

New York City Warehouses: Operational Landscape

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CHENG SOLUTIONS LLC



Photo: Andy Davenport
on Upsplash



Characteristics of NYC Warehousing

The five boroughs of New York City contain an estimated 146 million square feet (SF) of warehouse and distribution space across more than 8,000 buildings.

There are Two Main Types of Warehouses in NYC: **Traditional Warehouses** and **Distribution Centers**

Traditional Warehouses in NYC

- Traditionally used for receiving, storing, and dispersing goods
- Lower clear heights
- Typically, less than 25,000 square feet (SF)
- Typically, fewer dock doors (one per 15,000 SF of interior space)

Distribution Centers in NYC

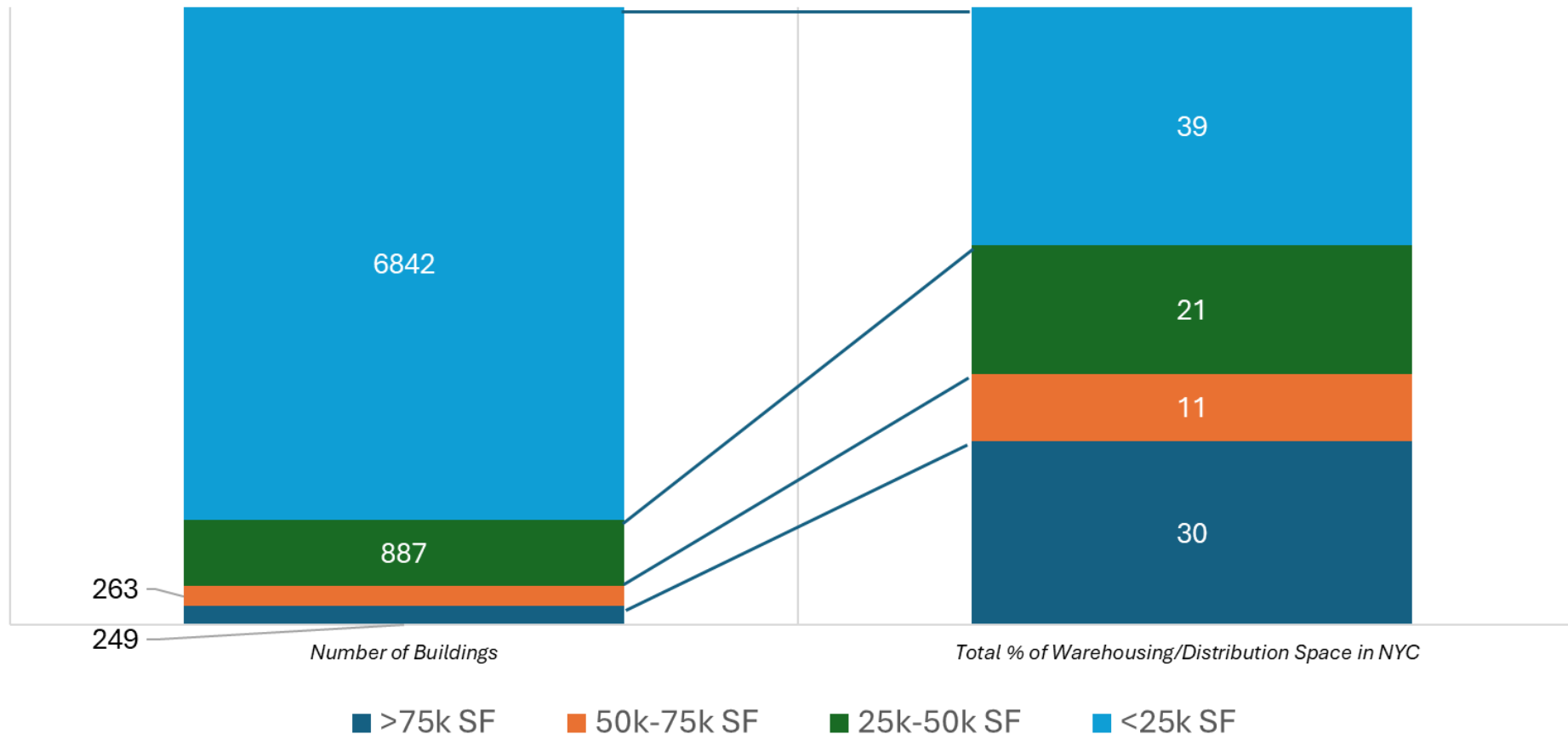
- Similar to traditional warehouse space, except there is little-to-no storage function
- Greater clear heights
- Typically, at least 50,000 SF, often well over 100,000 SF
- Larger proportion of dock doors

NYC has more than 8,000 warehouse and distribution buildings

~124 million SF of traditional warehouse space housed in roughly **~8,000 buildings**

~22 million SF of distribution space in **~230 buildings**

Properties **over 50K SF** represent **just over 6%** of the total number of warehouses, but comprise **more than 40%** of total warehouse space



NYC has made notable **progress on air quality**, driven by **local and federal** mandates. However, **air pollution continues to pose a significant public health risk**

NYC has made progress...

- There's been a 60% decline in PM2.5 and a 40% reduction in NO2 in the past 20 years.
- The number of asthma-related emergency room visits have dropped by similar amounts.
- Much of this progress is attributed to federal vehicle fuel standards and local building fuel standards.

... but there's still work to do

- Overall PM2.5 from *traffic alone* contributed to an estimated 320 premature deaths and 870 ED visits and hospitalizations *each year* in NYC.
- Low-income and communities of color are exposed to disproportionate emissions from heavy-duty diesel vehicles due to the locations of highways, delivery routes, and fleet parking facilities.
- In recent years, evidence has emerged that the density of warehouses is a key indicator of higher air pollution levels.



Largest Owners and Operators of NYC Warehousing Space

NYC's warehouse and distribution space is owned by a mix of public, quasi-public, and private entities. In many cases, the owner and operator of a warehouse are different entities.

Large Owners of NYC Warehouse Space

- **Privately owned:** 98% of warehouse and distribution space in NYC is privately owned.
 - Large private owners include local developers/owners (e.g., Matrix Development Group, Innovo Property Group) and national and international players (e.g., CenterPoint, Prologis).
- **Publicly owned:** 2% of warehouse and distribution space in NYC is publicly or quasi-publicly owned
 - Includes properties owned by the City, NYCEDC, and the Port Authority of NY and NJ

Large Operators of NYC Warehouse Space

- **Large warehouse and distribution operators in NYC include:**
 - Parcel delivery companies (e.g., Fedex, UPS)
 - Direct-to-consumer companies (e.g., Amazon, IKEA, FreshDirect)
 - Suppliers for retailers (e.g., Pepsi-Cola, Restaurant Depot, Manhattan Beer, Coca-Cola, Dr. Pepper-Snapple)



NYC Warehouse Locations

Warehouse and distribution space can be found in all five boroughs, with high concentrations in Brooklyn, Queens, and the Bronx.

Brooklyn, Queens, and the Bronx are Home to Most NYC Warehouse Space

Number of Warehouses and Distribution Buildings and Total SF by Borough (Million Sq Feet)

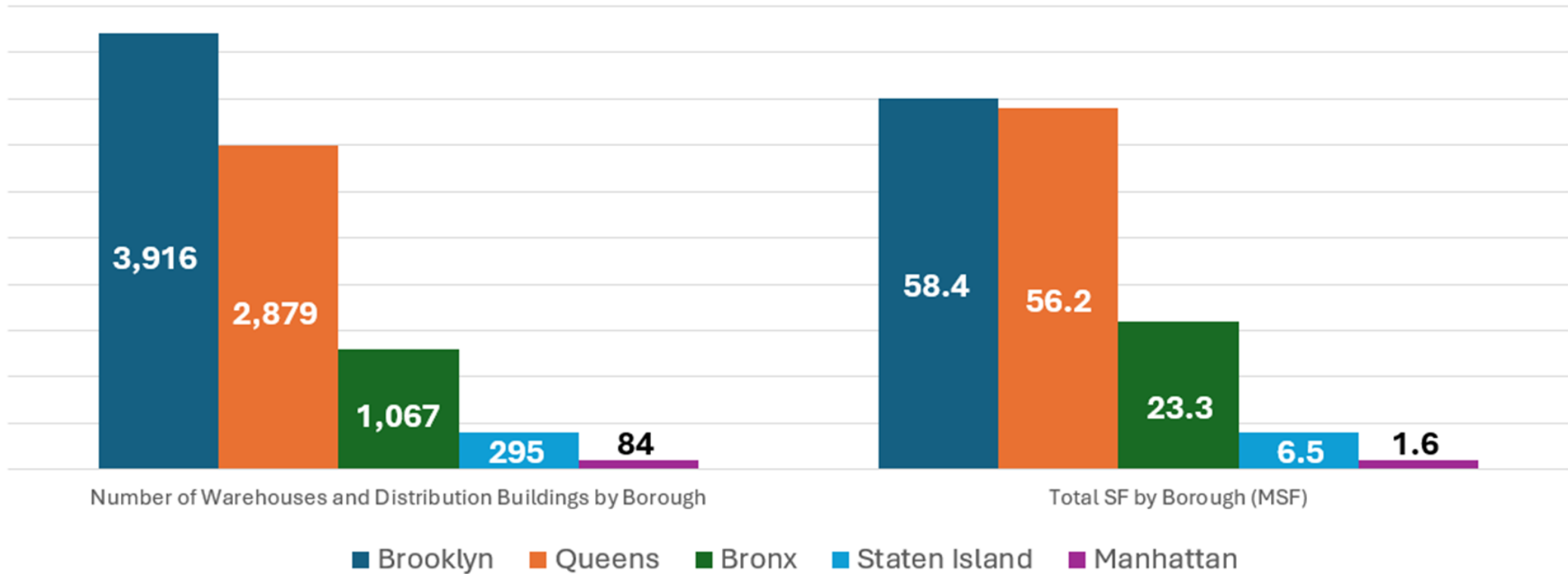




Image: NYC Dept of Transportation



Image: NYC Mayor's Office

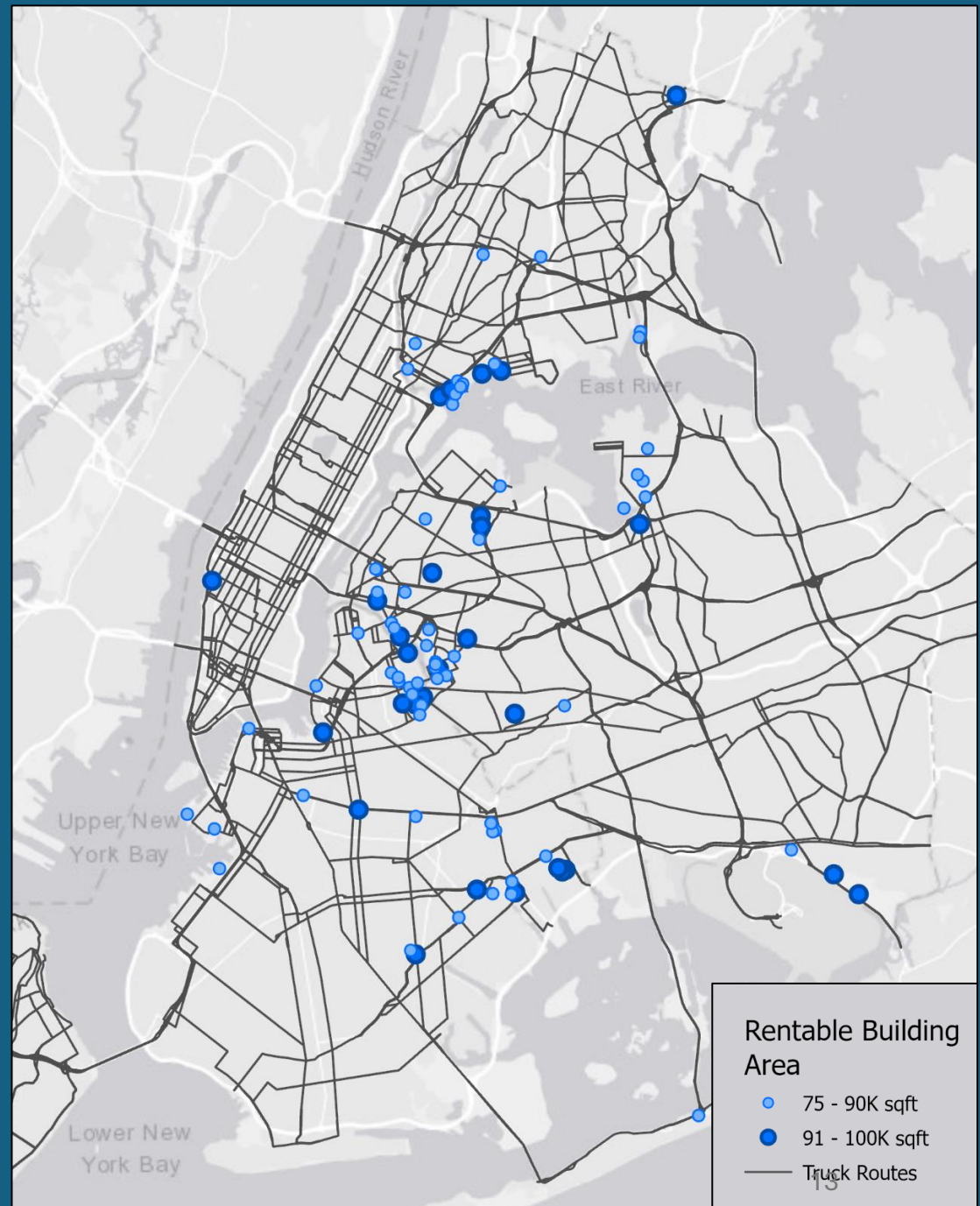
- **Brooklyn has the most square footage, but Queens has the greatest 'large building' inventory, with a heavy concentration in Long Island City, Maspeth, and Jamaica**
- Of the nearly 250 warehouse and distribution buildings in NYC that are at least 75,000 SF, 106 buildings (18 million SF) are in Queens
- Another 88 buildings (13 million SF) are in Brooklyn and 46 in the Bronx (9 million SF)



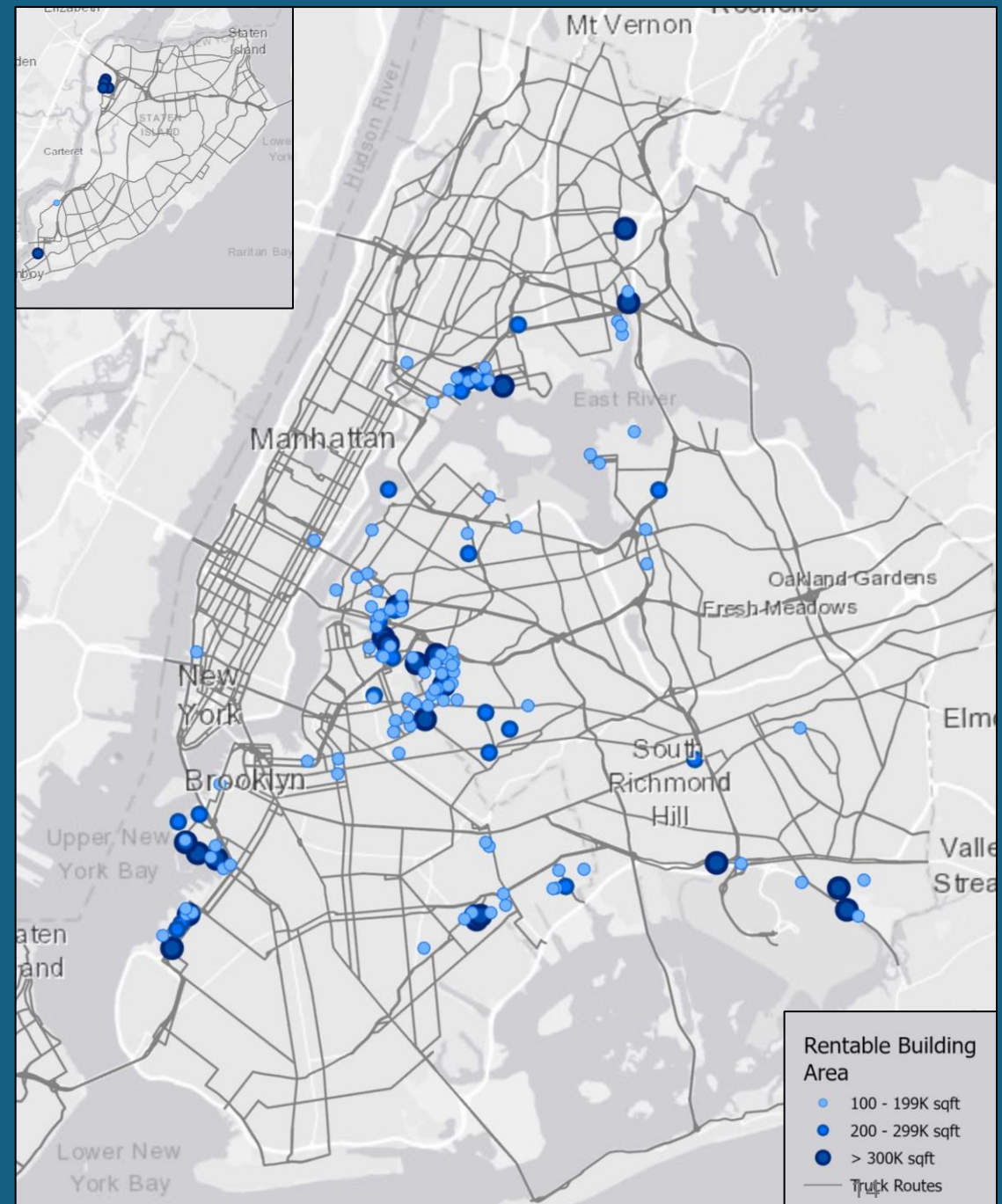
Locations of Largest NYC Warehouses

Smaller warehouses dominate the New York City market. 6,842 warehouses are under 25,000 square feet. Just 249 warehouses are over 75,000 square feet.

NYC Warehouses with Rentable Building Area 75K to 100K SF



NYC Warehouses with Rentable Building Area 100K+ SF





Property Age

Due to its historical development, New York City has a lot of older warehouse space.

Over 90% of *traditional warehouse* properties in the five boroughs were built in the 1900s

Many of the *distribution* properties were built in the 2000s

Recent Developments

Recent construction has been **dominated by distribution space**, with over **10 million SF** either currently under construction or completed in the **last ten years**.

- The Matrix Global Logistics Park in Staten Island is the largest recent completion (3.3 million SF)
- Brooklyn (Red Hook and Williamsburg), Queens (Long Island City, Maspeth, Jamaica), and the Bronx have also seen significant new development

Matrix Global Logistics Park



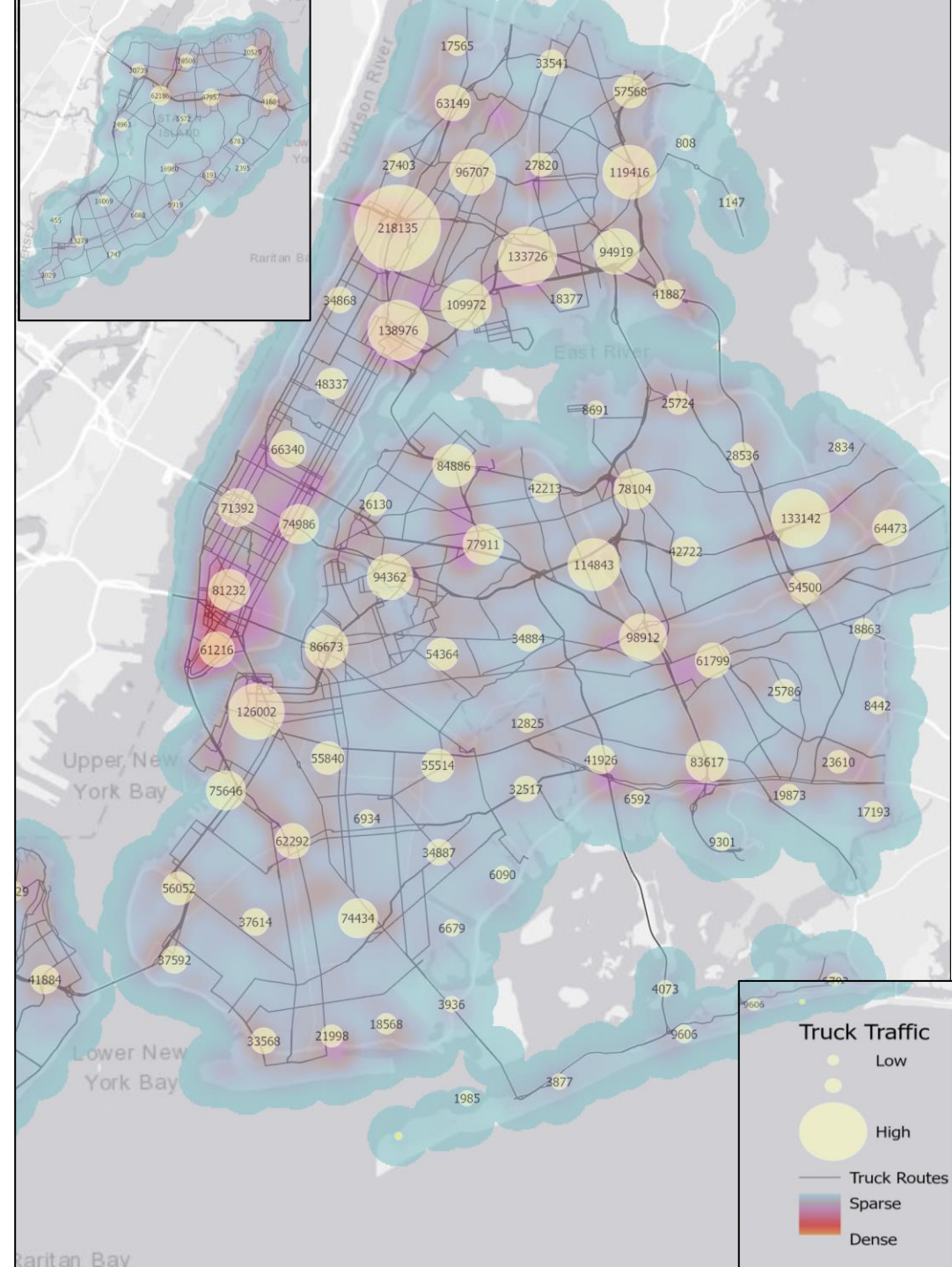


Freight Traffic

NYC freight traffic is dominated by medium-duty vehicles and short trip durations. It is concentrated in neighborhoods corresponding with the City's transportation network, warehouse and industrial facilities, and clusters of commercial and residential activity.

Freight Traffic in NYC by Truck Density

The **highest densities of freight traffic** are in Lower Manhattan, the South Bronx, Washington Heights, and Downtown Brooklyn



Sources: TYLin analysis of New York State DOT Data
Dots represent truck traffic counts at the neighborhood level

Medium-duty trucks account for ~**96%** of all truck trips across the city. **Heavy-duty trucks** make up just ~**4%** of total truck traffic.

Class Four: 14,001 to 16,000 lbs.



Class Five: 16,001 to 19,500 lbs.



Class Six: 19,501 to 26,000 lbs.

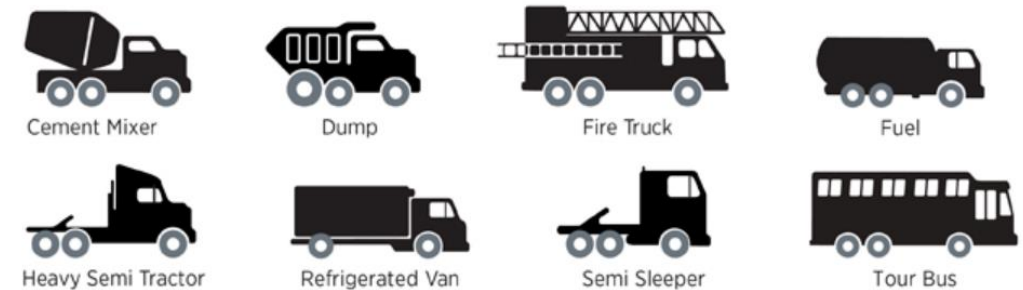


Medium-duty trucks (class 4-6) primarily handle deliveries and distribution to various commercial hubs

Class Seven: 26,001 to 33,000 lbs.



Class Eight: 33,001 lbs. & over



Heavy-duty truck (class 7-8) trip origins are concentrated in Hunts Point, Claremont-Bathgate, Flushing, and Mariner's Harbor

The **top 10 origin** neighborhood tabulation areas (NTAs) within the city originate **23% of the overall truck traffic**

Top Ten Truck Trip Origin NTAs

Top 10 Origin NTAs	Overall Traffic Share	Heavy Trucks	Medium Trucks
Hunters Point-Sunnyside-West Maspeth	5%	3%	97%
Hunts Point	4%	14%	86%
East Williamsburg	2%	3%	97%
Midtown-Midtown South	2%	1%	99%
Hudson Yards-Chelsea-Flatiron-Union Square	2%	1%	99%
Mott Haven-Port Morris	2%	2%	98%
Airport	2%	3%	97%
East New York	2%	4%	96%
Greenpoint	2%	2%	98%
Sunset Park West	2%	3%	97%

Trip **origins** and **destinations** follow similar patterns in terms of volume distribution – the same areas that are significant as origins are also significant as destinations

Top Ten Truck Trip Destination NTAs

Top 10 Destination NTAs	Overall Traffic Share	Heavy Trucks	Medium Trucks
Hunters Point-Sunnyside-West Maspeth	5%	3%	97%
Hunts Point	4%	14%	86%
East Williamsburg	3%	1%	99%
Midtown-Midtown South	2%	3%	97%
Hudson Yards-Chelsea-Flatiron-Union Square	2%	2%	98%
Mott Haven-Port Morris	2%	3%	97%
Airport	2%	3%	97%
East New York	2%	5%	95%
Greenpoint	2%	1%	99%
Sunset Park West	2%	3%	97%

Truck activity occurs the least in the overnight hours, with a **surge during the morning peak** and substantial movement midday

Overnight
(12 am - 6 am)

Least truck activity across all neighborhoods, often comprising only 7% of total freight traffic volumes

Peak AM
(6 am - 10 am)

Surge in truck activity, with the city experiencing up to 31% of daily total freight traffic volumes

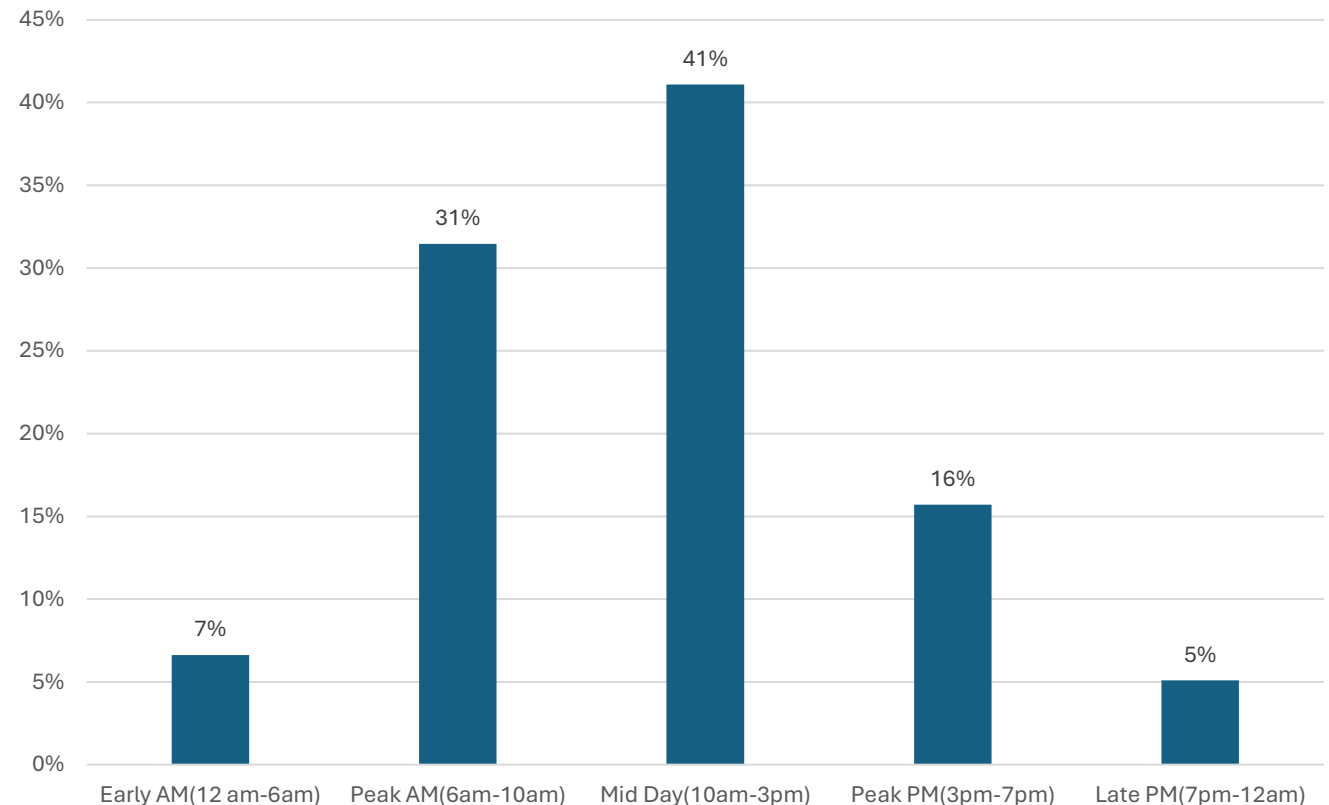
Midday
(10 am - 3 pm)

Substantial truck movement, up to 41% of daily freight traffic volumes

Morning is critical for freight delivery and movement in and out of industrial NTAs

- Manhattan NTAs exhibit lower early AM freight traffic, likely due to commercial deliveries occurring at other times
- Mid-day freight traffic is substantial in most NTAs, particularly in areas like Upper East Side-Carnegie Hill, SoHo-TriBeCa, and Flushing
 - Midday is a key window for deliveries to both residential and commercial zones

Average Distribution of Freight Trips by Different Time Periods



Source: TYLin analysis of 2021 NYC DOT Streetlight data

The percentages in this figure represent the average distribution of freight trips by different time periods i.e. 41% of freight trips take place during mid day (10am-3pm))



Emerging Trends in NYC Warehouse Development

The **most significant trend** in New York City's industrial market during the past ten years has been the construction **of large-scale distribution centers** developed in **response to the rise in e-commerce**

- This includes several **multi-story properties** – a concept that did not exist in the U.S. until 2018
- Distribution centers require more parking than traditional warehouse properties
 - Higher employee counts
 - Rapid expansion of small delivery vans



The Bronx Logistics Center and the Review Avenue Complex Exemplify New Warehouse Development in NYC

- **Turnbridge Equities** recently delivered the 1.3 million SF **Bronx Logistics Center**, which has 585,000 SF of warehouse space and 730,000 SF of total parking area (100 percent electric vehicle ready)
- **Innovo Property's Review Avenue Complex** in Long Island City will have 274,000 SF of warehouse/mezzanine space and 479,000 SF of parking and loading space





NYC Warehouse Operating and Leasing Models

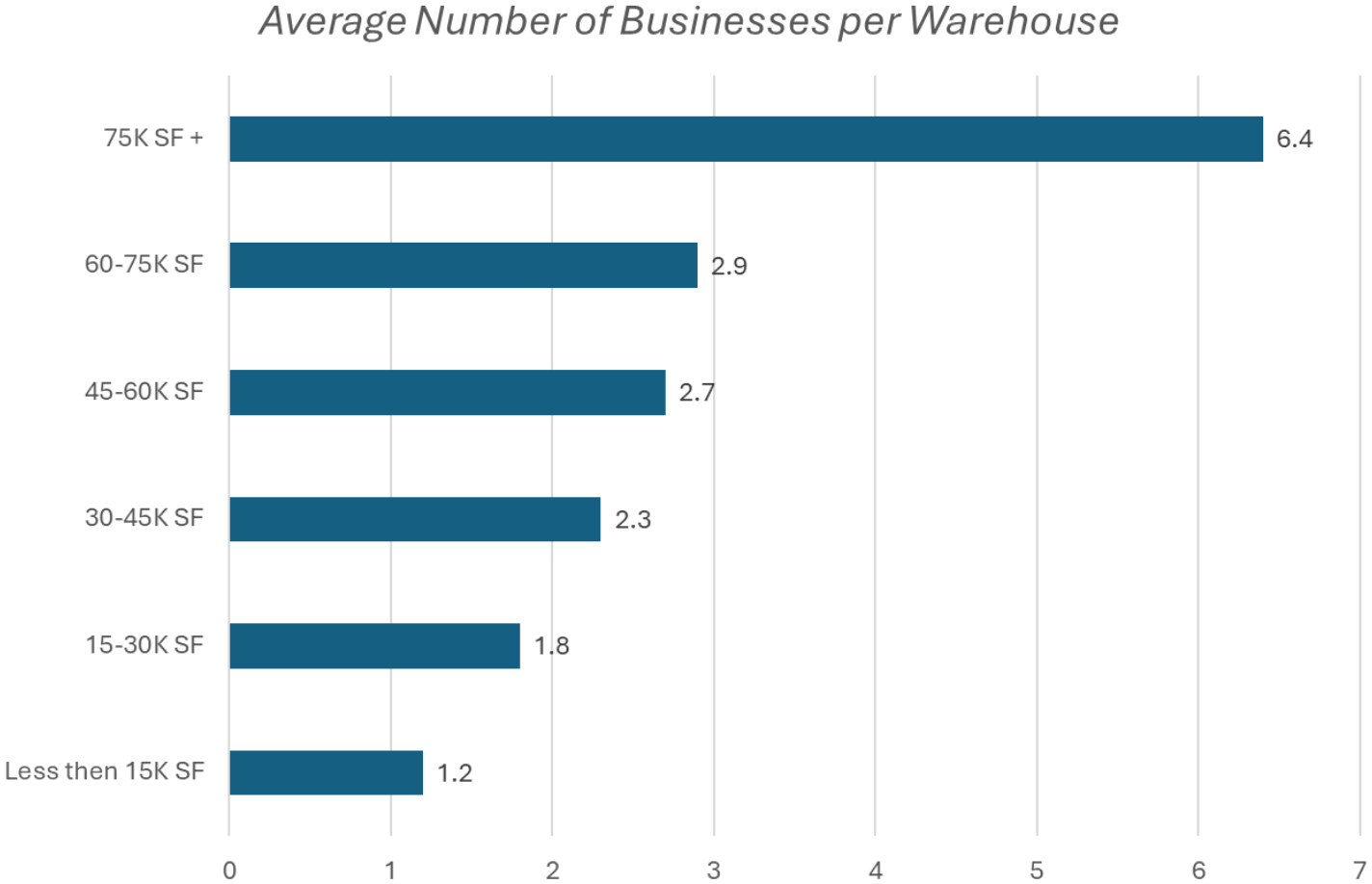


NYC's Warehouse Industry has a Diversity of Operating Arrangements and Degrees of Integration

- While some warehouse operators own their buildings, leasing is also common.
- A warehouse **tenant** can be either the **third-party logistics provider (3PL)** handling the cargo in the designated space, or the **owner** of that cargo.
- While some producers operate their own fleets to distribute goods, many producers, wholesalers, and retailers outsource the storage and distribution of their products to 3PLs.
- A **3PL provides logistics functions**, such as moving, storing, and/or managing products, for its customer. They do not take ownership of the products. Examples are C.H. Robinson, J.B. Hunt, and Ryder.
- **Integrators**, otherwise known as 4PLs (Fourth-Party Logistics Providers), such as **FedEx** and **UPS**, control the entire supply chain, including the trucking operation.
- **Non-integrators**, which include most warehouses at Hunts Point, typically work with other companies to move products. They do not typically handle trucking themselves.

Integrators, or 4PLs, own and operate their own fleet of truck, planes, and sorting centers, which enable them to maintain control over the entire good movements chain of service. FedEx, UPS, and DHL are well known examples of integrators.
Source: Industry interviews conducted by TYLin/Cheng

Many buildings classified as warehouses in NYC are **home to multiple businesses**, following an expected trend of **larger warehouses hosting more businesses**



Sources: NYCEDC analysis of NYC Department of Finance data. Because current uses of warehouse buildings of all sizes were not validated, figures should be considered estimates and non-definitive.

Industrial leases are known for **shorter lease terms** in comparison to other property types, such as office or retail



Average lease term for industrial space is 5-7 years nationally. Typical warehousing leases are 5-10 years



Terms for brand new Class A development with modern improvements generally start at ten years



Older Class C properties can see lease terms of 1-3 years. Larger institutional* spaces tend to have longer lease terms than small non-institutional** ones

*Larger institutional spaces defined as those owned by large real estate investors on behalf of shareholders and/or clients

**Smaller non-institutional defined as those owned by individuals, families, smaller businesses



Warehousing Costs

Much NYC warehousing is **last-mile oriented** - where goods are organized for final delivery to users within the five boroughs. **Costs typically include:**

Facility Costs

Fixed costs such as rent and taxes, as well as variable costs, such as maintenance of facilities, and utilities

Labor

Management and warehouse staff, such as packers, pickers, forklift operators, and equipment maintainers

Technology

Technology is becoming increasingly important given high labor costs. Larger companies can exert efficiencies at scale with robotics, software to track packages and manage inventory, as well as multi-level storage systems

Insurance

Insurance costs depend on the size of the facility and the volume, as well as the type and volume of goods they process and/or store.

Security

Security costs may include security staff as well as equipment costs for CCTV and monitoring services

Direct warehouse operating and capital expenses are just one component of the costs of freight movement. **Other expenses, especially transportation, are central.**

Transportation

Largest cost in the logistics chain: 45 to 70% of the total cost to move a finished product, food item or raw material

Inventory Carrying Costs

Storage fees for the goods until they are ready to be transported to the customer

Other costs

Taxes, debt maintenance, and professional services such legal and accounting

To Manage Costs, Companies are Increasingly Outsourcing Both Warehousing and Trucking

- **Third-party logistics providers (3PL)** saw a growth over 50% in 2021
- With the use of 3PLs, **companies do not need to be experts at cost effectively managing a transportation fleet** or warehousing in multiple markets
 - A company can contract for warehousing and pay based on the quantity of goods that need to be warehoused, which provides more flexibility to the business

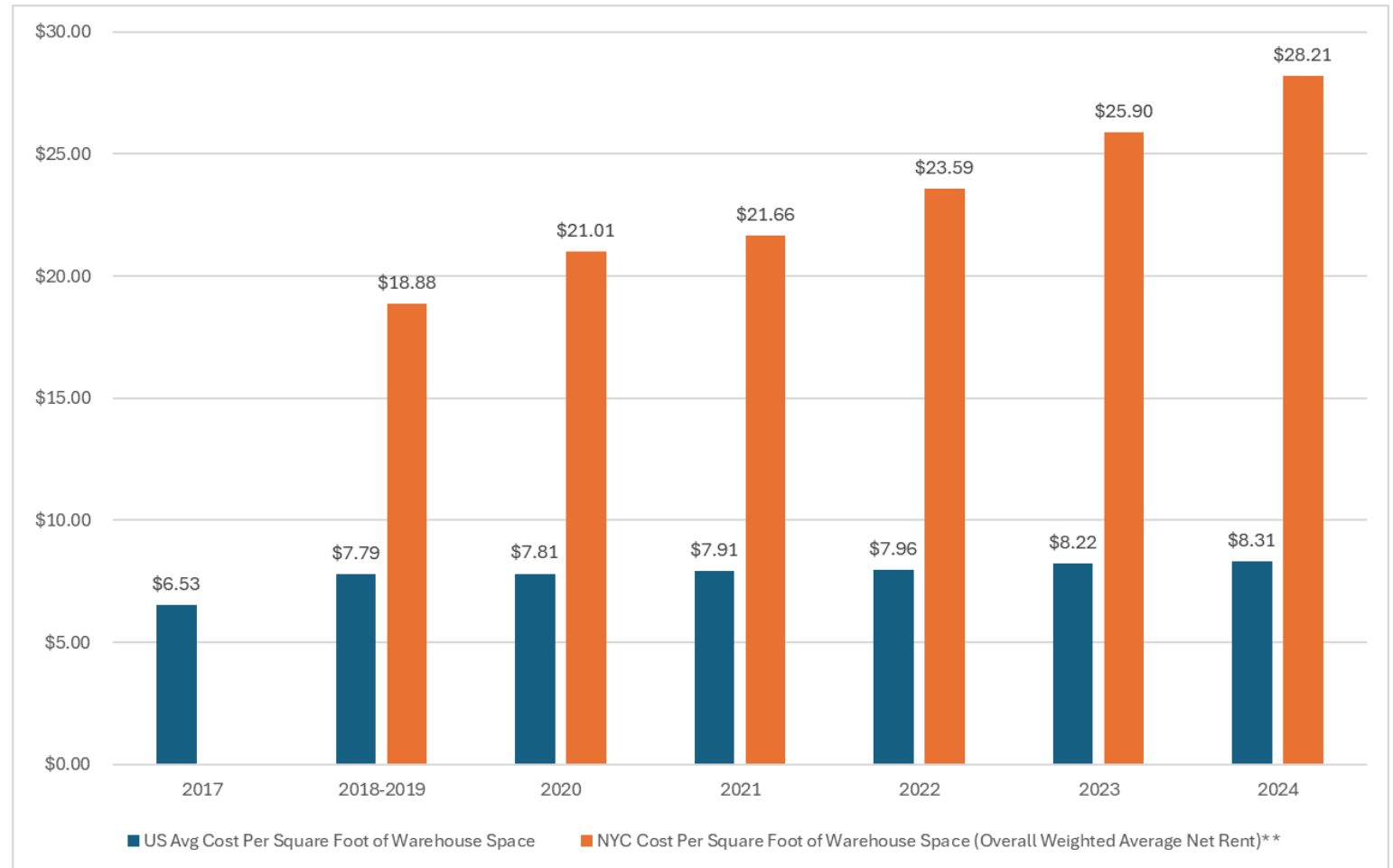


NYC Presents a Unique Warehousing Environment, with Both High Costs and High Access to Customers

NYC is a high-cost warehousing environment due to land constraints and high land and transportation costs.

Despite high costs, warehousing in NYC is essential and beneficial for many companies because of the city's dense customer base.

Cost per Sq Foot of Warehouse Space – National Average vs NYC

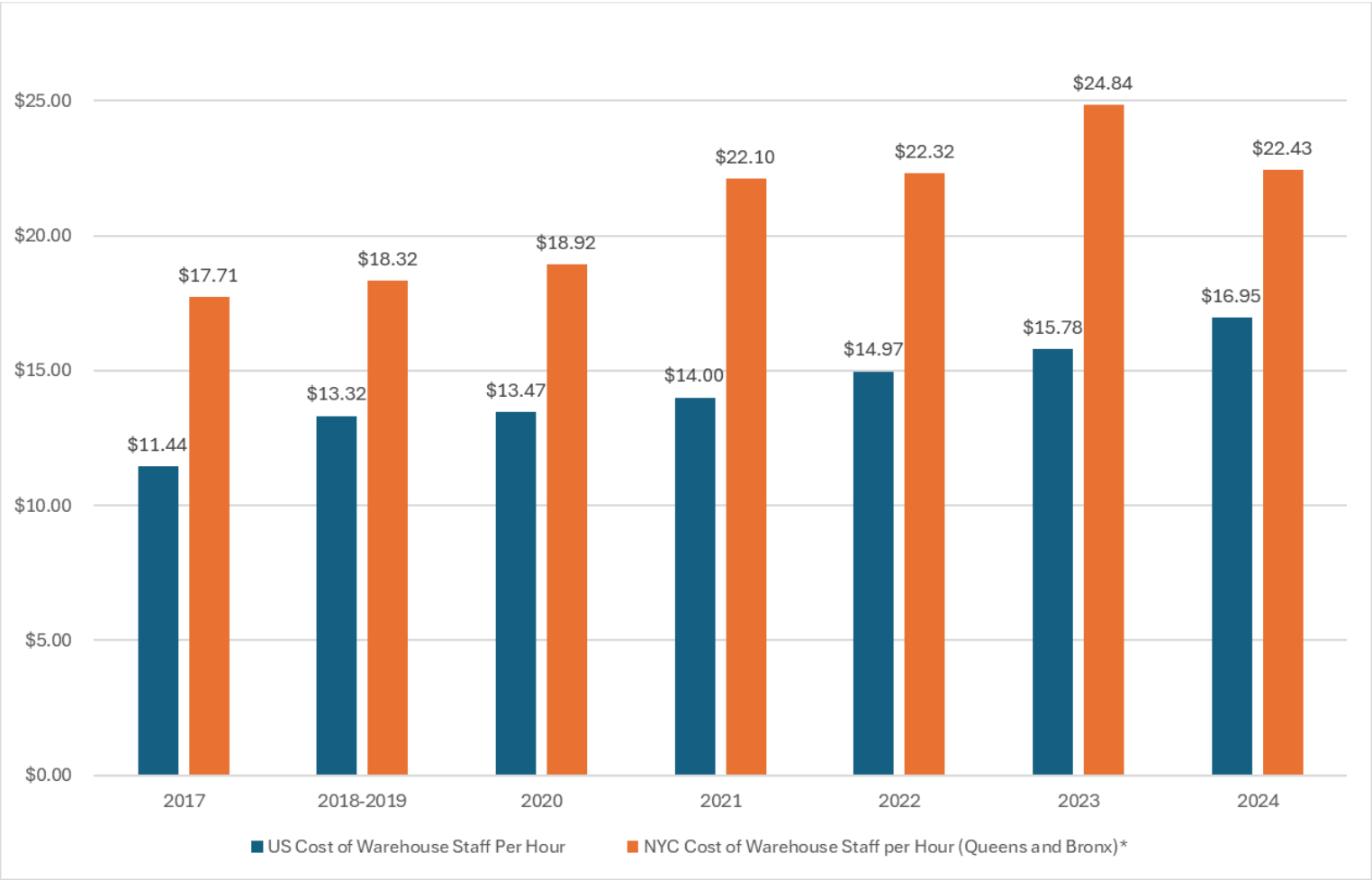


While labor costs are high in NYC, a distinguishing advantage of NYC is the depth of the labor force

NYC's large working-age population and public transportation network are assets to NYC warehouse operators.

In other areas, the number of workers in a commutable radius may be limited. Often, warehouses can only recruit workers who own cars they can use to commute. In NYC, warehouse operators have access to millions of workers who can commute via either public transportation or car.

Cost of Warehouse Staff per Sq Foot of Warehouse Space – National Average vs NYC



Sources: USBLS, Quarterly Survey Employment and wages. Labor is General Warehousing and Storage NAICS 493110. The only two series with sufficient wage data are for Bronx and Queens

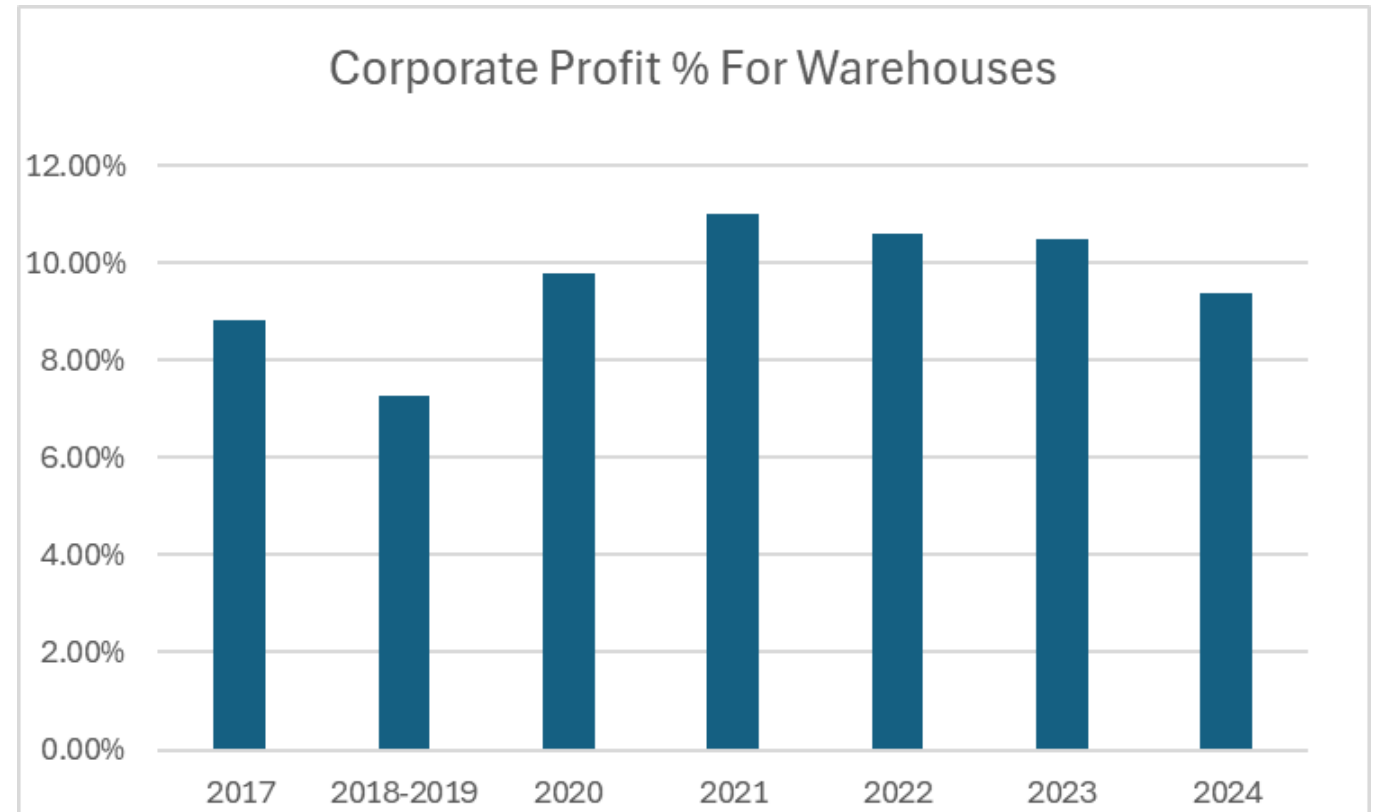
Warehousing in NYC is more directly focused on **servicing the needs of the local population** and businesses

- Given the higher costs of operation in NYC, **warehousing in NYC is largely geared towards servicing the NYC market**
 - Unlike warehousing in New Jersey or Pennsylvania, goods in NYC are rarely being stored in NYC and then repackaged for delivery elsewhere
- An exception is **air cargo goods**, which may be arriving for short-term processing in the JFK Springfield Gardens neighborhood en route to JFK or arriving at JFK en route to regional markets.

Profit margins in **warehousing nationally** have been in the range of 10% for the past several years.

- If a warehouse is part of a local manufacturing enterprise, warehousing is a cost of doing its primary business and is not a business itself
 - Cost increases would be incorporated into the overall cost of business
- For the **last-mile distribution** of consumer products, much of this **warehousing may take place at third-party facilities (3PLs)**
 - These facilities are operated as stand-alone businesses to maximize profit for owners and investors

Average Reported Corporate Profit for Warehousing from 2017 to 2024 (United States)





Key Insights



Warehousing in NYC is largely geared to serving the NYC market. Goods in NYC are less frequently being stored in NYC and then repackaged for delivery elsewhere



Properties over 50K SF represent only 6% of warehouses but comprise over 40% of warehouse space.



Medium-duty trucks account for 96% of all truck trips across the city



The most significant trend in New York City's industrial market during the past ten years has been the construction of large-scale last-mile logistics facilities developed in response to the rise in e-commerce



Distribution and the supply chain have changed with e-commerce, and tenants are increasingly looking for urban locations



There is a shift from traditional tractor-trailer deliveries to facilities handling hundreds of smaller package vehicles daily to address the demand for last-mile delivery



Companies are increasingly outsourcing both the warehouse and trucking components of their businesses



Appendix

Glossary

- **Traditional Warehouses in NYC:** Traditionally used for receiving, storing, and dispersing goods. They typically have lower clear heights, less than 25,000 SF, and fewer dock doors (one per 15,000 SF of interior space).
- **Distribution Centers in NYC:** Like traditional warehouse space, except there is little-to-no storage function. They have greater clear heights than traditional warehouses in NYC and are typically at least 50,000 SF, often well over 100,000 SF. They also have a larger proportion of dock doors.
- **Third-party logistics providers (3PLs):** A third-party logistics (3PL) provider is a commercial firm that provides one or more logistics functions on behalf of its customers on an outsourced basis for a fee. To be a 3PL, the logistics service provider (LSP) must predominantly operate a business that moves, stores or manages products or materials on behalf of its customer, in some manner, without taking ownership of such products or materials.
- **Integrators/Fourth-party logistics providers (4PLs):** Integrators, or 4PLs, own and operate their own fleet of truck, planes, and sorting centers, which enable them to maintain control over the entire good movements chain of service. FedEx, UPS, and DHL are well known examples of integrators.
- **Neighborhood Tabulation Areas (NTAs):** Boundaries of Neighborhood Tabulation Areas created by the NYC Department of City Planning using whole census tracts from the 2010 Census as building blocks. These aggregations of census tracts are subsets of New York City's 55 Public Use Microdata Areas (PUMAs).

Methodology

Methodology – CoStar Data

- For purposes of this study, every property in the CoStar database in the five boroughs of New York City with a Primary Use listed as ‘Industrial’ and with a ‘RBA’ (rentable building area) of at least 75,000 SF was individually analyzed to verify the accuracy of the following key fields:
 - Address
 - RBA2 (rentable building area)
 - Secondary Use
- Several factors were used to help determine the current secondary use, which was identified to be either warehouse, distribution, or other. Initially, the TYLin team examined the following fields in CoStar:
 - Secondary Use, as listed in Costar
 - Clear Height
 - Dock Doors
- These metrics and methodology were used to help ensure the property’s use is consistent with that utilized in NYMTC’s 2021 Freight Land Use and Real Estate Market Analysis Final Technical Memorandum.

The TYLin team also individually researched each property in the dataset in terms of the current tenant roster to further help identify its current use. Tenant information was obtained from publicly available sources such as LoopNet and Google, as well as marketing materials from brokerage firms such as Pinnacle Realty and Jones Lange LaSalle (JLL). Additionally, tenant websites and industry periodicals such as Commercial Observer and The Real Deal were used to gather information on local activity.

Methodology – Interviews with Industry Experts

Telephone interviews were conducted with real estate professionals with knowledge of the NYC warehousing landscape. Questions were asked regarding warehousing trends, contracting, transportation onsite, and trucking to facilities. To encourage candor, the interviewees were told that their responses would be presented without attribution to their company.