

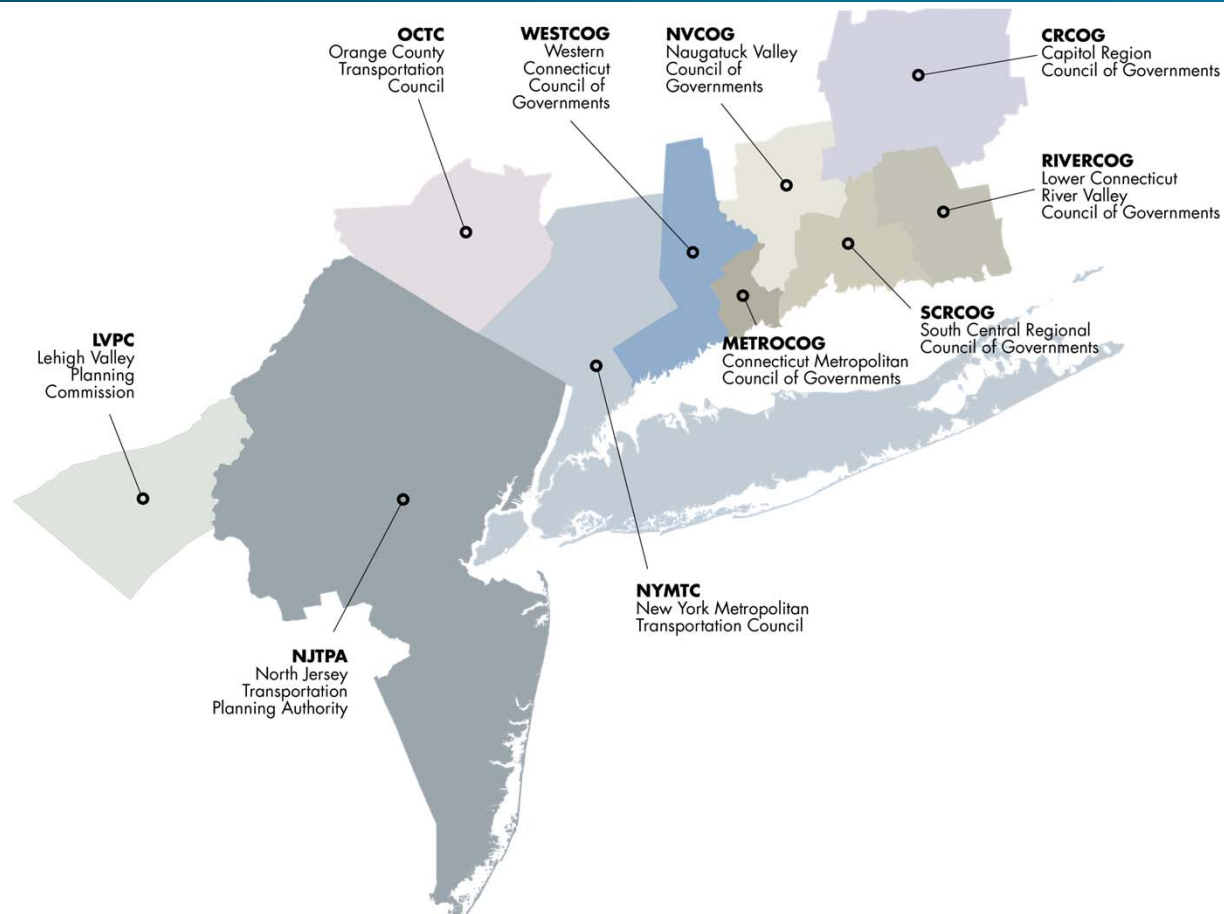
Regional Freight Land Use Study

Multi-State Freight Working Group Meeting
May 12, 2022

Study Objectives

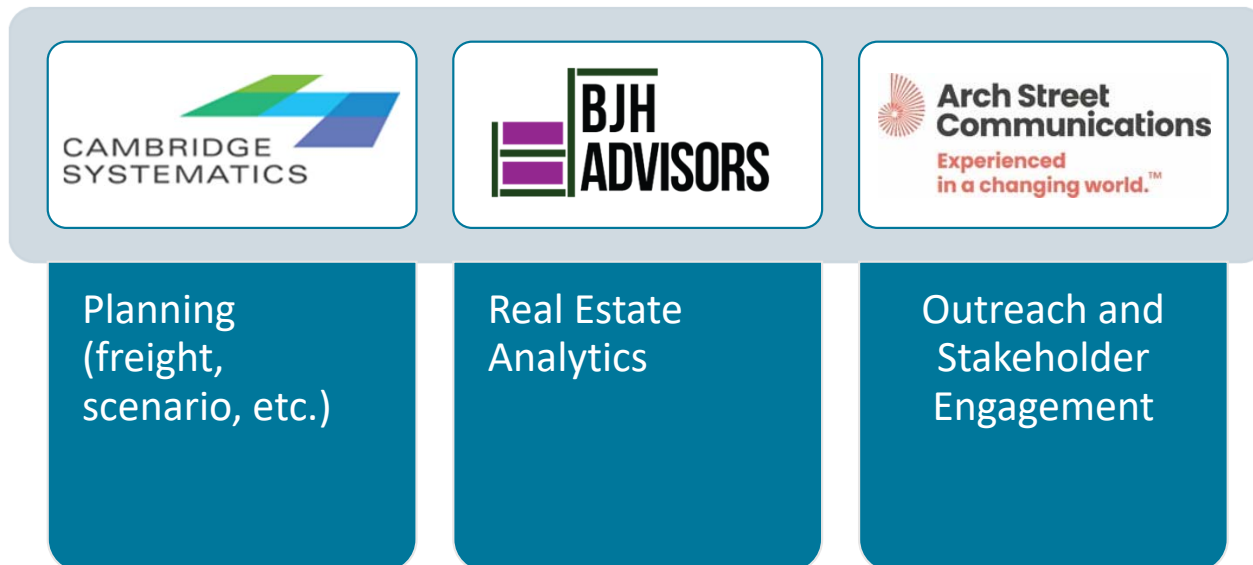
- Identify and describe:
 - Freight land use clusters throughout the region
 - Macroeconomic and global logistics trends
 - Localized factors and costs that influence site selection decisions
- Develop:
 - A typology of freight land uses with similar features, factors of influence, recent and emerging trends and needs
 - Documentation and geodata

Geographic scope of the study



Project Team

- NYMTC Project Managers: Gerry Bogacz & Yev Galinski
- Consultant Team Leaders:



What is “Freight” Land Use?



Freight-Generating

- Manufacturing
- Industrial/Warehousing
- Some Commercial/Flex
- Agriculture



Freight-Handling

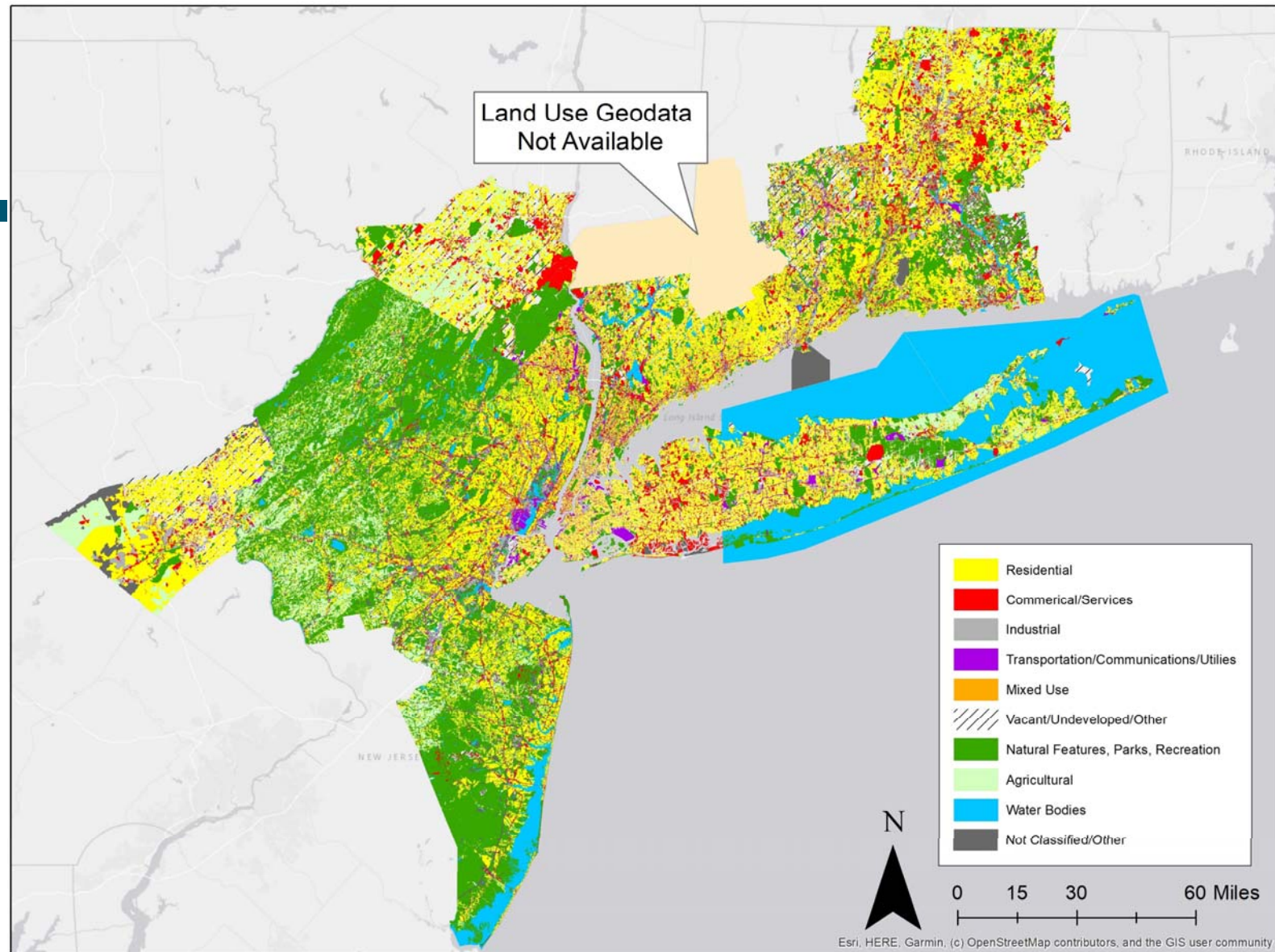
- Transportation (marine terminals, rail facilities, etc.)



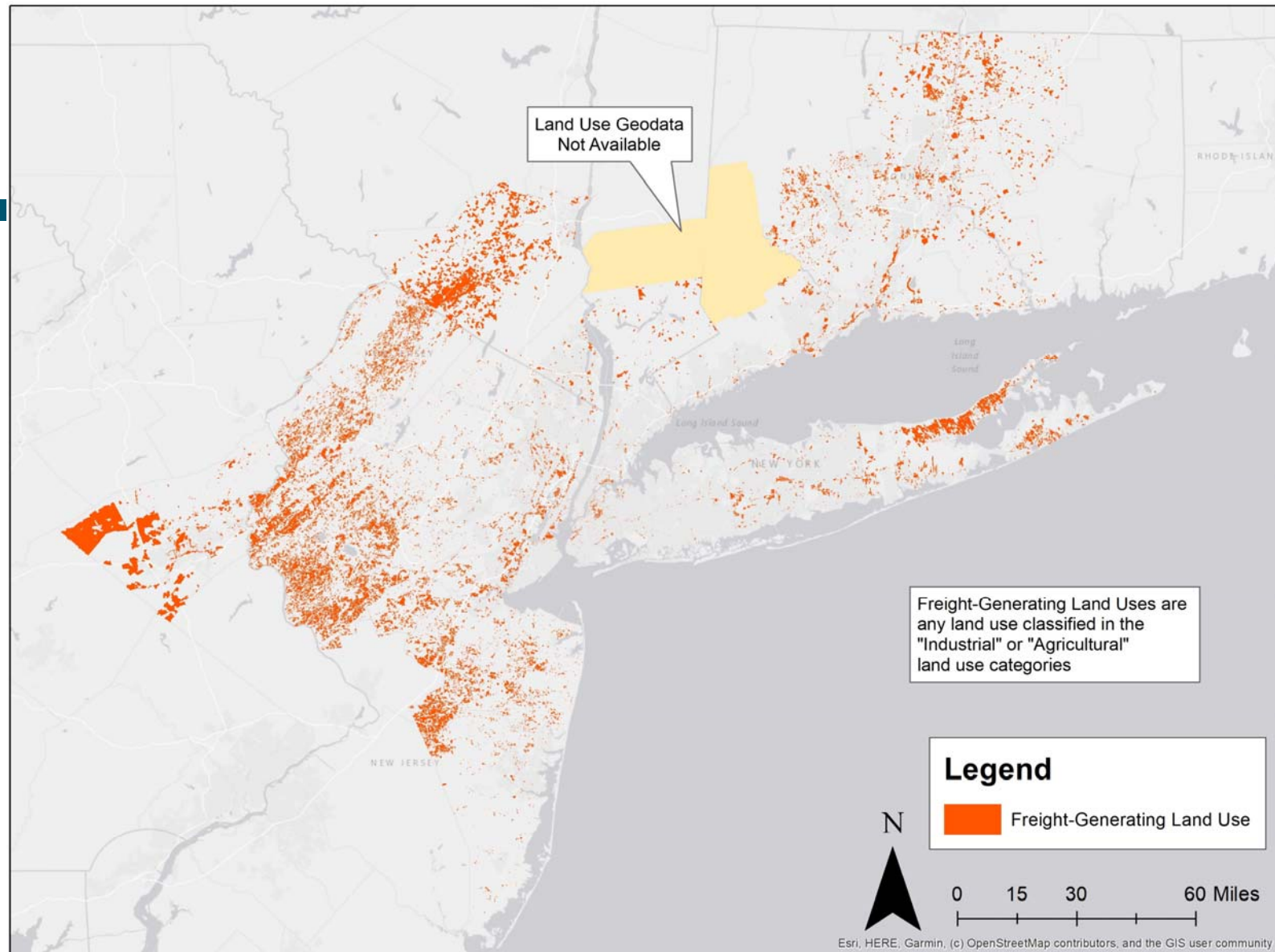
Freight-Receiving

- Commercial/Retail/Office
- Residential
- Institutional

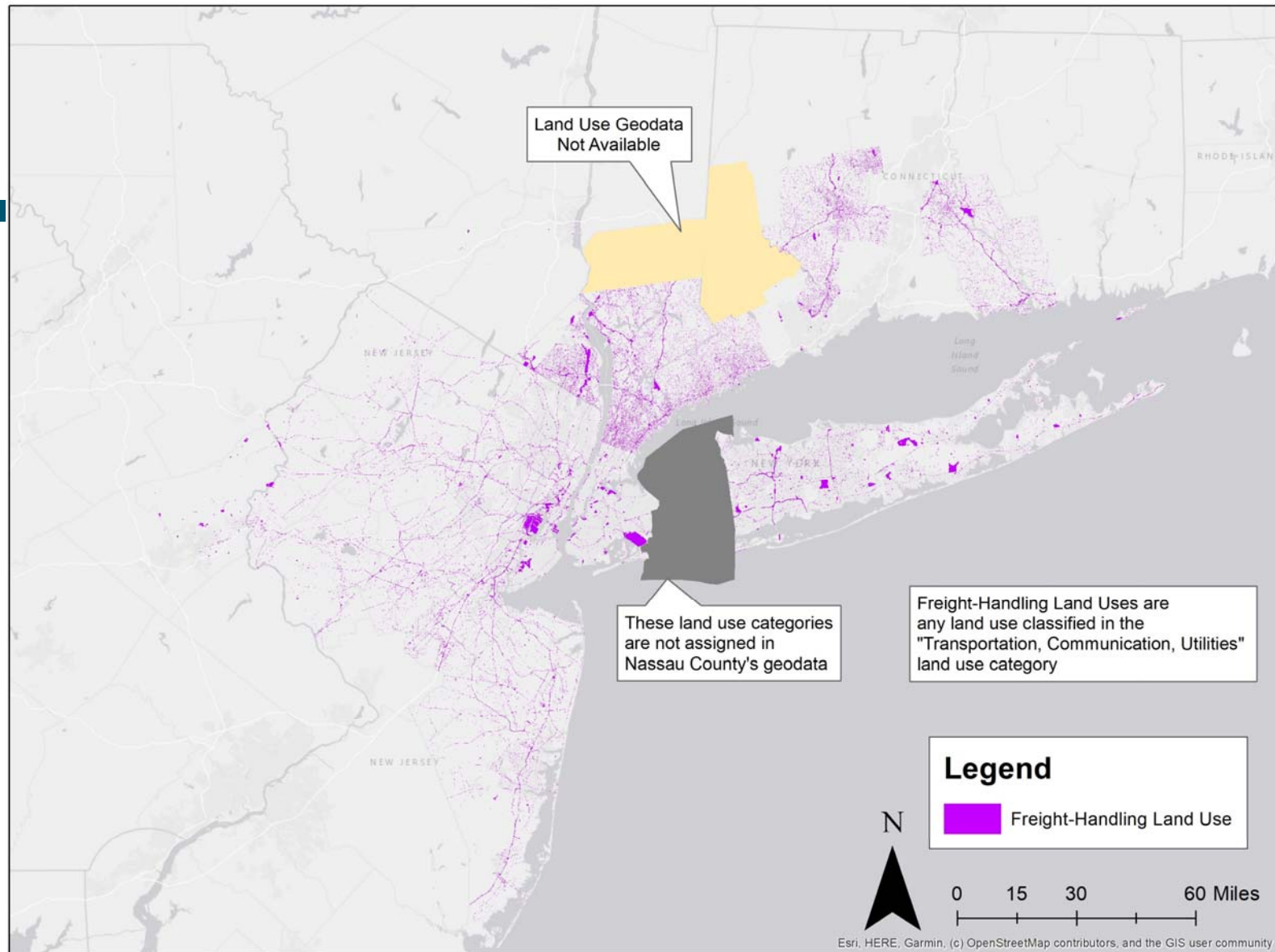
Land Use Geodata



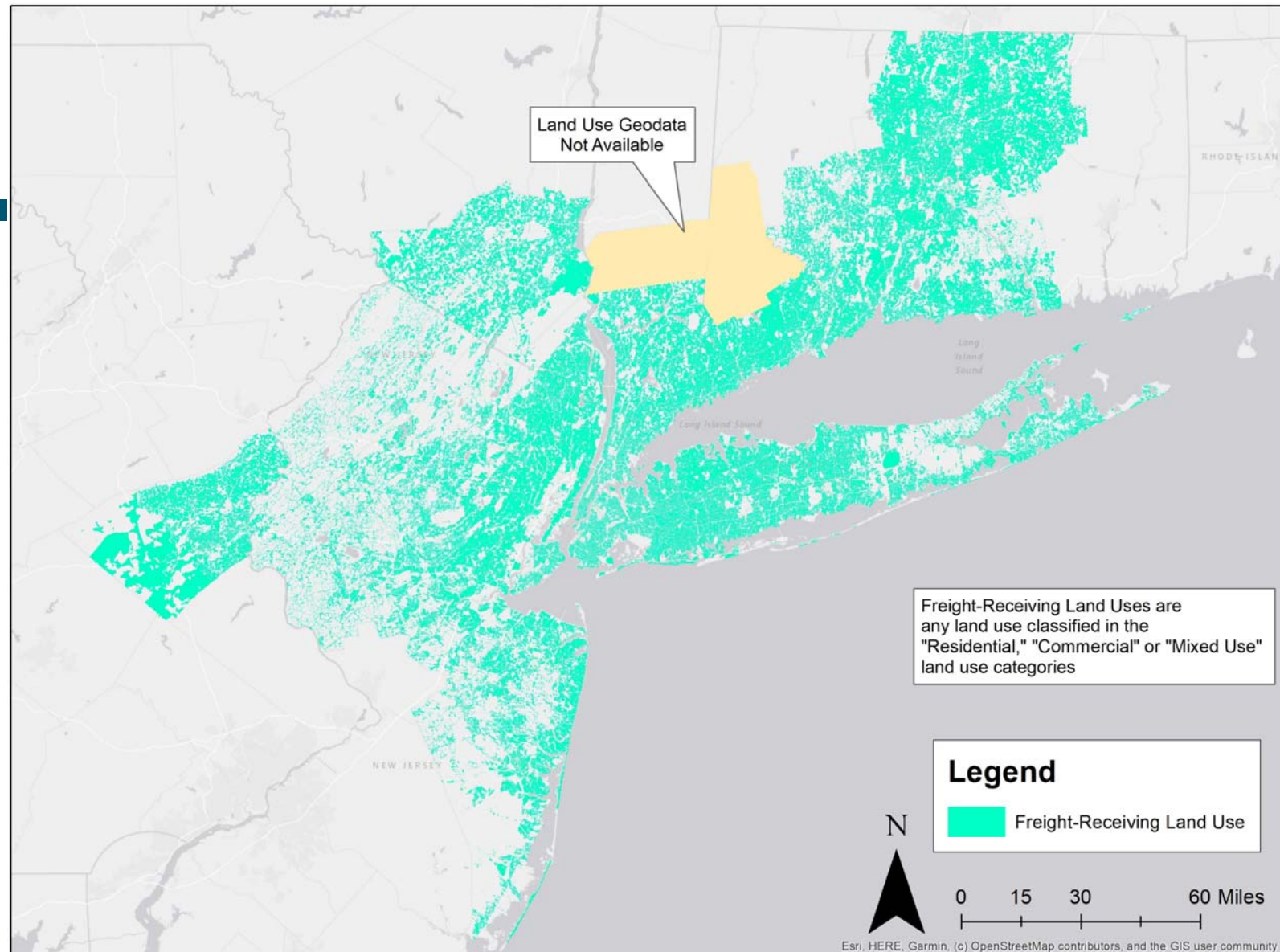
Freight-Generating Land Uses



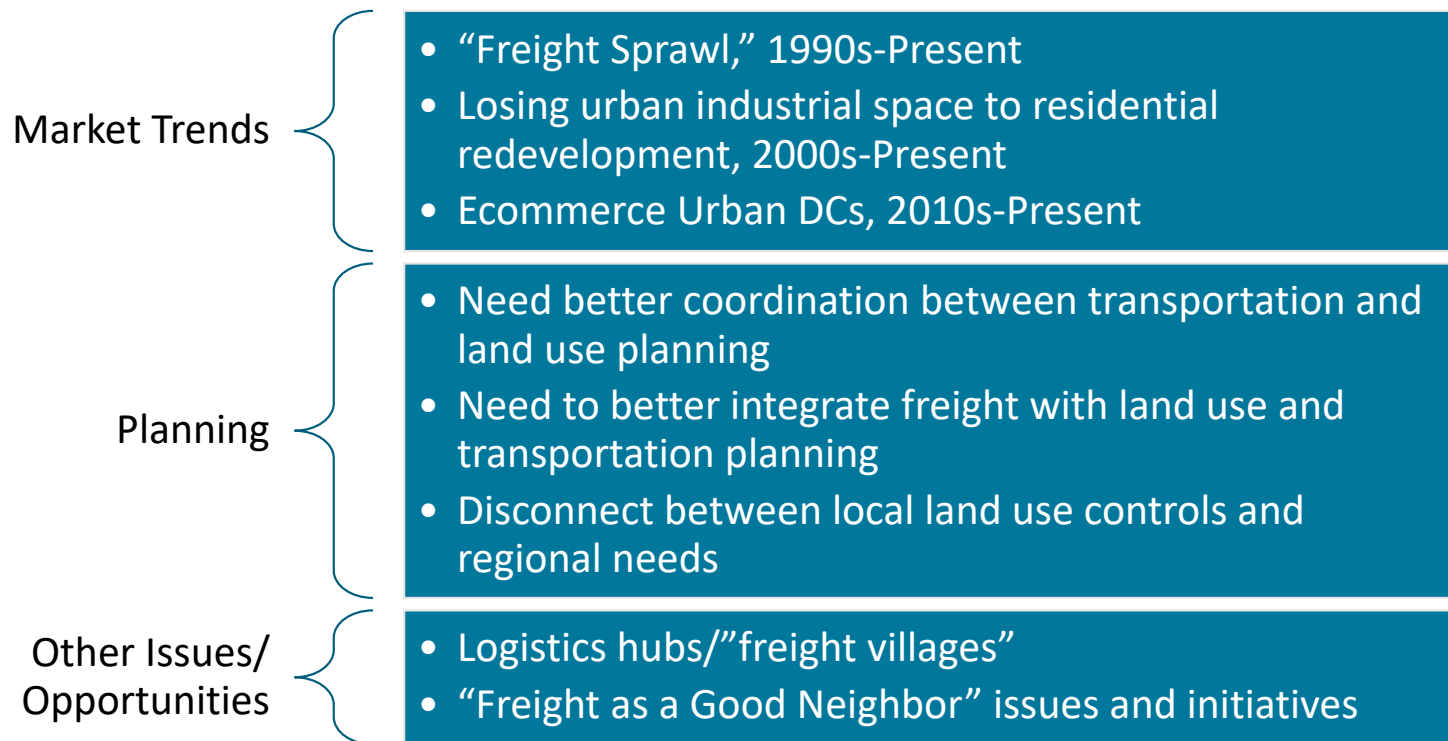
Freight-Handling Land Uses



Freight-Receiving Land Uses



Literature Review: Cross-Cutting Themes



Market Analysis

- Costar market analytics data used to analyze industrial real estate by category, subregion, and other attributes

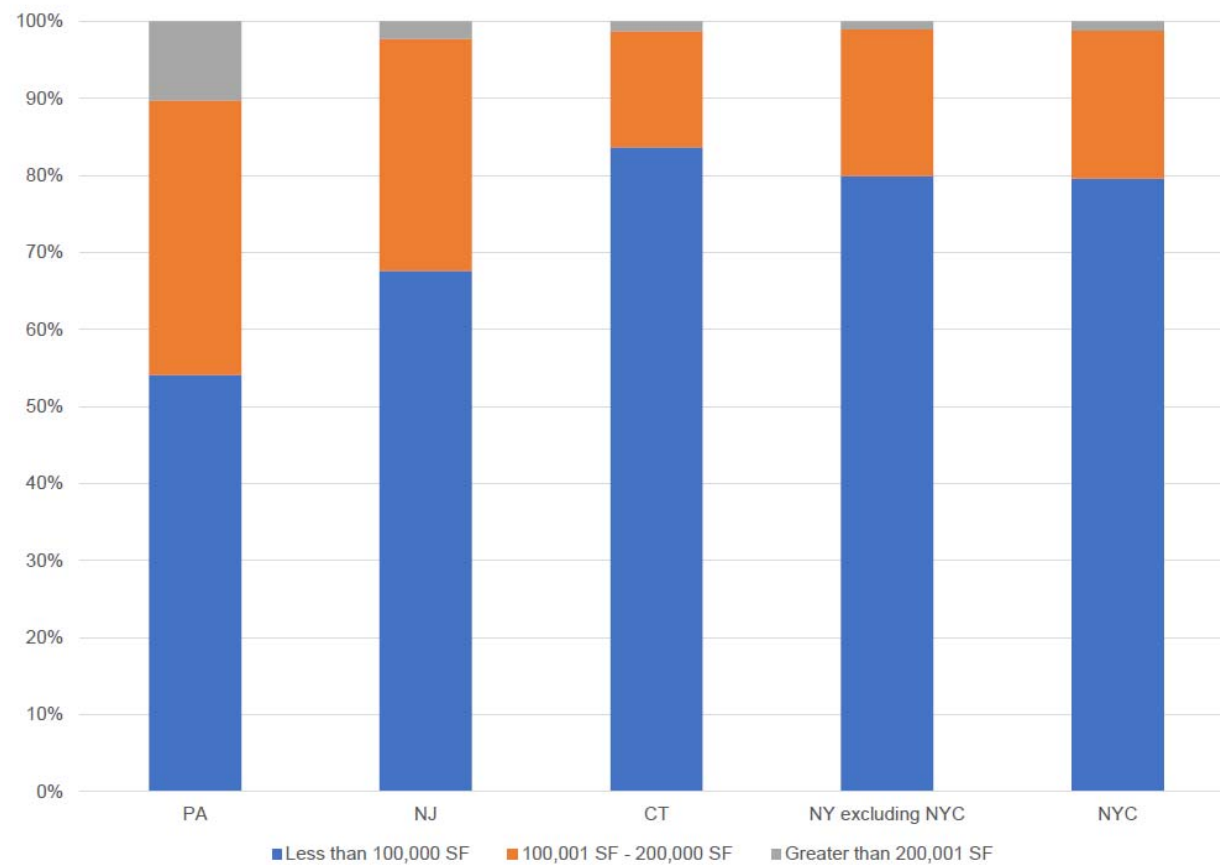
Property Type	# of Existing Buildings	Rentable Building Area	Vacant Building Area	Vacancy Rate
Cold Storage	69	5,365,786	142,330	6.8%
Food Processing	109	4,987,020	38,475	2.8%
Metro Distribution	1,277	94,980,688	7,106,990	4.3%
Production	7,418	256,323,678	11,531,132	4.1%
Warehouse	27,618	643,768,028	28,305,637	3.3%
All Properties	36,491	1,005,425,200	47,124,564	4.2%

Source: CoStar, analyzed by BIH Advisors, 2021

Market Analysis



Properties by Size

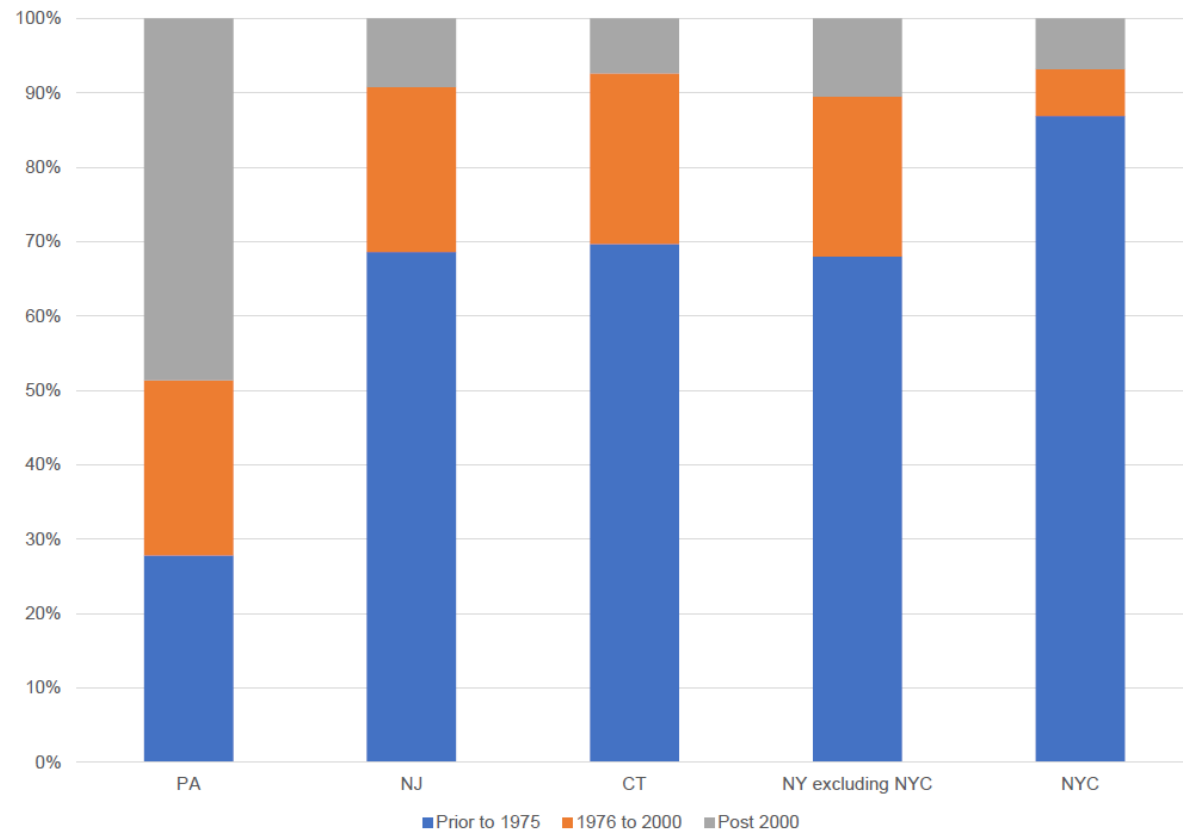


Source: CoStar, analyzed by BJH Advisors, 2021

Market Analysis



Rentable Building Area



Source: CoStar, analyzed by BJH Advisors, 2021

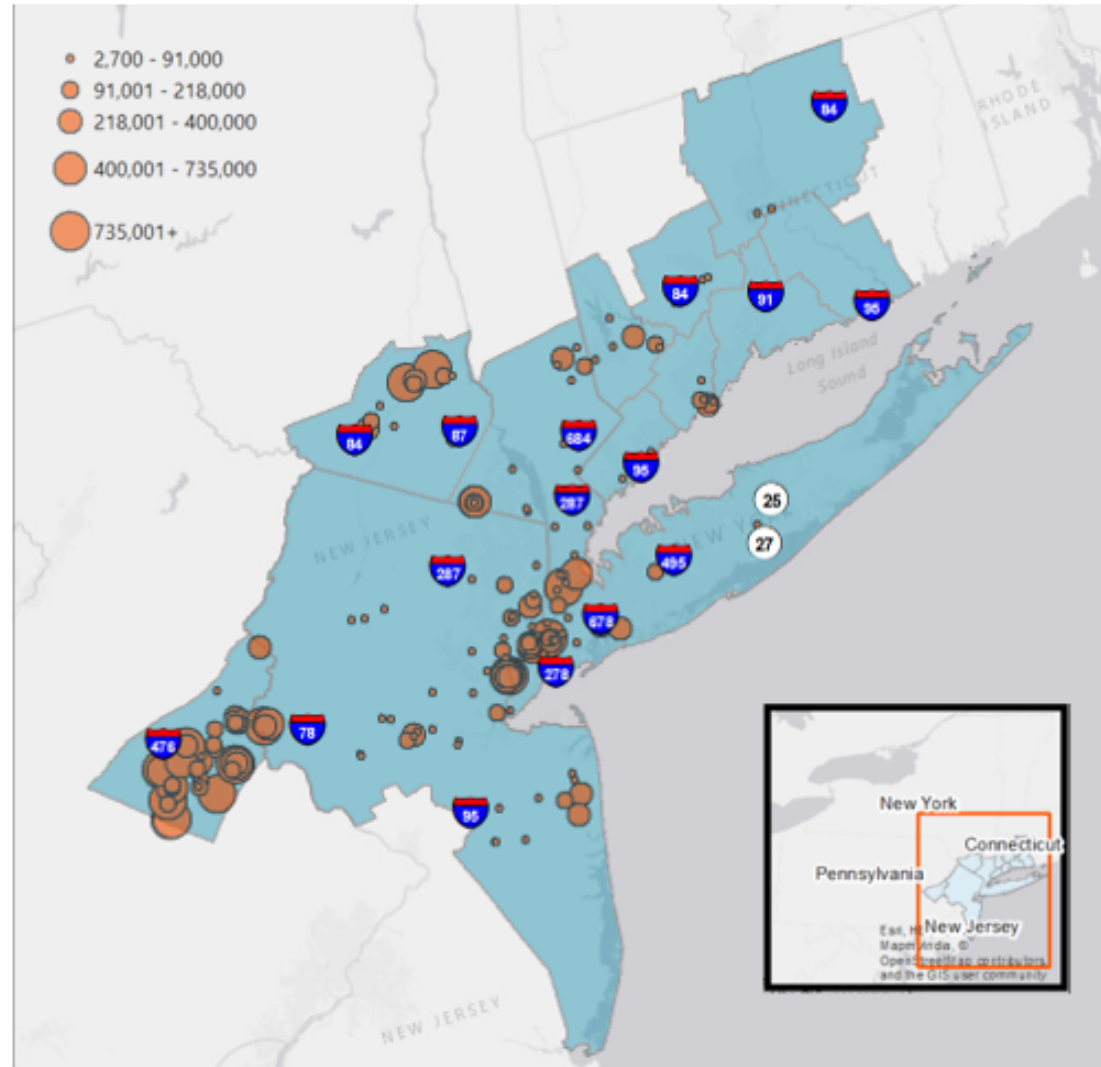
New Construction

Largest Under Construction and Proposed Total RBA by County

County Name	State	Number of Buildings	Total RBA by County
Northampton County	PA	20	7.45M
Lehigh County	PA	17	7.43M
Union County	NJ	12	4.28M
Orange County	NY	11	3.69M
Hudson County	NJ	5	2.65M
Kings County	NY	11	2.46M
Warren County	NJ	3	2.16M

Source: CoStar, analyzed by BJH Advisors, 2021

Figure 6: Under Construction and Proposed Buildings



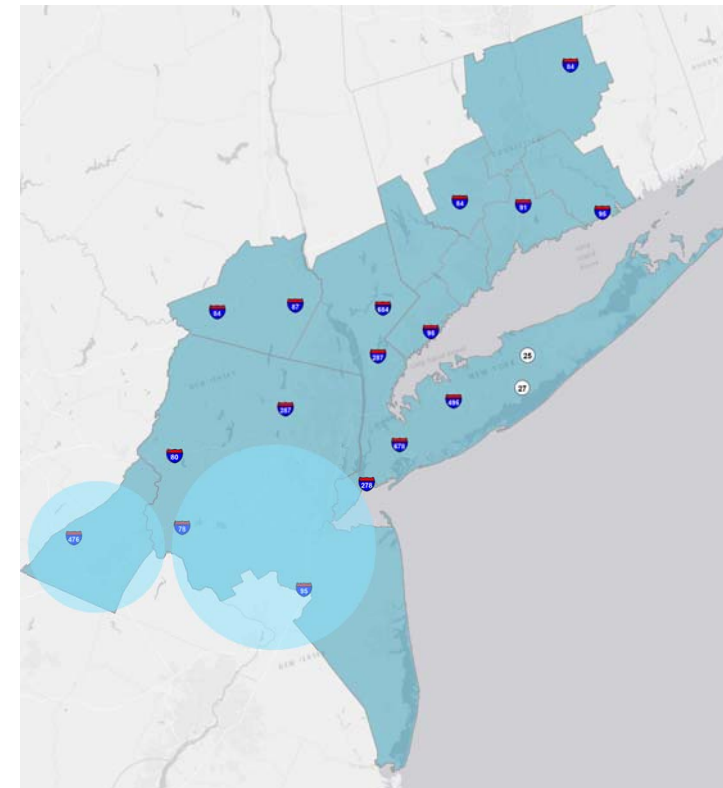
Land Use Trends

1990s-2000s

- Large retail distribution centers in outer portions of the region
- Vacant or repurposed urban brownfields
- Reduction in urban industrial land inventory



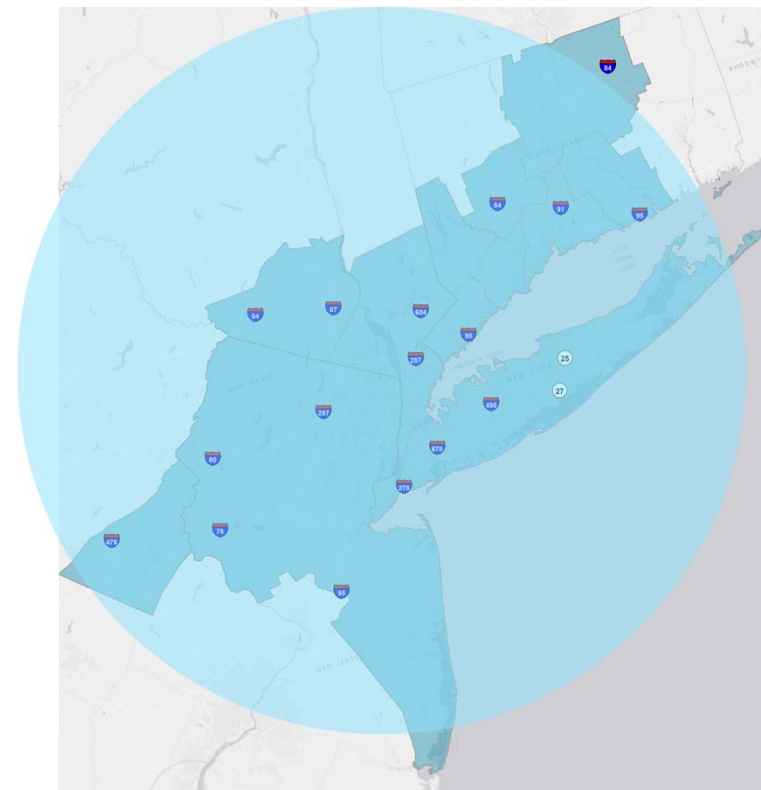
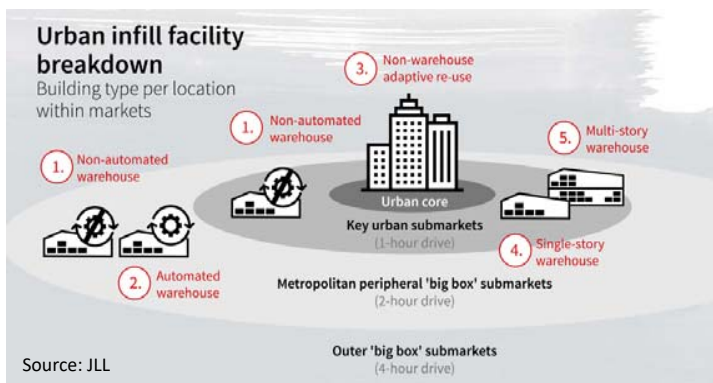
Source: Ramon Pujols via Google



Land Use Trends

2010s-2021

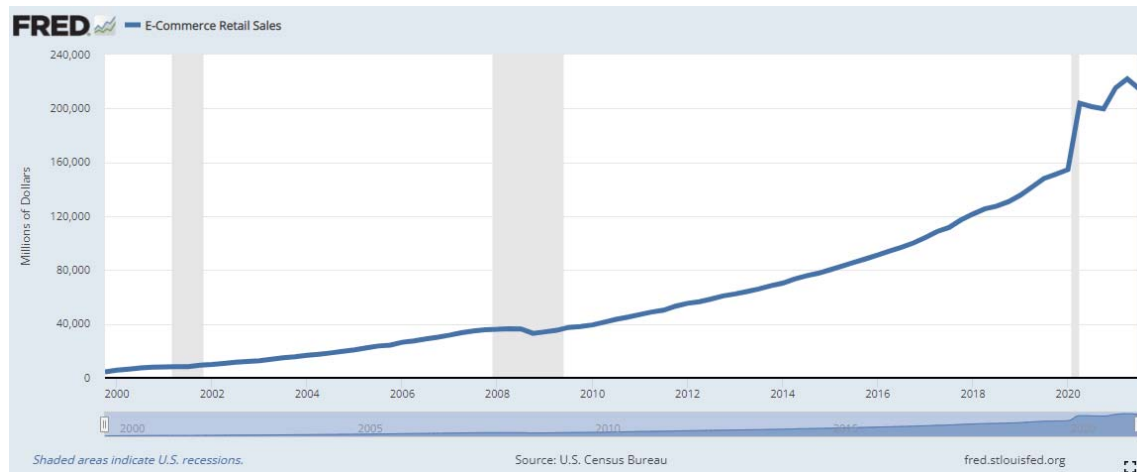
- Large e-commerce fulfillment facilities feeding a network of last-mile delivery stations
- Micro-warehousing and fulfillment
- Market favors investment in urban industrial redevelopment, multistory facilities, etc.



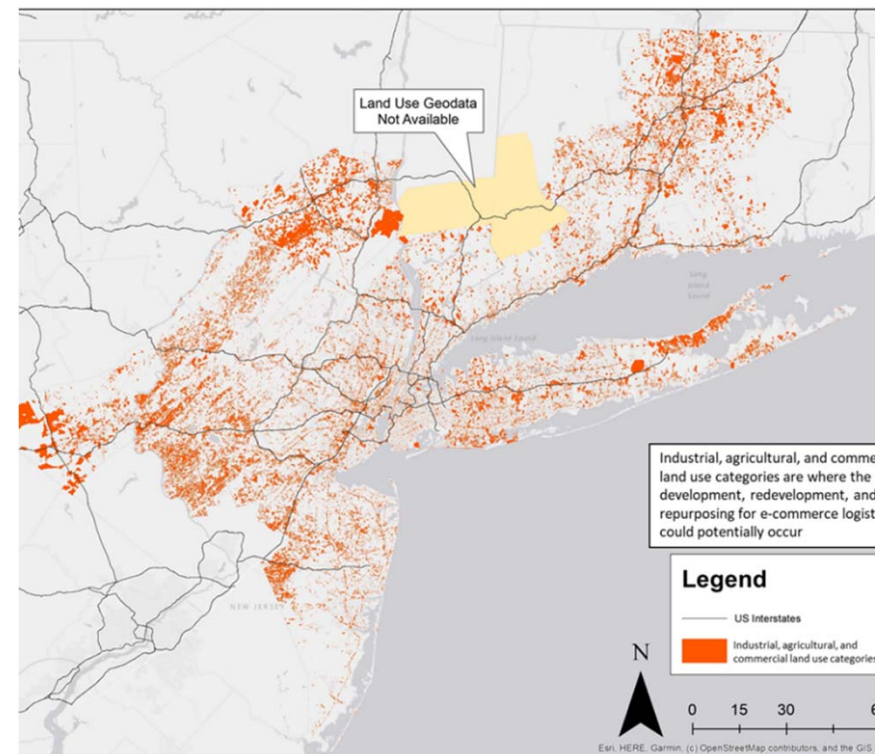
Drivers of Change

- E-commerce growth
- Distributed manufacturing
- Climate change
- Population growth/distribution
- Clean freight fueling/charging development

E-Commerce Growth



- **LOW-GROWTH SCENARIO:** E-commerce sales increase by 350% and represent 30% of total retail sales by 2050, and the corresponding requirement for warehousing space to stage, fulfill, and ship orders increases by 250%.
- **HIGH-GROWTH SCENARIO:** E-commerce sales increase by 900% and represent over 50% of total retail sales by 2050, and the corresponding requirement for warehousing space to stage, fulfill, and ship orders increases by 650%.



Distributed Manufacturing

Distributed manufacturing (DM) refers to the potential for three-dimensional (3D) printing to permit efficient goods production near the points of demand



Image Source: pcmag.com, 2021

Scenarios/Potential Outcomes:

- DM could facilitate onshoring of production (i.e., relocating some manufacturing from overseas to the U.S.) of some goods, particularly replacement parts, healthcare products, and construction materials in industrial zones throughout the region.
- DM could facilitate a cottage industry of "make-at-home" parts and goods (including consumers making their own, or entrepreneurs producing at a small scale) in industrial, commercial, residential, or other locations throughout the region.
- DM could remain a "niche" activity with no measurable impact on production, logistics, and/or land use.

Climate Change



- 9% of freight-generating land is a Special Flood Hazard Area (defined by FEMA).
- 7% of freight-receiving land is in a SFHA
- Sea levels could rise 1 foot by 2050, and 3-5 feet by 2100

Scenarios/Potential Outcomes:

- Hardening/defense
- Retreat

Percent of Land Area by Freight Land Use Category Affected by 1-Foot and 5-Foot Sea Level Rise

Land Use Category	Sea Level Rise: 1 foot	Sea Level Rise: 5 feet
Freight-Generating Lands (industrial, agricultural)	0.2%	1.2%
Freight-Receiving Lands (commercial, residential, institutional)	1.0%	2.9%
Freight-Handling Lands (marine terminals, rail yards, transportation infrastructure)	0.6%	2.9%

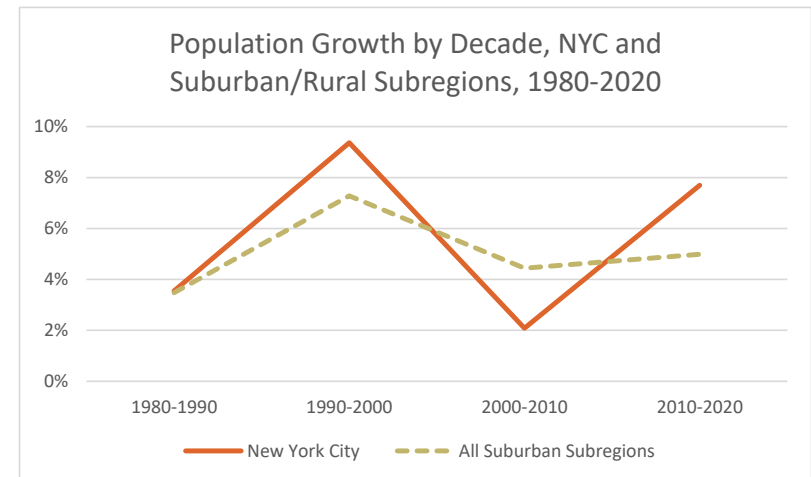
Source: NOAA, analysis by Cambridge Systematics

Population Growth/Distribution

1970-2000:	Most population growth occurred in the suburban/exurban areas;
2010-2020:	Much population growth occurred in the urban/inner suburban areas;
2020-2021:	Census estimates show decrease in urban/inner suburban and growth in outer suburban/rural areas

Scenarios/Potential Outcomes:

- Centralized population growth
- Suburban/rural population growth
- Little to no population growth

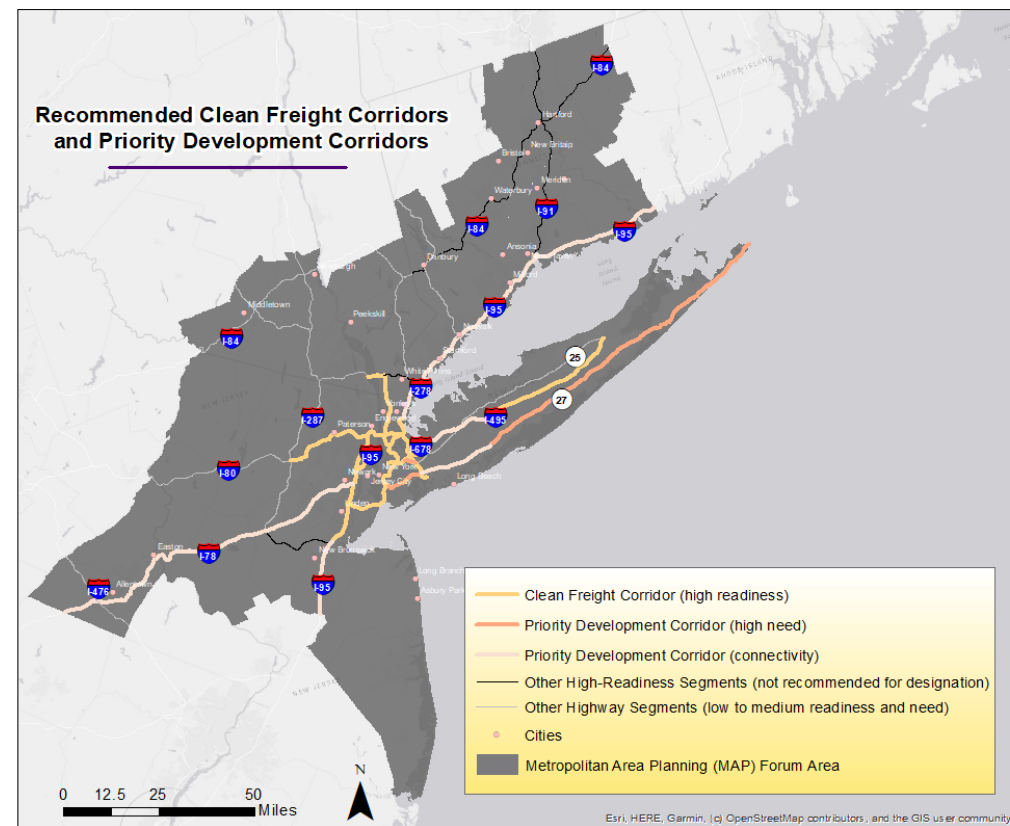


Source: U.S. Census Bureau

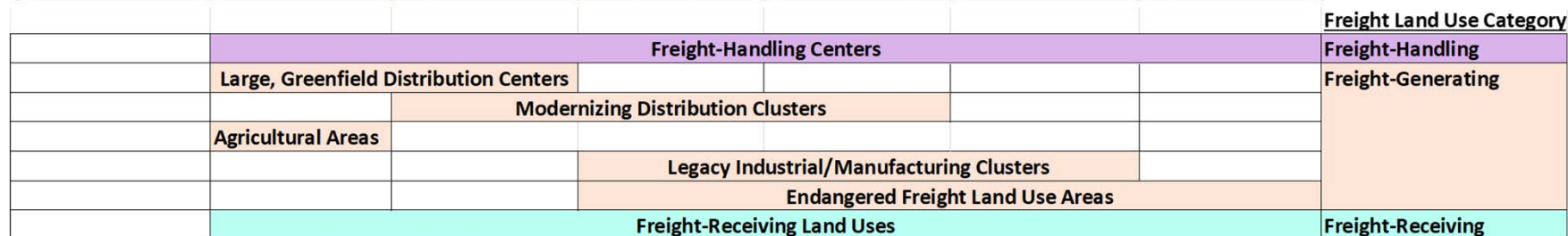
Clean Freight

Scenarios/Potential Outcomes:

- Very little transition to electric or other alternative fuels occurs with a corresponding low impact on freight land use.
- There is robust growth in electric or other alternative fuel adoption among truck fleets
- Addition of alternative fuel and charging capacity at existing truck stops, service plazas, and fueling stations.
- New facilities may be developed at or adjacent to major terminals (ports, air cargo hubs, industrial clusters) and/or on commercial properties located along major highway corridors.



Freight Land Use Typology



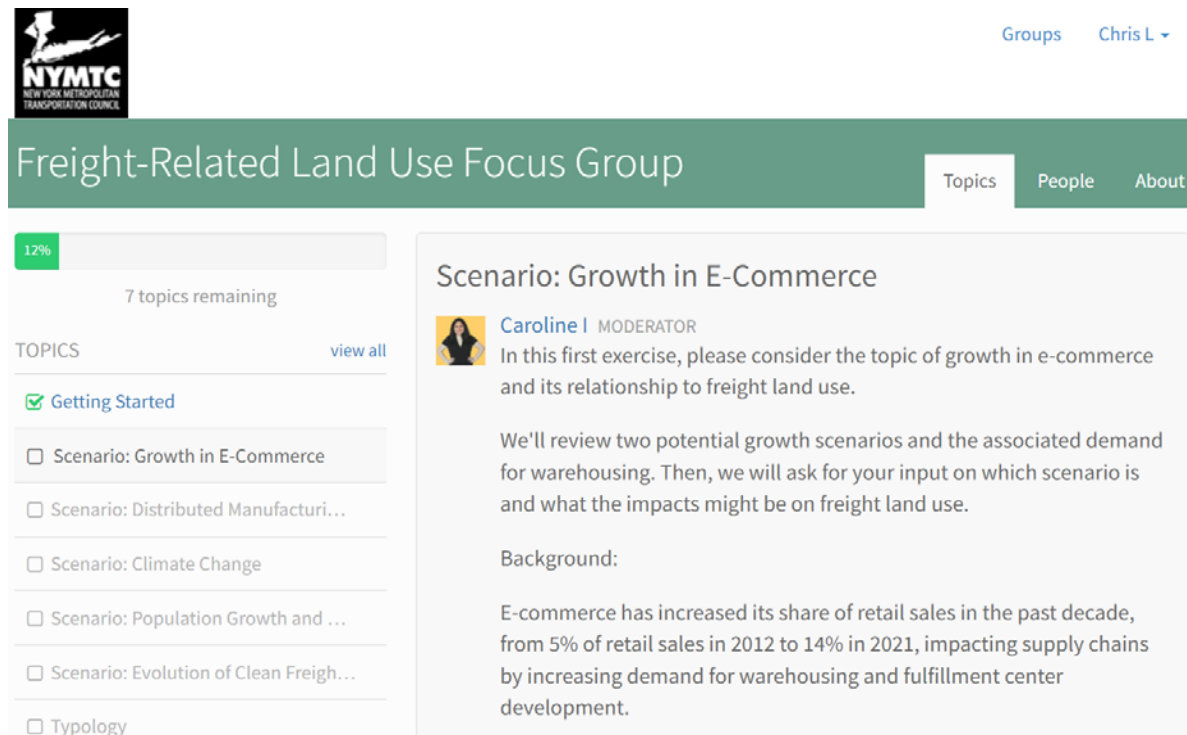
Freight Land Use Typology Descriptions

Freight Land Use Types	Descriptions	Typical Use(s) in Municipal Zoning	
Freight-Handling Centers	Seaports, cargo airports, carload and intermodal freight rail yards, tandem yards, container storage, and other facilities where freight is handled for import, export, transfer/transload, etc.	Transportation and Utilities	
Large, Greenfield Distribution Centers	Concentrations of new, state-of-the-art distribution centers developed on previously unoccupied and relatively inexpensive land. Located in suburban areas with proximity to major highway corridors for access to urban core and major freight hubs (e.g., ports, intermodal facilities).	Industrial, warehousing, manufacturing	
Modernizing Distribution Clusters	Concentrations of legacy warehouses and industrial facilities in urban areas that are being redesigned to serve a large local market, typically for e-commerce. Modernized facilities may include multi-story buildings, advanced technology, efficient loading/unloading bays, multimodal connectivity, and other features.	Industrial, warehousing, manufacturing	
Agricultural Areas	Areas where agriculture generates shipments of freight (inbound fertilizers and equipment; outbound crops, livestock, and/or other agricultural products)	Agricultural	
Legacy Industrial/Manufacturing Clusters	Concentrations of older, smaller warehouses and industrial facilities. Limited loading space and expansion potential. Located in urban or urban-adjacent areas.	Industrial, commercial/retail/office	
Endangered Freight Land Use Areas	Historic or legacy industrial neighborhoods in urban areas that are experiencing higher rents, higher operating costs, and conflicts with adjacent uses due to increasing demand for residential, commercial, or other non-industrial uses.	Industrial, transitioning to residential, mixed use, etc.	
Freight-Receiving Land Uses	Residential communities, institutions (schools, hospitals, etc.), commercial (retail, office, etc.), and mixed-use districts are land uses that receive shipments of freight. Some commercial properties are being repurposed to generate freight shipments (e.g., vacant retail stores that are being repurposed as e-commerce distribution centers).	Residential, commercial (office, retail, etc.), institutional, mixed use	

Engagement and Next Steps

Virtual Focus Group

- Engage technical advisors to:
 - Review and gather feedback on trends and scenarios
 - Review and comment on Draft Typology



The screenshot shows the NYMTC website interface for a "Freight-Related Land Use Focus Group". The top navigation bar includes "Groups" and "Chris L". The main header is "Freight-Related Land Use Focus Group" with tabs for "Topics", "People", and "About". A progress bar indicates "12%" completion and "7 topics remaining". The "TOPICS" section lists several scenarios, with "Getting Started" checked. The "Scenario: Growth in E-Commerce" is selected, showing a moderator's introduction and background information.

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TRANSPORTATION COUNCIL

Groups Chris L ▾

Freight-Related Land Use Focus Group

Topics People About

12% 7 topics remaining

TOPICS [view all](#)

☒ Getting Started

☐ Scenario: Growth in E-Commerce

☐ Scenario: Distributed Manufacturi...

☐ Scenario: Climate Change

☐ Scenario: Population Growth and ...

☐ Scenario: Evolution of Clean Freigh...

☐ Typology

Scenario: Growth in E-Commerce

 **Caroline I** MODERATOR

In this first exercise, please consider the topic of growth in e-commerce and its relationship to freight land use.

We'll review two potential growth scenarios and the associated demand for warehousing. Then, we will ask for your input on which scenario is and what the impacts might be on freight land use.

Background:

E-commerce has increased its share of retail sales in the past decade, from 5% of retail sales in 2012 to 14% in 2021, impacting supply chains by increasing demand for warehousing and fulfillment center development.

Next Steps

- Conclude virtual focus group and incorporate input
- Complete scenario analysis and freight land use typology
- Transfer geodata to Freight Data Portal

Thank you!

Questions?

If you have any questions, comments, or additional feedback, please reach out to
Yev Galinski: Yevgeniy.Galinski@dot.ny.gov