

Regional Freight Land Use Study

NYMTC Virtual Brown Bag Lunch Presentation

October 27, 2022

Study Objectives

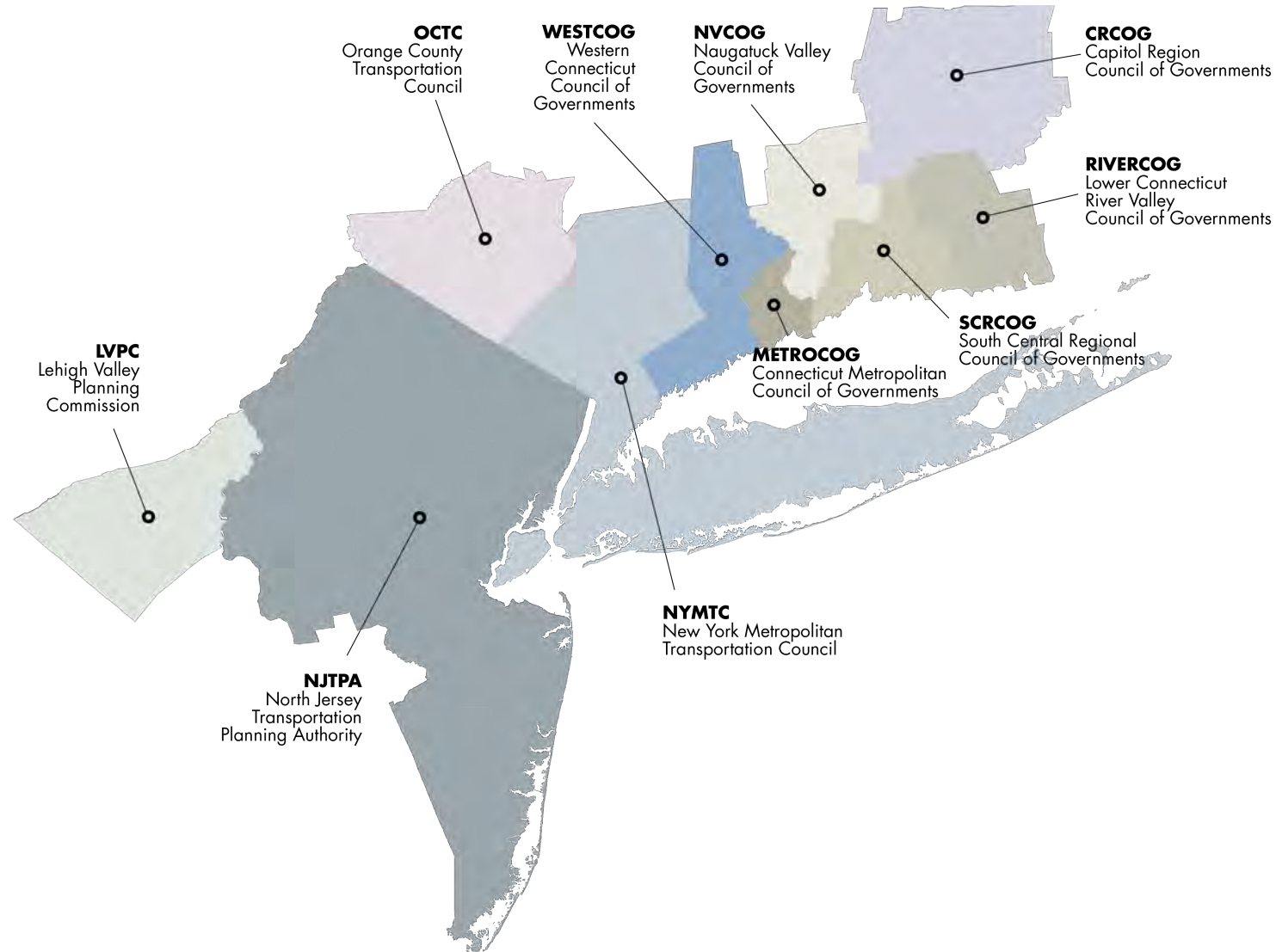
Identify and describe:

- Freight-related land use throughout the study area
- Market trends
- Macroeconomic and global drivers
- Localized factors and costs influencing site selection decisions

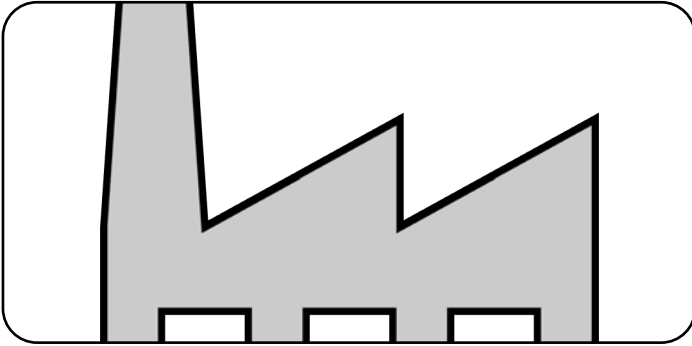
Develop:

- A typology that describes freight land uses with similar features, factors of influence, recent and emerging trends and needs

Geographic Scope of Study

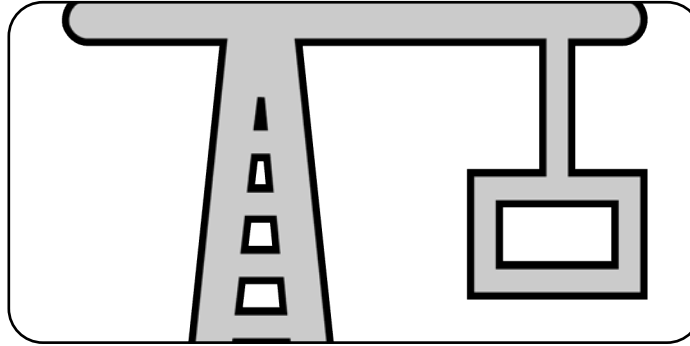


What is “Freight” Land Use?



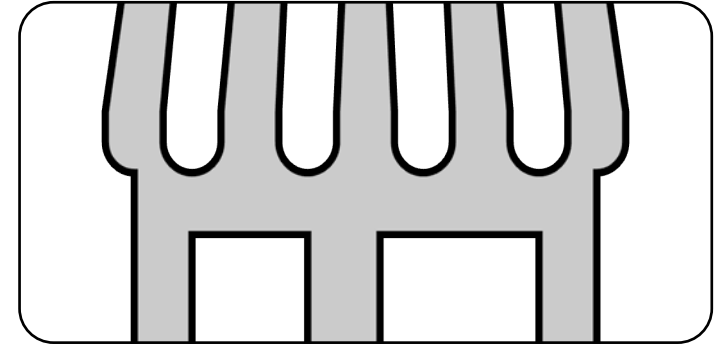
Freight-Generating

- Manufacturing
- Industrial/warehousing
- Some commercial/flex
- Agriculture



Freight-Handling

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



Freight-Receiving

- Commercial/retail/office
- Residential
- Institutional

Literature Review

Regional Freight Land Use Studies

- Feasibility of Freight Villages in the NYMTC Region, 2011
- Rail Freight Yard Requirements/Land Assessment for East of Hudson Area, *NYMTC*, 2003
- Multi-State Truck Rest Stop Inventory Assessment, *NYMTC*, 2009
- Truck Terminals and Warehouses Survey Results, *NYMTC*, 2001

Regional Planning Documents

- NYMTC *Moving Forward*, expected 2021
- NYCEDC FreightNYC, 2017
- New York State Freight Plan, 2019
- Connecticut Statewide Freight Plan, 2017
- New Jersey Statewide Freight Plan, 2017
- Pennsylvania Statewide Freight Plan, 2016
- POCDs for each Connecticut COG (various years)
- NJTPA 2050 Freight Industry Level Forecasts Study, 2020
- NJTPA Plan 2045, 2017
- MOVELV Lehigh Valley Regional Freight Plan, 2015

Non-Regional Academic Studies

- FHWA Freight and Land Use Handbook, 2012
- Improving Freight System Performance in Metropolitan Areas, *National Academy of Sciences*
- Freight-Efficient Land Uses: Methodology Strategies, and Tools, *Sustainability*, 2021
- NCHRP Report 844: Integrating Goods and Services Movement by Commercial Vehicles in Smart Growth Environments, 2017

Relevant and Recent Periodicals

- “E-Commerce Drives New York City Warehouse Boom,” *Wall Street Journal*, 2019
- “Will Multistory Warehouses Catch On? In NYC And A Handful of Markets, Maybe.”, *Bisnow*, 2019
- “Not Everyone is Sold on Multistory Warehouses As the Way Forward for Industrial,” *Bisnow*, 2019
- Warehouse Sprawl: Plan Now or Suffer the Consequences, *New Jersey Future*, 2021

Literature Review Cross-Cutting Themes

Market Trends

- “Freight Sprawl,” 1990s-Present
- Losing urban industrial space to residential redevelopment, 2000s-Present
- Ecommerce Urban DCs, 2010s-Present

Planning

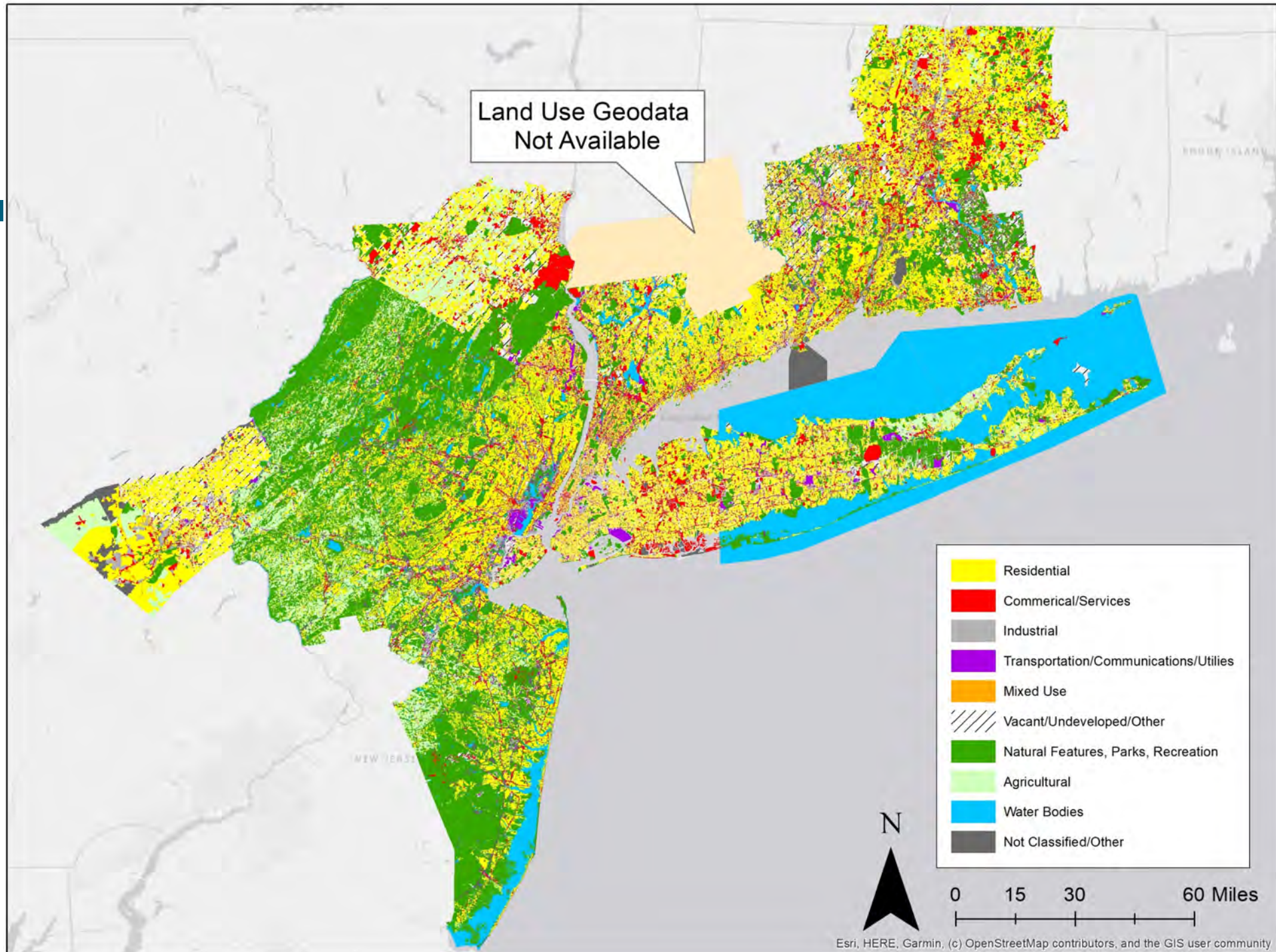
- Need better coordination between transportation and land use planning
- Need to better integrate freight with land use and transportation planning
- Disconnect between local land use controls and regional needs

Other Issues/ Opportunities

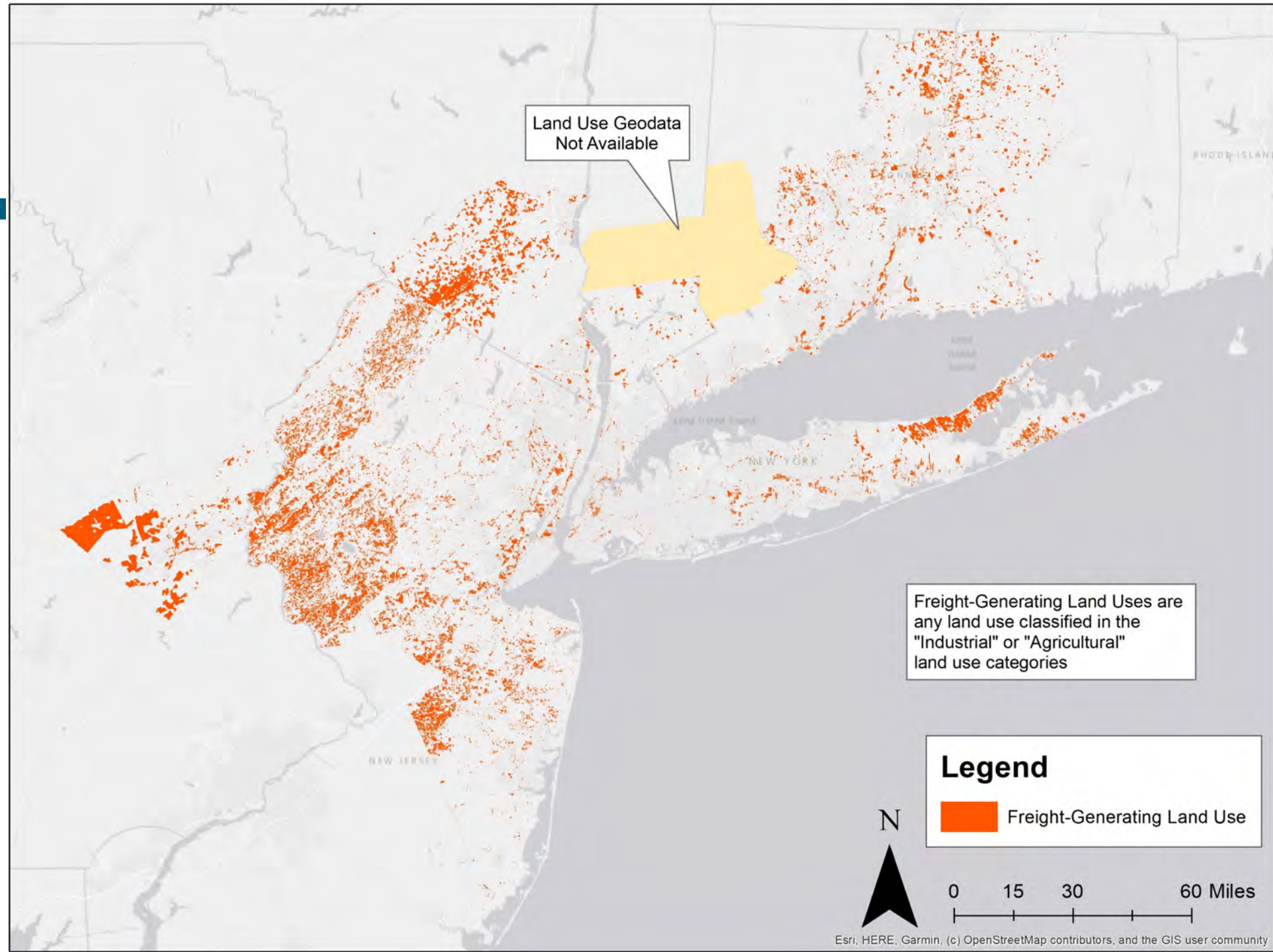
- Logistics hubs/“freight villages”
- “Freight as a Good Neighbor” issues and initiatives

Freight-Related Land Uses

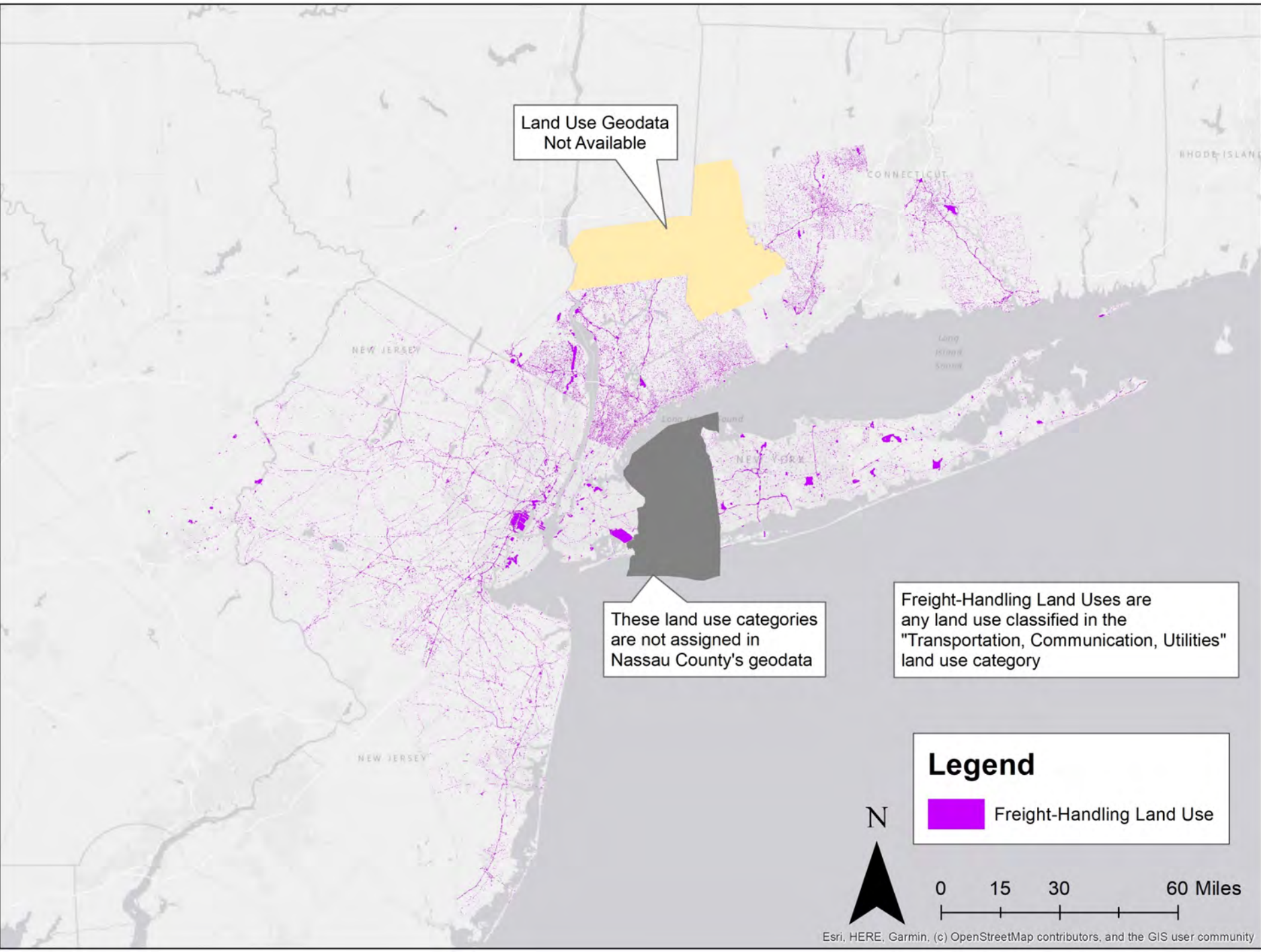
Land Use Geodata



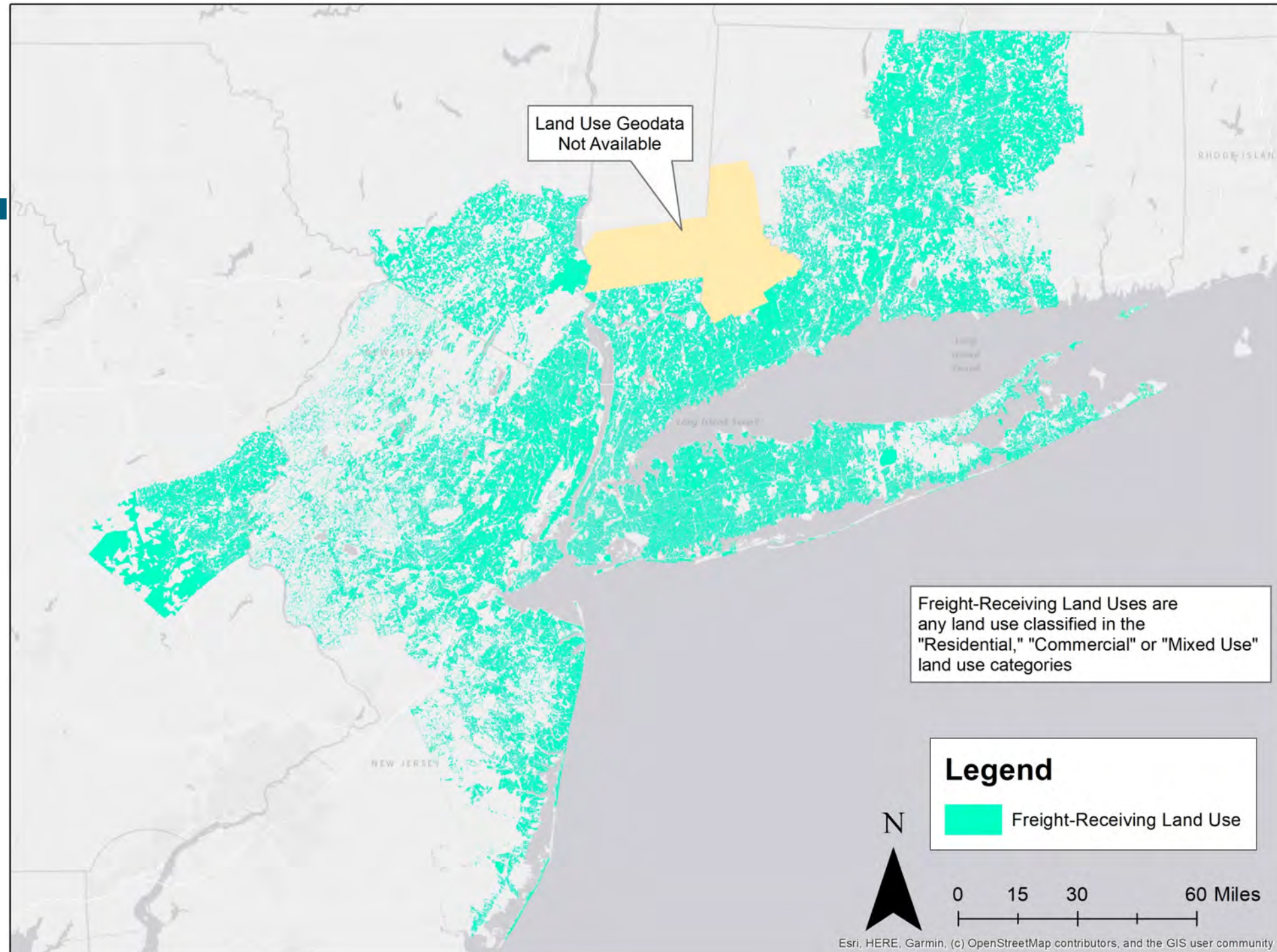
Freight-Generating Land Uses



Freight-Handling Land Uses



Freight-Receiving Land Uses

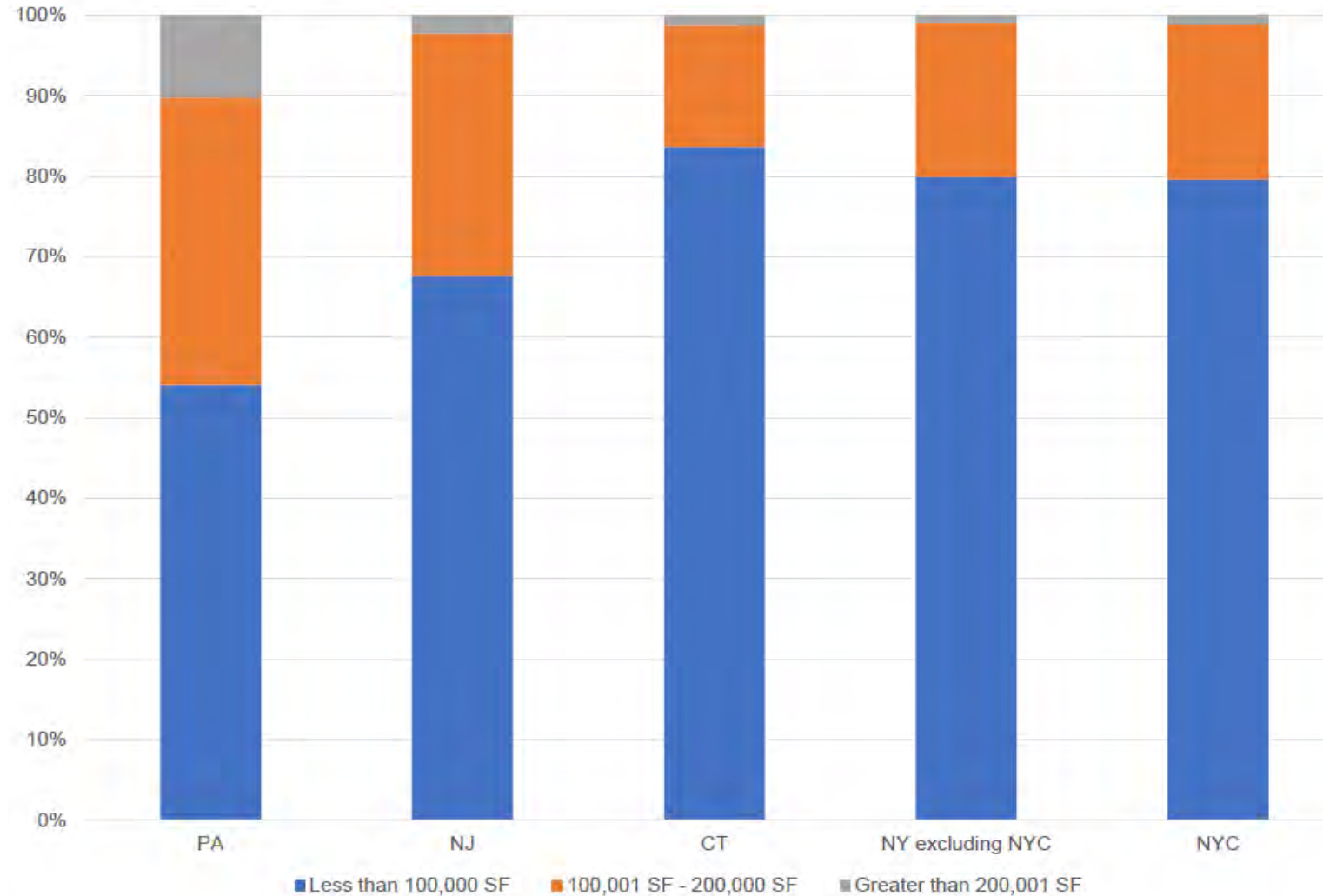


Market Analysis

As of 2021

Market Analysis

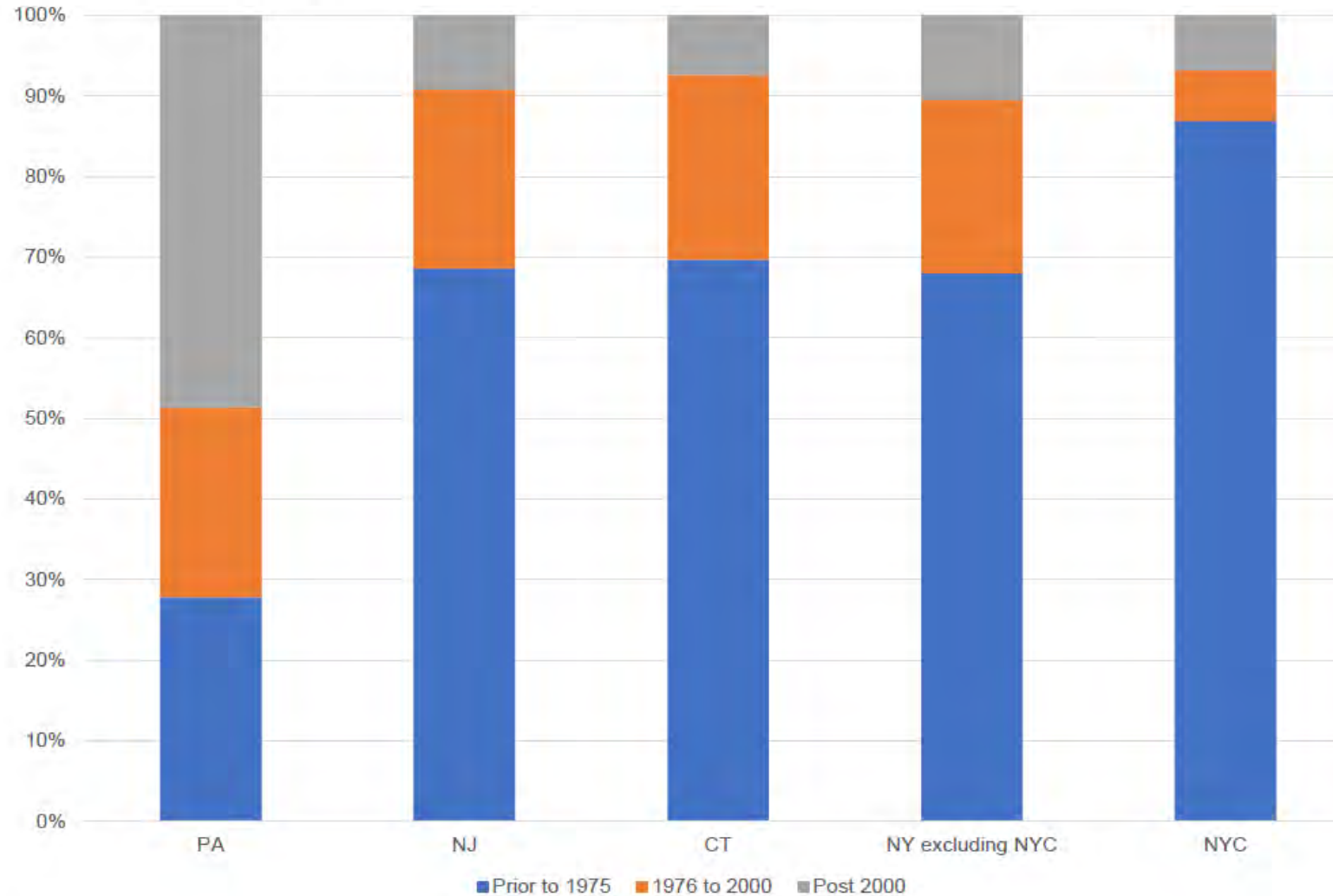
Properties by Size (sq ft) by Subregion



*Source: CoStar, analyzed
by BJH Advisors, 2021*

Market Analysis

Rentable Building Area (sq ft) by Year Built by Subregion



*Source: CoStar, analyzed
by BJH Advisors, 2021*

New Inventory

Largest Under Construction and Proposed Total Rentable Building Area (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



Trends and Drivers

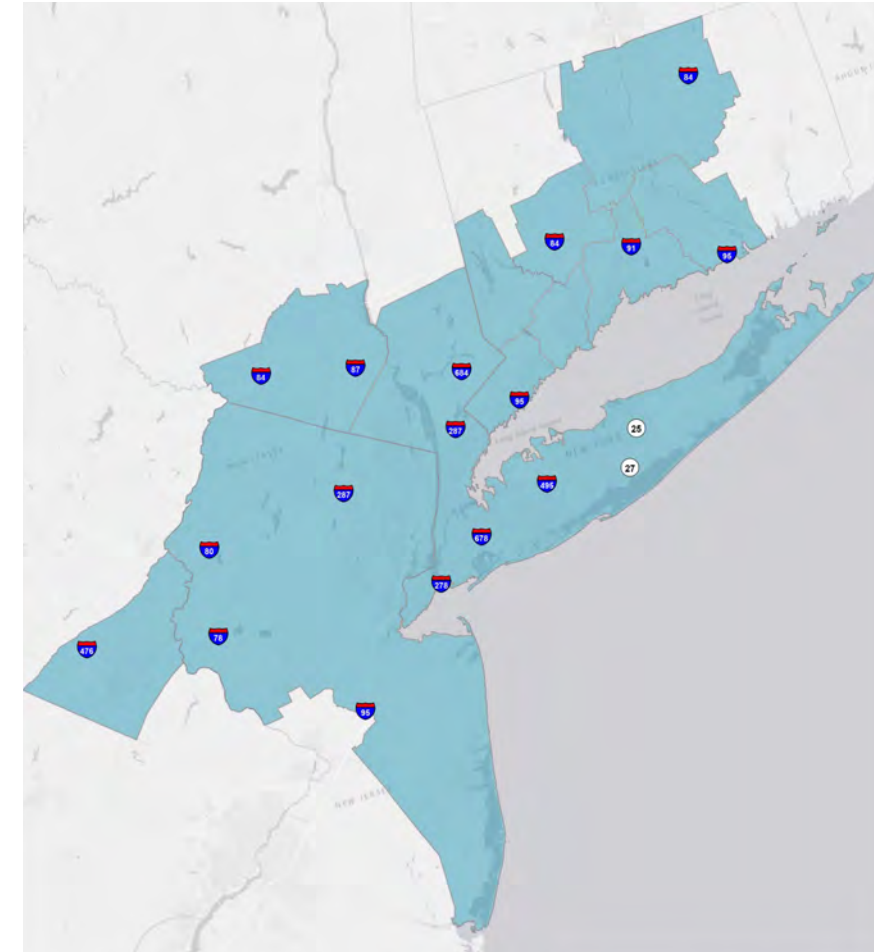
Recent Trends

1990s-2000s

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



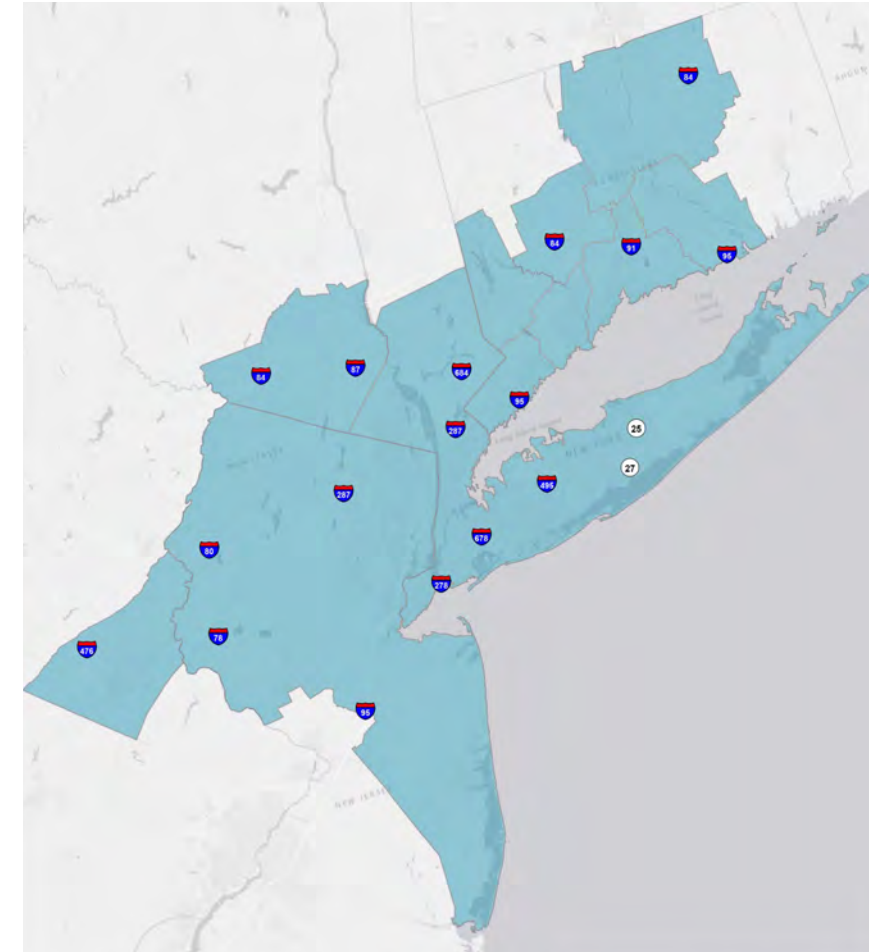
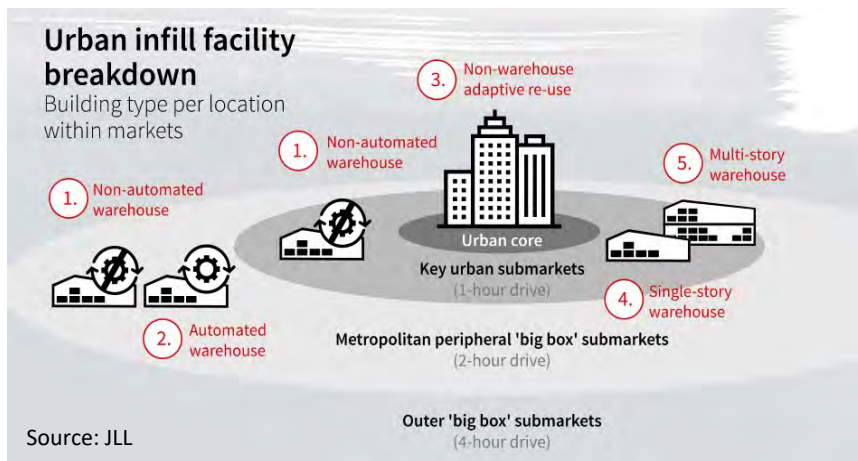
Source: Ramon Pujols via Google



Recent Trends

2010s-2021

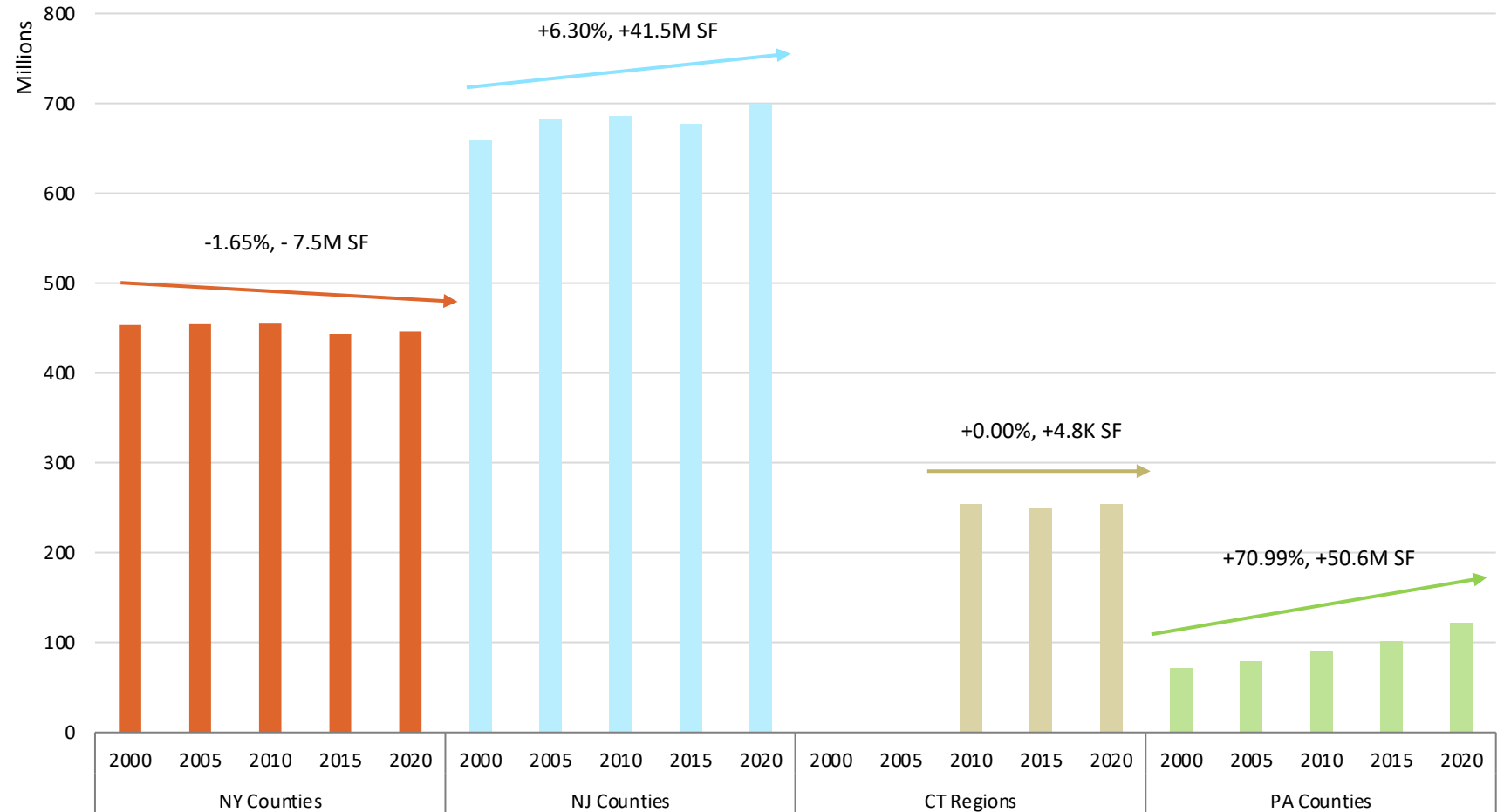
- *Large e-commerce fulfillment facilities feeding a network of last-mile delivery stations*
- Micro-warehousing and fulfillment
- Market favors investment in urban industrial redevelopment, multistory facilities, etc.



Market Trends 2000-2020

Trend Data

Inventory of square footage in select NY, NJ, and PA counties and CT regions

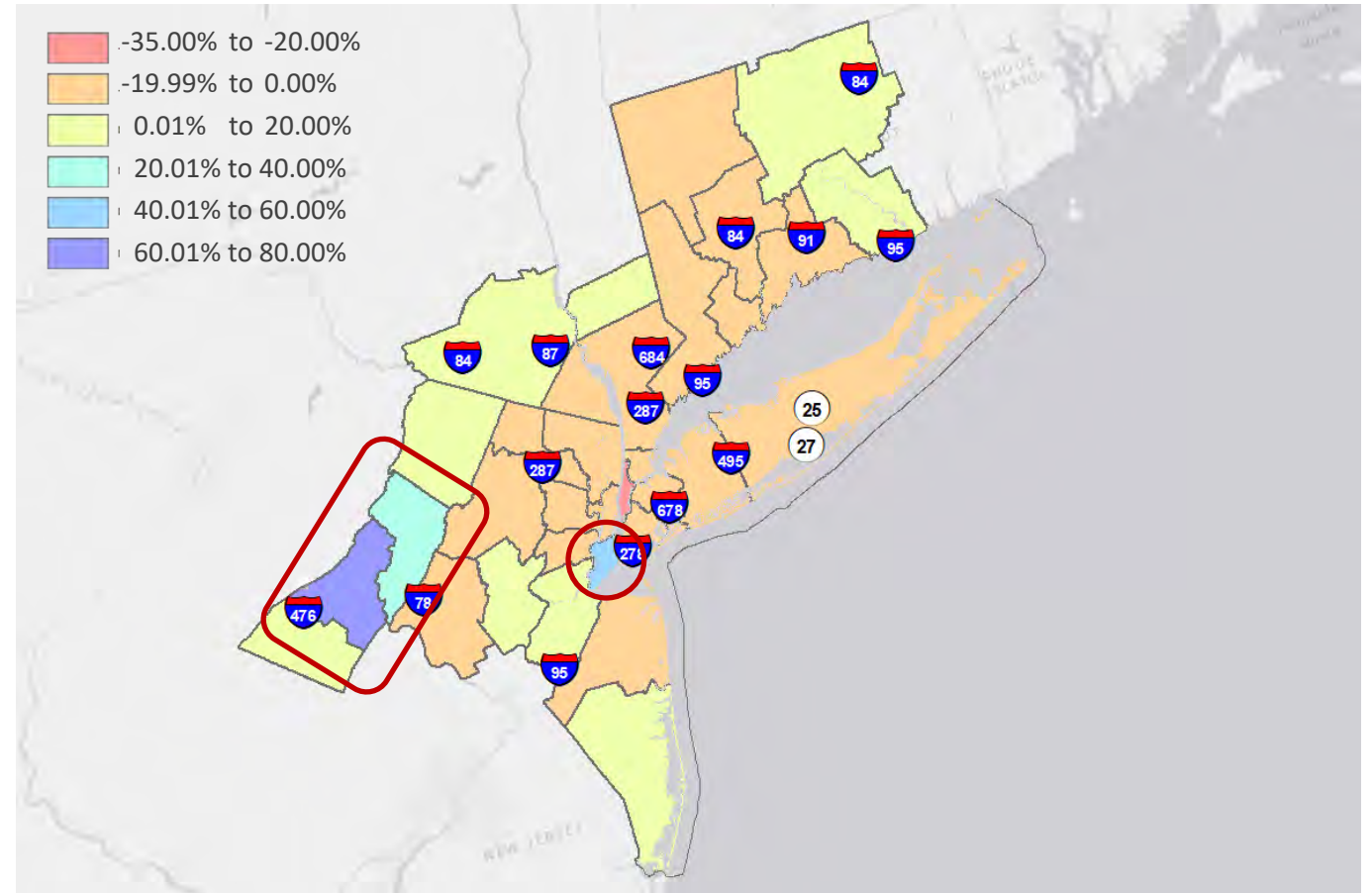


Market Trends 2010-2020

Trend Data

Percent change in square footage: 2010 – 2020 in select NY, NJ and PA counties and CT regions

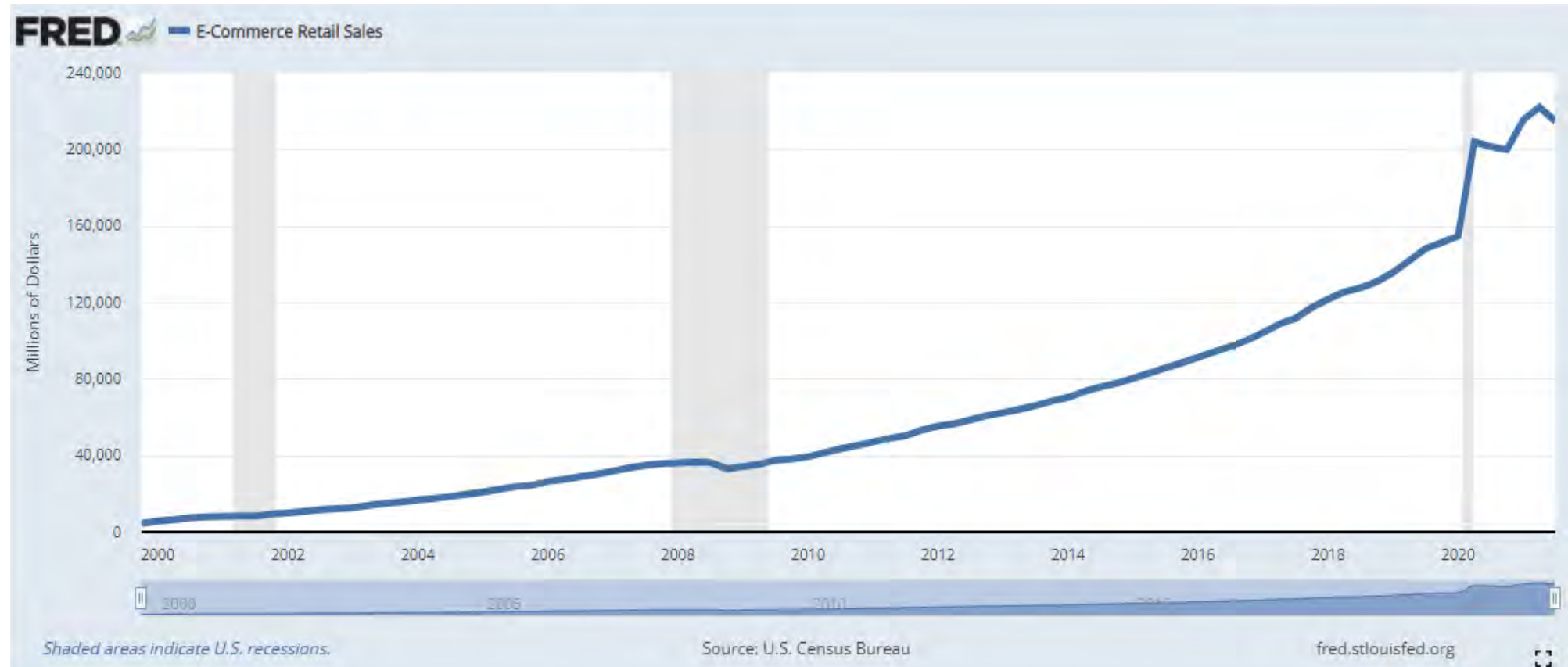
Using Costar market analytics data to analyze industrial real estate by category, subregion, and other attributes



Macroeconomic and Global Drivers

- E-commerce growth
- Distributed manufacturing
- Climate change
- Population growth/distribution
- Clean fuels/electric vehicles

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:

1. DM could facilitate onshoring of production (i.e., relocating some manufacturing from overseas to the U.S.) of some goods.
2. 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.
3. DM could remain a "niche" activity with no measurable impact on production, logistics, and/or land use.

Climate Change

Impacts on freight land uses

- 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

Impacts on the transportation system and the ability to move goods

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

Scenarios/Potential Outcomes:

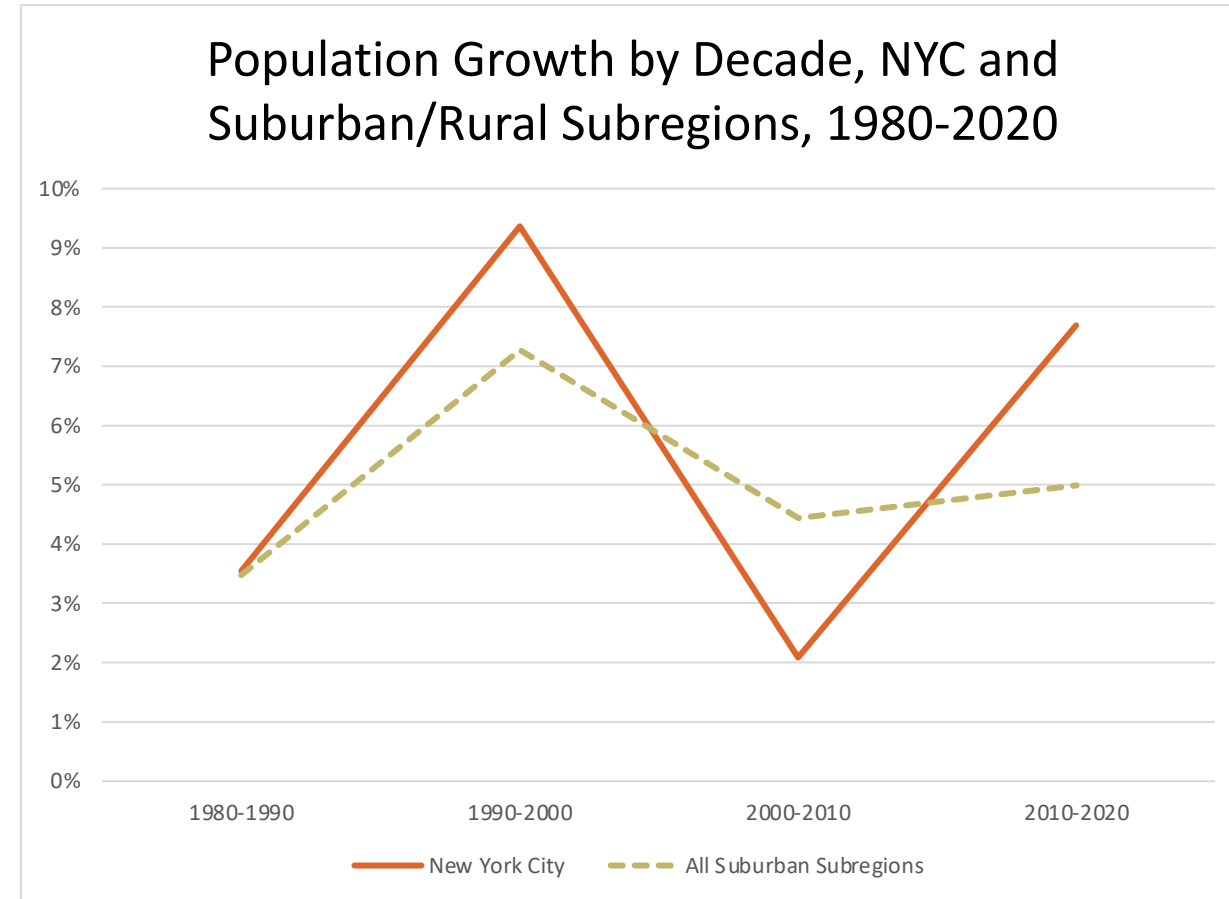
- Hardening/defense
- Retreat

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

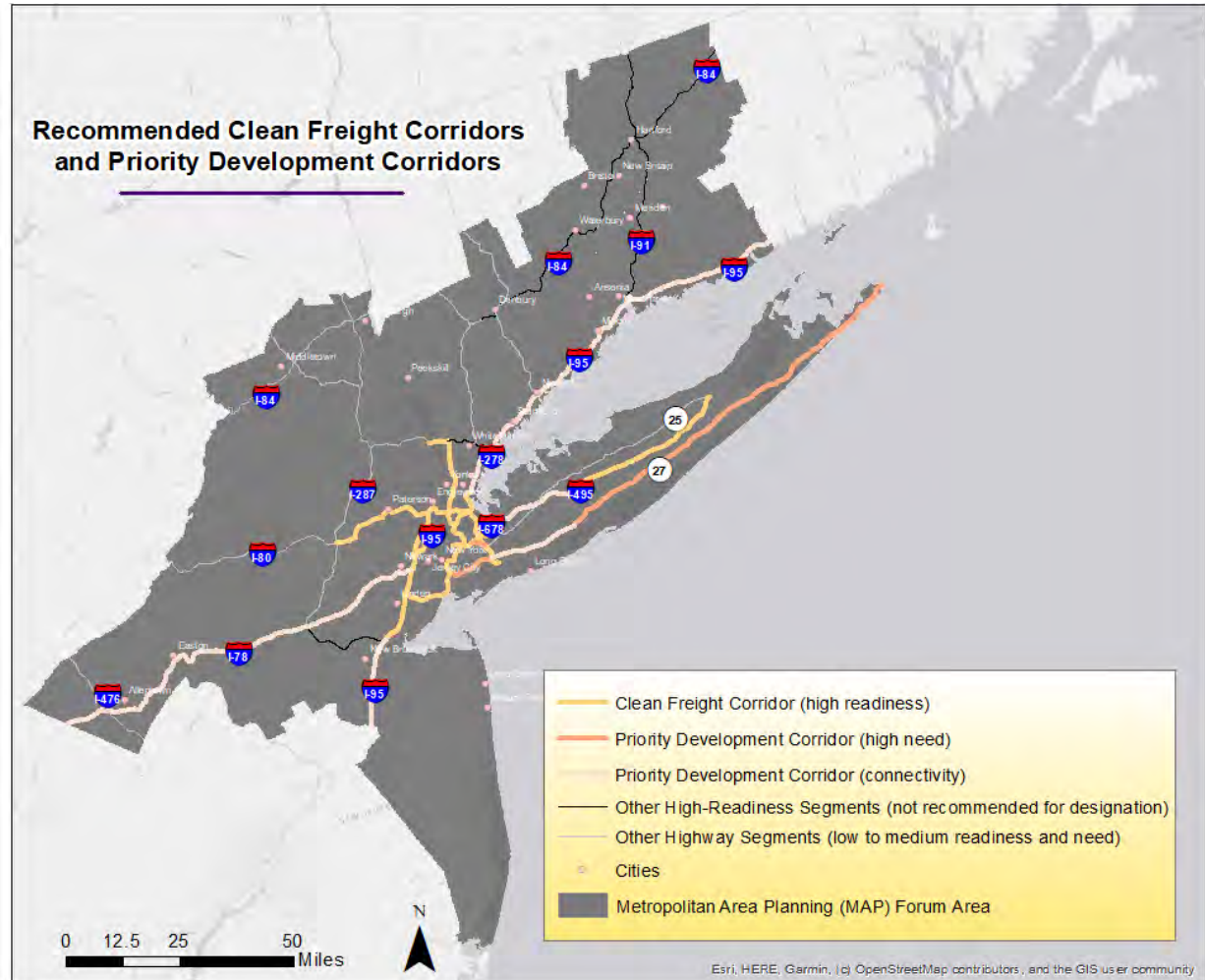


Source: U.S. Census Bureau

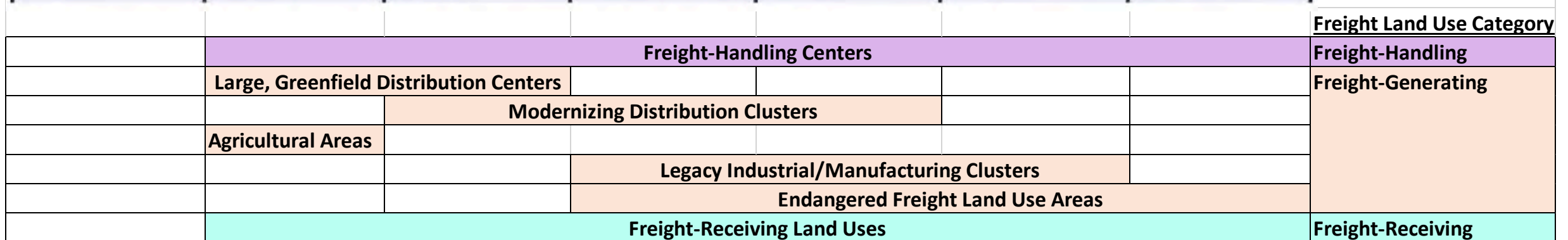
Clean Freight

Scenarios/Potential Outcomes:

- Very little transition to electric or other alternative fuels occurs with a corresponding low impact on freight land use.
- Robust growth in electric or other alternative fuel adoption among truck fleets
 - Requires the addition of alternative fueling and/or EV charging capacity



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 being repurposed as e-commerce distribution centers).	Residential, commercial (office, retail, etc.), institutional, mixed use	

Thank you!

Questions?

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