The District of Columbia's Multimodal Long-Range Transportation Plan

October 2014

District Department of Transportation
Policy, Planning & Sustainability Administration
55 M Street SE
Suite 400
Washington, DC 20003

moveDC Vision
The District of Columbia will have a world-class transportation system serving the people who live, work, and visit the city. The transportation system will make the city more livable, sustainable, prosperous, and attractive. It will offer everyone in the District exceptional travel choices. As the transportation system evolves over time, the District will:

- Be more competitive and attractive locally, regionally, nationally, and internationally
- Have safer and more vibrant streets and neighborhoods
- Have cleaner air, streams, and rivers, and be more responsive to climate change
- Accommodate the travel needs of all residents, workers, and visitors regardless of age or ability
- Integrate the District’s transportation system with the region’s transportation network

Photography Credits
Many of the photographic images throughout this plan—in addition to those taken by the project team and DDOT—were freely contributed by people involved in the planning process through the project’s Flickr site (www.flickr.com/groups/wemoveDC) and through DDOT’s photo sharing site (www.flickr.com/photos/ddotphotos/sets/). DDOT appreciates the generosity of contributors of photography in the plan.
## Table of Contents

**Freight**                                                                                                                                     1

I. Managing Safe and Efficient Deliveries                                                                                                       1

II. Existing Conditions                                                                                                                          1

   A. Core Facts                                                                                                                               1

   B. Notable System Achievements                                                                                                                5

   C. Future Demand                                                                                                                            6

   D. Opportunities for Improvement                                                                                                              6

III. Recommendations                                                                                                                            8

   A. Infrastructure Investments                                                                                                                 9

   B. Policies                                                                                                                                  14

   C. Education and Enforcement                                                                                                                 15

IV. Performance                                                                                                                                16

V. Vision to Reality                                                                                                                            19

   A. Using This Element                                                                                                                        19

   B. Project Development Process                                                                                                                 19

   C. Implementation through Partnership                                                                                                           19

   D. Infrastructure Costs                                                                                                                        19

   E. Budgeting Process                                                                                                                           20

   F. Prioritization Process                                                                                                                      21

   G. Outcomes                                                                                                                                  21
Railroad tracks north of Union Station serve both passengers and freight
I. Managing Safe and Efficient Deliveries

The efficient movement of goods supports a city’s vital functions and helps maintain its competitiveness. Managing freight through and within the District of Columbia can help to mitigate traffic congestion, preserve critical infrastructure, and improve air and water quality, while also managing the cost of goods and services to District residents, visitors, and businesses.

Freight movement in D.C. is closely aligned with the needs of resident and workforce consumers. There are more than 170 significant freight generators in the District. More than 80% of the generators are within four sectors—health services, food stores, restaurants and bars, and the printing and publishing industry—however, compared with cities of similar size, the District has few traditionally-recognized freight generators such as heavy industry or large-scale warehousing.

The District’s growing commercial and retail base, in conjunction with rising population, will increase consumer and business-driven freight demand. The moveDC plan recommends operational, management, technological, and infrastructure strategies to respond to existing and future needs. Responding to these needs will contribute to a thriving, well-managed freight network serving District residents and businesses in coordination with the region.

II. Existing Conditions

The following sections describe existing demand, infrastructure, and initiatives related to freight in the District.

A. CORE FACTS

Management of freight through and within the District of Columbia has an important role in congestion management and in improving safety and efficiency of freight transportation facilities. According to the Federal Highway Administration’s (FHWA) Freight Analysis Framework, approximately 94% of the freight tonnage arriving in and departing from the District in 2011 was transported by truck. Approximately $3.2 billion of freight-intensive revenue is generated annually in the District. A recent analysis found that freight truck activity is directly responsible for 450 jobs in the District and leads to approximately 130,000 jobs.

Freight generally uses existing transportation infrastructure such as highways and railroads. Preservation of this infrastructure is important to the movement of freight—yet heavy truck and rail traffic contributes significantly to wear and tear on transportation infrastructure.

Congestion on streets and railroads contributes to inefficiency in goods movement. This inefficiency is borne out in additional monetary cost to freight haulers and to those consuming affected goods.

Roadway

Nearly all trucks operating in the District have either an origin or a destination within the city. Inbound and outbound truck traffic is heavily concentrated to the east and south of the District. DDOT’s truck route map designates specific routes for through truck traffic as well as truck restrictions on city streets, as shown in Figure F.1.

Truck routes in the District are generally assigned to corridors with large-vehicle-compatible roadway geometry, fair traffic conditions, and good network connectivity. Commercial vehicle routes are enforced in the District and non-compliance can result in fines.
FIGURE F.1 — EXISTING FREIGHT NETWORK

This figure shows the existing District freight network including truck routes, areas with freight restrictions, and freight rail infrastructure.
Two-axle trucks make up 90% of the total truck traffic in the District. Tractor trailers make up the remaining 10%. Industrial centers that generate commercial truck freight activity in the District exist along:

- Georgia Avenue (US 29) near Florida Avenue
- New York Avenue (US 50) east of North Capitol Street
- North Capitol Street north of Fort Circle Drive NE
- South Capitol Street north of the South Capitol Street Bridge

District roadways are primarily controlled and maintained by DDOT; however, some roads are controlled by the National Park Service (NPS) and the Architect of the Capitol (AOC). Street ownership is further discussed in the Vehicle Element of the moveDC plan. In the District, large infrastructure projects, such as bridge rehabilitation, major roadway repairs, and infrastructure replacements, are nearly always DDOT’s responsibility.

District law sets a maximum weight for trucks by axle group to protect infrastructure. Overweight trucks have a significant negative impact on bridge and roadway pavement life.

To assess and ensure that the potential effects of overweight vehicles are accounted for, DDOT conducts additional inspections of structures and bridges. Depending on the outcomes of inspections, bridge and structure improvements may be programmed ahead of or out of normal maintenance cycles, and/or DDOT may put special weight and use restrictions of a structure in place.

For 2014, DDOT estimates that, annually, an additional $80 million for 25 years is needed to return District roads to an excellent condition. The District’s bridges also are aging and many costly bridge restoration projects are on the horizon. Some of this maintenance need is related to freight demand. Bridge retrofits could impact some truck routes during construction.

Notes on This Element

- Data used and referenced throughout this element was current as of December 2013, unless otherwise noted.
- Recommendations cited in this element will require further development as outlined in Chapter 5.
- Policies in this element are in addition to or augment current DDOT policies identified in the DDOT Policy Compendium.

Rail

Freight rail in the District plays an important role in the regional freight network. It generates and attracts considerable demand related to consumer needs. The District does not own any railroads, but is served by two Class I and one Class III (switching or terminal) railroads including CSX’s major north-south freight rail line. CSX and Norfolk Southern own, operate, and maintain nearly 70 miles of freight rail line and right-of-way in the District and carried approximately 370,000 carloads of freight in 2012.

The two freight rail yards located in the District—Washington Terminal Rail Yard, which is adjacent to Union Station, and the Benning Rail Yard—are shown in Figure F.1.

Washington, D.C. is a bottleneck for freight rail operations due to tunnel and overhead clearance restrictions. Sections of existing freight railroad in the District are undergoing a major rail infrastructure improvement program called the National Gateway project. The extent of this initiative is described later in the Freight Element.

The District’s freight railroads also carry passenger and commuter rail service. This service operates on freight railroad corridors through operating agreements between the commuter railroads, Amtrak, and freight railroad owners. Passenger and commuter rail are discussed in moveDC’s Transit Element.

Air

While there are no airports located within the District of Columbia, three major airports serve the Washington region: Ronald Reagan Washington National Airport (DCA), Baltimore Washington International Thurgood Marshall Airport (BWI), and
Washington Dulles International Airport (IAD). The locations of these airports are shown in Figure F.2. In addition to these airports, the following hubs facilitate cargo shipments into or out of the District:

- John F. Kennedy International (JFK) in New York
- Newark Liberty International (EWR) in New Jersey
- Philadelphia International (PHL) in Pennsylvania
- Chicago O’Hare International (ORD) in Illinois

As volume of freight increases at airports in the Washington region and along the East Coast, there will be a corresponding increase in truck traffic within and through the region. The rise in truck traffic will be attributed to an increase in goods delivered and consumed within the region as well as the region’s strategic location at the intersection of several major interstate corridors and within the Northeast Corridor.

Maritime

D.C. has very limited maritime freight shipping. In 2011, official shipments were equivalent to 10 trucks per day. The only other maritime operation—debris collection along the Anacostia and Potomac Rivers—is conducted by the U.S. Army Corps of Engineers.

B. NOTABLE SYSTEM ACHIEVEMENTS

DDOT’s Direct Emissions Reduction Program

DDOT’s Direct Emissions Reduction Program is federally funded by the Congestion Mitigation and Air Quality Improvement Program (CMAQ). This program focuses on surface transportation improvements designed to improve air quality and mitigate congestion.

DDOT’s current program funds and supports projects in the District that reduce emissions through measures including:

- Idle reduction
- Purchase of fuels that produce lower emissions
- Retrofit of existing diesel engines with catalysts or filters
- Repowering of vehicles with lower emission generating engines
- Vehicle replacement

Engines eligible for the program may be in on-road vehicles (trucks), off-road vehicles (construction equipment) used in construction of highway projects, or locomotives used within the non-attainment area.

Urban Freight Case Studies for Washington, D.C.

Developed by FHWA’s Office of Freight Management and Operations, the Urban Freight Case Studies (2009) are a collection of studies that document best practices in urban goods movement. These studies are intended to be a reference for urban areas to use in developing solutions to mitigate traffic congestion and improve freight-related safety.

Downtown Curbspace Management Plan

The Downtown Curbspace Management Plan (2014) plans to reduce congestion in downtown D.C. by improving curbspace management. Tactics employed in this plan include:

- Reallocating existing curb space using regulatory signs to lengthen commercial vehicle loading spaces from 40 feet to 100 feet where possible
- Introducing new parking technology
- Establishing metered loading zones
- Enhancing parking enforcement
Following the adoption of the plan, increased enforcement of regulations has resulted in increased use of on- and off-street loading accommodations. A post-implementation study conducted on K Street NW revealed significant reductions in delays to automobiles and bicycles.

**Washington Convention Center Transportation Operations and Parking Plan**

The Washington Convention Center, which opened in April 2003, completed a transportation operations and parking plan in February 2004. The convention center is large enough that simultaneous set-up and breakdown of multiple conventions and major events needs to be accommodated. Efficient management of truck activity is critical to its operational success. The plan addresses intersection traffic control and truck circulation and routing to support event set-up and breakdown.

Convention-related trucks are not permitted to park on surrounding streets and all truck activity is contained within the Convention Center. Differing levels of truck activity are accommodated through strategic staging of truck arrivals and departures. To further assist with truck management, the Convention Center has an agreement for truck marshaling at RFK Stadium on an as-needed basis. Convention Center public safety personnel monitor truck activity and report restricted truck activity to the Metropolitan Police Department (MPD).

**District of Columbia Motor Carrier Management and Threat Assessment Study (2004)**

Following a study of truck activity in the District in August 2004, DDOT established a Motor Carrier Division to ensure efficient and safe mobility of commercial vehicles traveling in the District of Columbia, while mitigating community impacts and preserving transportation infrastructure.

**C. FUTURE DEMAND**

As part of the *District of Columbia Freight Plan* (2014), an analysis of current and future freight flows was conducted. The analysis forecasts a freight traffic increase in the District of 75% between 2011 and 2040 with a corresponding increase in freight value of 159%. The increase in freight traffic represents a 1.9% annual increase. Much of the traffic increase is from truck traffic. Anticipated growth in truck traffic is strongest along major truck routes such as US 50, I-295, and I-395.

**D. OPPORTUNITIES FOR IMPROVEMENT**

The goals and recommendations of several previously adopted, but not implemented plans, are summarized below.

**District of Columbia Freight Plan**

The *District of Columbia Freight Plan* (2014) provides recommendations related to management of freight operations. Since freight recommendations were developed within the same time frame as *moveDC*, they were coordinated with overall multimodal recommendations. At a high level, the freight plan recommends the following:

- **Expand freight rail capacity throughout the District.** Freight rail capacity can be improved by eliminating restrictions to double stacking of containers.
- **Reduce the rate of increase in truck traffic through the District.** Freight tonnage in the District is forecast to increase. Corresponding increases in truck traffic through the District can be mitigated using operational and technological strategies.
- **Enhance safety for commercial vehicles.** Safety improvements such as technology deployment and freight considerations in planning can lead to fewer crashes related to goods movement.
- **Reduce environmental impact of freight movement.** The District can benefit from deployment of technology and operational improvements to reduce emissions while freight volumes increase.
- **Encourage innovative practices to enhance efficiency/mitigate impacts of freight movement.** New technologies and real-time information can used by the District to help monitor and operate the highway network. In-vehicle technology can help operators minimize delay and reduce congestion. Effective roadway design can help to improve freight movement while protecting and prolonging infrastructure life.

**National Gateway**

National Gateway is an ongoing infrastructure investment program intended to improve the flow of rail traffic and enhance freight connections from Mid-Atlantic seaports to the Midwest.
through a series of projects in the District of Columbia, Maryland, North Carolina, Ohio, Pennsylvania, Virginia, and West Virginia.

National Gateway projects include:

- **Virginia Avenue Tunnel.** The existing CSX railway tunnel beneath Virginia Avenue is more than 100 years old. The tunnel is currently a major and critical freight rail bottleneck on the East Coast. CSX has proposed to reconstruct the existing tunnel to expand its vertical and horizontal clearances to permit the passage of trains transporting double-stacked standard cargo containers. The project also would restore a second track within the tunnel.

- **Track lowering.** The CSX north-south rail line currently travels beneath New Jersey Avenue, 10th Street, an I-395 ramp, and 12th Street SW. The elevation of the track is proposed to be lowered to provide additional vertical clearance at each of these four locations.

- **Long Bridge.** The Long Bridge (CSX rail line) project is proposed to modify or replace existing bracing members to increase railcar clearance on the bridge.

**Studies**

**Long Bridge Study**

The Long Bridge is a two-track railroad bridge serving freight and passenger rail crossing the Potomac River between Virginia and Washington, D.C. Long Bridge is the only freight and passenger rail bridge connecting D.C. and Virginia and is a major choke point for freight and passenger rail movements.

DDOT and the Federal Railroad Administration (FRA), in cooperation with CSX and Amtrak, are studying short- and long-term bridge scenarios to identify a future course of action that will better serve the needs of passenger and freight railroads, as well as other multimodal users. The study is expected to conclude in 2014.

**Maryland Avenue Southwest Small Area Plan and Southwest Ecodistrict Plan**

The *Maryland Avenue SW Small Area Plan* (2012), led by the D.C. Office of Planning (OP), evaluated the feasibility of constructing a structure over the existing rail corridor that follows the alignment of Maryland Avenue SW. One of the goals of the study was to identify a preferred approach to permit Maryland Avenue SW and other connecting local streets to be restored to the city’s network of streets. The study recommended that a four-track system along Maryland Avenue would be optimal for passenger and freight rail operations.

The National Capital Planning Commission (NCPC) completed the *Southwest Ecodistrict Plan* (2013) to envision how federal properties in the area could contribute to the same goals. DDOT is currently studying transportation improvements in more detail in the ongoing *Maryland Avenue SW Study*.
III. Recommendations

The recommendations in this element were developed through the District of Columbia Freight Plan (2014) and the moveDC planning process. These recommendations support the moveDC plan’s overall goals and also seek to achieve:

- Increased efficiency of freight movement throughout the District
- Reduced impact of goods movement on traffic operations and curbspace management
- Safer and more secure environment for goods movement and related to other modal operations
- Opportunities for improved environmental quality

As the District continues to make investments in transportation infrastructure and operations to address existing issues and support future growth, strategic improvements for freight will be essential. An effective support system for goods movement can have many benefits on economics, neighborhoods, and transportation operations. Infrastructure, policies, and education or enforcement program recommendations for freight intended to address the above goals as well as the goals of the overall moveDC plan are summarized below.

---

1 Texas Transportation Institute’s (TTI) Urban Mobility Study (2012).
A. INFRASTRUCTURE INVESTMENTS

Recommendation A.1: Move freight efficiently by optimizing traffic signalization along high-priority freight routes.

In coordination with the similar Vehicle Element recommendation, the District should optimize traffic signal timing along high-priority freight corridors. On these routes, the signal timing should take into account the longer acceleration and deceleration times required by trucks in an effort to decrease idling, improve truck progression, and reduce intersection blocking by trucks.

Traffic signal timing should be evaluated and reassessed on a 5-year basis. The overall modernization of the citywide signal system should include features that enable better active and real-time management of the system during events and special situations.

Recommendation A.2: Improve the existing loading zone program.

DDOT should improve the existing loading zone program using a variety of strategies which may include:

- Color-designated loading zones to reinforce parking prohibitions and restrictions
- Expanded morning parking restrictions to 10:00 a.m. to improve accommodation for couriers and deliveries of perishable goods
- Creation of Eco Loading Zones for low emission delivery vehicles
- Modification of curbside signs so that loading zones are reserved for vehicles that are actively loading or unloading goods

Recommendation A.3: Install weigh-in-motion sensors at key locations.

Weigh-in-motion (WIM) sensors provide commercial motor vehicle volume and weight data. DDOT should install additional stations at key entry points to the District to help with the identification and management of overweight vehicles.

Recommendation A.4: Support rail capacity expansion.

Freight and passenger rail share the same infrastructure in many locations in the District. The capacity of the rail network limits the ability for freight and passenger rail to increase service.

DDOT should continue to work with freight, passenger, and commuter rail operators to implement projects that alleviate bottlenecks and allow operators to increase service levels. DDOT’s current study of Long Bridge is a good example of the District’s ongoing commitment to rail capacity expansion.

Recommendation A.4: Study the feasibility of additional maritime freight shipping.

Diversion of truck freight to “marine highways” may be possible for some bulk commodity movements, if potential access through waterfront commercial and government property for freight loading and discharge are included in planning. Barges could be used for hauling bulk material to and from major construction sites and projects when there are significant commodity volumes or material sizes. The use of industrial waterfront areas to facilitate freight could reduce truck traffic through the city.

Recommendation A.5: Implement a dynamic commercial vehicle parking pricing and reservation system.

DDOT should implement a dynamic pricing and reservation system for commercial vehicle parking to manage metered curb parking in downtown and tourist areas. The goal of introducing pricing and reservations would be to encourage freight travel
and delivery at off-peak times, minimize congestion, and increase curbside efficiency.

**Recommendation A.6: Provide comprehensive truck route signage.**
DDOT should implement a comprehensive signage program that easily identifies designated truck routes and minimizes illegal truck traffic. Signs should be easy to recognize, graphically consistent, and follow standards established in the *Manual on Uniform Traffic Control Devices* (MUTCD). Signs should be located at key decision points in the truck route network and have a standard placement to improve way finding for drivers.

**Recommendation A.7: Review roadway design guidelines related to commercial motor vehicles.**
DDOT’s *Design and Engineering Manual* should be reviewed and/or revised to improve information related to bridge, roadway, and intersection design criteria and standards for major truck routes. Consideration also should be given to guidelines related to requirements based on truck traffic as a percentage of overall traffic on a roadway or bridge.

**Recommendation A.8: Implement geometric adjustments for key freight route intersections.**
DDOT’s *District of Columbia Freight Plan* (2014) identified the following truck route intersections as difficult for trucks to travel:

- New York Avenue and Florida Avenue NE
- Georgia Avenue and Missouri Avenue NW
- Edwin Street and Montana Avenue NE
- K Street NW, L Street, I Street, Wisconsin Avenue, and Connecticut Avenue NW
- Numerous intersections in Georgetown
- Numerous intersections in Adams Morgan
- Traffic circles with insufficient approach and circulating lane widths such as Georgia Avenue, Thomas Circle, and Washington Circle

Physical or operational improvements at these intersections could increase the efficiency of freight movements in the District. Multimodal safety should be maintained with any intersection or roadway adjustments.

**Recommendation A.9: Conduct a GPS-based pilot study of truck movements in the District.**
Data scarcity is one of the most critical challenges for understanding truck freight vehicle activities in urban areas. Truck GPS can be used to gather information such as travel time, speed, delay and stop locations. Typically, this involves installing portable GPS devices in volunteer trucks. DDOT should work with the trucking industry to pilot a project for GPS-based truck movement data collection.

**Recommendation A.10: Develop a freight village/intermodal facility.**
To consolidate freight deliveries destined for the city, the District should consider working with the freight industry to develop a freight village, also known as an integrated logistics center or urban consolidation center. A potentially viable location for such a facility would be near the intersection of New York Avenue and Bladensburg Road NE.

**Recommendation A.11: Implement truck corridor improvement projects.**
DDOT should implement physical and operational improvements on high-demand truck routes to better manage traffic congestion and improve efficiency of freight movement. One type of freight corridor improvement project could convert the curb lanes into exclusive lanes for trucks, buses, and high-occupancy passenger vehicles during non-peak periods, retaining high-occupancy vehicle and bus operations only during peaks. Another type of freight corridor improvement could permit trucks to share use of exclusive bus lanes, where bus frequencies and truck volumes are compatible. Potential freight improvement corridor projects, which should be coordinated with other multimodal investments, are shown in Figure F.3.

**Recommendation A.12: Upgrade existing I-295 southbound weight scale to automated enforcement.**
Currently, the District conducts fixed site weight enforcement on southbound I-295. DDOT should upgrade the scale to an automated enforcement model as described by FHWA’s *Smart Roadside Vision*. The *Smart Roadside Vision* is an emerging concept linking safety, security, and mobility building blocks into coordinated and comprehensive roadside programs. This improved integration and data sharing has the potential to
increase effectiveness of all contributing programs and reduce implementation costs for all participating stakeholders by coordinating roadside enforcement operations.

**Recommendation A.13: Develop a Collection/Delivery Point network.**
A Collection/Delivery Point (CDP) network consists of designated, attended locations where packages can be delivered or picked up by a carrier. DDOT should work with other District agencies to identify and eliminate barriers to creating a CDP network.

Locker banks are unattended delivery points, where carriers leave packages. Customers are responsible for retrieving packages from the CDP or locker bank. These delivery strategies achieve economic benefits for carriers through the consolidation of parcel deliveries and the elimination of failed deliveries. This strategy also has the potential to improve environmental sustainability of parcel delivery through reductions in vehicle miles traveled.

**Recommendation A.14: Study the possibility of freight transportation via rail transit.**
Metro-freight is the use of urban rail systems that coordinate with the freight network. DDOT should work with partner agencies, like the Washington Metropolitan Area Transit Authority (WMATA), Virginia Railway Express (VRE), and Maryland Area Regional Commuter (MARC), to study the feasibility of metro-freight in the District and the region. Metro-freight trains can be loaded with standard shipping containers at commercial loading facilities and then travel into the city to make deliveries to distribution centers or freight depots. From distribution centers, deliveries are made via small delivery vehicles or bicycles.
This figure shows corridors that are identified for truck improvement corridor projects by the 2014 District of Columbia Freight Plan and the moveDC process. The Freight Plan recommends five corridors for potential truck improvements and four corridors for shared use of dedicated transit lanes.
B. POLICIES

Recommendation B.1: Preserve key citywide freight routes.
DDOT should work to preserve key citywide freight routes as defined in Figure F.1. Freight preservation can include improvements for other modes in the freight route, so long as other modes are accommodated in dedicated facilities such as transit-only lanes, protected bicycle facilities, and wide sidewalks.

Recommendation B.2: Encourage off-peak deliveries.
In the short-term, the District is planning to conduct a pilot program for off-peak deliveries (7:00 p.m. to 6:00 a.m.) to assess its impact on traffic congestion and delays, accommodation of parking for commercial vehicles, and impact on delivery travel times. The pilot program may entail monetary incentives and coordination with Advisory Neighborhood Commissions (ANCs).

Recommendation B.3: Support last-mile delivery/pick-up using bicycles.
The District should support bicycle freight operations by District businesses. Bicycle freight delivery can contribute significant benefits to the transportation system and improve livability. Last-mile delivery by bicycle can reduce the volume of trucks, vans, and other vehicles in areas such as the Central Employment Area, helping to reduce traffic congestion, improve air quality, and reduce noise.

Recommendation B.4: Preserve existing maritime freight infrastructure.
DDOT should participate in the preservation of existing Anacostia River and associated Potomac River navigation channel and dock access for the delivery by tug/barge of petroleum products and stone, sand, and gravel. DDOT should work with other District agencies to avoid encroachments related to waterfront development into berthing locations or navigation channels in rivers.

Recommendation B.5: Prioritize investments that improve integrated express service.
DDOT should prioritize investments that improve integrated express service to reduce overall truck demand. Integrated express operators (also known as couriers) move the customer’s goods door-to-door, providing shipment collection and transport via truck and then by aircraft. Integrated express carriers commonly operate vans and trucks, mainly on arterial roadways, providing pickup and delivery of high value, lightweight, and time-sensitive commodities. Examples of investments that improve integrated express service include:

- Providing defined freight zones on streets in office districts and retail centers within the city to allow for ample box truck and van parking
- Improving truck mobility on arterial roadways and expressways frequented by integrated express carriers

The District of Columbia is a major gateway for rail freight moving through the Mid-Atlantic region, but it is not a major generator of rail freight. The District should be a good steward of the portion of the regional freight rail network that is within its borders by supporting feasible rail system capacity expansion efforts. DDOT should work with Maryland, Virginia, and I-95 Corridor Coalition states to help assure that East Coast rail lines can be improved to permit greater use of freight rail.

Recommendation B.7: Improve truck movement data collection and forecasting.
DDOT should increase data collection related to truck operations and goods movement to improve understanding of freight operations. Examples of additional data collection efforts could include:

- Requesting mobile phone based travel time and speed data that may be made available by FHWA
- Conducting surveys of shippers, carriers, and receivers to understand freight movement freight decision making with respect to choice of mode, routes, and time of day of goods movements
In addition, DDOT should support the Metropolitan Washington Council of Governments (MWCOG) in the development of a trip-based freight model, which would provide more detailed information about truck trip patterns, as well as impacts to District and the region.

Recommendation B.8: Develop a statewide rail plan.
DDOT should develop and regularly update a statewide rail plan that integrates planning for freight and passenger rail in the District. The plan should comprehensively consider rail infrastructure, operations, and safety.

C. EDUCATION AND ENFORCEMENT

Recommendation C.1: Improve outreach and technologies for integrating route and real-time information to freight carriers.
DDOT should work with commercial GPS providers and map companies to incorporate District truck route information into GPS devices. At the same time, DDOT should ensure up-to-date truck route information online is available for use in commercial GPS applications.
Recommendation C.2: Develop a dynamic truck routing web application.
DDOT should develop a dynamic truck routing application based on real-time traffic conditions. Dynamic routing systems route vehicles to their shortest-path destination, based on up-to-date speed and delay conditions. The application could be tied to DDOT’s existing interactive online Truck and Bus Map, which provides information on truck and bus through routes and restrictions, loading zones, drop-off/pick-up locations, and tour bus parking.

Recommendation C.3: Establish a DDOT Freight Advisory Committee.
DDOT should establish a Freight Advisory Committee to facilitate a forum for freight-related topics and to advise on freight-related priorities, issues, projects, and funding needs. The committee should consist of a diverse group of freight stakeholders and would benefit both the freight industry and the District by providing a structured method for information exchange. It also could serve as a resource for sharing data and proposing future studies.

Recommendation C.4: Conduct periodic truck freight stakeholder surveys.
In coordination with MWCOG, Maryland, Virginia, and/or other freight system operators, DDOT should gather input from truck freight stakeholders through comprehensive periodic surveys (every 2 to 3 years) to identify bottleneck locations, parking concerns, and physical factors and conditions that may constrain the safe operation of commercial vehicles.

Recommendation C.5: Expand freight safety and education campaigns.
There is a need for a broad-based public understanding of the hazards associated with trucks, passenger vehicles, pedestrians, and bicycles circulating in dense urban areas. The District should take advantage of the resources provided by the Federal Motor Carrier Safety Administration (FMCSA) to help better educate both the public and freight stakeholders on these issues.

IV. Performance
Freight recommendations are designed to maintain an adequate level of mobility and accommodate population and employment growth in the District by increasing the efficiency, safety, condition, and performance of the freight network. The recommendations, developed through the District of Columbia Freight Plan (2014), include investments in infrastructure, advancements in technology, and increased intermodal coordination. Effective management of freight throughout the District will improve the travel and daily lives of residents, visitors, and businesses.

The moveDC plan’s goals (described in Chapter 1) were used in the evaluation of the Freight Element’s performance, similar to other elements. The project’s spatial analysis model, and qualitative reviews were used to develop the metrics for each performance measure relevant to the Freight Element. The Freight Element’s overall performance—by relevant goal category—is summarized in Table F.1.
### Table F.1: moveDC Freight Element Performance

<table>
<thead>
<tr>
<th>Goal</th>
<th>Metric</th>
<th>Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sustainability &amp; Health</strong></td>
<td>Increase non-auto mode split</td>
<td>* Not applicable for this element</td>
</tr>
<tr>
<td></td>
<td>Increase access to parks and green space</td>
<td>* Not applicable for this element</td>
</tr>
<tr>
<td></td>
<td>Encourage active transportation for health benefits</td>
<td>* Not applicable for this element</td>
</tr>
<tr>
<td></td>
<td>Reduce air and water quality impacts of transportation</td>
<td>* Reducing freight congestion will reduce the amount of idling, emissions, and noise from freight carriers</td>
</tr>
<tr>
<td></td>
<td>Prepare the transportation system for changing environmental and climatological conditions</td>
<td>* Not applicable for this element</td>
</tr>
<tr>
<td><strong>Citywide Accessibility &amp; Mobility</strong></td>
<td>Increase the person-carrying capacity of the transportation system</td>
<td>* Not applicable for this element</td>
</tr>
<tr>
<td></td>
<td>Improve system reliability</td>
<td>* Create infrastructure and policies that enhance the movement of goods and improve efficiency such as technology advancements (GPS tracking, dynamic web truck routing, and WIM sensors)</td>
</tr>
<tr>
<td></td>
<td>Reduce financial barriers to the lowest-income transportation system users</td>
<td>* Not applicable for this element</td>
</tr>
<tr>
<td></td>
<td>Accommodate the movement and management of freight and goods</td>
<td>* Support alternative freight movement strategies including off-peak deliveries, increased use of transit and waterways, and centralized delivery locations</td>
</tr>
<tr>
<td></td>
<td>Integrate the District's transportation system with the region's transportation network</td>
<td>* Consider the preservation of primary freight routes a critical factor when determining the locations of new dedicated transit and bike facilities within existing streets</td>
</tr>
</tbody>
</table>
Table F.1: moveDC Freight Element Performance (continued)

<table>
<thead>
<tr>
<th>Goal</th>
<th>Metric</th>
<th>Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neighborhood Accessibility &amp; Connectivity</td>
<td>Increase the coverage of all modal networks throughout the District</td>
<td>• Not applicable for this element</td>
</tr>
<tr>
<td></td>
<td>Increase the number of transportation choices for travel between city neighborhoods</td>
<td>• Not applicable for this element</td>
</tr>
<tr>
<td></td>
<td>Increase transportation availability to population centers and jobs, schools, amenities, and services</td>
<td>• Not applicable for this element</td>
</tr>
<tr>
<td></td>
<td>Increase transportation availability to economically challenged or targeted redevelopment areas</td>
<td>• Not applicable for this element</td>
</tr>
<tr>
<td>Safety &amp; Security</td>
<td>Improve safety for all users</td>
<td>• Perform outreach to citizens to promote sharing the road safely with freight vehicles</td>
</tr>
<tr>
<td></td>
<td>Improve redundancy of transportation networks to handle emergencies</td>
<td>• Not applicable for this element</td>
</tr>
<tr>
<td></td>
<td>Expand sidewalk network</td>
<td>• Not applicable for this element</td>
</tr>
<tr>
<td></td>
<td>Maintain ability to evacuate District in case of emergency</td>
<td>• Not applicable for this element</td>
</tr>
<tr>
<td></td>
<td>Preserve key functions without impacting the transportation system</td>
<td>• Establish a freight village or a system of collection/delivery points to reduce the amount of local deliveries, minimizing potential conflicts for all users</td>
</tr>
<tr>
<td>Public Space</td>
<td>Protect and enhance important corridors and urban landscapes</td>
<td>• Not applicable for this element</td>
</tr>
<tr>
<td></td>
<td>Make streets functional, beautiful, and walkable</td>
<td>• Reduce the time and number of trucks occupying the District’s curbspace through strategies including a dynamic truck pricing and reservations system and improvement of the loading zone program. These efforts will preserve the curbspace for other modes, especially bicycles</td>
</tr>
<tr>
<td></td>
<td>Increase tree coverage</td>
<td>• Not applicable for this element</td>
</tr>
<tr>
<td>Preservation</td>
<td>Maximize reliability for all District transportation infrastructure by investing in maintenance and asset management</td>
<td>• Policies and programs to decrease the vehicle-miles traveled for commercial vehicles on District roadways. These include consolidation of freight delivery locations through freight villages, centralized drop-off locations, and the potential for increased maritime freight • Continued inspection of bridges in the District; significant investment will be required to implement and maintain recommendations from major initiatives such as the Long Bridge Study and the Maryland Avenue SW Plan</td>
</tr>
</tbody>
</table>
V. Vision to Reality

moveDC is a long-term plan for a reason—achieving its full vision will require decades of investment and continued commitment from city leaders and support from innumerable local and regional partners. The return on the city’s investment of time and funds spent implementing the moveDC plan’s recommendations will be creating stronger, more vital neighborhoods; sharing prosperity among all of the city’s residents; meeting our responsibility to the environment; and making the District more competitive among its domestic and global peers.

This section provides guidance for prioritizing and implementing Freight Element infrastructure recommendations. Additional information on implementation can be found in Chapter 5 of the moveDC plan.

A. USING THIS ELEMENT

The Freight Element is a starting point for investments in the freight system for the District in the next 25 years. It presents needed and realistic freight network investments and policy concepts that, together, support moveDC’s other Modal Elements in achieving the goals established as a part of the planning process.

moveDC does not present specific and final freight system design solutions, nor has moveDC analyzed all of the freight project-level tradeoffs for individual components of the moveDC plan. The Freight Element of moveDC will need to be updated periodically to take into account the many changes the future will bring that cannot be anticipated today. The need for updates is the recognition that some things always change in a city as dynamic as Washington, D.C.

Finally, some recommendations of moveDC, as with the 1997 Transportation Plan for the District of Columbia, may not become reality. Regular updates to the Freight Element in coordination with the overall moveDC plan will help ensure the Freight Element continues to make sense in the context of changing demands on the system.

B. PROJECT DEVELOPMENT PROCESS

Some of the freight infrastructure recommendations included in the moveDC plan are already in the design process or ready for construction; however, the vast majority of the moveDC plan’s recommendations will need to undergo additional evaluation and further development—consistent with established city processes prior to their implementation.

The DDOT Environmental Policy and Process Manual, 2nd Edition (2012) further describes the Project Development Process. The additional evaluation and development processes are likely to adjust the character, location, and other elements of some recommendations. This is a natural evolution of long-range plan identified recommendations as they move toward implementation.

C. IMPLEMENTATION THROUGH PARTNERSHIP

While the implementation of most capital infrastructure recommendations will be led by DDOT, some are likely to occur through partnership among DDOT and other agencies or organizations, or with DDOT providing support to other agencies or organizations.

D. INFRASTRUCTURE COSTS

Planning-level costs for identified Freight Element infrastructure recommendations were not available. Because of the nature of long-range planning, all costs should be evaluated in future project development activities.

Programs

In the context of implementation for moveDC, the term “program” is used to describe ongoing funding commitments for operations, education, maintenance, regular infrastructure improvements that are not defined as projects, or other items, such as debt service on Grant Anticipation Revenue Vehicle (GARVEE) bonds. Freight program costs are estimated to be $7 million. Additional information on costs for programs are presented in Chapter 5.

Asset Management

Costs within this area of the moveDC plan include ongoing assessments, maintenance, and repairs of transportation infrastructure. Costs for freight infrastructure are assumed to be captured by the vehicular network and are presented in Chapter 5.
E. BUDGETING PROCESS

moveDC was developed in a fiscally unconstrained environment, but DDOT recognizes that it operates in an environment constrained by available funding. While the financial plan in Chapter 5 identifies new sources of revenue to help close the cost/revenue gap, an annual gap is likely to remain throughout the moveDC plan’s implementation horizon.

Because of this fiscal reality, moveDC developed a methodology for prioritizing recommendations that can assist in the process of making annual budget decisions. This approach is described in Chapter 5. From a broad prioritization perspective, DDOT should take the following approach:

- Fund basic state of good repair (SOGR) and maintenance for existing programs
- Allocate additional resources that accelerate the pace of reaching SOGR for all infrastructure
- Fund critical transportation infrastructure investments to address deficiencies, safety, or capacity needs

Critical investments in transportation infrastructure have been prioritized in the moveDC plan, but many will still need to go through DDOT’s Project Development Process prior to implementation. DDOT should only seek to advance investments that have the most merit to meet moveDC’s goals.

It should be noted that capital programs and asset management—both of which are related to ensuring safe and reliable operations and adequate maintenance of existing system assets—were not prioritized. The level at which each of these are funded is established through normal annual District budget processes.

<table>
<thead>
<tr>
<th>Name of Facility</th>
<th>From</th>
<th>To</th>
<th>Length (miles)</th>
<th>Ward(s)</th>
<th>DDOT Role</th>
<th>TIP Project</th>
<th>Cost ($ Millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>16TH ST NW</td>
<td>H ST NW</td>
<td>MARYLAND LINE</td>
<td>6.4</td>
<td>1, 2, 4</td>
<td>LEAD</td>
<td>NO</td>
<td>NOT AVAILABLE</td>
</tr>
<tr>
<td>NEW YORK AVE NE</td>
<td>FLORIDA AVE NE</td>
<td>MARYLAND LINE</td>
<td>3.6</td>
<td>5, 6, 7</td>
<td>LEAD</td>
<td>NO</td>
<td>NOT AVAILABLE</td>
</tr>
<tr>
<td>PENNSYLVANIA AVE SE</td>
<td>6TH ST SE</td>
<td>BRANCH AVE SE</td>
<td>2.1</td>
<td>6, 7, 8</td>
<td>LEAD</td>
<td>NO</td>
<td>NOT AVAILABLE</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Name of Facility</th>
<th>From</th>
<th>To</th>
<th>Length (miles)</th>
<th>Ward(s)</th>
<th>DDOT Role</th>
<th>TIP Project</th>
<th>Cost ($ Millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONNECTICUT AVE NW</td>
<td>K ST NW</td>
<td>MARYLAND LINE</td>
<td>4.9</td>
<td>1, 2, 3</td>
<td>LEAD</td>
<td>NO</td>
<td>NOT AVAILABLE</td>
</tr>
<tr>
<td>PENNSYLVANIA AVE SE</td>
<td>BRANCH AVE SE</td>
<td>MARYLAND LINE</td>
<td>0.8</td>
<td>7</td>
<td>LEAD</td>
<td>NO</td>
<td>NOT AVAILABLE</td>
</tr>
<tr>
<td>RHODE ISLAND AVE NE</td>
<td>REED ST NE</td>
<td>MARYLAND LINE</td>
<td>1.9</td>
<td>5</td>
<td>LEAD</td>
<td>NO</td>
<td>NOT AVAILABLE</td>
</tr>
</tbody>
</table>
F. PRIORITIZATION PROCESS

moveDC capital improvements were prioritized based on an understanding of community and stakeholder support, of existing commitments, and that goals of ensuring transportation investments are distributed across the District in the service of current and future residents. They also were prioritized based on criteria developed for each of the moveDC plan’s goals. Cost was not a criterion used in prioritization, but will need to be a factor in individual budget decisions.

Individual capital investment recommendations were measured within each criterion and then processed into four tiers within project groupings (generally by transportation mode). The tiers were then used to rank and organize priorities. Generally, investments within Tier 1 are assumed to be the highest priorities for implementation, whereas those in Tier 4 projects are lower priorities, relative to projects within their group. It is worth noting that in many cases, Tier 1 recommendations—due to size, scale, cost, and complexity—cannot be immediately constructed and will require investment in refinement, definition, and development through DDOT’s Project Development Process. Similarly, most recommendations in other tiers are likely to require some level of proactive investment in further development prior to them becoming the District’s highest implementation priorities.

G. OUTCOMES

The full results of the prioritization process for the Freight Element are shown by tier in Tables F.2 through F.5 and Figure F.4. In addition to each infrastructure recommendation’s rating (tier), Tables F.2 through F.5 describe project limits, identify potential implementation responsibility, and provide a planning-level cost estimate, where it is possible to prepare a planning-level cost estimate based on information currently available.

<table>
<thead>
<tr>
<th>Table F.4: Tier 3 Freight Corridor Capital Investment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of Facility</td>
</tr>
<tr>
<td>PENNSYLVANIA AVE SE</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table F.5: Tier 4 Freight Corridor Capital Investments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of Facility</td>
</tr>
<tr>
<td>7TH STREET/GEORGIA AVE NW</td>
</tr>
<tr>
<td>RHODE ISLAND AVE</td>
</tr>
</tbody>
</table>
FIGURE F.4 — FREIGHT CORRIDOR INVESTMENT PRIORITIES
This figure shows freight corridor investment recommendations by tier.

Legend
- Quadrant Boundary
- Ward Boundary
- Water
- Park
- University
- Military
- Monumental Core

Existing Infrastructure
- Metrorail Station
- Metrorail Line
- Railroad
- Road

Freight Improvement Corridor Tier
- 1
- 2
- 3
- 4
The District of Columbia’s Multimodal Long-Range Transportation Plan