

DISTRICT DEPARTMENT OF TRANSPORTATION



2024 DISTRICT FREIGHT PLAN

EXECUTIVE SUMMARY

INTRODUCTION

The District of Columbia is the nation's capital, a compact city adjacent to Virginia and Maryland. With approximately 670,000 residents, 25,000 businesses, and 480,000 employees, the District serves as the center of the National Capital Region. It covers 61 square miles, encompassing both the nation's federal hub as well as local community businesses and destinations. The 2024 District Freight Plan provides a snapshot of the current freight landscape in the District and identifies near- and long-term freight activities and investments.

Key Updates in this 2024 District Freight Plan

The 2024 District Freight Plan modernizes previous iterations of the District Freight Plan, including the most recent 2023 Interim District Freight Plan. The 2023 Interim District Freight Plan met the Infrastructure Investment and Jobs Act (IIJA) requirements that were released in 2021 and provided updates on the progress and evolving priorities. As the freight industry responded to the COVID-19 pandemic, the freight landscape quickly adapted and continues to respond to changing conditions. While there are many similar aspects to the 2023 Interim District Freight Plan, the 2024 District Freight Plan adds data analysis of urban freight trends and a reassessment of those trends in the District as well as significant additional stakeholder engagement. The resulting plan sets forth an updated implementation and investment strategy that is aligned with District goals. Key updates between the 2023 Interim District Freight Plan and the 2024 District Freight Plan are discussed below:



Expanded Stakeholder and Public Engagement (Chapter 4)

The 2024 District Freight Plan included a robust engagement process, engaging over 130 stakeholders from over 30 entities, throughout the plan development timeline (January 2023-January 2024). Through more than 14 meetings and two surveys, the project team gathered insights and feedback from a variety of stakeholders. Online polling, with consistent format/questions across stakeholder groups, created an interactive engagement experience for participants and enabled the project team to compare priorities and findings across stakeholder groups.



Detailed Analysis of Existing and New Data (Chapter 6)

The 2024 District Freight Plan incorporates 2021 and 2022 e-commerce data as well as disaggregated commodity flow analysis to paint a more precise picture of goods movement within the dense urban geography of the District. This new data and refined analysis of existing data provides insights on current package delivery and construction trends as well as freight flows out to 2050.



New Implementation and Investment Plans Based on Prioritized Strategies (Chapters 9 & 10)

The project team integrated new stakeholder insights into the development of the 2024 District Freight Plan, notably its needs and issues, strategies, implementation plan, and investment plan. Meetings with DDOT staff, the industry, and the public guided the identification and prioritization of needs and issues. Regional and local stakeholders later helped DDOT refine and rank strategies. Lastly, DDOT staff and members of the general public suggested modifications and prioritization of the strategies and projects within the document's implementation and investment plans.

Federal Requirements

The 2024 District Freight Plan meets the following Infrastructure Investment and Jobs Act (IIJA) requirements along with the 10 requirements previously listed in the Fixing America's Surface Transportation (FAST) Act:

#	Federal Requirement	Chapter Reference
1	Freight system trends, needs, and issues	Chapter 5, 6, 7, 9
2	Freight policy, strategy, and performance measure evaluations	Chapter 3 & 9
3	Freight network	Chapter 5
4	Alignment with National Freight Policy goals	Chapter 3
5	Innovative technologies	Chapter 9
6	Asset preservation and improvement strategies	Chapter 5 & 9
7	Freight bottlenecks, mobility issues, and mitigation strategies	Chapter 7, 8, 9
8	Freight congestion and mitigation strategies	Chapter 7, 8, 9
9	Freight investment plan	Chapter 10
10	Truck parking facilities assessment (IIJA)	Chapter 7 & 9
11	Supply chain cargo flows (IIJA)	Chapter 6
12	Inventory of commercial ports (IIJA)	Chapter 5
13	Consideration of multi-state freight compacts (IIJA)	Chapter 4
14	Impacts of e-commerce on freight infrastructure (IIJA)	Chapter 5 & 6
15	Considerations for military freight (IIJA)	Chapter 5
16	Focus on enhancing freight resilience and reducing freight environmental impacts (IIJA)	Chapter 8 & 9
17	Consultation with the State Freight Advisory Committee (IIJA)	Chapter 4 & 5

Table Notes:

(IIJA): Reflects new requirements introduced by the 2021 Infrastructure Investment and Jobs Act.

VISION AND GOALS

The District vision and goals align with the priorities outlined in national, regional, and local planning documents to provide an updated overarching vision for freight in the District. Aligning the District's goals and visions with plans such as the US DOT National Freight Strategic Plan, the National Highway Freight Program, the National Multimodal Policy, and the 2023 National Capital Region Freight Plan supports the realization of these goals locally and supports the national network.

Locally, moveDC, the District's long-range transportation plan, establishes goals, policies, strategies, and metrics to enhance the transportation network in the District. Building continuity, the moveDC goal areas are the foundation for the District Freight Plan goals. In addition to moveDC, many District agency plans provide insights about what is on the horizon within the District, and how the freight plan could foster shared goals and strategies.

4

The vision for the District's freight system is an **efficient goods movement system** that is **sustainable, safe, and secure**. DDOT will work to eliminate or **minimize negative impacts** on historically burdened communities by reviewing and prioritizing projects through an equity lens. This vision includes **reliable freight** operations that will support the District's economic growth and help residents, and public and private sector establishments, to thrive. DDOT will strategically invest in technology and data to support this vision.



Sustainability

Sustainable and multimodal freight fleets to reduce emissions and strengthen resilience.



Mobility

Reliable, adaptable, and accessible freight infrastructure that supports economic vitality and competitiveness.



Safety

Planning efforts that consider freight movements and improve the safe movement of goods.



Security

Collaboration between District agencies to support the secure movement of goods.



Management & Operations

Maintained and modernized infrastructure and operational improvements to increase efficiency.



Equity

Shared and just distribution of benefits and burdens when planning for and investing in freight-related infrastructure and services.

STAKEHOLDER ENGAGEMENT

Stakeholder engagement involved industry representatives, DDOT staff, regional representatives, local advocates, and the public. This includes the following multi-state freight compacts:

- » National Capital Region Transportation Planning Board (TPB)
- » The Eastern Transportation Coalition (ETEC)

DDOT engaged with stakeholders across all phases of the plan development and through multiple engagement methods as shown below:


5

DDOT Working Group meetings


2

industry representative meetings


2

public information meetings


2

community surveys


3

**briefings to MWCOG
TPB Freight Subcommittee**

1

**briefing to TPB
Technical Committee**


2

**briefings to local
partners and advocates**

5



EXISTING CONDITIONS

The 2024 District Freight Plan examines the impact of goods movement on the District's economy and evaluates the performance of the four freight networks: roadways, railroads, ports and waterways, and air cargo. Given the District is entirely an urban area — and contains no rail intermodal yards or airports, and only two small docks — the freight network is dominated by roadway, as summarized by the below graphic. Goods destined for the District may arrive by other modes, such as train or plane, but these shipments are transferred to trucks before being delivered. This places a unique emphasis on the highway and roadway freight network. In addition to conducting a commodity flow analysis to determine the most prevalent types of freight, modes, trading partners, and freight trends, the project team conducted an analysis of e-commerce deliveries, which have increased dramatically in recent years. Existing conditions analysis also identifies highway bottlenecks, safety hot spots, and truck parking constraints.

As shown in the pie chart (right), the majority of freight movements in the District are handled by truck (more than 89% of freight by tonnage, which is more than 16 million tons). Pipeline was the second-most common mode, representing 7% (1.3 million tons) of all freight tonnage. Pipeline movements mostly consist of energy products and all pipeline movements are inbound to the District from other U.S. states.

6

Freight Network and Infrastructure

Bus and Truck
Through Routes



194 MILES

Highways/
Interstates



16 MILES

Water
Ports



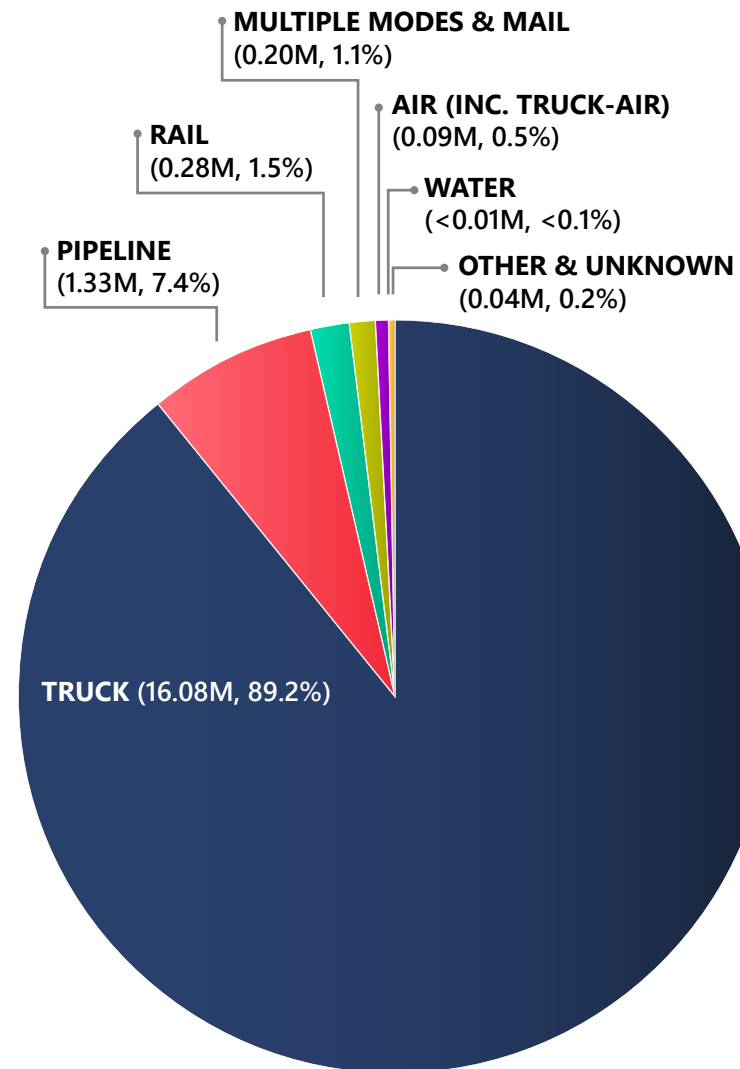
2 DOCKS

Rail



56.4 MILES

Commodity District Mode Share by Tonnage (Millions), 2017



Source: Bureau of Transportation Statistics, FAF5, 2023. Analysis by Cambridge Systematics, 2023.

Critical Urban Freight Corridors

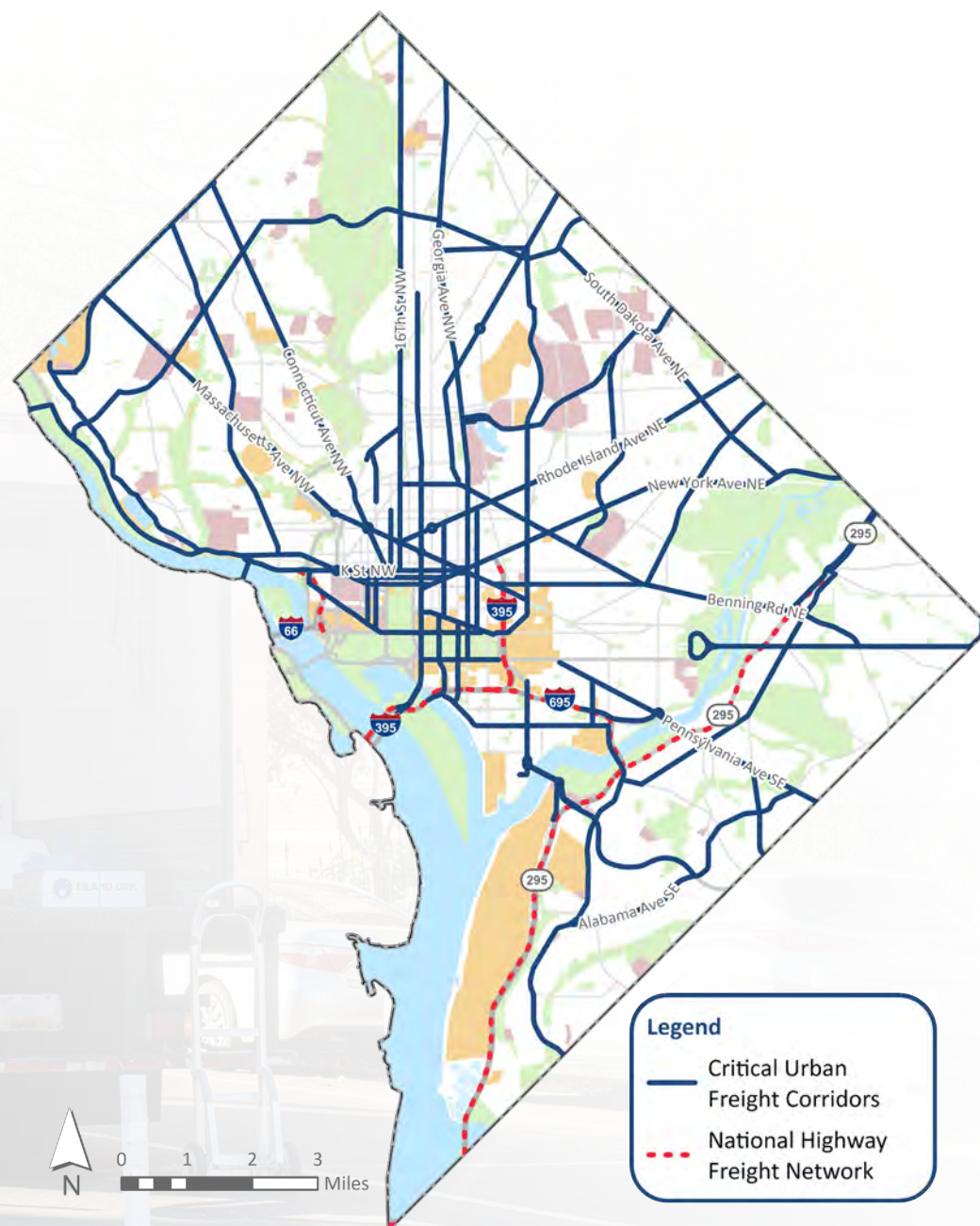
IJA requires components of the National Highway Freight Network (NHFN) to be identified and designated to be eligible for freight funding. The classifications of the NHFN applicable to the District include critical freight corridors. These corridors are designated public roadways that provide access and connection to the primary highway freight system (PHFS) and the Interstate with other ports, public transportation facilities, or other intermodal freight facilities. In total, the District has 140 miles of critical urban freight corridors (CUFCs), under the 150 mile-maximum allowed by IJA. CUFCs are different than truck through routes. Rather, they identify segments eligible for federal funding to maintain and improve freight movement. As the District continues to pursue innovative freight solutions, CUFC segments may be considered as candidates for pilots or implementation of innovative freight strategies. The District does not have any identified critical rural freight corridors (CRFCs), as the District is entirely designated as urban. A map of the District's CUFCs are shown at right.

The 2024 District Freight Plan CUFC designations (right) were the result of the following changes (The complete list is in the full plan.):

- » Removal of ~3 miles of the 2017 CUFC designations.
- » Addition of ~70 miles of CUFC designations from the 2017 designations.
- » Total of ~140 miles of CUFC 2024 designations.

Note: Kenilworth Avenue Northeast and DC-295 are two closely spaced parallel routes. While there may appear to be overlap between the National and District classifications, DC-295 is classified as a part of the National Highway Freight Network, and Kenilworth Avenue Northeast is classified as a part of the District's Critical Urban Corridors.

District Critical Urban Freight Corridors



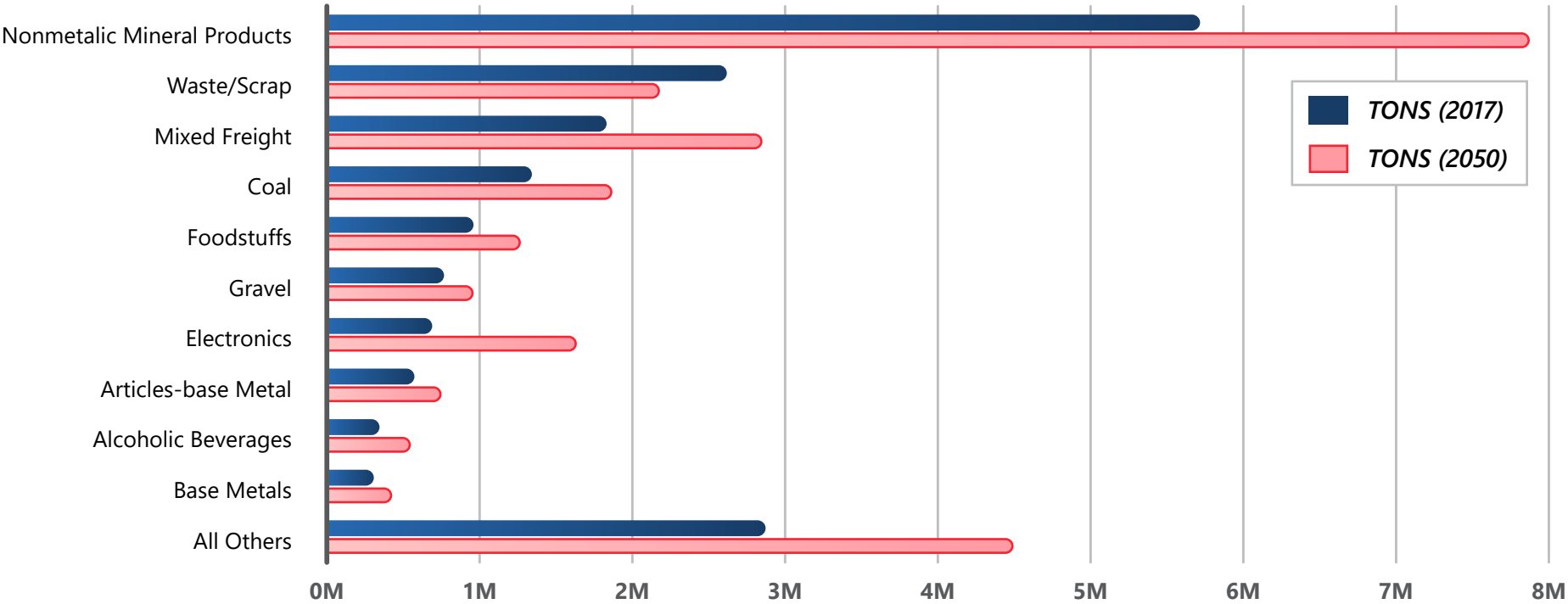
Sources: Federal Highway Administration (FHWA) NHFN 2019; DDOT.

Commodities

Commodities often indicate the type of economic activity present in a given location. The chart below shows the top ten commodities in the District by tonnage, regardless of whether they are inbound or outbound. In 2017*, by far the largest commodity was nonmetallic mineral products, which accounted for 5.7 million tons of goods, or 32% of all trade. This includes many types of goods, but is often associated with cement/concrete production, reflecting the size of the construction industry in the District. Waste/scrap is the next top commodity, accounting for 2.6 million tons of freight, or 15% of the 2017 total. Mixed freight, the third top commodity, are goods (including food) for grocery and retail stores, fast food establishments, office supplies, and miscellaneous goods. Mixed freight accounted for 1.8 million tons, or 10% of all tonnage in 2017. These top three commodities give a picture of the major forces in the District’s economy — a large construction industry that is projected to continue requiring raw materials into 2050, and a large consumer population.

Trends into 2050 indicate that most commodity groups by tonnage will continue to grow, especially nonmetallic mineral products, mixed freight, and electronics. Only waste/scrap commodities are expected to decrease into 2050. Consistent with the District as a consumer of freight, the majority of goods are shipped inbound to the District (53% by tonnage in 2017). This is followed by goods movement within the District, which accounts for 25% of tonnage in 2017. Outbound goods are expected to decrease in 2035 but will rebound by 2050, consistent with the District as a heavy consumer of freight, coupled with limited space for manufacturing.

Top Commodities by Tonnage, 2017 and 2050

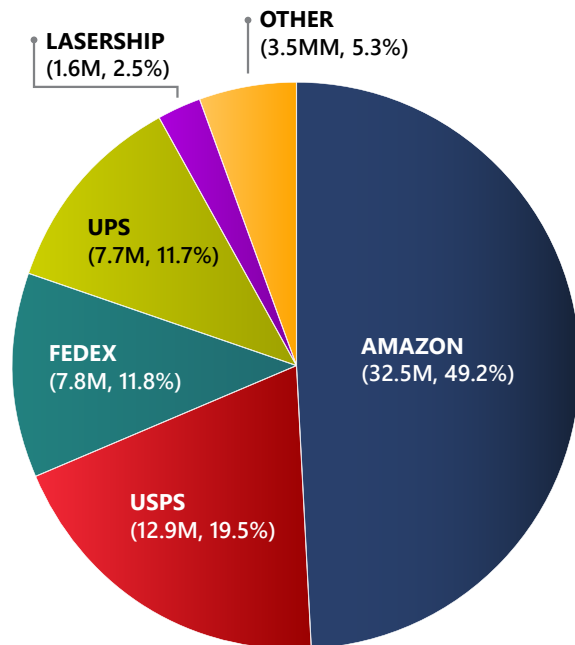


Source: Bureau of Transportation Statistics, FAF5, 2023. Analysis by Cambridge Systematics, 2023.
*2017 is the most recent data available in the Freight Analysis Framework as of 2023.

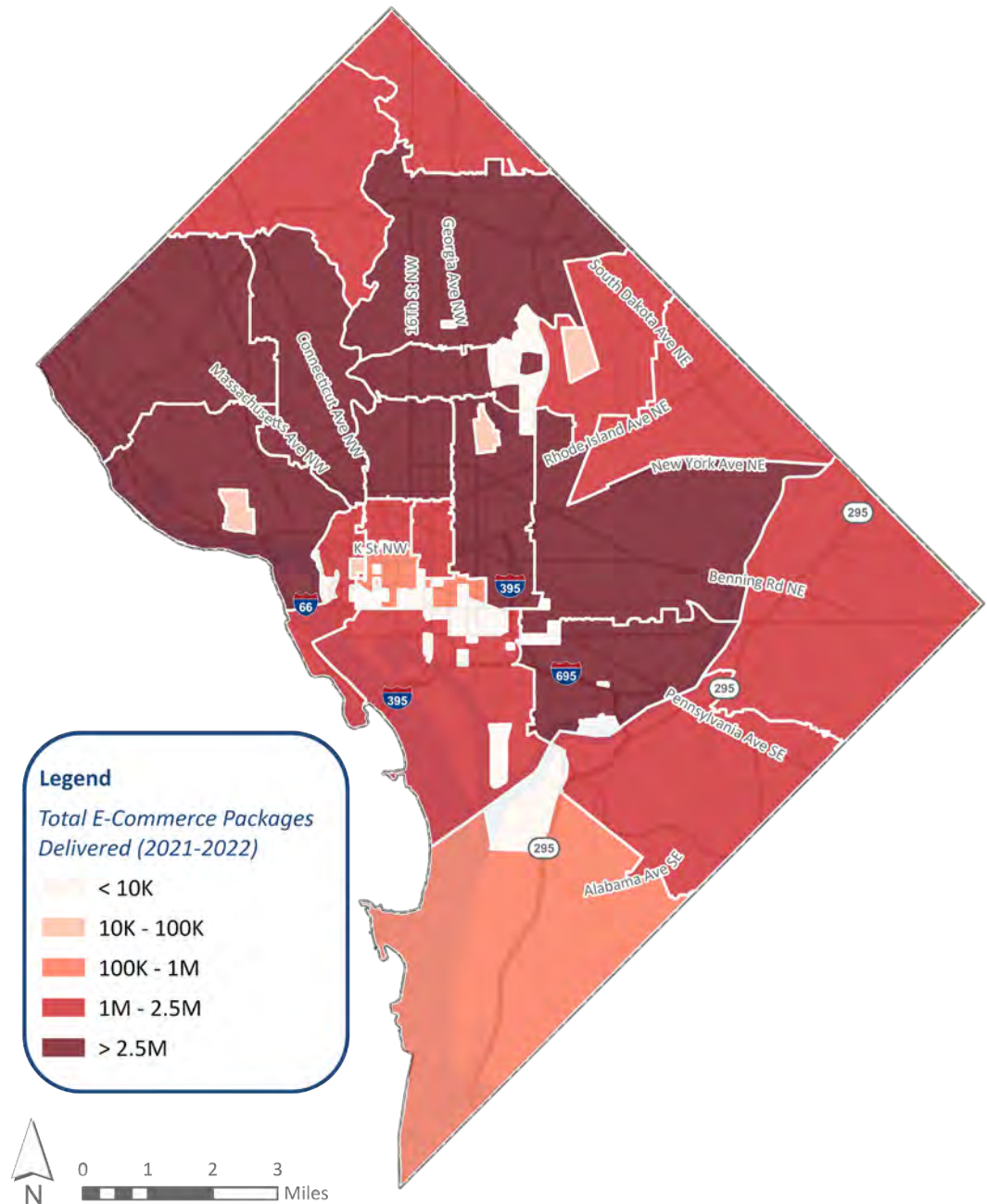
E-Commerce

Over the past decade, e-commerce has grown rapidly. The last leg of delivery, often referred to as the “last mile”—or in a highly urban environment such as the District, the “last 50 feet”—is increasingly dominated by the e-commerce sector. The map (at right) shows a breakdown of the total packages delivered by zip code. In general, the more residential-heavy areas in the District have more packages delivered. The zip codes with the largest number of packages delivered are zip code 20001 (north of the Capitol to around Howard University) with 9.0 million packages, zip code 20009 (just west of zip code 20001, bounded by Rock Creek Park and Dupont Circle) with 8.1 million packages, and zip code 20002 (just east of zip code 20001, bounded by East Capitol Street) with 7.5 million packages. Below is a breakdown of the carriers that delivered e-commerce packages during the 2021-2022 time period.

E-Commerce Packages by Carrier, 2021-2022



Total E-Commerce Packages Delivered by Zip Code, 2021-2022



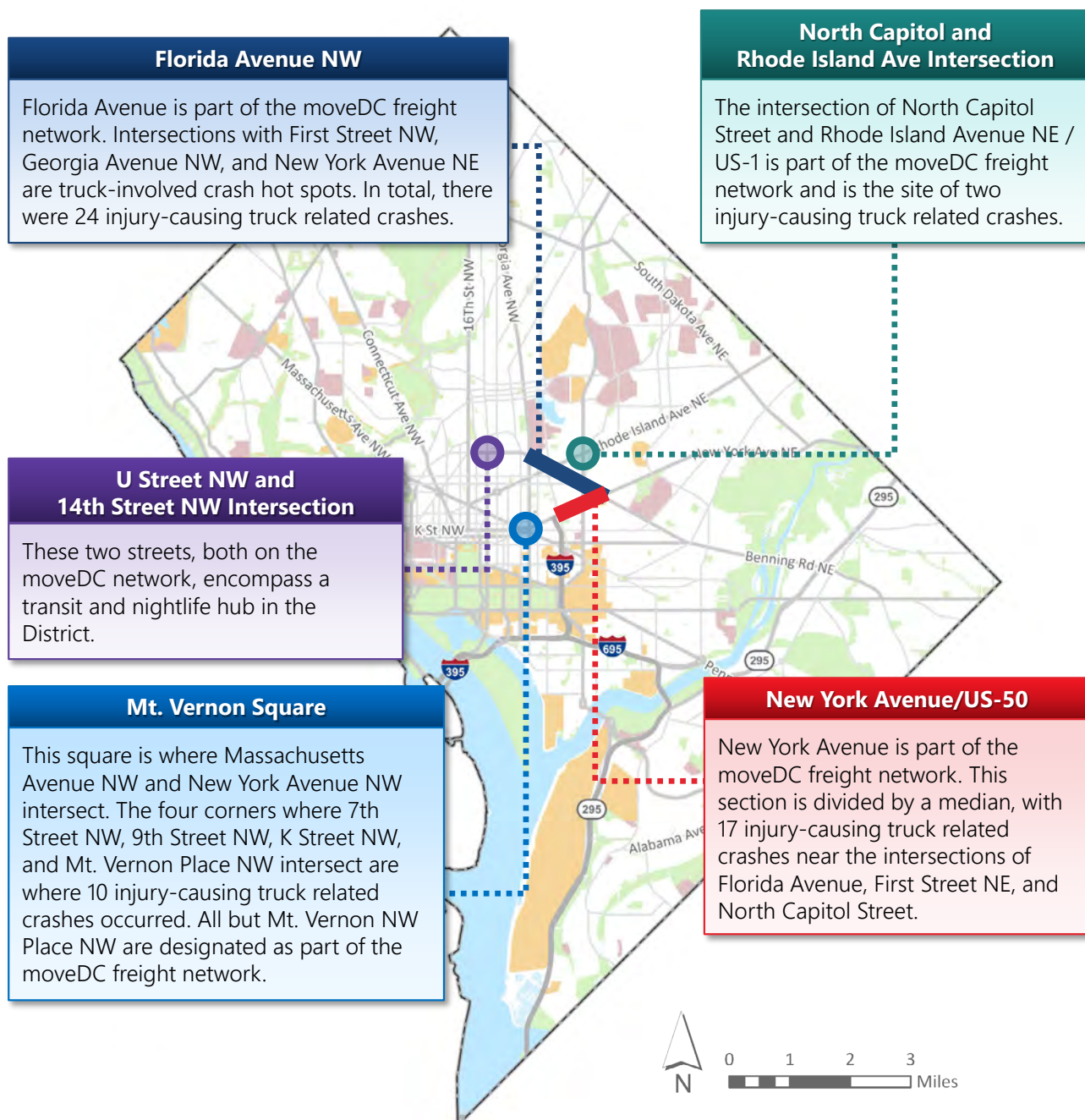
Source: NielsenIQ, 2021-2022; Analysis by Cambridge Systematics, 2023.

ROADWAY SAFETY

Analysis of Truck-Related Crashes

From 2016 to 2022, there were 6,085 crashes in the District in which a large truck was involved (though not necessarily at fault). Out of these 6,085 crashes, four people were killed and 1,054 were injured. The year 2020 saw a significant drop in crashes, 37% from the previous year, likely due to decreased traffic volumes during the COVID-19 pandemic. The return of regular traffic volumes saw a growth in crashes in 2021 and 2022 to 30 percent above pre-COVID levels. An analysis of truck crash locations revealed overlapping regions of high truck crashes. Most of the District's downtown and business district from the National Mall north to Columbia Heights is considered a major truck crash hot spot. This rather large region of the District is home to its oldest, densest, and most complex street network, with major arterials such as Georgia Avenue/US-29 having sections with stop signs, street parking, bus stops, pedestrian crosswalks, and other potential crash conflict points. Additionally, many residents and businesses are located in this area, making it an important delivery destination. The map on the right shows corridors and intersections downtown with high crash rates.

Truck-Related Crash Hot Spots



Source: Open Data DC, Crashes in the District, 2016-2022.

Roadway Bottlenecks

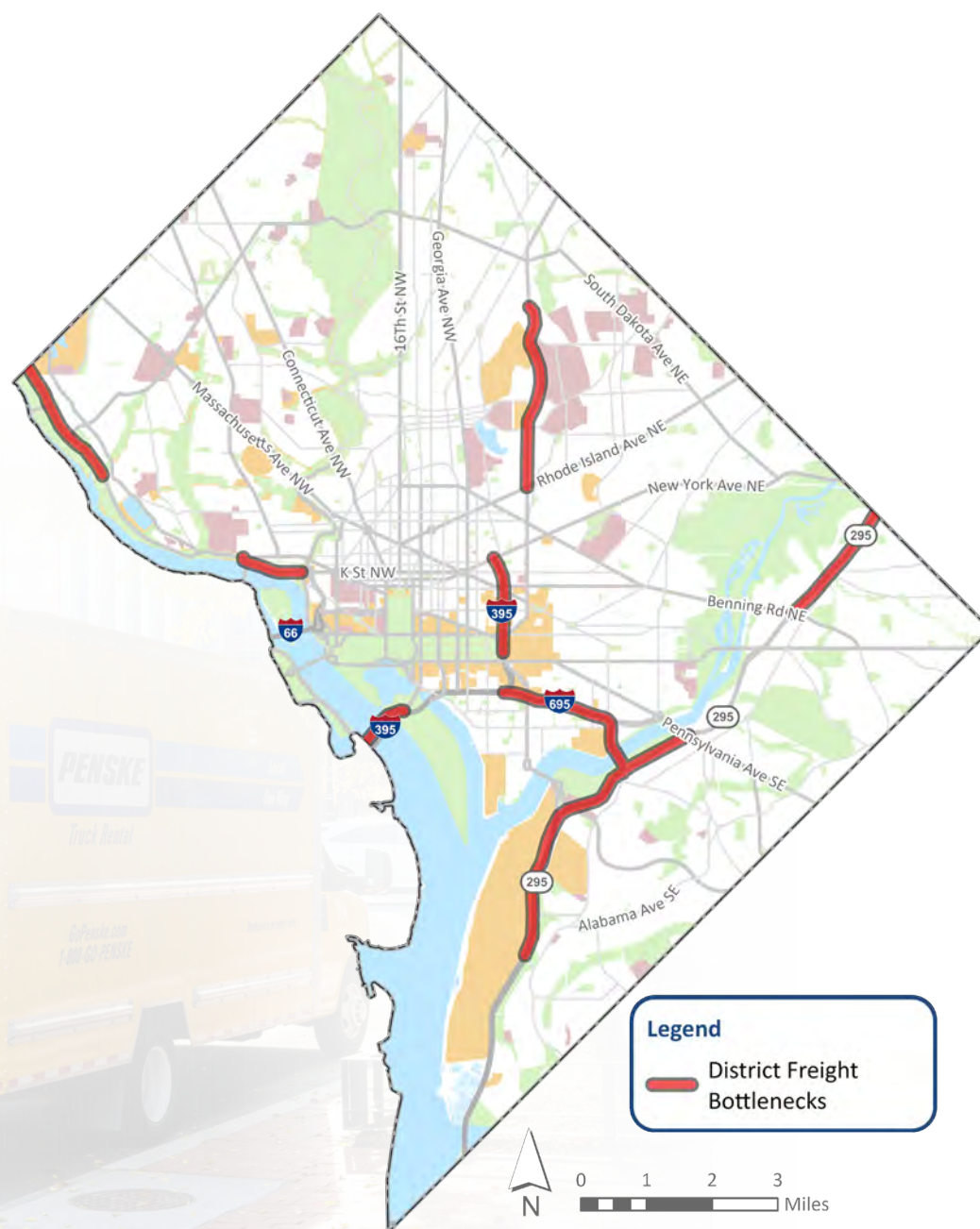
Freight bottlenecks on roadways are sections that experience repeated slow speeds, usually due to high traffic volumes and/or network limitations. Most of these routes carry passenger traffic as well; in an urban environment this can negatively affect truck mobility, especially at peak travel times. The following main thoroughfares were identified as District freight bottlenecks (shown in the map):

- » The 295 corridor from Joint Base Anacostia-Bolling to Pennsylvania Avenue SE and from Benning Road NE to the Maryland border
- » I-695 from the interchange with 295 corridor to the interchange with I-395
- » I-395 from the Capitol to its terminus at New York Avenue NW
- » I-395 where it crosses the Potomac River
- » North Capitol Street, north of Rhode Island Avenue NE
- » US-29/Whitehurst Freeway as it parallels Georgetown
- » Canal Road on the east side of the Potomac River near the Maryland border

Truck Parking

Truck parking facilities provide long-haul truckers safe places to rest overnight, stage deliveries to match delivery windows, and refuel their vehicle. The District has no public or large private truck parking facilities, due to constrained right-of-way and dense urban development. However, DDOT does participate in a truck parking working group through the Eastern Transportation Coalition and seeks opportunities to coordinate with neighboring jurisdictions to address truck parking needs. A review of regional plans by neighboring jurisdictions indicates that truck parking is a major issue in the National Capital Region, with large truck volumes and very few parking facilities available.

District Freight Bottlenecks



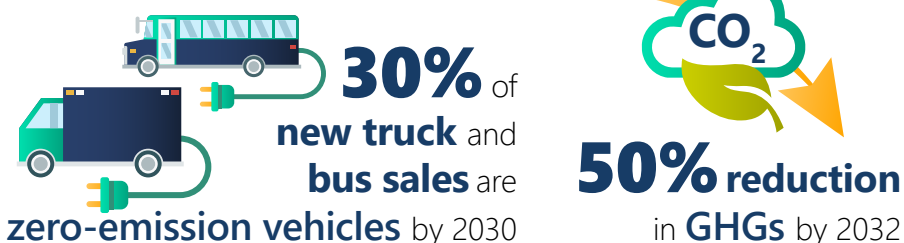
Source: National Performance Management Research Data Set, 2022.

FREIGHT RESILIENCE, ENVIRONMENTAL, & EQUITY CONSIDERATIONS

Addressing the Resilience and the Environment

Preserving the environment and advancing resiliency are key components of many of the District's planning initiatives, including Sustainable DC 2.0, Carbon Free DC, Climate Action Plan, and its Comprehensive Plan. The 2024 District Freight Plan demonstrates the impacts of extreme weather, natural disasters, and flooding on the freight network and the relationship between the freight industry and natural habitats and greenhouse gas (GHG) emissions. Strategies and policies such as truck restrictions through 6,700 acres of habitats within the National Park Service (NPS) areas, diversifying last-mile modes to reduce emissions and noise, and coordination with the District's National Electric Vehicle Infrastructure (NEVI) team help to mitigate negative impacts on the District's natural resources that coexist with developed land and are near the roadway network.

Key Emissions Targets:



Sources: Multi-State Medium- and Heavy-Duty Zero Emission Vehicle Memorandum of Understanding, Sustainable DC 2.0.

Advancing Equity

DDOT conducts an equity assessment of all projects and programs, including freight, as part of its project prioritization process, and already has equity-focused projects underway. This is a hallmark of the moveDC equity goal. In a freight context, DDOT's delivery microhub feasibility study is evaluating how the District could leverage microhubs to improve safety, sustainability, and equity. Additionally, a performance measure for the freight plan includes the number of community-based organizations (CBOs) invited to attend Freight Advisory Committee meetings.

DISTRICT NEEDS & ISSUES

The following needs and issues were developed through multiple stakeholder engagements, a detailed review of peer cities, and industry best practices and strategies that have been successful.

1. Reduce freight-related transportation emissions
2. Prepare for alternative fuel infrastructure and fleets
3. Balance competing curbside demands
4. Truck through routes and restrictions
5. Truck and loading zone enforcement
6. Congestion and constrained long-term truck parking
7. Unique mobility disruptions in the District
8. Improve network redundancy by expanding freight modes
9. Vertical clearance restrictions
10. Roadway design limitations and challenges
11. Increase in truck-involved crashes
12. Ensure the secure movement of goods
13. Support delivery and driver security
14. Protect infrastructure
15. Maintain and improve acceptable pavement conditions
16. Maintain freight infrastructure in a state of good repair and prepare for future technology
17. Continue to use an equity lens and apply to freight context and projects

Note: Order does not indicate priority of need.

IMPLEMENTATION STRATEGIES

The 2024 District Freight Plan developed **27 strategies** (listed below) to advance the plan's vision and goals and address the identified needs and issues.

SUSTAINABILITY



- » Develop, implement, and evaluate innovative freight delivery practices to improve curbside loading operations, reduce loading conflicts, support cleaner and more sustainable freight modes, and expand microhubs and sustainable delivery modes.
- » Update data and metrics to provide a baseline and insights on the impacts of strategies.
- » Coordinate with DDOT's NEVI Planning Team.

MOBILITY



- » Identify opportunities to improve off-street loading.
- » Coordinate with DDOT Autonomous Vehicle (AV) Pilot and Working Group.
- » Update and maintain permitting and routing systems for oversize/overweight vehicles and leverage their use across the agency.
- » Coordinate across the agency to maintain goods movement and mitigate truck conflicts in future projects.
- » Implement Positive Truck Route Signage Study findings.
- » Consider rail and water to improve redundancy and resiliency.
- » Research best practices for communicating transportation updates to the industry and drivers.

SAFETY



- » Update freight design guidelines.
- » Coordinate with DDOT's Asset Management Team to track and address infrastructure-related truck crashes.
- » Coordinate with District agency and industry partners to improve truck-related crash data quality and support road safety, focusing efforts in areas with high incidences of truck-involved crashes, or in priority equity areas.
- » Analyze and communicate constraints and opportunities for limiting truck size in urban areas.

SECURITY



- » Provide publicly available comprehensive and up-to-date truck route information.
- » Maintain coordination with public safety partners, the DC Homeland Security and Emergency Management Agency (HSEMA) and the Metropolitan Police Department (MPD).
- » Engage industry stakeholders about freight delivery safety.

MANAGEMENT & OPERATIONS



- » Conduct scenario planning to understand impacts of and strategies to address urban freight trends such as e-commerce and last-mile delivery.
- » Maintain a freight advisory committee.
- » Support commercial vehicle enforcement systems, including weigh stations.
- » Maintain and update an US DOT approved State Freight Plan.
- » Maintain and update a Federal Motor Carrier Safety Administration (FMCSA)-approved Innovative Technology Deployment Plan.
- » Support research and sharing out of waste management best practices.
- » Support state of good repair and infrastructure projects along the National Highway Freight Network, including the National Highway Performance Program (NHPP) pavement and highway sign design and installation.

EQUITY



- » Continue to expand stakeholder groups and include community-based organizations and environmental justice organizations.
- » Identify partners to facilitate discussions and solutions for freight workforce challenges.
- » Continue to incorporate moveDC equity lens and apply to a freight context and projects.

Investment Plan

IJA requires that the District provide an eight-year financially constrained freight-investment plan that includes a list of priority projects and proposed funding within its freight plan. The investment plan is designed to be regularly updated to reflect the needs of the District. DDOT's approach for allocating National Highway Freight Program (NHFP) dollars is to apply the funding for federal fiscal years 2024-2031 to projects preserving and optimizing existing resources and assessing the potential of innovative practices to mitigate freight movement impacts. This approach follows the framework of the moveDC plan. The District's NHFP fund apportionment totals for FY2024 through FY2031 are shown in the table and total \$51,356,801. This summary of the District's planned National Highway Freight Program fund expenditures includes the projected unused balance at the end of each fiscal year.

Fiscal Year (FY)	Annual NHFP Apportionments	Unused/ Rollover NHFP Funding	Projected Federal NHFP Funds	Projected Non-Federal Funds	FY Total
FY2024	\$5,950,870	\$1,874,374	\$7,825,244	\$1,956,312	\$9,781,556
FY2025	\$5,925,762		\$5,925,762	\$1,481,441	\$7,407,203
FY2026	\$6,103,535		\$6,103,535	\$1,525,884	\$7,629,419
FY2027	\$6,286,641		\$6,286,641	\$1,571,660	\$7,858,301
FY2028	\$6,475,241		\$6,475,241	\$1,618,810	\$8,094,051
FY2029	\$6,669,498		\$6,669,498	\$1,667,375	\$8,336,873
FY2030	\$6,869,583		\$6,869,583	\$1,717,396	\$8,586,979
FY2031	\$7,075,671		\$7,075,671	\$1,768,918	\$8,844,589
Total	\$51,356,801	\$1,874,374	\$53,231,175	\$13,307,796	\$66,538,971

High priority programs and projects that address the needs and issues across the freight plan's vision and goals include the following:

- » Innovative freight delivery practices program
- » Delivery demand management program
- » Oversize/Overweight routing tool maintenance and enhancement
- » Positive truck route signage design and construction
- » Update DDOT Freight Design Guidelines
- » Commercial vehicle enforcement system(s)
- » Support state of good repair and infrastructure projects



NEXT STEPS

With the development of the 2024 District Freight Plan, DDOT engaged with internal and external stakeholders to fully understand and infuse the plan with the ongoing work of others as well as regional freight needs. This outreach laid the framework for the strategies and investments of this freight plan. The 2024 District Freight Plan also includes an implementation plan that illustrates stakeholder prioritization of the strategies, the implementation effort, and the role and responsibility of the DDOT Freight Team. Over the next four years, DDOT plans to:

- » **Engage** with partners on current trends and challenges, develop plans and opportunities.
- » **Facilitate** agency coordination to understand and plan for freight needs, including those specific to safety, equity, resiliency, and environmental impact.
- » **Plan** collaboratively with regional partners: the Metropolitan Washington Council of Governments, the Transportation Planning Board, The Eastern Transportation Coalition, Maryland DOT and Virginia DOT.
- » **Promote** freight improvements, including safety and traffic management efforts within the District.
- » **Develop** best practices that serve the public and private sector.
- » **Look** to the future, planning for electric trucks and innovative technologies.

Going forward, DDOT will improve upon the successes of the District's current freight planning program, while continuing to expand the visibility of freight to a more diverse group of stakeholders throughout the region.

This 2024 District Freight Plan is a broad document that lays out needs and issues, as well as strategies, investments, and projects to address them. It details how, where, why, and when cargo moves along the District's multi-modal freight network. DDOT looks forward to the plan's implementation over the next four years.



2024 DISTRICT FREIGHT PLAN EXECUTIVE SUMMARY



GOVERNMENT OF THE
DISTRICT OF COLUMBIA
MURIEL BOWSER, MAYOR

