

Blue Highways Action Plan

Integrating Short Sea Shipping
Into New York City's Freight Network





Trial run of a roll-on/roll-off operation at the Brooklyn Marine Terminal

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Letter from NYCEDC President & CEO Andrew Kimball

Dear Fellow New Yorkers,

New York City was born on the waterfront. Before there was a skyline, there were schooners, steamships, and smaller vessels and barges navigating our harbor—moving goods and bringing opportunity and prosperity to our shores.

Today's vision for New York City's "Blue Highways" revives that maritime legacy for a modern urban context, with a focus on getting trucks off our streets and goods back on the water. This plan will revitalize long-neglected waterfront sites as it reinvents how modern cargo—from the biggest shipping container to the smallest e-commerce package—moves through our city.

The Blue Highways program seeks to improve quality of life, decrease congestion for New Yorkers, and use the city's waterways to generate well-paying jobs. Congestion costs our city \$20 billion a year, according to the Partnership for New York City, as more than 40,000 trucks cross the Hudson River each day and compete for limited space on local streets.¹ By moving some of our freight deliveries to our waterways, we could have less crowding on our streets and less pollution in the air.

The City is working to make this vision a reality. And while developing our Blue Highways is not a new idea, there has been more progress in the last two years than in the previous two decades.

To sustain this positive momentum, we need thoughtful planning and consistent execution. We need this Blue Highways Action Plan.

This Action Plan includes:

- A new analysis of the three Blue Highways service lines—microfreight, containerized freight, and bulk freight—as well as the vessels and infrastructure required to operationalize them.
- A mapping and assessment of 25+ Blue Highways "opportunity sites" for activation, ranging from old piers to ferry landings to container terminals, matching site characteristics to potential services.
- A list of tangible maritime infrastructure projects for short-, medium-, and long-term activation.

This report is a companion to NYCEDC's recent report on workforce development opportunities connected to the Blue Highways—*NYC's Working Waterfront: A Blueprint for Blue Highways*—which projects a Blue Highways workforce of 117,000 New Yorkers by 2035. Together, these analyses provide a comprehensive plan to reimagine our shores and create working, thriving waterfront communities.

With gratitude to the NYCEDC and NYC DOT team that conducted this analysis and to the countless stakeholders who contributed their thoughtful input, I invite you to join us in this important work.

Sincerely,

Andrew Kimball

President & CEO

New York City Economic Development Corporation

Letter from DOT Commissioner Ydanis Rodriguez

Dear Fellow New Yorkers:

Since its very founding 400 years ago, New York City's waterfront has always been central to its identity, shaping its geography, culture, and economy. It is the waterfront that has enabled us to be a city of movement—of people, ideas, and goods.

In recent decades—with new parks and greenways, as well as a new citywide ferry system—New York City has invested wisely in revitalizing the waterfront. With Blue Highways, we are adding another vital dimension: freight movement. The New York City Department of Transportation (NYC DOT) and New York City Economic Development Corporation (NYCEDC) are jointly leading the Blue Highways program and the Blue Highways Action Plan to unlock the potential of our waterways to meet the city's freight needs, while improving the quality of life for all New Yorkers.

The mission of Blue Highways is to shift freight traffic off our crowded streets and onto our waterways. This strategy can reduce truck congestion, lower greenhouse gas emissions, and improve safety across our neighborhoods, advancing our Vision Zero goals and enhancing quality of life for New Yorkers. Equally important, our plan promises to create new maritime and logistics jobs, strengthen local businesses, and expand economic opportunities.

The need has never been greater. With freight volumes projected to grow by 67 percent through 2045, our already-congested roadways are facing great strain, with increased emissions, as well as the rising costs of keeping roadways in a state of good repair as truck sizes have surpassed the effective designs of the roadways they use. At the same

time, our incomparable harbor and 520 miles of waterways—which once dominated our commerce—are now underutilized as a freight network.

We know freight vessels and cargo bikes working together can deliver goods more efficiently, more sustainably, and with far less impact on local communities than trucks alone. One well-coordinated boat delivery has the capacity to replace dozens of truck trips, creating benefits that could ripple across the entire city, powering our economy with an injection of resources to our working waterfront.

The Blue Highways Action Plan builds on two decades of research, planning, and stakeholder collaboration. Progress has accelerated significantly under the Adams Administration, highlighted by the City's 2023 Request for Expressions of Interest (RFEI), which drew 29 responses from maritime and logistics stakeholders. Our growing momentum underscores the readiness of the public and private sectors to join in making significant investments in the future of waterborne freight.

The freight mobility and ferries teams at NYC DOT, working collaboratively with NYCEDC, have spearheaded this momentum. To bring this vision to life, NYC DOT is pursuing a series of targeted goals: piloting new routes and vessels at Pier 11/Wall Street and Pier 79 in Manhattan; testing the feasibility of using NYC Ferry piers for freight; investing in supportive infrastructure for last-mile microdeliveries; and partnering with the Department of Sanitation (DSNY) and private businesses to expand the movement of bulk freight by water.

With this Action Plan, New York City is “charting a course” toward a cleaner, safer, and more resilient freight system. Blue Highways is our citywide commitment to innovation, sustainability, and equity that leverages one of our most abundant resources—our waterfront. We are excited to share it with you, as we make plans for a more resilient, sustainable, and inclusive future.

Sincerely,

Ydanis Rodriguez
Commissioner

Executive Summary

The Blue Highways program is built on a simple concept: improve quality of life in NYC by shifting freight traffic from our crowded streets to our city's extensive waterways. With freight volumes set to grow 67 percent through 2045, Blue Highways seeks to reduce traffic congestion, pollution, and the cost of roadway maintenance from truck traffic while bringing jobs and economic opportunity to New Yorkers.

"Blue Highways" is New York City's brand for what the industry calls short sea shipping and the US Maritime Administration (MARAD) calls the Marine Highway Program—the regional transportation of freight within harbors, along coasts, and through inland waterways.

Blue Highways has the potential to have a large-scale impact on neighborhoods across the city disproportionately impacted by truck traffic.

Blue Highways freight movement is organized into three major service lines:

- **Microfreight**, which encompasses e-commerce parcel delivery and small-scale food and beverage delivery using commercial cargo bikes on ferries
- **Containerized freight**, which includes refrigerated foodstuffs and other goods moved by standard 20- or 40-foot shipping containers
- **Bulk freight**, which encompasses municipal bulk (e.g., DSNY municipal solid waste, road salt, and organic waste), aggregate, and building materials

The core logistics concepts of Blue Highways services are to:

- Utilize available navigable waters within and connecting to New York City—the Hudson and East Rivers, Gowanus Canal, Newtown Creek, New York Harbor, and Long Island Sound—for freight transportation services that provide a direct substitute for middle-mile trucking, the segment of the supply chain between the unloading of goods from international cargo vessels and their delivery to warehouses for last-mile distribution
- Utilize existing waterfront sites and assets, including passenger ferry landings where practical, to maximize the number of potential routes and service combinations
- Emphasize logistics that enable micromobility delivery vehicles and services (with a focus on small-footprint, community-friendly, low/zero emissions) rather than those that generate truck trips "outside the gate" at marine cargo receiving facilities in New York

This **Blue Highways Action Plan** builds upon two decades of stakeholder coordination, research, and plans to frame a coordinated vision for the City and its public and private sector partners to develop, expand, and sustain Blue Highways services. And the City has built real momentum: We have seen more progress in the last two years than in the previous two decades, as shown in the following set of maps and Action Agenda.

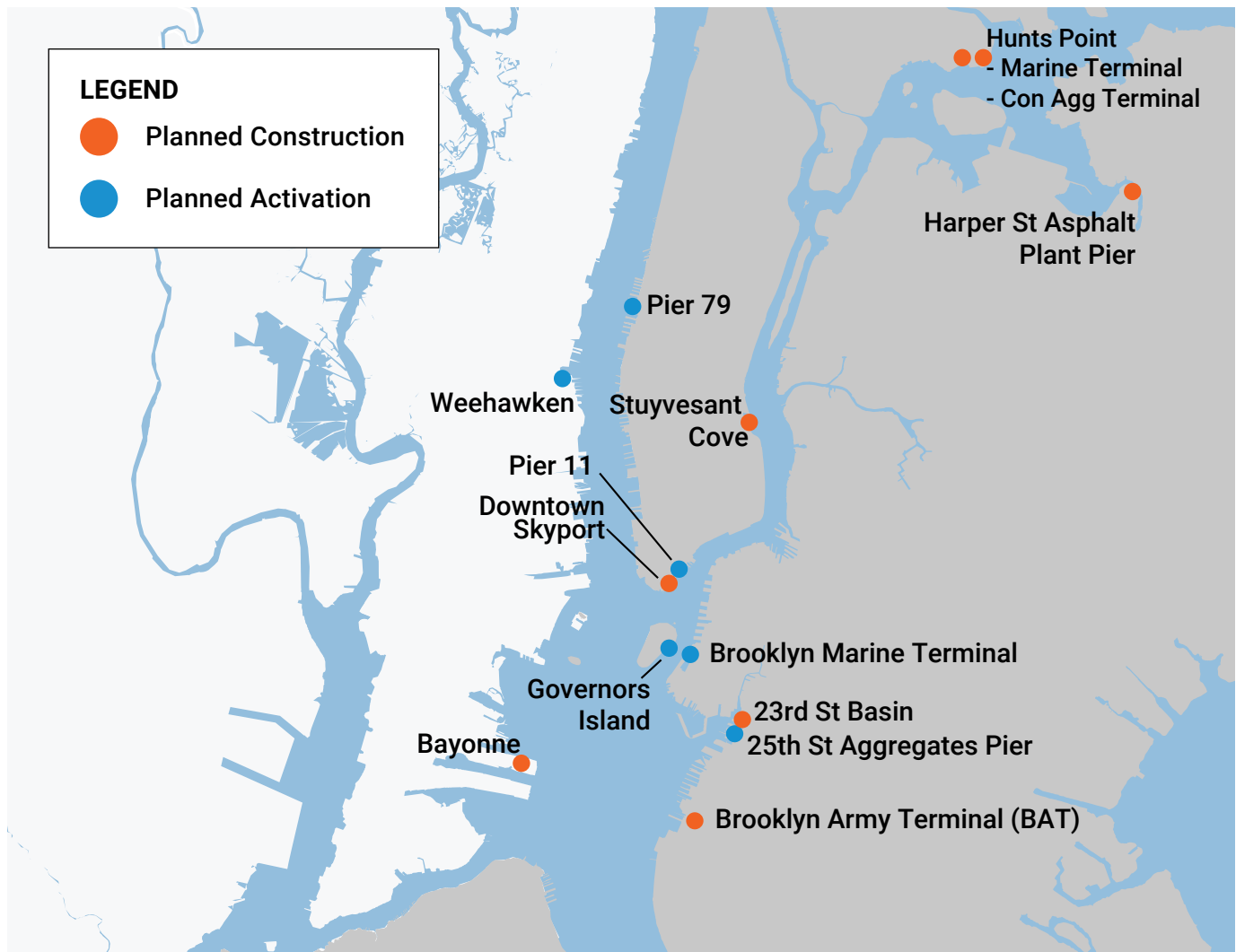


Aerial view of Manhattan's west side and piers from 59th St and south

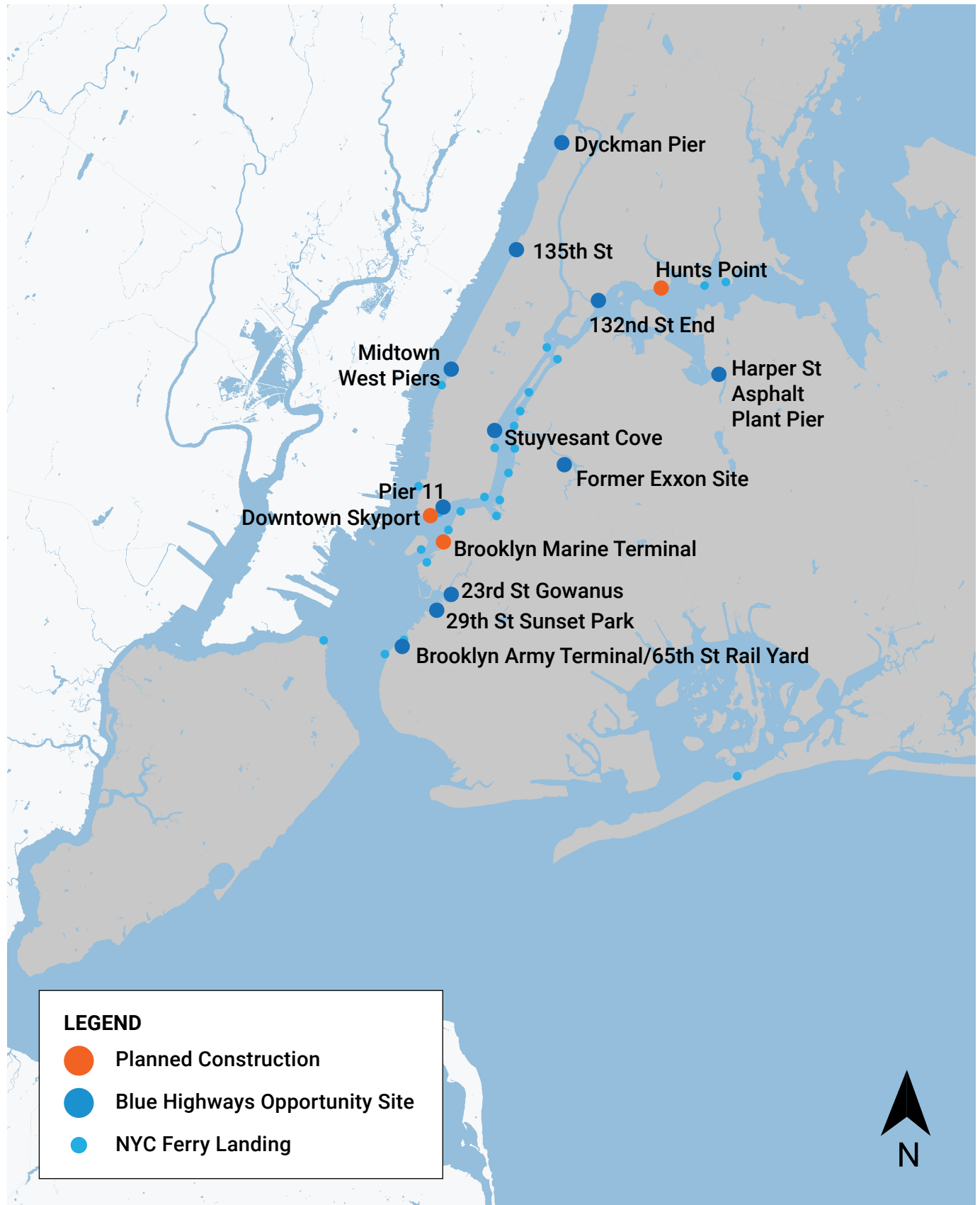
Opportunity Sites and Near-term Activation Maps

Pairing the list of sites generated by responses to the 2023 RFEI jointly released by NYC DOT and NYCEDC with careful analysis of site characteristics and availability (see Appendix), NYCEDC and NYC DOT developed a map of Blue Highways Opportunity Sites, as well as a map of Near-term Planned Landings, defined as new construction or activations for Blue Highways purposes within the next five years. These maps encompass both activations of existing sites as well as new construction, with microfreight, bulk freight, and container freight.

Near-Term Proposed Landings

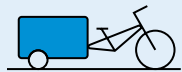


Blue Highways Opportunity Sites



Action Agenda

Actions that advance Blue Highways infrastructure for microfreight, container freight, and bulk freight movement.



Microfreight Service Line

Q1 2026

- Establish Blue Highways pilots using landings at BMT, Pier 11, Pier 79 and other suitable ferry landings controlled by NYC DOT and NYCEDC.

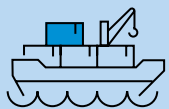
Q4 2027



- Open the first Blue Highways microfreight landing at the Downtown Skyport.

Q4 2026

- Open the Con Agg Global aggregates and microfreight landings at Hunts Point on a permanent basis. Upon the opening of a microfreight landing, launch microfreight service from Hunts Point to a Lower Manhattan pier, shifting to the Downtown Skyport microfreight landing in Q4 2027.



Container and Bulk Freight Service Line

Q4 2025



- Remove the Vernon C. Bain Correctional Center (VCBC) barge from Hunts Point in the Bronx.
- Open the Con Agg Global aggregates terminal at Hunts Point, in partnership with the Fulton Fish Market, on a pilot basis.

Q4 2025

- Issue a Request for Expressions of Interest (RFEI) for optimizing marine operations at the Brooklyn Marine Terminal (BMT), operating the Hunts Point Marine Terminal (HPMT), and creating a harbor-wide container barge service.
- Issue mini-RFP to begin design work for shoreline improvements and South Bronx Greenway Hunts Point Extension adjacent to the former VCBC site, in preparation for the future HPMT.
- Study tax incentive packages that could induce private businesses to invest in supply chains utilizing Blue Highways.

Q3 2027

- Complete land remediation at the site of the former VCBC barge.

Ongoing Implementation

- Establish the Blue Highways Advisory Council in Q1 2026
- As microfreight landings are determined, begin planning and implementation of landside infrastructure to support freight movement changes
- Support additional aggregate-focused waterfront site developments for Blue Highways purposes
- Partner with DSNY to identify opportunities to move a greater proportion of municipal bulk (including organic waste) as part of their refreshed Solid Waste Master Plan
- Support private sector Blue Highways on promising sites, including the former Exxon site at Newtown Creek, and 132nd St in Port Morris
- Make NYC DOT and NYC Ferry landings available to private sector Blue Highways stakeholders for additional pilot routes
- Partner with government and private entities in New Jersey to develop New Jersey-based landings as origination sites for NYC-bound routes

Q3 2029

- Launch microfreight landings at 23rd St Gowanus, Brooklyn Army Terminal, and Stuyvesant Cove.

2030

- Activate 2-3 additional microfreight landings within the five boroughs, leveraging City-owned and controlled assets, including DOT and NYC Ferry landings.
- Establish permanent microfreight facilities at BMT as part of redevelopment.

2031+

- Develop a landing at Midtown West piers capable of handling small package goods as part of the Manhattan Cruise Terminal redevelopment.

2028

Q4 2028

- Complete HPMT state-of-good-repair shoreline improvements.

2029

Q4 2029

- Complete South Bronx Greenway extensions adjacent to the site of HPMT.

2030



2031

2030

- Invest in publicly owned waterfront sites with Blue Highways potential, including the DOT Harpers St asphalt production facility.
- Develop a container barge service between BMT and Hunts Point for delivery of foodstuffs to Hunts Point Food Distribution Center businesses.
- Develop HPMT on the site of the former VCBC barge.

Introduction

Congestion seems inevitable in New York City. Trucks, buses, delivery vans, cars, construction vehicles, bikes, and pedestrians share our roadways. And with 90 percent of goods moving into and out of the city transported by truck, and over 80 percent of New Yorkers receiving a package at home in the last week², NYC has seen an increase in congestion, pollution, and roadway damage. The New Jersey side of New York Harbor currently handles most of the container freight that passes through the Harbor, at 98.6 percent of the approximately nine million twenty-foot equivalent units (TEUs) moved in 2024.³

The City aims to allocate limited street space to the most efficient and sustainable uses. The Blue Highways program is one strategy that will better allocate that space by drawing upon New York City's historic maritime strengths to move goods. Those strengths include:

- A robust maritime industry and 520 miles of waterways that can be leveraged to move a greater proportion of goods around New York Harbor
- A waterfront that is approximately two-thirds publicly controlled
- Successful models to build off, including the Department of Sanitation's (DSNY) network of Marine Transfer Stations, the extensive use of barges to move aggregate and building materials into and around the city, as well as the Red Hook Cross Harbor Barge service that moves containers from the Brooklyn Marine Terminal to Port Newark, New Jersey
- The addition of commercial cargo bikes into the supply chains of logistics firms, unlocking new opportunities for small-parcel delivery via a combination of freight-focused vessels for middle-mile and electric cargo bikes for last-mile delivery.

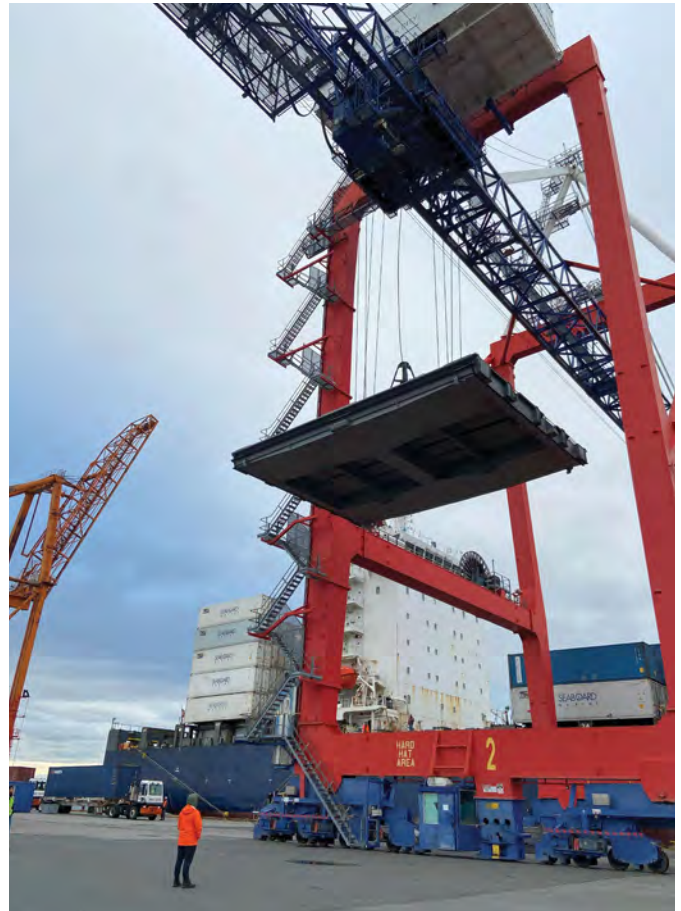
In addition, New York City has three publicly owned ports—Port Liberty on Staten Island, the Brooklyn Marine Terminal (BMT), and the South Brooklyn Marine Terminal—and dozens of smaller public and private maritime facilities handling fuels, aggregates, metals, and other heavy commodities that can be leveraged more effectively. Many of these sites already engage in Blue Highways operations, such as the Red Hook Cross Harbor Barge that moves containers between BMT and Port Newark, NJ, and the numerous bulk freight barges in New York Harbor. The goal of the Blue Highways program is to expand this type of operation to a greater number of sites and mitigate the impacts of truck trips via strategic investment in landings and landside infrastructure that supports a Blue Highways-based supply chain. The program is linked to the City's broader set of freight transportation, sustainability, and workforce policy frameworks, including:

- *Delivering Green: A Vision for a Sustainable Freight Network Serving New York City* (NYC DOT, 2021)
- *PlaNYC: Getting Sustainability Done* (City of New York, 2023)
- *Moving Forward 2055: Regional Freight Plan Element* (New York Metropolitan Transportation Council 2025)
- *NYC's Working Waterfront: A Blueprint for Blue Highways* (NYCEDC 2025)

The City has built momentum for Blue Highways, with significant progress in the last two years and expected continued growth. Following the City's 2023 Blue Highways RFEI, the City has advanced pilot programs and concepts to facilitate new sustainable Blue Highways services for the movement of containers, commercial cargo bikes, and aggregates to and between the five boroughs, utilizing available City properties while developing partnerships with private companies and site owners.



Port Liberty New York Container Terminal, Staten Island



Brooklyn Marine Terminal

And the private sector is responding with its own investments:

- Third-party logistics firm DutchX has participated in pilots using NY Waterway ferries and has expanded its operations to the Brooklyn Marine Terminal
- Startups like US Coastal Service and Sixth Borough Marine have invested in freight ferries
- Net Zero Logistics has partnered with the Trust for Governors Island to pilot a new delivery service to the island
- Con Agg, an aggregates company, began moving aggregates via water to Hunts Point in 2025, taking more than 1,000 trucks off the road monthly, and is developing a micro-logistics business anchored in moving goods from the Bronx via water
- Logistics real estate firm Prologis has invested in waterfront sites in New York and New Jersey that are currently being studied for Blue Highways routes
- E-bike manufacturers have worked with the City to develop microfreight containers that work with maritime infrastructure

Each of these stakeholders has contributed to the dynamic ecosystem that makes Blue Highways possible.

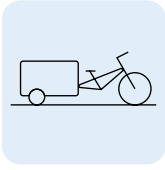
This **Blue Highways Action Plan** builds on these developments to frame a coordinated vision for the City and its public and private sector partners to develop, expand, and sustain Blue Highways services and improve quality of life in the city writ large, as well as in neighborhoods disproportionately impacted by truck traffic.

Services

This Action Plan identifies three primary Blue Highways service lines: microfreight, container freight, and bulk freight. Within these service lines, there are six major commodity groups, each of which has specific requirements for vessels, loading/unloading, and landside collection and distribution. In the loading/unloading row, LO-LO refers to “lift-on/lift-off,” or the movement of container freight onto and off vessels using cranes, while RO-RO refers to “roll-on/roll-off,” or the movement of container freight via vehicles that drive onto a vessel.

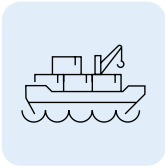
Blue Highways Service Lines	Microfreight		Container Freight	Bulk Freight			
Commodity	Consumer goods	Food and beverage	Food and beverage	Aggregates and building materials	Municipal bulk	Project cargo, construction / demolition materials	Liquid/ other dry bulk
Example	E-commerce packages	Kegs of beer	Pallets of bananas	Gravel, stone, concrete, lumber	DSNY organic waste, road salt	Large metal components, concrete shapes, wind energy, other machines	Fuel oils
Vessel	Ferry	Ferry	Deck barge	Deck barge, hopper barge	Deck barge, hopper barge	Deck barge, hopper barge	Tanker, hopper barge
Units	e-bike/e-van compatible containers	e-bike/e-van compatible containers	Shipping container	Pallets, sacks, or loose in barge	Pallets, sacks, or loose in barge	Large pieces or loose in barge	Loose in tanker or barge
Loading/ Unloading	RO-RO, with microfreight containers unclipped from cargo bike chassis	RO-RO, with microfreight containers unclipped from cargo bike chassis	RO-RO, LO-LO	LO-LO, crane, loader, conveyor	Crane, loader, conveyor	Crane, loader, conveyor	Pump, loader, conveyor
City Landside Collection or Distribution	e-bikes, e-vans	e-bikes, e-vans	Truck or transload to e-bikes/ e-vans	Truck	Truck	Truck	Truck, pipeline

Microfreight



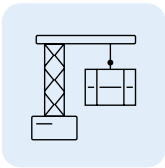
Microfreight / Micromobility: Small parcel- or package-oriented service with commodities (food, beverage, parcels, etc.) destined for local markets. This service requires minimum space at the port site, uses micromobility vehicles for last-mile delivery, and has minimal community impacts. Bike/van compatible containers on wheels are driven on/off vessels (RO-RO).

Container Freight

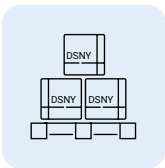


Container-on-Barge/Trailer-on-Barge: Standard international or domestic shipping containers are lifted on/off barges (LO-LO); shipping containers on wheeled chassis are driven on/off barges (RO-RO); or over-the-road trailers are driven on/off barges (RO-RO).

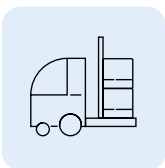
Bulk Freight



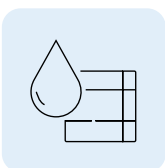
Aggregates and Building Materials: Blue Highways shipment of construction materials requires space for loading and unloading bulk material from vessels, on-site storage space, and access for heavy equipment and vehicles.



Municipal Bulk: Blue Highways shipment of municipal bulk requires space for loading and unloading bulk material from vessels, on-site storage space, and access for heavy equipment and vehicles.



Project Cargo and Construction & Demolition Materials: Blue Highways shipment requires space for loading and unloading bulk material from vessels, on-site storage space, and access for heavy equipment and vehicles.



Liquid and Other Dry Bulk: Blue Highways shipment of liquid and dry bulk goods not listed above requires space for loading and unloading bulk material from vessels, on-site storage space, and access for heavy equipment and vehicles.

BLUE HIGHWAY SUCCESSES

NYC Department of Sanitation: Marine Transfer Facilities

The New York City Department of Sanitation (DSNY) has significantly improved urban livability through its strategic use of Marine Transfer Stations (MTSs) to move municipal solid waste via barges. By shifting from truck-based long-haul disposal to barge transport, DSNY has reduced street-level congestion, noise, and air pollution. The East 91st St MTS, for example, replaced outdated infrastructure with a modern containerized facility that efficiently transfers waste to barges bound for out-of-city disposal sites. This approach streamlines operations and minimizes the environmental footprint of waste management in the city.

The development of these facilities was part of DSNY’s long-term Solid Waste Management Plan (SWMP), which it formalized in the early 2000s. The plan included the construction of four converted MTSs: East 91st St in Manhattan, Hamilton Ave and Southwest Brooklyn in Brooklyn, and North Shore in Queens. These facilities were designed to replace aging infrastructure and support containerized barge transport; the New York State Department of Environmental Conservation approved the environmental permits and mitigation plans.

As shown in the table below, the MTSs shipped a total of 1.3 million tons of waste out of the city via barge in 2023. This is the equivalent of 1,370 barge trips, removing about 65,700 tractor-trailer trips from city streets. The use of barges has helped mitigate traffic-related disturbances and on-site noise, contributing to quieter streets and cleaner air. By integrating marine logistics into its sanitation strategy, DSNY has demonstrated how infrastructure innovation can directly elevate the quality of life for New Yorkers.

Marine Transfer Statiogn	Year Opened	Tons Sent Out via Barge (2023)
North Shore MTS, Queens	2015	493,246
Hamilton Ave MTS, Brooklyn	2017	422,345
Southwest Brooklyn MTS, Brooklyn	2018	257,645
East 91st St MTS, Manhattan	2019	142,392
Total Tons Sent out Via Barge at all MTSs	2023	315,628

Landside Access

Landside access to the street network once goods are unloaded from vessels is a crucial step in the freight delivery supply chain. While NYCEDC is primarily focused on the movement of goods via water and landings, NYC DOT is focused on creating landside access for freight movement coming from all Blue Highways landings. Shifting freight movement to the waterway intends to change the roadway usage in areas where waterfront freight hubs are being constructed or updated. On-street accommodations for Blue Highways freight movement are broad, including traffic calming, traffic filters, suggested routes for micromobility, bike facility upgrades, micromobility parking, truck routes, and truck parking.

Landside access for commercial micromobility

NYC DOT is focused on commercial cargo bikes and other freight micromobility as microfreight landings come online. To improve quality of life in these waterfront communities, the Blue Highways program encourages microfreight movement for last-mile delivery. The roadway network will need new infrastructure to support this modal shift.

NYC DOT's micromobility toolkit specifically includes:

Cargo bike corrals

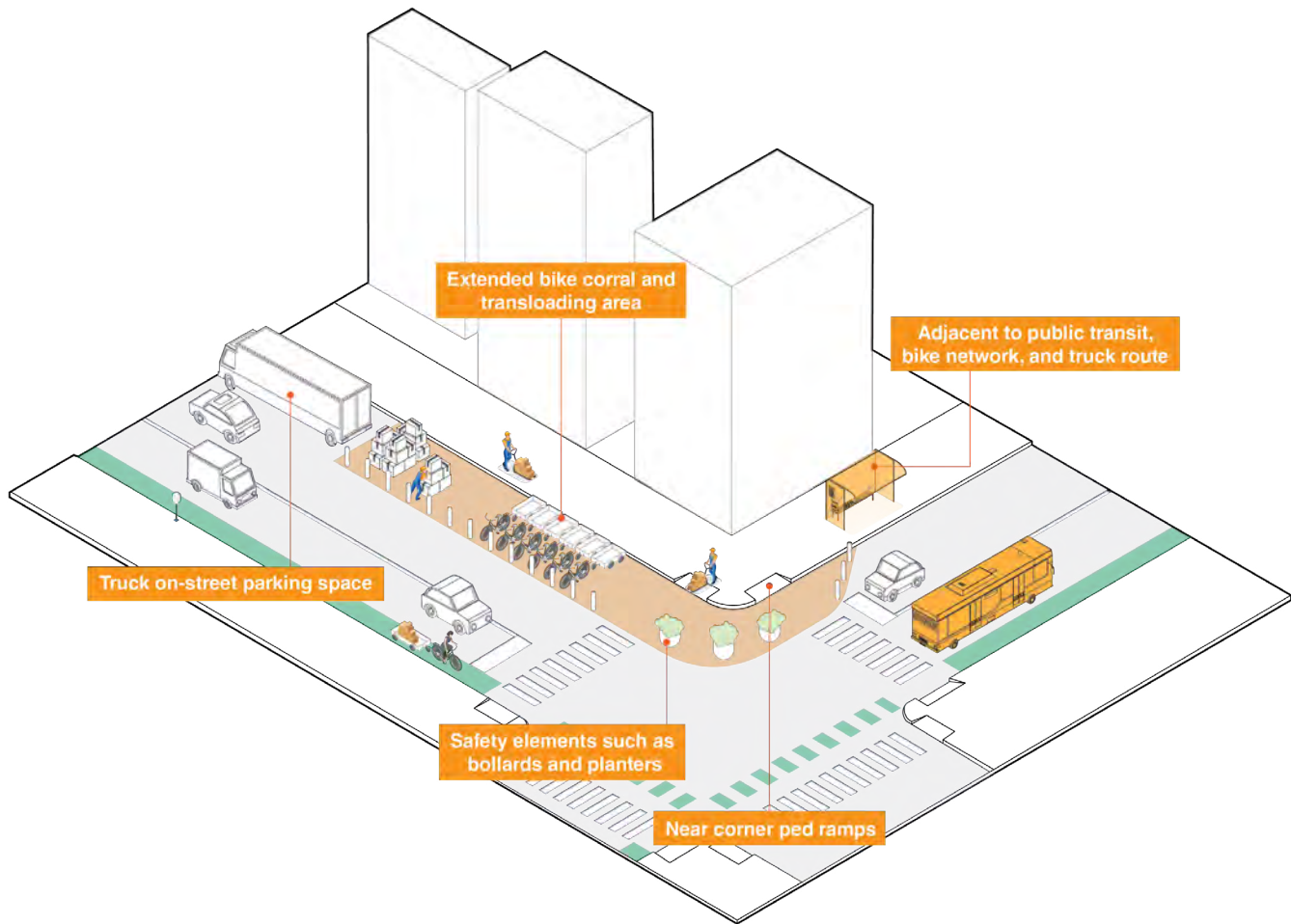
These corrals provide designated cargo bike loading and unloading zones to keep the sidewalk and the travel lane clear during transloading activities for this new freight mode.



Wider protected bike lanes

Wider protected bike lanes are good for all cyclists but are especially helpful for accommodating commercial cargo bikes. Lanes wider than 4' are optimal for cargo bikes which are allowed to be up to 4' wide according to NYC traffic law.





Microhubs

The [Microhubs Program](#) is in its pilot phase.⁴ The program aims to provide a network of public spaces for transloading between modes across the city. This includes micromobility modes such as commercial cargo bikes.

Suggested routes for microfreight could ensure safety and comfort for micromobility operators and community members also using the network.

Other landside strategies for micromobility

Additional micromobility strategies will be planned and implemented as waterfront infrastructure goes online. NYC DOT will make data-informed decisions in coordination with industry partners to prioritize safe and efficient designs. As supportive infrastructure is put in place, NYC DOT and industry partners will continually assess the effectiveness of the network.

Landside planning for all modes

When it comes to landside planning, there is a focus on micromobility, as it is a newer mode with a high adoption rate. However, landside planning must be considered as a network used by a number of groups with varying needs, including pedestrians, recreational cyclists, trucks, and cars. NYC DOT will carefully plan with all users in mind, using NYC DOT's toolkit that prioritizes safety and ease of use.

Blue Highways Benefits

Blue Highways will bring real, concrete benefits to the city, individual neighborhoods, and New Yorkers.

Preserving City Infrastructure

By shifting cargo from trucks to barges and vessels, Blue Highways-based freight movement helps alleviate traffic on highways and city streets, which in turn reduces wear and tear on infrastructure and lowers the risk of crashes.

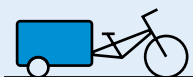
Reduced Emissions and Noise Pollution

It is important to minimize truck movements after cargo has been offloaded from vessels for last-mile delivery via ground vehicles. In communities that have existing freight hubs (like Hunts Point and Red Hook), the shift to low-emission, last-mile delivery methods will increase quality of life with reduced noise and air pollution from trucks. NYC DOT's Commercial Cargo Bicycles Pilot Evaluations found that each cargo bike covers an average of 20 van or box truck service miles per day, which means that a cargo bike can replace vans or box trucks on a 2:1 basis—two cargo bikes (or cargo bike trips) replace one van or box truck. Each cargo bike in service saves seven tons/year CO₂. This is equivalent to over 100 planted trees, or 15,436 passenger car miles traveled.⁵

NYC DOT's Commercial Cargo Bicycles Pilot Evaluations

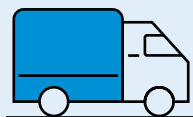
2 replaces

Cargo Bikes



1 saving

Van or box truck



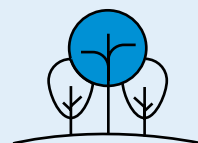
7 equivalent to

Tons of CO₂



100

New Trees





The City aims to cut transportation emissions in half by 2030, in part by using the Blue Highways network for freight movement, as well as accelerating the adoption of cargo bikes, low-emission vehicles, and electrified vessels for last-mile deliveries.

Benefits Cited for Cargo E-Bikes

Criteria	Vehicle Type		
	Cargo e-bike	Diesel transporter	Electric vans
Stops per hour	12-15 stops	6-8 stops	7-10 stops
Efficiency advantage	Can use cycle paths, minimal parking space required	Time lost due to traffic & parking	Depending on the charging infrastructure
Max payload	150–300 kg	800–1,200 kg	700–1,000 kg
Range of use	Short distances, small deliveries	Bulky and heavy loads	More environmentally friendly option for large quantities
CO2 per km	0 g	160–200 g	40–60 g
Air pollution	No emissions	High particulate matter pollution	Depends on the electricity mix

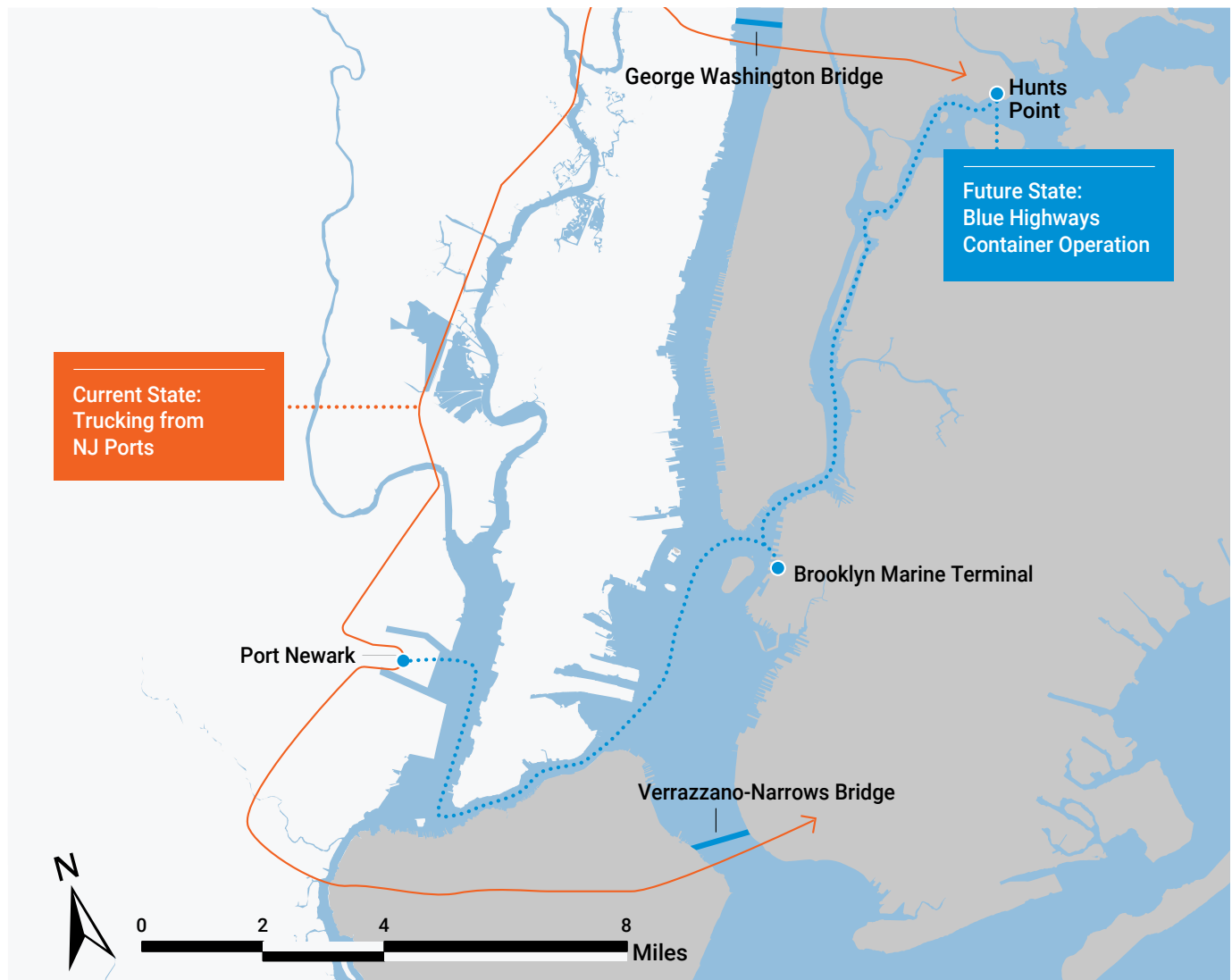
Source: Fernhay.com, www.commercial.civilizedcycles.com, www.youmo.ch



Resiliency and Redundancy Benefits

Increasing Blue Highways capabilities creates alternative pathways to enter the city. Currently, most freight enters New York City via one of two congested chokepoints: the George Washington Bridge and the Verrazano Bridge, with a small amount entering via the Lincoln and Holland Tunnels. For example, moving freight to a market in Brooklyn, which would normally generate a truck trip over the George Washington Bridge and the Brooklyn-Queens Expressway, might be better achieved with a maritime trip directly to Brooklyn from New Jersey, creating redundancy and resiliency in the city's food distribution supply chain. This provides alternative routes for goods movement during natural disasters or infrastructure failures, such as the Baltimore Key Bridge collapse.

Adding Resiliency to the Freight Distribution Supply Chain



BLUE HIGHWAY SUCCESSES**Battery Coastal Resilience**

By 2100, New York City's iconic Battery Park is expected to be underwater unless action is taken. As part of the Lower Manhattan Coastal Resiliency (LMCR) program, the Battery Coastal Resilience Project is reconstructing and elevating The Battery wharf to protect against sea-level rise and storm surge. This initiative will elevate the park by five feet, increase accessibility, and reconstruct aging infrastructure while preserving the park's historic character for future generations.

In alignment with New York's environmental goals, the project has incorporated water-based freight and construction machinery to mitigate carbon emissions and environmental impact. To reduce street-level congestion and emissions, the project uses barges for material deliveries and barge-mounted cranes for pile driving and installation of precast concrete elements; whereas, traditionally, trucks would have transported these supplies to the site. The City estimates that the use of barges will remove nearly 2,000 truck trips from the roadways of Lower Manhattan.

Beyond the reduction of traffic noise and air pollution, it is estimated that water-based freight directly avoids approximately 400 metric tons of carbon emissions—the equivalent of removing the annual emissions of 87 cars. This strategy, along with other sustainable building practices, contributed to a 54 percent reduction in embodied carbon compared to baseline estimates. As a result, the Battery Coastal Resilience project became the first major project to meet the NYC Clean Construction Accelerator goal of a 50 percent reduction in embodied carbon emissions and earned a Platinum Award from the Institute for Sustainable Infrastructure's Envision Program.

The use of barges in the Battery Coastal Resilience Project has contributed to quieter communities that are less disrupted by noise and air pollution. Continued barge operations have supported efficient construction while limiting disruption to local communities and lowering carbon emissions, reinforcing the project's role as a model for sustainable urban resilience.

Quality Jobs

Additionally, investing in Blue Highways and marine infrastructure continues the reinvigoration of New York City waterways and stimulates local economies by creating jobs in port operations, shipbuilding and maintenance, and logistics. NYCEDC's *NYC's Working Waterfront: A Blueprint for Blue Highways* report notes that there are currently about 68,000 jobs in the Blue Highways workforce in the city, which is expected to grow to 117,000 jobs by 2035, a 72 percent increase. Across the metro area more broadly, there are forecast to be 278,000 Blue Highways-related jobs by 2035.

Cost Advantages

The economics of waterborne transportation benefit from scale. For bulk goods such as aggregate and construction materials, a single barge replaces 40-80 truck trips, making further strides in aggregate movement by water an attractive proposition for industry.

For microfreight, preliminary research by NYCEDC and the private sector indicates that movement of microfreight containers via dedicated freight ferry or similar vessel paired with commercial cargo bikes for last-mile delivery can be cost-competitive with traditional trucking when deployed at scale, with ferries or other catamaran-style vessels holding 35-60 microfreight containers, or 7,500–9,000 parcels. Congestion pricing further drives the economics towards maritime movement of goods by adding approximately \$0.01–0.02 to the cost of moving each parcel. Microfreight remains a nascent, rapidly developing space ripe for innovation, and the City is in active dialogue with industry to align delivery models with the infrastructure being developed to support and facilitate the scaled adoption of each Blue Highways service line activity to benefit the city.

For containerized freight, the cost differential between trucking and an inter-harbor barge service such as the container barge service from BMT to Hunts Point is more challenging. To address this gap, the City is investing in capital infrastructure and plans to solicit proposals for a single operator to manage both BMT and the Hunts Point Marine Terminal, minimizing the number of business touchpoints in the supply chain. Additionally, NYCEDC is conducting a study to analyze what tax or other incentives could be used to motivate container movement by barge. This study involves close collaboration with the private sector, including discussions with organized labor. Success also requires close collaboration at the State and federal levels.

Waterfront Activation

Blue Highways services can utilize, be anchored by, and activate City properties and assets controlled by NYCEDC, NYC DOT, and other agencies. Efforts to develop Blue Highways tie directly into the City's Harbor of the Future initiative. This initiative reimagines a "network of innovation and growth across New York City's waterways. The Harbor of the Future includes emerging innovation centers such as the newly announced climate innovation hub, 'BATWorks,' at the Brooklyn Army Terminal in Sunset Park; the Hunts Point Produce Market redevelopment in the Bronx; the country's largest offshore wind port at the South Brooklyn Marine Terminal; a modern maritime port and vibrant mixed-use community hub at BMT in Red Hook; the Science Park and Research Campus in Kips Bay in Manhattan; new sustainable housing and public space on the North Shore of Staten Island; and an anchor research and educational partner with the New York Climate Exchange on Governors Island."⁶

NYC DOT Decarbonization Strategy

Blue Highways are also a core component of a larger decarbonization strategy being advanced by NYC DOT. In *Delivering Green: A Vision for a Sustainable Freight Network Serving New York City* (NYC DOT, 2021),⁷ DOT commits to five key goals:

- *Make the Last Mile More Efficient*
- *Shift Freight from Road to Water*
- *Green the Last Mile*
- *Shift Freight from Road to Rail*
- *Create a Culture of Compliance*

In particular, the Blue Highways program supports the *Green the Last Mile* and *Shift Freight from Road to Water* goals. The *Green the Last Mile* goal includes the commitment to work with "NYCEDC to explore multimodal freight operations at underutilized landings, looking to support barge and/or freight ferry to cargo bicycles and other sustainable delivery methods."

As part of the *Shift Freight from Road to Water* goal, the plan states that "the City will create opportunities for waterborne freight movement by modernizing its marine terminals, expanding waterfront access to maritime shippers, and supporting private sector marine highway initiatives." The Blue Highways Action Plan works directly toward achieving this goal.

Blue Highways work addresses the citywide effort to decarbonize the NYC government. Department of Citywide Administrative Services (DCAS) released the *Powering Change* report in 2024 focused on recent efforts for NYC's Government to decarbonize its own activities. Blue Highways not only wants to promote industry to move freight along the waterways, but is also making an effort to move a greater proportion of municipal bulk commodities through the Blue Highways network to avoid truck usage for the city's freight movement.

Building the Blue Highways Action Plan

Industry Takeaways

The Blue Highways sites being developed as part of this Action Plan are a function of supply and demand: what sites are available to the City on the supply side, and industry interest on the demand side. For detailed analysis, see the Appendix. The Blue Highways Opportunity Sites map shows the sites mentioned in the RFEI responses.

Route Demand

- The strongest demand is for routes between New Jersey and New York City.
- Lower and Midtown Manhattan have the greatest demand for last-mile delivery, due to residential and commercial density, as well as roadway congestion that allows for faster movement via commercial cargo bike.
- Industry demand exists for waterfront consolidation centers in Brooklyn and Manhattan (as indicated in multiple proposals), but there is also a valid tension identified regarding the use of valuable waterfront real estate for warehousing.

Container Operations

- There is an emerging model of microfreight containers that detach from commercial cargo bikes, with only the microfreight container making the waterway crossing.
- Commercial cargo bikes are most likely to be housed on the New York City side of a New York crossing, with drivers and bikes meeting vessels with microfreight containers at landings.
- Parcels could be sorted and organized into microfreight containers on the New Jersey side of the marine crossing in New Jersey-based distribution centers to avoid the need for New York City-based warehousing and sortation space.
- Economics improve with scale and dedicated maritime freight vessels due to multiple touchpoints along the supply chain.



Vessels

- The microfreight industry is aligning around dedicated freight ferries and small to medium-sized catamarans.
- Traditional non-powered barges are infeasible for microfreight services due to poor maneuverability at constrained landings and slow transit speeds for time-sensitive goods.
- Simultaneous microfreight and regular passenger services on passenger ships may present challenges due to limited freight capacity and potential for physical and operational conflicts.
 - However, NYC DOT is encouraging industry partnerships with ferry operators to leverage existing passenger services as a strategy to maximize the use of existing transportation infrastructure, increase operational flexibility, and enhance overall impact.
 - Off-hour delivery is most desirable—overnight pm–3 am; between rush hour (defined as 6–10 am and 4–7 pm) is also feasible.

Landings

- Pier 11 in Lower Manhattan is a feasible, currently ready pilot landing that can be used to test the route to Downtown Skyport while the landing is under construction.
- Pier 79 on the West Side of Manhattan is another feasible, currently ready pilot landing.
- Other NYC DOT and NYC Ferry passenger landings may be feasible but will need to be screened for operational and economic feasibility; ideal sites will have no physical barriers that impede the loading/unloading of an e-bike from ferry gangways to street level, and be adjacent to dense neighborhoods in which deliveries are tightly spaced and commercial cargo bikes have a maneuverability advantage over delivery vans or box trucks.

Blue Highways Implementation

Overall Strategy

While Blue Highways services have begun to advance on an ad-hoc basis, achieving a full and coordinated vision at a meaningful scale will require strategic focus and coordinated action. Key next steps for the City include the following:

1. Continue the development of publicly owned Blue Highways sites in the Near-term Proposed Landings map.
2. In parallel, advance a set of Pilot Routes within 1-2 years to demonstrate the operability, value, and potential sustainability of Blue Highways services, prioritizing pilots to Pier 11 due to its adjacency to the planned Downtown Skyport microfreight site.
3. Continue to engage with industry on the activation of private landing sites, especially sites for moving aggregate and other bulk freight.
4. Develop supportive landside infrastructure for last-mile microdeliveries with on-street accommodations for newer modes of freight transport.
5. Continually reassess suitable opportunities for implementation. Viable opportunities should have the following characteristics:
 - Known market demand
 - Local community support
 - Infrastructure already in place or improvable with reasonable effort
 - Utilization of cargo bikes and other micromobility strategies
 - Available funding
 - Committed customers and service partners
6. Advance longer-term opportunities and initiatives through engagement of relevant stakeholders, leveraging existing assets, and planning for the future.
 - **Engagement** - The City is engaged with promising respondents to NYC DOT and NYCEDC's Blue Highways RFEI, as well as other industry stakeholders such as marine terminal operators, barge and vessel owners and operators, logistics companies, technology and service providers, and freight shippers and receivers. Labor and community interests are important stakeholders for understanding the economic landscape and community impacts in New York. Regulatory partners such as the Coast Guard are key to making the program successful. Linking up with service partners in New Jersey and elsewhere outside of the city will create a connected regional network.
 - **Leverage** - Leveraging existing City-owned-and-controlled assets, including sites where additional investment and improvement are key to creating a successful program. The NYC DOT ferry and NYC Ferry landings have the capability to receive microfreight with necessary US Coast Guard certifications and agency approvals, providing available landings with less time and resources necessary to activate, and at some sites could be expanded by the installation of an additional gangway to avoid overlapping demands for passenger and freight ferry service. Activating private properties with interested

owners/developers will provide options for a robust inter-city network.

- **Plan** - As the City activates landings and routes, continued assessment and planning will be the key to a successful program. The vision for a mature Blue Highways system includes approximately 5-10 microfreight landings across the city, adjacent to dense neighborhoods, with a hub for bulk shipments in Brooklyn and a hub for food at Hunts Point. New Jersey-to-Brooklyn and New Jersey-to-Manhattan connections will provide the groundwork for a regional network. To plan, estimation of benefits and costs will need to be continually reevaluated with consideration for seeking partners and financing, including grants. Once activation of

key facilities is underway, an evaluation of existing operations will determine next steps in an iterative process. The network evaluation will consider which landings are being utilized, whether public or private, and in which boroughs. This analysis will lead to an evaluation of network gaps. Simultaneously, a model evaluation can provide information on how successful microfreight container freight (using either LO-LO or RO-RO) and bulk freight operations are in terms of scale, cost and impacts on community and quality of life. With an active waterborne freight network and as new vessel electrification technologies become available, NYC DOT and NYCEDC will continue to evaluate sustainability options like charging infrastructure and electrified vessel subsidies.

Blue Highways Service Lines and Timeline

Blue Highways Service Lines and Timeline	Pilot Routes	Near-term Plans	Longer-term Plans
Microfreight / Micromobility	Red Hook to Governors Island	Downtown Skyport	BMT Redevelopment
	Weehawken to Pier 79	NJ-based site to Pier 11 Weehawken to BMT	23rd St Gowanus
	Hunts Point to Lower Manhattan		29th St Sunset Park
			Brooklyn Army Terminal
			Stuyvesant Cove
			Upper Manhattan Location
			Midtown West Location
Container/Van		International food containers received at Brooklyn Marine Terminal and transloaded to Hunts Point Marine Terminal	Additional container-on-barge service between Hunts Point and other regional ports (e.g., Connecticut ports)
Bulk	Hunts Point Con Agg Terminal pilot runs	Hunts Point Con Agg Terminal	Former Exxon Site
		BMT Redevelopment	
		25th Street Pier Aggregates Hub	
		Harper Street Asphalt Plant Pier	

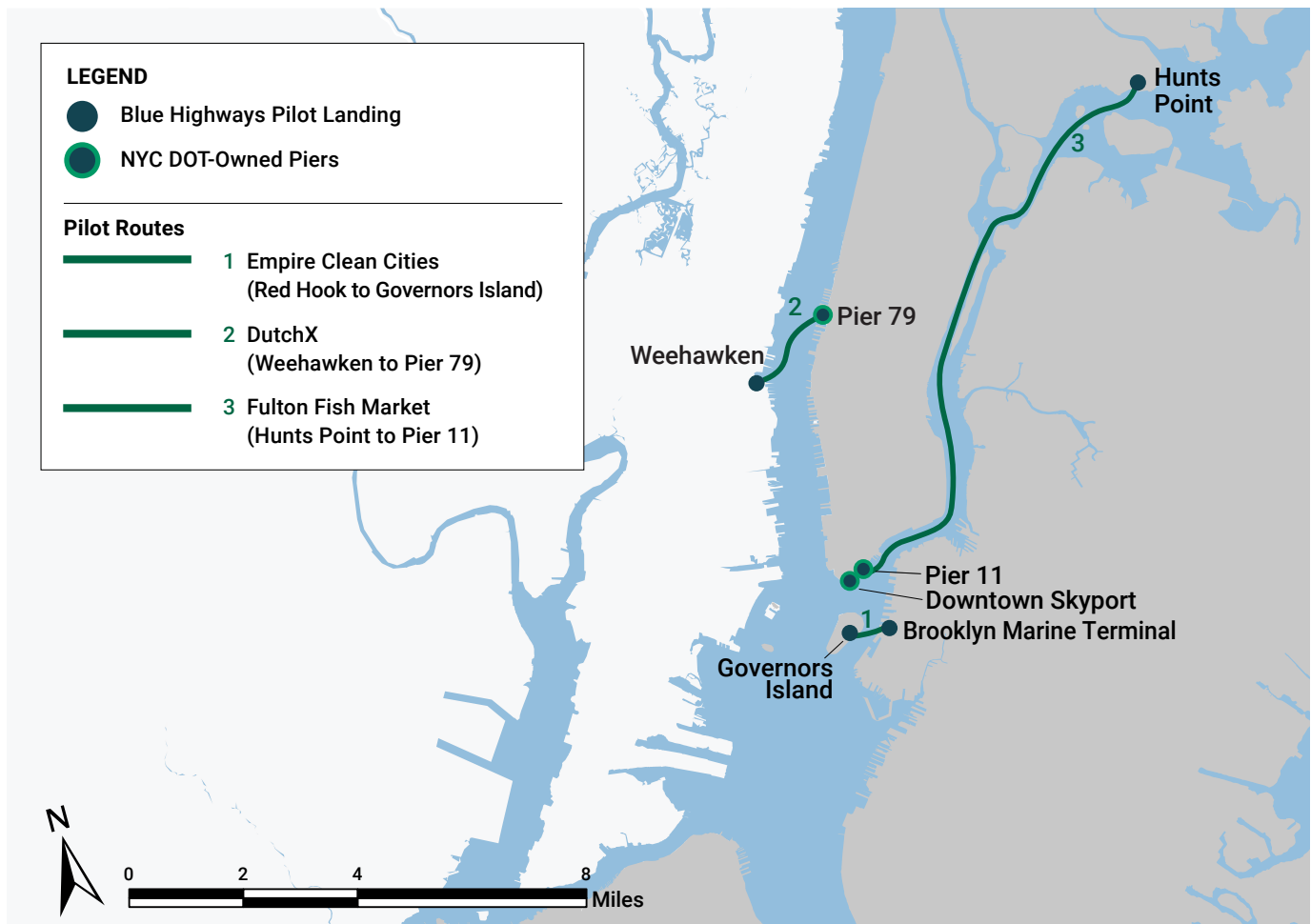
Pilot Routes

Near-term pilot routes are a necessary step in launching the Blue Highways vision. The pilots are operable Blue Highways routes that will use existing waterfront infrastructure to understand viability of proposed models for industry and the City. Industry partners can move freight regularly and at scale (where feasible). The City will gather data on frequency, capacity, routes, and vehicle miles traveled (VMT) reduction, as well as consider cost structures for landings receiving freight.

These near-term pilot routes will regularly—anywhere from weekly to daily—transfer microfreight by water. With industry interest and available landings, there are three emerging pilot routes that will run within the next two years:

- Red Hook to Governors Island
- Weehawken to Manhattan Pier 79
- Hunts Point to Lower Manhattan

Pilot Routes & Landing



Brooklyn Marine Terminal to Governors Island

Empire Clean Cities has developed a pilot route from BMT to Governors Island, in partnership with the Trust for Governors Island (TGI) and The Hub NYC. The route moves cargo from BMT's Atlantic Basin to Governors Island food service providers and other retailers. The model includes loading cargo onto a commercial cargo bike at Industry City, transloading that cargo onto a NYC Ferry at BMT, and finally moving the cargo onto another commercial cargo bike to move to the final destination.



Weehawken to Pier 79

NY Waterways and DutchX have tested a route from Weehawken to Pier 79, with plans to launch a pilot service. This route will test cargo movement incrementally, starting small and scaling up to 5,000–7,000 parcels per day. The partnership has found a retailer that sees the value in a seven-minute trip across the Hudson River to avoid the congestion on the George Washington Bridge or through the Holland Tunnel.



Hunts Point to Lower Manhattan

Empire Clean Cities is working with the Fulton Fish Market to create a route from Hunts Point to Lower Manhattan, in parallel with Con Agg Global's development of aggregates and microfreight landings at Hunts Point. A previous test run was conducted from Hunts Point to Pier 17 in 2023, while a new pilot would terminate at Pier 11 in the short term and the Downtown Skyport microfreight landing beginning in 2027.

The conceptual plan is to use a vessel with refrigeration capabilities, with goods transloaded to cargo bikes in Lower Manhattan for distribution to their final destination. The commercial cargo bikes will transport fresh fish to participating restaurants that currently receive fish by truck from the Fulton Fish Market in Hunts Point.

Future Pilot Coordination and Assessment

With available landings, NYC DOT and NYCEDC will support more near-term pilot routes. Currently, there are routes that are in earlier coordination phases. The City will support route coordination. For more information on starting a pilot route, please visit <https://edc.nyc/blue-highways>, which has contact information at NYCEDC and DOT as well as a checklist for operators looking to satisfy the regulatory and operational requirements necessary to start a pilot. Pilot routes will be used to assess the model, scalability, and landing fee structure for the program as Blue Highways grows into a robust network.





Rendering of the future Hunts Point Marine Terminal (center) and Hunts Point Con Agg Terminal (right), the latter of which will manage both microfreight and aggregates

Key Blue Highways Activations

Hunts Point Con Agg Terminal

NYCEDC is creating a Blue Highways facility with Con Agg Global, set to begin operations using temporary infrastructure on a pilot basis by the end of 2025, which will initially handle construction materials such as sand and aggregate. Eventually, a permanent facility will handle both aggregate and microfreight goods, such as food delivery, which would remove approximately 1,000 truck trips per month in the South Bronx. The permanent facility will feature an inland standard high-capacity barge with a modular pier design to allow for rapid deployment.

Hunts Point Marine Terminal

The City has sold and is removing the decommissioned Vernon C. Bain Correctional Center barge from Hunts Point by the end of 2025. In its place, the City has unveiled a vision for a new Hunts Point Marine Terminal, which will create 400 construction jobs, 100 permanent jobs, and \$3.9

billion in economic impact over the next 30 years. The marine terminal will be equipped for electric vessels and designed to integrate additional sustainable fuel systems as they become viable within the maritime industry. It is a key connection point between ports up and down the East Coast, including BMT and other nodes in the city. Hunts Point will have the capability to receive barges with containers of food products, received via international ocean vessels at BMT and transloaded via barge to Hunts Point. Examples of goods that could move through HPMT include bottled water from Maine and produce from Central America.

For the barging operation, the Port Authority of New York and New Jersey's 65th St Car Float, operating between Sunset Park, Brooklyn, and Greenville Yards in Jersey City, NJ is looked upon as a model of reducing truck trips on local streets. The float operations run twice a day, with each barge capable of holding 100 tons of cargo, or the equivalent of 72 semi trucks worth of goods, and allow trains making the journey across the Hudson to avoid a 300-mile detour to Selkirk, NY.



Rendering of Downtown Skyport with a built-out microfreight landing

Downtown Skyport Microfreight Terminal

The former Downtown Manhattan Heliport, renamed Downtown Skyport in early 2025, will provide infrastructure for electric vertical take-off and landing (eVTOL) aircraft, while also building out maritime freight-berthing infrastructure to receive vessels for electric cargo bikes to perform last-mile deliveries into Lower Manhattan. This Blue Highways microfreight landing will be the first publicly developed, built-for-purpose landing and will open in Q4 2027. To support route development, NYC DOT and NYCEDC are supporting industry players interested in running pilots to nearby Pier 11 while the Downtown Skyport Microfreight Terminal is being built. The hub will include access for Blue Highways vessels and bikes moving microfreight. This includes necessary infrastructure for workers' safety and comfort, along with the required space for bikes to load and unload. Following the opening of this microfreight landing, NYCEDC plans to open similar microfreight landings at 23rd St Gowanus, the Brooklyn Army Terminal, and Stuyvesant Cove by Q4 2029.

Brooklyn Marine Terminal Redevelopment

NYCEDC is advancing a stakeholder-led plan to transform the 122-acre BMT site into a modern, 21st-century maritime port and mixed-use community. In May 2024, Mayor Adams, along with New York Governor Kathy Hochul, NYCEDC, and the Port Authority of New York and New Jersey, announced a historic agreement to redevelop the site. Since then, the project has secured a total of \$418 million in capital funds from City, State, and federal sources. The BMT redevelopment is expected to generate \$18 billion in economic impact while potentially creating 37,000 temporary and 2,000 permanent jobs. In addition to being developed as an all-electric port, the redevelopment effort will incorporate future alternative fuel systems as the maritime industry transitions toward low- and zero-emission technologies. In the short term, third-party logistics provider DutchX has begun using space at BMT with the intention of establishing a microfreight hub connecting to New Jersey and Lower Manhattan.

As part of the BMT planning effort, NYCEDC has made a number of commitments with respect to BMT and Blue Highways as part of the BMT

Vision Plan. Those commitments have been incorporated into this Action Plan, and the full list of commitments can be found on NYCEDC's website. The BMT Vision Plan calls for BMT to function as a Blue Highways hub, primarily serving as a site for ship-to-barge transloading of international containers of food products to Hunts Point, while also maintaining flex space capable of accommodating other Blue Highways movements, including microfreight. In bringing this vision to life, the City will continue to collaborate with the Port Authority of New York & New Jersey on infrastructure needed to support this endeavor on both the New Jersey and New York sides of the harbor, including developing space for cold storage facilities within the NY Metro region that could be used to streamline and improve the resiliency of food distribution supply chains for consumers in New York City and Long Island. To further refine the Vision Plan and solicit ideas for how BMT could be optimized for maritime industrial uses, including a container barge service connecting BMT to a Hunts Point Marine Terminal, NYCEDC issued an RFEI on October 2, 2025, inviting port operators, developers, and maritime industrial businesses to provide input.



BMT redevelopment rendering

Midtown West Microfreight Landing

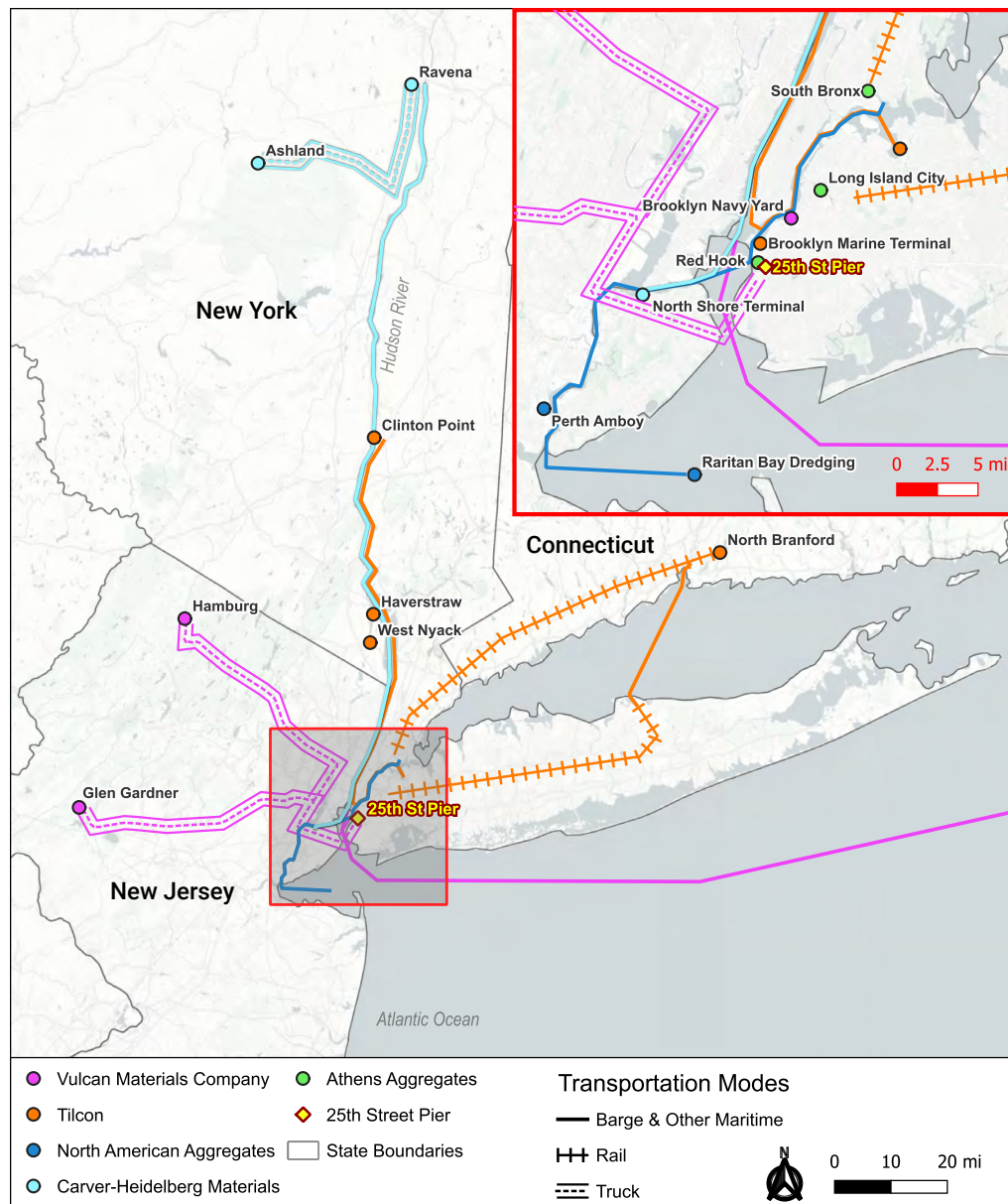
Private sector Blue Highways stakeholders consistently mention Midtown West as a prime location for a landing, with its high density and seven-minute crossing to New Jersey. This potentially makes a Blue Highways middle-mile journey to Midtown take less time than a conventional truck-based journey. As part of a future Manhattan Cruise Terminal redevelopment and broader consideration of pier usage on the West Side, NYCEDC will study the feasibility of adding a Blue Highways microfreight landing in this high-density neighborhood.



25th St Pier Aggregates Hub in Sunset Park, Brooklyn

NYCEDC's 2025 Aggregates study envisions improving the 25th St Pier and facilities to enhance its function and use as a multi-commodity aggregates hub, combining Blue Highways access with rail and truck connectivity. Three leaders in the aggregates industry are co-located at 25th St: Amrize (formerly Holcim) is the leading cement supplier in the New York City region and operates the pier's largest facility. Tilcon, the city's top aggregates supplier, is expanding operations at the pier, while Smyrna Ready Mix, the nation's largest concrete producer, is completing a new on-site concrete-mixing facility.

Concept for 25th St Aggregates Pier Hub in Sunset Park, Brooklyn



Source: NYCEDC 25th St Aggregates Pier Study, STV

Harper St Asphalt Plant Pier, Queens

NYC DOT produces asphalt to maintain city roads at two facilities—one in Brooklyn, which receives input aggregates by water; and one at Harper St in Queens, which is located on the water but receives input aggregates by truck. NYC DOT has created design plans for the pier at Harper St to allow the receipt of aggregates by water, eliminating bulk truck movements through the neighborhood. Aggregate deliveries are particularly well-suited for transport by water due to the ability of a single barge to handle extremely heavy, dense materials.

The pier investment will remove two consistently used truck routes—West Nyack, NY to Harper St Asphalt Plant and Wharton, NJ to Harper St Asphalt Plant. Barge delivery will replace approximately 1,900 truck trips or 71,000 vehicle miles traveled by truck per year. The reduced number of truck trips will bring welcome improvements to the local community's quality of life. Furthermore, this project will reduce greenhouse gas (GHG) emissions by ~200 tons annually by transporting materials by barge rather than trucks.



Conclusion

New York City's strategically positioned port and vast network of waterways have supported trade, commerce, and connection for centuries—and they point the way toward the city's future success. As the city has evolved, so too has the narrative and role of its waterfront—expanding beyond traditional shipping uses to now include beloved and iconic recreation, housing, and open space. With cleaner waters, renewed investment in waterfront resiliency, and growing recognition of the need for low-carbon freight solutions, New York now stands at an inflection point. The city has an opportunity to reestablish maritime freight movement as a core component of its modern logistics network.

Through projects such as the Brooklyn Marine Terminal redevelopment, the Downtown Skyport Microfreight Terminal, and a coordinated slate of landside connection improvements, New York City is laying the groundwork for a revitalized maritime freight network that leverages the water once more to connect, rather than divide communities. By reactivating strategic waterfront sites for freight use and improving intermodal links between water, rail, and road, the City will strengthen supply chain resilience, reduce truck congestion, create economic opportunity, and enhance quality of life for New Yorkers.

The Blue Highways Action Plan charts a practical path toward that vision. Through coordinated investment, regulatory alignment, and public–private partnership, New York City once again will make full use of its waterways as a multi-dimensional economic and environmental asset. In doing so, the city continues a reinvigorated tradition of waterfront innovation along its shores while preparing its maritime sector to meet the immense challenges and opportunities of the twenty-first century.

Appendix

Research and Analysis Underpinning Action Plan Findings

To develop a foundation for the **Blue Highways Action Plan**, NYC DOT and NYCEDC leveraged findings from five interconnected research and analysis efforts:

- Research into policies and best practices
- Identification and evaluation of potential Blue Highways opportunity sites
- Assessment of potential Blue Highways service volumes
- Results from the NYC DOT's Blue Highways RFEI
- Results from NYCEDC's *Working Waterfront Blueprint for Blue Highways*

Best Practice Evaluation

The City conducted an evaluation to research, review, and evaluate current best practices for last-mile urban delivery involving marine transportation services and facilities. The evaluation focused on identifying best practices for urban last-mile delivery connecting with marine transportation, drawing insights from domestic and international examples. The evaluation found a range of emerging and conventional delivery methods with an emphasis on clean fuels, electric vessels, and intermodal compatibility, including cargo cycles, electric trucks and vans, e-assist hand carts, delivery robots, unmanned aerial vehicles (UAVs), and automated trucks. The evaluation analyzed each method for its operational characteristics, infrastructure needs, and regulatory considerations, with an emphasis on its applicability to New York City's dense urban environment.

The evaluation also categorized various marine vessel types, such as tug-assisted barges, RO-RO container ships, and autonomous electric vessels, and examined their compatibility with different cargo types and delivery models.

Transfer facilities play a critical role in this ecosystem, serving as the link between marine transport and last-mile delivery. They include direct vessel-to-last mile setups, conventional transload centers, multi-story warehouses, and modular platforms, each with unique spatial and operational requirements. This evaluation of transfer facilities considered challenges such as space constraints, infrastructure needs, zoning regulations, and alignment with existing policies.

Last-Mile Delivery Innovations

- Cargo Cycles & Trailers: Compact, electric-assisted, bike-lane compatible.
- E-Assist Hand Carts: Human-guided or semi-autonomous, sidewalk use debated.
- Electric Trucks/Vans: Medium-duty, emission-reducing, infrastructure-dependent.
- Delivery Robots: Semi/fully autonomous, small-load, sidewalk or road-based.
- Unmanned Aerial Vehicles (UAVs): High-value, time-sensitive deliveries; regulatory hurdles.
- Automated Trucks/Vans: Emerging tech for middle-mile logistics.

The evaluation highlights that there is no universal solution; instead, success depends on:

- Tailoring systems to specific cargo types, locations, and infrastructure constraints
- Integration across all stages—marine transport, transfer, and last-mile delivery
- Addressing and overcoming regulatory barriers, such as sidewalk and bike lane access, UAV airspace rules, and the need for standardized equipment and safety protocols
- Provision of specific infrastructure, including charging stations, docks, curb access, and staging areas
- Standardization; interoperability; and scalability of facilities, equipment, and assets over time on a citywide basis

Blue Highways Opportunity Sites

NYC DOT and NYCEDC assessed 25 waterfront locations in and around the city for their suitability for Blue Highways services. The site evaluations focused on five factors that enable the Blue Highways service types, listed above. The evaluations estimated the level of investment needed to enable service at each location, with three evaluation components (site suitability/constraints, services, cost) scored on a low-, medium-, and high-feasibility basis.

This assessment considered five factors when evaluating the appropriateness of each site for Blue Highways services:

1. Water Depth and Vessel Operations

This factor includes consideration of the navigational adequacy of channels, waterside connection infrastructure such as piers, and other marine operations potentially impacted.

The evaluation considered waterway depth and width; it did not consider tides, nor did it consider bridge height systemwide, as it is a constraint at only one location (JFK).

- a. Acceptable water depth for all services is 9'-12'.
- b. Acceptable waterway widths vary depending on the size of the barge and the navigational requirements. Generally, this requires a width of at least 100'.

2. Landside Connectivity and Impacts

This factor includes the immediate availability of staging space on the landside, connections to local and regional road networks, and potential conflicts with other traffic. The assessment weighted access to *any* designated truck route higher than no access at all—giving equal weight to local and through-truck routes. The assessment also considered truck accessibility at the site level, in terms of height and turning radius constraints. For small package delivery, the assessment did not include bike lane access.

3. Site Dimensions

This factor considers the size, availability, and condition of the space of the landside area of the site in relation to the type of service and its estimated site dimension requirements. Site dimension requirements can vary widely depending on the type and size of a service. For all services besides small packages and trucks on barges, the assessment scored more landside acreage higher than less acreage, on the assumption that there would be a need for more staging area.

4. Land-use Compatibility

This factor considers the externalities of the operations of a service and how those may impact the local community concerning general land-use compatibility.

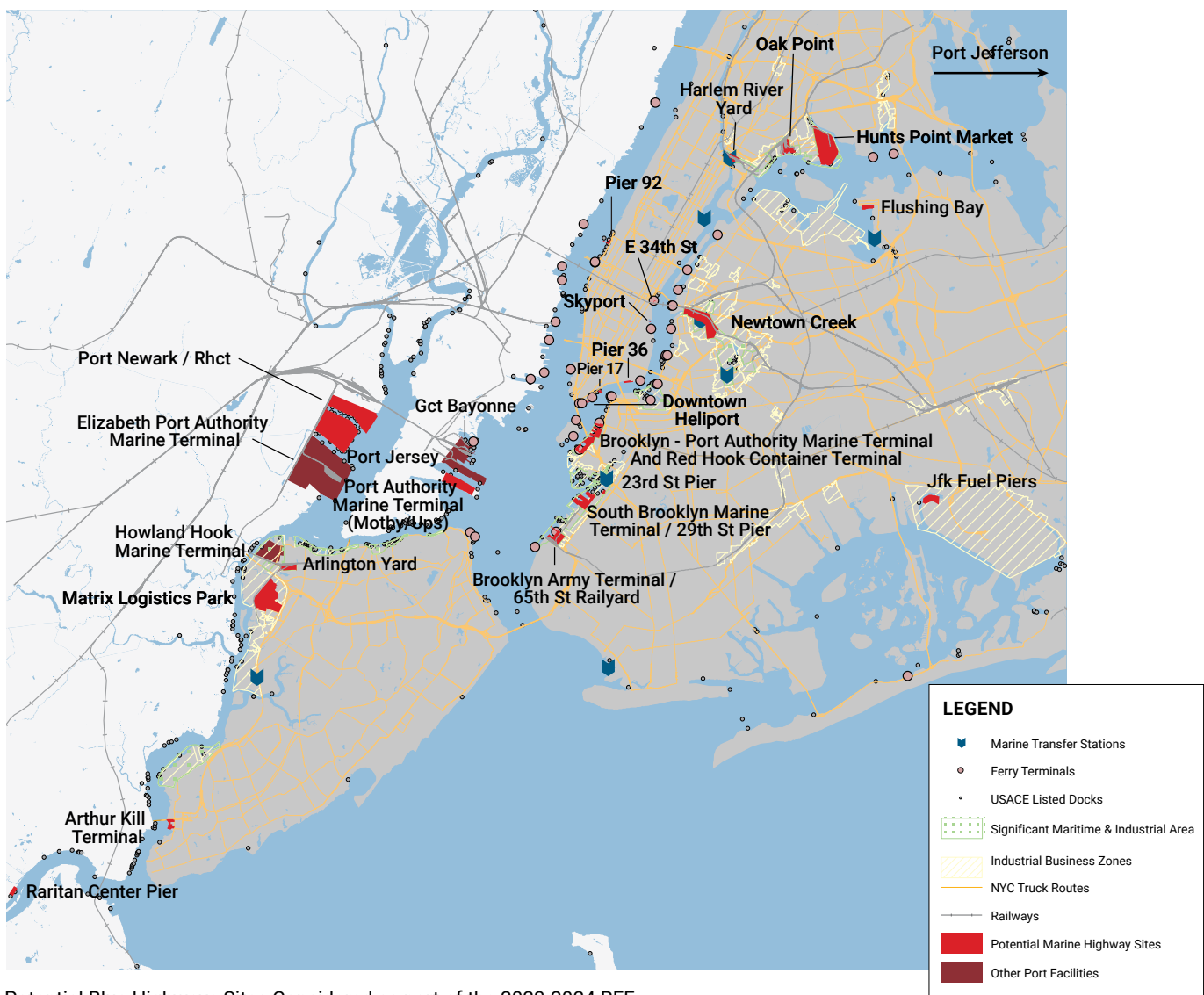
5. Readiness - This factor considers two aspects:

- a. **Functionality:** Whether infrastructure investments, either landside or waterside, or other improvements, may be necessary to operate a certain service.
- b. **Site ownership:** Property availability and current ownership. The assessment considered current public ownership to be a positive component of this score.

The evaluation assigned scores based on how a site met each evaluation factor. The general assumptions of potential site performance for a given service determined the suitability of sites for

each evaluation factor. The site prioritization scores provided a basis for understanding the suitability of a site for a given service type. Many sites may be physically suitable for a particular service type, but the potential market demand for that service needs to be considered in determining further development and investment. For example, a site may have the appropriate site size, configuration, and roadway access to accommodate container-on-barge service, but there may be no market demand in that location for container service. The evaluation considered the suitability of a site for a given service type in relation to the market demand for that service as part of the overall service assessment.

NY-NJ Marine Facilities



While only a few of the sites were suitable for all potential service types, almost all were suitable in concept for at least one service type. At one end of the scale, sites like BMT could accommodate any kind of Blue Highways service with appropriate improvements; at the other, sites like the Downtown Skyport would be suitable for microfreight but not

for other service lines due to space constraints and surrounding activities. This was not an exhaustive list of possible sites, and the Action Plan identified additional locations for Blue Highways through stakeholder input, further analysis, and other parallel and complementary work.

Potential Blue Highway Services Assessed for Possible Service Fits

Good fit	Microfreight	Container Freight		Bulk Freight		
	Package, Pallet, Perishables	Container on Barge	Truck / Trailer on Barge	Construction Materials	Liquid and Dry Bulk	C & D / Waste
Hunts Point (1)						
Oak Point (2)						
Harlem River Yard (3)						
Flushing Bay (4)						
Pier 92 (5)						
Newtown Creek (6)						
Skyport (7)						
Pier 36 (8)						
Pier 17 (9)						
Downtown Heliport (10)						
Red Hook BK (11)						
23rd St Pier (12)						
SBMT (13)						
BAT / 65th St (14)						
JFK Fuel Piers (15)						
MOTBY (16)						
RHCT Newark (17)						
Arlington Yard (18)						
Matrix (19)						
Arthur Kill (20)						
Port Raritan (21)						
Port Jefferson (22)						
25th St Aggregate						
NYC Ferry Landings						
BMT						

Industry & Stakeholder Input on Blue Highways

Blue Highways RFEI

Industry involvement is a critical component of the Blue Highways evaluation process, as industry partners have existing experience with vessels, supply chains, and operational considerations. Building on the best practice evaluation, site evaluations, and market assessment, NYC DOT released a Request for Expressions of Interest (RFEI) to better understand the current state of the market for marine freight, industry challenges and opportunities in marine freight, and ways to support businesses that want to engage in waterfront freight operations. The responses were intended to inform the feasibility of developing a pilot program, with opportunities to solicit interest and receive feedback on potential structures for partnerships with New York City.

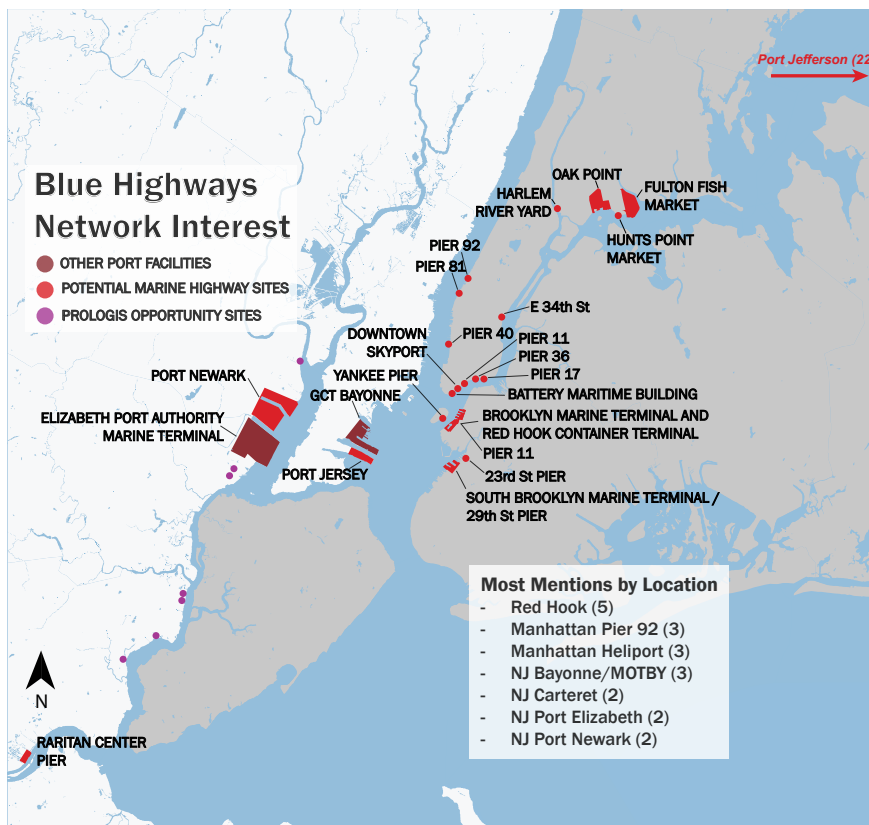
The RFEI received a total of 29 responses. The responses largely focused on two types of vessels: passenger ferries and barges. The Blue Highways Network Interest map shows the sites mentioned by respondents.

1. Passenger Ferry-oriented Proposals:

- a. Multiple respondents exploring conversion of existing passenger ferries
- b. May prove to be the fastest approach as passenger ferries are already configured to serve existing terminals
- c. Would preserve physical compatibility at the largest number of terminals City has already invested in
- d. May introduce operational conflict with passenger services
- e. Most existing ferries can carry small amounts of freight

2. Barge-oriented Proposals:

- a. Respondents propose the use of current or modified barges already in service or repurposing vessels (e.g., car ferry conversion)
- b. Need to consider vessel dimensions, configuration, power/propulsion systems, and interaction with landings/terminals
- c. The barge market has few available barges for sale in the market



Map of sites mentioned in 2023 RFEI responses

Potential Service Volumes

After reviewing the existing literature and obtaining port commodity and volume data from the United States Department of Transportation's Freight Analysis Framework, the United States Army Corps of Engineers' Waterborne Commerce Statistics Center, and a previous NYMTC Freight Plan, NYC DOT and NYCEDC estimated service volumes—in terms of tonnage between origin and destination counties—that could potentially be diverted from truck to Blue Highways services (chart below).

NYMTC County-to-County Truck Tons, Blue Highway Targets, 2018 (millions of tons)

Domestic Mode:Truck	Destination County in NY						
Origin County in NY	Bronx	Kings	New York	Queens	Nassau	Suffolk	Westchester
Bronx		0.8	0.6	0.4	0.4		
Kings			1.5	0.9	0.9	0.4	0.3
New York	0.3	0.7		0.9	0.5	0.6	0.5
Queens		0.4	1.0		0.3	0.4	0.3
Richmond						0.3	0.2
Nassau		0.2	1.4	0.8		0.4	0.3
Suffolk		0.3	0.8		0.2		0.3
Rockland						0.2	
Westchester		0.2	0.5				

Source: WSP analysis of NYMTC Transearch 2018 data

In 2021, only four percent of freight moving through the NYMTC planning region moved via water, while 94 percent moved via truck. Currently, trucks move vastly more domestic tonnage than the maritime transportation mode, and some commodities may be strong candidates for a shift to water.

Once we identified target commodities for Blue Highways service, we determined county-level destinations for those commodities. Manhattan (identified as New York County in the table above) is the clear leader in demand for these commodities, followed by Kings, Nassau, Queens, and Westchester counties to round out the top five

destinations. The analysis found that the leading commodities bound for these New York counties were secondary traffic, which is cargo associated with warehouse and distribution activity, i.e., small packages and pallets, followed by food, farm products, and printed matter.

The commodity flow analysis indicated that the minimum volume for a viable dedicated freight service is around 100,000 tons per year, equivalent to approximately 30 trucks x 17 tons x 265 days per year. All of the highlighted origin/destination pairs have the potential to move more than 100,000 tons annually.

Endnotes

1. 31,764 trucks on the George Washington Bridge and 12,368 on the Verrazano Bridge, for a combined total of 44,132 trucks on both bridges. *Delivering New York*. <https://www.nyc.gov/html/dot/downloads/pdf/smart-truck-management-plan.pdf>
2. NYC DOT Mobility Survey. <https://www.nyc.gov/html/dot/html/about/citywide-mobility-survey.shtml>
3. Vision for Brooklyn Marine Terminal, Public Workshop #2. <https://edc.nyc/sites/default/files/2025-01/NYCEDC-BMT-Public-Workshop2-Presentation.pdf>; PANYNJ 2024 Annual Performance. <https://www.panynj.gov/port/en/our-port/facts-and-figures.html>.
4. Microhubs Pilot. <https://www.nyc.gov/html/dot/downloads/pdf/microhubs-pilot-report.pdf>.
5. <https://www.nyc.gov/html/dot/downloads/pdf/commercial-cargo-bicycle-pilot-evaluation-report.pdf>
6. NYCEDC Press Release, "NYCEDC Blue Highways Workforce Study Charts Path to Inclusive Growth and 8,000 New Jobs," 6/10/25
7. <https://www.nyc.gov/html/dot/downloads/pdf/freight-vision-plan-delivering-green.pdf>





New York City Department of Transportation &
New York City Economic Development Corporation