CUSHMAN & WAKEFIELD

DATA CENTER UPDATE

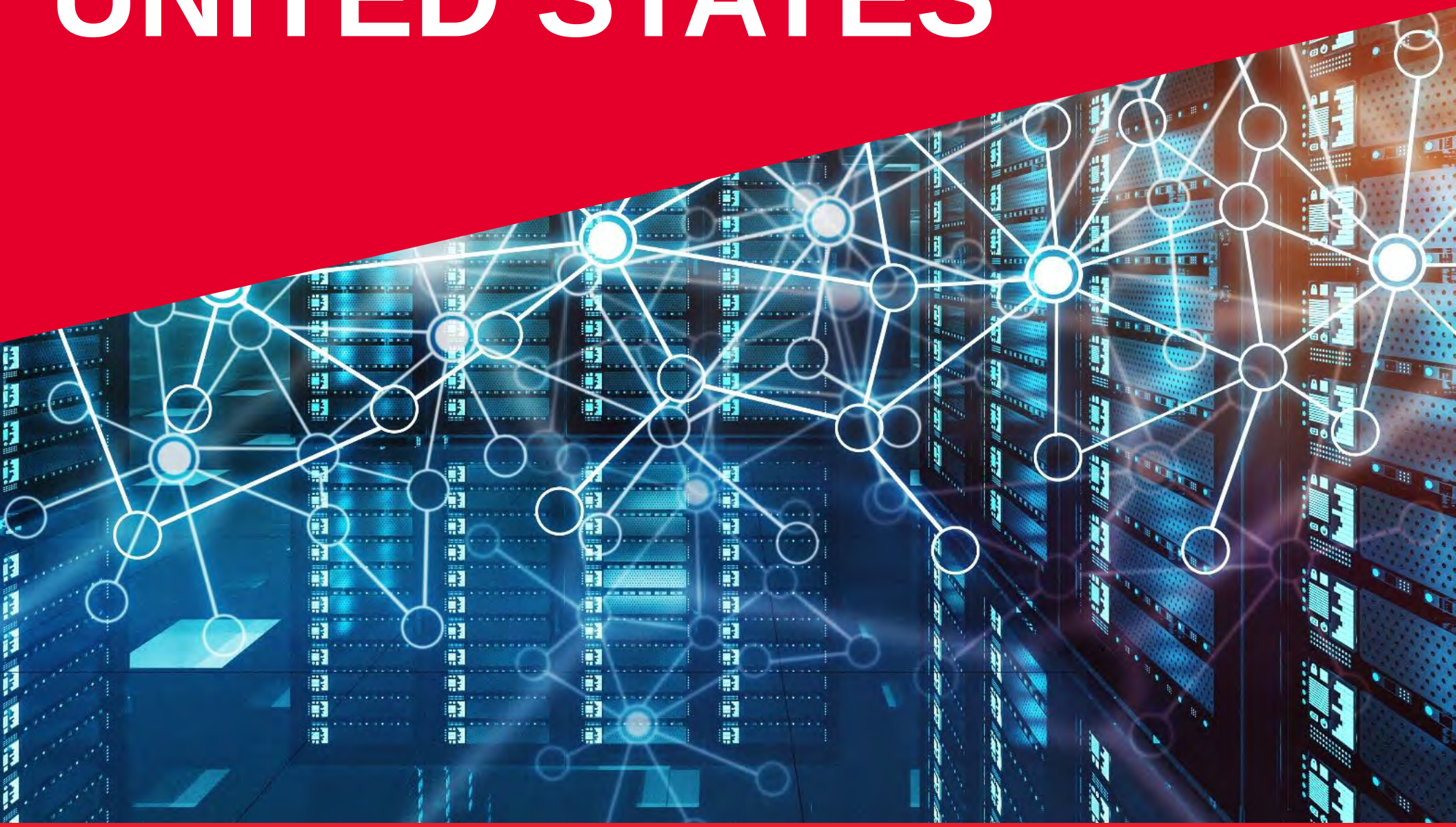
AMERICAS:
United States and Canada



CUSHMAN & WAKEFIELD

DATA CENTER UPDATE

UNITED STATES



DATA CENTER UPDATE

ATLANTA

H2 2022

CUSHMAN & WAKEFIELD

Key Indicators

Under Construction
228 MW

Vacancy
4%

Absorption (2022)
110 MW

MORE INFORMATION

John McWilliams
Senior Research Analyst
Global Data Center Advisory Group
+1 303 312 4233
john.mcwilliams@cushwake.com

Jacob Albers
Research Manager
Global Data Center Advisory Group
+1 312 424 8086
Jacob.albers@cushwake.com

GLOBAL DATA CENTER ADVISORY GROUP

Cushman & Wakefield's Data Center Advisory Group is a global team of elite professionals delivering specialized real estate solutions for mission critical users, owners, and environments. With scalability, reliability, and security as a driving force, our highly knowledgeable and responsive professionals guide clients to make effective financial decisions. Our expertise ranges includes colocation facilities, control centers, greenfields, powered shell, and trading floors. We lend additional value through our understanding of global dynamics and their impact on local markets.

©2023 Cushman & Wakefield. All rights reserved. The information contained within this report is gathered from multiple sources believed to be reliable. The information may contain errors or omissions and is presented without any warranty or representations as to its accuracy.

Market Overview

Atlanta has encountered the fate of many similarly hot markets, with absorption at just being substantial in the first half of 2022, and falling to under ten megawatts in the second half of the year due to the lack of available large-scale capacity. Vacancy has continued to tighten to just four percent, with several new phases in process by DataBank, Digital Realty, H5, and Switch, with work on the colossal Meta campus progressing rapidly. Demand has continued to grow in the Atlanta market while numerous existing operators have begun expansionary efforts to existing data center buildings to meet the increased demand. Continued growth is expected as it's driven by a growing tech presence in the market, power limitations in nearby Northern Virginia, the business-friendly disposition of the area, and heightened investor interest, among others. The state of Georgia is further signaling their commitment to the data center industry with the introduction of HB 1187 which, if passed, would extend the sales and use tax for certain high-technology data center equipment from 2028 to 2033 and add a job creation component based on county populations. A multitude of projects are currently in planning or are underway in the Atlanta market, one notable project is Project Excalibur, a 250MW, 600-acre QTS development 20 miles south of Atlanta that is planned to include 7 million square feet across 16 buildings comprised of 6.6 million square feet of data center space. Construction on the project is expected to begin in 2023 and take 9 years to fully complete.

Ecosystem Developments

- Growing demand for high-bandwidth capacity in Atlanta has prompted **Arelion** (formerly Telia Carrier) to enhance their network. Arelion added a new PoP in Switch's data center in Lithia Springs reducing the need for routing through downtown carrier hotels. The PoP is connected to Arelion's Ashburn and Dallas networks through Chattanooga.
- **QTS** has committed to renewable power in their Georgia data centers after signing a 20-year agreement with Georgia Power which will provide 350 MW of new renewable energy to the data center provider. The agreement commences in 2024, at that QTS will be 90% renewable powered and aims to reach the 100% mark in 2025.
- **Amazon AWS** in partnership with **QTS** has deployed significant levels of network infrastructure in its Atlanta data center as the hyperscaler leans on the partnership for the much-needed runway to scale. Additionally, AWS has announced a new Local Zone availability in the Atlanta market.
- **DataBank** recently acquired an 18-acre site adjacent to a Georgia Power substation where they will build a 40MW, 200 thousand square foot data center named ATL4. The site will be connected to ATL2 and ATL3, which have been expanded via dark fiber.
- **Digital Realty** is planning a fourth data center in the Atlanta market adjacent to their 56 Marietta Street property. At buildout, the new data center is planned to be a 10-story, 300,000 square foot data center with 130,000 square feet of white space.

DATA CENTER UPDATE

ATLANTA

H2 2022

CUSHMAN & WAKEFIELD

Construction Update

OPERATOR	LOCATION	SIZE (SQ FT)	POWER (MW)	STAGE / EST. DELIVERY
Digital Realty	Atlanta	41,661	2	Under Construction / Q3 2022
	250 Williams	300,000	Unknown	In Planning
Switch	Atlanta 1 (new phase bldg 1)	500,000 (est)	50	Under Construction / Q4 2022
	Atlanta 3 Sector 1	450,000	15	Under Construction / Q1 2023
	Atlanta 1 (new phase bldg 2)	400,000 (est)	35	Under Construction / Q4 2023
Meta	Social Circle	1,500,000	100 (est)	Under Construction / Q4 2023
Flexential	Douglasville	150,000	22.5	Under Construction/Unknown
H5	Atlanta	20,000	3	Under Construction/Unknown
DataBank	ATL4	200,000	40	In Planning
Digital Realty	10 Forsyth	300,000	Unknown	In Planning
Verizon	10325 Turner Rd	50,800	Unknown	In Planning
QTS	Metro Atlanta	1,150,000	100 (est)	In Planning / 2024
	Project Excalibur	6,600,000 (est)	250 (est)	In Planning / 2032 (Full Build Out)
CyrusOne	Douglasville	440,000	50	In Planning
Stack Infrastructure	Lithia Springs	130,000	12	In Planning
Microsoft	Palmetto	250,000	25 (est)	In Planning
	Douglasville	980,000	100 (est)	In Planning
	East Point	250,000	25 (est)	In Planning
T5	Lithia Springs (bldg 1)	162,500	20	In Planning / Q2 2023

Recent Site Sales

PROPERTY	SIZE (Acres)	SALE DATE	SALE PRICE	BUYER	SELLER
Farmland @ Hwy 54, Flat Creek Trl & Tyrone Rd	600	Jul-22	$153,800,000	QTS	FCDA / multiple landowners
Fulton Industrial Blvd	7	Jan-22	$1,100,000	Microsoft	Lit/Hodges Industrial Trust
Fulton Industrial Blvd	10	Jan-22	$1,000,000	Microsoft	Macq LLC
200 Selig Dr	18	May-22	$10,900,000	DataBank	Eckstein Properties

Recent Property Sales

PROPERTY	SIZE (SQ FT)	SALE DATE	SALE PRICE	BUYER	SELLER
ATL4	167,705	Feb-22	$80,000,000	Strategic Capital	Legacy Investing
4905 North Point Pkwy	185,000	Jul-22	$63,600,000	Lincoln Rackhouse / Principal Real Estate Investors	Ascent
200 Selig Dr	114,000	May-22	$10,900,000	DataBank	Lathem Time Corporation

DATA CENTER UPDATE

AUSTIN

H2 2022

CUSHMAN & WAKEFIELD

Key Indicators

Under Construction
265 MW

Vacancy
12%

Absorption (2022)
10 MW

MORE INFORMATION

Bo Bond
Executive Managing Director
Data Center Advisory Group
+1 972.663.9749
bo.bond@cushwake.com

Ali Greenwood
Executive Director
Data Center Advisory Group
+1 972.663.9750
ali.greenwood@cushwake.com

GLOBAL DATA CENTER ADVISORY GROUP

Cushman & Wakefield's Data Center Advisory Group is a global team of elite professionals delivering specialized real estate solutions for mission critical users, owners, and environments. With scalability, reliability, and security as a driving force, our highly knowledgeable and responsive professionals guide clients to make effective financial decisions. Our expertise ranges includes colocation facilities, control centers, greenfields, powered shell, and trading floors. We lend additional value through our understanding of global dynamics and their impact on local markets.

©2023 Cushman & Wakefield. All rights reserved. The information contained within this report is gathered from multiple sources believed to be reliable. The information may contain errors or omissions and is presented without any warranty or representations as to its accuracy.

Market Overview

As the undisputed tech hub of Texas, Austin has attracted major tech firms over the past several years thanks to Austin's 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. As major tech companies have announced office expansions in the downtown market, speculation has grown around the potential for hyperscale expansion in the market. As a result, two major data center construction projects have recently kicked off in the Austin area, Sabey Data Centers' build in Round Rock and the Skybox/Prologis build in Hutto. The Pflugerville / Round Rock markets have been of particular interest to future development, including Switch's 163 MW project, drawn by more affordable land prices and flexibility of utility choice.

Ecosystem Developments

- **Sabey Data Centers** recently began construction on a new 72MW data center campus in Round Rock. The 40-acre development will host a facility designed to accommodate hyperscale deployment and enterprise customers. The project includes a $1 million incentive contingent upon Sabey investing a minimum of $185 million in real estate improvements, $5 million in new equipment, and the creation of 20 jobs.
- Texas-based **LOGIX Fiber Networks** has signed an agreement with Sabey Data Centers to provide a network connection to their upcoming Round Rock Campus. The LOGIX network is more than 295,000 fiber miles and connects to 100 on-net data centers.
- **Skybox** and **Prologis** partnered in the purchase of 220 acres of land from the City of Hutto where they plan to build a data center campus. The land is part of the Hutto "Megasite".
- **EDP Renewables** announced plans for two solar farms in Milam County, approximately 60 miles northeast of Austin. The Cattlemen I and Cattlemen II Solar Parks will have installed capacities of 240MW and 150MW, respectively when completed in 2023 & 2024.
- **Meta** has signed a power purchase agreement with EDP Renewables to source 159MW of power from the soon-to-be constructed 240MW Cattlemen I Solar Park in nearby Milam County. Development was paused on the site in December 2022 as Meta implemented design changes to the facility.

Construction Update

OPERATOR	LOCATION	SIZE (SQ FT)	POWER (MW)	STAGE / EST. DELIVERY
Sabey Data Centers	Round Rock	430,000	72	Under Construction / Q2 2023
Skybox/Prologis	Skybox Austin I	141,420	30	Under Construction / Undisclosed
Switch	Round Rock	1,500,000	163 (est.)	Under Construction / Undisclosed
Undisclosed	Hutto Mega Tech Center	Undisclosed	Undisclosed	In Planning

Recent Site Sales

PROPERTY	SIZE (Acres)	SALE DATE	SALE PRICE	BUYER	SELLER
Hutto Data Center Campus	220	Aug-22	Undisclosed	Skybox / Prologis	The City of Hutto

DATA CENTER UPDATE

CHICAGO

H2 2022

Key Indicators

Under Construction
399 MW

Vacancy
5.5%

Absorption (2022)
166 MW

MORE INFORMATION

Alex Smith
Executive Vice Chair
Global Data Center Advisory Group
+1 312 470 3841
Alex.smith@cushwake.com

Jacob Albers
Research Manager
Global Data Center Advisory Group
+1 312 424 8086
Jacob.albers@cushwake.com

GLOBAL DATA CENTER ADVISORY GROUP

Cushman & Wakefield's Data Center Advisory Group is a global team of elite professionals delivering specialized real estate solutions for mission critical users, owners, and environments. With scalability, reliability, and security as a driving force, our highly knowledgeable and responsive professionals guide clients to make effective financial decisions. Our expertise ranges includes colocation facilities, control centers, greenfields, powered shell, and trading floors. We lend additional value through our understanding of global dynamics and their impact on local markets.

©2023 Cushman & Wakefield. All rights reserved. The information contained within this report is gathered from multiple sources believed to be reliable. The information may contain errors or omissions and is presented without any warranty or representations as to its accuracy.

Market Overview

Chicago experienced over a 100MW of absorption in 2022, much of that occurring at the beginning of the year coinciding hyperscale demand consuming large amounts of available space. While four key deliveries did occur during the year, demand drove vacancy down to a new record low of 5.5%. Aligned Data Centers, Skybox, NTT and Stream Data Centers added nearly 100 MW in total capacity to the Chicago market. A major gaming company is rumored to have leased 16 MW from Stream's new facility, while a major American bank leased 8 MW from T5. Hyperscalers and colocation providers are rapidly continuing with new projects and expansions. Meta announced a new, larger phase to their development in DeKalb County, while Microsoft has continued to work on its collection of projects across Hoffman Estates and Elk Grove Village.

As demand in well-established submarkets such as Elk Grove Village and Hoffman Estates has grown, competition for available land has risen, with competition from other (mostly industrial) asset classes continuing to demand acreage in the O'Hare Industrial Corridor. These submarkets have been in continued demand due to available power, as evidenced by Microsoft's establishment of three availability zones. New entrants into the market have had to get creative or pick a niche that remains unfilled in the market. One prime example of this, is CloudHQ's massive 252MW new planned campus in Mount Prospect which was previously United Airlines operations center. As Chicago continues its march to a full 1GW market, expect new clusters of development in submarkets which are adjacent to established data center areas.

Ecosystem Developments

- **CloudHQ** initiated construction of its 252MW Mount Prospect campus in Q3 2022. The data center provider plans to build three 560,00 sf structures, with the first building slated for delivery in 2024. The second and third buildings are expected three and five years after delivery of the first. ComEd plans to install a new substation and high voltage lines to support the project. Pre-leasing for the initial phases have been rumored to be strong.
- In November, **Prime Data Centers** broke ground on its 175MW capacity facility in Elk Grove Village. Targeting a single hyperscale tenant, the 750,000 sf facility's first phase will encompass 72MW at approximately 384,000 sf. Two following phases will complete the buildout.
- **Digital Realty** has announced plans for a data center in Downtown Chicago, along with a zoning approval from the city. The site will support 54MW across 565,000 sf of space in a thirteen-storey building. The site is adjacent to Digital Realty's carrier hotel at 350 Cermak. The REIT is also planning on breaking ground on an expansion to its Franklin Park campus, with a new substation launched from ComEd.
- **Oracle** opened a new cloud region in Chicago, its fourth in the United States. Oracle Cloud also deployed a FastConnect cloud on-ramp at Digital Realty's facility.
- **QTS** and **AWS** announced that QTS's Chicago data center was one of three in the United States that will house key network infrastructure components for AWS.

DATA CENTER UPDATE

CHICAGO

H2 2022

CUSHMAN & WAKEFIELD

Construction Update

OPERATOR	LOCATION	SIZE (SQ FT)	POWER (MW)	STAGE / EST. DELIVERY
NTT	CH1	42,000	12	Completed (Leased) / Q2 2022
Stream Data Centers	Chicago II	226,724	4	Completed (Leased) / Q2 2022
Aligned	ORD-01 – Phase 1 ORD-02 – Phase 1	220,000 228,768	48 36	Completed (Leased) / Q2 2022 Under Construction
Meta	DeKalb – Phase 1 DeKalb – Phase 2	907,000 1,300,000	100 (est) 150 (est)	Under Construction / Q1 2023 In Planning
Microsoft	Elk Grove Village Hoffman Estates	414,000 400,000	30 50	Under Construction In Planning
EdgeConneX	Elk Grove Village	167,000	22	Under Construction / Q4 2023
1547/CIM Group	Chicago	52,000	5	In Planning
Digital Realty	Cermak Franklin Park	565,000 400,000	54 30 (est.)	Under Construction / 2024 In Planning
Prime Data Centers	ORD-01 Remaining Phases	384,000 366,000	72 103	In Planning In Planning
CloudHQ	Arlington Heights	1,700,000	252	Under Construction / 2024
Skybox	Elk Grove Village	189,000	30	Completed / Q1 2022
Iron Mountain	Des Plaines	330,000	36	In Planning
T5 Data Centers	Chicago II Metro Edge	140,000 Undisclosed	20 21	Completed (Leased) / Q4 2022 In Planning

Recent Site Sales

PROPERTY	SIZE (Acres)	SALE DATE	SALE PRICE	BUYER	SELLER
1520-1700 Midway Ct, Elk Grove Village,	5.0	June-22	$13,500,000	Prime Data Centers	City of Elk Grove Village
Lunt Ave, Elk Grove Village	1.1	Dec-22	$2,250,000	Stream Data Centers	Bartello Property Co.
Busse & Bryn Mawr, Bensenville	20.6	Sept-22	$54,228,500	CyrusOne	(residential land owners)

Recent Property Sales

PROPERTY	SIZE (SQ FT)	SALE DATE	SALE PRICE	BUYER	SELLER
Two Assets (Chicago)	296,944	Jan-22	$42,000,000	Harrison Street Capital	CIM

DATA CENTER UPDATE

COLUMBUS

H2 2022

CUSHMAN & WAKEFIELD

Key Indicators

Under Construction
144 MW

Vacancy
1.9%

Absorption (2022)
0 MW

MORE INFORMATION

John McWilliams
Senior Research Analyst
Global Data Center Advisory Group
+1 303 312 4233
john.mcwilliams@cushwake.com

Jacob Albers
Research Manager
Global Data Center Advisory Group
+1 312 424 8086
jacob.albers@cushwake.com

GLOBAL DATA CENTER ADVISORY GROUP

Cushman & Wakefield's Data Center Advisory Group is a global team of elite professionals delivering specialized real estate solutions for mission critical users, owners, and environments. With scalability, reliability, and security as a driving force, our highly knowledgeable and responsive professionals guide clients to make effective financial decisions. Our expertise ranges includes colocation facilities, control centers, greenfields, powered shell, and trading floors. We lend additional value through our understanding of global dynamics and their impact on local markets.

©2023 Cushman & Wakefield. All rights reserved. The information contained within this report is gathered from multiple sources believed to be reliable. The information may contain errors or omissions and is presented without any warranty or representations as to its accuracy.

Market Overview

Columbus is experiencing rapid growth and attracting wide interest from hyperscalers, developers, and providers and along with them, a healthy degree of investment capital. 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 as well as its relatively central location between Chicago and Northern Virginia. 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. One of the highest single investments comes from Washington, D.C. based DBT Development Group who is planning a $1 billion project in New Albany that will span up to 1 million square feet on 93 acres when complete. Google has also previously made a billion-dollar commitment with the expansion of its data center operations in New Albany and the opening of their new cloud region as they aim to capture rising demand.

Vacancy is extremely tight for a young market like Columbus, at 1.9%. As tenants await large deployments on the horizon, expect absorption numbers to jump as deliveries arrive.

Ecosystem Developments

- **Lincoln Property Company** and **Harrison Street** entered a joint venture to develop a 144MW, 1.2 million square foot data center campus in New Albany. The campus will include an on-site 200MVA electrical sub-station and construction is already underway.
- **Google's** new cloud region in Columbus (us-east5) is now open offering immediate access to three zones.
- **Cologix,** under their **Scalelogix** brand**,** announced a $150 million expansion to their Worthington Woods Boulevard campus that will add an additional 36 MW of power.

Construction Update

OPERATOR	LOCATION	SIZE (SQ FT)	POWER (MW)	STAGE / EST. DELIVERY
Lincoln Rackhouse	New Albany	1,200,000 (est)	144 (est)	Under Construction / Q2 2023
Google	Columbus	150,000	Undisclosed	Under Construction / Q4 2025
Meta	New Albany	1,000,000 (est)	Undisclosed	In Planning / 2028
Scalelogix	Columbus	256,000	36 (est)	In Planning
DBT Development Group	New Albany	1,000,000 (est)	Undisclosed	In Planning
Amazon AWS	Hilliard	Undisclosed	Undisclosed	In Planning

Recent Site Sales

PROPERTY	SIZE (Acres)	SALE DATE	SALE PRICE	BUYER	SELLER
Jug Rd, New Albany	191	May-22	$23,502,000	LPC / Harrison Street	The New Albany Company
Jug St & Mink St, Johnstown	93	Aug-22	$20,754,700	DBT Dev Group	MBJ Holdings LLC

DATA CENTER UPDATE

DALLAS

H2 2022

Key Indicators

Under Construction
255 MW

Vacancy
3.8%

Absorption (2022)
272 MW

MORE INFORMATION

Bo Bond
Executive Managing Director
Global Data Center Advisory Group
+1 972 663 9749
bo.bond@cushwake.com

Ali Greenwood
Executive Director
Global Data Center Advisory Group
+1 972 663 9750
ali.greenwood@cushwake.com

GLOBAL DATA CENTER ADVISORY GROUP

Cushman & Wakefield's Data Center Advisory Group is a global team of elite professionals delivering specialized real estate solutions for mission critical users, owners, and environments. With scalability, reliability, and security as a driving force, our highly knowledgeable and responsive professionals guide clients to make effective financial decisions. Our expertise ranges includes colocation facilities, control centers, greenfields, powered shell, and trading floors. We lend additional value through our understanding of global dynamics and their impact on local markets.

©2023 Cushman & Wakefield. All rights reserved. The information contained within this report is gathered from multiple sources believed to be reliable. The information may contain errors or omissions and is presented without any warranty or representations as to its accuracy.

Market Overview

In 2022, the DFW market hit a record amount of absorption, with more than 272 MW let to a wide-range of industry verticals, including cloud, social media, financial services, and insurance companies. High demand from hyperscale and enterprise users has pushed the vacancy rate below 7.5%, with much of the vacancy consisting of second and third generation data center space. The market also experienced a land rush in the southern sector of Dallas County for all asset types, including data center. Rising costs of capital will upset this trend and could slow speculative developments in the region in 2023.

With vacancy evaporating and the stalling of new development starts, rents will likely increase at a moderate pace throughout the year. DFW enters 2023 with a robust pipeline, with 255 MW currently under construction, including both enterprise and hyperscale builds. Despite the strong development pipeline, vacancy rates will remain low as developers tailor their expansion plans, often pre-leasing full buildings before kicking off future construction.

Ecosystem Developments

- **Digital Realty Trust** saw extensive activity this year on both the development and capital markets fronts. In terms of development, Digital Realty completed its 10MW project in Richardson.
- **Compass Data Centers** broke ground on a three building, 102 MW campus in Red Oak that was pre-leased to a hyperscaler.
- **NTT** started construction on TX1 and TX2, a 72MW campus that was pre-leased to a hyperscaler.
- **CyrusOne** sourced 40MW of renewable energy for their North Dallas facilities via wind and solar power provided by Gexa Energy.
- **Stream Data Centers** purchased 65 acres for data center development South of Dallas in Wilmer. Shortly after, Stream announced plans for DFW-VIII - a 90MW, 690,000 sf campus targeting hyperscale tenants. The firm broke ground on the first phase of the project at the end of 2022.
- **VPLS** acquired Carrier-1's 5MW data center in Northwest Dallas. The 106,000 sf asset is potentially expandable to more than 10MW.
- **Uniti Group** will add two new US fibre routes next year, ultimately connecting Dallas, Atlanta, Ashburn, Little Rock, Memphis and Raleigh. **Arelion** launched fiber service between Dallas, El Paso, Phoenix, San Diego and Los Angeles.

DATA CENTER UPDATE

DALLAS

H2 2022

CUSHMAN & WAKEFIELD

Construction Update

OPERATOR	LOCATION	SIZE (SQ FT)	POWER (MW)	STAGE / EST. DELIVERY
Compass Data Centers	Red Oak	720,000	102	Under Construction / Q4 2023
QTS	Fort Worth Irving (DC3)	640,000 36,000	Undisclosed 6	Under Construction / Q2 2023 Under Construction
Equinix	Dallas	72,000	20	Under Construction / Q2 2023
Digital Realty	Richardson	38,108	10	Complete / Q4 2022
Amazon	DeSoto	29,840	Undisclosed	In Planning
NTT	Garland (TX1, TX2)	459,000	72	Under Construction / Q1 2024
Stream Data Centers	Wilmer (Dallas VIII - Phase 1)	125,000	43	Under Construction / Q2 2023
Databank	Plano (DFW3)	16,000	3	Under Construction
Flexential	Plano	100,000	9	Under Construction

Recent Property Sales

PROPERTY	SIZE (SQ FT)	SALE DATE	SALE PRICE	BUYER	SELLER
1515 Round Table Drive, Dallas	106,000	Apr-22	Undisclosed	VPLS	Carrier-1
11830 Webb Chapel Road, Dallas	370,000	Aug-22	$205,000,000	Evoque Data Centers	Digital Realty

DATA CENTER UPDATE

DENVER

H2 2022

Key Indicators

Under Construction
19.5 MW

Vacancy
17.5%

Absorption (2022)
9 MW

MORE INFORMATION

John McWilliams
Senior Research Analyst
Global Data Center Advisory Group
+1 303 312 4233
john.mcwilliams@cushwake.com

Jacob Albers
Research Manager
Global Data Center Advisory Group
+1 312 424 8086
jacob.albers@cushwake.com

GLOBAL DATA CENTER ADVISORY GROUP

Cushman & Wakefield's Data Center Advisory Group is a global team of elite professionals delivering specialized real estate solutions for mission critical users, owners, and environments. With scalability, reliability, and security as a driving force, our highly knowledgeable and responsive professionals guide clients to make effective financial decisions. Our expertise ranges includes colocation facilities, control centers, greenfields, powered shell, and trading floors. We lend additional value through our understanding of global dynamics and their impact on local markets.

©2023 Cushman & Wakefield. All rights reserved. The information contained within this report is gathered from multiple sources believed to be reliable. The information may contain errors or omissions and is presented without any warranty or representations as to its accuracy.

Market Overview

The Denver data center market has been capturing a wide variety of interest and activity recently. Denver has an edge over more established markets like Silicon Valley or Northern Virginia in that cost of power, cost of land, and cost of construction are lower, environmental risks are not as high, and the central location grants access to a plethora of networks. However, the incentive environment leaves much to be desired. Should the state decide to implement an incentive plan akin to nearby regionally competitive states such as Arizona, Utah, or Nevada it could catalyze development in the market and edge Denver toward rapidly becoming a tier-1 market.

Existing operators are expanding their presence, new operators are entering the market, investors are targeting stabilized assets, and the first hyperscaler land purchase has now taken place. QTS, a Blackstone-backed colocation provider, entered the Denver market with a 67-acre land purchase in Aurora, as did Microsoft with a 260-acre land purchase, Flexential announced a 4.5MW expansion to their data center in Englewood, DataBank acquired a data center it was previously leasing with an adjacent property where they plan to build DEN5, Landmark Dividend acquired a data center from GI Partners which is leased to TIAA-CREF and Strategic acquired a single-tenant facility with a 15-year lease in place. In the absence of a bonafide incentive program, future large-scale development will likely take place in Aurora where Microsoft and QTS acquired land as local utilities offer discounted power.

Ecosystem Developments

- **Microsoft** has purchased 260 acres of land for $63.5 million in Aurora, south of Denver International Airport, where the company plans to build a data center. Microsoft's purchase marks the first large site purchase for a hyperscale data center user in the Denver market.
- **QTS** has purchased 67 acres of land directly north of the JPMorgan Chase data center along Gun Club Rd. While the project is currently in its planning phase, at full build out QTS plans 177MWs of power capacity.
- Following their earlier acquisition of the data center/office property at 1500 Champa, **IPI Partners** has launched a new data center company called **RadiusDC** focused on metro edge facilities. The 1500 Champa property is currently expanding up to 10MW of capacity and should be complete by the end of 2022.
- **DataBank** acquired DEN2 which they were previously leasing in Centennial, allowing them to consolidate the property with their adjoining property where they're redeveloping a light industrial building into a 108,000 square foot building with 15MW of capacity called DEN5. The two properties combined will make up DataBanks "Centennial Campus" spanning 11 acres and a total capacity of 20MW.
- **Flexential** has a data center undergoing expansion on S Peoria St which will bring the total capacity of the building to 11.25MW by the end of 2022.

DATA CENTER UPDATE

DENVER

H2 2022

CUSHMAN & WAKEFIELD

Overview Continued

A possibility to consider for Aurora is that the Microsoft and QTS developments could spur further hyperscale development in the region. Major tech companies and as-a-service providers enjoy economies of agglomeration and large-scale data center clusters are an extension of that principle. With JPMorgan Chase having occupied their data center in the area for nearly two years, and Microsoft and QTS planning to build, evidence of permitting timelines, power deliverability, and network connectivity will become concrete and make the area much more attractive to some of the biggest investors in the data center space.

Additional factors that could drive demand toward the Denver market include utility companies unable to fulfill power contracts elsewhere in the country, which has been happening in Northern Virginia, and rising interest rates that have impacted the economics of deals in more expensive markets that have a higher degree of land scarcity.

Construction Update

OPERATOR	LOCATION	SIZE (SQ FT)	POWER (MW)	STAGE / EST. DELIVERY
DataBank	DEN5	108,000	15	Under Construction / Undisclosed
Microsoft	East 56th & E-470	Undisclosed	Undisclosed	In Planning
QTS	1160 Gun Club Rd	Undisclosed	177	In Planning
Flexential	Englewood (Expansion)	Undisclosed	4.5	Under Construction / Q4 2022
Strategic Capital	Centennial (Expansion)	Undisclosed	0.5	In Planning

Recent Site Sales

PROPERTY	SIZE (Acres)	SALE DATE	SALE PRICE	BUYER	SELLER
East 56th & E-470, Aurora CO 80018	260	Mar-22	$63,500,000	Microsoft	L.C. Fulenwider

Recent Property Sales

PROPERTY	SIZE (SQ FT)	SALE DATE	SALE PRICE	BUYER	SELLER
11525 Main Street, Broomfield CO 80020	92,800	Jun-22	$26,500,000 (estimated)	Landmark Dividend	GI Partners
6900 South Peoria, Centennial CO 80112	61,937	Jan-22	$18,000,000	DataBank	Private Seller
7347 S. Revere Pkwy, Centennial CO 80112	32,560	Feb-22	$13,500,000	Strategic Data Center Fund	Chirisa Capital Management

DATA CENTER UPDATE

NORTHERN VIRGINIA

H2 2022

CUSHMAN & WAKEFIELD

Key Indicators



Under Construction
965 MW



Vacancy
1%



Absorption (2022)
772 MW

MORE INFORMATION

Anne Rosenau
Senior Director
Global Data Center Advisory Group
202-255-9499
anne.rosenau@cushwake.com

Jacob Albers
Research Manager
Global Data Center Advisory Group
+1 312 424 8086
jacob.albers@cushwake.com

GLOBAL DATA CENTER ADVISORY GROUP

Cushman & Wakefield's Data Center Advisory Group is a global team of elite professionals delivering specialized real estate solutions for mission critical users, owners, and environments. With scalability, reliability, and security as a driving force, our highly knowledgeable and responsive professionals guide clients to make effective financial decisions. Our expertise ranges includes colocation facilities, control centers, greenfields, powered shell, and trading floors. We lend additional value through our understanding of global dynamics and their impact on local markets.

©2023 Cushman & Wakefield. All rights reserved. The information contained within this report is gathered from multiple sources believed to be reliable. The information may contain errors or omissions and is presented without any warranty or representations as to its accuracy.

Market Overview

Northern Virginia continued its status as the preeminent North American data center market despite growing headwinds for land and power availability. Absorption was particularly strong for the first half of the 2022, with a record 514 MW absorbed. However, absorption noticeably fell in Q3 2022, as supply limitations further tightened. Vacancy remains at an all-time low of under one percent in the market, as pre-leasing of space has remained rapid among new projects. Any available land of sufficient size, with power and fiber availability, is heavily contested for either colocation or self-build purposes.

At the end of July 2022, news broke that a local utility in Ashburn, VA would no longer be able to support new data center developments due to limitations on their ability to distribute sufficient power to substations. Loudon County in particular, as home to the largest data center market in the Americas, is the epicenter of these technical issues. This issue could delay projects currently planned or under active construction to halt until at least 2024 if not 2025-2026.

Demand for data centers in the region will not slow, resulting in continually tight vacancy rates in Loudoun County and significant interest in surrounding markets. Northern Virginia markets such as Prince William County, Manassas, Sterling and Leesburg and nearby areas in Maryland and Culpeper will undoubtedly witness increases to their development pipelines. Both hyperscalers and colocation providers were already in planning stages for facilities in these surrounding markets, with many bidding for available power well in advance of breaking ground. Despite these headwinds, the market surpassed two gigawatts in size and with continued activity in surrounding counties expected in 2023 as any land availability is quickly utilized.

Ecosystem Developments

- **AWS** announced that it will invest $35B into the further development of data centers in Virginia. Simultaneously, the Virginia state legislature is considering a "Mega Data Center" Incentives package that would extend tax exemptions by 15-years.
- **CloudHQ** purchased nearly 100 acres of land in Culpeper, VA for $12M. The site will receive up to an 80% tax rebate for the first five years and is another example of growing interest in this peripheral Virginia market.
- **Lightpath** announced a new fiber route connecting Ashburn, VA and New York City.
- **STACK Infrastructure** began construction of a new 216 MW site in Ashburn in January 2022. The multi-phase project on the 80-acre site is planned to utilize 100% renewable energy. Originally planned for delivery in Q3 2023, the power distribution limitations of the submarket will affect the buildout schedule for this project. STACK also announced plans for an 84 MW project in Prince William County for delivery in 2023.
- **QTS** purchased 200-acres in Henrico near Richmond, Virginia. The site is of sufficient size to provide hundreds of megawatts in capacity.
- **NTT** acquired 103-acres in Prince William County for a 336 MW campus, with planned delivery in Q2 2024.

DATA CENTER UPDATE

NORTHERN VIRGINIA

H2 2022

CUSHMAN & WAKEFIELD

Construction Update

OPERATOR	LOCATION	SIZE (SQ FT)	POWER (MW)	STAGE / EST. DELIVERY
Digital Realty	Ashburn	371,658	16	Under Construction / PAUSED
	Western Lands	7,460,000	1,000	In Planning
Cologix	Ashburn	350,000	35	Under Construction / PAUSED
	Ashburn	650,000	85 (est)	In Planning
CyrusOne	Sterling	225,000	20 (est)	Under Construction / Q4 2022
TA Realty-Mitsubishi Estate	Leesburg	1,500,000	50	Under Construction / Q4 2022
Stack Infrastructure	Manassas	700,000	36	Under Construction / Q4 2022
	Manassas	602,000	84	Under Construction / Q3 2023
	NVAL2	1,000,000	216	Under Construction / Q3 2023
Equinix	DC21 - Phase 2	68,250	6.83	Under Construction / Q4 2022
	Ashburn	346,259 (est)	13 (est)	Under Construction / PAUSED
Scalelogix	Gainesville Crossing – Phase 1	483,000 (est)	72	Under Construction / Q4 2022
	Gainesville Crossing – Phase 2	1,817,000 (est)	234 (est)	In Planning
Corscale	Kincora Development	230,000 (est)	72 (est)	Under Construction / Q4 2022
DataBank	IAD3	200,000	4	Under Construction / Q4 2022
Skybox	NOVA	210,500	30	Under Construction / Q2 2023
COPT	Parkstone A	227,000	25 (est)	Under Construction / Q2 2023
	Parkstone B	193,000	25 (est)	Under Construction / Q2 2024
Microsoft	Western Ashburn	250,000	30 (est)	Under Construction / PAUSED
EdgeCore	Sterling	180,000	36	Under Construction
Amazon	Chantilly	1,750,000	200 (est)	In Planning
	Manassas	1,100,000	150 (est)	In Planning
	Aldie	Unknown	Unknown	Planned
	Bristow	900,000 (est)	Unknown	In Planning
	Warrenton	220,000 (est)	Unknown	In Planning
Evoque	Ashburn	100,000 (est)	10	In Planning
Aligned	Ashburn	513,000	120	In Planning
	Sterling	430,000 (est)	72 (est)	Under Construction / Q3 2023
AREP/Harrison Street	ABX-1	265,000	25 (est)	In Planning
	AOL site	1,760,000	300	In Planning
BlackChamber Group	Gainesville	1,000,000	210	In Planning
	Sterling	531,100	100 (est)	In Planning
Yondr/JK Land	Bristow – Phase 1	2,500,000 (est)	96	Under Construction / 2024
Prologis	NOVA1	500,000	50 (est)	In Planning
CloudHQ	Dulles Berry	4,050,000	400 (est)	In Planning
	Culpeper	2,100,000 (est)	60 (est)	In Planning
Compass	Manassas	10,500,000 (est)	Unknown	In Planning / 2030
COPT	Parkstone A	227,000	25 (est)	Under Construction / Q2 2023
	Parkstone B	193,000	25 (est)	Under Construction / Q2 2024
Iron Mountain	VA-7	304,000 (est)	Unknown	In Planning
NTT	Ashburn	188,000	24	Under Construction / PAUSED
	Gainesville	2,000,000 (est)	366 (est)	In Planning / Q2 2024
Plaza Realty	Manassas	1,00,000 (est)	Unknown	In Planning / 2025
PRP	Manassas (Bldg 1)	261,990	40 (est)	In Planning / 2030
	Manassas (Bldg 2)	364,080	55 (est)	In Planning / 2030
	Manassas (Bldg 3)	364,080	55 (est)	In Planning / 2030
QTS	Digital Gateway South	2,600,000 (est)	Unknown	In Planning / 2030
	Digital Gateway North	5,300,000 (est)	Unknown	In Planning / 2030

DATA CENTER UPDATE

NORTHERN VIRGINIA

H2 2022

CUSHMAN & WAKEFIELD

Recent Property Sales

PROPERTY	SIZE (SQ FT)	SALE DATE	SALE PRICE	BUYER	SELLER
11800 Brewers Spring Rd, Manassas	125,550	Dec-22	$20,915,801	Amazon	Blackstone
22262 Cloud Plaza, Sterling	238,000	May-22	$709,000,000	GI Partners	Sentinel Data Centers
22862 & 22810 International Drive, Sterling	118,541	Mar-22	$51,000,000	American Realty Partners	Vicki Wilhelm
9651 Hornbaker Rd, Manassas	243,000	Jan-22	$222,500,000	CloudHQ	COPT

Recent Site Sales

PROPERTY	SIZE (Acres)	SALE DATE	SALE PRICE	PRICE/ACRE	BUYER	SELLER
NEC Belmont Ridge Rd, Broadlands	58	Dec-22	$119,834,208	$2.1M	CyrusOne	38 BL 154 Owner
Pacific Blvd & Moran Rd, Sterling	10	Sep-22	$27,000,000	$2.7M	Vantage Data Centers	Boston Properties
9530 & 9650 Hornbaker Rd, Manassas	63	Sep-22	$51,569,919	$0.8M	STACK Infrastructure	Peterson Companies
14521 McDevitt Dr, Culpeper	100	Sep-22	$12,000,000	$0.1M	CloudHQ	14521 McDevitt Holdings
14210 John Marshall Hwy, Gainesville	5	Jun-22	$13,015,080	$2.6M	NTT	Lerner Enterprises
14300 John Marshall Hwy, Gainesville	97	Jun-22	$257,369,580	$2.6M	NTT	Lerner Enterprises
45965 Nokes Blvd, Sterling	4	Jun-22	$10,000,000	$2.4M	Amazon	Clarke-Hook Realty Management
45969 Nokes Blvd, Sterling	4	Jun-22	$9.000.000	$2.1M	Amazon	Clarke-Hook Realty Management
45975 Nokes Blvd, Sterling	6	Jun-22	$11,700,000	$2.0M	Amazon	Clarke-Hook Realty Management
7816 Bethlehem Rd, Manassas	23	Apr-22	$21,000,000	$0.9M	PRP	Allan Myers
19509 Belmont Ridge Rd, Ashburn	134	Mar-22	$180,000,000	$1.3M	Vantage Data Centers	Barcroft Associates
21660 Ridgetop Cir, Sterling	12	Jan-22	$26,439,000	$2.2M	Amazon	St John Properties

DATA CENTER UPDATE

NYC-NJ

H2 2022

CUSHMAN & WAKEFIELD

Key Indicators

Under Construction
15 MW

Vacancy
7%

Absorption (2022)
24 MW

MORE INFORMATION

Sean Brady
Managing Director
Global Data Center Advisory Group
+1 201 460 3342
sean.brady@cushwake.com

Jacob Albers
Research Manager
Global Data Center Advisory Group
+1 312 424 8086
jacob.albers@cushwake.com

GLOBAL DATA CENTER ADVISORY GROUP

Cushman & Wakefield's Data Center Advisory Group is a global team of elite professionals delivering specialized real estate solutions for mission critical users, owners, and environments. With scalability, reliability, and security as a driving force, our highly knowledgeable and responsive professionals guide clients to make effective financial decisions. Our expertise ranges includes colocation facilities, control centers, greenfields, powered shell, and trading floors. We lend additional value through our understanding of global dynamics and their impact on local markets.

©2023 Cushman & Wakefield. All rights reserved. The information contained within this report is gathered from multiple sources believed to be reliable. The information may contain errors or omissions and is presented without any warranty or representations as to its accuracy.

Market Overview

Continued demand for assets in the New York – New Jersey market had a continued to tighten vacancy to a record low seven percent. Established national players 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. 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, NY. As part of its recent acquisition of ColoHouse, 1547 Realty relocated certain of ColoHouse's services to its asset in Orangeburg, NY. 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. With absorption continuing apace, 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.

Ecosystem Developments

- **QTS** is actively expanding its Piscataway data center, adding a further 15MW of power and 50,000 sf of space to the facility. The data center currently has a 52 MW capacity.
- **H5 Data Centers** has entered the New Jersey market with the acquisition of vXchnge's 3MW asset in Secaucus, NJ. The purchase was part of a seven asset portfolio transaction that included assets in Nashville, Philadelphia, Pittsburgh, Portland, New Jersey, St. Louis and St. Paul.
- **Equinix** has broken ground on expanding its NY11 data center as a result of a partnership with NASDAQ and AWS. NASDAQ is seeking to double its footprint at the 90,000 sf facility as it continues to migrate workloads to AWS while utilizing Equinix facilities. Equinix also leased
- **Lightpath** has added a new fiber route connecting the New York Metro area to Ashburn, VA. This 300-mile fiber line will add to the existing 19,000-mile network that Lightpath has built crisscrossing the tri-state area and into New England.
- **1547 Realty** expanded its data center in Orangeburg, NY to accommodate space for 1547's recent acquisition of **ColoHouse**. ColoHouse will deploy its bare metal option in the facility to address growing enterprise demand and proximity to connectivity centers in New York City.
- **Xtel Communications** added a third data center to its portfolio, and first in New Jersey. The telecom and cloud provider offers high availability active-active network architecture and currently has locations in Texas and Pennsylvania.

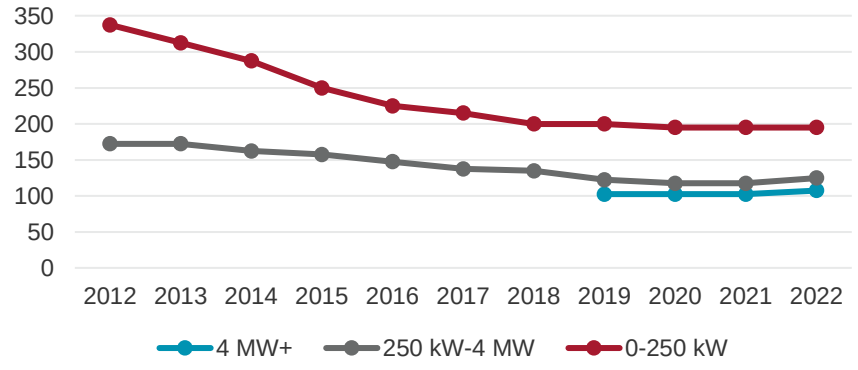
DATA CENTER UPDATE

NYC-NJ

H2 2022

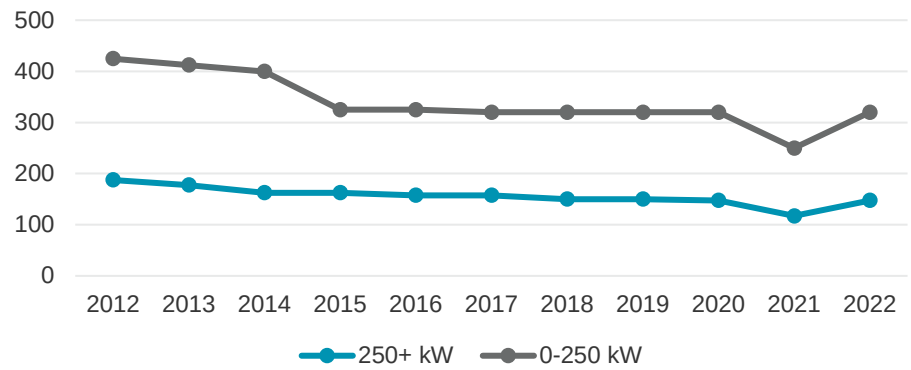
CUSHMAN & WAKEFIELD

NEW JERSEY PRICING



Source: datacenterHawk

NEW YORK PRICING



Source: datacenterHawk

Construction Update

OPERATOR	LOCATION	SIZE (SQ FT)	POWER (MW)	STAGE / EST. DELIVERY
Digital Realty	Totowa Piscataway	150,000 10,000	4.8 1.2	Completed / Q1 2022 Completed / Q1 2022
CoreSite	NY2 Phase 4A	35,000	4	Completed / Q1 2022
DataBank	Orangeburg	200,000	30	In Planning
QTS	Piscataway - Expansion	50,000	15	Under Construction / 2023
Equinix	NY11 - Expansion	Undisclosed	Undisclosed	Under Construction / 2023
EIP	New Britain	465,000	20	In Planning

Recent Property Sales

PROPERTY	SIZE (SQ FT)	SALE DATE	SALE PRICE	BUYER	SELLER
45 Osser Ave, Hauppauge	122,520	Feb-22	$21,000,000	Blackstone	Speedcast

DATA CENTER UPDATE

PHOENIX

H2 2022

Key Indicators

Under Construction
338 MW

Vacancy
2.4%

Absorption (2022)
411 MW

MORE INFORMATION

Don Rodie
Managing Director
Global Data Center Advisory Group
+1 602 229 5918
Don.rodie@cushwake.com

Jacob Albers
Research Manager
Global Data Center Advisory Group
+1 312 424 8086
Jacob.albers@cushwake.com

GLOBAL DATA CENTER ADVISORY GROUP

Cushman & Wakefield's Data Center Advisory Group is a global team of elite professionals delivering specialized real estate solutions for mission critical users, owners, and environments. With scalability, reliability, and security as a driving force, our highly knowledgeable and responsive professionals guide clients to make effective financial decisions. Our expertise ranges includes colocation facilities, control centers, greenfields, powered shell, and trading floors. We lend additional value through our understanding of global dynamics and their impact on local markets.

©2023 Cushman & Wakefield. All rights reserved. The information contained within this report is gathered from multiple sources believed to be reliable. The information may contain errors or omissions and is presented without any warranty or representations as to its accuracy.

Market Overview

Following a phenomenal first 2021, activity in Phoenix has showed no sign of slowing with another 411 megawatts absorbed in 2022. Demand in the market has remained high with absorption limited only by the amount of capacity available in the market. Land acquisition activity by operators and hyperscalers has not been curtailed despite the rising interest rates, if anything rising interest rates have made the Phoenix market more attractive as land is significantly more affordable than California markets. Along with more affordable land, Phoenix has a very low risk of natural disaster, inexpensive power due to a diverse fuel mix and healthy competition, available tax incentives, low latency to California, and a highly competitive colocation environment.

Investment activity remains fairly strong with existing operators looking to expand their presence, hyperscalers looking to acquire more land, and infrastructure continuing to grow while the Phoenix data center market continues to expand west toward Goodyear and east toward Mesa. Vantage Data Centers began the second phase of construction at its campus in Goodyear with the additional capacity expected to come online in Q2 2024 bringing the total capacity of the campus to 160MW. QTS recently spent $255 million to acquire 400 acres in Glendale, Iron Mountain purchased 10 acres to expand their existing campus and Aligned Data Centers acquired two plots to build two separate campuses. Phoenix is expected to continue its growth moving forward while continuing to benefit from organizations exiting the southern California market.

Ecosystem Developments

- **Aligned** recently acquired two new plots of land in the Phoenix market and announced plans to build a data center campus on each of them. The campuses, combined, are expected to span 2 million square feet and have a capacity of 400MW and will utilize Delta^3 cooling technology with a waterless heat rejection system.
- **Iron Mountain** is continuing to grow with the acquisition of 10 acres located next to its existing Phoenix campus where they plan to build a 36MW data center citing nearly zero availability at their existing AZP campus.
- **Google** has announced that their flagship internet service, Google Fiber, is currently being installed in Mesa, with the first customers near University Drive and Alma School Road. It's expected to be available in 2023 with full buildout in Mesa by 2027 before expanding to more Arizona cities.
- **The U.S. Department of Interior** is placing restrictions on Arizona's water use which will likely impact the data center sector in the Phoenix market. With data center water use already under scrutiny, and Facebook's Mesa build garnering national attention last year, many new data centers are focusing on waterless cooling technology and water stewardship. Incoming water use restrictions in the Phoenix market may curb investor interest in the short-term while the market learns to adapt.

DATA CENTER UPDATE

PHOENIX

H2 2022

CUSHMAN & WAKEFIELD

Construction Update

OPERATOR	LOCATION	SIZE (SQ FT)	POWER (MW)	STAGE / EST. DELIVERY
Comarch	Mesa	32,000	3 (est)	Under Construction / Q3 2022
Iron Mountain	AZP-2 Phase 5	70,000 (est)	7	Under Construction / Q4 2022
Meta	Mesa	950,000	100 (est)	Under Construction
Vantage	Goodyear	1,000,000	160	Under Construction / Q2 2024
	Goodyear	750,000 (est)	144 (est)	Under Construction / Q2 2024
Meta	Mesa	1,550,000	Undisclosed	Under Construction / 2026
Stack Infrastructure	Avondale	1,000,000	150	In Planning
PhoenixNAP	Phoenix	500,000	50	In Planning
Aligned Data Centers	PHX-05 (Expansion)	Undisclosed	24	In Planning
	PHX-04 Phase 1	Undisclosed	60 (est)	Under Construction / Q4 2022
	Phoenix	1,000,000 (est)	200 (est)	In Planning
	Phoenix	1,000,000 (est)	200 (est)	In Planning
EdgeConneX	Mesa	Undisclosed	30 (est)	In Planning
EdgeCore	Mesa	980,000 (est)	244 (est)	In Planning
Iron Mountain	Phoenix	230,000	36	In Planning
QTS	Phoenix	Undisclosed	36 (est)	In Planning
Stream	Goodyear	2,000,000	200 (est)	In Planning

Recent Site Sales

PROPERTY	SIZE (Acres)	SALE DATE	SALE PRICE	BUYER	SELLER
14623 W Broadway Ln, Goodyear	15	Sep-22	$11,903,978	Vantage Data Centers	Globe Corporation
1110 North 52nd Street, Phoenix	28.5	Aug-22	$65,017,470	Iron Mountain	Baker Dev Corp
W Camelback & N Cotton Lane Rd, Litchfield Park	384	Jul-22	$255,287,250	QTS	First Industrial Realty Trust

DATA CENTER UPDATE

PORTLAND

H2 2022

Key Indicators

Under Construction
293 MW

Vacancy
2.7%

Absorption (2022)
203 MW

MORE INFORMATION

Jacob Albers
Research Manager
Global Data Center Advisory Group
+1 312 424 8086
Jacob.albers@cushwake.com

John McWilliams
Senior Research Analyst
Global Data Center Advisory Group
+1 303 312 4233
john.mcwilliams@cushwake.com

GLOBAL DATA CENTER ADVISORY GROUP

Cushman & Wakefield's Data Center Advisory Group is a global team of elite professionals delivering specialized real estate solutions for mission critical users, owners, and environments. With scalability, reliability, and security as a driving force, our highly knowledgeable and responsive professionals guide clients to make effective financial decisions. Our expertise ranges includes colocation facilities, control centers, greenfields, powered shell, and trading floors. We lend additional value through our understanding of global dynamics and their impact on local markets.

©2023 Cushman & Wakefield. All rights reserved. The information contained within this report is gathered from multiple sources believed to be reliable. The information may contain errors or omissions and is presented without any warranty or representations as to its accuracy.

Market Overview

Despite Portland's classification as a secondary market, the region has gained momentum thanks strong demand for data centers serving the Pacific Northwest, affordable land, sustainability practices and an array of incentive programs. The Portland market has become one of the most demanded markets in the recent years with commissioned power growth of over 700% between Q2 2019 and Q2 2022. The majority of developer interest remains focused in the Hillsboro submarket, with STACK Infrastructure recently completing a 24MW facility and QTS initiating a significant 250MW build for Meta. New entrants into the submarket this year include Aligned Data Centers and Crane Data Centers.

Incentivized by significant tax benefits, good network connectivity, a growing tech workforce and lower power cost, the market is primed for continued growth. Oregon is one of five sates with no sales tax and has the infrastructure necessary to operate a data that other tax-free states may not offer. The operating costs of a data center in Oregon are also significantly less than the national average, particularly, compared to other West Coast markets. These attributes and little inventory remaining in the market are contributing to a healthy data center pipeline.

Ecosystem Developments

- **STACK Infrastructure** has completed its POR3 data center in Hillsboro, adding 180,000 sf and 24MW of power to its portfolio. The facility is 100% powered by renewable energy. STACK also purchased additional land in Hillsboro to total 50-acres.
- **Aligned Data Centers** announced plans for a 108MW data center campus in Hillsboro across two phases of 72MW and 36MW, respectively.
- **Bandwidth Infrastructure Group** has added 20,000 miles of dark fiber to the Grater Portland area as data center connectivity demand grows.
- **Crane Data Centers** in partnership with **Principal Asset Management** are planning a 100MW data center campus Forest Grove (just a few miles away from Hillsboro). The initial phase will deliver 50MW across 35 acres.
- **Intel** will be building a $700 million research center in Hillsboro. The facility will be used to study new technologies to increase data center operating efficiency. The 200,000-square-foot research lab will primarily focus on reducing data centers heating, cooling, and water needs to achieve this. The facility is expected to open in late 2023.

DATA CENTER UPDATE

PORTLAND

H2 2022

CUSHMAN & WAKEFIELD

Construction Update

OPERATOR	LOCATION	SIZE (SQ FT)	POWER (MW)	STAGE / EST. DELIVERY
Digital Realty	Hillsboro	823,056	30	Under Construction / Q1 2022 (having trouble find this dc)
EdgeConneX	POR 03	40,000 (est)	13	Under Construction
QTS	Hillsboro	250,000 (est)	250	Under Construction
Digital Realty	Hillsboro (OR2)	489,000	48	In Planning
Stack Infrastructure	Hillsboro (Expansion)	540,000 (est)	60 (est)	In Planning
T5 / Flexential	Hillsboro 4 – Phase 1 Hillsboro 4 – Phase 2	138,000 (est) 358,000 (est)	18 (est) 36 (est)	In Planning In Planning
1547	Pittock Block	Undisclosed	Undisclosed	In Planning
Aligned Data Centers	Hillsboro – Phase 1 Hillsboro – Phase 2	Undisclosed Undisclosed	72 36	In Planning
Crane Data Centers	Forest Grove	Undisclosed	100	In Planning

Recent Property Sales

PROPERTY	SIZE (SQ FT)	SALE DATE	SALE PRICE	BUYER	SELLER
340 Cumberland Ave	52,272	Jan-22	Undisclosed	Deep Edge Realty	Northland Enterprises

DATA CENTER UPDATE

SILICON VALLEY

H2 2022

Key Indicators

Under Construction
356 MW

Vacancy
3.8%

Absorption (2022)
67 MW

MORE INFORMATION

Jacob Albers
Research Manager
Global Data Center Advisory Group
+1 312 424 8086
jacob.albers@cushwake.com

GLOBAL DATA CENTER ADVISORY GROUP

Cushman & Wakefield's Data Center Advisory Group is a global team of elite professionals delivering specialized real estate solutions for mission critical users, owners, and environments. With scalability, reliability, and security as a driving force, our highly knowledgeable and responsive professionals guide clients to make effective financial decisions. Our expertise ranges includes colocation facilities, control centers, greenfields, powered shell, and trading floors. We lend additional value through our understanding of global dynamics and their impact on local markets.

©2023 Cushman & Wakefield. All rights reserved. The information contained within this report is gathered from multiple sources believed to be reliable. The information may contain errors or omissions and is presented without any warranty or representations as to its accuracy.

Market Overview

Limited available capacity continued to be the case for the San Francisco Bay Area, resulting in a total of 67 MW absorbed in 2022. With a vacancy rate that continues to hover in the three to four percent range, development has continued to grow to address heavy demand. Prime Data Centers, EdgeCore and Vantage Data Centers have all broken ground on new facilities that will substantially increase capacity in the market. On the cloud provider front, AWS and Microsoft have both made a number of notable moves to expand its self-built capacity in the market. Like many established data center markets around the world, Santa Clara continues to have limited availability of land and questions regarding the availability of power in certain submarkets. Despite rising land and power prices, Silicon Valley remains a robust market, as rents rose, and tenants continue to desire space in this key market.

While transactions in the market were numerous last year in both the land and standing product categories, the total number tightened somewhat in 2022. At the end of 2022, DigitalBridge's Vantage SDC executed on a $539M transition from their opportunistic growth platform to their standing product platform.

Ecosystem Developments

- **AWS** has looked to expand its US West Region with a number of moves in 2022. At the beginning of the year, AWS purchased a seven-acre site in Santa Clara from IPI Partners for the development of a rumored 60MW data center – its first self build in the Bay Area. Additionally, the cloud provider filed plans for two 49MW facilities 40-miles to the South of Santa Clara, in Gilroy. AWS is also rumored to have taken 49MW of space in Hines' recent project in Hayward.
- **Prime Data Centers** announced plans for its site on Comstock Street in Santa Clara, adjacent to its existing assets. With construction expected to commence in the second half of 2023, the facility will be expected to total 9MW of capacity at 74,000 sf.
- **CoreSite** began construction of its 34MW SV9 data center in Santa Clara. The 200,000 sf project is expected for completion this year.
- **Colovore** has begun a 2MW expansion of its existing data center and the development of an adjacent 9MW facility. Colovore's data centers focus on high density cabinets for AI and high performance computing workloads.
- **Twitter** has vacated NTT's Sacramento data center as part of its cost-cutting strategy. While the social media platform's ultimate strategy for use of cloud services versus data centers remains to be seen, the switch in strategy will likely lead to workloads and data shifting facilities.
- **Vantage Data Centers** secured a $350M loan from Societe Generale to redevelop a property in Santa Clara into a 479,000 sf data center.

DATA CENTER UPDATE

SILICON VALLEY

H2 2022

CUSHMAN & WAKEFIELD

Construction Update

OPERATOR	LOCATION	SIZE (SQ FT)	POWER (MW)	STAGE / EST. DELIVERY
Prime Data Centers	1111 Comstock	80,000	9	Under Construction / Q3 2023
	2175 Martin	80,000	9	Under Construction/ Q4 2023
	2225 Martin	207,000	32	In Planning
	1231 Comstock	119,000	9	In Planning
Digital Realty	Santa Clara	430,000	48	Under Construction
1547, CIM Group	San Francisco	187,000	24	Under Construction
China Mobile	San Jose	217,000	26	Under Construction
Amazon	Santa Clara	515,742	60	Under Construction
	Gilroy	438,000	98	In Planning
CoreSite	SV9	250,000	48	Under Construction
CyrusOne	Santa Clara	144,000	36	Under Construction
EdgeCore	Santa Clara	350,000	36	Under Construction
T5	Newark	180,000	32.1	In Planning
Cologix	SV1	134,000	11	In Planning
Harrison Street/Oppidan	Santa Clara	200,000	50	In Planning
STACK Infrastructure	SVY03	560,000	60	Under Construction
Microsoft	San Jose	632,000	100 (est.)	In Planning

Recent Site Sales

PROPERTY	SIZE (Acres)	SALE DATE	SALE PRICE	BUYER	SELLER
2315 Mission College Blvd, Santa Clara	7.0	Jan-22	$51,800,000	AWS	IPI Partners

Recent Property Sales

PROPERTY	SIZE (SQ FT)	SALE DATE	SALE PRICE	BUYER	SELLER
Two Assets (Santa Clara)	71,954	Sep-22	Undisclosed	Evocative	INAP
2030 Fortune Drive, San Jose, CA 9513	72,249	Oct-22	$18,150,000	Gary Robinson	H5 Data Centers
2950 Zanker Rd, San Jose, CA 95134	69,700	Apr-22	$23,000,000	Peninsula Land & Capital LLC	Menlo Equities

CUSHMAN & WAKEFIELD

DATA CENTER UPDATE

CANADA



DATA CENTER UPDATE

MONTREAL

H2 2022

Key Indicators

Under Construction
45 MW

Vacancy
10.2%

Absorption (2022)
11 MW

MORE INFORMATION

Randy Borron
Vice Chairman
Global Data Center Advisory Group
+1 416 359 2474
randy.borron@cushwake.com

Jim Tsaknis
Vice President
Global Data Center Advisory Group
+1 416 359 2540
jim.tsaknis@cushwake.com

GLOBAL DATA CENTER ADVISORY GROUP

Cushman & Wakefield's Data Center Advisory Group is a global team of elite professionals delivering specialized real estate solutions for mission critical users, owners, and environments. With scalability, reliability, and security as a driving force, our highly knowledgeable and responsive professionals guide clients to make effective financial decisions. Our expertise ranges includes colocation facilities, control centers, greenfields, powered shell, and trading floors. We lend additional value through our understanding of global dynamics and their impact on local markets.

©2023 Cushman & Wakefield. All rights reserved. The information contained within this report is gathered from multiple sources believed to be reliable. The information may contain errors or omissions and is presented without any warranty or representations as to its accuracy.

Market Overview

Montreal experienced slightly lower take-up than 2021's record 16MW absorption, with roughly 11MWs absorbed throughout 2022. Despite the slower take-up than many larger markets, vacancy has steadily creeped down to just above 10%. Rumored hyperscale interest in the area continues, as many have carbon-neutral pledges to fulfil before 2030 and the low-cost hydroelectric power locally will assist in achieving this goal. Vantage remains in planning on two sites locally, with QScale suggesting that a campus in Montreal may be coming soon after an initial build in Quebec City. Enovum has been working on sizable redevelopment opportunity, providing the market with a larger capacity opportunity that could tempt tenants to the market. Montreal continues to await substantial interest from the data center community, with continued optimism for future needs of hyperscalers and those interested in pursuing a sustainable power strategy.

Ecosystem Developments

- **Vantage Data Centers** announced that it is planning a USD $711M investment to expand its campuses in Montreal and Quebec City. Vantage plans to add an additional 21MW to its existing QC4 campus and starting construction on a third Montreal-area data center, QC 6. All new construction will be fully powered with renewable energy sources.
- **Enovum** is redeveloping a former industrial building for data center purposes. Upon completion, the asset will have 24MW of capacity.
- **ManageEngine**, a division of Zoho Corporation focused on enterprise IT management, opened a data center in Montreal in January 2023. ManageEngine selected Montreal and Toronto for its expansion as part of the strong data sovereignty, privacy and cybersecurity laws of Canada.

Construction Update

OPERATOR	LOCATION	SIZE (SQ FT)	POWER (MW)	STAGE / EST. DELIVERY
Vantage Data Centers	YUL-02	300,000 (est)	26	In Planning
	Montreal II	94,000	21	Under Construction
Enovum	Montreal	Undisclosed	24	Under Construction

DATA CENTER UPDATE

TORONTO

H2 2022

Key Indicators

Under Construction
41 MW

Vacancy
5.8%

Absorption (2022)
76 MW

MORE INFORMATION

Randy Borron
Vice Chairman
Global Data Center Advisory Group
+1 416 359 2474
randy.borron@cushwake.com

Jim Tsaknis
Vice President
Global Data Center Advisory Group
+1 416 359 2540
jim.tsaknis@cushwake.com

GLOBAL DATA CENTER ADVISORY GROUP

Cushman & Wakefield's Data Center Advisory Group is a global team of elite professionals delivering specialized real estate solutions for mission critical users, owners, and environments. With scalability, reliability, and security as a driving force, our highly knowledgeable and responsive professionals guide clients to make effective financial decisions. Our expertise ranges includes colocation facilities, control centers, greenfields, powered shell, and trading floors. We lend additional value through our understanding of global dynamics and their impact on local markets.

©2023 Cushman & Wakefield. All rights reserved. The information contained within this report is gathered from multiple sources believed to be reliable. The information may contain errors or omissions and is presented without any warranty or representations as to its accuracy.

Market Overview

Toronto enjoyed consistent absorption throughout most of 2022, driven by hyperscaler demand. Vacancy, which has stayed near four percent, ticked upward slightly in Q4 with some new deliveries to just below six percent. Further phases from Digital Realty, STACK Infrastructure, Equinix, and Compass have all recently delivered in the market. Many of these and future developments are pre-leased, likely doing little to increase vacancy going forward. Compass continues to develop a facility in North York. Land remains expensive throughout Toronto, with voracious competition from industrial users due to the concurrent expansion needs of that asset class. Prospective developers are having difficulty locating quality sites, leading to further delays in bringing potential capacity to market. Expect further interest in Toronto throughout 2023, with those able to work around site selection issues to be amply rewarded.

Ecosystem Developments

- **AWS** opened a Wavelength Zone in Toronto with the partnership of Bell Canada. The Wavelength Zone will enable deployment of AWS compute loads onto telecom data centers at the edge of 5G networks for low latency
- **OVHcloud** is planning to enter the Toronto market at some point in 2023. The cloud provider already has a substantial facility in Montreal.
- **Urbacon Data Centres** announced a plan for a 135MW data center campus near Niagara Falls. Urbacon has also initiated construction of a third data center at its Richmond Hill cluster.
- **Microsoft** has entered the approval process to break ground on a planned data center located at a closed Lowe's big box location.
- **Cologix** and **CIM Group** have formed a partnership to develop TOR4x, a 15MW data center in the Toronto market.

Construction Update

OPERATOR	LOCATION	SIZE (SQ FT)	POWER (MW)	STAGE / EST. DELIVERY
Digital Realty	Toronto (2 locations)	427,050	4.8	Complete / Q2 2022
STACK Infrastructure	Toronto	50,000 (est) 50,000 (est)	4 4	Complete / Q1 2022 Complete / Q3 2022
Equinix	TR2 Phase 4 TR7	10,800 70,000	1.08 3.00	Complete / Q3 2022 Under Construction / Q3 2023
Compass Datacenters	Etobicoke	214,000	30	Under Construction
Serverfarm	Humber Valley - Ph	80,000 (est)	8	Under Construction
Cologix, CIM Group	TOR4x-Phase 1	50,000	8	In Planning
Microsoft	Etobicoke	289,450	35 (est.)	In Planning
Urbacon Data Centres	Niagara Falls (NY)	600,000	135	In Planning