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

Transit Element
Public Review Draft, May 2014
DDOT Mission
Develop and maintain a cohesive sustainable transportation system that delivers safe, affordable, and convenient ways to move people and goods - while protecting and enhancing the natural, environmental and cultural resources of the District.

DDOT Vision
The District Department of Transportation (DDOT) is committed to achieving an exceptional quality of life in the nation’s capital through more sustainable travel practices, safer streets and outstanding access to goods and services. Central to this vision is improving energy efficiency and modern mobility by providing next generation alternatives to single occupancy driving in the city.

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D.C. Streetcar at the commissioning yard
Transit

I. Transit Moves a City and Region

The Washington, D.C. region has a long history of investing in its transit system. Circulator, Metrorail, Metrobus, commuter rail, bikeshare, and other bus operators move millions of people every year, playing a vital role in the transportation system. Soon, streetcar will add to the transit options already in operation in the region. The continued development of this world class transit system is not the goal in and of itself; rather, it is a strategy to accommodate the region’s rapidly increasing population while reducing the impacts of growth on land, air, and water quality. While DDOT has direct purview over Circulator and streetcar, it also makes significant contributions into funding the vision for Metro and regional transit.

The District has an extensive transit system and is planning for enhancements that will extend the coverage and efficiency of the network. In the next generation streetcars and other high-capacity transit will join the system. moveDC envisions the Metrorail network augmented to ease crowding and congestion, enhance access, improve reliability, and free buses from bottlenecks through dedicated bus lanes, transit signal priority, and queue jump lanes on key corridors. moveDC envisions transit becoming more accessible and efficient for trips to work as well as journeys out to dinner, shopping, entertainment, and everyday errands.

By 2040, with moveDC investments, residents, workers, and visitors in the District will experience enhanced transit on key travel spines. Minnesota Avenue SE/SW will smoothly connect residents along the Anacostia River while Pennsylvania Avenue SE and Benning Road NE will efficiently carry them into Downtown. Reliable cross-town connections will be established from the eastern border of the city to west of Rock Creek Park. More transit means room to move more people and more ways to save money for travelers. Transit lanes can transport up to ten times the number of people as vehicle lanes. At the same time, transit, with an average out-of-pocket cost of less than one-third the price of owning, operating, and maintaining a private vehicle, reduces household transportation expenses. Improving the ability to competitively and conveniently substitute auto trips for transit trips means more money in resident’s pockets, more access to employment opportunities, and more reliability for area employers.

moveDC consolidates all of the transit initiatives underway throughout the region, overlays an additional vision of how the different services can work best together, and recommends supportive efforts on city streets to maximize the effectiveness of the transit system. The result will be a District of Columbia where transit is an easy, natural choice for most trips throughout, to, and from the District, providing access while reducing demand on the roadway system.

1 www.vtpi.org
II. Existing Conditions

The District has the second largest transit mode share in the nation. The city’s rich mix of transit services offers residents, employees, and visitors a range of options when it comes to travel by transit—from national passenger rail to the D.C. Circulator. The primary transit options in D.C. include:

- **Amtrak.** Connects to the nation’s passenger rail network with high speed (Acela Express) service in the Northeast Corridor (Washington, D.C. to Boston) and regional service to Virginia and points south
- **InterCity bus services.** Connects D.C. to major cities on the East Coast and the nation
- **Virginia Railway Express (VRE) and Maryland Area Regional Commuter (MARC).** Commuter rail service in the Baltimore and Washington Metropolitan areas
- **Commuter bus service.** Provided in key travel corridors and markets of the metropolitan area
- **Metrorail.** Provides rapid service within the District and urbanized areas of neighboring Virginia and Maryland
- **Local and express bus services** (Metrobus, MetroExtra, and Circulator). Serve primary travel corridors, neighborhoods, and major destinations in the D.C. and the metropolitan area
- **MetroAccess.** Provides door-to-door shared rides for people with disabilities
- **Capital Bikeshare.** Provides on-demand service ideal for the connections between transit hubs and destinations
- **Private and destination-specific shuttles.** Links local workers and visitors to business and tourism destinations
- **Water Taxi.** Seasonal service connects multiple waterside stops throughout the District and the region

A. CORE FACTS

Transit is a critical element of the District’s and region’s transportation network, providing access to neighborhoods, job centers, and national treasures in and around Washington, D.C. With a multi-tiered system of rail, bus, ferries, and shared bicycles, the District’s transit network carries more than 40 percent of the District’s commute trips every weekday. Without these transit options, many trips would be redistributed onto the already congested roadway network or not be made at all. In either case, the District would not be the District without its transit system.

Components of the transit network already are acutely crowded during peak hours and are reaching capacity. This includes Metrorail stations in Downtown (Union Station, Metro Center, Farragut North, Farragut West, and Gallery Place-Chinatown) and bus services operating along the Pennsylvania Avenue SE, 16th Street NW, Georgia Avenue NW/7th Street NW, Benning Road NE/H Street NE, 14th Street NW, and Anacostia/Congress Heights corridors. The following briefly summarizes the existing transit services in D.C.

**Washington Metropolitan Area Transit Authority**

WMATA serves approximately 5 million people within a 1,500-square mile service area across the Washington region. WMATA operates three major services—Metrorail, Metrobus, and MetroAccess.

As shown in Table T.1, WMATA’s services carry more than 343 million trips annually. Of these trips, 62 percent (217 million) are carried on Metrorail, 37 percent (129 million) on Metrobus, and less than one percent on MetroAccess. While Metrorail ridership declined slightly between 2010 and 2012, Metrobus ridership grew, and the overall use of WMATA services increased by approximately one percent during the same period.
Metrorail

Metrorail is the Washington Metropolitan area’s heavy rail transit system. In terms of ridership, it is the second busiest in the nation. Service begins at 5:00 a.m. on weekdays and 7:00 a.m. on weekends. Service ends at midnight Sunday through Thursday and 3:00 a.m. Friday through Saturday. Five lines make up Metrorail—Red, Blue, Orange, Green, and Yellow—serving 86 different stations in D.C., Virginia, and Maryland. The new Silver line serving Virginia suburbs will open in 2014.

Since Metrorail’s construction in 1976, ridership has generally risen steadily, with average weekday boardings of about 750,000 in 2012. Boardings within the District accounted for about 425,000 (57 percent), as shown in Figure T.1.

Figure T.2 shows the existing Metrorail system and a summary of boardings by station. Currently, the busiest stations in the system are in Downtown D.C.—Union Station, Metro Center, Farragut North, Farragut West, and Gallery Place-Chinatown. These stations are crowded during peak hours and reaching capacity. Increased ridership has led to core capacity issues on Metrorail.

In addition to station-oriented challenges, passenger loads on trains also are becoming a challenge in segments between stations during the system’s busiest periods. Figure T.3 shows the peak number of passengers traveling on Metrorail between each station.

Table T.1: Total WMATA or Metro Annual Ridership by Transit Type (in thousands)

<table>
<thead>
<tr>
<th></th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ridership</td>
<td>217,219</td>
<td>217,053</td>
<td>216,570</td>
<td>-0.1%</td>
</tr>
<tr>
<td>Share</td>
<td>63%</td>
<td>63%</td>
<td>62%</td>
<td></td>
</tr>
<tr>
<td>Metrobus</td>
<td>123,670</td>
<td>125,089</td>
<td>128,793</td>
<td>1.1%</td>
</tr>
<tr>
<td>Share</td>
<td>36%</td>
<td>36%</td>
<td>37%</td>
<td></td>
</tr>
<tr>
<td>MetroAccess</td>
<td>2,377</td>
<td>2,336</td>
<td>2,285</td>
<td>0.0%</td>
</tr>
<tr>
<td>Share</td>
<td>1%</td>
<td>1%</td>
<td>1%</td>
<td></td>
</tr>
<tr>
<td>Totals</td>
<td>343,266</td>
<td>344,478</td>
<td>347,648</td>
<td>0.9%</td>
</tr>
</tbody>
</table>

Note: Data represents the entire WMATA system, which includes but is not limited to the District of Columbia.

Figure T.1: Metrorail Average Weekday Passenger Boardings

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2 www.wmata.com/rail
FIGURE T.2: METRORAIL SYSTEM AND SUMMARY OF BOARDINGS BY STATION

This figure shows Metrorail boardings in the District. Increased ridership has led to core capacity issues on Metrorail. Downtown stations are acutely crowded during peak hours and reaching capacity; according to WMATA, even with planned improvements, the system will be highly congested by 2015 and over capacity by 2020.

Legend

- Washington D.C. Boundary
- Quadrant Boundary
- Ward Boundary
- Water
- Park
- Road
- Railroad
- Commuter Rail Station

<table>
<thead>
<tr>
<th>Metrorail Station</th>
<th>Average Weekday Boardings (May 2013)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Less than 4,000</td>
</tr>
<tr>
<td></td>
<td>4,000 to 8,000</td>
</tr>
<tr>
<td></td>
<td>8,000 to 16,000</td>
</tr>
<tr>
<td></td>
<td>16,000 to 24,000</td>
</tr>
<tr>
<td></td>
<td>24,000 to 33,000</td>
</tr>
</tbody>
</table>

Commuter Rail Station

- Park and Ride Lot
- Secure Bike Parking
FIGURE T.3: PEAK PERIOD PASSENGER LOADS BETWEEN STATIONS
This figure shows a.m. peak hour directional Metrorail link volumes. Based on current Metrorail ridership information, the a.m. peak hour is the daily system peak. There is substantial crowding on Metrorail in the inbound (toward D.C.) direction on the Red Line and on the Orange Line as well as on the Red Line downtown.

Legend
- Washington D.C. Boundary
- Quadrant Boundary
- Ward Boundary
- Water
- Park
- Road
- Railroad
- Commuter Rail Station

Legend
- Metrorail
  - Line
  - Station
- P: Park and Ride Lot
- B: Secure Bike Parking

AM Peak Hour* Single Direction Link Volume
- Less than 3,000 Passengers
- 3,001 - 6,000 Passengers
- 6,001 - 9,000 Passengers
- 9,001 - 12,000 Passengers
- More than 12,000 Passengers

*AM peak hour represents peak loads for Metrorail. Data Source: WMATA
FIGURE T.4: METRORAIL STATION ACCESSIBILITY MAP

This figure shows census blocks within a 0.5-mile path of a Metrorail station. Many areas of the District are not conveniently accessible to Metrorail on foot.

Legend

Metrorail
- Station
- Line

Metrorail Station Available within 1/2-mile Path of a Census Block
- Red: No
- Green: Yes
Metrobus

Metrobus carries more than 400,000 passengers each weekday. Metrobus is the sixth busiest bus operation in the nation. The fleet is made up of more than 1,500 buses operating on 325 routes. More than 53 percent of Metrobus trips occur within the District of Columbia. WMATA divides Metrobus routes into five categories:

1. **Major routes** provide frequent service seven days per week, with the exception of core route branches
2. **Local routes** are less frequent than major routes, but provide some evening and weekend service
3. **Commuter routes** provide weekday, peak-hour only service between neighborhoods and employment areas as well as Metrorail stations
4. **MetroExtra routes** operate with limited stops and spans vary by route. Routes previously known as Express or Limited have been rebranded under the single name MetroExtra
5. **Airport express service** offers limited stop service to Dulles International Airport and Baltimore-Washington International Airport

**MetroAccess**

MetroAccess is WMATA’s complementary Americans with Disabilities Act (ADA) paratransit service, providing door-to-door shared rides for people with disabilities.
**D.C. Circulator**

Circulator is a DDOT-operated high-frequency bus service operating on five routes in Downtown and adjacent neighborhoods. The Circulator system links cultural institutions, entertainment venues, and employment centers in the city’s core and nearby neighborhoods.

Buses are operated through a partnership between DDOT, WMATA, and a contract operator. Buses have a distinct color and branding and operate so frequently (every 10 minutes) that passengers do not need a schedule. Fares are $1 and SmarTrip cards are accepted. Together, the Circulator’s five routes have about 15,000 daily boardings, as shown in **Table T.2**.

According to the Circulator Transit Development Plan (DDOT, 2011), the Circulator would benefit from changes including:

- An increase of the cash fare to $2, which would generate more than $1 million in additional revenue
- More consistent service schedules among the different routes
- Bus priority treatments along Circulator corridors in the long term
- New and improved vehicles
- Service on new corridors in the future

**Commuter Rail and Bus**

VRE and MARC offer commuter rail service to Washington, D.C. from communities in Virginia and Maryland, respectively. MARC and VRE primarily operate service on weekdays; however, MARC began weekend service on the Penn line in December 2013. Approximately 16,000 passengers ride VRE routes daily and more than 30,000 ride MARC. The longest routes for the two services extend more than 50 miles from D.C. VRE has two stations in the District—Union Station and L’Enfant Plaza; L’Enfant Plaza serves approximately two-thirds of the VRE passengers. MARC has one station in D.C.—Union Station.

More than nine commuter bus operators run more than three dozen routes into D.C. from Maryland and Virginia. An equal number of intercity bus companies serve D.C. and connect to other cities in the Northeast and Mid-Atlantic regions. **Figure T.5** shows commuter rail and bus routes.

**Passenger Rail**

Amtrak offers passenger rail service to and from Washington, D.C. at Union Station. Amtrak operates approximately 85 trains daily into and out of Union Station. Union Station is the second busiest station in the entire Amtrak network. In Fiscal Year 2012, it hosted more than 5 million annual boardings and alightings.

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**Table T.2: Monthly Ridership on Circulator Routes**

<table>
<thead>
<tr>
<th>Route</th>
<th>Weekday Daily Ridership</th>
<th>Monthly Ridership</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dupont Circle – Rosslyn</td>
<td>2,600</td>
<td>76,000</td>
</tr>
<tr>
<td>Georgetown–Union Station</td>
<td>6,700</td>
<td>187,000</td>
</tr>
<tr>
<td>Potomac Ave Metro – Skyland</td>
<td>1,600</td>
<td>40,000</td>
</tr>
<tr>
<td>Union Station – Navy Yard Metro</td>
<td>1,400</td>
<td>31,000</td>
</tr>
<tr>
<td>Woodley Park – Adams Morgan – McPherson Square Metro</td>
<td>4,100</td>
<td>130,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>16,400</strong></td>
<td><strong>464,000</strong></td>
</tr>
</tbody>
</table>

Source: Circulator Dashboard, October 2013
Union Station hosts a mixture of different passenger rail routes and service types. The most significant volume of passenger rail service is oriented along the Northeast Corridor (Washington, D.C. to Boston, MA). Within the Northeast Corridor, Amtrak operates regional and Acela Express services. In addition to Northeast Corridor services, Union Station hosts major national routes connecting to cities and towns across the country.

Long Bridge is a two-track railroad bridge. It is the only railroad bridge that connects the District of Columbia and the Commonwealth of Virginia. As such, it currently carries all commuter and passenger rail services entering the District from Virginia. This rail traffic must share space with freight rail traffic that also uses Long Bridge.

Due to the demand of the many different commuter, passenger, and freight rail operations, Long Bridge currently operates near capacity. This condition results in limitations on the frequency and time periods in which trains that can travel into and out of the District. DDOT, in cooperation with the Federal Railroad Administration, is completing a study on Long Bridge to determine future operating requirements of high-speed, intercity passenger, and commuter rail, as well as transit, bike and pedestrian, and freight rail.

Water Taxis
Despite the fact that the District has access to the Potomac and Anacostia Rivers, only two waterborne transit services exist and serve D.C. The American River Taxi connects Gangplank Marina, Washington Harbor in Georgetown, and Diamond Teague Terminal at Nationals Park. Service is available on weekdays and Saturdays seasonally. No service is available in the winter. The National Harbor Water Taxi connects Alexandria to the National Harbor in Maryland. Schedules vary by time of year, but most service is focused on Saturdays and Sundays during the spring and summer.

B. NOTABLE SYSTEM ACHIEVEMENTS
D.C. benefits from a popular and multilayered transit network. In light of the growing population and employment anticipated in the next decade, D.C. has undertaken plans for even more diversification and expansion in the network. These projects will help to address some of the needs of D.C.’s current and future residents, workers, and visitors.

How does DC transit compare to other regions?

- **Metrorail** has the *2nd* largest ridership in the nation.
- **Metrobus** is the *6th* busiest bus operator in the U.S.
- **DC** has the *2nd* largest transit commute mode share in the nation.

*All rankings from 2012*

**D.C. Circulator**
The D.C. Circulator is a schedule-free bus service operating in downtown and adjacent neighborhoods. The Circulator system is sponsored in part by the Downtown Business Improvement District and links cultural institutions, entertainment venues, and employment centers in the city’s core and nearby neighborhoods. The Circulator is a success on many levels—demand, which has resulted in the expansion of the system from three to five routes (a sixth route is planned to start in 2015); ridership, with over 15,000 daily boardings on five routes; and interagency cooperation, as the buses are operated through a partnership between DDOT, WMATA, and the private company D.C. Surface Transit.
FIGURE T.5: EXISTING COMMUTER RAIL AND BUS
This map shows VRE, MARC, and major commuter bus services in the District.

Legend
- Quadrant Boundary
- Ward Boundary
- Water
- Park
- Metrorail Station
- Metrorail Line
- Railroad
- Road
- Commuter Rail Station

Commuter Rail Line
- VRE - Fredericksburg/Manassas Lines
- MARC - Brunswick Line
- MARC - Camden Line
- MARC - Penn Line

Commuter Bus Services
- Loudoun County Transit
- PRTC OmniRide
- MTA Commuter Bus

Legend
- 0.25 Miles
- 0.5 Miles
Capital Bikeshare

Capital Bikeshare (CaBi) is a new layer of the District's transit system. While CaBi's vehicles are bicycles in physical form, the system functions as an extension of the transit network (a publicly available travel option). An improvement to the traditional transit network, CaBi offers its trips on the user's schedule and need—the traveler determines when and where the trip takes place.

This flexibility has translated into success. During CaBi's first year, 18,000 annual members joined and the system supported one million rides—more than double the initial projections. In April 2013, annual memberships surpassed 33,000 riders. By 2014, CaBi grew to more than 300 stations with 3,000 bikes in four jurisdictions; an additional 50 stations will be installed in the District in 2014. To date, there have been more than six million CaBi trips.

D.C. Streetcar

D.C. Streetcar will begin serving the public in 2014 along H Street NE. The H Street NE/Benning Road NE segment is the first of the planned 22-mile priority system in the District. In general, D.C.'s streetcar service is planned to connect existing and potential growth areas, diversify the city's transit system, and increase transit access.

Bus routes along planned streetcar corridors are already crowded and will benefit from capacity added by the streetcar system. Two-thirds of the currently proposed routes will operate along historic streetcar corridors in travel lanes shared with vehicles. Stops are planned to be located every quarter- to half-mile along the routes and will include shelters and real-time information.

MetroExtra

MetroExtra originally launched in 2007 with four routes, but as of December 2013 has expanded to 12 routes. MetroExtra bus routes are designed to offer bus riders higher speed and frequency service during specific periods of the day. In general, MetroExtra routes operate at a high-frequency (relative to other Metrobus routes) and employ distinct vehicles. To increase service efficiency, stop spacing is generally a quarter- to half-mile. Some corridors offer transit signal priority. NextBus technology—real-time arrival information—is being installed at some bus shelters.

Intermodal Centers

Union Station

In recent years, Union Station has emerged as one of the nation's busiest transportation hubs. A busy tourist, retail, and transportation destination, more than 32 million visitors pass through Union Station annually. Union Station is served by Metrorail, Metrobus, CaBi, Circulator, Amtrak, VRE, MARC, intercity buses, and commuter buses. It also is home to the D.C. Bikestation at Union Station. This facility provides secure bicycle storage, as well as bicycle repairs and rentals.

As of 2013, the Amtrak station alone hosted approximately 100,000 passenger trips each day. Adding to passenger rail activity, commuter and intercity rail services operate more than 200 trains through the station each day and Union Station is among the busiest in the Metrorail system.

The Union Station parking garage has 2,000 public parking spaces and also serves as a bus terminal for intercity buses. Annually, more than 2.4 million bus travelers travel to and from D.C. by way of Union Station's bus deck.3

Recognizing existing and anticipated challenges, Amtrak published the Washington Union Station Master Plan in July 2012. The plan provides recommendations to address short- and long-term multimodal facility needs and improve connections between the many travel modes operating out of Union Station. When implemented, the Master Plan's recommendations are intended to better support efficient and seamless connections between all transportation modes operating at Union Station, in addition to new services such as D.C.'s streetcar.

3 Union Station Redevelopment Corporation, 2013
Among the station’s challenges today and likely in the future, passenger queues begin to form as early as a half-hour before Amtrak boarding begins. Frequently, these queues extend into the public concourse and block the flow of passengers hoping to access other connections in the station. While intermodal access reaches its height at Union Station, the intermingling of activities concentrated at the same end of platforms creates circulation bottlenecks that will worsen as passenger volumes increase.

In addition to challenges such as queuing, circulation, and functional accommodation inside the station, tracks and platforms at the station need renovation. Renovations are needed to address current design standards for overall function and passenger comfort, in addition to ADA compliance and emergency egress.

The Union Station Metrorail Station also needs investment. As of December 2013, access and capacity improvements to the Union Station Metrorail station were in design and funded through WMATA’s Six-Year Capital Program.

L’Enfant Plaza
L’Enfant Plaza is situated between 6th and 7th Streets SW. It hosts connections to VRE; Metrorail Orange, Blue, Yellow, and Green lines; Metrobus; and Northeast Regional Amtrak trains serving Virginia and points south. L’Enfant Plaza is VRE’s busiest station, with nearly two-thirds of the system’s riders disembarking to access Metrorail and nearby employers.
C. FUTURE DEMAND
Demand for all transportation options will grow over the next 25 years. By 2040, 170,000 more residents and 200,000 more jobs will locate in the District, generating more than two million new trips each day—200,000 of which are projected to be on transit crossing the District’s border from neighboring Maryland and Virginia.

The Columbia Heights, NoMA, Farragut Square, Navy Yard, Southwest Waterfront, and Anacostia neighborhoods will experience the greatest increases in population density. The downtown core, NoMA, Navy Yard, and Anacostia neighborhoods will experience the greatest increase in employment density. Simply accommodating the same 42 percent of residents’ commute trips by transit in the future will require expanding the transit network, especially in the aforementioned neighborhoods.

- **Increase quality transit accessibility.** Access to efficient transit varies widely across the District. For example, only 12 percent of District residents can reach Georgetown using bus, rail, or a combination in less than one hour. The D.C. Transit Future System Plan (DDOT, April 2010) identified significant swaths of the city that could not reach major employment destinations within 40 minutes using transit, particularly in Northeast and Southeast.

- **Address Metrorail and Metrobus crowding.** WMATA has taken steps to reduce crowding on Metrorail with the implementation of Rush+ and expansion of MetroExtra service, both of which are expected to relieve some transit crowding. While this short-term fix will offer a measure of relief in some areas, in the future, crowding on transit is likely to become an even more pressing issue. In addition, WMATA’s Metrobus Priority Corridor Network (PCN) Plan is a strategy for improving bus service by improving travel times, reliability, and capacity on 24 regional corridors, which serve half of Metrobus’ ridership. The PCN, shown in Figure T.6 is planned to offer:
  - Operational enhancements such as transit signal priority and exclusive bus lanes
  - Increased frequency and span of service
  - Improved customer information
  - MetroExtra service (described above)
  - Expanded fare payment options
  - Added safety, security, and incident response measures
  - Enhanced bus stops and facilities

D. OPPORTUNITIES FOR IMPROVEMENT
- **Fill gaps in the high-capacity transit network.** More than half of District residents lack access to a Metrorail station within a half-mile walk from their home. WMATA is working to expand the services to these areas that are further from the high-capacity network through strategic modifications and the addition of new premium bus services.

Coupled with the Metrobus PCN Plan, DDOT is implementing or studying the feasibility of lanes for exclusive use by buses. These projects include Georgia Avenue NW, 16th Street NW, and H and I Streets NW. Georgia Avenue NW between Florida Avenue NW and Barry Street NW is currently under design with financial support from a USDOT TIGER grant via the Metropolitan Washington Council of Governments (MWCOG). The implementation of
services along this alignment would involve displacing curbside parking with bus-only lanes.

An initial planning study by DDOT along 16th Street NW has identified some of the challenges to exclusive transit lanes. DDOT and WMATA have studied near-term operational improvements that may be possible for H Street NW/I Street NW between New York Avenue and Pennsylvania Avenue, dedicated bus lanes along these corridors would require further analysis. Implementation of both of these bus-only lanes would improve person throughput, but would involve challenges to existing vehicle throughput and require modifications to curbside parking.

• **Improve Metrobus reliability.** Long travel times, indirect routes, and delays create a perception of unreliability. WMATA has worked hard to address this through real-time arrivals information and better on-time performance. The D.C. Transit Future System Plan (DDOT, April 2010) states that nearly 20 percent of trips on some of the busiest Metrobus routes operate more than 5 minutes behind schedule. According to WMATA’s Vital Signs Report (2012), on-time performance has improved an average of 3 percent per year since 2010 due to the adjustment of schedules to reflect actual traffic conditions, appropriate deployment of service operation managers, and operator coordination.

• **Maintain excellent communication with passengers.** Changes in the many layers of the transit network lead to a complex and dynamic system. For example, the Rush+ system was fairly complex for commuters to understand during its implementation in June 2012. Recent innovations with technology such as mobile applications provide convenient and customizable opportunities to inform passengers of complex systemwide changes.

• **Maximize transit coverage and efficiency.** Though each element of D.C.’s diverse transit network serves a different market, there is still potential for service duplication among all of the moving parts. Some streetcar and premium bus routes are targeted to underserved areas, but, in some cases, their presence may affect other transit types. Further, Circulator expansion plans are likely to duplicate the premium bus service or streetcar, despite the different markets each service is intended to serve. There is significant overlap between the streetcar routes and changes to Circulator and MetroExtra (limited stop bus), planned to this point. Of the 22-mile priority streetcar system, 77 percent of it overlaps with planned changes to the Circulator and MetroExtra. Of the net 37-mile system envisioned in the D.C. Transit Future System Plan, 85 percent overlaps with these planned changes. The D.C. Streetcar will offer District residents a new and enhanced mode of transportation complementary to bus services. Similarly, the planned Circulator and MetroExtra routes have 14 miles of overlap, which is about one-third of the planned Circulator system and one-fifth of the planned MetroExtra routes. Streetcar, Circulator, and non-regional WMATA buses should be integrated into an efficient surface transit system to serve different transportation needs and cover various markets.

• **Expand commuter rail.** Commuter rail is a valuable transit mode in serving long-distance trips. Limitations exist throughout the commuter rail network, including access (via Long Bridge, the only railroad bridge that connects D.C. and Virginia), station capacity (at L’Enfant Plaza and Union Station), and ease of intermodal connections (primarily at L’Enfant Plaza). Expansion of these facilities could facilitate increased commuter rail service between the District and the region, providing additional travel options to encourage some drive commute trips to shift to rail.

• **Invest in state of good repair.** Large parts of the Metrorail system have reached a point where much of the useful life of the initial capital investment has been fulfilled. While WMATA’s current capital improvement program is making progress in eliminating deferred maintenance elements in the system, deferring maintenance further is likely to increase the rate of decay of system elements and the ultimate cost of repair, rehabilitation, or replacement. State of good repair needs to remain a priority for the system, while adequate funds also are allocated for service and facility expansion.
FIGURE T.6: WMATA PRIORITY CORRIDOR NETWORK
WMATA’s proposed PCN is a strategy to improve bus service on 24 regional corridors

Source: www.wmata.com/about_metro/bus_planning/110728_PCN_Map.pdf
Ongoing Regional Transit Investments

Washington, D.C.’s transit services are part of a coordinated regional network—District system assets work in coordination with elements outside of the District’s boundaries for a system that is more than the sum of its parts. Beyond the transit projects described in moveDC, the following are major regional transit investments that will benefit the region and District:

Silver Line: The Silver Line is a 23-mile extension of the existing Metrorail system.\(^1\) When its two phases are complete—Phase I in early 2014 and Phase II in 2019—it will extend the Metrorail system to provide high-capacity transit service between D.C. and Loudoun County, Virginia. The Silver Line will serve Tysons Corner, the Dulles Corridor (Herndon and Reston), Dulles International Airport, and planned growth areas in eastern Loudoun County.

Crystal City/Potomac Yard Corridor Transit Improvements Project: The Crystal City/Potomac Yard Corridor Transit Improvement Project is a planned high-capacity and high-quality transit service in the 5-mile corridor between the Pentagon and Pentagon City in Arlington County and the Braddock Road Metrorail station in the City of Alexandria.\(^2\) The project is jointly sponsored by Arlington County and the City of Alexandria in cooperation with WMATA and the Virginia Department of Rail and Public Transportation.

Columbia Pike: Arlington County is planning a joint land use and transportation effort along Columbia Pike and through Crystal City.\(^3\) These projects will include an investment in a modern streetcar system and pedestrian and bicycle facility enhancements in coordination with a planned transition in land use, public space, and art.

Purple Line: The Purple Line is a planned 16-mile east-west light rail transit line that will connect New Carrolton and Bethesda in Maryland.\(^4\) When complete, the Purple Line will connect major regional business districts and activity centers such as Bethesda, Silver Spring, Takoma/Langley Park, College Park, and the University of Maryland. The Purple Line is planned to have 21 stations and will directly connect to branches of Metrorail’s Red, Green, and Orange Lines as well as three MARC lines, Amtrak, and many local bus routes.

Corridor Cities Transitway: The Corridor Cities Transitway is a 15-mile project in Montgomery County, Maryland, from the COMSAT facility near Clarksburg, Maryland, to the Shady Grove Metro Station.\(^5\) This project has two phases. Phase I is 9 miles from Metropolitan Grove to Shady Grove. This phase is actively underway; it currently is proceeding with engineering and environmental analysis and is funded for formal environmental documentation, final design, and right-of-way acquisition. Phase II would be a future extension from Metropolitan Grove to the COMSAT facility and would be developed as land use matures and additional transportation funding becomes available.

\(^1\) www.dullesmetro.com

\(^2\) www.ccpytransit.com

\(^3\) www.columbiapikeva.us

\(^4\) www.purplelinemd.com

\(^5\) www.cctmaryland.com
III. Recommendations

The vision for the District’s transit future is to deliver an improved total transit system. This system would offer people the highest level of flexibility, access, and connectivity to quality transit services, independent of the transit vehicle type or operator. Achieving an improved total transit system will require the provision of attractive, safe, comfortable, and reliable service that is appealing to existing patrons and those not currently using the system. It also will involve making strategic investments in capacity for systems operating today as well as those yet to be developed.

Each component of the envisioned transit system will offer different benefits and meet different people’s needs for different trips. The components working in coordination are what will provide the District the robust network it needs to grow and people the experience that they desire. The District’s transit network will allow residents, workers, and visitors the ability to travel anywhere in the District by transit in a convenient and reliable manner. It will be reliable and predictable, for trips downtown and also between city neighborhoods and important nearby destinations. Service will be available when people want and need it. For much of the city, this means that service needs to operate at least 18 hours a day, 7 days a week.

A diversity of transit mode technologies—commuter rail, Metrorail, bus, and streetcar—will be needed to help the District achieve an exceptional level of transit service and quality. This section provides recommendations for improving transit with an awareness that many operators will need to be involved in the delivery of facilities, infrastructure, and services.

This is the Transit Element of the District’s Multimodal Long Range Transportation Plan and seeks to the help achieve the following transit-specific goals:

- More and better coordinated transit facilities
- More transit-supportive policies
- Encourage transit use and effectiveness through education, promotion, and enforcement

A. MORE AND BETTER COORDINATED TRANSIT FACILITIES

Facilities are the physical improvements to the city’s diverse transit infrastructure. Figures T.7 through T.13 show the recommended transit plan for the District. This moveDC Plan calls for a 26-mile streetcar network, a 47-mile high-capacity transit network, 7.5 miles of Metrorail, and supporting high-frequency and local bus services in the next 25 years. All of these elements will be coordinated to each support different types and distances of trips, while working together to provide a complete transit network.

Recommendation A.1 – Integrate transit services to efficiently support existing demand and connect future growth nodes.

Transit can be provided in many ways, but for it to be most effective, different modes and services must be matched to the correct markets. Appropriate balance also must be achieved among demand and coverage-based services, commuter and frequent-traveler services, urban and suburban services, and other service types. The best approach for creating balance is to define a “family of services.” Most areas already have an ad-hoc family of services that has developed over-time, but the family of services often is not coordinated or organized consistently.

For the traveler, the type of transit that best fits their travel need is more important than the operator or even the vehicle. DDOT should work with all of the transit operators serving the District of Columbia to make sure that services complement one another.

Each member of the transit family should be geared toward serving the following trip types:

- **Commute Trips.** Since commute trips are about 20 percent of all transit trips, commuting should be among the focuses of all transit modes.
- **Long Distance Trips.** These trips across the District and throughout the region will be served by heavy rail rapid transit, commuter rail, express bus in managed lanes, and water taxis.
- **District Trips.** These work, service, and recreational trips between District neighborhoods will be served principally by High Capacity Transit (HCT)—streetcar or bus-based transit—and high-frequency bus services. Peak period trips of these types can also be supported along the high-frequency local and regional bus corridors through targeted enhancements to provide travel time improvements and higher frequency service specifically tailored to peak period needs.

- **Local Trips.** These trips, primarily between adjacent and within neighborhoods, would be principally served by local bus services.

DDOT should work with other regional transit operators to better coordinate service, improve legibility of the system, and minimize service duplication.

**Recommendation A.2 – Establish a surface high-capacity transit network.**

moveDC incorporates all of the strategies above into a transit network to increase transit effectiveness, quality, and reliability, increasing capacity and mobility to Downtown as well as city neighborhoods. Figure T.7 shows the recommended major network for the District’s high-capacity surface transit system. The major components of the system include:

- 22-mile priority streetcar system with potential extensions
- 25 miles of high-capacity transit in dedicated lanes
- 22 miles of high-capacity transit in shared lanes
- Water transit service within the District and between D.C. and neighboring jurisdictions with six boats per peak hour and stops in Georgetown, Southwest Waterfront, and Navy Yard

With the exception of the District’s identified priority streetcar network, the moveDC Plan does not specifically identify the transit mode technology—bus or rail—or the details for the runningway configuration—median, center, or side—for the additional HCT corridors. moveDC makes a preliminary identification of the type of runningway—shared versus dedicated—for the priority streetcar and HCT system based on vehicular traffic levels, existing transit demand, and right-of-way. These are primarily for analysis purposes, and detailed studies will be needed to assess trade-offs of runningway configurations and transit mode technology in detail. The moveDC Plan assumes that dedicated lane sections of the system would have a high degree—more than 80 percent—of exclusive transit lanes. Shared lane sections of the system would have service operating mostly in mixed flow (with vehicular traffic); however, some sections would be dedicated to improve service quality.

Each of the HCT corridors and proposed streetcar system extensions will require further study to determine the exact runningway configuration, route, operational and service profile, alignment, and transit mode technology. Figure T.14 shows the potential configuration for the recommended high capacity surface transit network.

**Recommendation A.3 – Invest in operational enhancements along high-frequency local and regional transit corridors.**

In addition to the high-capacity transit corridor network and other infrastructure-intensive transit services, there will be the need to invest in physical and operational modifications along primary regional and local transit corridors in the District and region. Along many of D.C.’s major travel corridors, it isn’t the contribution of a single service that warrants operational or physical investment, but the collective impact of all of the services operating along parts or the entirety of corridors. WMATA’s Priority Corridor Network Plan is designed to promote this pattern of investment already and it is recommended that DDOT consider a similar approach for local and regional transit corridors of significance in the District.

General strategies that should be employed in these corridors are those identified in the callout box, **Transit Operational Improvement Strategies.** The implementation of these types of measures has the ability to decrease transit travel times and delay, increase vehicle running speeds, reduce vehicular delays, and improve service reliability. Based on a preliminary analysis, Figure T.8 shows corridors that should be considered for these types of measures. DDOT should work in coordination with WMATA to periodically review ridership and operations in these and other corridors to prioritize physical and operational investments to benefit local and regional bus operations.
Transit Operational Improvement Strategies

Operating speeds and reliability are generally a function of the type of runningway (e.g., exclusive or mixed traffic), stop or station spacing, and character of service. DDOT has a tremendous opportunity to offer benefits to transit operations Districtwide, whether they operate the service or not. This is due to the fact that they control the physical street space and the traffic operations within that space. Runningway and traffic operations tactics DDOT should employ are described below.

➡️ Exclusive Transit Lanes (dedicated lanes): DDOT already has experience in creating dedicated transit lanes on its streets. Dedicated transit lanes are lanes in the vehicular travel-way for the exclusive use of transit vehicles, although in many locations, emergency vehicles also are permitted the use of the lanes during an emergency response. Transit lanes can be designated through signage, pavement markings, and physical barriers, depending upon their location, extent, and purpose. Ideally, transit services within dedicated lanes should operate at greater than 40 percent of the posted speed limit for the entire trip (including dwell time at stops and at traffic signals).

➡️ Traffic Signal Operations Enhancements: Traffic signals have a significant impact on bus travel time. Adjusting signals to benefit transit, either passively or actively, can offer a great benefit for transit users. From a passive perspective, coordinating signals to average bus speed instead of the average automobile speed also can allow transit vehicles to travel with fewer delays.¹

From an active perspective, employing transit signal priority (TSP) can further increase speeds. The general logic of TSP is organized around a brief extension of the green phase or an early truncation of the red phase to permit the progression of the approaching transit vehicle. Ideally, the system is linked with the overall service schedule and automated vehicle location system to help better manage on-time performance of the route. Transit signal priority is relatively simple to implement and operate. It involves minor retiming of traffic signals, some communications equipment within the signal system, the installation of detection devices at signals, and installation of emitters (or the use of GPS technology) on the transit vehicles.

➡️ Queue Jump and Bypass Lanes: Transit signal priority can be combined with transit vehicles using right-turn lanes or short transit-only lanes to enable buses to “jump out” of queued traffic. Often called queue jump lanes, these allow buses to bypass some traffic back-ups and advance to the front of the line at a signal.

In some systems, the queue jump lane also serves right-turn traffic, while in others, an additional lane is provided for general vehicle traffic. Queue jump lanes also can be

used to help buses better navigate difficult intersections or make left turns. A variation of a queue jump lane is a queue bypass lane where a bus would access a right-turn or short bus-only lane and go through an intersection into a far side stop.

**Transit Stop Consolidation:** The number of stops (or stations) and their location is a significant factor in transit travel time and can contribute to undue general vehicular delay as well. As routes are restructured or studied in detail, transit stop location and spacing should be carefully considered. Strategic relocation and consolidation of stops, where practical, can dramatically improve operational efficiency, reduce traffic delays for all traffic, and result in only limited negative impacts on transit patrons. The principal impact on patrons when stops are consolidated is the potential for people's walk to transit to increase.

Along future high-capacity routes, stops should be spaced at a frequency not less than a quarter- to half-mile. Along local routes, stop spacing of approximately a quarter to third of a mile is ideal. There is a direct relationship between access and operating speed. Lines with fewer stops have less delay from passenger boardings.

**Bus Bulb-outs:** Where appropriate, bulb-outs should be provided in locations with on-street parking or wide curb lane conditions. By extending the curb out to the travel lane, the bus is able to stop where it can easily return to its route and passengers are able to more easily and safely board and alight. Stopping in the travel lane can have an impact on traffic delay, but helps reduce bus stop dwell time, provides a more comfortable waiting experience for passengers, and reduces conflicts between waiting passengers and passing pedestrians. Often, where buses are required to pull to the curb to stop, the presence of on-street parking or concern by a bus driver of getting trapped by traffic at a stop prevents the bus from pulling full against a curb. The result of this is typically the back of the bus blocking a travel lane. This often has a cascading series of impacts such as erratic lane changes by passing vehicles (causing sideswipe crashes), queuing of following vehicles (delay), and uncertainty in bus movement for cyclists. In many cases, the service and experiential improvements created by the bus bulb outweigh the concerns about traffic delay.

**Pre-Payment of Bus Fares:** Prepayment of fares can significantly decrease passenger loading time. Persons who have paid in advance can enter through any door, and special vehicles with multiple doors can be used to reduce the amount of time it takes passengers to board and alight. In some cities, such as San Francisco, San Diego, Budapest, and Curitiba, Brazil, in order to stand on the platform, passengers must have proof of payment. Riders must either purchase tickets as they enter a station or hold a proof-of-payment stub that must be surrendered to fare-enforcement officials upon request. In many European cities, riders are required to purchase their transit ticket before boarding a bus, and then can validate it at a ticket validation machine once on board, allowing the bus to begin moving before fares have even been validated. Pre-payment of bus fares has no negative impact on the overall transportation network, but it may require travelers to become familiar with a new payment system and where it is in use and where it is not in use.
FIGURE T.7: PLANNED MAJOR TRANSIT NETWORK

Legend
- Quadrant Boundary
- Ward Boundary
- Water
- Park
- Existing Infrastructure
  - Metrorail Station
  - Metrorail Line
- moveDC Plan Elements (Future)
  - Metrorail Line
  - High-Capacity Transit
  - Streetcar (22-Mile System)
  - Streetcar Extension
  - Street
  - Water Transit
  - Metrorail Station
  - Union Station Improvements
FIGURE T.8: PLANNED HIGH-FREQUENCY LOCAL AND REGIONAL BUS CORRIDORS
The moveDC transit network for the Downtown planning area includes:

- Support for
  - MARC and VRE for commuter rail service expansion
  - Union Station enhancements
  - WMATA in implementation of its Momentum Plan
  - WMATA in implementing a new Potomac River Metrorail tunnel between Rosslyn & Georgetown and a new downtown Metrorail loop that separates the Orange/Blue lines and the Yellow/Green lines

- Streetcar
  - Southeast-Southwest Line (Anacostia - M Street - Maine Avenue - Southwest Waterfront)
  - North-South Corridor connecting Buzzard Point and Takoma/Silver Spring, MD
  - One City Line (east-west) along K Street NW and H Street NW/NE connecting Georgetown and Benning Road via Union Station

- High-Capacity Transit
  - 16th Street connecting downtown and Silver Spring (dedicated space)
  - Maine Avenue SW/M Street SW/SE connecting the 14th Street Bridge and Navy Yard (dedicated space and shared lanes)
  - North Capitol Street connecting NoMa and Stronghold/McMillan (dedicated space)
  - Calvert Street NW/U Street NW/Florida Avenue NW/NE/8th Street NE/SE connecting Woodley Park to Navy Yard (shared lanes)
  - Dedicated bus lanes on H Street NW & I Street NW
  - Transit connection in dedicated lanes across the Potomac River along the planned Long Bridge as rail with a potential trail connection
  - Water transit service within the District and between DC and neighboring jurisdictions with stops in Georgetown, Southwest Waterfront, and Navy Yard

- High-Frequency Local and Regional Bus Corridor
  - 14th Street NW connecting downtown and Columbia Heights
  - Columbia Road NW connecting Dupont Circle, Adams Morgan, and Petworth
  - Connecticut Avenue NW connecting Dupont Circle and Friendship Heights

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FIGURE T.10: EASTERN PLANNING AREA TRANSIT NETWORK

The moveDC transit network for the Eastern planning area includes:

- Support for WMATA in implementation of its Momentum Plan
  - Streetcar
    - One City Line (east-west) along K Street NW and H Street NW/NE connecting Georgetown and Benning Road via Union Station
- High-Capacity Transit
  - Calvert Street NW/U Street NW/Florida Avenue NW/NE/8th Street NE/SE connecting Woodley Park to Navy Yard (shared lanes)
  - Minnesota Avenue NE connecting Benning and Anacostia
  - North Capitol Street connecting NoMa and Stonghold/McMillan (dedicated space)
  - Pennsylvania Avenue SE connecting Capitol Hill and Skyland
- High-Frequency Local and Regional Bus Corridor
  - Alabama Avenue SE/Benning Road SE/4th Street NE connecting Congress Heights and Deanwood
  - Bladensburg Road NE/15th Street NE/SE connecting Anacostia, Navy Yard, and Mt. Ranier/Colmar Manor, MD
  - East Capitol Street extending transit from Benning to Capitol Heights, MD
FIGURE T.11: NORTHERN PLANNING AREA TRANSIT NETWORK

The moveDC transit network for the Northern planning area includes:

- **Support for**
  - WMATA in implementation of its Momentum Plan
- **Streetcar**
  - North-South Corridor connecting Buzzard Point and Takoma/Silver Spring, MD
- **High-Capacity Transit**
  - 16th Street NW connecting downtown and Silver Spring (dedicated space)
  - North Capitol Street connecting NoMa and Stonghold/McMillan (dedicated space)
  - Calvert Street NW/U Street NW/Florida Avenue NW/NE/8th Street NE/SE connecting Woodley Park to Navy Yard (shared lanes)
  - Van Ness Street NW/Park Drive NW/Michigan Avenue NW/NE connecting Michigan Park/ Brookland and Tenleytown via Mount Pleasant/Columbia Heights
- **High-Frequency Local and Regional Bus Corridor**
  - 14th Street NW connecting downtown and Columbia Heights
  - Cleveland Avenue NW/Cleveland Avenue NW/Columbia Road NW connecting Columbia Heights and Glover Park
  - Columbia Road NW/Kansas Avenue NW connecting Dupont Circle, Adams Morgan, and Petworth
  - Military Road NW/Missouri Avenue NW/South Dakota Avenue NE connecting Friendship Heights and Fort Totten
FIGURE T.12: SOUTHERN PLANNING AREA TRANSIT NETWORK
The moveDC transit network for the Northern planning area includes:

- Support for
  - WMATA in implementation of its Momentum Plan
  - WMATA in implementing a new Potomac River Metrorail tunnel between Rosslyn & Georgetown and a new downtown Metrorail loop that separates the Orange/Blue lines and the Yellow/Green lines
- Streetcar
  - Anacostia Initial Line – M Street SE connecting Southwest Waterfront and Anacostia
  - Anacostia Line extension to Congress Heights via Martin Luther King Jr. Avenue SE and Wheeler Road SE
  - North-South Corridor connecting Buzzard Point and Takoma/Silver Spring, MD
- High-Capacity Transit
  - Minnesota Avenue NE connecting Benning and Anacostia
  - South Capitol Street connecting Southwest Waterfront/Navy Yard and National Harbor, MD
  - Pennsylvania Avenue SE connecting Capitol Hill and Skyland
- Water transit service within the District and between DC and neighboring jurisdictions; stops in Southwest Waterfront and Navy Yard
- High-Frequency Local and Regional Bus Corridor
  - Alabama Avenue SE/Benning Road SE/4th Street NE connecting Congress Heights and Deanwood
  - Bladensburg Road NE/15th Street SE/NE connecting Anacostia, Navy Yard, and Mt. Ranier/Colmar Manor, MD
  - Naylor Road SE connecting Skyland and Green Line Metrorail stations (Southern Avenue and Naylor Road)
FIGURE T.13: WESTERN PLANNING AREA TRANSIT NETWORK

The moveDC transit network for the Western planning area includes:

- Support for
  - WMATA in implementation of its Momentum Plan
  - WMATA in implementing a new Potomac River Metrorail tunnel between Rosslyn & Georgetown and a new downtown Metrorail loop that separates the Orange/Blue lines and the Yellow/Green lines

- Streetcar
  - One City Line (east-west) along K Street NW and H Street NE connecting Georgetown and Benning Road via Union Station

- High-capacity transit
  - Calvert Street NW/U Street NW/Florida Avenue NW/NE/8th Street NE/SE connecting Woodley Park to Navy Yard (shared lanes)
  - Van Ness Street NW/Park Drive NW/Michigan Avenue NE/NW connecting Michigan Park/Brookland and Tenleytown via Mount Pleasant/Columbia Heights
  - Wisconsin Avenue connecting Georgetown and Tenleytown

- Water transit service within the District and between DC and neighboring jurisdictions; stop in Georgetown

- High-Frequency Local and Regional Bus Corridor
  - MacArthur Boulevard NW connecting Georgetown and Sibley Memorial Hospital
  - Cleveland Avenue NW/Cleveland Avenue NW/Columbia Road NW connecting Columbia Heights and Glover Park
  - Connecticut Avenue NW connecting Dupont Circle and Friendship Heights
  - Military Road NW/Missouri Avenue NW/South Dakota Avenue NE connecting Friendship Heights and Fort Totten

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Legend

**Existing Infrastructure**
- Metrorail Station
- Metrorail Line
- Railroad
- Commuter Rail
- Road

**Existing Bus Service**
- DC Circulator
- Metrorobs

**moveDC Plan Elements (Future)**
- Metrorail Station
- Metrorail Line
- High-Capacity Transit
- Streetcar
- High Frequency Local & Regional Bus Corridor
- Water Transit
- Street
- Union Station Improvements

**Ward Boundary**
- Central Employment Area
- Land Use Change Area
- Mixed Use or Neighborhood Center
- Multi-Neighborhood or Regional Center
FIGURE T.14: PLANNED HIGH-CAPACITY SURFACE TRANSIT NETWORK (RUNNINGWAY CONFIGURATION)

A runningway is the configuration of the transit line. Runningways can either be shared, where transit operates in the same lanes as all vehicles, or dedicated, where transit operates in its own space. This figure shows the potential runningway configuration for streetcar and high-capacity transit lines.

Legend

- Quadrant Boundary
- Ward Boundary
- Water
- Park

**Existing Infrastructure**
- Metrorail Station
- Metrorail Line
- Commuter Rail Station
- Commuter Rail

**moveDC Plan Elements (Future)**
- High-Capacity Surface Transit (Shared Lanes)
- High-Capacity Surface Transit (Dedicated Space)
- Street
- Union Station Improvements

**Legend**

- **Quadrant Boundary**
- **Ward Boundary**
- **Water**
- **Park**

**Existing Infrastructure**
- **Metrorail Station**
- **Metrorail Line**
- **Commuter Rail Station**
- **Commuter Rail**

**moveDC Plan Elements (Future)**
- **High-Capacity Surface Transit (Shared Lanes)**
- **High-Capacity Surface Transit (Dedicated Space)**
- **Street**
- **Union Station Improvements**
Recommendation A.4 – Increase transit speeds and reliability systemwide.
For transit to be a reasonable choice, it must offer reliable and reasonable travel times. Transit travel time may be greater than a comparable driving trip; however, offering reliable travel time for each and every trip is often the difference for people to choose transit over driving. DDOT should strategically implement infrastructure and operational enhancements to improve service reliability related to travel speed and delay. In keeping with industry best practices, DDOT should work with the region’s transit operators to establish a goal of 85 percent of all transit trips operating on schedule.

Recommendation A.5 – Maintain the District’s transit system at a state of good repair to maximize reliability.
The District’s transit system and its facilities should be maintained at a state of good repair. Maintaining transit facilities (storage, maintenance, shelters, runningways, and vehicles) in this manner will improve system reliability, safety, and availability. WMATA and other regional transit operators also should work to achieve a state of good repair for transit system assets.

Recommendation A.6 – Invest in Metrorail core capacity and long-term expansion
The mid- and long-term capacity issues on the Metrorail system require long-term investment approaches. DDOT should begin working with WMATA and regional partners to invest in mid-term capacity improvements outlined in WMATA’s Momentum 2025 plans, as well as long-term capacity improvements outlined in WMATA’s Regional Transportation System Plan process, including a new Potomac River Metrorail tunnel and a new downtown Metrorail loop separating the Orange/Blue lines and the Green/Yellow Lines (Figure T.15). DDOT will not be able to implement this recommendation alone, but can have a key role in planning and identifying funding approaches from public and potentially private partners.

Recommendation A.7 – Invest in Metrorail station access improvements
DDOT should look for opportunities to improve access to existing Metrorail stations. This could include new station entrances or access points as well as improved pedestrian or bicycle facilities connecting to Metrorail stations. Opportunities for new station access points could come through private development projects or through public investments in access improvements. Stations with high volumes of riders with limited access or stations where new access points would improve the accessibility of a station as shown in Figure T.2 should be priorities.

Recommendation A.8 – Enhance commuter transit, including rail, bus, and water taxi.
Commuter rail and bus are critical elements of the major regional transit network. moveDC expects that the region’s commuter rail system will continue to be operated by VRE and MARC and that commuter buses will be operated by a number of different companies based on market demand.

Coordination of service between VRE, MARC, Amtrak, and freight railroads will be needed to alleviate mid-day train storage issues at Union Station, create the opportunity for run-through (between MD and VA) service, and create the opportunity for off-peak direction (during peak periods) and off-peak period service. DDOT’s current study of Long Bridge is a prime opportunity to help increase capacity and improve operations for VRE.

Likewise, coordination among commuter bus operators and the District will be important to ensuring that adequate storage and staging are accommodated with minimal negative impacts on transit patrons, operators, and the District. This means identifying long-term commuter bus volumes and schedules, and coordinating between the operators and DDOT to use curbspace efficiently while balancing all the other demands also served by the same curbs.

The two existing water taxi operations that serve D.C. offer a starting point to expand waterborne transit; options for additional routes and/or expanded schedules should be investigated.
B. MORE TRANSIT-SUPPORTIVE POLICIES

Recommendation B.1 – Provide go anywhere, all day transit.

The District’s transit network should allow residents, workers, and visitors the ability to travel anywhere in the District by transit in a convenient and reliable manner. By expanding and upgrading the District’s public transport network over the next 30 years, the system will provide excellent accessibility throughout much of the city, not just downtown. With this degree of accessibility, users will be able to use the transit system as much as they would use their car and be able to go anywhere in the District. For most places, this means at least 18 hours of service in a day. On some key corridors, where demand would warrant, it means around-the-clock service.
**Recommendation B.2 – Establish minimum performance metrics for evaluating dedicated transitways.**

DDOT should adopt minimum performance metrics for evaluating the creation of dedicated lanes for transit. Future conversion of shared travel lanes to dedicated transitways should be based on the transit ridership on a corridor compared to the delay of transit vehicles due to mixed traffic. In general, when the number of people riding transit along a corridor is equal to the number in vehicles in a general traffic lane, a lane should be converted to exclusive transit use, or examined for such conversion where it is clear that significant trade-offs may be untenable or difficult to manage. According to research from the Transit Cooperative Research Program, “Generally, at least 25 buses should use the lanes during the peak hour. (Ideally, there should be at least one bus per signal cycle to give buses a steady presence in the bus lane).”

**Recommendation B.3 – Connect different modes to each other and across jurisdictional boundaries.**

DDOT should work internally and with its regional partners to ensure that projects connecting across the District boundary align with adjoining jurisdictions’ plans. Investments in the transportation system in larger parts of the region should support the capacity and functionality of the District of Columbia’s transportation system. Non-motorized and transit modes should be prioritized in support of the overall moveDC Plan, though roadway improvement projects should also be coordinated.

The moveDC Plan recommends high-capacity surface rapid transit compatible and/or coordinated with the following regional initiatives:

- Long Bridge high-capacity transit line and Arlington County’s planned Columbia Pike and Crystal City-Potomac Yard transitways
- Wisconsin Avenue NW high-capacity transit line and Montgomery County’s MD 355 South (Wisconsin Ave) bus rapid transit line
- Tenleytown-Brookland high-capacity transit line and Montgomery County’s MD 355 South (Wisconsin Ave) bus rapid transit line
- 16th Street NW high-capacity transit line and Montgomery County’s Georgia Avenue bus rapid transit line and the Purple Line
- North-South D.C. Streetcar line and Montgomery County’s Georgia Avenue bus rapid transit line and the Purple Line
- Rhode Island Avenue NE high-capacity transit line and Prince George’s County’s Bladensburg-Takoma-Langley Park transitway
- Pennsylvania Avenue SE high-capacity transit line and Prince George’s County’s Pennsylvania Avenue transitway
- South Capitol Street high-capacity transit line and Prince George’s County’s National Harbor transitway

Using the same approach, all transit stations should be opportunities for multimodal connections, with walking and biking serving as easy starts or finishes of any transit trip.

**Recommendation B.4 – Continue to support agency partners in implementing various plans that serve District needs and support District goals.**

This recommendation highlights the desire and necessity for DDOT to collaborate with partner agencies to deliver seamless transit service for residents, workers, and visitors traveling to, from and within the District. Such activities include:

- Support for WMATA’s Momentum Plan
- Support to WMATA in implementing parts of the Regional Transit System Plan including the new Potomac River Metrorail tunnel and a new downtown Metrorail loop separating the Orange/Blue lines and the Yellow/Green lines
- Support to VRE and MARC as they expand service
- Support enhancements to Union Station and L’Enfant Plaza

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5 TCRP Synthesis 83, Bus and Rail Transit Preferential Treatments in Mixed Traffic, Federal Transit Administration, 2010
Recommendation B.5 – Emphasize cooperation among the region’s planners and operators.

As the District changes, transit service must evolve to meet shifting needs. Led by DDOT, more proactive service planning among jurisdictional partners—not just operators—will help to improve coordination among modes as well. Such coordination can help to improve the transfer experience and also to improve other types of feeder services beyond the transit system. Improving pedestrian and bike access to transit can not only improve connectivity to the transit network, but also can enhance safety, comfort, and attractiveness of the system. Changes that are championed and supported by DDOT and WMATA may have a stronger chance of implementation.

In the future, it is likely that transit services in the District will continue to be operated by many different agencies and private companies. Deliberate and purposeful cooperation and coordination will be needed to ensure the delivery of efficient and effective services.

The District should take a leadership role in increasing partnerships among the area’s transit operators. This partnership could be used to develop a defined family of services around which future planning and implementation efforts are focused. It also could be used to conduct planning for services on an area-wide basis (Districtwide or sub-area) to achieve the most effective use of each service in the family of services. Last, the partnership could help in the pursuit of joint and cross-jurisdiction beneficial initiatives in high-capacity surface transit (streetcar, bus rapid transit, light rail, and rapid bus), Metrorail, and commuter rail, so that all services support each other, maximizing the efficiency of each individual element.

Recommendation B.6 – Implement standards for frequency and span by transit function.

Many systems establish a cascading set of service frequencies (how often each route runs) and span of service (how early and late, and which days each route runs), according to how
Transit various service types complement the overall transit system. There are many ways to organize a service framework and it must be customized to suit the needs of those traveling within the system or network. DDOT should work with the region’s transit operators to establish consistent frequencies and spans for different service functions. An example service framework from San Francisco’s MTA is shown in Table T.3.

The starting point should be the region’s core routes and services operating in downtown, such as Circulator, streetcar, and high frequency bus lines. Services operating in the core and Downtown should operate at least 18 hours a day, 7 days a week at 15-minute or better (shorter duration) frequencies. A span and frequency of service such as this would offer most people service when they need it without the need for a schedule. A minimum service frequency of 15 minutes also is recommended for high-capacity surface transit (HCT) in off-peak periods. During peak periods, HCT service is recommended to operate with greater frequency.

Some parts of the District are unlikely to support fixed-route transit service due to their density, land use mix, and street network density. In many of these areas, people would still benefit from reliable transit services; however, the services may need to be destination-specific and/or responsive to demand. Service standards should help identify where demand

<table>
<thead>
<tr>
<th>Table T.3: Example of SFMTA’s Systemwide Service Framework</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Purpose</strong></td>
</tr>
<tr>
<td>Rapid/High Capacity Transit</td>
</tr>
<tr>
<td>Local Network</td>
</tr>
<tr>
<td>Community &amp; specialized/paratransit services</td>
</tr>
<tr>
<td>Targeted services</td>
</tr>
</tbody>
</table>

San Francisco established a maximum headway/minimum frequency of scheduled service, noting that basic services would be available to those in the coverage area at no more than 30 minute intervals.

In Southern California, Los Angeles County Metropolitan Transit Authority (LACMTA) branded a network where service operates at least every 12 minutes with a “12-minute map.” Whatever the direction, it should be clearly understood and communicated to customers so that there is a reasonable expectation of accessibility and quality service.

DDOT should provide an appropriate level of transit service to lower demand areas through point or route deviation transit services. Point and route deviation services generally operate along a route and have a range of allowable deviation to enable them to more directly pick-up or drop-off passengers based on demand.
With this type of service, operators may define zones and average or maximum distances for deviation from the route based on travel times and distance to/from established fixed route services. Generally, system operators tend to examine moving fixed route services to flexible services where route productivity falls below 30 to 50 passengers per hour. Flexible services generally operate in the range of 5 to 20 passengers per hour. Flexible services can be delivered directly by a single operator, through partnership between operators or through cooperation among public and private entities.

C. ENCOURAGE TRANSIT USE AND EFFECTIVENESS THROUGH EDUCATION, PROMOTION, AND ENFORCEMENT

Recommendation C.1 – Provide transportation education at all levels.

Making travel decisions can be difficult and uncomfortable, especially for people trying to better understand unfamiliar travel modes and routes. Lack of information should not be a barrier to people’s full use of the transportation system. DDOT should support transportation training to help people learn how to use the different components of the multimodal transportation system.

This may include basic education on navigating the system, but also should include detailed information on access to and availability of subsidies and special services. Other educational materials may include information comparing one mode choice versus another in terms of out-of-pocket cost, impact, convenience, travel time, route, and other benefits. This can help to educate travelers and customers on how best to use the system, as well as to educate them on the impact of their choices. DDOT should coordinate with its governmental and agency partners along with private organizations to facilitate implementation of this recommendation. One primary opportunity is to provide education and encouragement to Federal employees who live outside of the District to commute via the regional rail, bus, and water taxi network.

Recommendation C.2 – Eliminate the transfer penalty between transit modes.

Currently, passengers traveling between Metrorail, Metrobus, and the Circulator must pay the fare for each service when making transfers, which can result in an additional cost of at least $2 per trip during peak hours. Though additional fare payments are reduced by $0.50 when patrons use SmarTrip—WMATA’s electronic fare card—any additional payment is often viewed as a penalty by passengers whose trip simply requires several services.

The District should work with WMATA to remove the additional fare. This would reduce people’s out-of-pocket cost of taking transit and reinforce a message of an integrated transit system to patrons. Removing this barrier between services could help people perceive the system as seamless and coordinated, which have the potential to encourage increased use. To implement this recommendation, DDOT and its partners should consider charging no more than the difference between bus and rail trips, much like the way in which transfers between local and express buses are addressed. Fully eliminating the transfer penalty could cost as much as $85 million per year. This cost has not been factored into the moveDC financial plan at this time, so funding for this would need to be balanced against other priorities in the plan.

Recommendation C.3 – Further reduce the barriers to transit access in low-income neighborhoods.

When people opt to pay less to ride a slower transit service, they are sacrificing their time and ultimately the District’s potential for economic productivity. This is especially prevalent in low-income neighborhoods further outside of downtown where travel times into education and job centers require significantly longer travel times by bus than by train. To further increase transit access, the District should continue to reduce the cost of rail trips starting or ending at stations in low income neighborhoods. Precedent programs to achieve this objective already exist, including the Anacostia Special Bus Fare, where the District funds discounted transfer for WMATA riders transferring from bus to rail using SmarTrip cards at the Anacostia Metro Station, and SmartTrip cards reduced from $5 to $2 and made accessible at local retailers in low income neighborhoods.

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6 Best Practices in Transit Service Planning, prepared for the Florida Department of Transportation Research Center. University of South Florida Center for Urban Transportation Research, March 2009
Recommendation C.4 – No special farecard should be needed to pay for District transportation services (WMATA, Circulator, CaBi, Commuter Rail, carshare, and parking).

Paying for transportation in the District should be simple for everyone, regardless of their transit trip. A passenger on any transit mode should be able to use a bank-issued payment card, credit card, ID card, or mobile phone to pay their fare. This would be a shift from making every traveler use a common fare payment option and require a shift in current technology for most of the District’s existing transportation network.

DDOT is working with other transit agencies in Washington Metropolitan area to test and install the next generation fare collection system for the region. New Electronic Payment Program (NEPP) is an advanced transit fare collection and validation system built on open architecture. The Region will migrate from the current proprietary SmarTrip system to NEPP in the near future.

Recommendation C.5 – Require employers to provide access to pre-tax non-auto transportation benefits.

Across the United States, many municipalities promote pre-payment of transit fares for individual users where bulk purchases (as described in Recommendation C.6) are not economically feasible or where there is not sufficient interest. The most common approach to this is through payroll deductions that are exempt from taxes. The next step is to require employers of a certain size to offer this benefit. A bill requiring employers with 50 or more employees to offer pre-tax payroll deductions for non-auto transportation benefits has been introduced to the D.C. Council.

Recommendation C.6 – Offer transit bulk fare media purchases for organizations.

DDOT should work with the area’s transit operators to offer bulk purchases of transit fare media for organizations. This would allow an individual end user to pay a lower price for transit fares, even beyond any discounts realized by purchasing passes over individual fares. This has the potential to increase employee incentive to use transit as an alternative to driving.

Bulk fare media purchases also provide transit agencies up front funds at a lower marginal cost than individual fares paid on the day of travel.

Bulk fare purchase programs work best with large population bases, including large employers and universities purchasing fares for students. Pricing and management of these bulk fares are typically organized by the service providers and not a local government.

Recommendation C.7 – Brand the family of transit services.

Each part of the family of services should be uniquely branded based on purpose instead of operator. DDOT should work with the region’s transit operators to develop and implement consistent branding based on function within the family of services. Transit services provided by DDOT—Circulator, CaBi, and streetcar—should share a coordinated visual identity (logos, websites, vehicle design, color palettes, and marketing materials) and complementary messaging.

IV. Performance

moveDC’s recommendations are intended to result in a transit network that reaches more people and places at more times of the day. The network is designed to offer people more choice and in some cases, the opportunity to choose a higher-speed transit option. The recommended transit network connects to DC’s neighbors and supports regional transit systems and their planned initiatives. moveDC goals (described in Chapter 1) were used in the evaluation of the transit element’s performance, similar to other elements.

The Districtwide Travel Demand model, the project’s spatial analysis model, and qualitative reviews were used to develop the metrics for each transit element-relevant performance measure. The transit element’s overall performance—by relevant goal category—is summarized below.
FIGURE T.16 — COVERAGE OF THE RECOMMENDED HIGH CAPACITY SURFACE TRANSIT AND METRORAIL NETWORKS WITHIN A 7.5 MINUTE WALK

Legend

Transit Within a 7.5 Minute Walk

High-capacity Transit
- Metrorail and High-capacity Surface Transit
- Metrorail only
- High-capacity Surface Transit only

Bus Service Only
- moveDC High-frequency Bus Corridor and/or D.C. Circulator
- Metrobus
- No Access
### Table T.4: moveDC Transit 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>• A 23% transit mode share is forecasted for all weekday trips that start and end in the District</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>• Increase in non-auto trips has the potential to reduce air and water quality impacts</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>• Results in a 105% increase in weekday peak period transit capacity Districtwide compared to the existing (2013) network</td>
</tr>
<tr>
<td></td>
<td>Improve system reliability</td>
<td>• Not applicable for this element</td>
</tr>
<tr>
<td></td>
<td>Reduce financial barriers to the lowest-income transportation system users</td>
<td>• Reduces barriers to transit in low-income neighborhoods</td>
</tr>
<tr>
<td></td>
<td>Accommodate the movement and management of freight and goods</td>
<td>• Not applicable for this element</td>
</tr>
<tr>
<td></td>
<td>Integrate the District’s transportation system with the region’s transportation network</td>
<td>• Supports WMATA’s Momentum and Regional Transit System Plan as well as VRE’s and MARC’s long-range plans and Union Station enhancements</td>
</tr>
<tr>
<td><strong>Neighborhood Accessibility &amp; Connectivity</strong></td>
<td>Increase the coverage of all modal networks throughout the District</td>
<td>• Provide 22% of the forecast 2040 District population with access to a Metrorail station within a 7.5-minute walk of their residence • Provide 45% of the future population with access to a high-capacity surface transit stop (streetcar or high-capacity transit) within a 7.5-minute walk of their residence</td>
</tr>
<tr>
<td></td>
<td>Increase the number of transportation choices for travel between city neighborhoods</td>
<td>• Increased ability to take transit between neighborhoods</td>
</tr>
<tr>
<td></td>
<td>Increase transportation availability to population centers and jobs, schools, amenities, and services</td>
<td>• New Metrorail, streetcar, or high-capacity transit accessing all eight population centers, six of nine population centers, and 16 out of 20 mixed-use centers (See Figure T.17)</td>
</tr>
<tr>
<td></td>
<td>Increase transportation availability to economically challenged or targeted redevelopment areas</td>
<td>• Create new Metrorail, streetcar, or high-capacity transit accessing 20 out of 33 low-income Census Tracts and 23 out of 26 designated redevelopment areas (See Figure T.17)</td>
</tr>
<tr>
<td>Goal</td>
<td>Metric</td>
<td>Performance</td>
</tr>
<tr>
<td>-------------------------</td>
<td>------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Safety &amp; Security</td>
<td>Improve safety for all users</td>
<td>• Not applicable for this element</td>
</tr>
<tr>
<td></td>
<td>Improve redundancy of transportation networks to handle emergencies</td>
<td>• A 99% increase in weekday peak period transit capacity on designated evacuation routes</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>• Not applicable for this element</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>• Not applicable for this element</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>• A minimum of 22 miles of streetcar and 47 miles of high-capacity transit will require maintenance, appropriate resources and programs should be made available to ensure that assets are appropriately maintained</td>
</tr>
</tbody>
</table>
FIGURE T.17 — MOVEDC TRANSIT ELEMENT ACCESSIBILITY MAP
This figure shows District-designated revitalization districts; population, job, and mixed use centers identified for moveDC planning purposes; and low income areas based on U.S. Census data in the context of moveDC transit network recommendations. This information was used in moveDC Plan performance evaluation.
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 moveDC will be 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 Transit Element infrastructure recommendations in order to get from the present day to the future vision. Additional information on implementation can be found in Chapter 5, Implementation, of the moveDC Plan.

A. USING THIS ELEMENT

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

moveDC does not present specific and final transit system design solutions, nor has moveDC analyzed all of the transit project-level tradeoffs for individual components of the moveDC Plan. The Transit 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 Transit Element in coordination with the overall moveDC Plan will help ensure the Transit Element continues to make sense in the context of changing demands on the system.

B. PROJECT DEVELOPMENT PROCESS

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

The DDOT Environmental 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 in a support role to other agencies or organizations.

D. INFRASTRUCTURE COSTS

The following planning-level costs for identified Transit Element infrastructure recommendations were developed in current year (2014) dollars at a long-range planning level of detail and accuracy:

- DDOT: $3.3 billion
- WMATA: $10.0 billion (D.C. share)

Because of the nature of long range planning, all costs should be reevaluated in future project development activities. Cost by infrastructure recommendation is presented in Tables T.5 through T.8 at the end of this element. With respect to the planning-level cost estimates shown, the following were generally assumed:

- Wherever possible, the cost estimates utilized project-specific costs, including costs from MWCOC’s FY13-19 TIP, the FY14-20 District budget and other project-specific estimates.
- Additional costs for moveDC recommendations were estimated using a generalized unit cost related to project type. The unit costs were derived from existing District project costs.
The District’s financial responsibility to WMATA’s capital projects was taken from WMATA’s draft November 2013 CLRP submission to MWCOG, which included a similar level of investment to that contained in moveDC.

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 GARVEE bonds. Transit program costs, which include operations and some maintenance costs, are estimated to be $5.5 billion for DDOT and $14.0 billion for WMATA (D.C. share). Additional information on programs and costs for programs are presented in Chapter 5, Implementation.

Asset Management
Costs within this area of moveDC include ongoing assessments, maintenance, and repairs of transportation infrastructure. Costs for transit asset management are $0.5 billion for DDOT and $5.2 billion for WMATA (D.C. share) are presented in Chapter 5, Implementation.

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, Implementation, identifies new sources of revenue to help close the cost/revenue gap, an annual gap is likely to remain throughout moveDC’s implementation horizon.

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

1. Fund basic State of Good Repair and maintenance for existing programs
2. Allocate additional resources that accelerate the pace of reaching State of Good Repair for all infrastructure
3. Fund critical transportation infrastructure investments to address deficiencies, safety, or capacity needs

Table T.5: Tier 1 Transit Capital Investments

<table>
<thead>
<tr>
<th>Investment Type</th>
<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>HIGH-CAPACITY TRANSIT (HCT)</td>
<td>16TH STREET NW</td>
<td>SILVER SPRING</td>
<td>DOWNTOWN</td>
<td>6.4</td>
<td>1, 2, 4</td>
<td>LEAD</td>
<td>NO</td>
<td>$159</td>
</tr>
<tr>
<td>STREETCAR</td>
<td>ANACOSTIA STREETCAR EXTENSION</td>
<td>HOWARD RD/FIRTH STERLING</td>
<td>11TH ST BRIDGE</td>
<td>0.7</td>
<td>6, 8</td>
<td>LEAD</td>
<td>YES</td>
<td>$55</td>
</tr>
<tr>
<td>STREETCAR</td>
<td>BENNING RD STREETCAR EXTENSION</td>
<td>OKLAHOMA AVE NE</td>
<td>BENNING ROAD METRORAIL STATION</td>
<td>1.9</td>
<td>5, 7</td>
<td>LEAD</td>
<td>YES</td>
<td>$85</td>
</tr>
<tr>
<td>STREETCAR</td>
<td>M STREET SOUTHEAST/SOUTHWEST</td>
<td>11TH ST BRIDGE</td>
<td>MAINE AVE SW</td>
<td>3.0</td>
<td>6, 8</td>
<td>LEAD</td>
<td>YES</td>
<td>$125</td>
</tr>
<tr>
<td>METRORAIL</td>
<td>NEW DOWNTOWN METRORAIL LINE</td>
<td>GEORGETOWN</td>
<td>SOUTHWEST WATERFRONT</td>
<td>7.6</td>
<td>2, 3, 5, 6</td>
<td>SUPPORT</td>
<td>NO</td>
<td>$7,787</td>
</tr>
<tr>
<td>STREETCAR</td>
<td>NORTH-SOUTH STREETCAR LINE</td>
<td>TAKOMA METRORAIL STATION</td>
<td>BUZZARD POINT</td>
<td>9.2</td>
<td>1, 2, 4, 6</td>
<td>LEAD</td>
<td>YES</td>
<td>$460</td>
</tr>
<tr>
<td>STREETCAR</td>
<td>UNION STATION TO GEORGETOWN STREETCAR</td>
<td>UNION STATION</td>
<td>GEORGETOWN WATERFRONT</td>
<td>3.1</td>
<td>2, 6</td>
<td>LEAD</td>
<td>YES</td>
<td>$155</td>
</tr>
<tr>
<td>HIGH-FREQUENCY BUS</td>
<td>WISCONSIN/CONNECTICUT AVE NW</td>
<td>FRIENDSHIP HEIGHTS</td>
<td>DUPONT CIRCLE</td>
<td>4.6</td>
<td>1, 2, 3</td>
<td>PARTNER</td>
<td>NO</td>
<td>$15</td>
</tr>
</tbody>
</table>
Critical investments in transportation infrastructure have been prioritized in the moveDC Plan, but many will still need to go through the 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.

**F. PRIORITIZATION PROCESS**

moveDC capital improvements were prioritized based on an understanding of community and stakeholder support, existing commitments, and 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 moveDC’s goals. Cost was not a criteria 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 Transit Element are shown by tier in Tables T.5 through T.8 and Figure T.18. In addition to each infrastructure recommendation’s rating (tier), Tables T.5 through T.8 describe limits (from/to), identify potential implementation responsibility, and provide a planning-level cost estimate, where it is possible to do so based on information currently available.

### Table T.6 Tier 2 Transit Capital Investments

<table>
<thead>
<tr>
<th>Investment Type</th>
<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>HIGH-FREQUENCY BUS</td>
<td>BLADENSBURG AVE NE/15TH ST SE/MLK JR. DR SE</td>
<td>ANACOSTIA</td>
<td>BROOKLAND</td>
<td>6.3</td>
<td>5, 6, 8</td>
<td>PARTNER</td>
<td>NO</td>
<td>$18</td>
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<tr>
<td>HIGH-CAPACITY TRANSIT (HCT)</td>
<td>LONG BRIDGE/MAINE AVENUE SW</td>
<td>ARLINGTON</td>
<td>SOUTHWEST WATERFRONT</td>
<td>1.6</td>
<td>2, 6</td>
<td>LEAD</td>
<td>NO</td>
<td>$31</td>
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<tr>
<td>HIGH-CAPACITY TRANSIT (HCT)</td>
<td>MID-CITY/NORTHERN CROSSTOWN HCT</td>
<td>TENLEYTOWN</td>
<td>MICHIGAN PARK</td>
<td>6.8</td>
<td>1, 3, 4, 5</td>
<td>LEAD</td>
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<td>HIGH-FREQUENCY BUS</td>
<td>MILITARY ROAD/MISSOURI AVE NW/S. DAKOTA AVE NE</td>
<td>FORT TOTTEN</td>
<td>FRIENDSHIP HEIGHTS</td>
<td>6.7</td>
<td>3, 4, 5</td>
<td>PARTNER</td>
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<td>$31</td>
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<tr>
<td>STREETCAR</td>
<td>NORTH-SOUTH STREETCAR LINE EXTENSION</td>
<td>TAKOMA METRORAIL STATION</td>
<td>SILVER SPRING</td>
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<td>4</td>
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<td>HIGH-CAPACITY TRANSIT (HCT)</td>
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<td>EASTERN MARKET</td>
<td>SKYLAND</td>
<td>3.2</td>
<td>6, 7, 8</td>
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</tr>
<tr>
<td>Investment Type</td>
<td>Name of Facility</td>
<td>From</td>
<td>To</td>
<td>Length (miles)</td>
<td>Ward(s)</td>
<td>DDOT Role</td>
<td>TIP Project</td>
<td>Cost (Millions)</td>
</tr>
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<td>HIGH-FREQUENCY BUS</td>
<td>14TH ST NW</td>
<td>MCPHERSON SQUARE</td>
<td>COLUMBIA HEIGHTS</td>
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<td>PARTNER</td>
<td>NO</td>
<td>$8</td>
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<td>HIGH-FREQUENCY BUS</td>
<td>ALABAMA AVE SE/ MINNESOTA AVE NE</td>
<td>MINNESOTA AVE METRORAIL</td>
<td>SAINT ELIZABETHS</td>
<td>7.4</td>
<td>7, 8</td>
<td>PARTNER</td>
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<td>STREETCAR</td>
<td>ANACOSTIA SOUTH STREETCAR EXTENSION</td>
<td>SOUTH CAPITOL ST</td>
<td>MARYLAND</td>
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<td>8</td>
<td>LEAD</td>
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<td>HIGH-FREQUENCY BUS</td>
<td>CLEVELAND AVE NW/ CALVERT ST NW/ COLUMBIA RD NW</td>
<td>MCMILLAN</td>
<td>GLOVER PARK</td>
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<td>1, 3</td>
<td>PARTNER</td>
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<tr>
<td>HIGH-FREQUENCY BUS</td>
<td>MACARTHUR BLVD NW/K ST NW</td>
<td>FARRAGUT WEST</td>
<td>PALISADES</td>
<td>5.3</td>
<td>2, 3</td>
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<td>HIGH-CAPACITY TRANSIT (HCT)</td>
<td>MINNESOTA AVE NE/ SE</td>
<td>NAVY YARD</td>
<td>ANACOSTIA</td>
<td>4.0</td>
<td>7, 8</td>
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<td>HIGH-CAPACITY TRANSIT (HCT)</td>
<td>RHODE ISLAND AVE NE</td>
<td>MT. RANIER</td>
<td>BRENTWOOD</td>
<td>1.9</td>
<td>5</td>
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<td>HIGH-CAPACITY TRANSIT (HCT)</td>
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<td>WOODLEY PARK</td>
<td>NAVY YARD</td>
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<td>GEORGETOWN</td>
<td>GEORGETOWN UNIVERSITY</td>
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<td>WISCONSIN AVE NW</td>
<td>TENLEYTOWN</td>
<td>GEORGETOWN</td>
<td>3.4</td>
<td>2, 3</td>
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### Table T.8 Tier 4 Transit Capital Investments

<table>
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<tr>
<th>Investment Type</th>
<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>HIGH-FREQUENCY BUS</td>
<td>ALABAMA AVE SE</td>
<td>CONGRESS HEIGHTS</td>
<td>MARYLAND LINE</td>
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<td>7, 8</td>
<td>PARTNER</td>
<td>NO</td>
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<td>HIGH-FREQUENCY BUS</td>
<td>COLUMBIA ROAD/ GEORGIA AVE NW</td>
<td>DUPONT CIRCLE</td>
<td>PETWORTH</td>
<td>3.3</td>
<td>1, 2, 4</td>
<td>PARTNER</td>
<td>NO</td>
<td>$8</td>
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<tr>
<td>HIGH-FREQUENCY BUS</td>
<td>H &amp; I STREET BUS Lanes</td>
<td>FOGGY BOTTOM</td>
<td>METRO CENTER</td>
<td>1.4</td>
<td>2</td>
<td>PARTNER</td>
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<td>HIGH-CAPACITY TRANSIT (HCT)</td>
<td>NORTH CAPITOL STREET</td>
<td>MCMILLAN</td>
<td>UNION STATION</td>
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<td>HIGH-CAPACITY TRANSIT (HCT)</td>
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<td>NAVY YARD</td>
<td>ST. ELIZABETHS</td>
<td>4.4</td>
<td>6, 8</td>
<td>LEAD</td>
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</tbody>
</table>
FIGURE T.18—TRANSIT INFRASTRUCTURE PRIORITIES

This figure shows transit infrastructure recommendations by tier. The map shows Metrorail, streetcar, high-capacity transit, and high-frequency bus corridors.

Legend

- **Quadrant Boundary**
- **Ward Boundary**
- **Water**
- **Park**

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

**Metrorail Tier**
- **Streetcar Tier**
- **High-Capacity Transit Tier**
- **High-Frequency Bus Corridor Tier**

The map uses different colors to represent each tier and type of infrastructure.