional submarkets by Microsoft, Edged Energy, Stream Data Centers, NTT, and TA Realty, a growing area of interest for hyperscalers has been the potential for campuses across the state line in Indiana. AWS, Google and Meta moved forward with multi-hundred megawatt campuses in Indiana in the second half of the year, taking advantage of plentiful land, power availability from Duke Energy and substantial tax incentives. Meanwhile, Microsoft moved north to establish a megacampus in Wisconsin to expand beyond its Hoffman Estates holdings.

Preleasing and leasing for new projects remains strong, as providers will seek new submarkets with available power and abundant land opportunities for further data center development.

Colo

Hyperscale Self-build

HOFFMAN ESTATES

ELK GROVE VILLAGE

NORTHLAKE

DOWNTOWN CHICAGO

AURORA
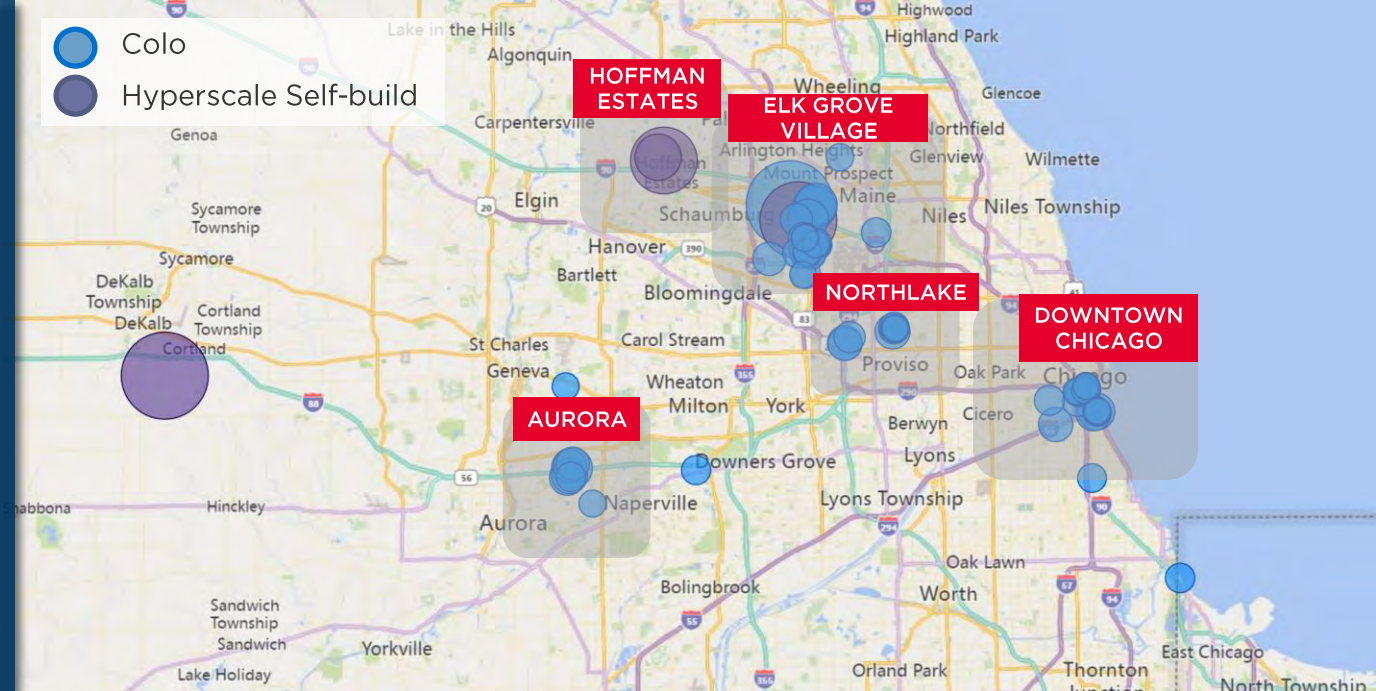
ECOSYSTEM DEVELOPMENTS

- **Brookfield Properties** acquired Cyxtera's ORD2 facility for $83.5 million. The Elk Grove Village facility was dispositioned by a Deutsche Bank affiliate after Cyxtera's bankruptcy in June 2023.
- **CyrusOne** announced plans for a third data center in Aurora, Illinois. The 428,000-sf facility, which will occupy 30 acres on Biltner Road, is under review by the local city council.
- **Microsoft** broke ground on the Mt. Pleasant site development after receiving approvals in September 2023. The 1,000-plus-acre site was formerly planned for the Foxconn manufacturing plant.
- **AWS** was granted tax abatements for data center investment and IT equipment for its planned project in Portage, Indiana, about 50 miles southeast of Chicago. The development will be a minimum investment of $35 million and include a minimum of $52 million of IT equipment over five years in the 385-acre Ameriplex business park.
- **Google** was revealed as the hyperscaler behind a 12-building, 700-acre campus in Fort Wayne, Idiana, three hours southeast of Chicago. "Project Zodiac," as it has been called, has been approved by county officials.
- **Meta** began construction on an $800 million, 619-acre data center campus in Jeffersonville, Indiana, fours hours south of Chicago. The 700,000-sf facility at the River Ridge Commerce Center will be powered by 100% renewable energy and is planned for completion in 2026.
- **NTT** bought two office buildings in Itasca, Illinois, with plans to demolish and rebuild the site for data center use. NTT already has an operational 36MW data center directly adjacent to this site.
- **Iron Mountain** initiated construction on its 330,000-sf, 36MW data center in Des Plaines, Illinois.
- **Chirisa** completed the first phase of a 30MW, 160,000-sf facility, with plans to complete the project with PowerHouse Data Centers. Chirisa also has a 50-acre site in Volo with one 30MW building operational and plans for two more.
- **T5 Data Centers** purchased a data center in Northlake. Illinois. The operators' third location in the region will bring 36MW of capacity. In 2022, T5 completed the final phase of its Chicago II facility.

RECENT PROPERTY SALES

SITE / PROPERTY	SIZE	SALE DATE	SALE PRICE (US$)	BUYER	SELLER
2425 Busse Rd	163,747 sf	Jan 2024	$83.5M	Brookfield Properties	RREEF America
11650 W Grand Ave	9 acres	Sep 2023	$14M	T5 Data Centers, Ares Mgmt	Norkol
1200 N Arlington Heights Rd	12.3 acres	Nov 2023	$27.5M	NTT	Hamilton Partners
Braun Rd (Mt Pleasant, WI)	407 acres	Dec 2023	$76M	Microsoft	Creuziger Farms
Highway H (Sturtevant, WI)	641 acres	Dec 2023	$99.7M	Microsoft	Village of Mt Pleasant
100 NW Point Blvd	22 acres	Oct 2023	$28.5M	Aligned Data Centers	ADP

CONSTRUCTION & PLANNED UPDATES

OPERATOR	DATA CENTER	SIZE (SF)	POWER (MW)	STAGE - EST. DELIVERY
Aligned	ORD-01	TBD	100	In Planning
CloudHQ	Arlington Heights	1,700,000	252	U/C
CyrusOne	Bensenville	TBD	TBD	In Planning
Digital Realty	Cermak Franklin Park	565,000 400,000	54 30 (est)	In Planning In Planning
Edged Energy	Aurora 1, 2, 3	588,240	100	U/C – Phase 1
Iron Mountain	Des Plaines	330,000	36	In Planning
Microsoft	Hoffman Estates Mt Pleasant, WI	400,000	50 (est)	In Planning
Meta	DeKalb– Phase 4	1,300,000	150 (est)	In Planning
Prime Data Centers	ORD-01 Remaining Phases	384,000 366,000	72 103	In Planning
T5 Data Centers / Metro Edge	IMD1	184,000	19.8	U/C

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COLUMBUS

KEY INDICATORS*

24.5MW ABSORPTION (H2 2023)

479MW IN OPERATION

278MW UNDER CONSTRUCTION

4% VACANCY RATE

Definition: Key indicators are based on operational Hyperscale Cloud, Colo, Edge & Telco data center facilities in the market and excludes Captive & ICT.

MARKET OVERVIEW

Columbus has become a primary hyperscaler hub for the East Coast and Midwest, as firms search for large campus opportunities. Driving the growing demand for data centers in the Columbus market is a low risk of natural disasters, affordable land, favorable tax incentives and an unregulated power market. While the Columbus region is already home to more than 50 data centers, including those owned by AWS, Google Cloud and Meta, billions of dollars in new investments are pouring into the metropolitan area.

Since the surge in AI interest, both AWS and Google have made additional multi-billion-dollar commitments to expand their self-build footprints in the market. Meta continues to build out its existing campus, while Microsoft just executed a substantial land transaction in the market. We can expect further growth, as hyperscalers seek to satisfy the gargantuan projected data demand associated with AI, which will further move Columbus into a mature data center market.

Colocation providers also have begun to set up facilities in the market. While some smaller colocation data centers had already existed, a new wave of operators arrived aiming to cater to hyperscale activity. Lincoln Rackhouse and Cologix are moving toward the delivery of assets, while both Edged Energy and Aligned Data Centers have begun new projects in Central Ohio over the past year.

Going forward, expect land prices to rise as sellers calibrate to the appetite of hyperscalers. Other asset classes have found Columbus to be a key growth market, with Honda and LG developing a 2-msf EV battery factory in Jefferson County and Intel investing $20 billion toward a chip factory in Licking County. New entrants should be aware of these well-capitalized, power-intensive use cases that will compete for parcels ideal for data center development.

Lastly, as with many other major markets, power availability is becoming a growing constraint in the New Albany cluster. Power delivery times are increasingly several years away, incentivizing operators to search for available sites farther from the development frenzy.

Colo

Hyperscale Self-build
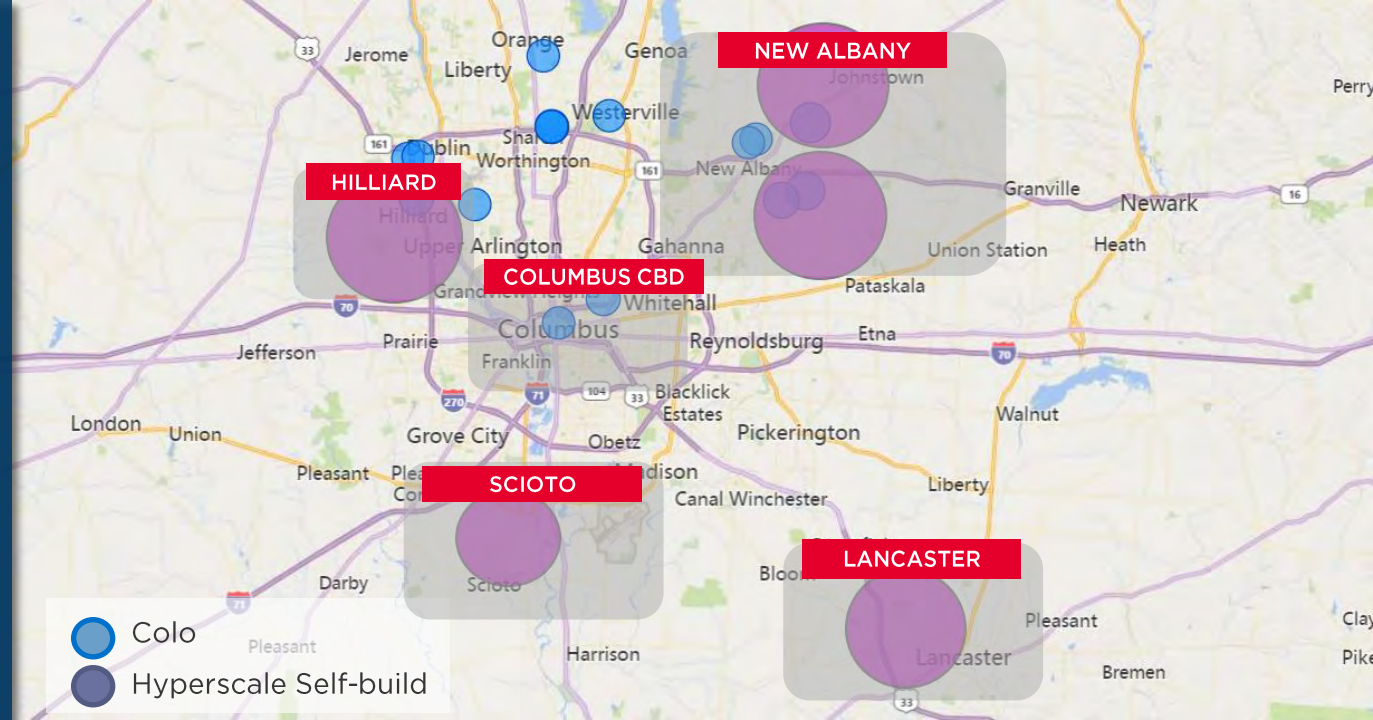
ECOSYSTEM DEVELOPMENTS

- **AWS** is rumored to have acquired an additional 230 acres in Pickaway County at the end of 2023. The hyperscaler is planning to invest $7.8 billion toward expanding its self-build footprint across Ohio by 2030. Within the New Albany area, Amazon already has approvals for five data centers totaling 1.25 million sf.

- **Microsoft** signed a 125MW solar PPA with Apex Clean Energy. The Wheatsborough Solar project is due to come online in 2025. Microsoft entered the market earlier this year with the purchase of 183 acres in New Albany. Separately, the hyperscaler is further expanding its land holdings with the sourcing of another 800 acres across multiple sites to the east of Columbus.

- **QTS** attained city approvals to add six buildings to its New Albany campus, adding 200MW and over 1 million sf in data center facilities. The colocation operator had acquired 93 acres in October 2023.

- **Aligned Data Centers** acquired an 89-acre site in Pataskala, to the east of Columbus. No details of the project are yet available. This follows an earlier transaction for the former General Motors plant (totaling 129 acres) to the north in Sandusky, OH. The data center operator is expecting to spend $202M on the redevelopment of the property towards data center uses. This northern site has an existing power feed of 80MW, with expansion to over 200MW.

- **Edged Energy** received city approvals for a 100MW facility in New Albany. The operator also purchased 15 acres nearby in January 2024. The planned projects are part of their multipronged push across North American markets.

RECENT PROPERTY SALES

SITE / PROPERTY	SIZE	SALE DATE	SALE PRICE (US$)	BUYER	SELLER
6385 New Albany Rd E	14.8 acres	Dec 2023	$4.4M	Edged Energy	(Undisclosed)
6140 Babbitt Rd	78 acres	Nov 2023	$29.3M	QTS	(Undisclosed)
Refugee Rd, Patalaska, OH	580 acres	Oct 2023	$30.7M	Microsoft	(Undisclosed)
6770 Mink St, Patalaska, OH	89.4 acres	Oct 2023	$13.9M	Aligned Data Centers	Shaffer Family Investments

CONSTRUCTION & PLANNED UPDATES

OPERATOR	DATA CENTER	SIZE (SF)	POWER (MW)	STAGE - EST. DELIVERY
AWS	Hilliard / New Albany (multi-site)	1,250,000 (est.)	Undisclosed	In Planning
Aligned Data Centers	Patalaska	Undisclosed	Undisclosed	In Planning
Edged Energy	New Albany	Undisclosed	100	U/C
Google	Columbus Lancaster	Undisclosed Undisclosed	Undisclosed Undisclosed	U/C U/C
Meta	New Albany	1,000,000 (est.)	Undisclosed	U/C
Microsoft	New Albany	Undisclosed	Undisclosed	In Planning
Lincoln Rackhouse	New Albany – Phase 1 New Albany – Phase 2 New Albany – Remaining Phases	70,000 (est.) 174,000 (est.) 1,255,000 (est.)	10 25 181	U/C U/C In Planning
Cologix	COL4-S	256,000 (est.)	27 (est.)	In Planning
DBT Development Group	New Albany	1,000,000 (est)	Undisclosed	In Planning

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DALLAS

KEY INDICATORS*

318MW ABSORPTION (H2 2023)

664MW IN OPERATION

115MW UNDER CONSTRUCTION

3.7% VACANCY RATE

Definition: Key indicators are based on operational Hyperscale Cloud, Colo, Edge & Telco data center facilities in the market and excludes Captive & ICT.

MARKET OVERVIEW

Dallas set an absorption record in 2023, totaling 386MW over the course of the year. As with many major markets, vacancies continued to remain near all-time lows, hovering at 3.7%. Over the past year, colocation rents and utility prices have risen in the market. Build-to-suit and preleasing have been a continued trend in the market, with almost all new construction promised to single users prior to initiating construction.

Wholesale leases have risen by 22%, whereas hyperscale leases have risen by 19%. Dallas remains a more affordable market than Northern Virginia or Silicon Valley, both of which have seen even more acute jumps in pricing.

South Dallas (extending into Ellis County) has been a major development cluster for developers / providers in the market, with relatively available land and power driving demand from both colocation developers and hyperscale self-builds. Joining the likes of Google and Compass Datacenters, which have already moved into the market, Skybox has begun development on a significant campus in the submarket. Compass has likewise doubled down with a large land acquisition as it continues to build out its existing campus. QTS and Databank have also secured land positions in South Dallas. Future buyers can expect land pricing to pick up in the submarket given the recent activity, with East Dallas submarkets potentially arising as an alternative area of future growth.

Demand for AI computation space has added to the interest in the market. An AI GPU Cloud computing company leased one of the few remaining large blocks of space (exceeding 10MW) in the market during the first half of the year. Rumors have suggested that Microsoft and Google, driven by their strategies for AI, are in the process of signing large deals in Dallas or the wider Texas market.

As one of the top five U.S. data center markets, Dallas looks to continue rapid growth, with strong vacancy, preleasing numbers and a deep pipeline of assets.

● Colo
● Hyperscale Self-build
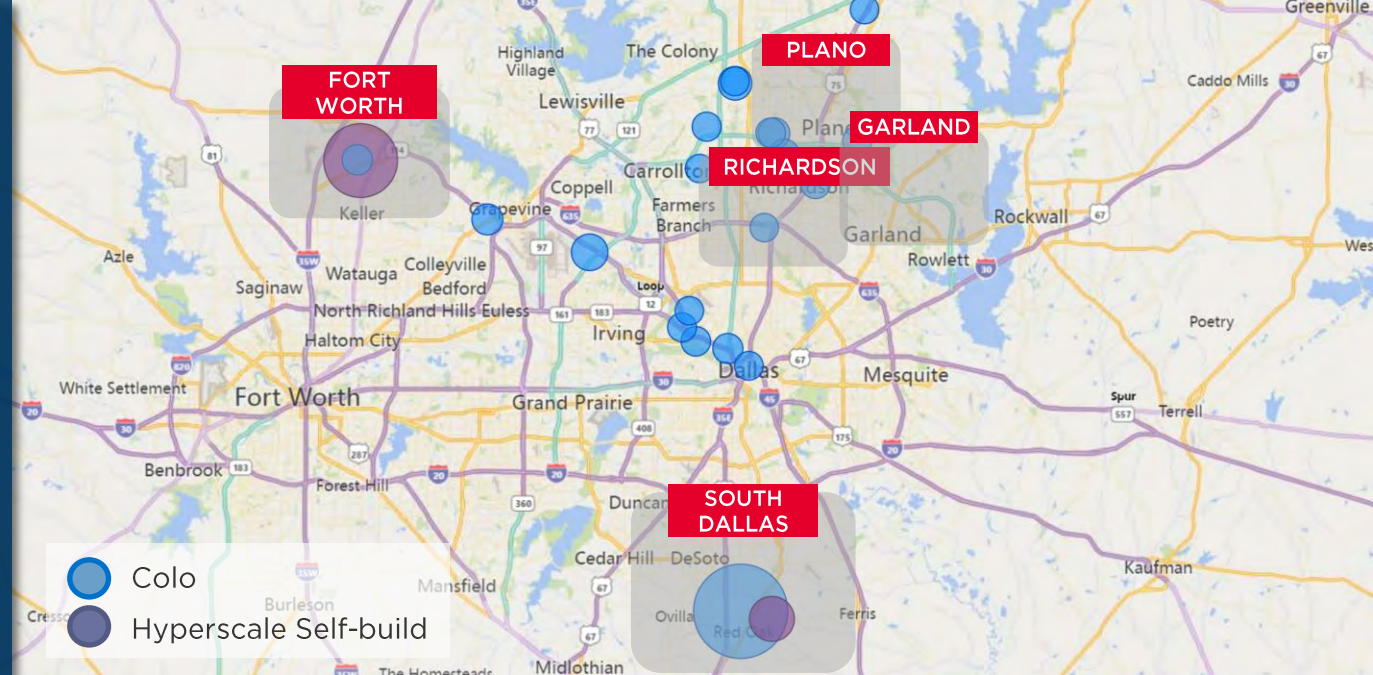
ECOSYSTEM DEVELOPMENTS

- **Google** formally announced its plans for its campus in Red Oak—a projected investment of $600 million, with $330 million expected to be invested this year. The cloud provider had signed a 150MW power agreement in South Texas with Danish energy company Ørsted earlier in the year. Located in Bee County, the Helena Wind Farm will provide renewable energy to the cloud provider's Texas assets over a 15-year agreement.

- **Meta** has been fairly active throughout Texas. The hyperscaler recently completed its Fort Worth facility and signed a 240MW power agreement with renewable energy provider Avangrid to source power from the True North solar farm near Waco. Meta is also in the process of acquiring 1,000 acres in El Paso for a five-phase development totaling 800,000 sf.

- **AWS** added a new Local Zone to Dallas, bringing the total to 16 across the United States.

- **QTS** proposed plans to expand its Fort Worth FTW1 data center, with a new 42MW building.

- **Aligned Data Centers** aims to expand its campus at 2800 Summit Avenue, constructing an addition to its existing building and planning an additional 450,000-sf facility. Additionally, the operator has proposed a third data center for the Dallas market. Plans for DFW03 outlined a 390,000-sf data center in Mansfield.

- **DataBank** plans to expand DFW3 with 3MW of additional IT capacity. The Plano facility acts as a 20MW center of connectivity for the operator to its other Dallas area data centers.

- **Skybox** proposed a 300MW, 1-msf campus in the southern part of Dallas county in collaboration with Bandera Partners. Simultaneously, the data center provider is currently working with Prologis on a 100MW build-to-suit campus in Plano. The site was formerly under the operation of NTT and boasts a 25MW substation on-site, with plenty of land for future development. Skybox has other joint ventures in the works with Prologis, including projects near Austin.

- **Stream Data Centers** is actively continuing development of their campus in Wilmer.

RECENT PROPERTY SALES

SITE / PROPERTY	SIZE	SALE DATE	SALE PRICE (US$)	BUYER	SELLER
13701 Independence Pkwy	200,000 sf	Dec 2023	(Undisclosed)	TierPoint Data Centers	Corebridge Financial
900 Guardians Way	126,000 sf	Jan 2024	(Undisclosed)	Brookfield Properties	Evoque Data Centers

CONSTRUCTION & PLANNED UPDATES

OPERATOR	DATA CENTER	SIZE (SF)	POWER (MW)	STAGE - EST. DELIVERY
Compass Datacenters	Red Oak	720,000	108	U/C
QTS	Irving	750,000	102	U/C
Equinix	DA11	114,000	28	U/C
Digital Realty	Garland & Lewisville	80,000	16	U/C
NTT	TX2 TX3	229,500 230,000	36 36	U/C U/C
QTS	FTW1 DC2	471,875	42	In Planning
Stream Data Centers	Wilmer (Dallas VIII - Phase 1)	125,000	43	U/C
Flexential	Plano	100,000	9	U/C
Skybox, Bandera Ventures	Red Oak	600,000 (est)	100	In Planning

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NORTHERN VIRGINIA + OUTLYING

KEY INDICATORS*

797MW ABSORPTION (H2 2023)

4,694MW IN OPERATION

1,540MW UNDER CONSTRUCTION

0.8% VACANCY RATE

Definition: Key indicators are based on operational Hyperscale Cloud, Colo, Edge & Telco data center facilities in the market and excludes Captive & ICT.
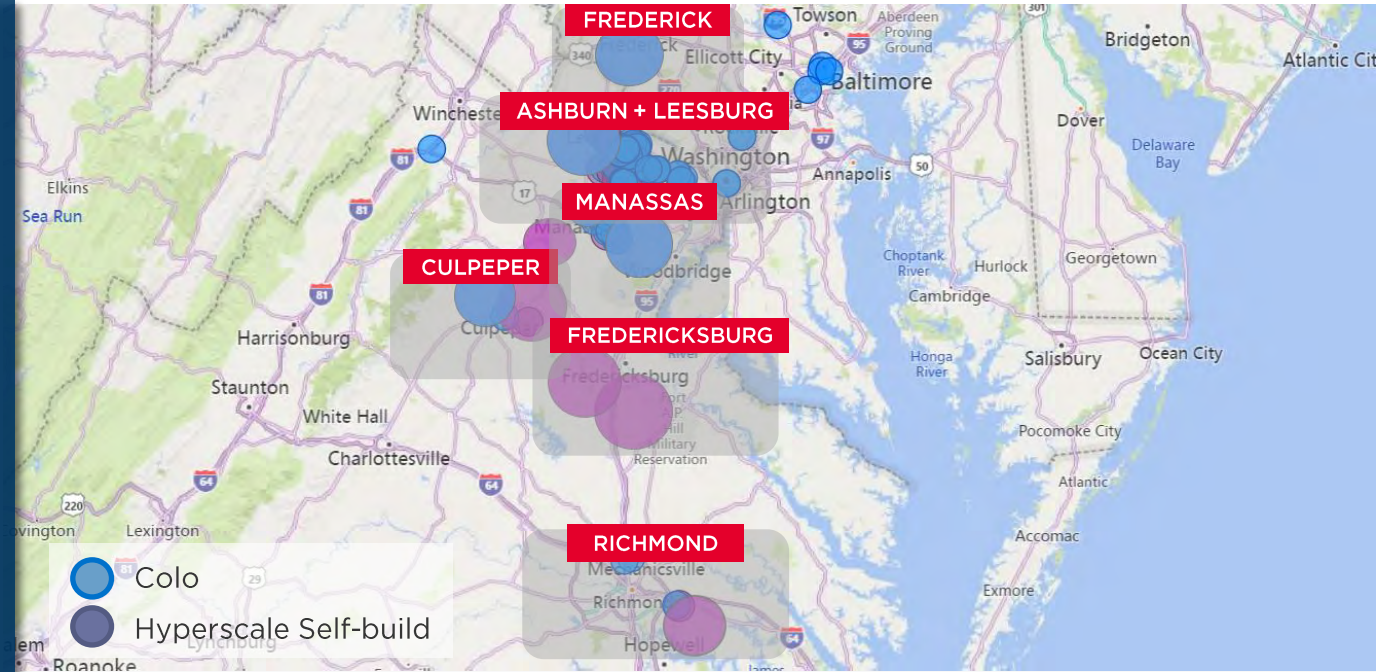
MARKET OVERVIEW

The Virginia market continued its momentum toward an expansive inventory and extremely tight vacancy. Northern Virginia reached new heights in terms of operation and pipeline capacity this year. Despite growing headwinds for land and power availability, operators continued to expand the pipeline of the market. Absorption hit a record high of 797MW in the second quarter, mostly made of preleased deliveries. Vacancy remains at an all-time low of under 1% in the market, as demand has far exceeded development. Any available land of sufficient size, with power and fiber availability, is heavily contested for either colocation or hyperscale self-build purposes. Acquiring power for any capacity over 2MW is difficult.

As infrastructure in Loudoun County is upgraded to enable distribution of sufficient power, new projects have increasingly been announced at greater distances from traditional data clusters. While data centers had previously been concentrated in Loudoun County (Ashburn and Route 50 / Arcola specifically), developments have spread in recent years to Manassas, Sterling, Herndon and Prince William County. Over the past year, developments have been announced increasingly farther afield, as developers are in search of available power and larger land sites. Projects have been announced in Warrenton, Culpeper, Spotsylvania, Caroline County and as far south as Richmond. Movement has also moved northward, as the Quantum Loophole development in Maryland attracted Aligned Data Centers, with plans for a low latency, high throughput fiber line to connect to the core NoVa data center clusters.

Pricing for both wholesale and hyperscale leases is highly dynamic, with operators seeking ever higher rates as vacancy continues to linger at record lows. Entities seeking 10MW-plus spaces are having extreme difficulty finding availability in the market today, pushing them to either wait for a new development or search elsewhere. There is occasional movement, as major tenants migrate to cloud platforms, though these are likely to be absorbed quickly.

As NoVa becomes a statewide, or even multistate market, the size of developments have exponentially increased. Both hyperscalers and colocation providers source hundreds of acres and have millions of square feet in pipelines—with the key limiting factor of securing a power commitment. Another challenge to note is growing regulatory and political pushback to data center development in certain submarkets—new entrants should be aware of community sentiment on a county and municipal level.

As large-scale campuses continued to be planned in outlying submarkets, there remain some planning for infill opportunities within traditional data center clusters like Ashburn and Beaumeade. As interest in AI soars worldwide, peripheral developments in southern Virginia, Maryland, West Virginia and North Carolina will continue to grow as latency becomes a less critical deciding factor in development. Despite these headwinds, the market is still expected to grow by several gigawatts in size over the coming years.

FREDERICK

ASHBURN + LEESBURG

MANASSAS

CULPEPER

FREDERICKSBURG

RICHMOND

Colo

Hyperscale Self-build

ECOSYSTEM DEVELOPMENTS

- **Compass Datacenters and QTS** narrowly received approval for the 2,100-acre PW Digital Gateway project, though the project now faces potential lawsuits as a result of community pushback. The sprawling development will total an astronomical 22 msf between the two developers upon full buildout.

- **AWS** filed proposals for several development sites in Stafford County (510,000 sf), Manassas (250,000 sf), Warrenton (220,000 sf), and in Spotsylvania and Caroline Counties (10 msf). In King George County, the hyperscaler received approvals for a 7.25-msf, 19-building data center campus and to build a 250,000-sf data center in Manassas. The proposal of these developments follows a $35 billion pledge by the cloud company to invest in a series of data centers throughout Virginia by 2040.

- **Microsoft** is in the process of expanding its Leesburg campus with two additional data centers. The hyperscaler has also announced plans for a 500,000-sf data center in Arcola. Microsoft has also signed a nuclear PPA with Constellation to power its Boydton data center campus.

- **Gigaland** proposed a six-data-center campus on a 200-acre parcel in Fauquier County.

- A number of state and county bills are currently being considered to regulate data center development. Loudoun County is considering the requirement of all as-of-right data center projects to undergo review by officials. The state legislature of Virginia is considering a bill to review water usage and carbon emissions of data center developments. Other bills to limit data center development in the state have not been able to proceed to a formal vote.

- **DataBank** purchased 85 acres of land in Culpeper, with expectations for 192MW of IT capacity. Dominion Energy will provide a 300MW on-site substation for the project.

- **Yondr Group** began construction on the second building in its 96MW campus in Loudoun.

- **Chirisa** plans to expand its 300-acre Meadowville campus in Richmond for a partnership with PowerHouse Data Centers. The partnership will also aim to provide a 300MW on-site substation. Additionally, GPU cloud provider Coreweave has signed a sizable lease within the 29MW asset owned by Digital Fortress and Chirisa at the Meadowville Technology Park.

- **PowerHouse Data Centers** also plans an 800MW campus in Spotsylvania County. The site will be served by three 300MW substations.

- **Peterson Companies** proposed a 2.1-msf campus in Culpeper that will cover 150 acres of rezoned land.

- **STACK Infrastructure** plans to build a 72MW campus in Leesburg to target AI and high-density users. The operator also plans to expand the 96MW campus it planned in Manassas per the requirements of a single tenant.

RECENT PROPERTY SALES

SITE / PROPERTY	SIZE	SALE DATE	SALE PRICE (US$)	BUYER	SELLER
Ashburn VA2	123,000 sf	Sep 2023	$20.3M	NTT	DBT-Data
Lafayette Tech Center	145,400 sf	Oct 2023	$43M	Menlo Equities	Digital Realty
14601 Germanna Hwy	85 acres	Oct 2023	$41.3M	DataBank	Greysteel Holdings
Vulcan Ln	140 acres	Dec 2023	$68M	Amazon	Vulcan Materials Company
10453 Wakeman Dr	20 acres	Dec 2023	$27M	Amazon	City of Manassas
Fredericksburg, VA	145 acres	Jan 2024	$10.6M	PowerHouse Data Centers	Various Parties

CONSTRUCTION & PLANNED UPDATES*

OPERATOR	DATA CENTER	SIZE (SF)	POWER (MW)	STAGE - EST. DELIVERY
AWS	Multiple Sites	18,230,000 (est.)	Undisclosed	U/C & In Planning
Microsoft	Multiple Sites	1,250,000 (est.)	Undisclosed	In Planning
Compass & QTS	PW Digital Gateway	22,000,000	Undisclosed	In Planning
Starwood Capital	Herndon	2,200,000 (est.)	Undisclosed	In Planning
CloudHQ	Multiple Sites	4,500,000 (est.)	482 (est.)	U/C & In Planning
Corscale	Gainesville	2,300,000 (est.)	306 (est.)	U/C & In Planning
Digital Realty	Multiple Sites	12,436,000 (est.)	1,144 (est.)	U/C & In Planning
Peterson Companies	Culpeper	2,000,000	600 (est.)	In Planning
NTT	Multiple Sites	970,136 (est.)	224 (est.)	In Planning
CyrusOne	Multiple Sites	595,0000 (est.)	95 (est.)	In Planning
PowerHouse Data Centers	Ashburn & Sterling	2,000,000 (est.)	461 (est.)	In Planning
Quantum Loophole	Frederick, MD	777,5000 (est.)	Undisclosed	In Planning
STACK Infrastructure	Multiple Sites	1,7000,000 (est.)	396 (est.)	U/C & In Planning
Sabey Data Centers	Multiple Sites	300,000 (est.)	42 (est.)	U/C & In Planning
The BlackChamber Group	Multiple Sites	3,100,000 (est.)	555 (est.)	In Planning

* = Highlighting key pipeline properties, not fully extensive of smaller developments or those earlier in planning process

NOVA H2 23
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NEW JERSEY / NEW YORK

KEY INDICATORS*

26.1MW ABSORPTION (H2 2023)

420MW IN OPERATION

77MW UNDER CONSTRUCTION

5.5% VACANCY RATE

Definition: Key indicators are based on operational Hyperscale Cloud, Colo, Edge & Telco data center facilities in the market and excludes Captive & ICT.

MARKET OVERVIEW

Continued demand for assets in the New York-New Jersey market has tightened vacancy to a record low 5.5%. Established national players have recently double-downed on their involvement in the market, with QTS and Equinix both moving forward with expansion plans to their existing assets in the market.

Last year, some new entrants established themselves in the market through national acquisitions. H5 Data Centers moved forward with a portfolio acquisition of seven of vXchnge's assets around the United States, including one located in Secaucus, New York. As part of its recent acquisition of ColoHouse, 1547 Realty relocated a certain amount of ColoHouse's services to its asset in Orangeburg, New York. Both Coresite and DataBank are also working to expand their presence in the market.

With the overall turbulence of the global economy, deal flow in New Jersey and New York contracted somewhat from the substantial transaction volume in 2021. Lease rates, which had been on a downward trajectory through 2021, saw upticks in pricing across different sizing backets across 2022 and 2023.

Interest in AI has been growing, with applications for the New York City financial sector being a primary demand driver in the market. The New York Department of Financial Services (DFS) has purchased a supercomputer to understand financial use cases and anticipate needed regulations. Elsewhere, other entities are determining applications for edge AI applications with low latency requirements. The market is unlikely to be a center of the larger-scale model training facilities, which will likely be focused in markets with cheaper land.

With absorption continuing apace, the New York-New Jersey data center market continues to grow at a steady pace, with continued services targeting the connectivity hub that has grown around the financial and population center of New York City.

Colo

Hyperscale Self-build
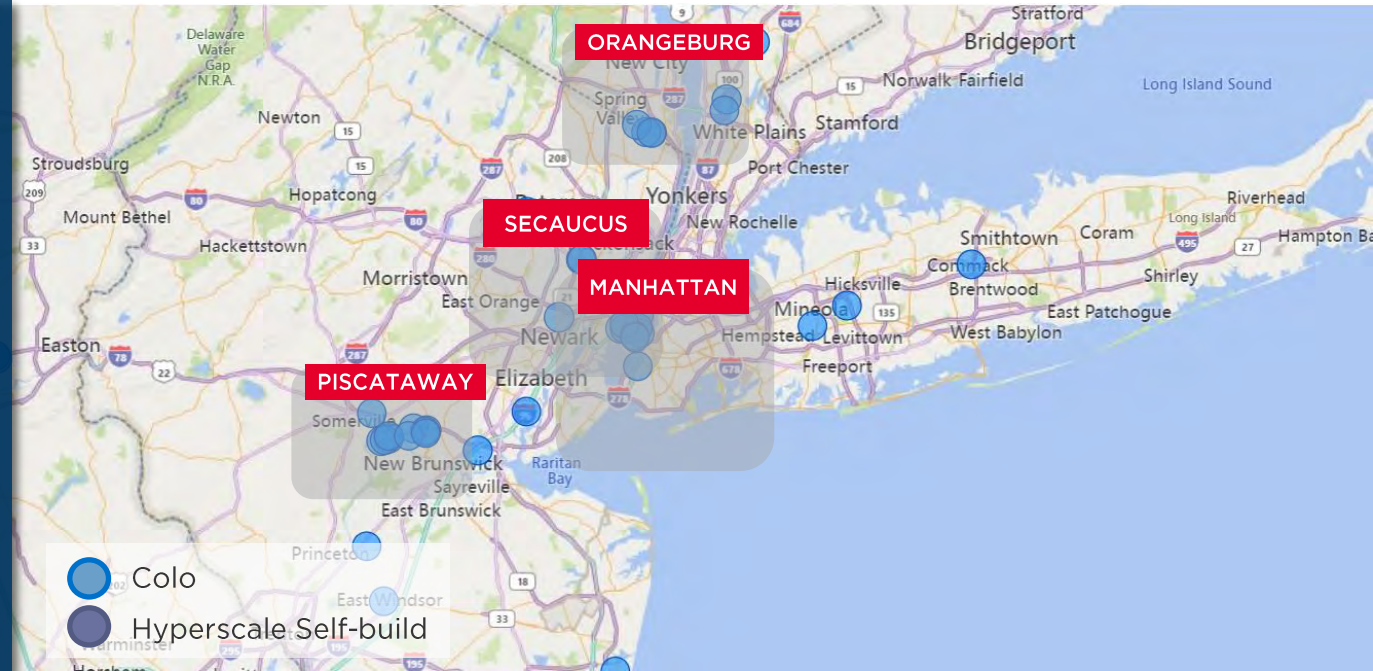
ECOSYSTEM DEVELOPMENTS

- **CoreSite** acquired approvals to build a 15MW, 85,000-sf data center in Secaucus, New York. The project is estimated to come online at the end of 2024 and be directly adjacent to CoreSite's NY2 facility.

- **Chirisa** purchased a data center from sister company Digital Fortress, with the purpose of expanding as a major data center. Construction will begin this year to build the facility up to 25MW, with a single user committing to 12MW.

- **CoreWeave**, a blockchain cloud provider now utilizing its GPU deployment for AI, signed a multbillion-dollar deal with Microsoft to provide large-scale GPU parallelized workloads. Earlier in the year, Coreweave raised over $421 million at a $2 billion valuation, as interest in AI surged. The data center provider has a data center in Weehawken, New Jersey, which serves as its U.S. east cloud region. CoreWeave has also won TierPoint for a multi-MW colocation deal, likely connected to their Hawthorne location.

- **DataVerge** renewed its Industry City lease for an additional 20 years. The facility, located at 882 Third Avenue, is a carrier hotel owned by Belvedere Capital, Jamestown and Angelo Gordon.

- **MetLife's** planned data center upgrade in Rensselaer County received a $22 million tax abatement.

- **Comcast** is looking to sale-leaseback its data center in Moorestown, New Jersey.

- **IBM** is establishing an AI computing cluster at the University of Albany. The cluster will enable extensive testing and training of AI models. IBM has another AI cluster in Yorktown Heights, which supports IBM WatsonX.

- **DigitalOcean** added Nvidia H100 GPUs to its cloud offering, including two data centers located in New York. The cloud provider purchased Paperspace, an AI/ML cloud computing startup for $111 million in July 2023.

- **Sungard Availability Services'** Ridgefield data center is up for auction. The 24,900-sf site had all legacy data center equipment removed.

CONSTRUCTION & PLANNED UPDATES

OPERATOR	DATA CENTER	SIZE (SF)	POWER (MW)	STAGE - EST. DELIVERY
QTS	Piscataway - Expansion	50,000	15	U/C
Equinix	NY11 - Expansion	Undisclosed	48	U/C
DataBank	Orangeburg	200,000	30	In Planning
CoreSite	Secaucus	85,000	15	In Planning
Chirisa	Piscataway – Expansion	Undisclosed	12	In Planning
EIP	New Britain	465,000	20	In Planning

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PHOENIX

KEY INDICATORS*

269MW ABSORPTION (H2 2023)

1,672MW IN OPERATION

235MW UNDER CONSTRUCTION

2.1% VACANCY RATE

__Definition:__ Key indicators are based on operational Hyperscale Cloud, Colo, Edge & Telco data center facilities in the market and excludes Captive & ICT.

MARKET OVERVIEW

After reaching a record level of absorption of 411MW in 2022, the Phoenix market showed no signs of slowing in 2023 as it neared 600MW absorbed. Slightly more of this absorption occurred in the first half of the year as take-up leveled to 269MW in the second half. This is likely a result of limitations on the delivery of supply as opposed to any slowing of demand. Phoenix has joined the rarified air of gigawatt-plus markets, and it has shown no sign of slowing, as hyperscalers and colocation providers alike have evaluated land sites across Mesa, Chandler, Goodyear, Glendale and Avondale.

All major U.S. hyperscalers either have an established foothold in the market or extensive plans to grow. Market colocation veterans, as well as new entrants, continue to acquire land and break ground on new developments. As established hands such as QTS, Vantage Data Centers and Aligned Data Centers continued their development pipelines, companies such as Prime Data Centers and Edged Energy announced their initial forays into the market.

With tight vacancy and many options when it comes to providers, Phoenix has quickly become the central data center hub along the West Coast. The established power grid in the market remains predominantly natural gas (52%) and nuclear (45%), however, more private solar developers continue to begin construction on new solar farms around the state.

Despite growing solar developments in surrounding areas, power—as with many markets—is becoming more constricted as competition grows for larger data center deals in the Phoenix area. Water usage has also become a critical issue for the market, as high ambient temperatures and demand for more intensive AI/HPC workloads have generally increased the requirements for more intensive water-cooling technologies. State and local governments have begun to ask data center operators to limit their water usage and have incentivized the deployment of air-cooling technologies. The confluence of these factors will likely lead to fewer high rack density deployments in the Phoenix market as compared to others, though this will likely do little to dampen the overall positive momentum of the market.

GLENDALE
GOODYEAR
PHOENIX CBD
MESA
CHANDLER

● Colo
● Hyperscale Self-build
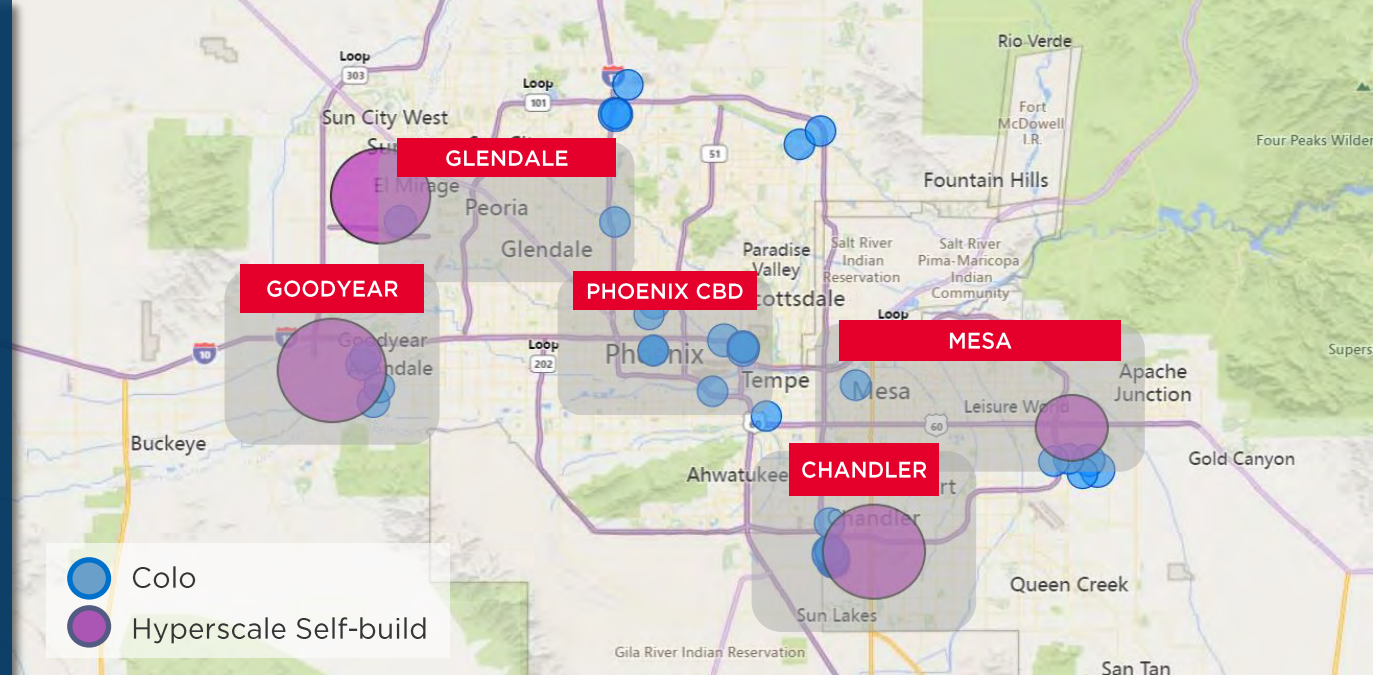
ECOSYSTEM DEVELOPMENTS

- **AWS** filed plans for two sites in Mesa for the development of four data center buildings. The two sites, totaling approximately 114 acres, were acquired in 2021. Simultaneously, AWS added a Local Zone to Phoenix earlier in 2024.
- **Google** broke ground on its 185-acre site in Mesa. The hyperscaler expects to complete the first phase of the project in the second half of 2025.
- **Menlo Equities** announced plans for a five-building campus in the Ahwatukee submarket of Phoenix. The developer plans to demolish four office buildings on a 40-acre site and include an onsite substation.
- **Meta** signed a PPA to source the majority of output from Ørsted's Eleven Mile Solar Center, which includes a 300MW solar farm and a 300MW battery storage system that is currently under construction. The energy output will be connected to Meta's data centers through the Salt River Project (SRP) grid. The hyperscaler is also due to receive 50MW from the West Line Solar Facility in Eloy, as well as some output from Brittlebush Solar Facility.
- **Novva Data Centers** filed permits to build a six-building 1.5-msf campus in Mesa. The operator acquired the 165-acre site earlier this year for $62.7 million. The site is adjacent to Meta's data center development and is indicative of the resurgence in interest in eastern submarkets as operators seek available power.
- **CyrusOne** also filed permits for a five-building 1.4-msf campus in Mesa. The 62-acre site in the Mesa Elliot Technology Park will be adjacent to data center developments by NTT, Meta, Apple and EdgeConneX.
- **Vantage Data Centers** started construction on the second data center located at its Goodyear Campus and completed the first phase of the development simultaneously. At full completion, the campus will offer 160MW of capacity for hyperscale clients. In addition, Vantage has already purchased a 34-acre site for a potential development in the Glendale submarket.
- **Stream Data Centers** is looking to expand its Goodyear campus by 200MW over four new buildings totaling 2 msf.
- **EdgeConneX** applied for approvals for a 1-msf project on a 93-acre site in Mesa. The site will be developed in three phases for a total of 100MW.
- **Partners Group**'s $1.2 billion acquisition of EdgeCore will lead to expansion of the operator's Mesa Campus to over 200MW at full buildout. The facility is designed to utilize free air cooling to reduce water usage and helped to qualify the asset for two Arizona tax incentives.
- **Involta** plans to expand its 38,000-sf facility in Tucson by 1MW.

CONSTRUCTION & PLANNED UPDATES

OPERATOR	DATA CENTER	SIZE (SF)	POWER (MW)	STAGE - EST. DELIVERY
AWS	Elliot Rd, Mesa Pecos Rd, Mesa	452,000 452,000	Undisclosed Undisclosed	In Planning In Planning
Google	Redhawk, Mesa – Phase 1 Redhawk, Mesa – Phase 2+	288,530 461,470	Undisclosed Undisclosed	U/C In Planning
Meta	Mesa	1,500,000	Undisclosed	U/C
QTS	PHX2 DC5 PHX2 Other Phases Waddell	189,000 (est) 440,000 (est) 4,500,000 (est)	24 (est) 84 (est) 768 (est)	U/C In Planning In Planning
Aligned Data Centers	PHX-06 & PHX 08	850,000 (est.)	170 (est.)	In Planning
STACK Infrastructure	Downtown Phoenix Goodyear	1,780,000 1,000,000	230 150	In Planning In Planning
PhoenixNAP	Phoenix	500,000	50	In Planning
Vantage Data Centers	Goodyear – Phase 2	240,000 (est.)	48 (est.)	U/C
EdgeCore	Mesa - Expansion	40,0000 (est.)	14 (est.)	U/C
EdgeConnex	Mesa	1,000,000	100	In Planning
Stream	Goodyear	2,000,000	200	In Planning
Prime Data Centers	Avondale – Phase 1	260,000	42	U/C

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PORTLAND / EASTERN OREGON

KEY INDICATORS*

96MW ABSORPTION (H2 2023)

1,344MW IN OPERATION

542MW UNDER CONSTRUCTION

1.8% VACANCY RATE

Definition: Key indicators are based on operational Hyperscale Cloud, Colo, Edge & Telco data center facilities in the market and excludes Captive & ICT.

MARKET OVERVIEW

Despite Portland's historical classification as a secondary market, the core market and the outlying areas in eastern Oregon have become a hotbed of development over the past several years. Plentiful renewable energy, more affordable land parcels and proximity to West Coast markets have drawn hyperscalers and colocation providers to quickly build out campuses in the area. While colocation providers have typically developed near Portland, hyperscalers have established significant self-build campuses across rural areas of eastern Oregon.

Within Portland proper, over 90% of current inventory is located within the Hillsboro data center cluster to the west of the city. QTS, Digital Realty, STACK Infrastructure, Flexential, NTT and EdgeConneX have data centers that are operational or actively under construction. Absorption in the market continued to be strong into 2023, with 150MW leased in total. With vacancy hovering around 2%, there remains strong preleasing and build-to-suit activity throughout the Portland cluster. As land and power become less available in Hillsboro, data center providers have begun to look at adjacent submarkets. Both Crane Data Centers and Rowan Data Centers have secured large hyperscale-targeted sites in the Forest Grove submarket, which is adjacent to Hillsboro.

Eastern Oregon has also become a hotspot for data centers, with Google, Amazon and Meta establishing sizable campuses in various counties. Amazon has a collection of data centers and sites across Umatilla County, and has recently announced a large-scale, multi-site expansion effort in the area. Google has been steadily expanding a campus in The Dalles since 2006. Lastly, Meta and Apple both have data centers in Prineville. In total, there are 684MW operational across these hyperscaler deployments, with over 500MW either under construction or planned.

Incentivized by renewable energy, good network connectivity, a resilient tech workforce and lower power cost, the market is primed for continued growth. New entrants to the market should be aware of increasing regulatory pushback to new data center developments, further highlighting the importance of sustainable construction and energy usage that are supportive of local communities. There remain significant opportunities across the state for growth in the data center market.

HILLSBORO

PORTLAND CBD

THE DALLES

UMATILLA

PRINEVILLE

Colo

Hyperscale Self-build
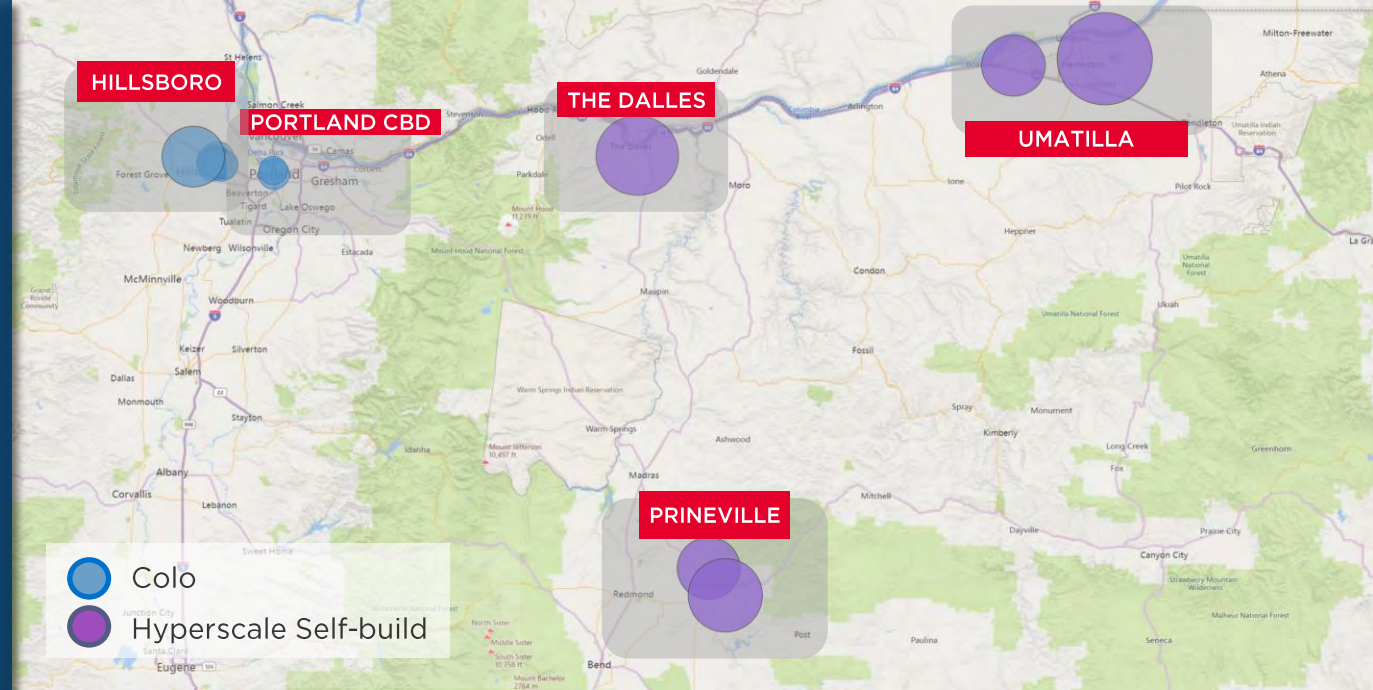
ECOSYSTEM DEVELOPMENTS

- **Amazon** signed a 98.4MW PPA utilizing wind energy in Oregon. The hyperscaler is moving forward with its east Oregon projects in Port of Morrow. The five-data-center portfolio is planned to total $12 billion in investment.

- **Apple** received approval from city officials for a $177 million expansion to its Prineville Data Center.

- **Meta** secured a power agreement for its development over the state border in Kuna, Idaho. With plans for a 960,000-sf facility, the hyperscaler is working with Idaho Public Utilities Commission to source completely renewable energy.

- **Sabey Data Centers** announced a plan for a $950 million campus in eastern Oregon. Located in Umatilla County, the 60-acre site will be home to a 715,000-sf data center with over 100MW in capacity. The development will utilize carbon-free energy and is expected to begin construction in the first quarter of 2025.

- **Washington Capital Management** sold its 87,000-sf data center to an unnamed buyer in December 2023 for $31.8 million. The facility is occupied by Oracle.

- **Aligned Data Centers** began construction on the initial 72MW phase of its proposed data center in Hillsboro. When complete, the data center should total 108MW.

- **Flexential** put forward plans for its fifth data center in the Hillsboro cluster. Totaling 36MW, the facility will include direct connections to the operator's Network Access Point (NAP) in the Pacific Northwest. The operator also is nearing completion the first phase of Hillsboro 4.

- **Crane Data Centers** continues to move forward with its 100MW development in Forest Grove. In partnership with Principal Asset Management, Crane plans two phases for a total of 300,000 sf.

- **Rowan Data Centers**, a subsidiary of Quinbrook Infrastructure Partners, is planning a 1.1-msf data center campus with four buildings in Port of Morrow. In September, the Morrow County Board of Commissioners approved the rezoning of use for the 274-acre site. The developer announced plans for a 150MW development in Forest Grove that will target hyperscale tenants.

RECENT PROPERTY SALES

SITE / PROPERTY	SIZE	SALE DATE	SALE PRICE (US$)	BUYER	SELLER
Umatilla	60 acres	Sep 2023	(Undisclosed)	Sabey Data Centers	(Undisclosed)

CONSTRUCTION & PLANNED UPDATES

OPERATOR	DATA CENTER	SIZE (SF)	POWER (MW)	STAGE - EST. DELIVERY
Amazon	Port of Morrow (Multi-phase)	TBD	TBD	In Planning
Apple	Prineville (expansion)	900,000 (est)	120 (est)	U/C
EdgeConneX	POR 03	40,000 (est)	13	U/C
Digital Realty	Hillsboro (OR2)	489,000	48	In Planning
Meta	Kuna, ID	960,000	80 (est)	In Planning
QTS	Hillsboro	1,500,000 (est)	250	U/C
Sabey Data Centers	Umatilla County	715,000 sf	100	In Planning
Stack Infrastructure	Hillsboro (Expansion)	540,000 (est)	60 (est)	In Planning
Flexential	Hillsboro 4 Hillsboro 5	138,000 358,000 (est)	18 36	Completed In Planning
1547	Pittock Block	Undisclosed	Undisclosed	In Planning
Aligned Data Centers	Hillsboro – Phase 1 Hillsboro – Phase 2	Undisclosed Undisclosed	72 36	In Planning In Planning
Crane Data Centers	Forest Grove	Undisclosed	100	In Planning

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SILICON VALLEY

KEY INDICATORS*

79MW ABSORPTION (H2 2023)

824MW IN OPERATION

315MW UNDER CONSTRUCTION

4.9% VACANCY RATE

Definition: Key indicators are based on operational Hyperscale Cloud, Colo, Edge & Telco data center facilities in the market and excludes Captive & ICT.

MARKET OVERVIEW

Despite increasing costs for power and land, the data center market in the San Francisco Bay Area remains robust and growing. While vacancies have creeped upward over the past half year, they remain under five percent – suggesting a fairly tight market. Absorption-wise, H2 2023 saw a respectable 79MW of leasing, nearly double that of the first half of the year. Power availability, as in other markets, has been challenging with utility providers having limited capacities of the needed size for the large developments currently in planning.

New developments have continued to rise from both hyperscalers and colocation providers in the market. Amazon and Microsoft have both moved forward with expansions to their footprints in the South Bay. Like other major markets, developments are continuing to move out of the traditional data center clusters and into outlying areas. Outside of Santa Clara and San Jose, several planned facilities have been announced to the Northeast in Milpitas, Fremont and Hayward. Further out, Amazon signaled interest further South down the Salinas corridor when it purchased land in Gilroy. Rumors suggest that there may also be additional developments under evaluation for North Bay industrial submarkets. Beyond the immediate Bay Area, interest continues in outlying markets with more available land such as Sacramento and Stockton.

Lease pricing in the market has seen some of the largest jumps in the country, with a 42% increase in hyperscale pricing over the course of the past year, with similar increases for wholesale and retail rents. The upward movement in pricing has only slightly reflected upon vacancies, with vacancy edging between 4.3% to 4.9%.

In terms of the effect of AI in the market, developers are generally seeking to place larger scale training facilities in more remote areas with plentiful power and affordable land costs. However, there remain certain high-performance computing (HPC) needs throughout Silicon Valley for specific industry and research sectors. Operators such as Colovore have sought to provide support for these, building out facilities that feature cutting edge infrastructure and customization.

Going forward, Silicon Valley looks to continue to rise above a challenging land and power situation to remain a top market in North America.

SAN FRANCISCO

OAKLAND

FREMONT / NEWARK

SANTA CLARA

SAN JOSE

Colo

Hyperscale Self-build
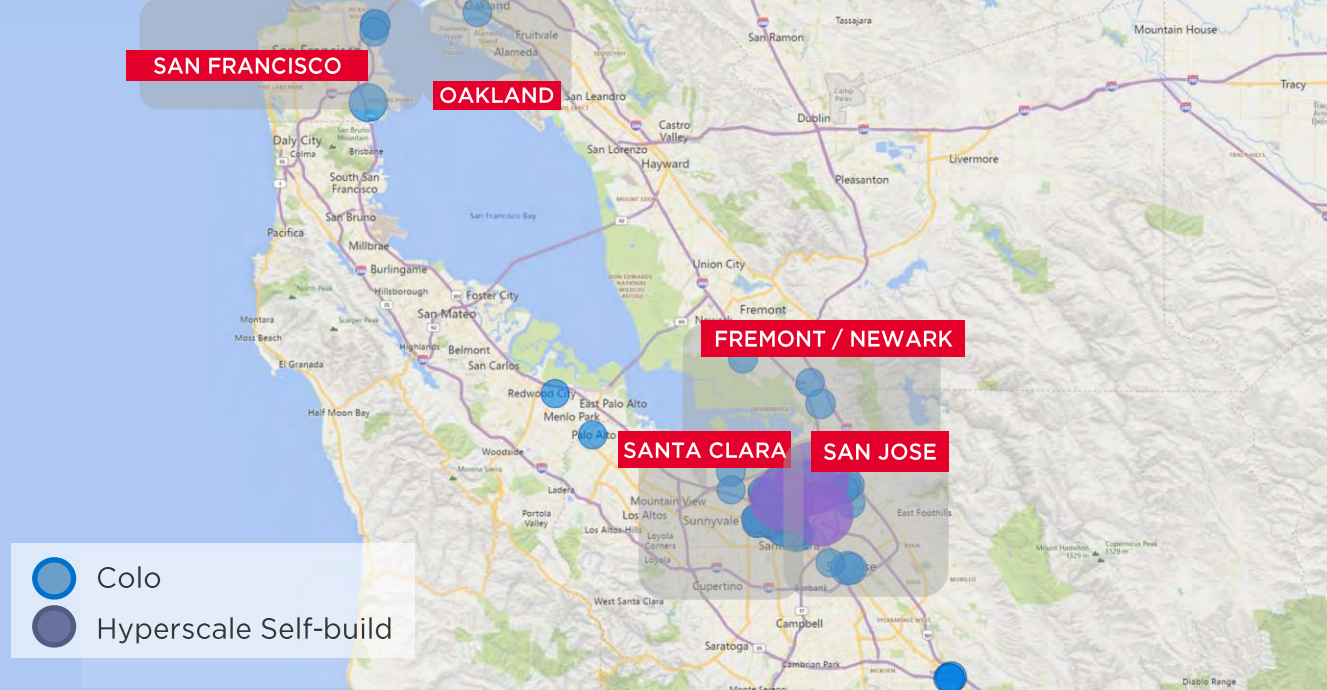
ECOSYSTEM DEVELOPMENTS

- **Amazon** recently purchased an approximately 750,000-sf industrial building in Santa Clara to be redeveloped into a three-building data center campus. The hyperscaler filed plans for the development with the city of Santa Clara. This is in addition to another Santa Clara project that is underway and a planned site in Gilroy that continues to work its way through local government approvals.
- **Microsoft** is planning to use food waste gas to supply backup power to its San Jose data center. Earlier this year, the hyperscaler submitted plans for the 65-acre site it closed on in San Jose last year, outlining two data centers that total nearly 400,000 sf each.
- **GI Partners** is planning for a 72MW data center on a five-acre site in Santa Clara. Given the small plot size, the data center is planned for four stories with an onsite substation to provide backup power as a contingency for a grid outage.
- **Silicon Valley Power** expects its data center load to double by 2035. The utility aims to tap into geothermal and battery storage, in addition to wind and solar, to increase its capacity by 1GW to 1.5GW in that time span. Recently, Google has been testing novel geothermal technologies to power data centers in Nevada.
- **Novva Data Centers** acquired a 7.5-acre site in South San Francisco. The operator plans to build a 28MW campus totaling 182,000 sf. The first 9MW is planned to launch in 2026.
- **Nautilus Technologies** secured a 2.5MW AI lease for its Stockton data center. The 7MW floating facility utilizes novel water-cooling technology that supports higher rack densities.
- **Rigetti** released the first commercially available quantum processing unit (QPU) at its facility in Fremont. While quantum computing has yet to see large-scale deployments beyond research, there remains significant promise in the areas of machine learning, cryptography and high-frequency computing.
- **Stack Infrastructure** announced plans for two facilities totaling 60MW in San Jose. The SV05 and SV06 facilities will be adjacent to the existing SV01 facility. The new development will require a rezoning from the city of San Jose. Stack also plans to establish a 100MW PG&E substation on-site along with backup generators. Additionally, Stack opened the first 6MW phase of its SV02A facility.
- **Vantage Data Centers** is planning a new development in San Jose on Nortech Parkway. Owned by Jubilee Christian Center, the 9.8-acre parcel won't be Vantage's first foray into the market: the data center provider has a 77MW operational campus and two other campuses under development already.
- **CoreSite** is moving forward with the expansion of its SV9 data center. The expansion will add 240,000 sf of new data center space and 34MW of power. The project is expected to be completed in 2024.

RECENT PROPERTY SALES

SITE / PROPERTY	SIZE	SALE DATE	SALE PRICE (US$)	BUYER	SELLER
Cyxtera Santa Clara	345,478 sf	Jan 2024	$178M	Brookfield Properties	Digital Core, Digital Realty
400 Paul Ave (Powered Shell)	7.5 acres	Dec 2023	(Undisclosed)	Novva Data Centers	CIM Group

CONSTRUCTION & PLANNED UPDATES

OPERATOR	DATA CENTER	SIZE (SF)	POWER (MW)	STAGE - EST. DELIVERY
Amazon	Santa Clara	515,742 (est)	60 (est)	U/C
	Santa Clara	TBD	TBD	In Planning
	Gilroy	438,000 (est)	98 (est)	In Planning
Cologix	SV1 – Further Phases	134,000	11	In Planning
CoreSite	SV9	240,000	34	U/C
CyrusOne	Santa Clara	288,900	67.5	U/C
Digital Realty	641 Walsh Ave – Phases 2+	430,000	48	U/C
EdgeCore	SV01	270,000	36	U/C
	SV02	270,000	36	In Planning
GI Partners	Walsh Technology Center	244,000	72	In Planning
Microsoft	Alviso-Milpitas Blvd	397,000	99 (est)	In Planning
	Orchard Pkwy	632,000	TBD	In Planning
Prime Data Centers	1111 Comstock	80,000	9	Completed
	2175 Martin	80,000	9	U/C
	2225 Martin	207,000	32	In Planning
	1231 Comstock	119,000	9	In Planning
Stack Infrastructure	SV05	515,742	30	U/C
	SV06	438,000	30	U/C
T5	Newark – Phase 2	180,000	32.1	In Planning

MARKETS
CANADA

TORONTO

KEY INDICATORS*

28MW ABSORPTION (H2 2023)

305MW IN OPERATION

41MW UNDER CONSTRUCTION

5% VACANCY RATE

Definition: Key indicators are based on operational Hyperscale Cloud, Colo, Edge & Telco data center facilities in the market and excludes Captive & ICT.

MARKET OVERVIEW

Toronto saw record absorption in 2022, totaling over 75MW over the course of the year, as several newly delivered spaces were quickly leased. While 2023 saw a slow start to leasing, activity picked up in the second half of the year to bring the total absorption to almost 36MW. Vacancy continues to hover near 5%. Going forward, with strong preleasing in the market, new deliveries are unlikely increase vacancy.

Colocation activity continues to be strong, as providers such as Digital Realty, Equinix and Cologix have steadily grown their portfolios in the market. KDDI Telehouse's purchase of Allied REIT's data centers further signaled confidence in Toronto as a key central connectivity hub—not only to U.S. markets but also in major long-haul fiber routes connecting the Pacific and Atlantic.

In terms of hyperscale deployments, both STACK Infrastructure and Compass Datacenters have been active in building out significant facilities in the market. In terms of self-build projects, only Microsoft has plans to build out a facility in Etobicoke, with other hyperscalers looking farther out to areas like Kitchener for potential options.

Land remains expensive throughout Toronto, with stiff competition from industrial users due to the concurrent expansion needs of that asset class. Difficulties with site selection have been further compounded with limited available power, particularly for hyperscale developments—and this barrier will continue to limit newly announced projects for some time. Prospective developers are having difficulty locating quality sites, leading to further delays in bringing potential capacity to market. Expect further interest in Toronto through 2024, with those able to work around site selection issues to be amply rewarded.

ECOSYSTEM DEVELOPMENTS

- **CIM Group** and **Cologix** brought a 15MW facility online. The Markham facility is the fourth Cologix facility in the market and was developed under the company's Scalelogix brand to target hyperscale users. Cologix is also in the process of expanding its TOR1 data center by 400kw and 2,400 sf.

- **OVHcloud** is close to opening a second cloud infrastructure node in Toronto. This second node is located to a number of colocation facilities in the Cambridge submarket.

- **KDDI Telehouse** acquired the Allied REIT data center portfolio for $1.02 billion. The portfolio is composed of four Toronto data centers, including: 151 Front Street, 250 Front Street and 905 King Street. The transaction will lead to the creation of the new KDDI Canada entity, with control of facilities that have key tenants, such as Equinix, Cologix and Digital Realty. In total, the Toronto portfolio will exceed 30MW when fully built out.

- **STACK Infrastructure** brought online the first phase of its development in partnership with Toronto-based First Gulf. The first phase totals 8MW, while the full buildout of the 19-acre site will total 56MW, with an estimated completion date in 2026. STACK secured hydroelectric power for the site from Toronto Hydro.

RECENT PROPERTY SALES

SITE / PROPERTY	SIZE	SALE DATE	SALE PRICE (US$)	BUYER	SELLER
151 Front St West	325,772 sf	August 2023	$673M	KDDI Telehouse	Allied Properties REIT
250 Front St West	173,000 sf	August 2023	$187M	KDDI Telehouse	Allied Properties REIT
905 King St West	103,205 sf	August 2023	$160M	KDDI Telehouse	Allied Properties REIT

CONSTRUCTION & PLANNED UPDATES

OPERATOR	DATA CENTER	SIZE (SF)	POWER (MW)	STAGE - EST. DELIVERY
STACK Infrastructure	Toronto – Phase 2 Toronto – Phase 3	300,000 (est) 300,000 (est)	24 24	In Planning In Planning
Equinix	TR7	70,000	3	U/C
Compass Datacenters	Etobicoke	214,000	30	U/C
Serverfarm	Humber Valley - Ph	80,000 (est)	8	U/C
Cologix, CIM Group	TOR4x-Phase 1	50,000	8	In Planning
Microsoft	Etobicoke	289,450	(Undisclosed)	In Planning
Urbacon Data centers	Niagara Falls (NY)	600,000	135	In Planning

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MONTREAL

KEY INDICATORS*

1MW ABSORPTION (H2 2023)

135MW IN OPERATION

30MW UNDER CONSTRUCTION

10% VACANCY RATE

Definition: Key indicators are based on operational Hyperscale Cloud, Colo, Edge & Telco data center facilities in the market and excludes Captive & ICT.

MARKET OVERVIEW

Despite the slower takeup than in many larger markets, vacancy has remained unchanged for the Montreal market at 10%. Rumored hyperscale interest in the area continues, as many have carbon-neutral pledges to fulfill before 2030, and the low-cost hydroelectric power will assist in achieving this goal. Site selection has moved away from Montreal Island in search of more available power elsewhere. Cologix and Equinix have been expanding their Montreal footprints. Enovum has been working on a sizable redevelopment, providing the market with a larger capacity opportunity that could tempt tenants to the market. Having patiently waited for hyperscale interest over the past several years, the rise of AI and sheer velocity of cloud growth may finally have drawn significant interest to the Montreal market.

ECOSYSTEM DEVELOPMENTS

- **Cologix** initiated development of MTL8, which will total 21MW at full buildout. The first phase of the 205,000 project is due for delivery in the third quarter of 2024. Under Cologix's Scalelogix branding, the development will target hyperscale customers. The campus will be fully powered by hydroelectric energy from Hydro Quebec. Separately, QIX established a Point-of-Presence (PoP) in Cologix's MTL7 data center. Additionally, Cologix closed on the acquisition of Cyxtera's 1.6MW MTL12 facility located in Verdun. The site formerly belonged to Centurylink.

- **Equinix** completed MT2 in the third quarter of 2023. The expansion consisted of the addition of 500 cabinets on top of the 500-cabinet expansion completed last year, increasing the white space of the facility by a total 37,000 sf. The facility formerly belonged to GI Partners and Stream Data Centers.

Colo

Hyperscale Self-build

RECENT PROPERTY SALES

SITE / PROPERTY	SIZE	SALE DATE	SALE PRICE (US$)	BUYER	SELLER
MTL12	8,500	Dec 2023	(Undisclosed)	Cologix	Cyxtera

CONSTRUCTION & PLANNED UPDATES

OPERATOR	DATA CENTER	SIZE (SF)	POWER (MW)	STAGE - EST. DELIVERY
Cologix	MTL8 – Phase 1 MTL – Phases 2+	29,500 90,000	3 18	U/C In Planning
Equinix	MT2 – Phase 2 MT2 – Phase 3+	30,000 (est) 180,000 (est)	3 36	U/C In Planning
Enovum	MTL1	117,000	24	U/C
Compass Datacenters	Montreal I	50,000 (est)	9	In Planning

MARKETS
LATIN AMERICA

SÃO PAULO

KEY INDICATORS*

30MW ABSORPTION (H2 2023)   **301MW** IN OPERATION   **132MW** UC   **6%** VACANCY RATE

As the primary data center hub for Brazil, São Paulo has seen rising interest from regional operators, as well as international hyperscalers and colocation providers. With a massive population (almost 20% that have yet to have internet access) and a limited number of data centers, the market makes a logical entryway into South America. Across two cable landing stations, the market has access to 10 major undersea cable routes. The market itself is fairly fiber-dense, with telecommunications companies having established metro and long-haul routes through the market.

In terms of colocation in the market, Ascenty, Equinix and ODATA have a significant footprint. Many operators are partnerships between multiple entities: Ascenty is a joint venture between Digital Realty and Brookfield; Scala Data Centers is funded by DigitalBridge; and ODATA was acquired by Aligned Data Centers in May of this year. As for hyperscalers, Microsoft announced self-perform projects in the Campinas and Hortolândia submarkets of São Paulo—its first in Latin America. AWS, Google, Huawei, Tencent and Oracle also have a cloud region footprint in the market.

As of June, Ascenty has purchased an additional 500,000 sf of land in Osasco. The operator recently sourced $1 billion in financing from Natixis, Scotiabank, Credit Agricole, Banco MUFG Brasil and Mizuho. Other entrants are increasingly establishing larger footprints, with CloudHQ announcing a 144MW three-building campus in Campinas. Ada Infrastructure, a vehicle of Singapore-based GLP, also proposed 40MW for Campinas, along with another 60MW in nearby Rio de Janeiro.

While hydropower has been a primary source of power in Brazil, recent data center developers have signed PPAs for wind power, including Microsoft, which signed an agreement for 154MW and ODATA, which bought a minority stake in a 212MW wind farm. The market will continue to see some of the largest data center development plays in the coming years.

SANTIAGO

KEY INDICATORS*

18MW ABSORPTION (H2 2023)   **190MW** IN OPERATION   **35MW UC**   **6%** VACANCY RATE

Anchoring the southern and western portions of South America, Santiago has seen substantial interest from hyperscalers and high velocity growth for its data center market. The market has access to a cable landing station, enabling six undersea connections to major markets along the Pacific coast of the Americas. Along with government incentives for enterprises to move compute loads off premises, the market's growing renewable energy has been a driver of interest. New entrants should be aware of environmental risks from potential seismic activity and changes in the national government body.

Colocation-wise, up until 2021 the market had been largely dominated by local telcos combined with modest colocation offerings. Seeking hyperscale demand, Ascenty, ODATA, Scala Data Centers and EdgeConneX have entered the market since then. Scala has planned projects for both Curauma (5MW live, 30MW at full build) and in the Chacabuco submarket of Santiago (23MW across two buildings). With funding from Stonepeak, Cirion announced plans for a 20MW development in the Quilicura Industrial District. Local telco Grupo GTD had considered an acquisition offer from Australian-based Macquarie Capital, for a 49% stake in GTD's data center business. While the deal ultimately fell through, it is representative of the strong investor interest in the Chilean market.

Google was the first hyperscaler to establish a data center in the Santiago market back in 2015 with an 80MW self-build facility. The cloud giant is expected to add over 100MW to its self-build portfolio in the Chilean market going forward. Last year, Microsoft submitted a proposal for a $317 million project in Quilicura, which will include a 26MW substation. Oracle also has a cloud region in the market. Last summer, AWS added a Local Zone to the market to join its Cloudfront Edge presence.

Chile's overall fuel mix includes renewable sources of hydroelectric, wind and solar that total nearly 50% of overall energy generation. The energy market is deregulated. With diverse renewable options, operators can seek sustainability-linked financing for data center development. EdgeConnex secured $150 million of this type of loan this past year for development in both Chile and Colombia. Going forward, Santiago is expected to see even more substantial growth, as hyperscalers widen their footprints and colocation providers begin to deliver at scale.

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MARKETS

QUERÉTARO

KEY INDICATORS*

45MW ABSORPTION (H1 2023)   **115MW** IN OPERATION   **42MW** UC   **4%** VACANCY RATE

Queretaro is Mexico's primary data center cluster, with an established presence by telcos, colocation operators and hyperscalers. Supported by strong digital infrastructure with low latency connections to both major Mexican and United States population centers, extensive government incentives and a low risk of natural disasters, the market has become the preeminent focus for developers in Central America.

Major colocation operators include Digital Realty/Brookfield-backed Ascenty, Aligned's ODATA, I Squared Capital-funded KIO Networks, Equinix and the local Telmex. Recently KIO Networks began construction on its 12MW QR02 facility, which will be targeting a hyperscale tenant. The operator also acquired additional land in the market for a third development. Last year, Ascenty and ODATA both launched new data centers in Queretaro. CloudHQ received approval for its $4 billion, 288MW campus, one of the largest in Mexico, which is slated to begin construction by the first quarter of 2024. Scala Data Centers plans to open a 5MW hyperscale leased data center in a submarket closer to Mexico City.

On the hyperscaler side, Oracle Cloud was the first entrant into the market and is currently planning to open a second region in Monterrey, in partnership with Telmex. Google and Microsoft have both confirmed plans to add cloud regions to the Queretaro market, while Amazon has announced the addition of a Local Zone.

While only 22% of the energy mix of Mexico is currently renewable (hydro, wind or solar), efforts are growing from both private players and the state of Queretaro, to increase the sustainable energy options in the market. Going forward, Queretaro will move from a cluster of singular data halls to a major data center market with significant campuses from both hyperscalers and colocation.

BOGOTA

KEY INDICATORS*

9MW ABSORPTION (H1 2023)   **30MW** IN OPERATION   **61MW** UC   **15%** VACANCY RATE

Over the past year, the Bogota market has seen a spike in interest from data center operators, as AWS announced a Local Zone for the market. Fundamentally, Colombia lies at a key crux between Central and South America, with a stable business environment, growing government incentives and higher internet penetration compared to some neighboring countries. With its central location and strong digital infrastructure, Bogota has become the primary cluster of data center development in the country. In terms of power, Bogota has more access to generation and distribution infrastructure than any other city in the country. Additionally, the presence of a free trade zone in Bogota has drawn the interest of several international data center operators.

In 2017, Equinix and ODATA entered the market, followed quickly by Ascenty, KIO Networks, Scala Data Centers and Hostdime. As colocation providers have entered, interest from hyperscale giants seeking farther South American landing pads have taken notice. Equinix recently completed its second data center in the market ahead of schedule, adding another 32,000 sf of colocation space to their footprint. Ascenty has been nearing completion of its Bogota 1 facility, with Bogota 2 scheduled for delivery next year. This year, KIO acquired a data center in the market that will provide 6MW of operational capacity at BO1. HostDime also delivered 3MW last year. The U.S-based operator Level 3 also operates three data centers across Colombia, two of which are in Bogota.

Oracle plans to host a cloud region in Colombia, in partnership with local telco Claro, which has owned and operated a number of data centers throughout Colombia.

Nearly 70% of energy in the market is drawn from hydroelectric power in the mountainous regions of the country, and there is an increased government focus to expand hydro and other renewable sources. Bogota looks to be a promising market with runway for new entrants to establish facilities in the coming years.

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