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NEW YORK METROPOLITAN TRANSPORTATION COUNCIL

Clean Freight Corridors Planning Study

NYSAMPO Conference

May 9, 2023

Study Background

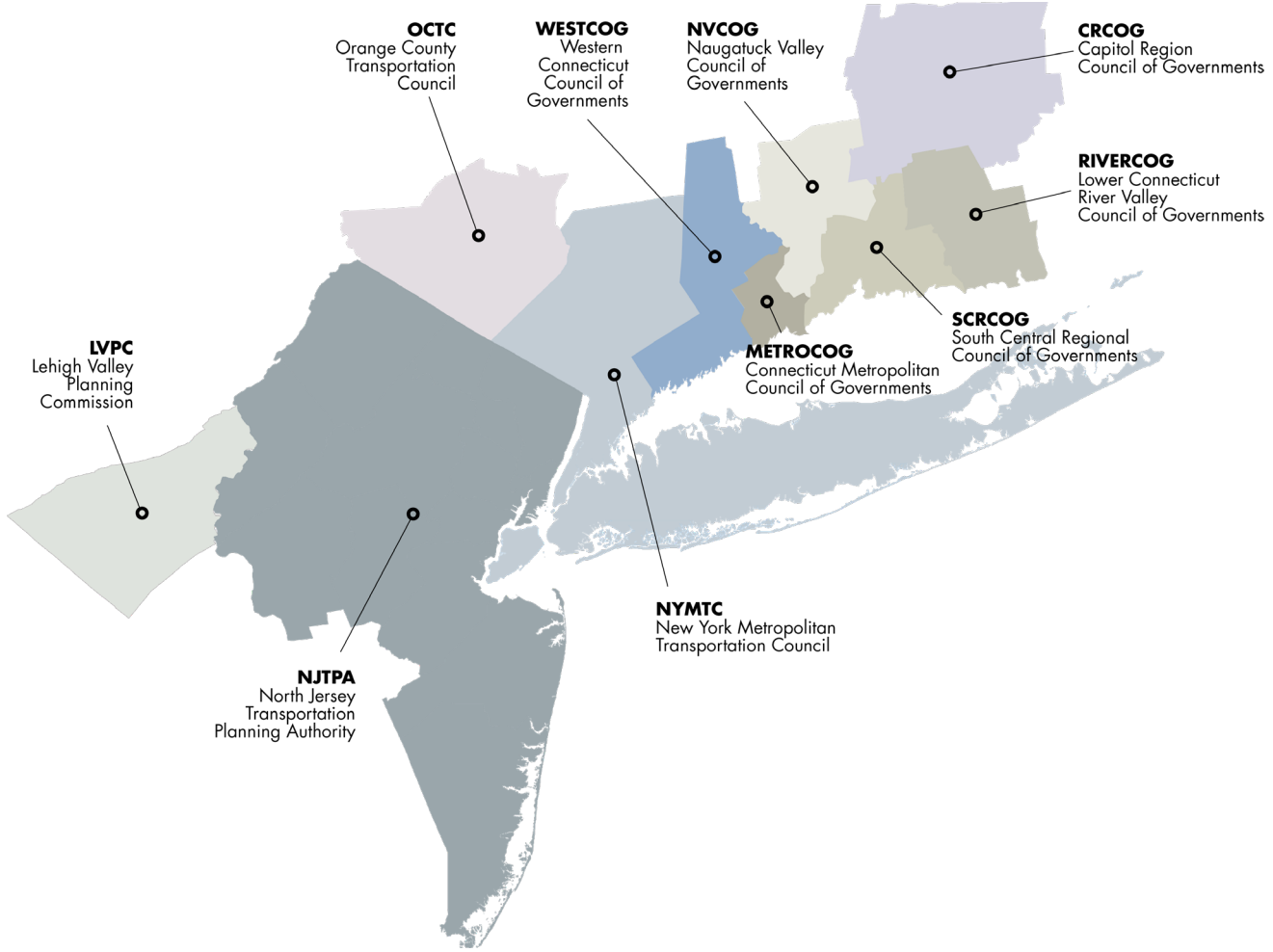
- Recommended initially in the Freight Element of NYMTC's Federal Fiscal Years 2018-2045 Regional Transportation Plan adopted in 2017
- Funded through NYMTC's Unified Planning Work Program
- Coordinated through the Metropolitan Area Planning (MAP) Forum
  - Ten metropolitan planning organizations and councils of government in eastern Pennsylvania, northern New Jersey, metropolitan New York and southwestern/central Connecticut

Study Approach

The study assessed opportunities for the designation and development of **Clean Freight Corridors** in the Multi-State Metropolitan Region. To do this, the study:

- Inventoried existing regional **clean fuel infrastructure**;
- Reviewed current and emerging **clean fuel technologies**;
- Identified gaps between **existing and future** clean fuel infrastructure capacities;
- Analyzed goods movement **trends and forecasts**;
- Identified optimal corridors for **recommended corridor designations** and identify potential additional clean freight infrastructure.

Multi-State Study Area



Study Team

- NYMTC Project Oversight – Leslie Fordjour, NYMTC Project Manager
- Consultant Team Leaders:

CAMBRIDGE SYSTEMATICS	CALSTART	Arch Street Communications Experienced in a changing world.™
Chris Lamm, Consultant Project Manager Katie Kirk, Deputy Project Manager	Benjamin Mandel NE Regional Director Al Beatty Lead PM, Innovative Mobility	Nora Madonick Karina Vangani

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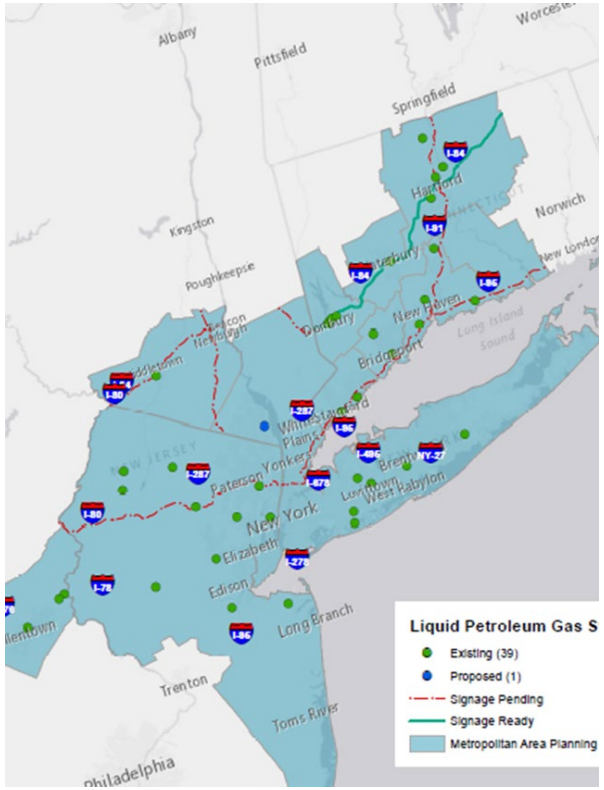
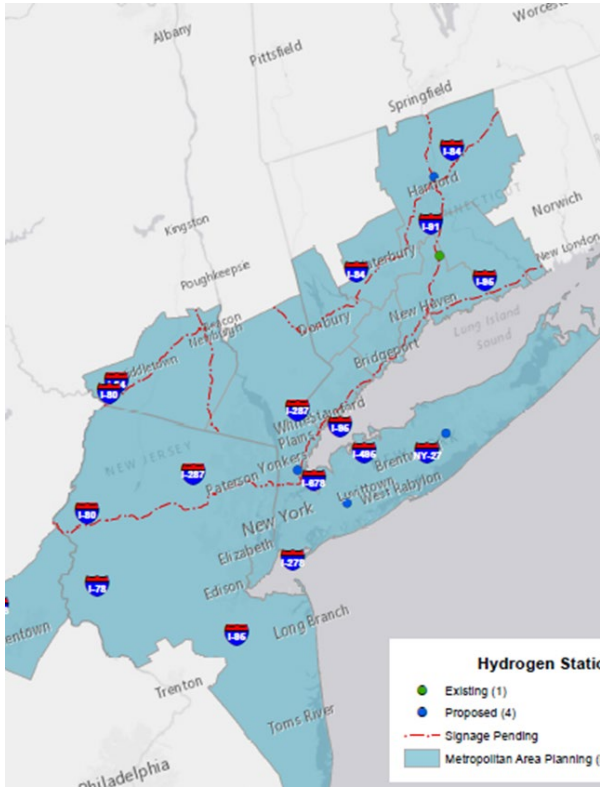
Existing clean fuel infrastructure and regional assessment

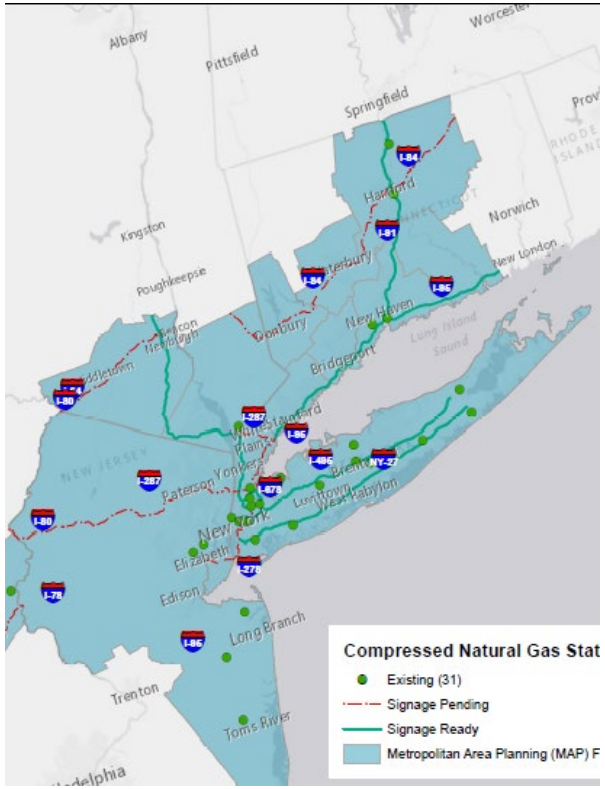
Infrastructure Inventory

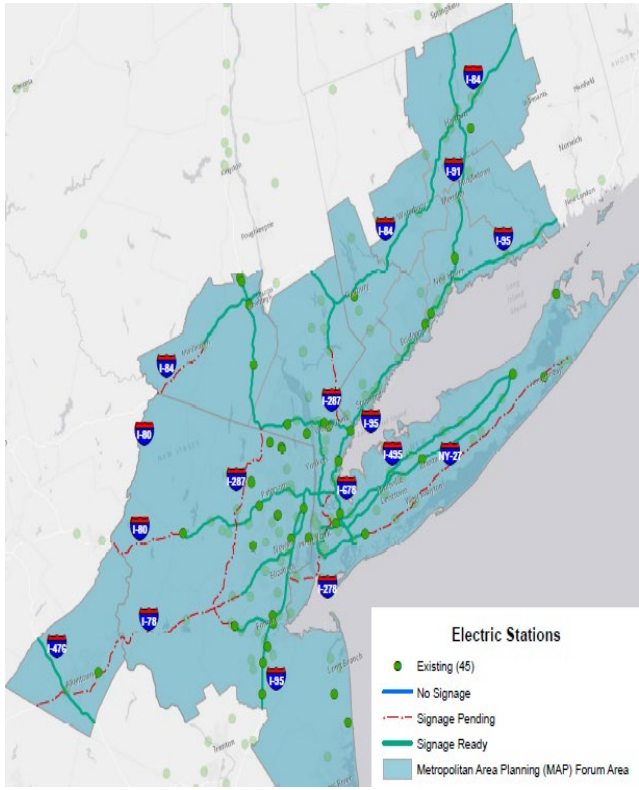
- Identified existing clean fuel infrastructure and Federal Highway Administration corridor designations
- Filtered stations to match medium- and heavy-duty vehicle compatibility
- Produced maps for each fuel type and identified gaps in infrastructure networks

Inventory by Fuel Type

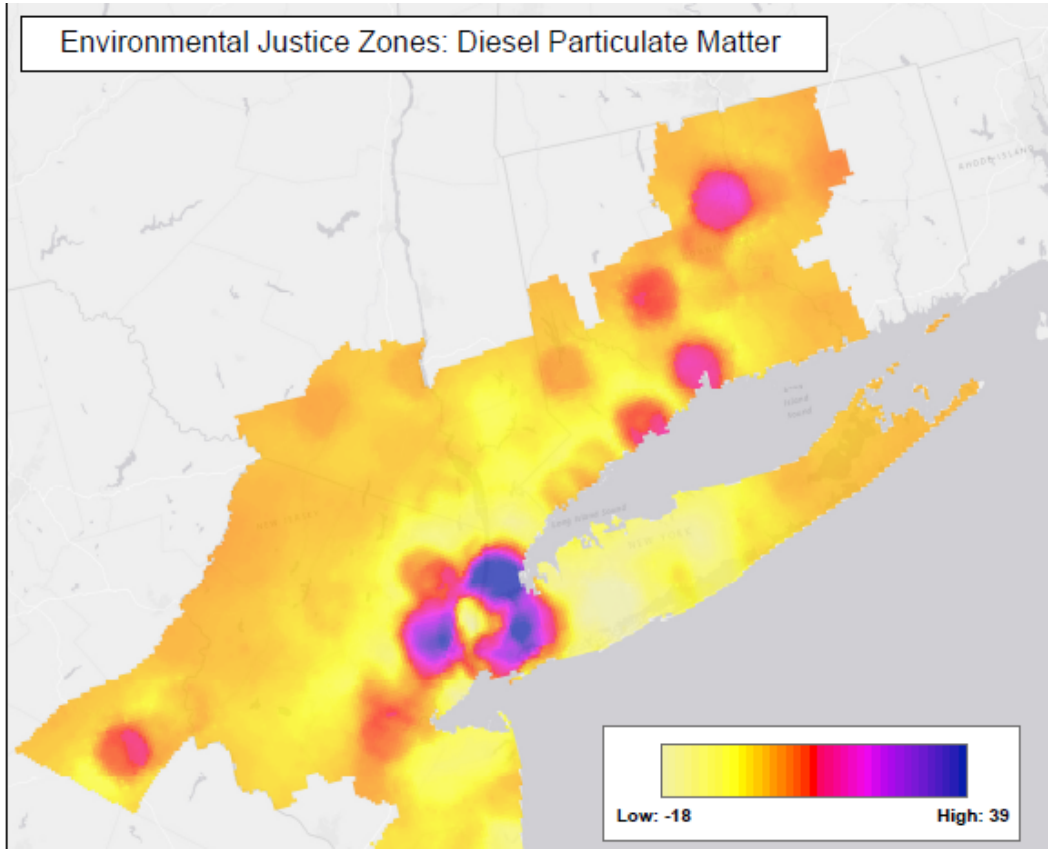








Diesel Pollution and Communities of Concern



Diesel particulate matter offers clearest representation of burdens imposed by M/HD vehicles on communities

Historically, diesel pollution concentrations correlate well with other demographic indicators that identify communities of concern

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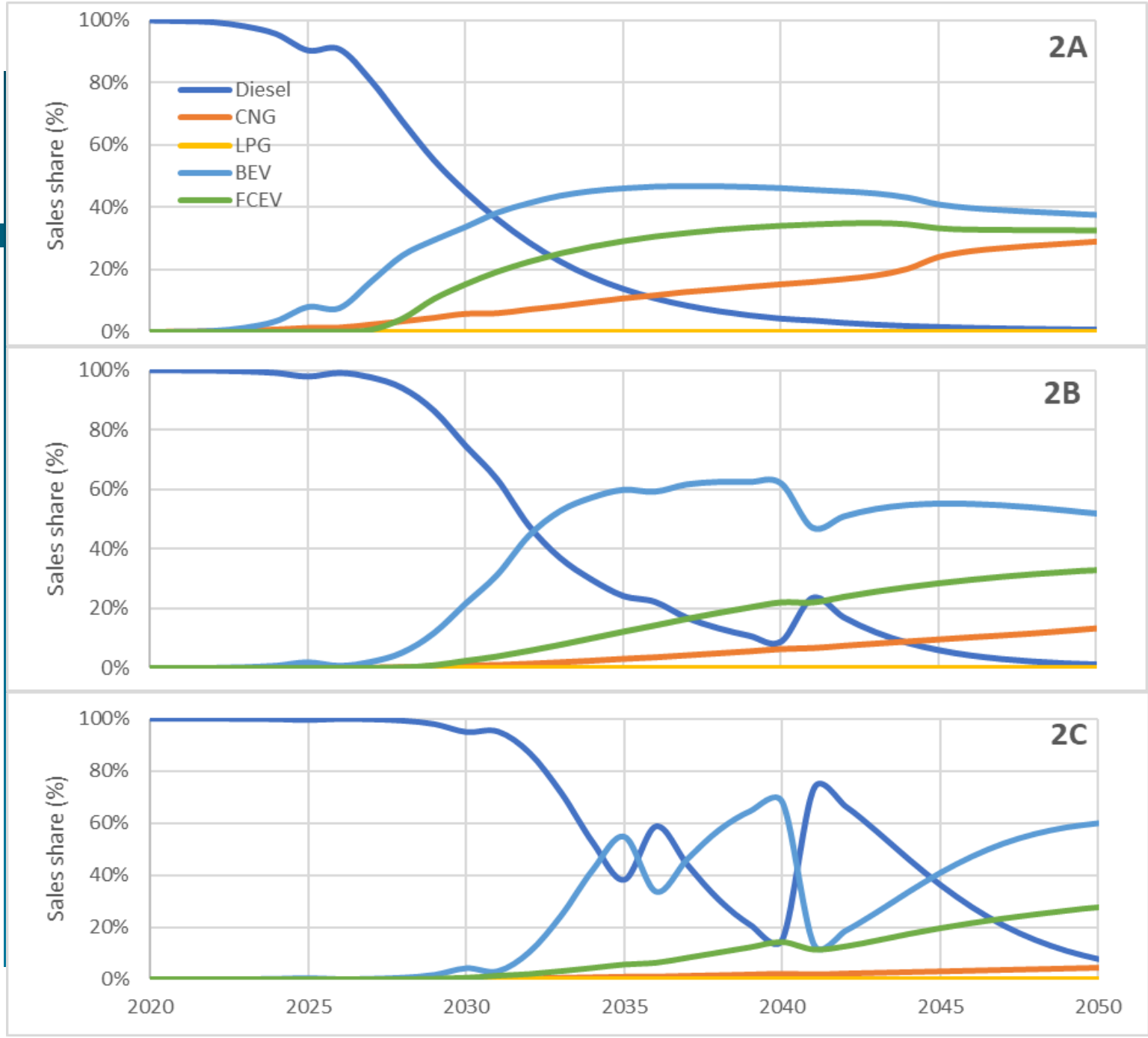
Clean fuel technologies scan and projections

State of Technology, Adoption and Regulation

- Characterize **state of technology** for major clean fuel types and their associated vehicles
- Project clean fuel **adoption patterns** among truck fleets through 2050
- Describe study area **policy and regulatory landscape** for clean fuel technologies
- Identify Clean Freight Corridor **designation opportunities and corridor network gaps**

Forecasted Adoption Rates

- Diesel is projected to drop under 50% of sales between 2029-2034
- BEV ends with the highest sales share in each scenario (38-60%)
- Less aggressive adopter profiles (2B and 2C) result in greater sensitivity to incentives
  - Greater sales share volatility



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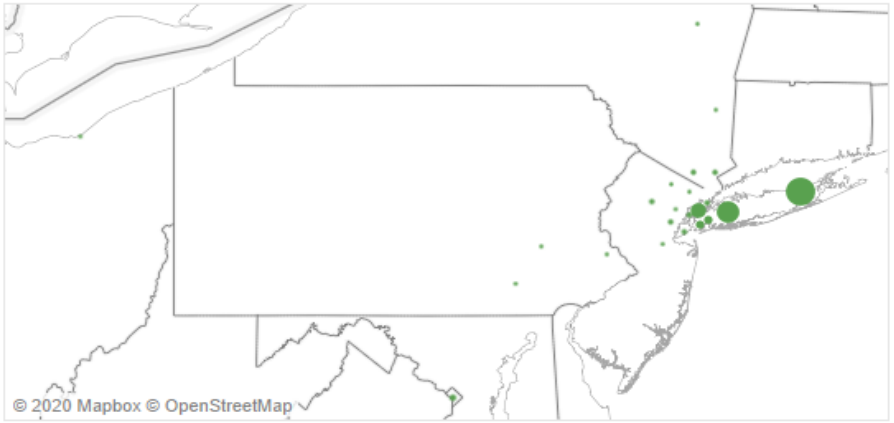
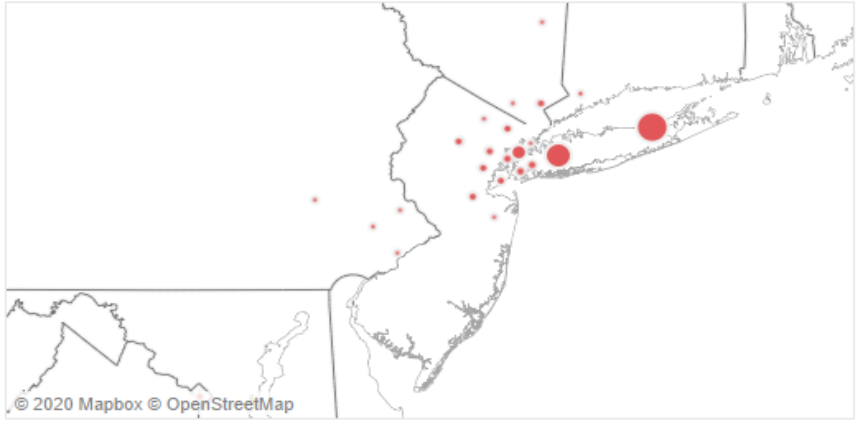
Truck flows and commodity forecasts

Corridor-Level Truck Flows

Leading Truck Origins



Leading Truck Destinations



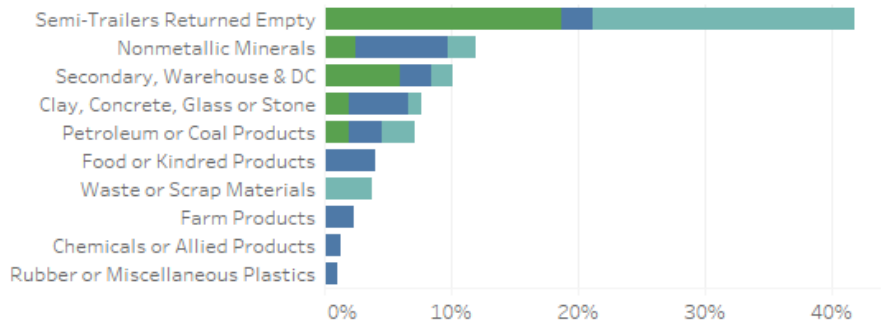
Transearch-Assigned Units by Distance (2018)

	Measure
100 miles or less	2,895,964
100 to 400 miles	1,909,399
400 miles or more	593,588
Grand Total	5,398,951

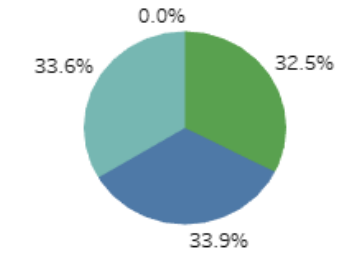
Share by Distance

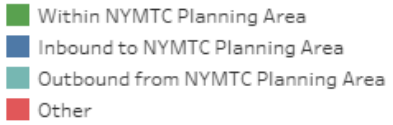
100 miles or less	53.64%
100 to 400 miles	35.37%
400 miles or more	10.99%
Grand Total	100.00%

Truck Commodity Mix



Truck Flow Summary



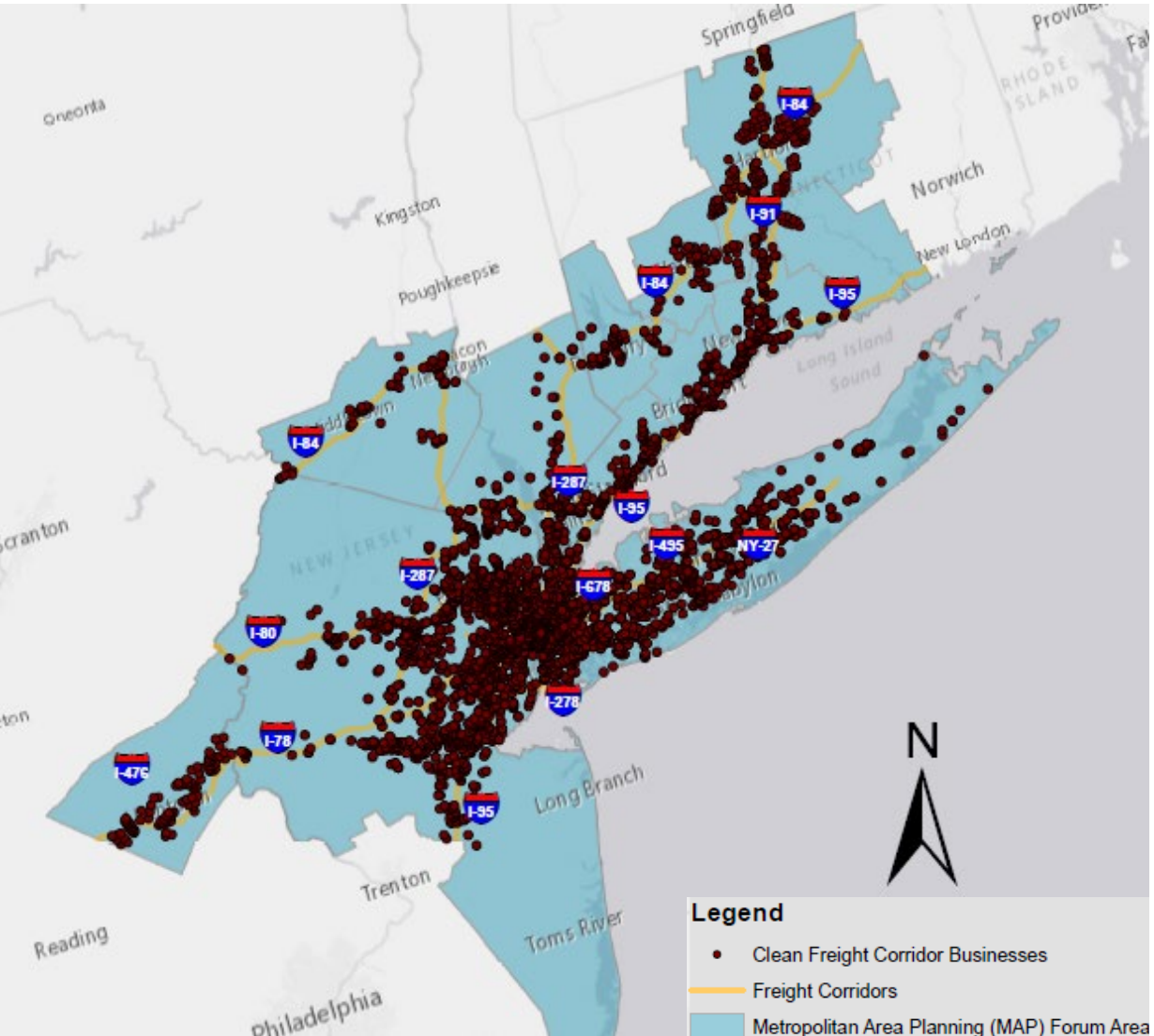


I-495 in Nassau County, NY

Freight truck flows by origin, destination, distance, commodity, and direction

Truck trip types, and support needs

Freight Demand Generators



Data/information sources

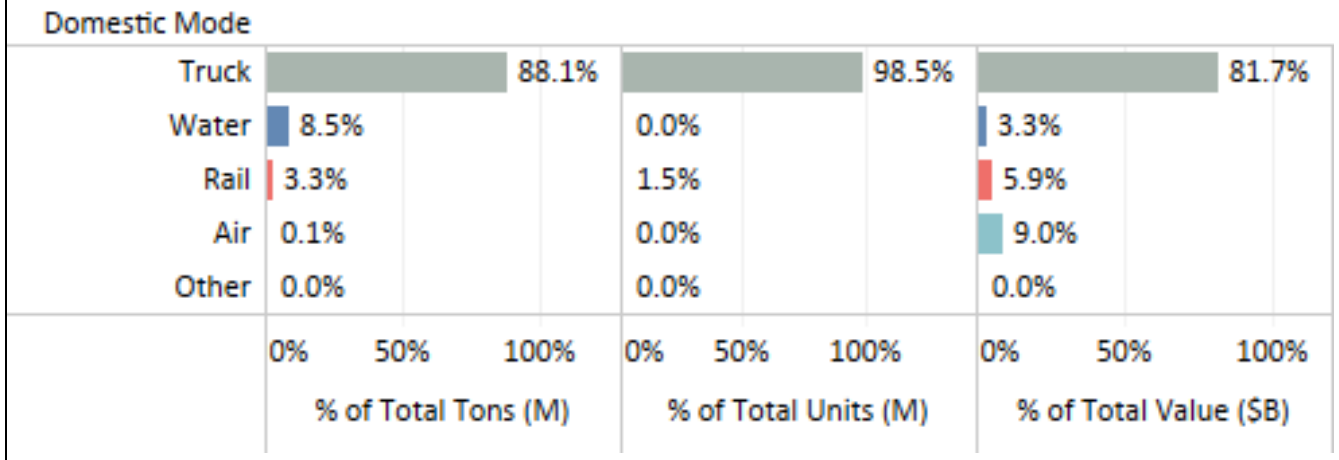
- Business establishment data (vendor-sourced)
- Census business pattern data
- Recent plans and studies
- Interviews with NYMTC members (summer/fall 2020)

Analysis approach

- Businesses within 5 miles of key freight corridors
- Freight-generating industry sectors (NAICS 11-49)
- Location employment 100+

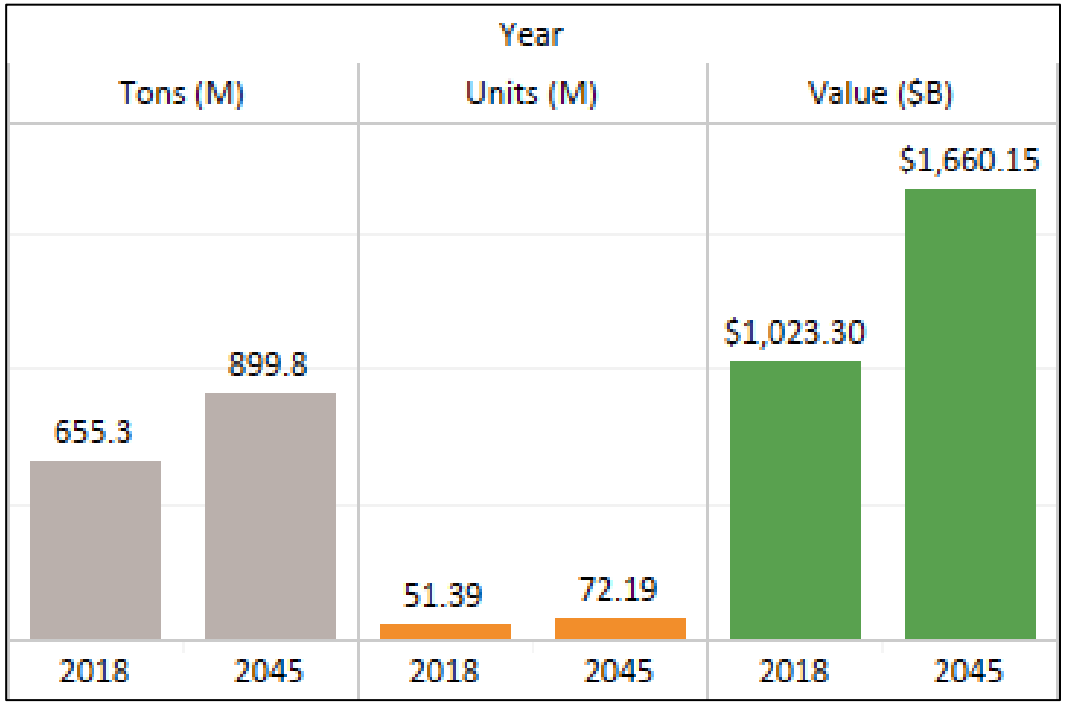
Regional Commodity Flows & Forecasts

Domestic Mode	Tons (M)	Units (M)	Value ($B)
Truck	577.4	50.62	$835.95
Water	55.7	0.00	$34.08
Rail	21.4	0.76	$60.53
Air	0.8	0.00	$92.44
Other	0.0	0.00	$0.31
Grand Total	655.3	51.39	$1,023.30



88% of freight tons in Metropolitan Area Planning (MAP) Forum Region move by truck (2018)

Total freight volume (in tons) expected to increase 37% through 2045



Source: IHS Markit Transearch, analysis performed by WSP for NYMTC Plan 2050 (forthcoming)

Clean Freight Corridor designations

Designation Method

Readiness levels by fuel type

- Weighted composite score based on Technical Advisory Committee input
  - Fuel station coverage: 44%
  - Freight Demand Clusters: 29%
  - Existing Truck Volume: 27%
- High, medium, or low readiness (relative)

Need levels by fuel type

- Projected demand: 50%
- Air quality: 50%
- Segments with a **low readiness** and **high need** could be designated as **priority development corridors**

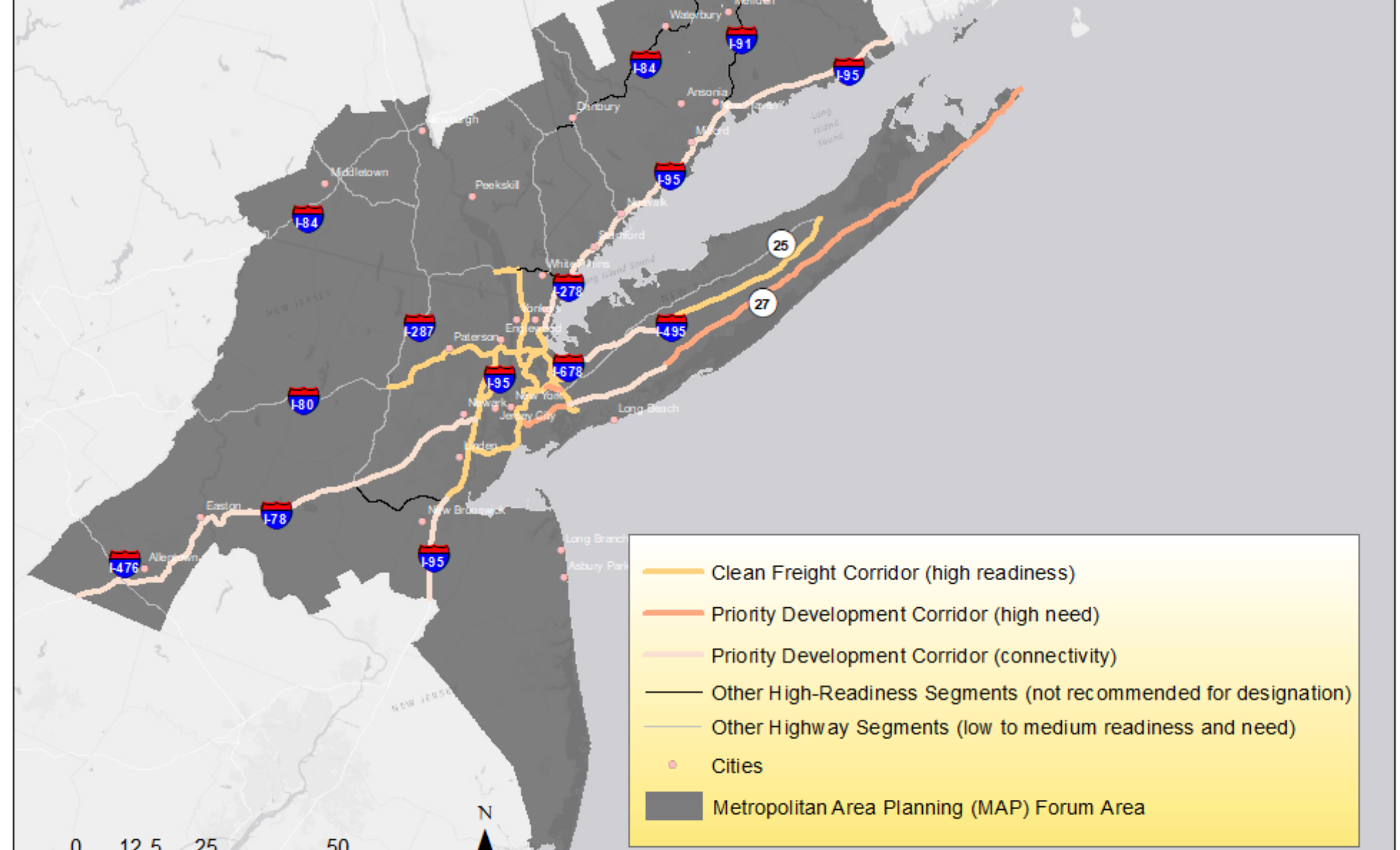
Optimal Mix of Corridor Designations

Recommended Clean Freight Corridors

- High **readiness** for at least three fuel types
  - Fuel station coverage (by fuel type)
  - Proximity to freight demand clusters
  - High existing truck volume

Recommended Priority Development Corridors

- Low readiness but high **need** for Electric, Hydrogen, and CNG
  - Projected demand (by fuel type)
  - High levels of diesel particulate matter
- ***OR*** fills a key gap between other designated segments
- ***OR*** connects to a designated clean fuel development corridor in a neighboring jurisdiction


Clean Freight Corridor (high readiness)
Priority Development Corridor (high need)
Priority Development Corridor (connectivity)
Other High-Readiness Segments (not recommended for designation)
Other Highway Segments (low to medium readiness and need)
Cities
Metropolitan Area Planning (MAP) Forum Area
N
0
12.5
25
50
I-84
I-91
I-95
I-287
I-80
I-78
I-476
I-278
I-495
I-678
25
27
Waterbury
Danbury
Ansonia
Milford
Middletown
Peekskill
Stamford
White Plains
Yonkers
Paterson
Newark
New York
Jersey City
Long Beach
Easton
Allentown
New Brunswick
Long Branch
Asbury Park

Corridor investments

Implementation Considerations

Multi-State Coordination

- Implement based on factors outside project scope
  - Further discussion with agencies in adjacent jurisdictions and other stakeholders
  - Further consideration of environmental justice communities
  - Examine role of different fuel types

Signage and Communication Plan

Infrastructure Investments

- Policy considerations
  - Federal (funding, regulatory barriers)
  - State/regional (Multi-State Memorandum of Understanding and Action Plan, leverage existing state incentives)
  - Local (zoning and permitting)

Implementation Considerations

Trucks are not cars . .

- Must ensure that physical dimensions of sites can accommodate heavy trucks
  - Fueling stall dimensions
  - Ingress / egress
- Industry input is important

Utility coordination is paramount for implementation . .

- Megawatt+ loads for truck-compatible charging hubs
- Must assure adequate natural gas distribution capacity for CNG or some Hydrogen fueling sites

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Thank you!